

A TREATISE

ON

THE LAW OF PATENTS

FOR

USEFUL INVENTIONS.

A TREATISE

ON

W. Ticknor CK

THE LAW OF PATENTS

FOR

USEFUL INVENTIONS

IN THE

UNITED STATES OF AMERICA.

SECOND EDITION,

WITH MANY ADDITIONS.

BY

GEORGE TICKNOR CURTIS,

COUNSELLOR AT LAW.

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BOSTON:

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PREFACE TO THE SECOND EDITION.

A LITTLE more than four years has elapsed since the first publication of this work, and a Second Edition is now called for. The English and American decisions, made since the publication of the First Edition, have been incorporated with the notes; and such alterations and additions have been made in the text, as were necessary to adapt it to the advanced state of the Patent Law. I have republished, in the Appendix to this Volume, Mr. Thomas Webster's very able tract on the Subject-Matter of Patents.

I avail myself of this opportunity to express my grateful acknowledgments both to the Bench and the Bar, for the manner in which this work has been received, and for the place that has been assigned to it, among the Treatises on this important branch of jurisprudence.

BOSTON, JANUARY 1st, 1854.

PREFACE TO THE FIRST EDITION.

THE following work, the fruit of careful studies in a department of jurisprudence of great practical importance, is presented to the Profession, not without anxiety as to its reception. This branch of the law is so peculiar, the subjects with which it is concerned are so abstruse, and so much caution is requisite in dealing with its principles and in combining them into a system, that no writer can expect wholly to satisfy the wants of his readers, who does not bring to its treatment a force of intellect and a reputation as a jurist, which entitle him to be regarded in the light of an authority. But it cannot be my hope, as it is not my desire, to escape criticism. Looking upon the law as a science of vast practical consequence to mankind, and desiring to discharge my humble debt to its Profession, I shall gratefully receive, from any competent source, any suggestions of errors or imperfections, in a work designed for practical use.

I have endeavored to walk carefully by the light of adjudged cases; and, although experience has taught me that the Patent Law admits of less reduction to precise rules and axioms than any other branch of jurisprudence, I have endeavored to indicate the true uses of the judgments and opinions of the Courts. The opinions and decisions of judges in patent causes can rarely be treated strictly as precedents, unless they concern the construction of a statute. They are to be regarded as illustrations of the principles of the law, when applied to a particular state of facts; and, consequently, a precise rule is rarely to be eliminated from them, by separation of the principle from the facts to which it has been applied, unless it is certainly one of general or universal application. Correctly regarded, indeed, it is the office of all adjudication to apply the principles of the law, with nice discrimination, to the ever varying circumstances of different states of fact, and not to rely upon former decisions as absolute precedents, where the facts are not certainly the same. But this is peculiarly and eminently true, in the administration of the Patent Law.

BOSTON, MAY 1st, 1849.

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ERRATUM.

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PRELIMINARY OBSERVATIONS.

WRITERS on the Law of Patents for useful inventions have often introduced their discussions of this branch of the law, by tracing the history of monopolies in the Law of England. This example has not been followed in the present work, because it is believed that it tends to encourage incorrect conceptions of the legal nature of a patent privilege. A patent for a useful invention is not, under our law, or the law of England, a grant of a monopoly, in the sense of the old common law. It is the grant by the government, to the author of a new and useful invention, of the exclusive right, for a term of years, of practising that invention. The consideration, for which this grant is made by the public, is, the benefit to society resulting from the invention; which benefit flows from the inventor to the public in two forms; *first*, by the immediate practice of the invention, under the patent; and *secondly*, by the practice of the invention, or the opportunity to practice it, which becomes the property of the public, on the expiration of the patent. As the exercise of the invention is wholly within the control of him who has made it, who may confine his secret entirely within his own breast, it is apparent that his

consent to make it known and available to others, and finally to surrender it to the public, becomes a valuable consideration, for which, upon the principles of natural justice, he is entitled to receive compensation, in some form, from the public to whom that consideration passes. Inventors, in this respect, stand upon the same broad ground with authors. Both of these classes of persons have created something, intellectual in its nature, the knowledge of which it is desirable to others to possess. Both of them have, at first, the complete right of disposition over that which they have created; and when they part with the exclusive possession of this knowledge, and confer upon others the opportunity of reaping the benefit which it confers, they manifestly consent to something for which they are entitled to receive an equivalent.

Whether we regard the knowledge, remaining for the present in the exclusive control of him whose intellectual production it is, as property, or as a possession of ideas, to which some other term might be more appropriate, it is still a possession, of which the owner cannot, by any rule of natural justice, be deprived, without his consent. In this view, it may, as it seems to me, justly be termed property; for although in political economy, and in common speech, material possessions, or the rights growing out of them, are the objects generally included under that term, yet no one will question that ideas constitute, in ethical contemplation, a portion of a man's possessions entirely under his own control; and in the case of useful inventions, or of written thought, there is to be added to the power of control the further economical fact, that other men will part with valuable possessions of all kinds, in order to obtain that invention or writing in exchange.

For these, and for other reasons, which I have endeavored more fully to develop elsewhere, in relation to the rights of authors, I do not hesitate to affirm, that in natural justice — the ethics of jurisprudence, by which civil rights are to be examined, apart from all positive law, but on which positive law is usually founded — the intellectual conception of an inventor, or a writer, constitutes a valuable possession, capable of being appreciated as a consideration, when it passes, by his voluntary grant, into the possession of another. If, by the same voluntary grant, this possession is bestowed upon the public, the logical justice of compensation, in some form, will appear, at once, by supposing the benefit to have been conferred exclusively upon any one of the mass of individuals who form in the aggregate the moral entity termed the public.

Let us suppose that A., by the exertion of his inventive faculties, has ascertained, that by placing matter in certain positions to be operated upon by the forces of nature, a result will be produced, in the shape of an instrument, wholly unknown before, and capable of being usefully applied to the wants of mankind. Let us suppose that B., seeing the result, but wholly ignorant of the process by which it may be attained, desires to possess that instrument. Common gratitude would prompt him to return something valuable for it, if it were given to him; common policy would lead him to offer something for it, if it were not freely given; and common justice requires that he should not take it, without an equivalent. How does it alter the case, if, instead of a single specimen of the instrument, we suppose A. to have retained in his recollection the process by which copies of that instrument may be indefinitely multiplied, and that

it is the secret process of making the thing, the intellectual conception and knowledge, which B. desires to possess? If he obtains it, he can make the thing for his own use, or for the use of others, and by so doing can acquire valuable possessions in exchange; all of which A. could do exclusively, by retaining his own secret. But if he imparts that secret to B., he is surely entitled to receive for it some reward or remuneration.

This secret the inventor undertakes to impart to the public, when he enters into the compact, which the grant of a patent privilege embraces. In that compact, he promises, after the lapse of a certain period, to surrender to the public completely the right of practising his invention; and, as a guaranty against his concealment of the process by which it is to be practised, and to prevent the loss of this knowledge, he is required to deposit in the archives of the government a full and exact description in writing of the whole process, so framed, that others can practise the invention from the description itself. The public, on the other hand, through the agency of the government, in consideration of this undertaking of the inventor, grants and secures to him the exclusive right of practising his invention for a term of years.

In all this, a patent-right, under the modern law of England and America, differs essentially from one of the old English Monopolies. In those grants of the crown, the subject-matter of the exclusive privilege was quite as often a commodity of which the public were and long had been in possession, as it was any thing invented, discovered, or even imported by the patentee.

Nothing passed, in such cases, from the patentee to the public, in the nature of a consideration for the enormous privilege conferred upon him; but the public were

robbed of something already belonging to them, namely, the right to make or deal in a particular commodity, for the benefit of the favored grantee of the crown. So broad is the distinction between these cases and that of the meritorious inventor or importer of something new and useful, that when Parliament, in the 21 James I., taking encouragement from the courts of law, prohibited the granting of exclusive privileges in trade, by the Statute of Monopolies, they introduced an exception in favor of "letters-patent and grants of privilege for the term of one and twenty years or under, heretofore made, of the sole working or making of any manner of new manufacture, within this realm, to the first and true inventor or inventors of such manufactures, which others at the time of the making of such letters-patent and grants, did not use, so they be not contrary to law, nor mischievous to the state, by raising the prices of commodities at home, or hurt to trade, or generally inconvenient," &c.

Upon this exception, the law of England, concerning Patents for Useful Inventions, stands to this day.

The modern doctrine, in England, and undoubtedly the doctrine of our law, is, that in the grant of a patent-right, a contract, or, as it has been said, a bargain, takes place, between the public and the patentee. As far as the old cases on the subject of monopolies furnish, like other cases of grants by the crown, rules and analogies for the construction of this species of grant, so far the history of monopolies has a bearing upon this branch of jurisprudence. But it should always be remembered that in the grant of a patent privilege, as now understood, a contract takes place between the public and the patentee, to be supported upon the ground of mutual considerations, and to be construed, in all its essential

features of a bargain, like other contracts to which there are two parties, each having rights and interests involved in its stipulations.

It is necessary also to have clear and correct notions of the true scope of a patent-right, because its nature and character will show whether there is any close analogy between such privileges and those to which the term monopoly is correctly applied. In this connection, therefore, I shall attempt a brief general description of the subject of protection, in patent-rights ; without, however, designing to lay down definitions, or to draw exact lines, within, or without which controverted cases may fall ; but solely with the purpose of stating certain general principles and truths, the application and development of which may be found to assist, in particular cases, the solution of the question, whether a particular invention or discovery is by law a patentable subject.

In this inquiry it is necessary to commence with the process of exclusion ; for although, in their widest acceptance, the terms invention and discovery include the whole vast variety of objects on which the human intellect may be exercised, so that in poetry, in painting, in music, in astronomy, in metaphysics, and in every department of human thought, men constantly invent or discover, in the highest and the strictest sense, their inventions and discoveries in these departments are not the subjects of the patent law. Another branch of jurisprudence, of a kindred nature, aims at the protection and establishment of property in literary productions, and in some of those which fall within the province of the fine arts. The patent law relates to a great and comprehensive class of discoveries and inventions of some new and useful effect or result in matter, not referable to the

department of the fine arts. The matter of which our globe is composed, is the material upon which the creative and inventive faculties of man are exercised, in the production of whatever ministers to his convenience or his wants. Over the existence of matter itself, he has no control. He can neither create nor destroy a single atom of it; he can only change its form, by placing its particles in new relations, which may cause it to appear as a solid, a fluid, or a gas. But under whatever form it exists, the same matter, in quantity, that was originally created, exists now, and, so far as we now know, will forever continue to exist.

The direct control of man over matter consists, therefore, in placing its particles in new relations. This is all that is actually done, or that can be done — namely, to cause the particles of matter existing, in the universe, to change their former places, by moving them, by muscular power, or some other force. But as soon as they are brought into new relations, it is at once perceived that there are vast latent forces in nature, which come to the aid of man, and enable him to produce effects and results of a wholly new character, far beyond the mere fact of placing the particles in new positions. He moves certain particles of matter into a new juxtaposition, and the chemical agencies and affinities called into action by this new contact, produce a substance possessed of new properties and powers, to which has been given the name of gunpowder. He takes a stalk of flax from the ground, splits it into a great number of filaments, twists them together, and laying numbers of the threads thus formed across each other, forms a cloth, which is held together by the tenacity or force of cohesion in the particles, which nature brings to his aid. He moves into new posi-

tions and relations certain particles of wood and iron, in various forms, and produces a complicated machine, by which he is able to accomplish a certain purpose, only because the properties of cohesion and the force of gravitation cause it to adhere together and enable the different parts to operate upon each other and to transmit the forces applied to them, according to the laws of motion. It is evident, therefore, that the whole of the act of invention, in the department of useful arts, embraces more than the new arrangement of particles of matter in new relations. The purpose of such new arrangements is to produce some new effect or result, by calling into activity some latent law, or force, or property, by means of which in a new application, the new effect or result may be accomplished. In every form in which matter is used, in every production of the ingenuity of man, he relies upon the laws of nature and the properties of matter, and seeks for new effects and results through their agency and aid. Merely inert matter alone is not the sole material with which he works. Nature supplies powers, and forces, and active properties, as well as the particles of matter, and these powers, forces, and properties are constantly the subjects of study, inquiry, and experiment, with a view to the production of some new effect or result in matter.

Any definition or description, therefore, of the act of invention, which excludes the application of the natural law, or power, or property of matter, on which the inventor has relied for the production of a new effect, and the object of such application, and confines it to the precise arrangement of the particles of matter which he may have brought together, must be erroneous. Let us suppose the invention, for the first time, of a steam-engine,

in one of its simplest forms, the use of steam as a motive power having never been discovered before. Besides all the other powers of nature, of which the inventor avails himself almost without thought, by which the different parts of his machine are held together and enabled to transmit the forces applied to them, he has discovered and purposely applied the expansive power of steam, as the means of generating a force that sets his machine in motion. All that he actually does with the matter in which this expansive power resides, is to turn certain particles of matter into certain particles of vapor, and to bring that vapor in contact with an obstructing mass of matter, to which it communicates motion, by pushing it from its place. But the invention consists in observing and applying this natural power, the expansive force of steam, to produce the effect or result of moving the obstructing mass of matter from the place where it was at rest. It would be singularly incorrect and illogical to say, that a man who should take a certain other quantity of matter, and convert it into a certain other quantity of steam, and bring that steam in contact with a certain other obstructing mass of wood or iron, for the purpose of moving it, would not produce the same effect by the same means, as the person who first discovered and applied the expansive power of steam to move a piece of wood or iron.

Again, let us take the case of an improvement in the art of manufacturing iron, which consisted in the discovery that a blast of air introduced into a smelting furnace in a heated state, produces an entirely different effect on the iron manufactured from the ore, to that produced by blowing the furnace with cold air. What the inventor did, in this case, was, to introduce a certain amount of

caloric into the blast of air, on its passage from the blowing apparatus into the furnace, thereby creating a blast of a new character, productive of a new effect; and any other person who should introduce caloric into a certain other quantity of atmospheric air, and use that air, so heated, to blow a smelting furnace, would do precisely the same thing. The invention consisted in the discovery and application of the law or fact, that heated air produces a different effect from cold air, in a particular art; and in thereby accomplishing a new result in that art.

In these and in all other cases, there is a particular arrangement of matter, which consists in the new relations and positions in which its particles are placed. But beyond this, there is also the effect or result, produced by the action of the forces of nature, which are for the first time developed and applied, by the new arrangement of the matter in which they reside. The use and adaptation of these forces is the direct purpose of the inventor; it is as new as the novel arrangement in the particles of matter; and it is far more important. In fact, it is the essence and substance of the invention; for if no new effect or result, through the operation of the forces of nature, followed the act of placing portions of matter in new positions, inventions would consist solely in new arrangements of particles of inert matter, productive of no new consequences beyond the fact of such new position of the particles.

However inadequate, therefore, the term may be, to express what it is used to convey, it is obvious that there is a characteristic, an essence, or purpose of every invention, which, in our law, has been termed by jurists its *principle*; and that this can ordinarily be perceived and apprehended by the mind, in cases where the purpose

and object of the invention does not begin and end in form alone, only by observing the powers or qualities of matter, or the laws of physics, developed and put in action by that arrangement of matter, and the effect or result produced by their application. Even in cases where the subject of the invention consists in form alone, the principle or characteristic of the invention is the result produced by the aid and through the action of the qualities of matter. As, for instance, to take the simplest case, if I make a round ball, for the first time, of clay, or stone, or wood, I do so by putting the particles of matter in those relations and positions, in which, through the attraction of cohesion which holds them together, the result of spherical form will be produced: and this result, so produced, is the essence or principle of the invention. In the case of inventions which are independent of form, we arrive at the principle of the invention in the same way. As, if I, for the first time, direct a column of steam against a piece of wood or iron, for the purpose of producing motion, the characteristic or principle of my invention consists in the use and application of the expansive force of steam and the effect of motion thereby produced; and these remain logically the same, whether the form and size of the wood or iron, and the form or size of the column of steam are the same as mine, or different.

It is apparent, then, that the mere novel arrangement of matter, irrespective of the purpose and effect accomplished by such arrangement through the agency of natural forces or laws, or the properties of matter, is not the whole of invention; but that the purpose, effect, or result, and the application of the law, force, or property by means of which it is produced, are embraced in the

complex idea of invention, and give the subject of the invention its peculiar character or essence. And if this is true it is easy — and correct as it is easy — to advance to the position that the discovery and application of a new force or law of nature, as a means of producing an effect or result in matter never before produced, may, in some cases be the subject of a patentable invention. When it has been laid down that a “principle” — meaning by this use of the term, a law of nature, or a general property of matter, or rule of abstract science — cannot be the subject of a patent, the doctrine, rightly understood, asserts only that a law, property, or rule cannot, in the abstract, be appropriated by any man; but if an inventor or discoverer for the first time produces an effect or result, practically, by the application of a law, he may so far appropriate that law, as to be entitled to say, that whoever applies the same law to produce the same effect or result, however the means, apparatus, forms, or arrangements of matter may be varied, practises or makes use of his invention, unless the variation of means, apparatus, method, form, or arrangement of matter, introduces some new law, or creates some new characteristic, which produces or constitutes a substantially different result. For, in all such cases, the peculiarity of the invention consists in the effect produced by the application of the natural law, as an agent; and this effect is not changed by the use of different vehicles, for the action of the agent provided there is still the same agent, operating substantially in the same way, to produce substantially the same effect or result.

This may be illustrated by several inventions or discoveries, for which patents have been granted and which have been the subjects of litigation. One of the most

striking of these cases is that already mentioned, of the application of a hot air blast to the production of a particular effect in the manufacture of iron. It is very easy to say, in general terms, that no man can appropriate to himself the use of caloric, which is a substance, or element, or force in nature, bountifully supplied, as the common property of mankind. But if any man has discovered that the use of caloric in a particular manner, never before observed, will, as a universal fact, produce a particular effect, of a new character, upon matter, what reason can exist why he should not appropriate to himself the production of that effect by the use of that particular agent? His appropriation, in such a case, would embrace strictly what he has invented. It may be more or less meritorious; it may have been more or less difficult or easy of discovery; it is still his invention, and any one else who does the same thing after the inventor, however he may vary the particular means or apparatus, practises that invention which the inventor was the first to discover and announce to the world. If the Patent Law were to say, in this case, that the invention or discovery could not be appropriated by him who had made it, because caloric is the common property of all men, it would be obliged, in consistency, to say that a certain arrangement of wood and iron, constituting a new machine, could not be appropriated by the inventor, because cohesion, gravitation, and the laws of motion, which are all applied by the inventor to the accomplishing a certain effect, are the common property of every man. But the patent law does not come to such determinations. It proceeds upon the truth, that while the properties of matter, the forces or elements of nature are common property, any man who applies them to the production

of a new and useful effect in matter, may rightfully claim to have been the inventor of that application to the purpose of that effect. The effect itself is what is commonly regarded as the patentable subject; but as that particular effect must always be produced by the application of the same properties of matter, or the same forces or elements in nature, it is correct to say that the appropriation rightfully includes their application to the production of the effect, and that to this extent they may be appropriated.

Inventions which consist in the application of the known qualities of substances, extend the appropriation of the inventor to those qualities in the same manner and in the same sense. For instance, in the case of Walton's improvement in the manufacture of cards for carding wool, &c., which consisted in giving elasticity and flexibility to the backs of the cards, by making the sheet on the back, in which the teeth are inserted, of India rubber, instead of leather. The qualities of elasticity and flexibility in India rubber were common property; but this did not prevent the inventor from sustaining a patent, which was held to cover the general ground of giving to the backs of cards elasticity and flexibility derived from India rubber, by whatever form of application of the India rubber the effect might be produced.¹

In the same manner, inventions which consist in the application of a well known law of physical science, involve and admit of the appropriation of that law in its application to the production of the particular effect, however the machinery or apparatus may be varied. There is a known law of physics, that the evaporation of a liquid is promoted by a current of air, and this law is

¹ See *post*, p. 305.

common property. An invention of certain improvements in evaporating sugar consisted in applying this law, by forcing atmospheric air through the liquid syrup, by means of pipes, the ends of which were carried down nearly to the bottom of the vessel containing the solution; and it is obvious that any person who should apply the same law to the same purpose, though by a different apparatus, would practise the same invention.¹ Although, therefore, it is not safe, in reasoning upon the Patent Law, to lay down general rules, of an abstract character, with the purpose of describing what every inventor appropriates to himself, without regard to the particular circumstances of the invention, yet it is, on the other hand, equally unsafe to assume, because the properties of matter, or the laws of physics, or the forces of nature, are common property, that no inventor can establish a claim of a general character, irrespective of particular methods or forms of matter, to the application of such properties, laws, or forces in the production of a certain effect.

It is, in truth, wholly incorrect to say that the inventor, in such cases, because his patent is held to embrace such a general claim, monopolizes the law, property, or quality of matter which he has applied by a particular means to the accomplishment of a certain end. His patent leaves the law, property, or quality of matter, precisely where it found it, as common property, to be used by any one, in the production of a new end, by a new adaptation, of a different character. It appropriates the law, property, or quality of matter, only so far as it is involved in the subject with which, the means by which, and the end for which the inventor has applied it; and this application

¹ *Pest*, p. 307.

constitutes the essence and substance of the invention, in all cases, and is in reality what the patentee has invented. He cannot be deprived of it, without violating the principles on which all property in invention rests, and denying the whole policy of the Patent Law. The test which marks the extent and nature of his just appropriation is the same that is applicable to every invention.

This test may be stated thus; that the truth, law, property, or quality of matter, which, by reason of its application, enters into the essence of an invention, may be appropriated, to the extent of every application, which, according to the principles of law, and the rules of logic, is to be deemed piracy of the original invention.

One of the most well settled as well as soundest doctrines of the Patent Law, is, that where form, arrangement of matter, proportion, method of construction, or apparatus employed, are not of the essence of the invention, any changes introduced in them, which do not effect a change in the characteristic, or purpose of the invention, are changes in immaterial circumstances. When the patent is a patent for form, or particular arrangement, or, for the apparatus devised to accomplish a particular effect, changes in these respects will be changes in the subject-matter of the invention; but in cases where the invention has a characteristic or an aggregate of characteristics, independent of particular form, method, arrangement, or apparatus, changes in these things amount only to the substitution of one equivalent for another, unless they cause a change in the characteristic, essence, or, as it is commonly called, the *principle* of the invention. This is very clearly seen in the case of machinery. The characteristic, or principle of the invention, consists in producing a certain effect by the

application of motion, through a form of apparatus adapted to that result. But if the same effect of the combined operation of the different parts of the mechanism can be produced by substituting a different contrivance, which does not change the characteristic of the machine, but is a mere equivalent for the part for which it is substituted, such a substitution is only a different mode of practising the same invention.

In this sense, all inventions are independent of form, except those whose entire essence, purpose, and characteristics begin and end in form alone; as would be the case with the manufacture of a sphere, or a cube, for the first time; and as is the case with all manufactures, the utility and advantage and proposed object of which depend on form. But where there is a purpose that does not begin and end in form alone, where the form or arrangement of matter is but the means to accomplish a result of a character which remains the same, through a certain range of variations of those means, the invention is independent of form and arrangement, to this extent, that it embraces every application of means which accomplishes the result without changing its nature and character. In other words, it may be stated, as a general proposition, that in the characteristic, or principle of an invention, are embraced the truth, law, property, or quality of matter, which is applied to the production of a result, and the result of such application; and that, by reason of such application, the truth, law, property, or quality of matter is appropriated, to the extent of all other applications which a jury, under the guidance of the law, shall consider as a piracy of the former.

In coming to this result, the Patent Law establishes no monopoly beyond the fair fruits of actual invention. It

protects the real inventor in the enjoyment of what he was the first to produce ; and it recognizes, as substantive inventions, all changes which may be produced in the same line of experiment, or in the same department of labor, which introduce new characteristics, new results, or new advantages, not embraced by the former invention. As long as the Patent Law exists at all, to afford protection to the labors of ingenious men, it must proceed upon this fundamental principle. It is now too late in the history of civilization, to question the policy of this protection, which forms a prominent feature in the domestic polity of every nation which has reached any considerable stage of progress in the arts of civilized life.

It will be seen, in the following pages, how far these views have prevailed in the administration of the Patent Law, in England and America, and to what extent they have been developed, in particular cases. They have led, in the construction of patents in England, to a somewhat different spirit from that which formerly animated the courts of law ; for formerly, the judges exercised their ingenuity to defeat every patent that came before them, if it could by possibility be defeated. This was done upon the notion, that a patent is the grant of a privilege against common right ; and hence some judges were in the habit of saying that they were "not favorers of patents." But within the last twenty years, a different view has been adopted ; the more just and liberal doctrine has been acted upon, that public policy requires the encouragement of the inventive powers of ingenious men, and that this policy is supported by every consideration of justice. The consequence has been, that the Patent Law has made greater advances, in England, within the last twenty years, towards a consistent and

admirable system of justice, than it has ever made before during the whole period that has elapsed since the enactment of the statute of Monopolies.

In America, the more liberal policy has always prevailed, from the time when patent-rights came under the protection of the General Government; and the rule has been often laid down by the courts of the United States with a good deal of strength — as if in obedience to the spirit of the Constitution — that patents ought to be construed liberally. Perhaps the general language which has thus been employed by judges, would lead to the conclusion, that the leaning of the courts is, systematically, in favor of the patentee and against the public; but this tendency has not been exhibited so strongly, in practice, as to derange the administration of the law.

The truth is, a patent should be construed as, what it really is in substance, namely, a contract or bargain between the patentee and the public, upon those points which involve the rights and interests of either party. These points relate to the extent of the claim, and to the intelligibility of the description for the purposes of practice. The first is universally a question for the court; the last is generally a question for the jury, under the direction of the court. As to the first question — the extent of the claim presents at once the relations between the patentee and the public; for it involves, among other things, the inquiry, whether the patentee has claimed any thing beyond what was really his own invention. If, in representing himself as the inventor of the thing for which he has asked and received a patent, the inventor has included in his claim any thing that existed before, he has made a representation untrue in point of fact; and whether he has made this representation intentionally or

unintentionally, the grant of the patent proceeds upon it, and if it is not true, the grant is not supported by an existing consideration, such as the inventor has represented it to be. In determining this question, whether the patentee has really included in his claim something which he did not invent, two things are to be ascertained ; *first*, whether he makes use of any thing not new ; and *second*, whether that thing, according to the fair import of his language, is represented to be a part of the invention which he claims to have made. The fact of whether he makes use of any thing not new, is a question depending upon evidence, if it is not manifest on the face of the description. It is upon the second branch of the inquiry, whether the old thing is really included in the claim of invention, that the true principles of construction have to be applied. Recollecting, on the one hand, that if the public have been misled, the patent ought not to stand, because of the false representation ; and on the other hand, that a construction, which will destroy the patent, ought not to be adopted lightly, it would seem to be the true rule, to construe the patent fairly, and so as to arrive at the just import of the language in which the claim is set forth. But if, after applying this rule, the question remains doubtful whether the claim is not broader than the invention, then the rule should be adopted in favor of the patent, that the patentee is to be presumed to have intended to claim no more than he has actually invented. Every patentee is presumed to know the law, and to know that if he includes in his claim something which he has not invented, his claim is void. Such a claim is a kind of fraud upon the public, with whom the applicant offers to enter into a contract, when he asks for his patent ; and fraud is never to be presumed, but is always

to be proved. The rule, therefore, which presumes, in doubtful cases, that the patentee intended to claim no more than his actual invention, is founded in a maxim of general application to contracts; and it will be seen, in practice, that it has no tendency to support patents which ought not to be supported, or to encourage loose and sweeping claims. In all cases which are not doubtful, — where it is manifest that the claim admits of no construction but that which makes it too comprehensive to be valid, — this rule will have no application. The imposition attempted will be apparent, and the fraud — so far as it is a fraud — will not require to be presumed, but will stand proved.

This rule, although not distinctly announced, by any of our courts, has much to support it, in several authorities. Judges would seem to have had a rule of this kind in view, when they have construed patents under the guidance of the maxim, *ut res magis valeat, quam pereat*. The use of this maxim, which has often furnished the spirit of construction in particular cases, implies that the claim is to be supported, if it can be done without a violation of principle. But the rule has been distinctly applied in England, by the Court of Common Pleas, that the patentee is not to be presumed to have intended to claim things which he must have known to be in common use, although in describing his invention, he has not expressly excluded them from the claim. There are also cases, in this country, where it has been held not to be necessary to use words of exclusion, in reference to details, where it appears from the whole description of the invention that the new is capable of being distinguished from the old.

The same rule, in cases of doubt, should be applied to

the construction, where the question is, whether the patentee has claimed as much as he has invented ; that is to say, the specification should be so construed as to make the claim coextensive with the actual invention, if this can be done consistently with principle.

But beyond this rule, it is not necessary or wise to go, in the construction of patents. By giving the patentee the benefit of this presumption, in cases of doubt, the doubt will be removed, and the patent will remain good for the real invention. But where there is no room for doubt, and no occasion for the application of the rule, but the claim is manifestly broader or narrower than the real invention, there can be no hesitation about the judgment to be pronounced, especially since the provisions of our law, by which a patent may remain valid *pro tanto*, after the real invention of the party has been judicially ascertained.

PART I.

THE SUBJECT-MATTER OF PATENTS,

AND THE

PARTIES ENTITLED THERETO.

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CHAPTER I.

NOVELTY AND UTILITY.

§ 1. THE Patent Act now in force in this country requires that the subject of every patent should be “new and useful,” whether it be an art, machine, manufacture, or composition of matter, or an improvement on any of these things.¹ The inquiry that meets us on the threshold is, what constitutes novelty, and what constitutes utility, in the sense of the statute?

§ 2. It is one of the first principles of patent law, that a patent cannot be obtained for a mere philosophical or abstract theory, be the subject what it may: it can only be for theory reduced to practice. If, therefore, the subject of the patent be an art, it must be an art actually put in practice and unknown before;—if it be a machine, it must be substantially new in its structure and mode of operation, and not merely changed in form or in the proportion of its parts:²—if it be a manufacture, or composition of matter, it must be something

¹ Act of July 4, 1836, c. 357, § 6.

² *Lowell v. Lewis*, 1 Mason's R. 182, 187; *Wyeth v. Stone*, 1 Story's R. 273, 279.

actually made and substantially different from any thing the making of which was before known.¹

§ 3. In machinery, it is not necessary, in order to defeat a patent, that a machine should have existed in every respect similar to that patented; for a mere change of former proportions will not support a patent. If a patent is claimed for a whole machine, it must in substance be a new machine; that is, it must be a new mode, method, or application of mechanism, to produce some new effect, or to produce an old effect in a new way.² In cases of difficulty, where the machinery is complicated, and many of the elements employed are powers and instruments of motion long known, the test, which is to determine the boundaries between what was known and used before, and what is new, is, to observe what is new in the mode of operation. If the principles of a machine, that is, the peculiar device or manner of producing the given effect, be new, although the effect itself be old, a patent may be claimed for the machine.³

§ 4. On the other hand, the mere purpose, or effect of a machine, however novel, can furnish no ground for a valid patent, unless the machine itself, the instrument by which the purpose is effected, is substantially new. The application of what is old to a new purpose is not patentable.⁴

§ 5. It is necessary, however, to consider somewhat in detail what amount of invention is essential to support a patent.

¹ Ryan *v.* Goodwin, 3 Sumner's R. 518.

² Woodcock *v.* Parker, 1 Gallison's R. 438, 440; Whitmore *v.* Cutter, *Ibid.* 480. If new effects are produced by an old machine in its unaltered state, no patent can be legally supported, for it is a patent for a legal effect only. *Ibid.*

³ Whitmore *v.* Cutter, 1 Gallis. 480, 481.

⁴ Winans *v.* Boston and Providence Railroad, 2 Story's R. 412; Bean *v.* Smallwood, *Ibid.* 408, 411.

§ 6. It is often laid down, that provided the invention is substantially new, it is of no consequence whether a great or small amount of thought, ingenuity, skill, labor, or experiment has been expended, or whether it was discovered by mere accident.¹ Still it is sometimes necessary to ascertain what

¹ In *Crane v. Price*, Webster's Pat. Cas. 411, Sir N. C. Tindall, C. J., said : "But in point of law, the labor of thought or experiment, and the expenditure of money, are not the essential grounds of consideration on which the question, whether the invention is or is not the subject-matter of a patent ought to depend. For if the invention be new and useful to the public, it is not material whether it be the result of long experiment and profound search, or whether by some sudden and lucky thought, or mere accidental discovery." So also in *Earle v. Sawyer*, 4 Mas. 6, Mr. Justice Story said : "The thing to be patented is not a mere elementary principle, or intellectual discovery, but a principle put in practice and applied to some art, machine, manufacture, or composition of matter. It must be *new*, and not known or used before the application ; that is, the party must have found out, created, or constructed some art, machine, &c., or improvement on some art, machine, &c., which had not been previously found out, created, or constructed by any other person. It is of no consequence whether the thing be simple or complicated ; whether it be by accident, or by long, laborious thought, or by an instantaneous flash of the mind that it is first done. The law looks to the fact, and not to the process by which it is accomplished. It gives the first inventor or discoverer of the thing the exclusive right, and asks nothing as to the mode or extent of the application of his genius to conceive or execute it. It must also be useful, that is, it must not be noxious or mischievous, but capable of being applied to good purposes ; and perhaps it may also be a just interpretation of the law, that it meant to exclude things absolutely frivolous and foolish. But the degree of positive utility, is less important, in the eye of the law, than some other things, though in regard to the inventor, as a measure of the value of the invention, it is of the highest importance.

The first question then to be asked, in cases of this nature, is, whether the thing has been done before. In case of a machine, whether it has been substantially constructed before ; in case of an improvement of a machine, whether that improvement has ever been applied to such a machine before, or whether it is substantially a new combination. If it is *new*, if it is *useful*, if it has *not been known or used* before, it constitutes an invention, within the very terms of the act, and, in my judgment, within the very sense and intendment of the legislature. I am utterly at a loss to give any other interpretation of the act ; and, indeed, in the very attempt to make that more clear which is expressed in unambiguous terms in the law itself, there is danger of creating an artificial obscurity."

bearing the amount of thought, design, or ingenuity that may have been expended, has upon the question of novelty. It may not be necessary that there should be positive evidence of design, thought, or ingenuity; but if it is necessary that the possibility of these qualities having been exercised should not be excluded by the character of the supposed invention, then such possibility becomes one test of the sufficiency of invention. While the law does not look to the mental process by which the invention has been reached, but to the result, it may still require that the result should be such as not to exclude the possibility of some skill or ingenuity having been exercised. It requires this, because it requires that the subject-matter of a patent should be something that has not substantially existed before. While such a thing may have been produced by mere accident, and not by design, yet it may also have been the fruit of design and study. If, however, the character of the alleged invention be such, that no design or study could by possibility have been exercised in its production, then its character is strong proof that it does not differ substantially from what had been produced before. We must look, therefore, to the character and purposes of the invention, and not to the actual process by which it was produced, in order to see that the possibility of thought, design, ingenuity, or labor having been exercised, is not excluded.¹

§ 7. Thus, if an alleged invention is absolutely frivolous and foolish, though it may have the element of novelty, in one sense, it is not the subject of a patent. So, too, mere colorable variations, or slight and unimportant changes, will not support a patent; as the immersion of cloth in a steam bath, with the view of damping it, instead of immersing it in hot water;² and the substitution of steam as the means of heating hollow rollers over which wool was to be passed, instead of

¹ See *post* § 27 a.

² *Rex v. Fussell*, cited in *Webster on the Subject-Matter of Patents* p. 26.

heating them by the insertion of hot iron bars.¹ In such cases, if the consequences resulting from the change are unimportant, and the change consists merely in the employment of an obvious substitute, the discovery and application of which could not have involved the exercise of the inventive faculty, in any considerable degree, then the change is treated as merely a colorable variation, or a double use, and not as a substantive invention.²

§ 8. On the other hand, the utility of the change, and the consequences resulting therefrom, may be such, as to show that the inventive faculty may have been at work; and in such cases, though, in point of fact, the change was the result of accident, its utility and importance will afford the requisite test of the amount of invention involved in the change. Thus the mere substitution of one metal for another, in a particular manufacture, might be the subject of a patent, if the new article were better, more useful, or cheaper than the old.³ In Crane's patent the invention consisted in the use of anthracite and hot air-blast, in the manufacture of iron, in the place of

¹ *Rex v. Lister*, cited in Webster on the Subject-Matter of Patents, p. 26.

² The illustrations put by Lord Abinger, in *Losh v. Hague*, Webster's Pat. Cas. 208, present the distinctions here taken in an amusing form. "If a Surgeon had gone to a Mercer, and said, 'I see how well your scissors cut,' and he said 'I can apply them instead of a lancet, by putting a knot at the end,' that would be quite a different thing, and he might get a patent for that; but it would be a very extraordinary thing to say, that because all mankind have been accustomed to eat soup with a spoon, that a man could take out a patent because he says you might eat peas with a spoon."

³ "If the composition of matter now called a silver tea-pot, had existed before the introduction of tea, and been used for making similar infusions from other ingredients, its appropriation or application to making tea, could not have been the subject-matter of a patent, this being the double use of a known thing, as of a medicine celebrated for one disease, to another; but if such a composition of matter were not known there might have been patents for a silver pot, as well as for the first earthen tea-pot. No one can say that a silver and an earthen pot are the same manufacture." Webster on the Subject-Matter, p. 25, note. See *post* § 27 a.

bituminous coal and hot air-blast; and the Court of Common Pleas said: "We are of opinion, that if the result produced by such a combination be either a new article, or a better article, or a cheaper article, to the public, than that produced before by the old method, that such a combination is an invention or manufacture intended by the statute, and may well become the subject of a patent."¹ But if the change be immaterial and productive of no beneficial result, so that the end can be attained as well without as with the supposed improvement, it will not support a patent.²

§ 9. A concise and lucid *dictum* of Buller, J., presents a capital test of the sufficiency of many inventions: "If there be any thing material and new which is an improvement of the trade, that will be sufficient to support a patent."³ The term "improvement of the trade" was obviously used by the learned judge in the commercial sense, meaning the production of the article as good in quality at a cheaper rate, or better in quality at the same rate, or with both these consequences partially combined.⁴ There are many cases where the materiality and novelty of the change can be judged of only by the effect on the result; and this effect is tested by the actual improvement in the process of producing the article, or in the article itself, introduced by the

¹ Crane v. Price, Webs. Pat. Cas. 409. It has been suggested, that if the immersion of cloth in steam, instead of hot water, had been attended with any considerable improvement in the manufacture, the change would have been held a sufficient substantive invention to have supported a patent. Webster on the Subject-Matter, p. 26, note (i.)

² In Arkwright's case, there was evidence that the filleted cylinder had been used before, both in the way in which he used it, and in another way. Buller, J., said: "If it were in use both ways, that alone is an answer to it. If not, there is another question, — whether the stripe in it makes any material alteration? For if it appears, as some of the witnesses say, to do as well without stripes, and to answer the same purpose, if you suppose the stripes never to have been used before, that is not such an invention as will support the Patent." Rex v. Arkwright, Webs. Pat. Cas. 72, 73.

³ Rex v. Arkwright, Webs. Pat. Cas. 71.

⁴ See Mr. Webster's note on this *dictum*, *ut supra*.

alleged invention. To these cases this test is directly applicable. Thus, in Lord Dudley's patent, the change consisted in the substitution of pit coal for charcoal in the manufacture of iron, and it was new both in the process of manufacture and in the constitution of the iron.¹ In Neilson's patent, the change consisted in blowing the furnace with hot air instead of cold; and in Crane's, the substitution of anthracite as fuel, in combination with the hot blast. Both these processes were great improvements, leading to a cheaper production of iron of as good or a better quality.² In Derosne's patent, the invention was by the application of charcoal in the filtering of sugar, being a change in the process of manufacture, so as to produce sugar in a way unknown before.³ In Hall's case, the use of the flame of gas, to singe off the superfluous fibres of lace, effected completely what had been done before in an imperfect manner.⁴

§ 10. In these cases the subject of each invention was not the particular machinery or apparatus by which the new application was to be made available, but it was the new application itself of certain known substances or agents, to produce a particular result, differing either in the process or in the article produced, from the former methods of producing the same thing, and thereby producing a better article, or producing it by superior and cheaper processes. It is obvious that the result, in such cases, furnishes a complete test of the sufficiency of invention; because the importance of the result shows that whether actually exercised or not, the possibility of the exercise of thought, design, ingenuity, and skill is not excluded. The merit is the same, whether the invention was the fruit of accident or design; because the merit consists in having realized the idea and carried it out in practice. But if the idea and the practice involve no beneficial results, superior to what had been before attained, there could have been

¹ Webster's Pat. Cas. 14.

² Ibid. 191, 273, 375.

³ Ibid.

⁴ Ibid. 97.

no scope for the exercise of the inventive faculty, because the result excludes the supposition of its having been exercised.

§ 11. The same test is also indirectly applicable to another class of cases, where a particular instrument or machine, or combination of machinery, is the subject of the patent. As in Arkwright's case, the gist of the objection was, that the alleged new machinery did not serve the purpose of spinning cotton better than the machinery formerly used.¹ And wherever this objection lies to a particular machine or instrument, there cannot be said to be a sufficiency of invention to support a patent.² In the case of Brunton's patent, which covered two inventions, the one was for an improvement in the construction of chain cables, and the other for an improvement in the construction of anchors. As to the first invention, chain cables had been formerly made with twisted links, a wrought iron stay being fixed across the middle of the opening of each link to keep it from collapsing. The alleged improvement consisted in making the links with straight sides and circular ends, and in substituting a cast-iron stay with broad ends, adapted to the sides of the link, and embracing them. This combination of the link and the stay was calculated to sustain pressure better than the old form. The court considered the substitution of a broad-headed stay in the link, in place of a pointed stay, under the circumstances, a sufficient invention to support a patent, on account of the utility of the substitution, in connection with the principles to be carried out, viz., the resistance of pressure according to the action of forces.³

¹ *The King v. Arkwright*, Webs. Pat. Cas. 71.

² In *Morgan v. Seeward*, 2 M. & Welsb. 562, Parke, B., said: "On a review of the cases, it may be doubted whether the question of utility is any thing more than a compendious mode, introduced in comparatively modern times, of deciding the question whether the patent be void under the statute of monopolies."

³ *Brunton v. Hawkes*, 4 B. & Ald. 540, 550. Abbott, C. J., said: "As at present advised, I am inclined to think that the combination of a link of this

§ 12. In respect of the anchor, the invention consisted in making the two flukes in one, with such a thickness of metal in the middle, that a hole might be pierced through it for the insertion of the shank, instead of joining the two flukes in two distinct pieces by welding to the shank. The hole was made conical or bell-mouthed, so that no strain could separate the flukes from the shank, by which means the injury to the iron, from repeated heating, was avoided, only one heating being necessary to unite the end of the shank perfectly with the side of the conical hole. But it appeared at the trial, that the improvement in the anchor was the avoiding the welding, by means well-known and practised in cases extremely similar. It was a case of the simple application of a mode known and practised for a similar purpose in other like cases; and it did not appear that anchors so made were superior to those which had been made before. The court were therefore unanimously of opinion that the patent, in respect of the anchor, could not be sustained.¹

particular form, with the stay of the form which he uses, although the form of the link might have been known before, is so far new and beneficial, as to sustain a patent for that part of the invention, if the patent had been taken out for that alone." Bayley J., said: "The improvement in that respect, as it seems to me, is shortly this; so to apply the link to the force to operate on it, that that force shall operate in one place, namely at the end; and this is produced by having a bar across, which has not the defect of the bar formerly used for similar purposes. The former bars weakened the link, and they were weak themselves, and liable to break, and then if they broke, there might be a pressure in some other part. Now, from having a broad-ended bar instead of a conical one, and having it to lap round the link instead of perforating it, that inconvenience would be avoided; and therefore the present impression on my mind as to this part of the case is, that the patent might be supported."

¹ Abbott, C. J., said: "The mode of joining the shank to the flukes of the anchor, is to put the end of the shank, which is in the form of a solid cylinder, through the hollow and conical aperture, and it is then made to fill up the hollow and to unite itself with it. Now that is precisely the mode by which the shank of the mushroom anchor is united to the mushroom-top; by which the shank of the adze anchor is united to its other parts. It is indeed

§ 13. In like manner, where the substance of an invention consisted in spinning with a much less distance between the

the mode by which the different parts of the common hammer, and the pick-axe also, are united together. Now a patent for a machine, each part of which was in use before, but in which the combination of different parts is new, and a new result is produced, is good; because there is a novelty in the combination. But here the case is perfectly different; formerly three pieces were united together; the plaintiff only unites two; and, if the union of these two had been effected in a mode unknown before, as applied in any degree to similar purposes, I should have thought it a good ground for a patent; but unfortunately, the mode was well known and long practised. I think that a man cannot be entitled to a patent for uniting two things instead of three, where that union is effected in a mode well known and long practised for a similar purpose. It seems to me, therefore, that there is no novelty in that part of the patent as affects the anchor; and, if the patent had been taken out for that alone, I should have had no hesitation in declaring that it was bad." Bayley J., said: "As to the ship's anchor, in substance the patent is for making in one entire piece, that which was formerly made in two. The two flukes of the anchor used to consist of distinct pieces of iron fastened to the shank by welding. In the present form the flukes are in one piece, and, instead of welding them to the shank, a hole is made in the centre, and the shank introduced through the hole. Could there be a patent for making in one entire piece, what before had been made in two pieces? I think not, but if it could, I think that still this would not be new. In the mushroom and the adze anchors, the shank is introduced into the anchor by a hole in the centre of a solid piece; and in reality the adze anchor is an anchor with one fluke, and the double-fluke anchor is an anchor with two flukes. After having had a one-fluked anchor, could you have a patent for a double-fluked anchor? I doubt it very much. After the analogies alluded to in argument of the hammer and pickaxe, I do not think that the mere introducing the shank of the anchor, which I may call the handle, in so similar a mode, is an invention for which a patent can be sustained. It is said in this case that the mushroom anchor and adze anchor, are not ships' anchors, but mooring anchors. I think they are ships' anchors; they are not indeed such anchors as ships carry with them for the purpose of bringing the ship up; but if the ship is required to be stationary, at a particular place, then the common mode of making it stationary, is by the mushroom anchor. So the mode adopted to bring a ship, containing a floating light, to an anchor, is by mooring her to one of these mushroom anchors. That is the description of anchor for a hold-fast to the ship. The analogy between the case of the mushroom anchor and of the adze anchor, is so close to that of the present anchor, that it does not appear to me that this discovery can be considered so far new, as to be

retaining and drawing rollers, than had been before practised, the court held that spinning at a particular distance did not

the proper ground of a patent; in reality it is nothing more than making in one piece, what before was made in two, and introducing into this kind of anchor, the shank, in the way a handle is introduced into a hammer or pickaxe." Best J., said: "Then as to the anchor, the invention claimed is, that he avoids the welding; but that certainly is not new, because that has been done before in the case of the mushroom and adze anchor, the pickaxe and the common hammer. It is said, however, that his invention consists in the application of that which was known before, to a new subject-matter: viz., that he had, for the first time, applied to the manufacturing of anchors a mode in which welding was avoided, which, however, had been long practised, in other instances to which I have before alluded; but he does not state as the ground upon which he had applied for his patent, nor state in the specification that it being known that the process of welding weakens the anchor, he had first applied to an anchor, a mode long practised in the manufacture of other instruments, viz., of making the two flukes of one piece instead of two. If he had so described his process, the question would then arise whether that would have been a good ground for a patent. I incline to think, however, that it having been long known that welding may be avoided in instruments of a similar form, the application of that practice for the first time to a ship's anchor, cannot be considered a new invention, and therefore that it is not the ground of a patent." Mr. Webster remarks upon this case: "The judges were unanimous in their opinion that the patent, in respect of the improvements in the anchor, could not be supported; that the application of a mode well known, and generally used in several of a class of cases, to one particular case of that class, did not constitute some manner of new manufacture, within the meaning of the statute. If the sufficiency be judged of, only from the invention which the results themselves, the cable and the anchor, exhibit, the substitution of a conical end to the shaft, and of a conical hole in the piece constituting the two arms, whereby the pieces were supposed to be more securely united, is as great a change as the substitution of a broad-headed for a pointed stay across the link. And yet there can be no doubt that the invention in the cable was of a much higher order than in the anchor. The improvement in the cable, was the carrying out into practice, certain important principles respecting the action of forces, by the substitution of a broad-headed for the pointed stay, in a link of a particular form. The improvement in the anchor, was the avoiding the welding, by means well known, and practised in cases extremely similar. There was originality of idea in the application of the broad-headed stay, as subsidiary to the principles for the improvement of the chain cable, as laid down in the specification, but there was no originality of idea or of method in avoiding the welding, this

constitute a new manufacture, it having been the previous practice to spin at variable distances.¹

§ 14. It appears, then, according to the English authorities that the amount of invention may be estimated from the result, although not capable of being directly estimated on a view of the invention itself.²

§ 15. The utility of the change is the test to be applied for this purpose. As there cannot be a decidedly useful new re-

being borrowed from cases which would obviously and immediately present themselves.

It should also be remarked, with the view of pointing out whatever may have contributed to the subtle distinctions which were drawn in this case, that evidence of the great superiority of the cable was given at the trial, but nothing appears to have been said respecting the anchor. And this has been confirmed by the result, for the cable is in constant and general use, but anchors are made as before the patent." Webster on the Subject-Matter, &c. p. 34.

¹ *Kay v. Marshall*, Webs. Pat. Cas. 1 M. & Cr. 373.

² Mr. Webster thus sums up the general doctrine: "But though the amount of invention, and the consequent sufficiency of a change to support a patent, cannot be directly estimated or ascertained, they may be estimated and ascertained from the result; and with this view, two things have to be considered, namely, the nature of the change, and its consequences. The change may be considerable, that is, may of itself exhibit traces of thought, skill and design; the consequences produced thereby may be important and considerable, or unimportant and inconsiderable; in the former case, both the means and the result will be new, and there will be a sufficiency of invention. These four cases, the only cases which can occur, are all included in the following general proposition and practical test, that whenever the change and its consequences taken together, and viewed as a sum, are considerable, there must be a sufficiency of invention to support a patent. Thus, when the change, however minute, leads to consequences and results of the greatest practical utility, as in the case of Dudley's, Crane's, Hall's, and Daniell's patents, the above condition is satisfied; but if the consequence, as in the case of Fussell's patent, be inconsiderable, the change also being inconsiderable, and such as would most readily suggest itself to any one, the condition is not fulfilled, and the invention is not sufficient to support a patent." Webster on the Subject-Matter, &c. p. 29, 30.

sult, without some degree of invention in producing the change which effects that result, when a real utility is seen to exist, a sufficiency of invention may be presumed. And it is said, that whenever utility is proved to exist in a very great degree a sufficiency of invention to support a patent must be presumed.¹

§ 16. The question now recurs, whether the same general doctrine as to the sufficiency of an invention to support a patent be not applicable under our law. Our statute requires that the subject of a patent should be "new and useful." The word "useful" is not supposed to be used, for the purpose of establishing general utility as the test of a sufficiency of invention to support a patent. It had been held, upon the use of the same word in the same connection in the old Patent Act of 1793, that it was used merely in contradistinction to what is frivolous or mischievous to society. This term was held to be satisfied, if the alleged invention was capable of use, and was not injurious to the well-being, good policy, or sound morals of society.²

§ 17. But the subject of a patent must not only be "useful," in this sense, that is, capable of use and not mischievous, but it must also be a "new" art, machine, manufacture, or composition of matter, or "a new improvement" upon one of these things, "discovered or invented" by the patentee, and "not known or used by others" before. It is obvious, therefore, that the subject-matter of a patent must be something substantially different from any thing that has been known or used before; and this substantial difference, in all cases where

¹ Webster on the Subject-Matter, &c., p. 30; Webster's Pat. Cas. p. 71, note (e.)

² Lowell v. Lewis, 1 Mass. 186; Bedford v. Hunt, Ibid. 303; Kneass v. Schuylkill Bank, 4 Wash. 9, 12. To maintain a patent, it is not necessary that the thing should be the best of its kind; but if the use for which it is constructed is practicable, that is sufficient to sustain it as a useful invention. Many v. Jagger, 1 Blatchford's Circ. Ct. R. 372.

analogous or similar things have been previously known or used, must be the measure of a sufficiency of invention to support the particular patent.¹

§ 18. Our courts have, in truth, without using the same terms, applied the same tests of the sufficiency of invention, which the English authorities exhibit, in determining whether alleged inventions of various kinds possess the necessary element of novelty. That is to say, in determining this question the character of the result, and not the apparent amount of skill, ingenuity or thought exercised, has been examined; and if the result has been substantially different from what had been effected before, the invention has been pronounced entitled to a patent; otherwise, the patent has failed.²

§ 19. Thus, where the patent was for an improvement in *copperplate* printing of bank-notes, by printing copperplate on both sides of the note, or copperplate on one side, and letter-press on the other, or letter-press on both sides, *as an additional security against counterfeiting*; and the defendants had used steel-plate printing; the question was, whether "copperplate printing" included "steel-plate printing." The plaintiff's counsel contended, that even if copperplate did not include steel-plate printing, still the use of the latter by the defendants, applied to bank-notes, to produce the effect stated in the patent, was a mere invasion and virtually an infringement. Washington, J., instructed the jury, that if the use of

¹ Mr. Phillips has pointed out the provision in the act of 1793, "that simply changing the form or the proportions of any machine or composition of matter in any degree, shall not be deemed a discovery;" and he remarks that this construction would undoubtedly have been put upon the law without any such express exception. He gives the same place in our law to the doctrine of sufficiency of invention, that it occupies in the English law. See Phillips on Patents, 125, 126, 127.

² The application of these tests is most frequently found in cases, not where insufficiency of invention has been expressly the ground of defence, but where the question has been whether the patent did not claim something that was not new.

steel plates was an *improvement* upon printing from copper-plates, for which a patent might have been obtained by the inventor, the use of steel plates by the defendants could with no propriety be considered as an infringement of the plaintiff's right, unless it appeared that they had also used the plaintiff's improvement.¹

§ 20. This is in substance the test applied by Mr. Justice Buller, of "any thing material and new, that is an improvement of the trade."² If the process of printing by steel plates was an improvement in the manufacture of notes, upon the process of printing by copperplates, so as to be a benefit to the trade of manufacturing notes, it would have been a substantive invention, and therefore not an infringement upon the plaintiff's patent, if standing alone.

§ 21. So too, upon the clause in the former statute, "that simply changing the form or proportion of any machine, shall not be deemed a discovery." Mr. Chief Justice Marshall held that the word "simply" was of great importance; that it was not every change of form or proportion which was declared to be no discovery, but that which was *simply* a change of form or proportion, and nothing more. If by changing the form and proportion, a new effect is produced, there is not simply a change of form and proportion, but a change of principle also. The question will be therefore whether the change has produced a different effect.³

§ 22. In like manner, Mr. Justice Livingston decided that a patent was invalid, upon substantially the same test as that of Mr. Justice Buller. The patent was for an alleged invention in folding and putting up thread and floss cotton, in a

¹ *Kneass v. The Schuylkill Bank*, 4 Wash. 9, 11.

² Cited *ante*, § 9.

³ *Davis v. Palmer*, 2 Brock. 298, 310. See also *Pettibone v. Derringer*, 4 Wash. 218, 219.

manner different from the ordinary mode, so that it would sell quicker and for a higher price, than the same cotton put up in the common way. The article itself was imported and underwent no change. The whole of the improvement consisted in putting up the skeins or hanks in a convenient quantity for retailing, with a sealed wrapper, and a label containing the number and description of the article. The court declared that the invention, upon the patentee's own showing, was frivolous; that it was in no way beneficial to the public, not making the article itself any better, or altering its quality in any way. In other words, it was no "improvement of the trade" of making the article sold, but it was a mere improvement in the art of selling it, by which the retailer could get a higher price for the same article than could be obtained by putting it up without the label.¹

¹ Langdon v. DeGroot, 1 Paine's C. C. R. 203. The learned judge said: "The invention is for holding the thread and floss cotton in a manner a little different from the ordinary mode, in which form the cotton will sell quicker and higher by twenty-five per cent. than the same cotton put up in the common way. The cotton thus folded is imported from the factory of Holt, in England. The article itself undergoes no change; and the whole of the improvement, for it is a patent for an improvement, consists in putting up skeins of it, perhaps of the same size in which they are imported, decorated with a label and wrapper; thus rendering their appearance somewhat more attractive, and inducing the unwary, not only to give it a preference to other cotton of the same fabric, quality, and texture, but to pay an extravagant premium for it. When stripped of these appendages, which must be done before it is used, the cotton is no better in any one respect than that of Holt's retailed in the way put up by him. All this came out on the plaintiff's own testimony.

Now, that such a contrivance — for with what propriety can it be termed an useful art within the meaning of the constitution? — may be beneficial to a patentee, if he can exclude from the market all other retailers of the very same article, will not be denied; and if to protect the interest of a patentee, however frivolous, useless or deceptive his invention may be, were the sole object of the law, it must be admitted that the plaintiff has made out a satisfactory title to his patent.

But if the utility of an invention is also to be tested by the advantages which the public are to derive from it, it is not perceived how this part of his title is in any way whatever established. So the cotton manufactured by himself,

§ 23. So, too, where the question was whether, in a patent for a machine for making wool-cards, the patentee had not claimed what had been substantially done before, his claim being for the whole machine, which comprehended several distinct operations or stages in the manufacture; Mr. Justice Story said the question was, whether either of these effects had been produced in the machines formerly in use by a combination of machinery or mode of operation substantially the same as in the machine of the patentee. That it would not be sufficient to protect the plaintiff's patent — it being for the whole machine — that his specific machine, with all its various combinations and effects, did not exist before; because, if the different effects embraced in it were all produced by the same application of machinery, in separate parts, and he merely

which is put up in this way. The very label declares it to be that of another man. So anything done to alter its texture or to render it more portable, or more convenient for use. Nothing of this kind is pretended. Does the consumer get it for less than in its imported condition? The only ground on which the expectation of a recovery is built is, that he pays an enormous additional price, for which he literally receives no consideration.

It is said that many ornamental things are bought of no intrinsic value, to gratify the whim, taste or extravagance of a purchaser, and that for many of these articles patents are obtained. This may be so; but in such cases there is no deception, no false appearances; and the article is bought to be used with all its decorations and ornaments which may have been the principal inducements to the purchase, and which will last as long as the article itself. In this the sight or pride of the party is gratified. But here it is the cotton alone which it is intended to buy, and the little label and wrapper appended to it, and which constitute the whole of the improvement, however showy, are stripped off and thrown away before it can be used. And when that is done, which may be at the very moment of its purchase, the cotton is no better, whatever the buyer at the time may think, than when it first left the factory.

When Congress shall pass a law, if they have a right so to do, to encourage discoveries, by which an article, without any amelioration of it, may be put off for a great deal more than it is worth and is actually selling for, it will be time enough for courts to extend their protection to such inventions, among which this may be very fairly classed."

combined them, or added a new effect, such combination would not sustain his patent for the whole machine;¹ that is to say, without looking at the apparent amount of skill or

¹ *Whittemore v. Cutter*, 1 Gallis. 478. In this case, the learned Judge said: "It is difficult to define the exact cases, when the whole machine may be deemed a new invention, and when only an improvement of an old machine; the cases often approach very near to each other. In the present improved state of machinery, it is almost impracticable not to employ the same elements of motion, and in some particulars, the same manner of operation, to produce any new effect. Wheels, with their known modes of operation, and known combinations, must be of very extensive employment in a great variety of new machines; and if they could not, in the new invention, be included in the patent, no patent could exist for a whole machine embracing such mechanical powers.

Where a specific machine already exists, producing certain effects, if a mere addition is made to such machine, to produce the same effects in a better manner, a patent cannot be taken for the whole machine, but for the improvement only. The case of a watch is a familiar instance. The inventor of the patent lever, without doubt, added a very useful improvement to it; but his right to a patent could not be more extensive than his invention. The patent could not cover the whole machine as improved, but barely the actual improvement. The same illustration might be drawn from the steam engine, so much improved by Messrs. Watt and Boulton. In like manner, if to an old machine some new combinations be added, to produce new effects, the right to a patent is limited to the new combinations. A patent can in no case be for an effect only, but for an effect produced by a given manner, or by a peculiar operation. For instance, no patent can be obtained for the admeasurement of time, or the expansive operations of steam; but only for a new mode or new application of machinery to produce these effects; and therefore, if new effects are produced by an old machine in its unaltered state, I apprehend that no patent can be legally supported, for it is a patent for an effect only.

On the other hand, if well known effects are produced by machinery in all its combinations entirely new, a patent may be claimed for the whole machine. So, if the principles of the machine are new, either to produce a new or an old effect, the inventor may well entitle himself to the exclusive right of the whole machine. By the principles of a machine, (as these words are used in the statute) is not meant the original elementary principles of motion, which philosophy and science have discovered, but the *modus operandi*, the peculiar device or manner of producing any given effect. The expansive powers of steam, and the mechanical powers of wheels, have been understood for many

invention involved in bringing these several modes of operation into one machine, which was not the invention claimed, if the result accomplished thereby did not differ substantially, in respect to the processes embraced in it, from what had

ages; yet a machine may well employ either the one or the other, and yet be so entirely new, in its mode of applying these elements, as to entitle the party to a patent for his whole combination. The intrinsic difficulty is to ascertain, in complicated cases like the present, the exact boundaries between what was known and used before, and what is new, in the *mode of operation*.

The present machine is to make cotton and woollen cards. These were not only made before the present patent, by machinery, but also by machinery which, at different times, exhibited very different stages of improvement. The gradual progress of the invention, from the first rude attempts to the present extraordinary perfection; from the slight combination of simple principles to the present wonderful combinations, in ingenuity and intricacy scarcely surpassed in the world, has been minutely traced by the witnesses on the stand.

The jury, then, are to decide whether the principles of Mr. Whittemore's machine are altogether new, or whether his machine be an improvement only on those which have been in use before his invention. I have before observed that the principles are the *mode of operation*. If the same effects are produced by two machines by the same mode of operation, the principles of each are the same. If the same effects are produced, but by a combination of machinery operating substantially in a different manner, the principles are different.

The great stages (if I may so say) in making the cards by Whittemore's machine, which admit of a separate and distinct operation in the machinery, are, 1. The forming and bending the wire. 2. The pricking the leather. 3. The sticking the wire into the leather; and, 4. The crooking the wire after its insertion. Were either of these effects produced in the machines formerly in use by a combination of machinery or mode of operation substantially the same as in this machine? If so, then clearly his patent could only be for an improvement, and of course it is void; if not, then his patent is free from any objection on the ground of being broader than his invention. It will not be sufficient, to protect the plaintiff's patent, that this specific machine, with all its various combinations and effects, did not exist before; for if the different effects were all produced by the *same application* of machinery in separate parts, and he merely combined them together, or added a new effect, such combination would not sustain the present patent, any more than the artist, who added the second hand or repeater to a watch, could have been entitled to a patent for the whole watch."

been done before in separate machines, the subject-matter claimed as the invention was not new.

§ 24. On the other hand, where the patent claimed, as the invention of the party, a new and useful improvement in the making of friction matches, by means of a new compound, and it was said that the ingredients had been used before in the making of matches, the court said that the true question was, whether the materials had been used before in the same combination, and if not, that the combination was patentable, however apparently simple it might be. That is to say, if the result at which the inventor had arrived, the production of a friction match, by a particular combination of materials, was new, there was a sufficiency of invention, without looking at the apparent facility or difficulty of accomplishing it.¹

§ 25. So, too, where it was said, in the defence, that a machine for cutting ice was but an application of an old invention to a new purpose, it being likened to the common carpenter's plough, the court distinguished the machine from

¹ Ryan v. Goodwin, 3 Sumner's R. 514, 518. In this case, Mr. Justice Story said: "It is certainly not necessary that every ingredient, or, indeed, that any one ingredient used by the patentee in his invention, should be new or unused before for the purpose of making matches. The true question is, whether the combination of materials by the patentee is substantially new. Each of these ingredients may have been in the most extensive and common use, and some of them may have been used for matches, or combined with other materials for other purposes. But if they have never been combined together in the manner stated in the patent, but the combination is new, then, I take it, the invention of the combination is patentable. So far as the evidence goes, it does not appear to me, that any such combination was known or in use before Phillip's invention. But this is a matter of fact, upon which the jury will judge. The combination is apparently very simple; but the simplicity of an invention, so far from being an objection to it, may constitute its great excellence and value. Indeed, to produce a great result by very simple means, before unknown or unthought of, is not unfrequently the peculiar characteristic of the very highest class of minds."

everything that had been made before, by pointing out that such a combination of apparatus had not been known before.¹

§ 26. But where an invention was claimed to be a mode by which the back of a rocking-chair could be reclined and fixed at any angle required, by means of a certain apparatus, the patent was declared void, because the same apparatus or machinery had been long in use, and applied, if not to chairs, at least in other machines, to purposes of a similar nature.² An examination of the result attained by the plaintiff showed that he had accomplished nothing which had not been done before, but had merely applied an old contrivance to a new purpose.

§ 27. This last case furnishes a clear line of demarkation between invention and a mere application to a new use. It shows that the end, effect, or result attained must be new;

¹ *Wyeth v. Stone*, 1 Story's R. 273, 279. In this case, Mr. Justice Story said: "Assuming the patent to be for the machinery described in the specification, and the description of the invention in the specification to be, in point of law, certainly and correctly summed up, (points which will be hereafter considered,) I am of opinion that the invention is substantially new. No such machinery is, in my judgment, established by the evidence to have been known or used before. The argument is, that the principal machine, described as the cutter, is well known, and has been often used before for other purposes, and that this is but an application of an old invention to a new purpose; and it is not therefore patentable. It is said that it is, in substance, identical with the common carpenter's plough. I do not think so. In the common carpenter's plough there is no series of chisels fixed in one plane, and the guide is below the level, and the plough is a movable chisel. In the present machine there are a series of chisels, and they are all fixed. The successive chisels are each below the other, and this is essential to their operation. Such a combination is not shown ever to have been known or used before. It is not, therefore, a new use or application of an old machine. This opinion does not rest upon my own skill and comparison of the machine with the carpenter's plough; but it is fortified and sustained by the testimony of witnesses of great skill, experience, and knowledge in this department of science."

² *Bean v. Smallwood*, 2 Story's R. 408, 410.

and that if the same end, effect, or result has been attained before, it is not new, and there has been no invention, but merely an application of means before known to produce an effect before known, on a new occasion. The purpose itself, which is to be accomplished, is not patentable; but the adaptation of materials to the execution of the purpose, or the apparatus by which the purpose is accomplished, is the true subject of the patent: and if the same purpose has in other instances been accomplished by the same means, the use of those means on a new occasion does not constitute a sufficiency of invention. In other words, the machinery, apparatus, or other means is not new.¹

¹ In the case last cited, *Bean v. Smallwood*, Mr. Justice Story said: "The third and last specification of claim, upon the testimony of Mr. Eddy, which is admitted to be true, is equally unsupportable. He says, that the same apparatus stated in this last claim has been long in use, and applied, if not to chairs, at least in other machines, to purposes of a similar nature. If this be so, then the invention is not new, but, at most, is an old invention, or apparatus, or machinery, applied to a new purpose. Now, I take it to be clear, that a machine, or apparatus, or other mechanical contrivance, in order to give the party a claim to a patent therefor, must, in itself, be substantially new. If it is old and well known, and applied only to a new purpose, that does not make it patentable. A coffee-mill, applied for the first time to grind oats, or corn, or mustard, would not give a title to a patent for the machine. A cotton gin, applied, without alteration, to clean hemp, would not give a title to a patent for the gin as new. A loom to weave cotton yarn would not, if unaltered, become a patentable machine, as a new invention, by first applying it to weave woollen yarn. A steam engine, if ordinarily applied to turn a grist mill, would not entitle a party to a patent for it if it were first applied by him to turn the main wheel of a cotton factory. In short, the machine must be new, not merely the purpose to which it is applied. A purpose is not patentable; but the machinery, only, if new, by which it is to be accomplished. In other words, the thing itself which is patented must be new, and not the mere application of it to a new purpose or object." In *Huddart v. Grimshaw*, Webster's Pat. Cas. 86, Lord Ellenborough said: "In inventions of this sort, and every other through the medium of mechanism, there are some materials which are common, and cannot be supposed to be appropriated in the terms of any patent. There are common elementary materials to work with in machinery, but it is the adaptation of these materials to any particular purpose that constitutes the

§ 27 *a.* So, too, the substitution of one material for another, in a particular manufacture, if the inventive faculty has not been at work, has been held by the Supreme Court of the United States not to be sufficient to support a patent; and the test whether the inventive faculty has been at work is, whether more ingenuity and skill were required to make the substitution than was possessed by an ordinary mechanic, acquainted with the business. The plaintiff claimed a patent for an improvement in making the knobs of doors, by making them of clay or porcelain, instead of wood or metal. It appeared that the mode of forming the knob, and the mode of fastening it to the shank or spindle were old, and had been used in knobs made of wood or metal. The court said, that unless more ingenuity and skill, in applying the old method of fastening the shank and the knob were required in the application of it to the clay or porcelain knob, than were possessed by an ordinary mechanic acquainted with the business, there was an absence of that degree of skill and ingenuity which constitute essential elements of invention.¹

invention; and if the application of them be new, if the combination in its nature be essentially new, if it be productive of a new end, and beneficial to the public, it is that species of invention which, protected by the king's patent, ought to continue to the person the sole right of vending; but if, prior to the time of his obtaining a patent, any part of that which is of the substance of the invention has been communicated to the public, in the shape of a specification of any other patent, or is a part of the service of the country, so as to be a known thing, in that case he cannot claim the benefit of his patent." See also *Hovey v. Stevens*, 1 Woodbury and Minot's R. 290, 297, 298, 299, where Mr. Justice Woodbury held it doubtful, whether a change, by merely attaching several knives to a cylinder, to be ground, instead of attaching but one, without any difference being shown in producing the rotary motion, was a sufficient change in form, or principle, or results, to justify a patent.

¹ *Hotchkiss v. Greenwood*, 11 Howard's R. 248, 264. Mr. Justice Nelson, delivering the opinion of the court in this case, said: "The instruction assumes, and as was admitted on the argument, properly assumed, that knobs of metal, wood, etc., connected with a shank and spindle, in the mode and by the means used by the patentees in their manufacture, had been before known, and were in public use at the date of the patent; and hence

§ 27 *b*. But, on the other hand, if the end, effect, or result is new, although the same means may previously have been

the only novelty which could be claimed on their part was the adaptation of this old contrivance to knobs of potter's clay or porcelain; in other words, the novelty consisted in the substitution of the clay knob in the place of one made of metal or wood, as the case might be. And in order to appreciate still more clearly the extent of the novelty claimed, it is proper to add, that this knob of potter's clay is not new, and therefore constitutes no part of the discovery. If it was, a very different question would arise; as it might very well be urged, and successfully urged, that a knob of a new composition of matter, to which this old contrivance had been applied, and which resulted in a new and useful article, was the proper subject of a patent.

The novelty would consist in the new composition made practically useful for the purposes of life, by the means and contrivances mentioned. It would be a new manufacture, and none the less so, within the meaning of the Patent Law, because the means employed to adapt the new composition to a useful purpose was old or well known.

But in the case before us, the knob is not new, nor the metallic shank and spindle, nor the dovetail form of the cavity in the knob, nor the means by which the metallic shank is securely fastened therein. All these were well known, and in common use; and the only thing new is the substitution of a knob of a different material from that heretofore used in connection with this arrangement.

Now it may very well be, that, by connecting the clay or porcelain knob with the metallic shank in this well known mode, an article is produced better and cheaper than in the case of the metallic or wood knob; but this does not result from any new mechanical device or contrivance, but from the fact that the material of which the knob is composed happens to be better adapted to the purpose for which it is made. The improvement consists in the superiority of the material, and which is not new, over that previously employed in making the knob.

But this, of itself, can never be the subject of a patent. No one will pretend that a machine, made, in whole or in part, of materials better adapted to the purpose for which it is used than the material of which the old one is constructed, and for that reason better and cheaper, can be distinguished from the old one; or, in the sense of the Patent Law, can entitle the manufacturer to a patent.

The difference is formal, and destitute of ingenuity or invention. It may afford evidence of judgment and skill in the selection and adaptation of the materials in the manufacture of the instrument for the purposes intended, but nothing more.

used to produce a different effect, and for a different purpose, there may be a patent for the application of the materials to produce the new effect or result. Thus, where the defendant had obtained a patent for an improvement in packing hy-

I remember having tried an action in the Circuit in the District of Connecticut some years since, brought upon a patent for an improvement in manufacturing buttons. The foundation of the button was wood, and the improvement consisted in covering the face with tin, and which was bent over the rim so as to be firmly secured to the wood. Holes were perforated in the centre, by which the button could be fastened to the garment. It was a cheap and useful article for common wear, and in a good deal of demand.

On the trial, the defendant produced a button, which had been taken off a coat on which it had been worn before the Revolution, made precisely in the same way, except the foundation was bone. The case was given up on the part of the plaintiff. Now the new article was better and cheaper than the old one; but I did not then suppose, nor do I now, that this could make any difference, unless it was the result of some new contrivance or arrangement in the manufacture. Certainly it could not, for the reason that the materials with which it was made were of a superior quality, or better adapted to the uses to which the article is applied.

It seemed to be supposed, on the argument, that this mode of fastening the shank to the clay knob produced a new and peculiar effect upon the article, beyond that produced when applied to the metallic knob, inasmuch as the fused metal by which the shank was fastened to the knob prevented the shank from acting immediately upon the knob, it being inclosed and firmly held by the metal; that for this reason the clay or porcelain knob was not so liable to crack or be broken, but was made firm and strong, and more durable.

This is doubtless true. But the peculiar effect thus referred to is not distinguishable from that which would exist in the case of the wood knob, or one of bone or ivory, or of other materials that might be mentioned.

Now if the foregoing view of the improvement claimed in this patent be correct, it is quite apparent that there was no error in the submission of the questions presented at the trial to the jury; for unless more ingenuity and skill in applying the old method of fastening the shank and the knob were required in the application of it to the clay or porcelain knob than were possessed by an ordinary mechanic acquainted with the business, there was an absence of that degree of skill and ingenuity which constitute essential elements of every invention. In other words, the improvement is the work of the skilful mechanic, not that of the inventor.

draulic, and other machines, by means of a lining of soft metal, and thereby rendering certain parts of such machines air and fluid tight; and the plaintiff afterwards discovered that soft metal had the property of diminishing friction, and of preventing the evolution of heat, when applied to surfaces in contact when in rapid motion and subject to pressure, and took a patent for the application of this discovery to machines; it was held, that the application of the soft metal by the plaintiff, differing essentially from that of the defendant, and the plaintiff having confined his claims to the new effect produced, by embodying his discovery in a machine, nameiy, the diminution of friction and heat, and not claiming the former effect of packing, his patent was good.¹

¹ *Newton v. Vaucher*, 11 Law and Eq. R. 589, 592 (6 Exch. Rep. 859.) In this case, Mr. Baron Parke said: "The only question is, whether the plaintiff's invention is contained in the defendant's and is old, and that question must depend upon a comparison between the specifications of the plaintiff's patent of 1843, and of the defendant's of 1839. The specifications are to be read in connection with their titles. I will take the defendant's specification first, and see what his invention is. It is a patent for several machines; and his invention, as described in the specification (*inter alia*,) is as follows: 'My invention relates to a mode of packing parts of hydraulic engines or machines, or rendering the same fluid tight, which part of my invention applies to steam engines, and in those parts where moving surfaces require to be packed or rendered steam tight.' The defendant then proceeds to describe the mode of applying his invention; and it is to be observed, that in that part where he is speaking of the axis of the pump to be 'received into a suitable recess or bearing,' he does not apply his invention to the bearing; for the axis is not to rest upon soft, but upon hard metal. He then proceeds to remark that there is a material for packing that part where the axis works, the end of the axis or piston working in a groove, the object being to pack with metal in such a manner as to make all the parts water or fluid tight. He then proceeds to describe the metallic composition he uses for that purpose, to which we need not advert, as it is not material. Now, I think it is obvious that this invention consists in the application of soft metal, instead of elastic substances, which had been in use before, for the purpose of enabling the axis of the machine to work in a case, and to be water, air, or steam tight. Nothing is said upon the subject of friction, or upon the subject of bearings. After the date of the defendant's patent, it was discovered by the person from whom the plaintiff purchased his patent, that

§ 28. The doctrine in relation to utility being, in this country, that the subject-matter of a patent must not be

soft metal could be used beneficially, not merely for the purpose of excluding air or water, but that it produced this remarkable effect, that, where there was pressure upon it, friction was in a great degree diminished. That probably arises, as my Brother Alderson has suggested, from the circumstance that the particles of the soft metal (which may be said to approach more nearly in their nature to those of a fluid,) have comparatively a more easy motion among themselves than those of a hard metal. If water could be confined in the same way as soft metal is, and the axis could be made to revolve in the water so confined, the invention might possibly answer as well. It was, however, discovered, that, by the adoption of soft metal, no heat or friction, comparatively speaking, would take place. Then the question is, whether the plaintiff's patent is for the application of that principle. Now, upon looking at his specification, which embodies a new principle in a new machine, it differs materially from the defendant's, which is for the purpose merely of packing; for in the plaintiff's invention it is essential that there should be not only the intervention of soft metal, but that there should also be a hard rim covered in part with that soft metal, or some other means to prevent the soft metal from expanding and getting out of its place. But any other hard rim covered with soft metal, or substances covered with soft metal, are part of that machine. That is no part of the defendant's invention. Therefore, I think, the discovery of the person under whom the plaintiff claims, is not merely a discovery of a new principle, but of a new principle embodied in a new machine. Then, that being so, if the plaintiff claims a patent for that new principle embodied in a new machine, and that only for the purpose of diminishing friction, and the application of it is only to cases where there is pressure as well as motion, that patent is perfectly good; but if he has also claimed in it the application of soft metal to all cases of stuffing, to include fluids of every description, his patent in that respect is for an old invention, and is void. The question is now reduced to that single point. I entertained some doubt during the argument upon the question, whether the plaintiff's patent is simply for the application of soft metal for the purpose of preventing friction where there is pressure and motion, or whether it is not also for the application of soft metal in cases of stuffing rods for the purpose of excluding air, water, or other fluid. If the determination of the question depended solely upon the specification, and the title of the patent were not read, I should have been inclined to think that the plaintiff claimed both; but if the specification and the title be read together, (and the specification is always taken to be an exemplification of the thing for which the patent is obtained,) it is clear that the plaintiff's claim is confined to bearings in cases where there is pressure with motion. [His

injurious or mischievous to society, or frivolous or insignificant, it follows, that every invention for which a patent is claimed must be, to a certain extent, beneficial to the community; it must be capable of use for some beneficial purpose; but, when this is the case, the degree of utility, whether larger or smaller, is not a subject for consideration in determining whether the invention will support a patent.¹ But it is obvious that the capability of use, for some beneficial purpose, is a material element in determining whether there is a sufficiency of invention to support a patent; the force of the word "useful," introduced into the statute in connection with the epithet "new," being to determine whether the subject-matter, upon the whole, is capable of use, for a purpose from which any advantage can be derived to the public. General rules will not decide this question in particular cases; but the circumstances of each case must be carefully examined, under the light of the principles on which general rules are founded.

lordship read the title of the plaintiff's specification.] That appears to me to apply only to cases of bearings. I think the concluding part, "and also improvements in oiling or lubricating the same," is wholly immaterial. In the next place, we must see in what way he describes the machine for which the patent is granted. [His lordship read the greater part of the plaintiff's specification, and proceeded.] Now, had it not been for the title of this patent, by which the plaintiff appears to me to confine his invention to bearings, there would be strong reason to contend that he applied it also to cases in which rods or bars were to slide. But reading it in conjunction with the title, I think the plaintiff's patent does not extend so far, and consequently that it is not void upon that ground. The steam engine is the example of the case in which there is friction and pressure; but in the case of guide rods to locomotive steam engines, there is a bearing, and the instance he gives is that of a bearing. As it is my opinion that the plaintiff's patent is confined to these cases, no part of it includes an old invention, and, consequently the patent is good."

¹ *Lowell v. Lewis*, 1 Mass. 182; *Bedford v. Hunt*, *Ib.* 302; *Kneass v. The Schuylkill Bank*, 4 Wash. 9, 12; 2 Kent's Com. 369; Phillips on Patents, 136-144. Evidence that the invention of the defendant is better than that of the plaintiff is improper, except to show a substantive difference between the two inventions. *Alden v. Dewey*, 1 Story's R. 336.

§ 29. In considering the question of the novelty of an invention, Buller, J., laid down the rule, that when the novelty is disputed, the patentee is bound to offer some evidence of novelty. That is, he must show in what his invention consists, and that he produced the effect proposed by his patent, in the manner specified. Slight evidence of this, on his part, is sufficient, and it is then incumbent on the party alleging the want of novelty to show the defect.¹

§ 30. Under our law, it would seem that the patent itself is *prima facie* evidence of the novelty of the invention. The act of 1836, § 6, requires the applicant to make oath that he verily believes himself to be the original and first inventor or discoverer of the thing, and that he does not know or believe that it was ever before known or used. Mr. Justice Story has held, that this oath, on a trial, is evidence in the cause of a *prima facie* character, and that it is the foundation of the *onus probandi* thrown upon the defendant.² The patent recites the oath, and thus the jury have cognizance of it; and, as the oath asserts that the patentee was the original and first inventor, it must be evidence of the novelty of the invention, if it is evidence of the fact that the patentee was the inventor.³

§ 31. In connection with the subject of novelty, it is further to be remembered, that our statute also requires that the subject-matter of a patent should not have been "known or used by others before the discovery or invention thereof" by the patentee.⁴

¹ Turner v. Winter, 1 T. R. 602, 607.

² Alden v. Dewey, 1 Story's R. 336.

³ Ibid. See also Stearns v. Barrett, 1 Mass. R. 175; Pennock v. Dialogue, 4 Wash. R. 538; Dixon v. Moyer, Ibid. 68; Phillips on Patents, 407.

⁴ Act of 1836, § 6. Upon the former law, the words of which were "not known or used before the application," the Supreme Court of the United States put the construction which has been adopted by Congress in the sub-

§ 32. The time of the knowledge or use of an invention by others which is to vitiate a patent, is a very important point. In England, such knowledge, obtained at any time and in any mode, before the application for a patent, is sufficient to invalidate it. But in this country, it was settled as the true construction of the act of 1793, which used the words, "not known or used before the application," that these words, taken in connection with other provisions of the statute, meant that the invention should not have been

sequent statute. "What, then, is the true meaning of the words 'not known or used before the application?' They cannot mean that the thing invented was not known or used before the application by the inventor himself, for that would be to prohibit him from the only means of obtaining a patent. The use, as well as the knowledge of his invention, must be indispensable to enable him to ascertain its competency to the end proposed, as well as to perfect its component parts. The words, then, to have any rational interpretation, must mean, not known or used by others before the application. But how known or used? If it were necessary, as it well might be, to employ others to assist in the original structure or use by the inventor himself; or, if before his application for a patent his invention should be pirated by another, or used without his consent, it can hardly be supposed that the legislature had within its contemplation such knowledge or use.

"We think, then, the true meaning must be, not known or used by the public before the application. And thus construed, there is much reason for the limitation thus imposed by the act. While one great object was, by holding out a reasonable reward to inventors, and giving them an exclusive right to their inventions for a limited period, to stimulate the efforts of genius; the main object was 'to promote the progress of science and useful arts;' and this could be done best by giving the public at large a right to make, construct, use, and vend the thing invented, at as early a period as possible, having a due regard to the rights of the inventor. If an inventor should be permitted to hold back from the knowledge of the public the secrets of his invention; if he should for a long period of years retain the monopoly, and make and sell his invention publicly, and thus gather the whole profits of it, relying upon his superior skill and knowledge of the structure; and then, and then only, when the danger of competition should force him to secure the exclusive right, he should be allowed to take out a patent, and thus exclude the public from any further use than what should be derived under it during his fourteen years; it would materially retard the progress of science and the useful arts, and give a premium to those who should be least prompt to communicate their discoveries." *Pennock v. Dialogue*, 2 Peter's S. C. R. 18, 19.

known or used before the discovery by the patentee.¹ This construction was afterwards adopted by congress, in the act of 1836, in so many terms.

§ 33. The word "others," though used in the plural in this statute, was used to denote that the use should be by some other person or persons than the patentee; and, therefore, the prior use by one person other than the patentee, is sufficient to show that the patentee was not the first inventor.²

§ 34. But the question still remains, what constitutes "use" and "knowledge," in the sense of the statute? Does the act simply mean, that the mere product of an art, or the mere existence of a machine, manufacture or composition of matter, if found in the possession of another, before the invention or discovery by the patentee, shall be sufficient to invalidate a patent? Or does it mean, that the art itself, the mode of constructing the machine, manufacture or composition of matter, must, at the time of the invention or discovery by the patentee, be a known thing, and in use by others than the patentee, in order to vitiate the patent? This presents the difficult question, what is to be the effect of a perfected invention, once in actual use, and subsequently abandoned or lost, upon the rights of an original inventor? Many arts, formerly known, have been wholly lost; the product of such arts may be still extant; and it is a most important inquiry, whether a new discoverer or inventor of an art of producing the same or similar things, can or cannot obtain a valid patent for his original independent discovery.

§ 35. In England, the statute of monopolies permitted the

¹ Mellus v. Silsbee, 4 Mass. R. 108; Treadwell v. Bladen, 4 Wash. R. 707.

² Reed v. Cutter, 1 Story's R. 590. See also Bedford v. Hunt, 1 Mass. R. 302.

granting of a patent to "the true and first inventor of such manufacture, which others, at the time of making such letters-patent, shall not use." Our statute requires that the patentee shall be the "first inventor" of an art, machine, manufacture or composition of matter, not known or used by others before his discovery," &c. There is no very material difference between the English law and our own, therefore, except as to the time of the use by others, which, in England, extends down to the issuing of the letters-patent, but with us, is confined to the period of the patentee's invention or discovery. Now, it is not settled in England, that the prior knowledge of an invention, long lost sight of to the public, will vitiate subsequent letters-patent for the same invention. The doctrine in relation to prior use, in England, has been recently promulgated in the House of Lords, as follows: that, although the use of an invention may have been discontinued, if it has been once publicly used, and the recollection of it has not been wholly lost, it will be sufficient to invalidate a subsequent patent.¹ The subject-matter of the patent, in this case, was machinery; and the judgments delivered by their lordships, who spoke upon the case, seem to have proceeded upon the ground, that such prior use of a perfected invention, in case of machinery, negatives the proposition that the patentee was the "first inventor," as also the proposition that others had not previously used the same thing. At the same time, a strong intimation was given, that the prior use of an invention, if abandoned and lost sight of, so as not to be known to the public, presents a different question from an invention which has been merely disused, but the existence of which shows that the public have the knowledge and the means of making the same thing, already in their possession.²

¹ The Househill Company v. Neilson, Webs. Pat. Cas. 673, 709, 710, 716.

² The Lord Chancellor (Lyndhurst) said: "It must not be understood that your lordships, in the judgment you are about to pronounce, have given any decision upon this state of facts, namely, if an invention had been for-

§ 36. This distinction, if sound, presents two important inquiries: first, whether there is any class of cases where the mere previous existence of a thing, the art of making which has been lost, negatives the fact, that a subsequent discoverer of an art of making the same or a similar thing is the "first inventor," as those words are used in the statute; secondly, whether the use or knowledge intended by the statute, in cases of this kind, means the use or knowledge of the art of making the thing, or whether it means merely the use of the thing itself, or the knowledge that it exists, without the means of practising the invention itself. Both of these questions may arise, for instance, in reference to an article which has been patented in England, to wit, an encaustic tile, a description of which was well known in the middle ages, but the art of manufacturing which has been lost;¹ or in reference to such arts as that of staining glass.

§ 37. With regard to the first question, if the words "first inventor" are to be taken in their literal import, and without reference to the character of the subject-matter, whether it furnishes or does not furnish, on mere inspection or analysis, a knowledge of the means by which it is produced, — then, it is only necessary, in any case, to show that the thing itself has existed before in order to negative the claim, that the subsequent patentee is the "first inventor." This might be all that would be necessary in cases of machinery, because the machine is a collection of material parts in a certain combination, the existence of which, at any previous time, shows that it cannot have been again invented for the first time.

merly used and abandoned many years ago, and the whole thing had been lost sight of. That is the state of facts not now before us. Therefore, it must not be understood that we have pronounced any opinion whatever upon that state of things. It is possible that an invention may have existed fifty years ago, and may have been entirely lost sight of, and not known to the public. What the effect of this state of things might be is not necessary for us to pronounce upon." *Ib.* 717.

¹ Wright's Patent, *Webs. Pat. Cas.* 736.

But with regard to the arts and the products of the arts, it may be very different. The same thing may have been produced at one time by one process, now wholly lost sight of, and at another time by another process, or by the independent discovery of the same process. It can never be known with certainty, whether the subsequent process of manufacture is the same with the first, which may always have been a secret, and is, at any rate, now unknown. The product alone is the same or similar; and if the mere existence of the same thing, without the knowledge of the mode by which it was produced, excludes a subsequent independent discoverer of a process of making that thing from being regarded as the "first inventor," a large class of what are really original inventions — and inventions "first," as regards the state of knowledge, — are excluded from the benefits of the Patent Law. The difference between inventions or discoveries of this kind and cases of machinery is, that, in a machine, the invention consists in the putting together, in a certain combination, material parts, intended to operate upon each other according to certain laws of motion, to produce a given effect; and this, when once done, is done forever, and can only be done upon one principle and plan, that remain always the same as long as the same machine is reproduced; but, in the case of a manufacture or product of an art, the invention consists in the process by which the thing itself is produced, which may be invented in one way at one time, and in another way at a subsequent time, so that the subsequent inventor may be, literally as well as metaphysically, the "first inventor" of *his* process of making the thing.

§ 38. Upon principle, therefore, it would seem, that, in regard to some inventions, the phrase "first inventor" ought to receive such a construction as will allow a patent to the new discoverer of a process of producing a thing, the art of making which has been lost, upon the ground that he is, as far as can be ascertained, the first inventor of his process of making that thing.

§ 39. With regard to the second question which arises under our statute, upon the clauses which provide against the prior use and knowledge of the thing, it may perhaps be considered that those provisions are cumulative upon the previous requisition that the patentee shall be the first inventor. The statute requires that the patentee shall make oath that he verily believes himself to be the original and first inventor, and that he does not know or believe, that the thing, art, machine, composition, or improvement was ever before known or used;¹ and it provides that the negative of these propositions may be proved in defence against the patent.² In the case supposed, — that of an art long lost, but of which specimens of the manufacture can be proved to be or to have been in existence, — the patent of a subsequent discoverer of an art of making the same or a similar thing, would be *primâ facie* evidence that he is the first discoverer of his particular process of making the thing.³ The negative is then to be shown in defence; and whether this can be shown by merely producing the thing, without showing the process by which it was formerly made, depends upon the force to be given to the words “use and knowledge.” If those words mean merely that the prior use of the thing itself, or the

¹ Act of 1836, § 6.

² *Ibid.* § 15.

³ The only evidence which the plaintiff can add to his patent, on the issue of novelty, is that of persons who were in the way of hearing of the invention not having heard of it before. Upon this point, Sir N. C. Tindall, C. J., said: “You cannot prove a negative strictly. You can only do so by exhausting the affirmative instances of it, by calling persons who have never heard of it or seen it, and the more those persons are in the way of hearing of it or seeing it, if it had existed, the stronger is that exhausting evidence, if I may so call it, in its effect and value with the jury.” *Cornish v. Keene*, *Webs. Pat. Cas.* 509. In *Washburn v. Gould*, 3 *Story’s R.* 122, 142, Mr. Justice Story instructed the jury upon the question of invention, that it was for the defendant to show beyond a reasonable doubt that there was a prior invention to the plaintiff’s, because the plaintiff has a right to rest upon his patent for his invention till its validity is overthrown. If there was a reasonable doubt as to the priority of invention, the plaintiff was entitled to the benefit of that doubt.

prior knowledge of its existence, is, in all cases, an answer to the allegation of the patentee, that he is the first inventor or discoverer, without showing that his process is the same as that by which the thing was formerly produced, then, there is no occasion to inquire further. But if, on the contrary, those words are to be taken with reference to the character of the subject-matter, in each case, then it is apparent that there may be cases where, as in such arts as those above referred to, the invention or discovery is not, strictly speaking, the thing itself, but a process of making that thing. The words of the statute must be taken with separate application to each of the subjects recited as the proper subject-matters of a patent. The language is, that "he is the original and first inventor of the art, machine, composition, &c., and that he does not know or believe that the same was ever before known or used;"¹ and in the subsequent clause, the "thing patented" is declared to be subject to the defence, that the patentee was *not* "the original and first inventor or discoverer" or that "it" had been described in some public work, or had been in public use.² The "thing patented" is the antecedent of "it," and in the case of an art, this may be, not the product itself, but the process of producing it; and where it cannot be shown that the process invented by the patentee has been "known" or "used" before, the mere production in evidence of a similar manufacture, produced at a former period by an unknown art, does not negative the allegation, that the patentee invented or discovered the art by which he has produced that manufacture.³

§ 40. In England the courts have so construed the expression, "first inventor," as to admit of a valid patent in a variety of cases, where the patentee was not absolutely the first person to make or discover the thing; as where it had been made previously by another person who had concealed

¹ § 6.

² § 15.

³ See a learned note on the bearing of the English statute on this question, by Mr. Webster, Pat. Cas. 718, 719, 720.

it from every one else ;¹ and generally, in England, the question whether the patentee is the true and first inventor or not, depends on whether he borrowed the invention from a source open to the public.² And since the first edition of this work was published, a decision has been made in the Supreme Court of the United States, which adopts a similar construction, for our statute. A person had made and used an article similar to the one which was afterwards patented, but had not made his discovery public, using it simply for his own private purpose, and without having tested it so as to discover its usefulness ; and it had then been finally forgotten and abandoned : it was held that under such circumstances, the patentee was to be regarded as the " first inventor."³

¹ Dolland's Case, 2 H. Blackst. 470, 487. Davies's Pat. Cas. 172.

² Walton v. Potter, Webs. Pat. Cas. 592.

³ Gayler v. Wilder, 10 Howard, 477. In this case, Mr. Ch. Justice Taney delivering the opinion of a majority of the Court, said : " It appears that James Conner, who carried on the business of a stereotype founder in the city of New York, made a safe for his own use, between the years 1829 and 1832, for the protection of his papers against fire ; and continued to use it until 1838, when it passed into other hands. It was kept in his counting-room and known to the persons engaged in the foundry ; and after it passed out of his hands, he used others of a different construction.

It does not appear what became of this safe afterwards. And there is nothing in the testimony from which it can be inferred that its mode of construction was known to the person into whose possession it fell, or that any value was attached to it as a place of security for papers against fire ; or that it was ever used for that purpose.

Upon these facts the court instructed the jury, ' that if Conner had not made his discovery public, but had used it simply for his own private purpose, and it had been finally forgotten or abandoned, such a discovery and use would be no obstacle to the taking out of a patent by Fitzgerald or those claiming under him, if he be an original, though not the first, inventor or discoverer.'

The instruction assumes that the jury might find from the evidence that Conner's safe was substantially the same with that of Fitzgerald, and also prior in time. And if the fact was so, the question then was, whether the patentee was ' the original and first inventor or discoverer,' within the meaning of the act of Congress.

The act of 1836, ch. 357, § 6, authorizes a patent where the party has dis-

§ 41. We have already seen, that there are two issues, with respect to novelty; one, whether the patentee is the first in-

covered or invented a new and useful improvement, 'not known or used by others before his discovery or invention.' And the 15th section provides that, if it appears on the trial of an action brought for the infringement of a patent that the patentee 'was not the original and first inventor or discoverer of the thing patented,' the verdict shall be for the defendant.

Upon a literal construction of these particular words, the patentee in this case certainly was not the original and first inventor or discoverer, if the Conner, safe was the same with his, and preceded his discovery.

But we do not think that this construction would carry into effect the intention of the legislature. It is not by detached words and phrases that a statute ought to be expounded. The whole act must be taken together, and a fair interpretation given to it, neither extending nor restricting it beyond the legitimate import of its language, and its obvious policy and object. And in the 15th section, after making the provision above mentioned, there is a further provision, that, if it shall appear that the patentee at the time of his application for the patent believed himself to be the first inventor, the patent shall not be void on account of the invention or discovery having been known or used in any foreign country, it not appearing that it had been before patented or described in any printed publication.

In the case thus provided for, the party who invents is not, strictly speaking, the first and original inventor. The law assumes that the improvement may have been known and used before his discovery. Yet his patent is valid if he discovered it by the efforts of his own genius, and believed himself to be the original inventor. The clause in question qualifies the words before used, and shows that by knowledge and use the legislature meant knowledge and use existing in a manner accessible to the public. If the foreign invention had been printed or patented, it was already given to the world and open to the people of this country, as well as of others, upon reasonable inquiry. They would, therefore, derive no advantage from the invention here. It would confer no benefit upon the community, and the inventor therefore is not considered to be entitled to the reward. But if the foreign discovery is not patented, nor described in any printed publication, it might be known and used in remote places for ages, and the people of this country be unable to profit by it. The means of obtaining knowledge would not be within their reach; and, as far as their interest is concerned, it would be the same thing as if the improvement had never been discovered. It is the inventor here that brings it to them, and places it in their possession. And as he does this by the effort of his own genius, the law regards him as the first and original inventor, and protects his patent, although the improvement had in fact been invented before, and used by others.

ventor; the other, whether the invention, at the time of his application, be new as to public use and exercise. These

So, too, as to the lost arts. It is well known that centuries ago discoveries were made in certain arts, the fruits of which have come down to us, but the means by which the work was accomplished are at this day unknown. The knowledge has been lost for ages. Yet it would hardly be doubted, if any one now discovered an art thus lost, and it was a useful improvement, that, upon a fair construction of the act of Congress, he would be entitled to a patent. Yet he would not literally be the first and original inventor. But he would be the first to confer on the public the benefit of the invention. He would discover what is unknown, and communicate knowledge which the public had not the means of obtaining without his invention.

Upon the same principle and upon the same rule of construction, we think that Fitzgerald must be regarded as the first and original inventor of the safe in question. The case as to this point admits, that, although Conner's safe had been kept and used for years, yet no test had been applied to it, and its capacity for resisting heat was not known; there was no evidence to show that any particular value was attached to it after it passed from his possession, or that it was ever afterwards used as a place of security for papers; and it appeared that he himself did not attempt to make another like the one he is supposed to have invented, but used a different one. And upon this state of the evidence the court put it to the jury to say, whether this safe had been finally forgotten or abandoned before Fitzgerald's invention, and whether he was the original inventor of the safe for which he obtained the patent; directing them, if they found these two facts, that their verdict must be for the plaintiff. We think there is no error in this instruction. For if the Conner safe had passed away from the memory of Conner himself, and of those who had seen it, and the safe itself had disappeared, the knowledge of the improvement was as completely lost as if it had never been discovered. The public could derive no benefit from it until it was discovered by another inventor. And if Fitzgerald made his discovery by his own efforts, without any knowledge of Conner's, he invented an improvement that was then new, and at that time unknown; and it was not the less new and unknown because Conner's safe was recalled to his memory by the success of Fitzgerald's.

We do not understand the Circuit Court to have said that the omission of Conner to try the value of his safe by proper tests would deprive it of its priority; nor his omission to bring it into public use. He might have omitted both, and also abandoned its use, and been ignorant of the extent of its value; yet, if it was the same with Fitzgerald's, the latter would not, upon such grounds, be entitled to a patent, provided Conner's safe and its

issues may be involved together, because if the last is negatived, it may be negatived by evidence which shows that the patentee was not the first inventor. But in point of law and fact, these are distinct issues. The patentee may have been the first inventor, and yet he may have allowed the invention to get into public use, and exercise, before his application; or the invention may never have been in public use, and yet the patentee may not be the first inventor, by reason of his having learned it from some one else, or from some published work, or from some other source open to the public.

§ 42. It is an important question of construction, therefore, to determine when a claimant is the first inventor, in the sense of the statute. This depends upon the nature and extent of the knowledge which any other person may have had of the subject of the patent; and upon this inquiry, we may, perhaps, usefully follow the light of English authorities as well as our own.

§ 43. It is not sufficient to defeat a patent, already issued,

mode of construction were still in the memory of Conner before they were recalled by Fitzgerald's patent.

The circumstances above mentioned, referred to in the opinion of the Circuit Court, appear to have been introduced as evidence tending to prove that the Conner safe might have been finally forgotten, and upon which this hypothetical instruction was given. Whether this evidence was sufficient for that purpose or not, was a question for the jury, and the court left it to them. And if the jury found the fact to be so, and that Fitzgerald again discovered it, we regard him as standing upon the same ground with the discoverer of a lost art, or an unpatented and unpublished foreign invention, and like him entitled to a patent. For there was no existing and living knowledge of this improvement, or of its former use, at the time he made the discovery. And whatever benefit any individual may derive from it in the safety of his papers, he owes entirely to the genius and exertions of Fitzgerald.

Upon the whole, therefore, we think there is no error in the opinion of the Circuit Court, and the judgment is therefore affirmed."

that another person has conceived the possibility of effecting what the patentee has actually accomplished. To constitute a prior invention, the party, alleged to have made it, must have proceeded so far as to have entitled himself to a patent, in case he had made an application; or, in other words, he must have reduced his idea to practice, and embodied it in some distinct form.¹ It is true, that in a race of diligence between two independent inventors, our law provides for the priority of conception, by allowing the one who first invents to obtain the patent, if he was using reasonable diligence in adapting and perfecting his invention, although a second inventor has, in fact, first perfected the invention, and reduced it to practice.² But where a patent has been granted to a patentee, who did not surreptitiously obtain his knowledge from a prior inventor, who was using reasonable diligence to perfect and adapt the invention, in order to defeat it on the ground that the patentee was not the first inventor, some previous inventor must not only have had the idea, but must also have carried the idea into practical operation; for he is entitled to a patent, who, being an original inventor, has first perfected and adapted the invention to actual use.³

¹ Reed v. Cutter, 1 Story's R. 590.

² Act of 1836, § 15; Reed v. Cutter, 1 Story's R. 590.

³ Reed v. Cutter, *ut supra*. Woodcock v. Parker, 1 Gallison's R. 438, 439. In Gibson v. Brand, Webs. Pat. Cas. 628, Sir N. C. Tindall, C. J., said to the jury, "It is quite clear, that if, on the evidence you have heard, you are satisfied that this which is alleged to be a discovery by the plaintiffs, had been publicly known and practised in England, there is an end to the validity of the patent. It would not be sufficient to destroy the patent to show that learned persons in their studies had foreseen, or had found out this discovery, that is afterwards made public, or that a man in his private warehouse had, by various experiments, endeavored to discover it and failed, and had given it up. But if you perceive, on the evidence, that the thing which is now sought to be protected by the patent has been used, and for a considerable period, and used so far to the benefit of the public, as to be sold to any body who thought proper to purchase it of those who made it, then it becomes a material question, whether such mode of user is not, in your judgment, a public using of the article, of the process, or of the invention, before

§ 44. But when may a prior invention be said to have been perfected and adapted to actual use? Does the law furnish any test by which this question can be answered? In the first place, it is clear, that mere trials and experiments, though continued up to the date of a patent, will not vitiate the grant, if the patentee had no knowledge of those trials and experiments; because the first perfected invention, if original, is entitled to the patent.¹ In the second place, there may often be a very satisfactory test, which will determine whether the proceedings of an alleged prior inventor were any thing more than trials and experiments, by ascertaining whether he at any time, before the date of the patent, abandoned the pursuit of the object at which he was aiming. If he did so, the abandonment has been said to furnish a presumption that his proceedings rested in experiment and trial alone.²

the letters-patent were granted, and therefore you will apply the evidence, when you come to it, subject to such an explanation, — not giving a force or efficacy to any attempts that have been made towards the discovery which the plaintiffs set up, but which have failed and been abandoned, and rested indeed only in experiment, but at the same time giving full effect to such evidence as has been brought before you, that tends to show that, by other persons, on various occasions, the article has been made, and the process been pursued, which is now sought to be protected, and has been sold to such of the public as have thought proper to come forward and purchase.”

¹ *The Househill Company v. Neilson*, Webs. Pat. Cas. 708.

² In the case last cited, Lord Brougham said, “If an invention has not been completed, but if it all rests in experiment and trial, then it is a most material circumstance as a test, whether any given act of a party, other than the invention, was trial or complete invention; it is a most salutary and important test to apply with a view to ascertain that, to see whether he abandoned or continued it. If he abandoned it, if he gave it up altogether, and for twenty or thirty years did nothing, it is a very strong presumption that it was only experimental — not an invention completed. But suppose it was complete, and suppose it is admitted not to have been a trial — suppose it is allowed to have been an invention executed, if I may so speak, not merely executory, or not merely in the progress of invention, but an invention completed, then it is one of the greatest errors that can be committed, in point of law, to say with respect to such an invention as that, it signifies one

§ 45. But if, on the contrary, his experiments and trials were continued, or if there is not satisfactory evidence of an abandonment of the object, then it becomes a question of fact, depending on the nature of the proposed invention, the character of the experiments, and the results attained, to determine whether the party had really accomplished the same substantial result as that described in the patent.¹

rush whether it was completely abandoned, or whether it was continued to be used down to the very date of the patent. Provided it was invented and publicly used at the time, twenty or thirty years ago, in this case forty years ago, it is perfectly immaterial, not immaterial to the second question, the second condition, namely, whether it was used or not at the time of the granting of the patent, but totally immaterial to the other question, which is equally necessary to be ascertained in the inventor's favor, whether or not he was the first and true inventor? — for he must be the first and true inventor, as well as the only person using it at the time, otherwise he is not entitled to the letters-patent." *Webs. Pat. Cas. 713.* In *Jones v. Pearce*, *Webs. Pat. Cas. 124*, Patteson, J., instructed the jury as follows: "If on the whole of this evidence, either on the one side or the other, it appeared this wheel, constructed by Mr. Strutt's order in 1814, was a wheel on the same principles, and in substance the same wheel as the other for which the plaintiff had taken out his patent, and that was used openly in public, so that every body might see it, and had continued to use the same thing up to the time of taking out the patent, undoubtedly then that would be a ground to say that the plaintiff's invention is not new, and if it is not new, of course his patent is bad, and he cannot recover in this action; but if, on the other hand, you are of opinion that Mr. Strutt's was an experiment, and that he found it did not answer, and ceased to use it altogether, and abandoned it as useless, and nobody else followed it up, and that the plaintiff's invention, which came afterwards, was his own invention, and remedied the defects, if I may so say, although he knew nothing of Mr. Strutt's wheel, he remedied the defects of Mr. Strutt's wheel, then there is no reason for saying the plaintiff's patent is not good; it depends entirely upon what is your opinion upon the evidence with respect to that, because, supposing you are of opinion that it is a new invention of the plaintiff's, the patent is then good; then the only remaining question would be, whether the defendant has or not infringed the patent."

¹ In *Galloway v. Bleaden*, *Webs. Pat. Cas. 521, 526*, Sir N. C. Tindall, C. J., said to the jury, "The question you are to determine is, whether on the evidence the thing itself was complete, so as to be used, or whether

§ 46. But although the subject of every patent must have been "invented or discovered" by the party claiming to be the inventor or discoverer, still, as suggestions and hints may often have been made use of by a man of the most original genius, in the production of inventions, it becomes necessary to inquire who is to be regarded as the inventor or discoverer, in the sense of being entitled to a patent for the thing invented or discovered.

§ 47. The intellectual production, or that which, when perfected, constitutes the thing invented, differing from all other things by some substantial peculiarity which gives it a distinct character, is what the law means to protect with an exclusive privilege. It is clear, therefore, that many sugges-

only a series of experiments were going on. . . . That there had been many experiments made upon the same line, and almost tending, if not entirely, to the same result, is clear from the testimony you have heard, and that these experiments were known to various persons; but if they rested in experiment only, and had not attained the object for which the patent was taken out, mere experiment, afterwards supposed by the parties to be fruitless, and abandoned because they had not brought it to a complete result, that will not prevent a more successful competitor, who may avail himself, as far as his predecessors have gone, of their discoveries, and add the last link of improvements in bringing it to perfection." So also in *Bedford v. Hunt*, 1 Mas. 302, 305, Mr. Justice Story said, "If it were the mere speculation of a philosopher or a mechanician, which had never been tried by the test of experience, and never put into actual operation by him, the law would not deprive a subsequent inventor, who had employed his labor and his talents in putting it into practice, of the reward due to his ingenuity and enterprise. But if the first inventor reduced his theory to practice, and put his machine or other invention into use, the law never could intend that the greater or less use in which it might be, or the more or less widely the knowledge of its existence might circulate, should constitute the criterion by which to decide upon the validity of any subsequent patent for the same invention. I hold it therefore to be the true interpretation of this part of the statute, that any patent may be defeated by showing, that the thing secured by the patent, had been discovered and put in actual use, prior to the discovery of the patentee, however limited the use or the knowledge of the prior discovery might have been."

tions may have been made, or many hints taken from others, without invalidating the claim of a party to be considered as the author of the invention; since it is not the abstract suggestion or inchoate idea, which the law intends to treat as the subject of the patent, but the perfected invention, in which the idea is applied to a practical purpose and made capable of useful operation. There may be a long interval between the first suggestion of an idea, which leads to or forms the germ of a discovery, and the actual production of that discovery, in all its peculiarities, constituting in its perfect state the thing invented. This interval must, in many cases, be occupied by the exercise of inventive power, of the highest description, on the part of him who has taken the first suggestion from another, by bringing it to perfection, or developing and reducing it to practical application; and the extent to which this interval is so occupied will determine whether the person originally suggesting, or the person subsequently applying an idea, is entitled to be regarded as the inventor.

§ 48. Thus it has been held that in order to invalidate a patent, on the ground that the patentee received from another person the suggestion of the invention, it is not enough to show that the naked idea, or bare possibility of accomplishing the object was suggested. On the other hand, it is not necessary that the minutiae of the invention should have been communicated by another person. But it must appear that the invention was substantially communicated to the patentee, so that without more inventive power he could have applied it in practice.¹ So too, it has been held, that although others may have previously had the idea of a machine and made some experiments towards putting it in practice, the person who first brought the machine to perfection and made it

¹ *Alden v. Dewey*, 1 Story's R. 336.

capable of useful operation, is the inventor, and is entitled to the patent.¹

§ 49. The extent to which a person may avail himself of the suggestions or inventive faculties, or manual dexterity of a servant, and afterwards claim to be the inventor, does not perhaps admit of being stated in any precise general proposition. It depends upon the relative situations of the parties, the nature of the employment, and the fact of the employer having planned or conceived the main idea of the invention. The person who suggests the principle of an invention is the inventor; and if this be the servant, the employer cannot claim the invention as the author of it, although he may have taken the servant into his employ for the express purpose.²

¹ *Washburn v. Gould*, 3 Story's R. 122, 123. In this case, Mr. Justice Story said, "The law is, that whoever perfects a machine, is entitled to a patent, and is the real inventor, although others may previously have had the idea, and made some experiments towards putting it in practice. In England the law goes even so far as to grant such an one the patent, although the antecedent experiments of others were known to and used by him in perfecting his machine. The law in this country has not gone quite so far, but I do not mean to say that there would be any difficulty in going to that extent. At any rate, he is the inventor and is entitled to the patent, who first brought the machine to perfection and made it capable of useful operation." See also *Pennock v. Dialogue*, 4 Wash. 578. In *Tenant's* case, Dav. Pat. Cases, 429, (cited in *Hill v. Thompson*, 8 Taunt. 395,) there was evidence that a chemist had suggested to the patentee the basis of the improvement in question. The patent was declared invalid; but it appears to have been mainly on the ground that the improvement had been in actual use for six years before the patent. See 8 Taunt. 395, and 2 Evans's Statutes, p. 6, note; Webs. Pat. Cas. 125, note.

² *Minter v. Wells*, Webs. Pat. Cas. 132. In this case, one of the questions submitted to the jury was, whether the patentee, or another person, named Sutton, was the inventor. Alderson, B., instructed the jury as follows: "If Sutton suggested the principle to Mr. Minter, (the patentee,) then he would be the inventor. If on the other hand Mr. Minter suggested the principle to Sutton, and Sutton was assisting him, then Mr. Minter would be the first and true inventor, and Sutton would be a machine, so to

But if the employer conceives the result embraced in the invention, or the general idea of a machine upon a particular principle, and in order to carry his conception into effect, it is necessary to employ manual dexterity or even inventive skill, in the mechanical details and arrangements requisite for carrying out the original conception, in such cases the employer will be the inventor, and the servant will be a mere instrument, through which he realizes his idea.¹ The adoption by an inventor, of a suggestion made in the course of experi-

speak, which Mr. Minter uses for the purpose of enabling him to carry his original conception into effect." In Arkwright's case, with respect to a particular roller, part of the machinery, the evidence was, that Arkwright had been told of it by one Kay; that, being satisfied of its value he took Kay for a servant, kept him for two years, employed him to make models, and afterwards claiming it as his invention, made it the foundation of a patent. The same fact was proved as to a crank, which had been discovered by a person of the name of Hargrave, which also had been adopted by Arkwright. This evidence was fatal to the patentee's claim of originality in respect of both these inventions. *The King v. Arkwright*, Davies's Pat. Cas. 61; Webs. Pat. Cas. 64. See also *Hill v. Thompson*, 8 Taunt. 375, 395; *Barker v. Harris*, Webs. Pat. Cas. 126.

¹ *Ibid.* See also *Bloxam v. Elsee*, 1 Car. & P. 567; Dav. Pat. Cas. 132. It was objected in this case that parts of the improvements in Foudrinier's paper machine were the inventions of Mr. Donkin, who proved that when he made those improvements he was employed as an engineer, for the purpose of bringing the machine to perfection, and was paid for so doing, and that he was acting as the servant of the inventor of the machine, for the purpose of suggesting those improvements. He did not discover the principle of the machine, nor invent the important movements of it. The patent was not disturbed on that ground. Godson on Patents, 27, 28; Hindmarch on Patents, 25, 26. Upon the same principle, the Court of Common Pleas, in England, held that a calico-printer is entitled, after having discharged his head color-man, to the book in which that servant has entered the processes for mixing the colors, during his service, although many of the processes were the invention of the servant himself. *Makepeace v. Jackson*, 4 Taunt. 770.— Mr. Phillips, in his valuable work on Patents, states the doctrine in regard to suggestions thus: "It is not a ground of defence that the patentee availed himself of the suggestions of another, unless they go to an essential part of the invention:"— p. 419, edition of 1837. But it seems to be capable of a more precise statement.

ments, of something calculated more easily to carry his conceptions into effect, does not affect the validity of the patent.¹

§ 50. There may be a class of cases, where the patentee having employed and paid for the inventive faculty of another, may claim and hold a patent for the invention, not as the inventor, but as the assignee of the inventor. But this class of cases belongs to the subject of assignments of patents, and is distinguishable from the general principles which determine who is the actual inventor.

§ 51. With regard to the use of the antecedent experiments of others, Mr. Justice Story has intimated that our law would go as far as the English doctrine, which allows an inventor

¹ *Allen v. Rawson*, 1 M. G. & Scott, 551, 574, Tindall, C. J. "The real question is, whether or not the improvements suggested by *Shaw* and by *Milner* were of such a serious and important character as to preclude their adoption by *Williams* as parts of his invention. The rule was granted simply upon the objection that the patentee had claimed as a part of his invention, the compound apron which was alleged to be the invention of *Shaw*, and the longitudinal guides invented by *Milner*. And the question is, whether, having so claimed these two things, they form any important parts of the invention for which the patent has been obtained. The main object and design of the patentee were the obtaining a long, even and uniform bat, suitable to be made into commercial ends or pieces of cloth. The patentee, in his specification, after describing the double or compound revolving apron, thus refers to that which is called *Shaw's* suggestion:— "As in many manufacturing premises, these two long extended aprons could not be so conveniently used, for want of room, I sometimes extend them backwards and forwards, and even with several aprons, as shown (in the drawings) at figures 6, 7, and 8, or perpendicularly up and down, where only two are required, as shown at figures 9 and 10." This is, obviously, a mere matter of convenience suggested to and adopted by the inventor. It would be difficult to define how far the suggestions of a workman employed in the construction of a machine are to be considered as distinct inventions by him, so as to avoid a patent incorporating them, taken out by his employer. Each case must depend upon its own merits. But when we see that the principle and object of the invention are complete without it, I think it is too much that a suggestion of a workman, employed in the course of the experiments, of

to know and use the antecedent experiments of others in perfecting his invention.¹ The English law is, that experiment not brought to completion, or conducted to a full result, will not vitiate the patent of a more successful person in the same line, though he avails himself of the knowledge gained by the experiments of his predecessors.²

§ 52. The Statute of 1836 also requires that the subject of the patent should not have been, at the time of the application, in public use or on sale, with the consent or allowance of the patentee, as the inventor or discoverer.³

§ 53. The phrase "public use," means use in public, and not use by the public;⁴ so that, under this act, if there had

something calculated more easily to carry into effect the conceptions of the inventor, should render the whole patent void. It seems to me, that this was a matter much too trivial, and too far removed from interference with the principle of the invention, to produce the effect which has been contended for."

¹ Washburn *v.* Gould, *ut supra* note, p. 41, 42.

² In Galloway *v.* Bleaden, Webs. Pat. Cas. 525, Sir N. C. Tindall, C. J., stated the law to be that "a mere experiment, or a mere course of experiments, for the purpose of producing a result which is not brought to its completion, but begins and ends in uncertain experiments — that is not such an invention, as should prevent another person, who is more successful, or pursues with greater industry the chain in the line that has been laid out for him by the preceding inventor, from availing himself of it and having the benefit of it."

³ Act of 1836, § 6. The law had previously been settled to be, that the first inventor cannot acquire a good title to a patent, if he suffers the thing invented to go into public use, or be publicly sold for use, before he makes application for a patent. Such voluntary act or acquiescence in the public sale or use is an abandonment of his right, or rather creates a disability to comply with the terms and conditions of the law; on which alone the Secretary of State is authorized to grant a patent. Pennock *v.* Dialogue, 2 Peters, 16.

⁴ "The public use and exercise of an invention means a use in public, not by the public." Per Lord Abinger, in Carpenter *v.* Smith, 9 Mees. & Wels. 300. Webs. Pat. Cas. 530, 534. I possess a MS. note by Mr. Justice

been a use in public by any person, with the consent or allowance of the patentee, the patent will be defeated.

§ 54. But then it is necessary that the machine, or other subject of invention, should have been completed, and should have been used in public substantially as it was patented, with the consent of the patentee.¹

§ 55. As the law stood, therefore, prior to the year 1839, an invention might be allowed to be in public use by the patentee, before his application, in two modes. He might allow of its use in public by an individual or individuals, or he might allow the whole public to use it, by having abandoned or dedicated his invention to the public before his application. In either case, his patent would have been void.

§ 56. With regard to the first mode, where the use had been permitted to an individual, it has been held that such use must have been unlimited in time, extent, or object. If allowed for a short or definite period, as an act of kindness, or as a means of continuing experiments and testing the utility of the invention it would not have had the effect of defeating the patent under the act of 1836.²

Story to the case of *Wyeth v. Stone*, 1 Story's R. 278, referring to this definition of public use with approbation. The use of a lock, in such a situation that the public might see it, is a public use and exercise of the invention. *Carpenter v. Smith*, *ut supra*. The manufacture and sale, without secrecy, by a workman, of several dozens of locks, according to a model which is retained, is a public use and exercise of the invention. *Ibid.* 540. The publicly making and selling an article, though there may be no demand or use for it at the time, will vitiate subsequent letters-patent. *Losh v. Hague*, *Webs. Pat. Cas.* 205. The question of public use is for the jury; as whether the instances adduced show a manufacture to have been in public use, or only that various experiments have been made and abandoned." *Elliott v. Aston*, *Webs. Pat. Cas.* 224. *Cornish v. Keene*, *Ibid.* 519.

¹ *Wyeth v. Stone*, 1 Story's R. 280, 281.

² *Ibid.* *Ryan v. Goodwin*, 3 Sumner's R. 514, 518. In this last case Mr.

§ 57. With regard to the second mode, a dedication or abandonment of the invention to the public, before the application for a patent, it has been said that the circumstances ought to be very clear and cogent, before the court would be justified in adopting a conclusion so subversive of private rights, when the party has subsequently taken out a patent.¹ Still, although the inventor's acts are to be construed liberally, unequivocal evidence that he has dedicated his invention to the public will deprive him of his right, upon the authority of previous decisions as well as that of the recent statute presently to be cited.²

Justice Story said: — "It is clear by our law, whatever it may be by the law of England, that the public use or sale of an invention, in order to deprive the inventor of his right to a patent, must be a public use or sale by others, with his knowledge and consent, before his application therefor. If the use or sale is without such knowledge or consent, or if the use be merely experimental, to ascertain the value or utility or success of the invention, by putting it in practice, that is not such a use as will deprive the inventor of his title. Our law also requires that the use or sale should not only be with the knowledge and consent of the inventor, but that it should be before his application for a patent. A sale or use of it, with such knowledge or consent, in the intermediate time between the application for a patent and a grant thereof, has no such effect. It furnishes no foundation to presume that the inventor means to abandon his invention to the public; and does not, because it is not within the words of our act, create any statute disability to assert his right to a patent."

¹ *Wyeth v. Stone*, *ut supra*.

² *Mellus v. Silsbee*, 4 Mass. 111. In this case Mr. Justice Story said: — "If the inventor dedicates his invention to the public, he cannot afterwards resume it, or claim an exclusive right in it. It is like the dedication of a public way, or other public easement. The question in such cases is a question of fact. Has he so dedicated it? I agree his acts are to be construed liberally; that he is not to be estopped by licensing a few persons to use his invention to ascertain its utility, or by any such acts of peculiar indulgence and use as may fairly consist with the clear intention to hold the exclusive privilege. But if the inventor proclaims his intention to all the world, and suffers it to go into general and public use, without objection; if he asserts no exclusive right for years, with a full knowledge that the public are led by it to general use, such conduct, in my judgment, amounts to strong proof

§ 58. Prior to the year 1839, therefore, if the patentee allowed not merely the public use, but even a free individual use of his invention, before he applied for a patent, his patent would be invalid. But by the Act of 1839, ch. 88, § 7, this inconvenience was remedied by the enactment, "that every person or corporation, who has or shall have purchased or

that he waives the exclusive right, and dedicates the invention to the world. After such conduct, the attempt to regain the exclusive right and secure it by a patent would operate as a fraud upon the public; and would hold out inducements to incur heavy expenses in putting inventions into operation, of which the party might be deprived at the mere will or caprice of the inventor." So, also, Mr. Justice Washington held: — "That if an inventor makes his discovery public, looks on, and permits others freely to use it, without objection, or assertion of claim to the invention, of which the public might take notice, he abandons the inchoate right to the exclusive use of the invention, to which a patent would have entitled him had it been applied for before such use; and we think it makes no difference in the principle, that the article so publicly used and afterwards patented, was made by a particular individual, who did so by the private permission of the inventor. As long as an inventor keeps to himself the subject of his discovery, the public cannot be injured; and even if it be made public, but accompanied by an assertion of the inventor's claim to the discovery, those who should make or use the subject of the invention would, at least, be put upon their guard. But if the public, with the knowledge and the tacit consent of the inventor, is permitted to use the invention without opposition, it is a fraud upon that public afterwards to take out a patent. It is possible that the inventor may not have intended to give the benefit of his discovery to the public; and may have supposed that, by giving permission to a particular individual to construct for others the thing patented, he could not be presumed to have done so. But it is not a question of intention which is involved in the principle which we have laid down, but of legal inference, resulting from the conduct of the inventor, and affecting the interests of the public. It is for the jury to say, whether the evidence brought this case within the principle which has been stated." 4 Wash. 544. The question which generally arises on trials is a question of fact rather than of law; whether the acts or acquiescence of a party furnish, in a given case, satisfactory proof of an abandonment, or dedication of an invention to the public. See *Pennock v. Dialogue*, 2 Peters, 16. *Grant v. Raymond*, 6 Pet. 248, 249. *Shaw v. Cooper*, 7 Pet. 313 - 323. *McClung v. Kingsland*, 1 Howard, 202, 207.

constructed any newly invented machine, manufacture, or composition of matter, prior to the application by the inventor or discoverer for a patent, shall be held to possess the right to use, and vend to others to be used, the specific machine, manufacture, or composition of matter, so made or purchased, without liability therefor to the inventor, or any other person interested in such invention; and no patent shall be held to be invalid by reason of such purchase, sale, or use, prior to the application for a patent aforesaid, except on proof of abandonment of such invention to the public; or that such purchase, sale, or prior use, has been for more than two years prior to such application for a patent.”¹

§ 59. This enactment relieved the patentee from the effect of the former laws, and the construction that had been put upon them by the courts, and put the person who, by the consent and allowance of the inventor, had had a prior use of the invention, on the same footing as if he had a special license from the inventor to use his invention; and at the same time, the patent is valid, after it is issued, against all persons, except such licensee, who will continue to have the right to use the invention.² Inventors may now, therefore, permit the use of their inventions, by individuals, for a period of two years, prior to the application for a patent, and still obtain a valid patent, notwithstanding such use. But if the use thus allowed extends over a period of more than two years prior to the application, or if it amounts to an abandonment of an invention to the public, whether for a longer or a shorter period, the patent will be invalid.

§ 60. But to entitle a person to claim the benefit of this statute, he must be a person who is a purchaser, or who has

¹ The words, “any newly invented machine, manufacture, or composition of matter,” in this statute, have the same meaning as “invention,” or “thing patented.” *McClurg v. Kingsland, ut supra.*

² *McClurg v. Kingsland, ut supra.*

used the patented invention before the patent was issued, by a license or grant, or by the consent of the inventor, and not be a purchaser under a mere wrong-doer.¹ What will amount

¹ *Pierson v. The Eagle Screw Company*, 3 Story's R. 402, 405. In this case Mr. Justice Story said: "For the defendants the argument is, that the Eagle Screw Company had a right to use the machines purchased by them from Read before Crum's patent was obtained, although Crum was the prior and true inventor, and patentee under the 7th section of the Patent Act of 1839, ch. 88; and great reliance is placed upon the case of *McClurg v. Kingsland*, (1, How. S. C. R. 202.) In my opinion, neither the Act of Congress, nor the case of *McClurg v. Kingsland* justifies such a doctrine. Supposing the argument to be well founded, what would be the legal result? Why, that a mere wrong-doer, who by fraud or artifice, or gross misconduct, had gotten knowledge of the patentee's invention before he could obtain his patent, without any *laches* on his part, could confer upon a purchaser under him — *bonâ fide* and without notice — a title to the patented machine, which he himself could not exercise or possess. Certainly there is no ground to say, that a person who pirates the invention of any party prior in point of time and right, can make any valid claim thereto against the prior and true inventor. How then can he confer on others a title, which he himself does not possess? Upon general principles, the assignee can ordinarily claim no more than his assignor can lawfully grant.

But it is said, that the 7th section of the Act of 1839, ch. 88, declares, "That every person or corporation, who has or shall have purchased or constructed any newly invented machine, manufacture or composition of matter, prior to the application by the inventor or discoverer for a patent, shall be held to possess the right to use, and vend to others to be used, the specific machine, manufacture or composition of matter, so made or purchased, without liability therefor to the inventor, or any other person interested in the invention; and no patent shall be held to be invalid by reason of such purchase, sale or use, prior to the application for a patent as aforesaid, except on proof of abandonment of such invention to the public, or that such purchase, sale or prior use, has been for more than two years prior to such application for a patent." Certainly, the language in the first clause of this section is very general, not to say loose, in its texture. But if it stood alone, a first interpretation of it might fairly lead to the conclusion, that the purchaser there spoken of was a purchaser, not from a mere wrong-doer, but from the first and true inventor before he had obtained his patent. The language of the clause does not even include the qualification that the purchaser should be a *bonâ fide* purchaser for a valuable consideration, without notice of the claim or title of the inventor, or of any fraud of the vendor upon that claim or title.

to such a license, grant, or consent, is well shown in a case where a person employed in the manufactory of another,

Yet, surely, it could never have been the intention of this clause, to confer on a fraudulent purchaser, or a purchaser with full notice, a right to use an invention pirated from the original inventor, by wrong. If, on the other hand, we interpret the language to mean a purchaser from the inventor himself, before his application for a patent, the omission of such qualifying words is at once material and consistent with the apparent objects of the section. But the remaining clauses of this section render this interpretation perfectly clear and right. These clauses point solely to the inventor, and demonstrate that the purchaser before spoken of, was a purchaser from the inventor himself. The language is, "and no patent shall be held to be invalid by reason of any such purpose, sale or use, prior to the application for a patent, as aforesaid, except on proof of an abandonment of such invention to the public." Now the inventor, and the inventor alone, is competent to abandon his invention to the public, and no use by the public, except with his knowledge and consent, can be deemed an abandonment of his invention to the public. It is, therefore, put as an exception carved out of the preceding words; and if the purchase, sale or prior use, were from or under the inventor, and with his consent and knowledge, the exception would have its appropriate effect. It is an exception, *ejusdem generis*. The clause would then read, in legal effect thus — the patent shall not be held invalid, by reason that the inventor has sold or allowed his invention to be used prior to the application for a patent, unless he has abandoned it to the public. Then follows the remaining clause: "Or that such purchase, sale or prior use, has been for more than two years prior to such application for a patent;" which also imports another exception, limiting the right to make application for a patent to the period of two years after the inventor has sold or allowed his invention to be used by others. Any other construction of these clauses, would lead to this extraordinary conclusion, that the inventor would be deprived of the benefit of his invention, and his right to a patent without any *laches* or misconduct on his own part, by the mere acts of a wrong-doer, without his knowledge or against his will; and the exceptions, in a practical sense, would become nullities. But construed, as we construe them, and they have a plain, appropriate and satisfactory meaning. This view of the matter is in entire coincidence with the whole theory and enactments of all the other Patent Acts, and with the judicial interpretations which have been constantly put upon them. It has been the uniform doctrine of the courts of the United States, that no fraudulent or wrongful use of an invention, and no public use without the consent or knowledge, or sanction of the inventor, would deprive him of his right to a patent.

while receiving wages, made experiments at the expense and in the manufactory of his employer, had his wages increased

The case of *McClurg v. Kingsland*, (1 How. Sup. Ch. R. 202,) properly considered, contains nothing to conflict with this doctrine. The learned judge (Mr. Justice Baldwin) who delivered the opinion of the court, in commenting upon the 7th section of the Act of 1839, said: "The object of this provision is evidently twofold; first, to protect the person who used the thing patented, by having purchased, constructed or used the machine, &c., to which the invention is applied, from any liability to the patentee or his assignee; second, to protect the rights granted to the patentee against any infringement by any other persons." This language is certainly general, but then, in order to understand it correctly, we must apply it to the very case then before the court; and in this view it was perfectly accurate and appropriate. What was that case? It was a case where the patentee, before he obtained his patent, allowed the defendants to use for their own profit, the very improvements invented by him; and, indeed, the improvement was invented by the patentee while he was in their employment, and receiving wages from them, and he freely allowed them to use it. Afterwards, the assignee of the patentee brought the suit against the defendants for using the improvement after the patent was granted. The Circuit Court held that the facts justified the jury in presuming, that the defendants used the improvement under a license or privilege originally granted to them by the inventor, and that the facts of the case brought it directly within the 7th section of the Act of 1839. Mr. Justice Baldwin presided in the Circuit Court at the trial, and he also delivered the opinion of the Supreme Court. So that, putting both opinions together on the points in controversy, it is plain that the learned judge, by the language above stated, meant to affirm no more than that where the invention had, before the patent, been used under a license or grant of the patentee, that license or grant being a purchase or sale, or use with the consent of the patentee, was within the provision of the 7th section of the Patent Act of 1839. It seems to us, that no reasonable objection exists to this doctrine; and it is in conformity to, and in illustration of, the very doctrine already stated by us as the true meaning of the section.

Indeed, the context immediately following the passage here cited from the opinion of the learned judge, shows this to have been his meaning. In the former part of the opinion, he had endeavored to show that, under the prior Acts of Congress, if the patentee allowed not merely the public use, but even a free individual use of his invention before he obtained a patent, that would deprive him of his right to a patent; and that the 7th section of the Act of 1839, was intended to cure this inconvenience and defect in the law. "This" [section] says the learned judge, "relieved him (the patentee) from

in consequence of the useful result of the experiment, made the article invented, and permitted his employer to use it; no compensation for its use being paid or demanded, and then obtained a patent; it was held, that such an unmolested and notorious use of the invention, prior to the application for a patent, brought the case within the provisions of the statute.¹

§ 61. But the further consideration of the subjects of license and abandonment belongs to another part of this treatise.

§ 62. The novelty required by our law relates not merely to previous inventions made in this country, but to inventions made any where in the world. The invention must be absolutely and not relatively new. It must not have been known or used anywhere, and not described in any public work.²

§ 63. But there is an important proviso, introduced into the statute, which declares that whenever it shall satisfactorily appear that the patentee, at the time of making his application for the patent, believed himself to be the first inventor or discoverer of the thing patented, the same shall not be held to be void on account of the invention or discovery, or any part thereof, having been before known or used in any foreign country, it not appearing that the same or any substantial part thereof had before been patented or described in

the effect of the former laws and their constructions, by this Court, &c., &c., while it puts the person who has had such prior use on the same footing as if he had a special license from the inventor to use his invention; which, if given before the application for a patent, would justify the continued use after it issued without liability." So that here we have expressed, in a pointed manner, the true object and intent of the 7th section of the Act of 1839, which was to give validity to the patent, and yet to secure to a purchaser from him before the patent, the same right to use the same after the patent which he previously possessed."

¹ *McClurg v. Kingsland*, 1 Howard, 202.

² *Shaw v. Cooper*, 7 Peters, 292. *Dawson v. Follen*, 2 Washington, 311. Act of 1836, § 15.

any printed publication.¹ So that, as the law now stands, an inventor who does not borrow from a foreign discovery, that is, who believes himself to be the first inventor or discoverer of the thing patented, can only be deprived of the benefit of his patent, by showing that the thing had been before patented, or described in some printed publication. It will not be enough to show that the thing had been known or used in a foreign country, if it had not been patented, or described in a printed publication.

§ 64. Thus, while the recent statute still continues the presumption that the patentee has seen the prior description contained in a printed publication, and makes that presumption conclusive,² it relieves an original inventor from the same presumption, arising out of the mere previous knowledge or use of the thing in a foreign country where it had not been patented or described; and if he can take the oath that he discovered or invented the thing, he will not be debarred of his patent, by a prior invention or discovery and secret use of the thing, in a foreign country.³

§ 65. No judicial construction has yet been given to the phrases, "described in some public work" and "described in any printed publication." It has been suggested by a learned writer, that the courts would not, probably, require that the description in a public work should fully answer as a specification, but would require that it should serve as a direction for making or doing the thing to which the description re-

¹ Act of 1836, § 15.

² Upon the former law, the Supreme Court of the United States said "It may be that the patentee had no knowledge of this previous use or previous description; still his patent is void; the law supposes he may have known it." *Evans v. Eaton*, 3 Wheat. 514.

³ The text was written before the opinion on this point lately given by the Attorney-General of the United States, under date of August 30, 1848, which agrees with my construction of the Statutes.

lated.¹ It also remains to be determined what is to be considered as a "public work," or "printed publication."

§ 66. It remains to be stated, that the consideration upon which a patent is granted, is the novelty of every material thing, process, or part of the invention, included in the subject-matter, that is represented as a substantial and material part thereof; that this consideration is an entirety, and consequently, that if any part of it fails, the patent is invalid. This consequence results from the general principles of law which govern grants by the public, and these principles are recognized by the statute, which establishes as one of the defences to an action on a patent "that the patentee was not the original and first inventor or discoverer of the thing patented, or of a substantial and material part thereof claimed as new."²

§ 67. So also, in respect of utility, if a patent contains more than is necessary to produce the described effect, and the addition was made for the purpose of deceiving the public, it will be invalid;³ and if the whole patent fails to produce the described effect, no action can be maintained upon it.⁴

¹ Phillips on Patents, 175.

² Act of July 4th, 1836, § 15. See further, as to the failure of the patent in whole or in part, in respect to novelty, *post*, in the chapter on INFRINGEMENT. As to the mode of remedying these defects, see *post*, in the chapter on RENEWAL OF PATENTS, and in the chapter on DEFENCES.

³ Act of July 4th, 1836 § 15.

⁴ See *post* in the chapter on INFRINGEMENT.

CHAPTER II.

THE SUBJECT OF INVENTION OR DISCOVERY.

§ 68. THE Act of Congress of July 4, 1836, ch. 357, § 6, declares the subject of letters-patent to be "any new and useful art, machine, manufacture or composition of matter, or any new and useful improvement on any art, machine, manufacture or composition of matter." In the preceding chapter, we have considered the qualifications of novelty and utility, with reference to all these subjects; and we have now to treat of the several subjects themselves.

§ 69. In England, the Statute of Monopolies made the subject-matter of letters-patent "the sole working or making of any manner of new *manufactures* within this realm." It has been doubted whether the employment of other phrases has had any great tendency to elucidate the subject. Language may be inadequate to express all the minute distinctions which present themselves, in considering what may, consistently with the purposes and objects of the Patent Law, be the subject of a patent. But whether we have or have not gained any thing in point of precision and certainty, by the enumeration in our statute, perhaps we have not enlarged the subject of patents beyond the general scope of the English law, as judicially expounded. At least, the English exposition of the term "manufactures" will help us to understand what is intended by the classification in our own statute.

§ 70. The cardinal principle, which lies at the foundation

of the Patent Law in England, as well as in this and most other countries, is, that whatever be the character of the subject-matter, or the way in which it is described, the result must be an effect produced in manufactured, as distinguished from elementary matter.¹ The subject-matter of a patent may be either a thing produced or the mode of producing a thing; but it must be the one or the other, and can never be a new discovery of an elementary principle, without practical application to the production of some particular effect in matter. This fundamental rule is deducible not only from the meaning of the term "manufacture," which cannot be made to mean any thing that does not result in manufactured matter in some way — but also from the general scope and spirit of the Patent Law, which was not designed to create monopolies in abstract principles or theoretical discoveries, but to promote the arts and manufactures of the country.²

¹ "All invention, whatever its object, will consist in new applications, or adaptations. Matter is endowed with certain properties, and subject to certain laws; man cannot alter these properties or impose other laws, but he has the power of applying those properties and of giving occasion for the exercise of those laws according to his will, and the result of the exercise of that will, is exhibited in manufactured as distinguished from elementary matter." Webster on the Subject-Matter of Letters-Patent for Inventions, (London, 1841,) p. 7.

² 'Now the word 'manufactures' has been generally understood to denote either a thing made, which is useful for its own sake, and vendible as such, as a medicine, a stove, a telescope and many others, or to mean an engine or instrument, or some part of an engine or instrument, to be employed, either in the making of some previously known article, or in some other useful purpose, as a stocking-frame, or a steam-engine for raising water from mines. Or it may perhaps extend also to a mere process, to be carried on by known implements or elements, acting upon known substances, and ultimately producing some other known substance, but producing it in a cheaper or more expeditious manner, or of a better or more useful kind. But no merely philosophical or abstract principle can answer to the word manufactures. Something of a corporeal and substantial nature, something that can be made by man from the matters subjected to his art and skill, or at the least, some new mode of employing practically his art and skill, is requisite to satisfy this word. A person, therefore, who applies to the crown for a patent, may

§ 71. But, subject to this restriction, the words, "any manner of new manufactures," in the Statute of Monopolies, have received in construction a comprehensive import. According to the construction of the Courts, the word *manufacture* is used in the statute in a literal and a figurative sense. It is used in a literal sense, because it clearly includes any species of new manufactured article, or tangible product of industry; or a new machine, the construction or production of which, as an arrangement of matter, is the result at which the inventor aims. But when it is extended to include the mode of producing an old or well-known substance, or an old and well-known effect upon matter, by a new method or process, it seems to be used in a sort of figurative sense; because, in such cases, it is the method or process of producing the thing or the effect that is new, and is the real subject of the invention, and the manufacture, or the result attained in matter, is then made to stand in the place of the new method or process of attaining it.

§ 72. Thus, "manufacture" has been defined to be "some-

represent himself to be the inventor of some new thing, or of some new engine or instrument. And in the latter case he may represent himself to be the inventor of a new method of accomplishing that object, which is to be accomplished by his new engine or instrument, as was the case of *Watt's Patent*, in which he represented himself to be the inventor of a new method of lessening the consumption of steam and fuel in fire-engines, and by his specification he described certain parts to be used in the construction of fire-engines. Or supposing a new process to be the lawful subject of a patent, he may represent himself to be the inventor of a new process, in which case it should seem that the word "method" may be properly used as synonymous with process. The language of the patent may be explained and reduced to certainty by the specification; but the patent must not represent the party to be the inventor of one thing, and the specification show him to be the inventor of another, because, perhaps, if he had represented himself as the inventor of that other, it might have been well known that the thing was of no use, or was in common use, and he might not have obtained a grant as the inventor of it." *The King v. Wheeler*, 2 B. & Ald. 349, 350.

thing made by the hand of man;"¹ and it has also been held to include the practice of making a thing, or of producing a result.² As in Watt's patent for "a method of lessening the

¹ Per Lord Kenyon, in *Hornblower v. Boulton*, 8 T. R. 99.

² "It was admitted, at the argument at the bar, that the word '*manufacture*,' in the statute, was of extensive signification; that it applied not only to things made, but to the *practice of making*, to principles carried into practice in a new manner, and to new results of principles carried into practice. Let us pursue this admission. Under *things made* we may class, in the first place, new compositions of things, such as manufactures in the most ordinary sense of the word; secondly, all mechanical inventions, whether made to produce old or new effects, for a new piece of mechanism is certainly a thing made. Under the *practice of making*, we may class all new artificial manners of operating with the hand, or with instruments in common use, new processes in any art, producing effects useful to the public. When the effect produced is some new substance or composition of things, it should seem that the privilege of the sole working or making ought to be for such new substance or composition, without regard to the mechanism or process by which it has been produced, which, though perhaps also new, will be only useful as producing the new substance. Upon this ground Dolland's patent was perhaps exceptionable, for that was for a *method* of producing a new object glass, instead of being for the object glass produced. If Dr. James's patent had been for his *method for preparing* his powders, instead of the *powders themselves*, that patent would have been exceptionable upon the same ground. When the effect produced is no substance or composition of things, the patent can only be for the mechanism, if new mechanism is used, or for the process, if it be a new method of operating, with or without old mechanism, by which the effect is produced. To illustrate this. The effect produced by Mr. David Hartley's invention for securing buildings from fire is no substance, or composition of things; it is a mere negative quality, the absence of fire. This effect is produced by a new method of disposing iron plates in buildings. In the nature of things, the patent could not be for the effect produced. I think it could not be for making the plates of iron, which, when disposed in a particular manner, produced the effect; for those are things in common use. But the invention consists in the *method of disposing those plates of iron* so as to produce their effect; and that effect being a useful and meritorious one, the patent seems to have been very properly granted to him for *his method* of securing buildings from fire. And this compendious analysis of *new manufactures* mentioned in the statute, satisfies my doubt, whether any thing could be the subject of a patent but something organized and capable of precise specification. But for the more satisfac-

consumption of steam and fuel in fire-engines," which was held, after great consideration, to be a good subject-matter.¹ The distinction to which this case gave rise, and which greatly extended the meaning of the term "manufacture," is this: that although a principle, or a rule in mechanics, or an elementary truth in physics, cannot be the subject of a patent, yet a new principle, rule, or truth, developed, carried out, and embodied in the mode of using it, may be the subject of a patent. A mere principle is an abstract discovery, incapable of answering the term "manufacture;" but a

tory solution of the other points which are made in this case, I shall pursue this subject a little further. In Mr. Hartley's method, plates of iron are the means which he employs; but he did not invent those means; the invention wholly consisted in the new manner of *using*, or I would rather say of *disposing*, a thing in common use, and which every man might make at his pleasure, and which, therefore, I repeat, could not, in my judgment, be the subject of the patent. In the nature of things it must be that, in the carrying into execution any new invention, use must be made of certain means proper for the operation. Manual labor, to a certain degree, must always be employed; the tools of artists frequently; often things manufactured, but not newly invented, such as Hartley's iron plates; all the common utensils used in conducting any process, and so up to the most complicated machinery that the art of man ever devised. Now let the merit of the invention be what it may, it is evident that the patent, in almost all these cases, cannot be granted for the *means* by which it *acts*, for in them there is nothing new, and in some of them nothing capable of approbation. Even where the most complicated machinery is used, if the machinery itself is not newly invented, but only conducted by the skill of the inventor so as to produce a new effect, the patent cannot be for the machinery. In Hartley's case it could not be for the *effect* produced; for the effect, as I have already observed, is merely negative, though it was meritorious. In the list of patents with which I have been furnished, there are several for new methods of manufacturing articles in common use, where the sole merit and the whole effect produced are the saving of time and expense, and thereby lowering the price of the article, and introducing it into more general use. Now I think these *methods* may be said to be *new manufactures*, in one of the common acceptations of the word, as we speak of the manufactory of glass, or of any other thing of that kind." Per Eyre, C. J., in *Boulton v. Bull*. 2 H. Bl. 492.

¹ *Boulton v. Bull*, *ut supra*. *Hornblower v. Boulton*, *ut supra*.

principle so far embodied and connected with corporeal substances, as to be in a condition to act and to produce effects in any art, trade, mystery, or manual occupation, becomes the practical manner of doing a particular thing. It is no longer a principle, but a process.¹ Mr. Watt's invention was the discovery of a practical means of lessening the consumption of steam, by protecting the cylinder from the external air, and keeping it at a temperature not below that of steam itself. He thus brought a principle into practical application, by the invention of a process.

§ 73. In like manner, a patent for the application of the flame of gas, instead of the flame of oil, to remove the superfluous fibres of lace, was sustained.² So, too, where the invention consisted in the use and application of lime and mine-rubbish in the smelting of iron, Lord Eldon said there might be a patent for a new combination of materials previously in use for the same purpose, or for a new method of applying such materials.³ But this distinction has been made still more prominent by two recent cases. In one, the patent was for the application of anthracite, combined with hot-air blast, in the smelting or manufacture of iron from iron stone, mine, or ore; and the patent was sustained.⁴ In the other, the invention was of a mode of welding iron tubes, without the use of a maundril, or any internal support; and this patent was also sustained.⁵

§ 74. These cases show that the term *manufacture* has been extended to include every object upon which art or skill

¹ See the remarks of Eyre, C. J., *ante*.

² *Hall v. Jervis*, Webs. Pat. Cas. 100.

³ *Hill v. Thompson*, 3 Mer. 626. Webs. Pat. Cas. 237. In *Morgan v. Seaward*, 2 Mees. & W. 544, Mr. Baron Parke said: — "The word manufacture, in the statute, must be construed one of two ways; it may mean the machine when completed, or the mode of constructing the machine.

⁴ *Crane v. Price*, Webs. Pat. Cas. 393, 408.

⁵ *Russell v. Cowley*, Webs. Pat. Cas. 459.

can be exercised, so as to afford products fabricated by the hand of man, or by the labor which he directs.¹ In this sense it includes a process; so that a patent may, it is said, be taken for a process, method, or practical application of a principle, that will cover every means or apparatus by which that process or method can be carried on, or by which that principle can be applied, provided the patentee has not only discovered the principle, but has also invented some mode of carrying it into effect.²

§ 74 *a*. But it is necessary here to consider the broad question, what constitutes a patentable subject, before we attend to the classification of patentable subjects adopted by our statute.

§ 75. It is constantly to be borne in mind, in considering what may be the subject of a valid patent, that it cannot be a mere elementary principle, or intellectual discovery; but if a principle constitutes an important part of the discovery, it must be a principle put in practice and applied to some art.³ A science, therefore, or an elementary principle or discovery in science, cannot be the subject of a patent. So, too, there cannot be a patent for an effect, but it must be for the mode or means by which the effect is produced;⁴ or the practical mode of operating, by means of certain agencies or properties of matter, or laws of physics, so as to produce a given effect.

¹ Webster's Law and Practice, Supplement, p. 8.

² Forsyth *v.* Riviere, Webs. Pat. Cas. 97, note. Per Alderson, B., in *Jupe v. Pratt*, Ibid. 146, and in *Nielson v. Hartford*, Ibid. 342.

³ *Earl v. Sawyer*, 4 Mass. 1-6. "The very statement of what a principle is, proves it not to be a ground for a patent. It is the first ground and rule for arts and sciences, or, in other words, the elements and rudiments of them. A patent must be for some new production from those elements, and not for the elements themselves." Per Buller, J., in *Boulton v. Bull*, 2 H. Bl. 485.

⁴ *Whittemore v. Cutter*, 1 Gallis. 478, 480.

§ 76. The consequences of allowing a patent for an abstract art or a principle, instead of allowing it only for a principle as applied to the production of a particular thing, or a particular result in matter, are apparent, when it is considered that principles are the elements of science; and if a patent could be taken for a newly discovered principle in science, it would cover every object to which that principle could be applied, and the whole field of the arts would thus at once be occupied by a few monopolists.¹ If a patent for an art or method of combining different elements or principles in science were possible, without its being confined to a particular product or result by means of such an art or method, every product, substance, or manufacture, to the creation of which that art or method could be applied, would be included in it. Thus it has been happily pointed out by an eminent English judge that if a man could have a patent for the principle or abstract art of intermixing water with oil colors, no other man could have had a patent for any distinct manufacture produced on the same principle.² The distinction is this:—if a discovery consists merely in detecting some new property of matter, or of the elements of nature, or the laws of physics, but no special and positive application is made of it to specific fabrications, it is a discovery in science, or ab-

¹ “Indeed it seems impossible to specify a principle, and its application to all cases, which furnishes an argument that it cannot be the subject of a patent.” Per Heath, J., in *Boulton v. Bull*, 2 H. Bl. 483.

² The case of water tabbies, which has often been mentioned in *Westminster Hall*, may afford some illustration of this subject. That invention first owed its rise to the accident of a man’s spitting on a floor cloth, which changed its color, from whence he reasoned on the effect of intermixing water with oils or colors, and found out how to make water tabbies and had his patent for water tabbies only. But if he could have had a patent for the principle of intermixing water with oil or colors, no man could have had a patent for any distinct manufacture produced on the same principle, yet as the floor cloth and the tabby are distinct substances, calculated for distinct purposes, and were unknown to the world before, a patent for one would be no objection to a patent for another.” Per Buller, J., in *Boulton v. Bull*, 2 H. Bl. 487.

stract mechanics, and not patentable; but if the discoverer makes use of such a new property, or avails himself of scientific or mechanical principles, for the production of a new substance, instrument or machine, obtaining a result that is new, and of a vendible description; the particular mode of producing that particular thing may be the subject of a patent.¹ This distinction has been previously noticed; but it is necessary here to examine the doctrine, and to ascertain to what objects the distinction has been applied, and what seem to be its necessary limits.

§ 77. We have already seen that the term "manufacture" being the only generic term used in the Statute of Monopolies to describe the subjects of lawful patents, it became necessary to enlarge it by construction much beyond its literal import. As soon as it was held that a patent could be taken

¹ A striking illustration of this distinction occurred before Mr. Justice Story. The plaintiff's specification claimed "as new, to cut ice, of a uniform size, by means of an apparatus worked by any other power than human. *The invention of this art, as well as the particular method of the application of the principle, are claimed by the subscriber.*" The learned judge said "it is plain, then, that here the patentee claims a title to the art of cutting ice by means of any power other than human power. Such a claim is surely un-maintainable in point of law. It is a claim for an art or principle in the abstract, and not for any particular method or machinery by which ice is to be cut. No man can have a right to cut ice by all means or methods, or by all or any sort of apparatus, although he is not the inventor of any or all of such means, methods, or apparatus." *Wyeth v. Stone*, 1 Story's R. 273, 285. But the court intimated that the claim for the particular method of the application of the principle would have been good, if a disclaimer had been filed in season as to that part of the claim which was clearly bad. *Ibid.*

See also *Stone v. Sprague*, 1 Story's R. 270, where in a patent for an improvement on looms, the invention claimed was the communication of motion from the reed to the yarn beam, in the connection of the one with the other, which is produced as follows, describing the mode, it was held, that the invention was limited to the specific machinery and mode of communicating the motion, &c., specifically described in the specification; otherwise it would be a claim for the abstract principle of communicating motion in all possible modes.

for the mode of producing an effect, as in Watt's case, for the mode of lessening the consumption of steam in a steam-engine, the literal meaning of this term was widely departed from, and that was held to be a "manufacture" within the meaning of the statute, which in reality consisted in the new application of certain principles of physics, to effect the more economical use of a well-known machine. This, of necessity, opened the whole subject of principle and method, and led to the doctrine which we are now to state.

§ 78. Although a patent cannot be taken out for a new principle, yet, where it has been embodied, so as to be capable of being made active, it is, as we have seen, a proper subject of a patent; and if any other person puts that principle into use, in any other form, it is a question for a jury, whether that form be not substantially an adaptation of the principle, applied with the same view to answer the same end, and merely imitated in substance, whatever difference there may be in point of form. If the patentee has invented some mode of carrying the principle into effect, he is entitled, it is said, to protect himself from all other modes of carrying the same principle into effect.¹ In point of fact, the patent in such cases is taken, not for the principle itself but for the mode of carrying into effect;² so that when it is alleged that

¹ In *Jupe v. Pratt*, Webs. Pat. Cas. 144, 146, Alderson, B., said, "The difficulty which will press on you, and to which your attention will be called, in the present case, is this: you can take out a patent for a principle coupled with the mode of carrying the principle into effect, provided you have not only discovered the principle, but invented some mode of carrying it into effect. But then you must start with having invented some mode of carrying the principle into effect; if you have done that, then you are entitled to protect yourself from all other modes of carrying the same principle into effect, that being treated by the jury as a piracy of your original invention. But then the difficulty that will press on you here is, that on the evidence, there does not appear to have been any mode of carrying the principle into effect at all invented by you."

² See *Hill v. Thompson*, Webs. Pat. Cas. 227; 3 Meriv. 626.

an infringement has taken place, the question is whether the defendant has undertaken to carry the same principles into effect in the same mode, so that, in substance, all the variations of means and appliances which he has made use of are merely colorable variations of the mode of carrying it into effect, invented by the patentee. This seems to be what is intended by the learned judge whose observations are cited in the foregoing note, when he says that the patentee is entitled to protection against all other means of carrying the principle into effect.¹ He is entitled to protection against all colorable variations for carrying the same principle into practice for obtaining the same effect or result.²

§ 79. Thus, there may be a patent for the practical application of a known thing to produce a particular effect. As in the case of Hartley's invention to protect buildings from fire, by the application of plates of metal.³ So too, in the case of Forsyth's patent, for the application of detonating

¹ See the observations of the same learned judge, in *Neilson v. Harford*, Webs. Pat. Cas. 342.

² In *Gray v. James*, Peters's Cir. C. R. 394, 400, where the patent was "for an improvement in the art of making nails by means of a machine which cuts and heads the nail at one operation," Washington, J., applied the same doctrine, holding that where two machines are substantially the same, and operate in the same manner, to produce the same result, they must be in principle the same; and that when the same result is referred to as the test, it must mean the same kind of result though it may differ in extent. He further instructed the jury as follows: "The patent is supposed to be for the machine itself, which is composed of parts which have long become public property. This is not the fact. The patent is for an improvement in the art of making nails by means of a machine which cuts and heads the nails at one operation. It is therefore not the grant of an abstract principle, nor is it the grant of the different parts of any machine; but of an improvement applied to a practical use, effected by a combination of various mechanical powers to produce a new result. The lever, the vice, the cutters, the dies, &c., may be used by any person without a violation of the plaintiff's patent. But they cannot be used in their combined state to produce by the same operation, the same result, which is the distinguishing characteristic of the plaintiff's machine, without a license from the owners."

³ See *Boulton v. Bull*, 2 H. Bl. 495. Webs. Pat. Cas. 54, 56, note.

powder, which he did not invent, to the discharge of artillery, mines, &c., the patentee succeeded in an action against a party using a lock of different construction to any shown in the drawing annexed to his specification, and thus established his right to the exclusive use and application of detonating powder as priming, whatever the construction of the lock by which it was discharged.¹ In the same way, where the plaintiff had obtained a patent for the application of the flame of gas, to singe off the superfluous fibres of lace and other goods, but did not claim the exclusive use of any apparatus or combination of machinery except in connection with, and in aid of the application of the flame of gas to the purposes described in his specification, he had a verdict founded on his sole right to use gas flame for the clearing of fibres from lace.² So also, where the invention consisted in the use of anthracite or stone coal, combined with the hot-air blast, in the smelting or manufacture of iron from iron stone, mine or ore; and the using of the hot blast was known before in the manufacture of iron with bituminous coal, and the use of anthracite or stone coal was known before in the manufacture of iron with cold blast, but the combination of the hot blast and the anthracite was not known before in the manufacture of iron, the Court of Common Pleas declared, that if the result produced by such a combination is either a new article or a better article, or a cheaper article to the public than that produced before by the old method, such combination is an invention or manufacture intended by the statute, and may well become the subject of a patent.³ Again, where the invention

¹ Forsyth *v.* Riviere, Webs. Pat. Cas. 95, 97, note.

² Hall *v.* Jervis, Webs. Pat. Cas. 100, 103. See, also, a case where the invention undoubtedly consisted in bringing a newly discovered principle into practical application, namely, that lead could be forced by extreme pressure, when in a set or solid state, to reunite, after separation of its parts, as completely as though it had never been separated; but the patent was held not to be so drawn as to embrace it. *Le Roy v. Tatham*, 14 Howard, 156. See the very able discussion by Mr. Justice Nelson, in his dissenting opinion, of the doctrine of the patentability of a principle, referred to in the text.

³ Craze *v.* Price, Webs. Pat. Cas. 393, 408. In this case Sir N. C. Tin-

was to manufacture iron tubes by welding them, without the

dall, C. J., said: "Now in order to determine whether the improvement described in the patent, is or is not a manufacture within the statute, we must, in the first place, ascertain precisely what is the invention claimed by the plaintiff; and then, by the application of some principles, admitted and acknowledged in the application of the law relating to patents, and by the authority of decided cases, determine the question in dispute between the parties. The plaintiff describes the object of his invention to be the application of anthracite or stone coal, combined with hot-air blast in the smelting or manufacture of iron from iron stone, mine, or ore, and states distinctly and unequivocally, at the end of his specification, that he does not claim the use of a hot-air blast, separately, as of his invention, when uncombined with the application of anthracite or stone coal. Nor does he claim the application of anthracite or stone coal, when uncombined with the using of hot-air blast, in the smelting and manufacture of iron from iron stone, mine or ore. And the question, therefore, becomes this — whether, admitting the using of the hot-air blast to have been known before in the manufacture of iron with bituminous coal, and the use of anthracite or stone coal, to have been known before in the manufacture of iron with coal blast, but that the combination of the two together (the hot blast and the anthracite) were not known to be combined before in the manufacture of iron, whether such combination can be the subject of a patent.

We are of opinion, that if the result produced by such a combination is either a new article, or a better article, or a cheaper article to the public, than that produced before by the old method, that such combination is an invention or manufacture intended by the statute, and may well become the subject of a patent. Such an assumed state of facts falls clearly within the principle exemplified by Abbott, C. J., (*The King v. Wheeler*, 2 B. & Ald. 349,) where he is determining what is or what is not the subject of a patent; namely, it may, perhaps, extend to a new process, to be carried on by known implements or elements acting upon known substances, and ultimately producing some other known substance, but producing it in a cheaper or more expeditious manner, or a better or more useful kind. And it falls also within the doctrine laid down by Lord Eldon, (*Hill v. Thompson*, Webs. Pat. Cas. p. 237,) that there may be a valid patent for a new combination of materials previously in use for the same purpose, or even for a new method of applying such materials. But the specification must clearly express, that it is in respect of such new combination or application.

There are numerous instances of patents, where the invention consisted in no more than in the use of things already known, and acting with them in a manner already known, and producing effects already known, but producing those effects so as to be more economically or beneficially enjoyed by the public. It will be sufficient to refer to a few instances, some of which

use of any maundril, or internal support, but the patentee did not claim any precise construction of apparatus for this purpose, but his claim consisted in heating the previously prepared tubes of iron to a welding heat, and then, without any internal support, drawing them between dies or holes, by which the edges of the heated iron became pressed and welded together; and the defendant had made tubes upon the same principle of manufacture, but with a somewhat varied apparatus; the patentee had a verdict for the infringement, and his patent was afterwards sustained before the Court of Exchequer *in banc*.¹

patents have failed on other grounds, but none on the ground that the invention itself was not the subject of a patent.

We may first instance Hall's patent for applying the flame of gas to singe off the superfluous fibres of lace, where a flame of oil had been used before for the same purpose. (Webs. Pat. Cas. p. 97.) Derosne's patent, in which the invention consisted in filtering the syrup of sugar through a filter, to act with animal charcoal, and charcoal from bituminous schistus, where charcoal had been used before in the filtering of almost every other liquor, except the syrup of sugar. (Webs Pat. Cas. p. 152.) Hill's patent, above referred to, for improvements in the smelting and working of iron; there the invention consisted only in the use and application of the slags or cinders thrown off by the operation of smelting, which had been previously considered useless for the production of good and serviceable metal, by the admixture of mine rubbish. Again, Daniell's patent was taken out for improvements in dressing woolen cloth, where the invention consisted in immersing a roll of cloth, manufactured in the usual manner, into hot water. (Webs. Pat. Cas. 71, note *e.*, and the King *v.* Daniell, Godson on Pat. 274.)

The only question, therefore, that ought to be considered on the evidence is, was the iron produced by the combination of the hot blast and the anthracite, a better or a cheaper article than was before produced from the combination of the hot blast and the bituminous coal; and was the combination described in the specification, new, as to the public use thereof in England. And, upon the first point, upon looking at the evidence in the cause, we think there is no doubt, that the result of the combination of the hot blast with the anthracite on the yield of the furnace was more, the nature, properties and quality of the iron better, and the expense of making the iron less than it was under the former process, by means of the combination of the hot blast with the bituminous coal."

¹ Russell *v.* Cowley, Webs. Pat. Cas. 459, 465. At the trial, at the close of the plaintiff's case, Lord Lyndhurst, C. B., who presided, recalled Mr.

§ 80. And where the invention consisted in the application of heated air as a blast for fires, forges, and furnaces, but the

Brunel and Mr. Donkin, when the following questions were put, and answers given. Lord Lyndhurst, C. B.: "When the upper roller is down, its lower edge lies upon the upper ledge of the under roller, and there is a hole between the rollers, and through that hole, by means of the revolution of the rollers, the heated tube is drawn. Now, I wish to ask you, whether that (without the scorpion) which they say, by pressure, welds the heated tube — the sides of the hole, they say, weld the tube — is in your judgment similar, though not exactly the same, similar to the invention of the plaintiff; the plaintiff stating that his invention is of this description — "The principle of my invention is the heating the previously prepared tubes of iron to a welding heat, that is, nearly to the point of fusion, and then, after withdrawing them from the heat, to pass them between dies, or through holes, by which the edges of the heated iron may be pressed together, and the joint firmly welded." "I want to know whether that effect is produced by the rollers, although not so perfectly as by the dies?" Mr. Brunel — "It is produced by the rollers."

"Then I want to know whether the passing them through the rollers in that way alone is not similar, although not so perfect, as passing them through the dies or through the tongs?" Mr. Brunel — "It is my opinion that it is the same."

"It is by the pressure of the sides of that hole, that the edges of the heated iron are welded together?" Mr. Brunel — "It is."

"By passing through the holes of the dies, it is by the pressure of the sides of the hole that the edges of the heated iron are welded together?" Mr. Brunel — "Quite so."

"Then I ask, whether, if it is a question of welding, the one is in your judgment similar to the other?" Mr. Brunel — "It is."

"Mr. Donkin, you have heard the questions I have put to Mr. Brunel — I wish to have your opinion upon the same point?" Mr. Donkin — "I think the holes, when closed, one upon the other, produce a similar effect, and the method of welding is therefore the same."

"Then you think one invention, in principle, is similar to the other?" Mr. Donkin — "I do."

Lord Lyndhurst, C. B.: I confess it appeared to me from reading the specification, that without the scorpion, the one is an imitation of the other; because this party says, "I do not claim this particular apparatus only. I do it by the die, or I do it by the tongs; the principle of my invention is, to pass the heated tubes through the hole at a welding heat, and by pressure occasioned by that hole, to unite together the heated edges by welding." That may be done more or less perfectly — whether it is by the rollers or by the tongs, it is not very material; the one is similar in principle to the other.

patentee claimed no particular form of apparatus for heating the air, but described an apparatus by which it might be heated; and the defendant had employed an apparatus confessedly superior in its effects to that described in the plaintiff's specification, and such an improvement as would have supported a patent; but as it involved the principle of the plaintiff's invention, it was held an infringement.¹

§ 80 *a*. A recent case in the Supreme Court of the United States presents an apt illustration of the distinction between a claim for the machinery by which a newly discovered principle is carried into practical application, for the production of a useful article, and the discovery and application of the principle itself. The plaintiffs discovered the principle that lead when recently set and solid, but still under heat and extreme pressure, in a close vessel, would re-unite after a separation of its parts, and "heal, as it were by the first inten-

¹ Neilson *v.* Harford, Webs. Pat. Cas. 295, 310, 328. Mr. Baron Parke in this case said to the Jury: "Now the best way of disposing of this case, I think will be to take those questions in order upon which you are to pronounce your opinion; and the first is, whether the defendants have been guilty of infringing the patent? and I apprehend that there is no doubt they have, if the patent be a good patent, and if the specification be free from the objections that are raised to it; and if the specification is to be understood in the sense claimed by the plaintiffs, the invention of heating the air between its leaving the blowing apparatus and its introduction into the furnace, in any way, in any close vessel, which is exposed to the action of heat, there is no doubt that the defendants' machinery is an infringement of that patent, because it is the use of air which is heated much more beneficially, and a great improvement upon what would probably be the machine constructed by looking at the specification alone; but still it is the application of heated air, heated in one or more vessels between the blowing apparatus and the furnace, and therefore if it should turn out that the patent is good, and the specification is good, though unquestionably what the defendants have done is a great improvement upon what would be the species of machinery or apparatus constructed under this patent, it appears to me that it would be an infringement of it; therefore your verdict upon that issue would be for the plaintiff, provided it is for the plaintiff on the other issues."

tion," as completely as though it had not been divided. This new property they applied to the manufacture of lead pipe; but their patent, in the opinion of a majority of the court, claimed the machinery alone, by which the application of the discovery was made, and this machinery turned out not to be new. The following dissenting opinion, delivered by Mr. Justice Nelson, in this case, contains an exceedingly able discussion of the doctrine by which the application of a newly discovered principle becomes the subject of a patent, — a doctrine, it should be observed, which the view taken by the majority of the court, did not necessarily controvert.¹

"The patent in this case, according to the general description given by the patentees, is for improvements upon, and additions to, the machinery or apparatus of Thomas Burr, for manufacturing pipes and tubes from metallic substances. They declare that the nature of their invention, and the manner in which the same is to operate, are particularly described and set forth in their specification. In that they refer to the patent of Burr of the 11th April, 1820, for making lead pipe out of set or solid lead by means of great pressure, the product being wrought pipe, as contradistinguished from cast, or pipe made according to the draw-bench system. The apparatus, as described by Burr, consisted of a strong iron cylinder, bored sufficiently true for a piston to traverse easily within it. This cylinder was closed at one end by the piston, and also closed at the other, except a small aperture for the die; which formed the external diameter of the pipe. The core or mandrel which determined the inner diameter, was a long cylindrical rod of steel, one end of which was attached to the face of the piston, extending through the centre of the cylinder, and passing also through the centre of the die at the opposite end, leaving a space around the core, and between it and the die, for the formation of the pipe. The metal to form the pipe was admitted into the cylinder in a fluid state, and when it became set or solid, the power of a hydraulic press was applied to

¹ *Le Roy v. Tatham*, 14 Howard, 156, 177.

the head of the piston, which, moving against the body of solid lead in the cylinder, drove it through the die, the long core advancing with the piston and with the body of lead through the die, and thus forming the pipe. The cylinder usually holds from three to four hundred pounds of lead, and continuous pipe is made till the whole charge is driven out.

This plan, though one of deserved merit, and of great originality, failed when reduced to practice, except for the purpose of making very large pipe, larger than that usually in demand, and consequently passed out of general use. The long core attached to the face of the piston, advancing with it in the solid lead, under the great pressure required, was liable to warp and twist out of a straight line, and out of centre in the die, which had the effect to destroy the uniformity of the thickness and centrality of the bore of the pipe.

The old mode, therefore, of making pipe by the draw-bench system, continued down to 1837, when the patentees in this case discovered, by experiment, that lead, when recently set and solid, but still under heat and extreme pressure, in a close vessel, would re-unite after a separation of its parts, and heal (in the language of the patentees) as it were by the first intention, as completely as though it had not been divided.

Upon the discovery of this property of lead, which had never before been known, but on the contrary, had been supposed and believed by all men of science skilled in metals to be impossible, the patentees made an alteration in the apparatus of Burr, founded upon this new property discovered in the metal, and succeeded completely in making wrought pipe out of solid lead by means of the hydraulic pressure. The product was so much superior in quality to that made according to the old mode, that it immediately wholly superseded it in the market. The pipe was also made much cheaper.

The patentees, by their discovery, were enabled to dispense with the long core of Burr, and to fix firmly a bridge or cross-bars at the end of the cylinder near the die, to which bridge they fastened a short core extending into and through the die. By this arrangement they obtained a firm, immo-

vable core, that always preserved its centrality with the die, and secured the manufacture of pipe of uniformity of thickness of wall and accuracy of bore, of any dimension. The lead, after being admitted into the cylinder in a fluid state, was allowed to remain till it became solid, and was then driven by the piston through the apertures in the bridge into the chamber between it and the die, where the parts re-united, after the separation, as completely as before, and, passing out at the die around the fixed short core, formed perfect pipe.

The patentees state, that they do not intend to confine themselves to the arrangement of the apparatus thus particularly specified, and point out several other modes by which the same result may be produced, all of which variations would readily suggest themselves, as they observe, to any practical engineer, without departing from the substantial originality of the invention, the remarkable feature of which, they say, is that lead, when in a set state, being yet under heat, can be made, by extreme pressure, to reunite perfectly around a core after separation, and thus be formed into strong pipes or tubes. Pipes thus made are found to possess great solidity and unusual strength and a fine uniformity, such as had never before been attained by any other mode. The essential difference in its character, and which distinguishes it from all other theretofore known, they add, is, that it is wrought under heat, by pressure and constriction, from set or solid metal.

They do not claim, as their invention or improvement, any of the parts of the machinery, independently of the arrangement and combination set forth.

‘What we claim as our invention,’ they say, ‘is, the combination of the following parts above described, to wit: the core and bridge or guide-piece, with the cylinder, the piston, the chamber and die, when used to form pipes of metal under heat and pressure, in the manner set forth, or in any other manner substantially the same.’

It is supposed that the patentees claim, as the novelty of their invention, the arrangement and combination of the

machinery which they have described, disconnected from the employment of the new property of lead, which they have discovered, and by the practical application and use of which they have succeeded in producing the new manufacture. And the general title or description of their invention, given in the body of their letters-patent, is referred to as evidence of such claim. But every patent, whatever may be the general heading or title by which the invention is designated, refers to the specification annexed for a more particular description; and hence this court has heretofore determined, that the specification constitutes a part of the patent, and that they must be construed together when seeking to ascertain the discovery claimed. *Hogg et al. v. Emerson*, 6 How. 437.

The same rule of construction was applied by the Court of Exchequer, in England, in the case of Neilson's patent for the hot-air blast. *Webster's Cases*, 373.

Now, on looking into the specification, we see that the leading feature of the invention consists in the discovery of a new property in the article of lead, and in the employment and adaptation of it, by means of the machinery described, to the production of a new article, wrought pipe, never before successfully made. Without the discovery of this new property in the metal, the machinery or apparatus would be useless, and not the subject of a patent. It is in connection with this property, and the embodiment and adaptation of it to practical use, that the machinery is described, and the arrangement claimed. The discovery of this new element or property led naturally to the apparatus, by which a new and most useful result is produced. The apparatus was but incidental, and subsidiary to the new and leading idea of the invention. And hence, the patentees set forth, as the leading feature of it, the discovery that lead, in a solid state, but under heat and extreme pressure in a close vessel, will reunite, after separation of its parts, as completely as though it had never been separated. It required very little ingenuity, after the experiments in a close vessel, by which this new property of the metal was first developed, to construct the

necessary machinery for the formation of the pipe. The apparatus, essential to develop this property, would at once suggest the material parts, especially in the state of the art at the time. Any skilful mechanic, with Burr's machine before him, would readily construct the requisite machinery.

The patentees, therefore, after describing their discovery of this property of lead, and the apparatus by means of which they apply the metal to the manufacture of pipe, claim the combination of the machinery, only when used to form pipes under heat and pressure, in the manner set forth, or in any other manner substantially the same. They do not claim it as new separately, or when used for any other purpose, or in any other way; but claim it, only, when applied for the purpose and in the way pointed out in the specification. The combination, as machinery, may be old; may have been long used; of itself, what no one could claim as his invention, and may not be the subject of a patent. What is claimed is, that it had never been before applied or used, in the way and for the purpose they have used and applied it, namely, in the embodiment and adaptation of a newly discovered property in lead, by means of which they are enabled to produce a new manufacture — wrought pipe — out of a mass of solid lead. Burr had attempted it, but failed. These patentees, after the lapse of seventeen years, having discovered this new property in the metal, succeeded, by the use and employment of it, and, since then, none other than wrought lead pipe, made out of solid lead, has been found in the market, having superseded, on account of its superior quality and cheapness, all other modes of manufacture.

Now, the construction which I understand a majority of my brethren are inclined to give to this patent, namely, that the patentees claim, as the originality of their invention, simply, the combination of the machinery employed, with great deference, seems to me contrary to the fair and reasonable import of the language of the specification, and also of the summary of the claim. The tendency of modern decisions is to construe specifications benignly, and to look through

mere forms of expression, often inartificially used, to the substance, and to maintain the right of the patentee to the thing really invented, if ascertainable upon a liberal construction of the language of the specification when taken together. For this purpose, phrases standing alone are not to be singled out, but the whole are to be taken in connection. 1 Sumn. 482-485.

Baron Parke observed, in delivering the opinion of the court in Neilson's patent, 'That, half a century ago, or even less, within fifteen or twenty years, there seems to have been very much a practice, with both judges and juries, to destroy the patent-right, even of beneficial patents, by exercising great astuteness in taking objections, either as to the title of the patent, but more particularly as to the specifications, and many valuable patent-rights have been destroyed in consequence of the objections so taken. Within the last ten years or more, the courts have not been so strict in taking objections to the specifications, and they have endeavored to hold a fair hand between the patentee and the public, willing to give the patentee the reward of his patent.'

Construing the patent before us in this spirit, I cannot but think that the thing really discovered, and intended to be described and claimed by these patentees, cannot well be mistaken. That they did not suppose the novelty of their invention consisted, simply, in the arrangement of the machinery described, is manifest. They state, distinctly, that the leading feature of their discovery consisted of this new property of lead, and some of its alloys,—this, they say, is the remarkable feature of their invention,—and the apparatus described is regarded by them as subordinate, and as important only as enabling them to give practical effect to this newly discovered property, by means of which they produce the new manufacture. If they have failed to describe and claim this, as belonging to their invention, it is manifest, upon the face of their specification, that they have failed to employ the proper words to describe and claim what they intended; and that the very case is presented, in which, if

the court, in the language of Baron Parke, will endeavor to hold a fair hand between the patentee and the public, it will look through the forms of expression used, and discover, if it can, the thing really invented. Apply to the specification this rule of construction, and all difficulty at once disappears. The thing invented, and intended to be claimed, is too apparent to be mistaken.

The patentees have certainly been unfortunate in the language of the specification, if, upon a fair and liberal interpretation, they have claimed only the simple apparatus employed; when they have not only set forth the discovery of this property in the metal as the great feature in their invention, but, as is manifest, without it the apparatus would have been useless. Strike out this new property from their description and from their claim, and nothing valuable is left. All the rest would be worthless. This lies at the foundation upon which the great merit of the invention rests, and without a knowledge of which the new manufacture could not have been produced; and, for aught we know, the world would have been deprived of it down to this day.

If the patentees had claimed the combination of the core and bridge or guide-piece, with the cylinder, the chambers, and the die, and stopped there, I admit the construction, now adopted by a majority of my brethren, could not be denied; although, even then, it would be obvious, from an examination of the specification as a whole, that the draughtsman had mistaken the thing really invented, and substituted in its place matters simply incidental, and of comparative insignificance. But the language of the claim does not stop here. The combination of these parts is claimed only when used to form pipes of lead, under heat and pressure, in the manner set forth; that is, when used for the embodiment and adaptation of this new property in the metal, for making wrought pipe out of a solid mass of lead. This guarded limitation of the use excludes the idea of a claim to the combination for any other, and ties it down to the instance, when the use incorporates within it the new idea or element

which gives to it its value, and by means of which the new manufacture is produced. How, then, can it be consistently held, that here is a simple claim to the machinery, and nothing more, when a reasonable interpretation of the words not only necessarily excludes any such claim, but in express terms sets forth a different one,—one not only different in the conception of the invention, but different in the practical working of the apparatus to accomplish the purpose intended?

I conclude, therefore, that the claim, in this case, is not simply for the apparatus employed by the patentees, but for the embodiment or employment of the newly discovered property in the metal, and the practical adaptation of it, by these means, to the production of a new result, namely, the manufacture of wrought pipe out of solid lead.

Then, is this the proper subject-matter of a patent?

This question was first largely discussed by counsel and court in the celebrated case of *Boulton v. Bull*, (2 How. 31, 463,) involving the validity of Watt's patent, which was for 'a new invented method for lessening the consumption of fuel and steam in fire-engines.' This was effected by inclosing the steam vessel or cylinder with wood, or other material, which preserved the heat in the steam vessel; and by condensing the steam in separate vessels. It was admitted, on the argument, that there was no new mechanical construction invented by Watt, and the validity of the patent was placed on the ground that it was for well-known principles, practically applied, producing a new and useful result. On the other hand, it was conceded that the application of the principles in the manner described was new, and produced the result claimed; but it was denied that this constituted the subject-matter of a patent. Heath and Buller, Justices, agreed with the counsel for the defendant; but Lord Chief Justice Eyre laid down the true doctrine, and which, I think, will be seen to be the admitted doctrine of the courts of England at this day:—'Undoubtedly,' he observed, 'there can be no patent for a mere principle; but

for a principle, so far embodied and connected with corporeal substances as to be in a condition to act, and to produce effects in any art, trade, mystery, or manual occupation, I think there may be a patent. Now this,' he continues, 'is, in my judgment, the thing for which the patent stated in the case was granted; and this is what the specification describes, though it miscalls it a principle. It is not that the patentee conceived an abstract notion that the consumption of steam in fire-engines may be lessened, but he has discovered a practical manner of doing it; and for that practical manner of doing it he has taken this patent. Surely,' he observes, 'this is a very different thing from taking a patent for a principle. The apparatus, as we have said, was not new. There is no new mechanical construction, said the counsel for the patentee, invented by Watt, capable of being the subject of a distinct specification; but his discovery was of a principle, the method of applying which is clearly set forth.' Chief Justice Eyre admitted that the means used were not new, and that if the patent had been taken out for the mechanism used it must fail.

He observed:—'When the effect produced is some new substance, or composition of things, it should seem that the privilege of the sole working or making ought to be for such new substances, or composition, without regard to the mechanism or process by which it has been produced, which, though perhaps also new, will be only useful as producing the new substance.' Again:—'When the effect produced is no new substance, or composition of things, the patent can only be for the mechanism, if new mechanism is used; or for the process, if it be a new method of operating, with or without old mechanism, by which the effect is produced.' And again he observes:—'If we wanted an illustration of the possible merit of a new method of operating with old machinery, we might look to the identical case before the court.' p. 493, 495, 496.

This doctrine, in expounding the law of patents, was announced in 1795, and the subsequent adoption of it by

the English courts shows that Chief Justice Eyre was considerably in advance of his associates upon this branch of the law. He had got rid, at an early day, of the prejudice against patents so feelingly referred to by Baron Parke, in *Nielson v. Harford*, and comprehended the great advantages to his country, if properly encouraged. He observed, in another part of his opinion, that 'The advantage to the public from improvements of this kind are, beyond all calculation, important to a commercial country; and the ingenuity of artists, who turn their thoughts towards such improvements, is, in itself, deserving of encouragement.'

This doctrine was recognized by the Court of King's Bench, in the *King v. Wheeler*, 2 B. & Ald. 340, 350. It is there observed, that the word 'manufactures,' in the patent act, may be extended to a mere process, to be carried on by known implements or elements, acting upon known substances, and ultimately producing some other known substance, but producing it in a cheaper or more expeditious manner, or of a better or more useful kind.

Now if this process, to be carried on by known implements, acting upon known substances, and ultimately producing some other known substance of a better kind, is patentable, *à fortiori* will it be patentable if it ultimately produces not some other known substance, but an entirely new and useful substance?

In Forsyth's patent, which consists of the application and use of detonating powder as priming for the discharge of fire-arms, it was held, that whatever might be the construction of the lock, or contrivance by which the powder was to be discharged, the use of the detonating mixture as priming, which article of itself was not new, was an infringement. Webster's Pat. Cas. 94, 97, (n.); Curtis on Pat. 230.

This case is founded upon a doctrine which has been recognized in several subsequent cases in England, namely, that where a person discovers a principle or property of nature, and also of some mode of carrying it out into practice, so as to produce or attain a new and useful effect or

result, he is entitled to protection against all other modes of carrying the same principle or property into practice, for obtaining the same result.

The novelty of the conception consists in the discovery and application in the one case, and of the application in the other, by which a new product in the arts or manufactures is the effect; and the question, in case of an infringement, is, as to the substantial identity of the principle or property, and of the application of the same, and consequently the means or machinery made use of, material only so far as they affect the identity of the application.

In the case of Jupe's patent, for 'an improved expanding table,' Baron Alderson observed, speaking of this doctrine, 'You cannot take out a patent for a principle; you may take out a patent for a principle coupled with the mode of carrying the principle into effect. But then you must start with having invented some mode of carrying the principle into effect; if you have done that, then you are entitled to protect yourself from all other modes of carrying the same principle into effect, that being treated by the jury as piracy of your original invention.' Webster's Pat. Cases, 147. The same doctrine was maintained, also, in the case of Neilson's patent for the hot-air blast, in the King's Bench and Exchequer in England. Webster's Pat. Cases, 342, 371; Curtis, § 74, 148, 232; Webster's Pat. Cases, 310.

This patent came also before the Court of Sessions in Scotland; and, in submitting the case to the jury, the Lord Justice remarked:—'That the main merit, the most important part of the invention, may consist in the conception of the original idea; in the discovery of the principle in science, or of the law of nature, stated in the patent; and little or no pains may have been taken in working out the best mode of the application of the principle to the purpose set forth in the patent. But still, if the principle is stated to be applicable to any special purpose, so as to produce any result previously unknown, in the way and for the object described, the patent is good. It is no longer an abstract

principle. It becomes to be a principle turned to account, to a practical object, and applied to a special result. It becomes, then, not an abstract principle, which means a principle considered apart from any special purpose or practical operation, but the discovery and statement of a principle for a special purpose, that is, a practical invention, a mode of carrying a principle into effect. That such is the law,' he observes, 'if a well-known principle is applied for the first time to produce a practical result for a special purpose, has never been disputed; and it would be very strange and unjust to refuse the same legal effect, when the inventor has the additional merit of discovering the principle, as well as its application to a practical object.'

Then, he observes again, 'Is it an objection to the patent that, in its application of a new principle to a certain specified result, it includes every variety of mode of applying the principle, according to the general statement of the object and benefit to be attained? This,' he observes, 'is a question of law; and I must tell you distinctly that this generality of claim, that is, for all modes of applying the principle to the purpose specified, according to or within a general statement of the object to be attained, and of the use to be made of the agent to be so applied, is no objection to the patent. The application or use of the agent for the purpose specified, may be carried out in a great variety of ways, and only shows the beauty and simplicity and comprehensiveness of the invention.'

This case was carried up to the House of Lords on exceptions to the charge, and, among others, to this part of it, which was the sixth exception, and was as follows:—'In so far as he (the judge) did not direct the jury that, on the construction of the patent and specification, the patentee cannot claim or maintain that his patent is one which applies to all the varieties in the apparatus which may be employed in heating air while under blast; but was limited to the particular described in the specification.' And although the judgment of the court was reversed in the House of Lords

on the eleventh exception, it was expressly affirmed as respects this one. Lord Campbell at first doubted, but after the decision of the courts in England on this patent, he admitted the instruction was right. Webster's Pat. Cases, 683, 684, 698, 717.

I shall not pursue a reference to the authorities on this subject any further. The settled doctrine to be deduced from them, I think, is, that a person having discovered the application for the first time of a well-known law of nature or well-known property of matter, by means of which a new result in the arts or in manufactures is produced, and has pointed out a mode by which it is produced, is entitled to a patent; and, if he has not tied himself down in the specification to the particular mode described, he is entitled to be protected against all modes by which the same result is produced, by an application of the same law of nature or property of matter. And *à fortiori*, if he has discovered the law of nature or property of matter, and applied it, is he entitled to the patent and aforesaid protection.

And why should not this be the law? The original conception—the novel idea in the one case, is the new application of the principle or property of matter, and the new product in the arts or manufactures—in the other, in the discovery of the principle or property, and application, with like result. The mode or means are but incidental, and flowing naturally from the original conception; and hence of inconsiderable merit. But, it is said, this is patenting a principle, or element of nature. The authorities to which I have referred, answer the objection. It was answered by Chief Justice Eyre, in the case of Watt's patent, in 1795, fifty-seven years ago; and more recently, in still more explicit and authoritative terms. And what if the principle is incorporated in the invention, and the inventor protected in the enjoyment for the fourteen years. He is protected only in the enjoyment of the application for the special purpose and object to which it has been newly applied by his genius and skill. For every other purpose and end the principle is free

for all mankind to use. And where it has been discovered, as well as applied to this one purpose, and open to the world as to every other, the ground of complaint is certainly not very obvious. Undoubtedly, within the range of the purpose and object for which the principle has been for the first time applied, piracies are interfered with during the fourteen years. But any body may take it up and give to it any other application to the enlargement of the arts and of manufactures, without restriction. He is only debarred from the use of the new application for the limited time, which the genius of others has already invented and put into successful practice. The protection does not go beyond the thing which, for the first time, has been discovered and brought into practical use; and is no broader than that extended to every other discoverer or inventor of a new art or manufacture.

I own, I am incapable of comprehending the detriment to the improvements in the country that may flow from this sort of protection to inventions.

To hold, in the case of inventions of this character, that the novelty must consist of the mode or means of the new application producing the new result, would be holding against the facts of the case, as no one can but see, that the original conception reaches far beyond these. It would be mistaking the skill of the mechanic for the genius of the inventor.

Upon this doctrine, some of the most brilliant and useful inventions of the day, by men justly regarded as public benefactors, and whose names reflect honor upon their country—the successful application of steam power to the propulsion of vessels and railroad cars—the application of the electric current for the instant communication of intelligence from one extremity of the country to the other—and the more recent, but equally brilliant conception, the propulsion of vessels by the application of the expansibility of heated air, the air supplied from the atmosphere that surrounds them. It would be found, on consulting the system of laws esta-

blished for their encouragement and protection, that the world had altogether mistaken the merit of their discovery; that, instead of the originality and brilliancy of the conception that had been unwittingly attributed to them, the whole of it consisted of some simple mechanical contrivances which a mechanician of ordinary skill could readily have devised. Even Franklin, if he had turned the lightning to account, in order to protect himself from piracies, must have patented the kite, and the thread, and the key, as his great original conception, which gave him a name throughout Europe, as well as at home, for bringing down this element from the heavens, and subjecting it to the service of man. And if these simple contrivances, taken together, and disconnected from the control and use of the element by which the new application, and new and useful result may have been produced, happen to be old and well known, his patent would be void; or if some follower in the track of genius, with just intellect enough to make a different mechanical device or contrivance, for the same control and application of the elements, and produce the same result, he would, under this view of the Patent Law, entitle himself to the full enjoyment of the fruits of Franklin's discovery.

If I rightly comprehend the ground upon which a majority of my brethren have placed the decision, they do not intend to controvert so much the doctrine which I have endeavored to maintain, and which, I think, rests upon settled authority, as the application of it to the particular case. They suppose that the patentees have claimed only the combination of the different parts of the machinery described in their specification, and therefore, are tied down to the maintenance of that as the novelty of their invention. I have endeavored to show, that this is a mistaken interpretation; and that they claim the combination, only, when used to embody and give a practical application to the newly discovered property in the lead, by means of which a new manufacture is produced, namely, wrought pipe out of a solid mass of lead, which, it is conceded, was never before successfully accomplished.

For, these reasons, I am constrained to differ with the judgment they have arrived at, and am in favor of affirming that of the court below.”

§ 81. In cases of this class, where the most important part and merit of the invention consists in the conception of the original idea, rather than in the manner in which it is to be carried out, or applied in practice, it is clear that a principle carried into practice by *some* means, constitutes the subject-matter of the patent. Inventions of this class may have a character totally independent of the particular means by which they are applied, although the patentee must have applied the invention by some means; and when he has done so, the imitating that character may be a piracy of that invention, although the means may be very different, and such as in themselves might constitute a distinct or substantial invention.¹ The machinery employed is not of the essence of the invention, but incidental to it.² In cases like the foregoing, however, although machinery, apparatus, or other arrangement of matter is not of the essence of the invention, still it is of some importance. But there is another class of cases, where the application of a principle is still more distinctly seen to constitute the subject-matter of the invention, because it requires no peculiar and substantive machinery or apparatus, or composition of matter to give it application.

§ 81 *a*. In these cases, the subject-matter of the invention is an application and adaptation of a natural or known agent, or a known substance or thing, to produce a given effect.³

¹ Webster on the Subject-Matter, &c., p. 18.

² Per Eyre, C. J., in *Boulton v. Bull*, 2 H. Bl. 496.

³ The adaptation of the properties and qualities of a known substance to a particular purpose, for which they had never been known or used before, may be the subject of a patent. As the use of India rubber as a fillet, in cards for carding wool, &c., to receive the teeth, and thereby to give them greater firmness and elasticity than when they are set in leather. See *Walton v. Potter*, Webs. Pat. Cas. 585, 604.

As in Daniell's patent for improvements in dressing woollen cloth, the invention consisted in immersing cloth, manufactured in the usual manner, in hot water; and in Fusell's patent the cloth was subjected to a steam bath with the same object.¹ In Christ's patent for "improvements in copper and other plate printing," the substance of the invention was in the preparation of the paper, and the particular means by which this was effected was by "putting a glazed enamelled surface on the paper by means of white lead and size, whereby the finer lines of the engraving are better exhibited than heretofore."² So too, the omission of any ingredient previously used in and considered essential to a particular process or manufacture, constitutes such a change in the series of processes pursued, as to be a new manufacture. As where a patent was taken for "a new and improved method of making and manufacturing double canvas and sail-cloth with hemp and flax, or either of them, without any starch whatever;"³ and where another invention, for rendering cloth fabrics water proof, consisted in immersing them in

¹ Webster on the Subject-Matter, &c., p. 22. The latter patent was held an infringement on the former; but both were repealed for want of novelty. *Ibid.*

² *Sturz v. De La Rue*, 5 Russ. Ch. R. 322, 324. In this case Lord Lyndhurst, C. B., said: "Copperplate printing consists of processes involving a great variety of circumstances; the paper must be of a particular description; before it is used, it must be damped; it must remain damp a certain time, and must be placed in a certain temperature; the plate must be duly prepared, and duly applied, and various processes must be gone through before the impression is drawn off and brought to a finished state. An improvement in any one of these circumstances, in the preparation of the paper, for instance, in the damping of it, &c., may truly be called an *improvement in copperplate printing*. In this case, the principal part of the improvement relates to the preparation of the paper. It is material to the perfection of the copperplate printing that the lines should be as distinct as possible; and if, by adding any thing to the surface of the paper, more clearness is given to the lines, that is an improvement in copperplate printing."

³ *Campion v. Benyon*, 4 B. Moore, 71, cited Webster on the Subject-Matter, &c., p. 23, note.

various solutions in a different order from that which had been previously followed, although the same solutions had been previously used.¹

§ 82. It appears, then, that there is a large class of cases, where improvements or inventions in the mode of producing a particular known effect will be the subject-matter of letters-patent; and another large class of cases, in which the discovery and application of new means of producing an effect before unknown, will also be the subject-matter of a patent. One of these classes embraces all cases of the new application of known agents and things, so as to lead to a change in the series of processes by which the particular effect, result, or manufacture is produced, or by which an entirely new effect, result, or manufacture is produced. The other embraces all cases of the discovery and application of new agents or things, by which a new effect or result is to be produced.²

¹ *Halliwell v. Dearman*, Webs. Pat. Cas. 401, note (t.) "The object of the plaintiff's invention was the rendering fabrics water proof, but at the same time leaving such fabrics pervious to air. It appeared that before the plaintiff's patent a solution of alum and soap was made, and the fabric to be rendered water proof was immersed therein. By this means a water-proof surface was produced on the fabric, but it was not of a lasting nature, it wore off. According to the plaintiff's invention, the fabric is immersed first in a mixture of a solution of alum with some carbonate of lime, and then in a solution of soap. The effect is, that by the first immersion every fibre becomes impregnated with the alum, the sulphuric acid of the alum being neutralized by the carbonate of lime, and by the second immersion the oily quality, rendering it repellent of water, is given to every fibre, so that each fibre is rendered water proof, instead of the surface only; but the whole fabric continued pervious to air."

² The application of electricity for the transmission of signals or messages, copying impressions and gilding, and the application of light for the purposes of photography, belonging to one or the other of these classes, according to the view taken of the agents made use of, and the result produced. In the case of the electric telegraph, electricity was an agent known before this application; the effect, as produced by electricity, was wholly new. The same

§ 83. In determining whether an alleged invention or discovery is such as will support a patent, the question must often arise, what is meant by the application of a principle? And this question involves two inquiries; first, how must the principle be made use of, and secondly, what must be the result produced?

§ 84. It has already been stated, that the embodiment of a principle, so that it may be in a condition to act and to produce an effect, may be the subject of a patent. There is, in other words, a distinction between the principle that is so embodied, and the principle of such embodiment; the former is a truth of exact science, or a law of matter, or a rule of practice; while the latter is the practice founded on such truth, law, or rule.¹

may be said of the use of light in photography, for although pictures existed before, such pictures as are produced by that process, were wholly new. It is not always necessary, perhaps not expedient, to attempt a rigid classification of such inventions. Each is to be tested by the application of general principles to the particular facts of the case. In analyzing the subject-matter of the invention, when it is of this character, we must first determine whether the agents employed are themselves newly discovered, or well known; secondly, whether they are applied in a new method; thirdly, whether they produce, as applied, a new or an old result. According to the results of this analysis, we may determine the patentable character of the invention or discovery.

¹ Webster on the Subject-Matter, p. 44. A clear illustration of this distinction is to be found in the case of *Blanchard v. Sprague*, 3 Sumner's R. 535. The plaintiff's patent was for "An invention of a machine for turning or cutting irregular forms." The plaintiff, in his specification, declared that "as to the mechanical powers by which the movements are obtained, he claims none of them as his invention. These movements may be effected by application of various processes indifferently. Neither does he claim as his invention the cutter wheel, or cutters, or friction wheel as such, nor the use of a model to guide the cutting instrument, as his invention. All these are common property, and have been so for years, but he claims *as his invention the method or mode of operation in the abstract, explained in the second article, whereby the infinite variety of forms, described in general terms in this article may be wrought.*" In another part of his specification he said: "In

§ 85. This practice consists in the application of the principle. But it is not every application of the principle, or every occasion on which the principle can be applied, that can be the subject of a patent. The principle may have been discovered and applied before, and, when this is the case, the new application may be only what is described in the Patent Law as a "double use," which cannot be the subject of a patent. In such cases, there may be in the new application some degree of novelty; something may have been discovered, or found out, that was not known before; but unless the new occasion on which the principle is applied

explaining and describing the different modes in which he contemplates the application of the principle or character of his said machine or invention, he does this in compliance with the requirements of the law, and not by way of extending his claim for discovery or invention. His invention is described and explained in the second article of this specification, to which reference is hereby made for information of that, which constitutes the principle or character of his machine or invention, and distinguishes it, as he verily believes, from all other machines, discoveries or inventions, known or used before. In the second article, to which he refers, the plaintiff explained the principle and character of his machine, and the mode of constructing it to effect the different objects to be accomplished, and the mode of operation."

Mr. Justice Story said: "Looking at the present specification, and construing all its terms together, I am clearly of opinion, that it is not a patent claimed for a function, but it is claimed for the machine specially described in the specification; that it is not for a mere function, but for a function as embodied in a particular machine, whose mode of operation and general structure are pointed out. In the close of his specification, the patentee explicitly states that his "invention is described and explained in the second article of his specification, to which reference is made for information of that, which constitutes the principle or character of his machine or invention, and distinguishes it, as he verily believes, from all other machines, discoveries or inventions known or used before." Now, when we turn to the second article, we find there described, not a mere function, but a machine of a particular structure, whose modes of operation are pointed out, to accomplish a particular purpose, function or end. This seems to me sufficiently expressive to define or ascertain, what his invention is. It is a particular machine, constituted in the way pointed out, for the accomplishment of a particular end or object. The patent is for a machine, and not for a principle or function detached from machinery."

leads to some kind of new manufacture, or to some new result, it is only a double use of that which was known before.

§ 86. Illustrations of this distinction may be seen in the application of well-known medicines, drugs, and chemical substances, upon new occasions, or for new specific purposes. If it is discovered that a medicine, known and used as a valuable remedy in one class of diseases, has also great efficiency in curing another and different disease, there is a new application of a known thing, but it is only a double use of that thing.¹

§ 87. In order to escape the objection of a double use, it is necessary that the new occasion or purpose, to which the use of a known thing is applied, should not be merely analogous to the former occasions or purposes to which the same thing has been applied. There is a very material distinction between applying a new contrivance to an old object, and an old contrivance to a new object. The former may be patentable, but the latter cannot be, when the new object is merely one of a class possessing a common analogy. Thus, where a certain description of wheels had been used on other

¹ In *Boulton v. Bull*, 2 H. Bl. 487, Buller, J., said: — “Suppose the world were better informed than it now is how to prepare Dr. Janes’s fever powder, and an ingenious physician should find out that it was a specific cure for a consumption, if given in particular quantities; could he have a patent for the sole use of Janes’s powders in consumptions, or to be given in particular quantities? I think it must be conceded that such a patent would be void; and yet the use of the medicine would be new, and the effect of it as materially different from what is now known, as life is from death. So in the case of a late discovery, which, as far as experience has hitherto gone, is said to have proved efficacious, that of the medicinal properties of arsenic in curing agues, could a patent be supported for the sole use of arsenic in aguish complaints? The medicine is the manufacture, and the only object of a patent; and, as the medicine is not new, any patent for it, or for the use of it, would be void.”

carriages than railway carriages, Lord Abinger, C. B., held that the plaintiff could not claim a patent merely for the use of such wheels upon railway carriages ;¹ and where a patent

¹ *Losh v. Hague*, Webs. Pat. Cas. 207. In this case his Lordship said to the jury :— “ The learned counsel has stated to you, and very properly, and it is a circumstance to be attended to, that Mr. Losh has taken out his patent to use his wheels on railways. Now, he says, the wheels made by Mr. Paton, or by the other workmen who were called as witnesses, were never applied to railways at all. That opens this question, whether or not a man who finds a wheel ready made to his hand, and applies that wheel to a railway, shall get a patent for applying it to a railway. There is some nicety in considering that subject. The learned counsel has mentioned to you a particular case in which an argand lamp, burning oil, having been applied for singing gauze, somebody else afterwards applied a lamp supplied with gas for singing lace, which was a novel invention, and for which an argand lamp is not applicable, because gas does not burn in the same way as oil in an argand lamp. But a man having discovered by the application of gas he could more effectually burn the cottony parts of the gauze by passing it over the gas, his patent is good. (Webs. Pat. Cas. p. 98, *Hall's Patent*.) That was the application of a new contrivance to the same purpose ; but it is a different thing when you take out a patent for applying a new contrivance to an old object, and applying an old contrivance to a new object, that is a very different thing ; if I am wrong I shall be corrected. In the case the learned counsel put, he says, if a surgeon goes into a mercer's shop, and sees the mercer cutting velvet or silk with a pair of scissors with a knob to them, he, seeing that, would have a right to take out a patent in order to apply the same scissors to cutting a sore, or a patient's skin. I do not quite agree with that law. I think if the surgeon had gone to him, and said, ‘ I see how well your scissors cut,’ and he said, ‘ I can apply them instead of a lancet, by putting a knob at the end,’ that would be quite a different thing, and he might get a patent for that ; but it would be a very extraordinary thing to say that, because all mankind have been accustomed to eat soup with a spoon, that a man could take out a patent because he says you might eat peas with a spoon. The law on the subject is this ; that you cannot have a patent for applying a well known thing, which might be applied to fifty thousand different purposes, for applying it to an operation which is exactly analogous to what was done before. Suppose a man invents a pair of scissors to cut cloth with, if the scissors were never invented before, he could take out a patent for it. If another man found he could cut silk with them, why should he take out a patent for that ? I must own, therefore, that it strikes me if you are of opinion this wheel has

claimed, as the invention of the patentee, a process of curling palm leaf for mattresses, but it appearing that hair had long been prepared by the same process for the same purpose, Mr. Justice Story held it to be a mere double use of an old process.¹

§ 88. When, therefore, the principle is well known, or the application consists in the use of a known thing to produce a particular effect, the question will arise, whether the effect is of itself entirely new, or whether the occasion only upon which the particular effect is produced, is new. If the occasion only is new, then the use to which the thing is applied

been constructed, according to the defendant's evidence, by the persons who have been mentioned, long before the plaintiff's patent, that, although there were no railroads then to apply them to, and no demand for such wheels, yet that the application of them to railroads afterwards, by Mr. Losh, will not give effect to his patent, if part of that which is claimed as a new improvement by him is, in fact, an old improvement, invented by other people, and used for other purposes. That is my opinion on the law, and on that I am bound to direct you substantially."

¹ *Howe v. Abbott*, 2 Story's R. 190, 193. In this case the learned Judge said:—"In the first place, it is admitted on all sides that there is no novelty in the process by which the stripping, or twisting, or curling the palm leaf is accomplished. The same process of twisting, and curling, and baking, and steaming, has long been known and used in respect to hair used for beds, mattresses, sofas, and cushions. It is, therefore, the mere application of an old process and old machinery to a new use. It is precisely the same as if a coffee-mill were now, for the first time, used to grind corn. The application of an old process to manufacture an article, to which it had never before been applied, is not a patentable invention. There must be some new process, or some new machinery used, to produce the result. If the old spinning machine to spin flax were now first applied to spin cotton, no man could hold a new patent to spin cotton in that mode; much less the right to spin cotton in all modes, although he had invented none. As, therefore, Smith has invented no new process or machinery, but has only applied to palm leaf the old process and the old machinery used to curl hair, it does not strike me that the patent is maintainable. He who produces an old result by a new mode or process, is entitled to a patent for that mode or process. But he cannot have a patent for a result merely, without using some new mode or process to produce it."

is simply analogous to what had been done before. But if the effect itself is new, then there are no known analogous uses of the same thing, and the process may constitute such an art as will be the subject of a patent. Thus, the use of scissors to cut one substance produces a particular effect, entirely analogous to that produced when they are used to cut another substance; the effect, therefore, is not new. But the use of gas to singe off the superfluous fibres of lace, was the use of an agent for a purpose not analogous to any other purpose for which the same agent had ever been used before; and therefore the effect, as produced by that agent, was new. Great discrimination, however, is to be used, in determining whether the analogy is such as to justify the inference, that the occasion only is new, and that the effect is not new. Of course, if any new contrivances, combinations, or arrangements are made use of, although the principal agents employed are well known, those contrivances, combinations, or arrangements, may constitute a new principle, and then the application or practice will necessarily be new also.¹ But where there is no novelty in the preparation or arrangement of the agent employed, and the novelty professedly consists in the application of that agent, being a well known thing; or, in other terms, where it consists in the practice only, the novelty of that practice is to be determined according to the circumstances, by applying the test, of whether the result or effect produced is a new result or effect, never before produced.² If a new manufacture is produced, or if

¹ As where anthracite and hot-air blast were used in the manufacture of iron, in the place of bituminous coal and hot-air blast; and where sail-cloth was made, with the omission of an ingredient before used, that is, by a different combination from that before used.

² As in the case of the application of bells to fire-engines, to be rung by the motion of the carriage, for the purpose of alarms or notice, which Washington, J., instructed the jury might be a subject for a patent. *Park v. Little*, 3 Wash. 196. The application of steam for propelling boats is another illustration of novelty in practice. *Ibid.*

an old manufacture is produced by new means, then the result or effect is new, as produced by that particular means, and the new case is such as can be protected by letters-patent. But if only an old manufacture is produced, or an old result is attained, by means analogous to what the same means have produced when applied the same way in other cases, the new occasion of using those means does not constitute a case that can be protected by a patent.

§ 89. Our statute having undertaken to classify the subjects of patents under four general heads, we may here state what is supposed to be embraced in each of them.

§ 90. I. AN ART. The first subject of a patent mentioned in the statute is "any new and useful art," or "any new and useful improvement of an art." This term embraces the useful as distinguished from the fine arts. It applies to all those cases, where the application of a principle is the most important part of the invention, and where the machinery, apparatus or other means by which the principle is applied, is incidental only and not of the essence of the invention. It applies also to all those cases where the result, effect, or manufactured article is old, but the invention consists in a new process or method of producing such result, effect or manufacture. But where machinery or apparatus of any kind is the chief subject of invention, or where the result, effect, or article produced is new, the subject of the patent will fall under one or the other of the classes designated in the statute as "machine," "manufacture," or "composition of matter," according to its principal characteristics and objects.

§ 91. A case which occurred before Mr. Justice Washington furnishes an illustration of an "art," as the subject of a patent. The plaintiff alleged himself to be the inventor of a new and useful improvement in the printing of bank-notes, which was said to furnish an additional security against counterfeiting. The invention, as summed up in his speci-

fication, was "to print copperplate on both sides of the note or bill; or copperplate on one side, and letter-press on the other; or letter-press on both sides of a bank-note or bill, as an additional security against counterfeiting." The art of printing with both letter-press and copperplate, was not the invention of the plaintiff. He made use of old materials and processes, in a new manner, for the purpose of producing a new effect, namely, a new security against counterfeiting. His patent, therefore, was for the new application of the process of printing by copperplate and letter-press, by printing on both sides of the note; and this new application was held by the court to be an art within the terms of the statute.¹

§ 92. Another illustration is presented by a patent for a mode of casting iron rollers or cylinders, so that when the metal was introduced into the mould, it should receive a rotary motion, by which the dross would be thrown into the centre instead of upon the surface of the cylinder. This was effected solely by changing the direction of the tube which conveyed the metal to the mould, from a horizontal or perpendicular position to a direction approaching a tangent of the cylinder.²

§ 93. II. A MACHINE. A machine, to be the subject of a patent, must be a particular construction of mechanism, containing the improved method of producing an old effect, or the method of producing a new effect. If the subject of the invention or discovery is not a mere function, but a function embodied in some particular mechanism whose mode of operation and general structure are pointed out, and which is designed to accomplish a particular purpose, function, or effect, it will be a machine, in the sense of the patent law.³ A

¹ *Kneass v. The Schuylkill Bank*, 4 Wash. 9, 12.

² *McClurg v. Kingsland*, 1 Howard, 204. See also *Gray v. James, Peters's* Circ. C. R. 394.

³ *Blanchard v. Sprague*, 3 Sumner's R. 535, 540.

machine is rightfully the subject of a patent, when well-known effects are produced by machinery entirely new in all its combinations, or when a new or an old effect is produced by mechanism, of which the principle or *modus operandi* is new.¹ The word "machine" in the statute, includes new combinations of machines, as well as new organizations of mechanism for a single purpose. There may be a patent for a new combination of machines to produce certain effects, whether the machines constituting the combination be new or old. In such cases, the thing patented is not the separate machines, but the combination.² A single instance of such a combination is presented by the telescope, in which a convex and concave glass of different refracting powers are combined to make the object-glass.³ What constitutes a claim for a combination only, and what will be a claim for the specific parts of a machine, as well as for the combination, is a question of construction on the patent and specification, the rules for which will be stated hereafter. But it is proper here to state the general principles applicable to combinations as the subject-matter.

§ 94. Where the invention consists of several distinct and independent improvements in the same machine, a patent may be taken for them in the aggregate, and such a patent will protect each of the improvements. But when the patent is for a new combination of existing machinery or machines, and does not specify or claim any improvements or inventions, except the combination, the subject-matter of the patent

¹ *Whittemore v. Cutter*, 1 Gallis. 480; *Boulton v. Bull*, 2 H. Bl. 463, 468. When a mode of doing a thing is referred to something permanent, it is properly termed an engine; when to something fugitive, a method. Per Heath, J., in *Boulton v. Bull*.

² *Barrett v. Hall*, 1 Mas. 474; *Evans v. Eaton*, 3 Wheat. 454, 476, 506; *Prouty v. Draper*, 1 Story's R. 568; *Park v. Little*, 3 Wash. 196; *Pitts v. Whitman*, 2 Story's R. 609; *Ames v. Howard*, 1 Sumner, 482.

³ *Dolland's case*, Webs. Pat. Cas. 42, 43.

will be the combination alone, and the making of the separate machines will not be an infringement of it.¹

¹ In *Barrett v. Hall*, 1 Mas. 447, 474, Mr. Justice Story laid down the doctrine thus: "A patent may be for a new combination of machines to produce certain effects; and this, whether the machines, constituting the combination, be new or old. But in such case, the patent being for the combination only, it is no infringement of the patent to use any of the machines separately, if the whole combination be not used; for in such case the thing patented is not the separate machines, but the combination; and the statute gives no remedy, except for a violation of the thing patented. This was the doctrine of Mr. Justice Washington in his most able opinion in *Evans v. Eaton*; and it has not been in the slightest degree shaken in the Supreme Court. (*Evans v. Eaton*, 3 Wheaton's R. 454, 476, 506.) I hesitate not one moment in adopting it, as established on solid foundations. It has, indeed, been said, that where there is a patent for the whole of a machine, whoever imitates it, either in whole or in part, is subject to an action at the suit of the patentee. (*Bovill v. Moore*, 2 Marsh. R. 211.) But supposing this doctrine to be true in any case and under any qualifications (which may well be doubted) it can apply only where the whole machine is entirely new, and cannot apply where the patent is limited, by its very terms, to the combination of several machines." In the subsequent case of *Moody v. Fisk*, 2 Mas. 115, 117, the same learned judge said: "Where the patent goes for the whole of a machine as a new invention, and the machine is in its structure substantially new, any person who pirates a part of the machine, substantially new in its structure, deprives the inventor so far of his exclusive right in his invention, and may in a great measure destroy the value of the patent. Where the patent is for several distinct improvements in an existing machine, or for an improved machine, incorporating several distinct improvements, which are clearly specified, then if a person pirates one of the improvements, he violates the exclusive right of the patentee, for the patent is as broad as the invention, and the invention covers all the improvements; and it is a wrong done to the patentee to deprive him of his exclusive right in any of his improvements. Where a patent is for a *new combination* of existing machinery, or machines, and does not specify or claim any improvements or invention, except the combination, unless that combination is substantially violated, the patentee is not entitled to any remedy, although parts of the machinery are used by another, because the patent, by its terms, stands upon the *combination* only. In such a case, proof that the machines, or any part of their structure existed before, forms no objection to the patent, unless the *combination* has existed before, for the reason, that the invention is limited to the combination. And yet if the combination be not wholly

§ 95. The statute also makes a new and useful "improvement" of a machine the subject of a patent. A patent for the improvement of a machine is the same thing as a patent for an improved machine.¹ Improvement, applied to machinery, is where a specific machine already exists, and an addition or alteration is made, to produce the same effects in a better manner, or some new combinations are added, to produce new effects.² In such cases, the patent can only be for the improvement, or new combination.³ The great question, of course, when an alleged invention purports to be an improvement of an existing machine, is to ascertain whether it be a real and material improvement, or only a change of form. In such cases, it is necessary to ascertain, with as much accuracy as the nature of such inquiries admits, the boundaries between what was known and used before, and what is new, in the *mode of operation*.⁴ The inquiry therefore must be, not whether the same elements of motion, or the same component parts are used, but whether the given

new, but up to a certain point has existed before, and the patentee claims the whole combination as new, instead of his own improvements only, as by taking out a patent for the whole machine, doubtless his patent is void, for it exceeds his invention. (*Bovill v. Moore*, 2 Marsh. R. 211; *Davies on Pat.* 361, 398, 404, 411.) But if there be different and distinct improvements constituting parts of the combination, which are specified as such in the patent and specification, and any one of them be pirated, the same rule seems to apply, as in other cases where part of an invention is pirated, for the patent then shows that the invention is not limited to the mere combination, but includes the particular improvements specified." See also *Evans v. Eaton*, 1 Peters's Circ. C. R. 343; *Evans v. Eaton*, 3 Wheat. 454, 476, 506; *Prouty v. Draper*, 1 Story, 568; *Prouty v. Ruggles*, 16 Peters, 336; *Howe v. Abbott*, 2 Story's R. 190; *Bean v. Smallwood*, 2 Story's R. 408.

¹ Per Heath, J., in *Boulton v. Bull*, 2 H. Bl. 463, 482; and per Story, J., in *Barrett v. Hall*, 1 Mas. 475.

² *Whittemore v. Cutter*, 1 Gallis. 480.

³ *Ibid*; *Odiorne v. Winkler*, 2 Gallis. 51.

⁴ *Whittemore v. Cutter*, 1 Gallis. 478, 481. Whether an improvement is trifling and insignificant, or real and important, is a question for the jury. *Losh v. Hague*, *Webs. Pat. Cas.* 205.

effect is produced substantially by the same mode of operation and the same combination of powers, in both machines; or whether some new element, combination, or feature has been added to the old machine, which produces either the same effect in a cheaper or more expeditious manner, or an entirely new effect, or an effect that is in some material respect superior, though in other respects similar to that produced by the old machine.¹

§ 96. This inquiry will therefore often involve the question, whether the alleged improved machine operates upon the same principle as the former machine; or, in other terms, whether it produces the same effect by the same mechanical means, or by means which are substantially the same. One machine may employ the same mechanical power in the same way as another machine, though the external mechanism may be apparently different. At the same time a machine may have an external resemblance to another, and yet may operate upon a different principle.² It is therefore necessary, where the effect is the same, to determine whether the *modus operandi*, the peculiar device or manner of producing the effect,

¹ *Whittemore v. Cutter*, 1 Gallis. 478; *Brunton v. Hawkes*, 4 B. & Ald. 540.

² *Barrett v. Hall*, 1 Mas. 470. In this case, Mr. Justice Story said, "The true legal meaning of the principle of a machine, with reference to the Patent Act, is the peculiar structure or constituent parts of such machine. And, in this view, the question may be very properly asked, in cases of doubt or complexity, of skilful persons, whether the principles of two machines be the same or different. Now, the principles of two machines may be the same, although the form or proportions may be different. They may substantially employ the same power in the same way, though the external mechanism be apparently different. On the other hand, the principles of two machines may be very different, although their external structure may have great similarity in many respects. It would be exceedingly difficult to contend, that a machine which raised water by a lever, was the same in principle with a machine, which raised it by a screw, a pulley or a wedge, whatever in other respects might be the similarity of the apparatus."

is substantially the same. Where the effect is different, the test of a sufficient "improvement," to sustain a patent will be the character and importance of the effect itself.¹

¹ *Whittemore v. Cutter*, 1 Gallis. 478, 479, 480, 481. In this case the same learned judge remarked, "It is difficult to define the exact cases when the whole machine may be deemed a new invention, and when only an improvement of an old machine; the cases often approach very near to each other. In the present improved state of machinery, it is almost impracticable not to employ the same elements of motion, and in some particulars, the same manner of operation to produce any new effect. Wheels, with their known modes of operation and known combinations, must be of very extensive employment in a great variety of new machines, and if they could not, in the new invention, be included in the patent, no patent could exist for a whole machine embracing such mechanical powers.

Where a specific machine already exists, producing certain effects, if a mere addition is made to such machine to produce the same effects in a better manner, a patent cannot be taken for the whole machine, but for the improvement only. The case of a watch is a familiar instance. The inventor of the patent lever, without doubt, added a very useful improvement to it; but his right to a patent could not be more extensive than his invention. The patent could not cover the whole machine as improved, but barely the actual improvement. The same illustration might be drawn from the steam-engine, so much improved by Messrs. Watt and Boulton. In like manner, if to an old machine, some new combinations be added, to produce new effects, the right to a patent is limited to the new combinations. A patent can, in no case, be for an effect only, but for an effect produced in a given manner, or by a peculiar operation. For instance, no patent can be obtained for the admeasurement of time, or the expansive operation of steam; but only for a new mode or new application of machinery to produce these effects; and, therefore, if new effects are produced by an old machine in its unaltered state, I apprehend that no patent can be legally supported; for it is a patent for an effect only.

On the other hand, if well-known effects are produced by machinery in all its combinations entirely new, a patent may be claimed for the whole machine. So, if the principles of the machine are new, either to produce a new or an old effect, the inventor may well entitle himself to the exclusive right of the whole machine. By the principle of a machine, (as these words are used in the statute) is not meant the original elementary principles of motion, which philosophy and science have discovered, but the *modus operandi*, the peculiar device or manner of producing any given effect. The expansive powers of steam, and the mechanical powers of wheels, have been understood for many ages; yet a machine may well employ either the one or the other, and

§ 97. There may be a patent for an improvement of a machine that is itself the subject of an existing patent. It has been held in England, that a patent including the subject-matter of a patent still in force, is valid, if the improvement only is claimed in the specification. In such cases, the new patent will come into force, after the expiration of the old one, or it may be applied by using a license under the former patent, or by purchasing the specific machine which the former patent covers, before the expiration of the latter.¹

yet be so entirely new, in its mode of applying these elements, as to entitle the party to a patent for his whole combination. The intrinsic difficulty is to ascertain, in complicated cases like the present, the exact boundaries between what was known and used before, and what is new, *in the mode of operation*.

The present machine is to make cotton and woolen cards. These were not only made before the present patent, by machinery, but also by machinery, which, at different times, exhibited very different stages of improvement. The gradual progress of the invention, from the first rude attempts to the present extraordinary perfection, from the slight combination of simple principles to the present wonderful combinations, in ingenuity and intricacy scarcely surpassed in the world, has been minutely traced by the witnesses on the stand.

The jury then are to decide, whether the principles of Mr. Whittemore's machine are altogether new, or whether his machine be an improvement only on those which have been in use before his invention. I have before observed, that the principles are *the mode of operation*. If the same effects are produced by two machines by the same mode of operation, the principles of each are the same. If the same effects are produced, but by combinations of machinery operating substantially in a different manner, the principles are different."

¹ Crane *v.* Price, Webs. Pat. Cas. 393, 413. In this case, Sir W. C. Tindall, C. J., said, "Now, it is further argued, that in point of law, no patent can be taken out which includes the subject-matter of a patent still running or in force. No authority was cited to support this proposition, and the case which was before Lord Tenterden, and in which he held, that where an action was brought for an infringement of improvements in a former patent granted to another person, and still in force, that the plaintiff must produce the former patent and specification; that at least affords a strong evidence that the second patent was good. (Lewis *v.* Davis, 3 Car. & P. 502.) The case of *Hurmar v. Playne*, (14 Ves. jr., 130; 11 East, 101; Dav. Pat. Cas. 311; Fox, *ex parte*, 1 Ves. & B. 67,) is a clear authority on the same point;

§ 98. It has also been held, that in an action for an infringement of a patent professing to be an improvement on a former patent, the specification of that former patent must be read. But it is not material whether a machine, made according to that specification of the first patent, would be useful or not, if it be shown that a machine, constructed according to the subsequent patent, is useful.¹

§ 99. In all cases of alleged improvements in machinery the test of sufficiency may be found in the dictum of Buller, J., that, "if there be any thing material and new, that will be an improvement of the trade, that will be sufficient to support a patent."²

§ 100. III. A MANUFACTURE. It has been stated in a former

and upon reason and principle there appears to be no objection. The new patent, after the expiration of the old one, will be free from every objection, and whilst the former exists, the new patent can be legally used by the public by procuring a license from Neilson, or by purchasing the apparatus from him, or some of his agents; and the probability of a refusal of the license to any one applying for it, is so extremely remote, that it cannot enter into consideration as a ground of legal objection."

See also *Fox, ex parte*, 1 V. & B. 67. Mr. Webster puts this very clear illustration: "For suppose a particular article, starch for instance, to be the subject of letters-patent, and that all the starch in the country was patent starch; there are attached to the making and selling of that article certain exclusive privileges; but the individual who has purchased it of the patentee has a right to sell it again, and to use it at his will and pleasure; the exclusive privileges are in respect of that particular portion of the article so sold, at an end, and do not pursue it through any subsequent stage of its use and existence, otherwise every purchaser of starch would be obliged, according to the terms of the letters-patent, to have a license in writing, under the hand and seal of the patentee; the absurdity of which is manifest. Hence it is obvious, that if a person legally acquires, by license or purchase, title to that which is the subject of letters-patent, he may use it or improve upon it in whatever manner he pleases; in the same manner as if dealing with property of any other kind."

¹ *Lewis v. Davis*, Webs. Pat. Cas. 488, 489.

² *The King v. Arkwright*, Webs. Pat. Cas. 71.

part of this chapter, that the term "manufacture" was used in the English statute, 21 Jac. 1, to denote any thing made by the hand of man ; so that it embraces, in the English law, machinery, as well as substances or fabrics produced by art and industry.¹

§ 101. We have seen also that it came, by construction, to include the process of making a thing, or the art of carrying on a manufacture ; so that all the various objects, which are now held in England to be the subjects of letters-patent, are

¹ In *Boulton v. Bull, Heath, J.*, said, "The statute 21 Jac. 1, prohibits all monopolies, reserving to the king, by an express proviso, so much of his ancient prerogative as shall enable him to grant letters-patent, and grants of privilege, for the term of fourteen years and under, of the sole working or making of any manner of *new manufactures* within this realm, to the true and first inventor and inventors of such *manufactures*. What then falls within the scope of the proviso? Such manufactures as are reducible to two classes. The first includes machinery, the second substances, (such as medicines) formed by chemical and other processes, where the vendible substance is the thing produced, and that which operates preserves no permanent form. In the first class the machine, and in the second the substance produced, is the subject of the patent. I approve of the term *manufacture*, in the statute, because it precludes all nice refinements ; it gives us to understand the reason of the proviso, that it was introduced for the benefit of trade. That which is the subject of a patent, ought to be specified, and it ought to be that which is vendible, otherwise it cannot be a manufacture."

In *Hornblower v. Boulton*, 8 T. R. 99, Lord Kenyon defined the term as "something made by the hands of man." In the *King v. Wecler*, 2 B. & Ald. 349, Abbott, L. C. J., defined it thus: "The word 'manufactures' has been generally understood to denote either a thing made, which is useful for its own sake, and vendible as such, as a medicine, a stove, a telescope and many others, or to mean an engine or instrument, or some part of an engine or instrument, to be employed, either in the making of some previously-known article, or in some other useful purpose, as a stocking-frame, or a steam-engine for raising water from mines. Or it may perhaps extend also to a new process to be carried on by known implements, or elements, acting upon known substances, and ultimately producing some other known substance, by producing it in a cheaper or more expeditious manner, or of a better and more useful kind."

included under this term, which alone saves them out of the prohibition of the statute of monopolies.¹

§ 102. Our statute, however, having made an enumeration of the different classes of subjects which in England are held to be patentable, it is to be presumed that this term was used to describe one of these classes only, namely, fabrics or substances made by the art or industry of man, not being machinery.² It may sometimes require a nice discrimination, to determine whether one of these classes does not run into the other, in a given case; as for instance, when a tool or instrument of a novel or improved construction is produced, to be used in connection with other machinery, or to be used separately. As an article of merchandise, found and sold separately in the market, such a production would be a manufacture; but regarded with reference to its use and intended adaptation, it might be considered as a machine, or part of a machine. In determining, in such cases, how the patent for the article should be claimed, it would probably be correct to range it under the one or the other of these classes, according to the following test. If the article is produced and intended to be sold and used separately, as a merchantable commodity, and the merit of it, as an invention, consists in its being a

¹ Ante, § 69, 71, 72, 73, 74. See also Hindmarch on Patents, p. 80.

² Perhaps the best general definition of the term "manufacture," as the subject of a patent, would be any new combination of old materials, constituting a new result or production, in the form of a vendible article, not being machinery. In one sense, all materials are old; as the amount of matter in existence does not depend on the will or the skill of man, whatever he uses is, in one sense, an old material. In this sense, therefore, all that he does, in producing a new manufacture, is to bring old materials into a new combination, and by so doing to produce a new result in matter. It is this new combination, carried into, or evinced by, a new result or production, that is the subject of a patent. The use of all the materials in other combinations may have been known before; but if they are used in a new combination, producing a new result, there will be a good subject for a patent for a "manufacture," as there is in respect to "machinery" when the same thing is effected. See *Cornish v. Keene*, Webs. Pat. Cas. 512, 517.

better article than had been before known, or in its being produced by a cheaper process, then it may properly be considered simply as a manufacture. But if its merit appears only after its incorporation with some mechanism with which it is to be used, and consists in producing, when combined with such mechanism, a new effect, then it should be regarded as a machine, or an improvement of an existing machine. These distinctions, however, are not vitally important to be taken in the patent itself, since it is not necessary to the validity of a patent, that the thing should be described with entire accuracy as "a machine" or "a manufacture." If the thing itself is correctly described, and it appears to be novel and useful, and unites all the other requisites of the statute, it may be left to general interpretation to determine whether the subject-matter ranges itself under the one or the other of these classes, or whether it partakes of the characteristics of both. But if the subject-matter be neither a machine, nor a manufacture, or composition of matter, then it must be an art. There can be no valid patent, except it be for a thing made, or for the art or process of making a thing.

§ 103. IV. A COMPOSITION OF MATTER. The last class of patentable subjects mentioned in the statute is described by the term "composition of matter." It includes medicines, compositions used in the arts, and other combinations of substances intended to be sold separately. In such cases, the subject-matter of the patent may be either the composition itself, the article produced, or it may be the mode or process of compounding it. Generally speaking, the patent covers both, because if the composition is itself new, the process by which it is made must also be new, and the law will protect both as the subjects of invention. But if the article itself be not new, but the patentee has discovered merely a new mode or process of producing it, then his patent will not be for a new "composition of matter," but for a new "art" of making that particular thing.

§ 104. With regard to this class of subjects, it is sufficient

to observe, that the test of novelty must, of course, be, not whether the materials of which the composition is made, are new, but whether the combination is new. Although the ingredients may have been in the most extensive and common use, for the purpose of producing a similar composition, if the composition made by the patentee is the result of different proportions of the same ingredients, or of the same and other ingredients, the patent will be good.¹ The patentee is not confined to the use of the same precise ingredients in making his compound, provided all the different combinations of which he makes use are equally new.²

§ 105. A new class of objects has, by a recent statute, been made the subjects of letters-patent. These are new and original *Designs* for a manufacture of metal and other materials ; for the printing of woollen, silk, cotton, or other fabrics ; for busts, statues, or bas-relief, or composition in alto or basso-relievo ; for any impression or ornament, or to be placed on any article of manufacture in marble or other material ; for any new and useful pattern, print, or picture, to be in any manner attached to, or fixed on any article of manufacture ; for any new or original shape or configuration of any article or manufacture ; all such designs not being previously known or used by others. Patents for these subjects are to be issued on the like application and proceedings, as those prescribed in other cases of patents, for the term of seven years, and on payment of one half the fee required by the general Patent Act.³

¹ Ryan *v.* Goodwin, 3 Sumner's R. 514, 518.

² Ibid.

³ Act of Cong. Aug. 29, 1842, § 3, 5. This is an act in addition to the general Patent Act of 1836 ; but the 5th section provides an action for penalties, for the infringement of this class of patentable subjects, in place of the action for damages provided in respect of other patents by the Act of 1836. The remedy in equity, by injunction, is not expressly granted ; but it exists undoubtedly, both by force of the provision in the Act of 1836, § 17, and of the general principles of Equity Jurisprudence.

§ 106. The patents thus granted relate to the forms impressed upon the material constituting particular articles of manufacture, and to the marks adopted by tradesmen, whether patterns, prints, or pictures, to distinguish their own manufactures. They thus occupy a kind of middle ground between copyrights and patents, as patents for useful inventions have hitherto been classed. Indeed, the exclusive right to impress upon matter a particular form, or to affix a particular device to a bale of merchandise, is very closely analogous to the exclusive right to print a particular book or engraving, if it is not precisely the same right. The same general principles, at least, must be resorted to, to determine the identity between two forms of matter, as forms, or between two devices, as devices, which determine the identity of two books or engravings. The leading principle, in such comparisons, is that which shows that the one thing is a colorable imitation of another, when there is not an exact resemblance; and although this principle has its place in that system of Patent Law, which is applied to machinery, arts, manufactures, or compositions of matter, it is more fully developed and of more frequent application in the law of copyright, as applied to books and engravings.¹

¹ These principles may be found developed in a work in which I have endeavored to state the Law of Copyright.

CHAPTER III.

UNITY OF THE SUBJECT-MATTER.

§ 107. THE several Acts of Congress on the subject of Patents, evidently require that the subject-matter of a patent should be one invention or discovery. The Act of 1836, c. 357, § 6, speaks of an invention or discovery as the subject of a patent, and not of inventions or discoveries; and throughout this and the subsequent statutes, the subject-matter is always described or referred to in the singular and not in the plural. It is, therefore, an important inquiry, how far several distinct things can be made the subject of one patent.

§ 108. In the first place, it is manifest that where there are two distinct and independent inventions, which have no necessary connection with each other, but which are applicable to different objects and purposes, they cannot be united in one patent; for the statute affords no warrant for including more than one subject-matter in one patent. In the second place, if two distinct subject-matters could be included in one patent, great inconvenience and confusion would arise, both to the patentee and the public, from the application of the rule of law which renders void the whole patent, where a part of the subject-matter turns out not to be original. Still, these positions do not determine when several apparently distinct objects constitute one subject-matter; or whether there is any leading principle which will enable us to draw the line between one collection of objects as constituting one subject-matter, and another collection of objects as constituting more than one subject-matter.

§ 109. The object which the inventor proposes to accomplish will always be the main guide, by which to determine

whether his subject-matter is a unit or not. It may consist of several distinct inventions, or several machines capable of useful operation separately; but if the inventor has brought them together for a purpose which can only be effected by their union, that purpose indicates the true character of the subject-matter, when they are included in one patent, which goes for the accomplishment of that purpose. But if the patent goes for the combination, or the purpose to be effected by the several inventions united in one operation, and also goes for the distinct purposes which each invention is, by itself, capable of effecting, it is clear that several subject-matters are embraced in one patent.¹

§ 110. If, indeed, the patentee describes several distinct and independent parts of an invention, which are intended to be used in combination, and he is the first and original inventor of each of them, his patent will cover all the parts as well as the combination, and the use of any one of them by another person, will be an infringement. But where the patentee is not the inventor of the several things used in the combination, but the combination itself is the true subject-matter of his patent, then the use of any number of those things not amounting to the same combination, is no infringement.²

¹ In *Barrett v. Hall*, 1 Mas. 447, 475, Mr. Justice Story laid down the doctrine thus: "A patent under the general Patent Act, cannot embrace various distinct improvements or inventions; but in such case the party must take out separate patents. If the patentee has invented certain improved machines, which are capable of a distinct operation, and also has invented a combination of those machines to produce a connected result, the same patent cannot at once be for the combination and for each of the improved machines; for the inventions are as distinct as if the subjects were entirely different. A very significant doubt has been expressed on this subject by the Supreme Court; and I am persuaded that the doubt can never be successfully removed." See *Evans v. Eaton*, 3 Wheat. 454, 506.

² In *Moody v. Fiske*, 2 Mas. 112, 117, the same learned judge said: 'Where the patent goes for the whole of a machine as a new invention, and

§ 111. It has also been held that a patent may be taken for several improvements on one and the same machine, or for

the machine is in its structure substantially new, any person who pirates a part of the machine, substantially new in its structure, deprives the inventor so far of his exclusive right in his invention, and may, in a great measure, destroy the value of the patent. When the patent is for several improvements in an existing machine, or for an improved machine, incorporating several distinct improvements, which are clearly specified, then if a person pirates one of the improvements, he violates the exclusive right of the patentee, for the patent is as broad as the invention, and the invention covers all the improvements; and it is a wrong done to the patentee to deprive him of his exclusive right in any of his improvements. Where the patent is for a *new combination* of existing machinery, or machines, and does not specify or claim any improvement or invention, except the combination, unless that combination is substantially violated, the patentee is not entitled to any remedy, although parts of the machinery are used by another, because the patent, by its terms, stands upon the *combination* only. In such a case, proof that the machines, or any part of their structure existed before, forms no objection to the patent, unless the *combination* has existed before, for the reason, that the invention is limited to the combination. And yet if the combination itself be not wholly new, but, up to a certain point, has existed before, and the patentee claims the whole combination as new, instead of his own improvements only, as by taking out a patent for the whole machine, doubtless his patent is void, for it exceeds his invention. But if there be different and distinct improvements constituting parts of the combination, which are specified as such in the patent and specification, and any one of them be pirated, the same rule seems to apply as in other cases where part of an invention is pirated, for the patent then shows that the invention is not limited to the mere combination, but includes the particular improvements specified.

It is often a serious difficulty, from the obscure language of the specification, to ascertain what is the nature and extent of the invention claimed by the patentee. Whether his patent be valid or not, must materially depend upon the accuracy and distinctness with which the invention is stated. But in all cases where the patentee claims any thing as his own invention, in his specification, courts of law cannot reject the claim; and if included in the patent, and found not to be new, the patent is void, however small or unimportant such asserted invention may be. This leads me to the first point made at the bar; as to which, it appears to me clear, both upon principle and authority, that where a patentee in his specification states and sums up the particulars of his invention, and his patent covers them, he is confined to

two machines, which are invented by the patentee, and conduce to the same common purpose and object, although they are capable of a distinct use and application, without being united together.¹ But a patent cannot be taken for two distinct

such summary ; and he cannot afterwards be permitted to sustain his patent by showing that some part which he claims in his summing up as his invention, though not in fact his invention, is of slight value or importance in his patent. His patent covers it ; and if it be not new, the patent must be void. Here the plaintiff claims a particular position of machinery as his invention, and it clearly appears in evidence, that the position is not new. It has existed before, not in machines exactly like the present, but in machines applied to analogous purposes, viz , in machines for roping cotton ; and applied for the same purpose as the plaintiff applies them. Without doubt, he supposed that he was the first inventor, but that was his mistake, and will not help the case. The objection therefore is fatal. I wish it to be understood in this opinion, that though several distinct improvements in one machine may be united in one patent, it does not follow that several improvements in two different machines, having distinct and independent operations, can be so included. Much less that the same patent may be for a *combination* of different machines, and for distinct improvements in each."

¹ In *Hogg v. Emerson*, 11 Howard, 587, 605, where a patent was issued for an improvement in the steam-engine "in the mode of propelling therewith either vessels on the water, or carriages on the land," and it was objected that it covered distinct machines, the Supreme Court of the United States said : " But grant that such is the result when two or more inventions are entirely separate and independent, — though this is doubtful on principle, — yet it is well settled in the cases formerly cited, that a patent for more than one invention is not void, if they are connected in their design and operation. This last is clearly the case here. They all here relate to the propelling of carriages and vessels by steam, and only differ, as they must, on water from what they are on land, a paddle-wheel being necessary on the former and not on the latter, and one being used on the former which is likewise claimed to be an improved one. All are a part of one combination when used on the water, and differing only as the parts must when used to propel in a different element.

In *Wyeth v. Stone*, 1 Story, 288, in order to render different letters-patent necessary, it is said, the inventions must be 'wholly independent of each other, and distinct inventions for unconnected objects ;' as one to spin cotton, and 'another to make paper.'

Again, if one set of letters-patent is permissible for one combination consisting of many parts, as is the daily practice, surely one will amply suffice for two or three portions of that combination."

machines not conducing to the same common purpose or object, but designed for totally distinct and independent objects.¹

¹ In *Wyeth v. Stone*, 1 Story's R. 273, 287, Mr. Justice Story said: "But it has been said, that if each of the machines patented is independent of the other, then separate patents should have been taken out for each; and that they cannot both be joined in one and the same patent; and so there is a fatal defect in the plaintiff's title. And for this position the doctrine stated in *Barrett v. Hall*, 1 Mason, R. 473, and *Evans v. Eaton*, 3 Wheat. R. 454, 506, (see also *Phillips on Patents*, pp. 214, 215, 216,) is relied on. I agree, that under the general Patent Acts, if two machines are patented, which are wholly independent of each other, and distinct inventions, for unconnected objects, then the objection will lie in its full force, and be fatal. The same rule would apply to a patent for several distinct improvements upon different machines, having no common object or connected operation. For, if different inventions might be joined in the same patent for entirely different purposes and objects, the patentee would be at liberty to join as many as he might choose, at his own mere pleasure, in one patent, which seems to be inconsistent with the language of the Patent Acts, which speak of the thing patented, and not of the things patented, and of a patent for an invention, and not of a patent for inventions; and they direct a specific sum to be paid for each patent. Besides, there would arise great difficulty in applying the doctrine of the common law to such cases. Suppose one or more of the supposed inventions was not new, would the patent at the common law be void in toto, or only as to that invention, and good for the rest? Take the case of a patent for ten different machines, each applicable to an entirely different object, one to saw wood, another to spin cotton, another to print goods, another to make paper, and so on; if any one of these machines were not the invention of the patentee, or were in public use, or were dedicated to the public, before the patent was granted, upon the doctrines of the common law, the patent would be broader than the invention, and then the consideration therefor would fail, and the patent be void for the whole. But if such distinct inventions could be lawfully united in one patent, the doctrine would lead to consequences most perilous and injurious to the patentee; for, if any one of them were known before, or the patent as to one of them was void, by innocent mistake, or by priority of invention, that would take away from him the title to all the others, which were unquestionably his own exclusive inventions. On the other hand, if the doctrine were relaxed, great inconvenience and even confusion might arise to the public, not only from the difficulty of distinguishing between the different inventions stated in the patent and specification, but also of guarding themselves against fraud and imposition by the

Hence, it would seem to follow that where a patentee has invented two distinct and different machines, each of which

patentee, in including doubtful claims under cover of others which were entirely well founded. In construing statutes upon such a subject, these considerations are entitled to no small weight. At least, they show that there is no ground, founded in public policy, or in private right, which calls for any expanded meaning of the very words of the statute; and that to construe them literally is to construe them wisely. It is plain, also, that the Act of 1837, ch. 45, in the ninth section, contemplated the rule of the common law as being then in full force: and therefore, it seeks to mitigate it, and provides 'that whenever, by mistake, accident, or inadvertence, and without any intent to defraud or mislead the public, any patentee shall have, in his specification, claimed to be the original and first inventor or discoverer of any material or substantial part of the thing invented,' (not of different things invented) 'of which he was not the first and original inventor, and shall have no legal or just right to claim the same, in every such case the patent shall be good and valid for so much of the invention or discovery' (not inventions or discoveries) 'as shall be truly and *bonâ fide* his own; provided it shall be a material and substantial part of the thing patented, and be definitely distinguishable from the other parts, so claimed without right as aforesaid.' This language manifestly points throughout to a definite and single invention, as the 'thing patented,' and does not even suppose, that one patent could lawfully include divers distinct and independent inventions, having no common connection with each other, nor any common purpose. It may, therefore, fairly be deemed a legislative recognition and adoption of the general rule of law in cases not within the exceptive provision of the Act of 1837.

And that is what I understand to have been intended by the Court in the language used in *Barrett v. Hall*, 1 Mason, 447, 475, 478. It was there said, (p. 475,) that 'a patent under the general Patent Act cannot embrace various distinct improvements and inventions; but in such a case the party must take out separate patents. If the patentee has invented certain improved machines, which are capable of a distinct operation, and has also invented a combination of these machines to produce a connected result, the same patent cannot at once be for the combination, and for each of the improved machines; for the inventions are as distinct as if the subjects were entirely different.' And again, (p. 478,) 'If the patent could be constructed as a patent for each of the machines severally, as well as for the combination, then it would be void, because two separate inventions cannot be patented in one patent.' It is obvious, construing this language with reference to the case actually before

will accomplish the same end, he may unite them in one patent, as being distinct modes by which he contemplates the

the Court, that the Court were treating of a case, where each of the patented machines might singly have a distinct and appropriate use and purpose, unconnected with any common purpose, and therefore each was a different invention. In *Moody v. Fiske*, 2 Mason, 112, 119, the judge alluded still more closely to the distinction, and said: 'I wish it to be understood, in this opinion, that though several distinct improvements in one machine may be united in one patent; (yet) it does not follow, that several improvements in two different machines, *having distinct* and independent operations, can be so included; much less, that the same patent may be for a combination of different machines, and for distinct improvements in each' It is perhaps impossible to use any general language in cases of this sort, standing almost upon the metaphysics of the law, without some danger of its being found susceptible of an interpretation beyond that which was then in the mind of the Court. The case intended to be put in each of these cases was of two different machines, each applicable to a distinct object and purpose, and not connected together for any common object or purpose. And, understood in this way, it seems to me, that no reasonable objection lies against the doctrine.

Construing, then, the present patent to be a patent for each machine, as a distinct and independent invention, but for the same common purpose, and auxiliary to the same common end, I do not perceive any just foundation for the objection made to it. If one patent may be taken for different and distinct improvements made in a single machine, which cannot well be doubted or denied, how is that case distinguishable in principle from the present? Here there are two machines, each of which is or may be justly auxiliary to produce the same general result, and each is applied to the same common purpose. Why, then, may not each be deemed a part or improvement of the same invention? Suppose the patentee had invented two distinct and different machines, each of which would accomplish the same end, why may he not unite both in one patent, and say, I deem each equally useful and equally new, but, under certain circumstances, the one may, in a given case, be preferable to the other? There is a clause in the Patent Acts, which requires that the inventor, in his specification or description of his invention, should "fully explain the principle and the several modes, in which he has contemplated the application of that principle or character, by which it may be distinguished from other inventions." Now, this would seem clearly to show that he might lawfully unite in one patent all the modes, in which he contemplated the application of his invention, and all the different sorts of

application of his invention, one of them being preferable in certain circumstances to the other, and *vice versa*. In this way the unity of the subject-matter is preserved; for the subject matter consists, in such a case, of the object to be accomplished, and of the several modes by which it may be accomplished.

§ 112. There is also another aspect in which what we have called the unity of a patent must be preserved. It is impossible that any invention should have been produced both as the separate invention of a party, and as the joint invention of the same party and another or others. It must have been either the separate and sole invention of the party, or the joint invention of the same party, acting with others. A joint invention may be a good subject-matter of a patent, for the statute supposes the case of a joint invention, and provides for it; but if an invention, which, in point of fact, was made by more than one person, is made the subject of a patent by any one of them, he cannot take the oath required by the statute,

machinery, or modifications of machinery, by which, or to which it might be applied; and if each were new, there would seem to be no just ground of objection to his patent, reaching them all. (Act of 1793, ch. 55, § 3; Act of 1836, ch. 357.) *A fortiori*, this rule would seem to be applicable, where each of the machines is but an improvement or invention conducing to the accomplishment of one and the same general end.

But let us take the case in another view, (of which it is certainly susceptible,) and consider the patent as a patent, not for each machine separately, but for them conjointly, or in the aggregate, as conducing to the same common end; if each machine is new, why may they not both be united in one patent, as distinct improvements? I profess not to see any good reason to the contrary. If they may be so united, and were both new, then, upon the principles established in *Moody v. Fiske*, (2 Mason's R. 112, 117, 118, 119,) it is not necessary, in order to maintain a suit, that there should be a violation of the patent throughout. It is sufficient if any one of the invented machines or improvements is wrongfully used; for that, *pro tanto*, violates the patent. In this view, therefore, the use of the cutter of the inventor, without any use of the saw, would be a sufficient ground to support the present bill, if it were not otherwise open to objection." See also *Root v. Ball*, 4 M'Lean, 177.

declaring himself to be the original and first inventor, or, if he does take it, his patent will be void. On the other hand, if his invention was the sole production of one party, a joint patent for it encounters the same objection. It is necessary, therefore, in all cases, that the subject-matter should be claimed as the sole invention of one party, if such is the fact, or as the joint invention of two or more parties, if it was invented by more than one.¹

¹ In *Barrett v. Hall*, 1 Mas. 447, 472, the reasons are thus stated: "In the first place, a joint patent may well be granted upon a joint invention. There is no difficulty in supposing in point of fact, that a complicated invention may be the gradual result of the combined mental operations of two persons acting together, *pari passu*, in the invention. And if this be true, then as neither of them could justly claim to be the sole inventor in such a case, it must follow that the invention is joint, and that they are jointly entitled to a patent. And so are the express words of the Patent Act, (Act of 21st February, 1793, ch. 11, § 1,) which declares, that if any person or persons shall allege, that he or they have invented, &c., a patent shall be granted to him or them for the invention.

In the next place, a joint patent cannot be sustained upon a sole invention of either of the patentees, for the Patent Act gives no right to a patent, except to the inventors, and requires an oath from the party, who claims a patent, that he is the true inventor.

In the next place, a joint patent for an invention is utterly inconsistent with several patents for the same invention by the same patentees. For it is impossible that any person can be, at the same time, the joint and the sole inventor of the same invention. If, therefore, each of the joint patentees obtain a several patent for the same invention, as his own exclusive invention, and afterwards, without surrendering the first patent, they obtain a joint patent for the same as a joint invention, either the former sole patents are void, or the joint patent is void. For, besides the apparent inconsistency of the patents, if all could be sustained, then a recovery upon the joint patent would be no bar to a suit upon the several patents; and the parties might obtain a double recompense for the same infringement. There is an additional reason, which deserves great consideration; and that is, that if sole and joint patents could be sustained by the same parties for the same invention, they might be successively taken out, so that the term of the exclusive right might be prolonged for a great length of time, instead of being limited to fourteen years. I am, therefore, clearly of opinion, that a grant of a subsequent patent for an invention is an estoppel to the patentee to set up any

§ 113. An inventor cannot have two subsisting valid patents, at the same time, for the same invention. The first patent, while it remains in full force and unrepealed, is an estoppel to any subsequent patent by the same person for the same invention.¹

prior grant to the same invention, which is inconsistent with the terms of the last grant. And I have very great doubts, whether where a patent is once granted to any person for an invention, he can legally acquire any right under a subsequent patent for the same invention, unless his first patent be repealed for some original defect, so that it might truly be said to be a void patent.

In the next place, if several patents are taken out by several patentees for a several invention, and the same patentees afterwards take out a joint patent for the same as a joint invention, the parties are not absolutely estopped by the former patents from asserting the invention to be joint; but the former patents are very strong evidence against the joint invention. The reason of this doctrine is, not that estoppels are odious in the law, but that a party may innocently mistake, as to the extent of his own claims, and though a sole and joint invention, by the same persons of the same thing, cannot exist in fact, yet a party may suppose that he has invented, what in truth has been partly suggested by another mind."

¹ *Odiorne v. The Amesbury Nail Factory*, 2 Mason, 28. *Barrett v. Hall*, 1 Mason, 447, 473.

CHAPTER IV.

THE PERSONS ENTITLED TO TAKE, RENEW, OR EXTEND PATENTS.

§ 114. WE have seen that the person or persons entitled to receive a patent can only be the inventor or inventors of the thing proposed to be patented. Our statute does not admit of a patent for the introduction of an invention from abroad, however meritorious. The patentee must be the inventor, and the original and first inventor.¹ But where the inventor has died before making application for a patent, the statute provides that the right of applying for and obtaining a patent shall devolve on his executor or administrator, in trust for his heirs or devisees, and that the oath or affirmation of original invention shall be varied accordingly.²

§ 115. As the statute is silent on the subject of citizenship, it follows, that an alien, who is the first and original inventor of any patentable subject, may apply for and obtain a patent, in the same manner as a citizen of the United States. The *eighth* section of the Act of 1836, c. 357, seems to contemplate the case of an application by an alien, by providing that the fact of a patent having been previously taken out in a foreign country, shall not debar the original and true inventor from a patent in the United States, where such foreign patent has not been taken out, and the invention published more than six months next before the filing of the specification and

¹ Reed v. Cutter, 1 Story's R. 590, 596 ; Act of 1836, c. 357, § 6.

² Act of 1836, c. 357, § 10.

drawing.¹ The subsequent Act of 1839, c. 88, § 6, has somewhat altered this provision, by declaring that no person shall be debarred from receiving a patent, by reason of the invention having been patented in a foreign country more than six months prior to his application, *provided*, that the same shall not have been introduced into public and common use, in the United States, prior to the application for such patent.²

§ 116. So that under these two statutes, the rights of aliens are these. An alien, who is the original and first inventor of a patentable subject, may obtain a patent therefor in the United States, under the same circumstances as a citizen, if he has not patented his invention in a foreign country. If, however, he has taken out a patent for his invention and published the same abroad, if he applies for a patent in the United States, he can obtain it, provided the subject has not been introduced into public and common use in the United States, before his application, notwithstanding he may have received a patent for it abroad more than six months prior to his application here. But if his application in the United States is made within six months of the date or publication of his foreign patent, and yet the subject has in the meantime been introduced into public and common use in this country, it is not quite clear whether the statutes, taken together, mean to give him a patent, notwithstanding such public use, or whether they leave his case open to the general objection of a prior public use. It would seem to have been the intention of Congress, in these provisions, to leave the space of six months open to foreigners, where they are original and true inventors, and not to exclude them by reason of the introduction of their inventions within that period, com-

¹ Act of 1836, c. 357, § 8. The sixth section of the statute also contemplates the case of a patentee being an alien, by requiring the applicant to make oath of what country he is a citizen.

² Act of 1839, c. 88, § 6.

mencing from the date of the patent or publication in a foreign country.¹

§ 117. The *eighteenth* section of the Act of 1836, provides for an extension of a patent beyond the term of its limitation, on the application of the patentee, in the mode therein prescribed. It has been determined, that an administrator is competent to apply for and receive this grant, although the patentee had disposed of all his interest in the then existing patent.²

§ 118. The question whether an assignee, under the first term of a patent, can claim or exercise any right or interest under the renewed or extended patent, has been much discussed. The patent for Woodworth's planing machine was extended from 1842 to 1849, by the Board of Commissioners, under the general Patent Act of 1836. Under this extension, a majority of the Supreme Court of the United States, held that the renewed franchise, or the right to make and sell the machine, did not enure to the benefit of assignees under the original term, but to the administrator of Woodworth to whom it was granted; but that assignees, who were in the use of the patented machine at the time of the renewal, had still a right to use it.³ Subsequently, the same patent was

¹ In the case of interfering applications, where the question is one of priority of invention between an alien and a citizen of the United States, the date of the enrolment of the foreign patent, and not that of the sealing, is considered by the Patent-Office as the date of the foreign patent, beyond which the foreign applicant is not permitted to go in order to prove the priority of his invention.

² *Wilson v. Rousseau*, 4 Howard, 646; *Woodworth v. Sherman*, 3 Story's R. 171, 172; *Brooks v. Bicknell*, 3 M'Lean R. 250, 255, 260; *Woodworth v. Stone*, 3 Story's R. 749.

³ *Wilson v. Rousseau*, 4 Howard, 646. Mr. Justice Nelson delivered the opinion of a majority of the Court, (McLean, Wayne, and Woodbury, Justices, dissenting,) as follows: "The second question is, whether, by force and opera-

again extended by special Act of Congress, passed in 1845,

tion of the eighteenth section already referred to, the extension granted to W. W. Woodworth, as administrator, on the 16th day of November, 1842, inured to the benefit of assignees under the original patent granted to William Woodworth, on the 27th day of December, 1828, or whether said extension inured to the benefit of the administrator only, in his said capacity. The most of this section has already been recited in the consideration of the first question, and it will be unnecessary to repeat it. It provides for the application of the patentee to the commission for an extension of the patent for seven years; constitutes a board to hear and decide upon the application; and if his receipts and expenditures, showing the loss and profits accruing to him from and on account of his invention, shall establish to the satisfaction of the board, that the patent should be extended by reason of the patentee, without any fault on his part, having failed to obtain from the use and sale of his invention a reasonable remuneration for his time, ingenuity, and expense bestowed upon the same, and the introduction of it into use, it shall be the duty of the commissioners to extend the same by making a certificate thereon of such extension for the term of seven years from and after the first term; 'and thereupon the said patent shall have the same effect in law as though it had been originally granted for the term of twenty-one years. And then comes the clause in question:—"*And the benefit of such renewal shall extend to assignees and grantees of the right to use the thing patented, to the extent of their respective interests therein.*"'

The answer to the second question certified depends upon the true construction of the above clause respecting the rights of assignees and grantees.

Various and conflicting interpretations have been given to it by the learned counsel on the argument, leading to different and opposite results, which it will be necessary to examine. On one side, it has been strongly argued, that the legal operation and effect of the clause save and protect all the rights and interests of assignees and grantees in the patent existing at the time of the extension; and thus secure and continue the exclusive use and enjoyment of these rights and interests for the seven years, to the same extent, and in as ample a manner, as held and enjoyed under the first term. That if A holds an assignment of a moiety of the patent, he will hold the same for the new term of seven years; if of the whole patent, then the whole interest for that period. And that as soon as the new grant is made to the patentee, the interest therein passes, by operation of this clause, to the assignees of the old term in proportion to their respective shares. On the other side, it has been argued, with equal earnestness, that, according to the true construction and legal effect of the clause, protection is given, and

from 1849 to 1856. Under this extension, a majority of the

intended to be given, only to the rights and interests of assignees and grantees acquired and held by assignments and grants from the patentee in and under the second or new term; and that it does not refer to, or embrace, or in any way affect the rights and interests of assignees or grantees holding under the old. In connection with this view, it is said that the rights thus protected in the new term may be acquired by means of the legal operation of the clause, either from a direct assignment or grant after the extension of the patent, or by an appropriate provision for that purpose, looking to an extension, contained in the assignment or grant under the old. It is not to be denied, but that, upon any view that has been taken, or that may be taken of the clause, its true meaning and legal effect cannot be asserted with entire confidence; and, after all, must depend upon such construction as the Court can best give to doubtful phraseology and obscure legislation, having a due regard to the great object and intent of Congress, as collected from the context and general provisions and policy of the patent law. The rule is familiar and well settled, that, in case of obscure and doubtful words or phraseology, the intention of the law-makers is to be resorted to, if discoverable from the context, in order to fix and control their meaning so as to reconcile it, if possible, with the general policy of the law.

Now the serious difficulty in the way, and which renders the first interpretation inadmissible, except upon the most explicit and positive words, is, that it subverts at once the whole object and purpose of the enactment, as is plainly written in every line of the previous part of the section. It gives to the assignees and grantees of the patent, as far as assigned under the old term, the exclusive right and enjoyment of the invention — the monopoly — in the extended term for the seven years; when, by the same provision, it clearly appears that it was intended to be secured to the patentee as an additional remuneration for his time, ingenuity and expense in bringing out the discovery, and introducing it into public use. It gives this remuneration to parties that have no peculiar claims upon the government or the public, and takes it from those who confessedly have.

The whole structure of the eighteenth section turns upon the idea of affording this additional protection and compensation to the patentee, and to the patentee alone, and hence the reason for instituting the inquiry before the grant of the extension, to ascertain whether or not he has failed to realize a reasonable remuneration from the sale and use of the discovery, — the production of an account of profit and loss to enable the board to determine the question; and as it comes to the one or the other conclusion, to grant the extended term or not.

It is obvious, therefore, that Congress had not at all in view protection to

Court held, likewise, that an assignee under the original term had the same right to continue to use the patented

assignees. That their condition, on account of dealing in the subject of the invention, whether successful or otherwise, was not in the mind of that body, nor can any good reason be given why it should have been. They had purchased portions of the interest in the invention, and dealt with the patent-rights as a matter of business and speculation, and stood in no different relation to the government or the public, than other citizens engaged in the common affairs of life. Nothing short of the most fixed and positive terms of a statute could justify an interpretation so repugnant to the whole scope and policy of it, and to wise and judicious legislation. We think this construction not necessarily required by the language of the clause, and is altogether inadmissible.

Then, as to the second interpretation, namely, that the clause refers to, and includes assignees and grantees of interests acquired in the new term, either by an assignment or grant from the patentee after the extension, or by virtue of a proper clause for that purpose, in the assignment under the old term. The difficulty attending this construction lies in the uselessness of the clause upon the hypothesis, — the failure to discover any subject-matter, upon which to give reasonable operation and effect to it, — and hence, to adopt the construction is to make the clause virtually a dead letter, the grounds for which conclusion we will proceed to state. The eleventh section of the Patent Act provides, that every patent shall be assignable, in law, either as to the whole interest, or any undivided part thereof, by an instrument in writing, which assignment, and also any grant and conveyance of the exclusive right under any patent, &c., shall be recorded in the Patent Office. And the fourteenth section authorizes suits to be brought in the name of the assignee or grantee, for an infringement of his rights, in a court of law.

One object of these provisions, found in the general Patent system, is, to separate the interest of the assignee or grantee from that which may be held by the patentee, and to make each fractional interest held under the patent distinct and separate; in other words, to change a mere equitable into a legal title and interest, so that it may be dealt with in a court of law.

Now, in view of these provisions, it is difficult to perceive the materiality of the clause in question, as it respects the rights of assignees and grantees held by an assignment or grant in and under the new term, any more than in respect to like rights and interests in and under the old. The eleventh and fourteenth sections embrace every assignment or grant of a part or the whole of the interest in the invention, and enable these parties to deal with

machine.¹ The following is the reasoning of the majority of the Court upon this difficult question, which stands in

it, in all respects, the same as the patentee. They stand upon the same footing, under the new term, as in the case of former assignments under the old. Nothing can be clearer. It is impossible to satisfy the clause by referring it to these assignments and grants; or to see how Congress could, for a moment, have imagined that there would be any necessity for the clause, in this aspect of it. It would have been as clear a work of supererogation as can be stated.

The only color for the argument in favor of the necessity of this clause, in the aspect in which we are viewing it, is, as respects the contingent interest in the new term, derived from a provision in an assignment under the old one, looking to the extension. As the right necessarily rested on contract, at least till the contingency occurred, there may be some doubt whether, even after its occurrence, the eleventh and fourteenth sections had the effect to change it into a vested legal interest, so that it could be dealt with at law, and that a new assignment or grant from the patentee would be required, which could be enforced only in a court of equity. To this extent there may be some color for the argument, some supposed matter to give operation and effect to the clause.

But what is the amount of it? Not that the clause creates or secures this contingent interest in the new term, for that depends upon the contract between the parties, and the contract alone, and which, even if the general provisions of the law respecting the rights of assignees and grantees could not have the effect to change into a legal right, might be enforced in a court of equity. The only effect, therefore, of the provision in respect to assignees and grantees of this description would be, to change the nature of the contingent interest after the event happened, from a right resting in contract to a vested legal right; or, to speak with more precision, to remove a doubt about the nature of the interest in the new term, after the happening of a certain contingency, which event in itself was quite remote. This seems to be the whole amount of the effect that even ingenious and able counsel have succeeded in finding, to satisfy the clause. It presupposes that Congress looked to this scintilla of interest in the new term, which might or might not occur, and cast about to provide for it, for fear of doubts as to its true nature and legal character, and the effect of the general system upon it. We cannot but think a court should hesitate before giving a construction to the clause so deeply harsh and unjust in its consequences, both as it respects the public and individual rights and interests, upon so narrow a foundation.

¹ *Bloomer v. McQuewan*, 14 Howard, 539, 547.

such a position that it can scarcely be regarded as finally settled:—

But there are other difficulties in the way of this construction. The eleventh section, regulating the rights of assignees and grantees, provides 'that every patent shall be assignable at law,' &c., 'which assignment, and also every grant and conveyance of the exclusive right under any patent to make and use, and to grant to others to make and use, the thing patented, within and throughout any specified part or portion of the United States,' &c., 'shall be recorded.'

Now it will be apparent, we think, from a very slight examination of the clause in question, that it does not embrace assignees or grantees in the sense of the eleventh section at all; nor is the sense in which they are referred to, when speaking of these interests generally under the patent law, without interpolating words or giving a very forced construction to those composing it. The clause is as follows:— 'And the benefit of such renewal shall extend to assignees and grantees of the right to use the thing patented, to the extent of their respective interests therein.'

It will be seen that the word 'exclusive,' used to qualify the right of a grantee in the eleventh section, and indeed, always, when referred to in the Patent Law, (§ 14,) and also the words 'to make,' and to grant to others 'to make and use,' are dropped; so that there is not only no exclusive right in the grantee, in terms, granted or secured by the clause, but no right at all, no right whatever, to make or to grant to others to make and use the thing patented; in other words, no exclusive right to make or vend. And it is, we think, quite obvious, from the connection and phraseology, that assignees and grantees were placed, and were intended to be placed, in this respect, upon the same footing. We should scarcely be justified in giving to this term a more enlarged meaning as to the right to make and sell, as it respects the one class, than is given to the others, as they are always used as correlative in the Patent Laws, to the extent of the interests held by them. The clause, therefore, in terms, seems to limit studiously the benefit, or reservation, or whatever it may be called, under or from the new grant to the naked right to use the thing patented; not an exclusive right, even for that, which might denote monopoly, nor any right at all, much less exclusive, to make and vend. This seems to have been guardedly omitted. We do not forget the remaining part of the sentence, "to the extent of their respective interests therein," which is relied on to help out the difficulty. But we see nothing in the phrase, giving full effect to it, necessarily inconsistent with the plain meaning of the previous words. The exact idea intended to be expressed may be open to observation; but we think it far from justifying the Court in holding, that the grant or reservation of a right to use a thing

“ The bill in this case was filed by the appellants, on the 6th of July, 1850, in the Circuit Court of the United States,

patented, well known and in general use at the time, means an exclusive right to make and use it; and not only this, but an exclusive right to grant to others the right to make and use it, meaning an exclusive right to vend it.

The Court is asked to build up a complete monopoly in the hands of assignees and grantees in the thing patented, by judicial construction, founded upon the grant of a simple right to use it to the extent of the interest possessed; for the argument comes to this complexion. A simple right to use is given, and we are asked to read it an exclusive right, and not only to read it an exclusive right to use, but an exclusive right to make and vend the patented article.

Recurring to the Patent Law, it will be seen that Congress, in granting monopolies of this description, have deemed it necessary to use very different language. The grant in the patent must be in express terms, for ‘the full and exclusive right and liberty of making, using, and vending,’ in order to confer exclusive privileges. The same language is also used in the act, when speaking of portions of the monopoly in the hands of assignees and grantees. (§ 11, 14.)

We cannot but think, therefore, if Congress had intended to confer a monopoly in the patented article upon the assignees and grantees, by the clause in question, the usual formula in all such grants would have been observed, and that we should be defeating their understanding and intent, as well as doing violence to the language, to sanction or uphold rights and privileges of such magnitude by the mere force of judicial construction. We conclude, therefore, that the clause has no reference to the right or interest of assignees and grantees under the new and extended term, upon the ground:—

1. Because, in that view, giving to the words the widest construction, there is nothing to satisfy the clause, or upon which any substantial effect and operation can be given to it; it becomes virtually a dead letter, and work of legislative superfluity; and

2. Because the clause in question, upon a true and reasonable interpretation, does not operate to vest the assignees and grantees named therein with any exclusive privileges whatever, in the extended term, and therefore cannot be construed as relating to or embracing such interests in the sense of the law.

The extension of the patent, under the eighteenth section, is a new grant of the exclusive right or monopoly in the subject of the invention for the seven years. All the rights of assignees or grantees, whether in a share of

for the Western District of Pennsylvania, to obtain an injunction restraining the appellees from the use of two of

the patent, or to a specified portion of the territory held under it, terminate at the end of fourteen years, and become reinvested in the patentee by the new grant. From that date he is again possessed of 'the full and exclusive right and liberty of making, using, and vending to others the invention,' whatever it may be. Not only portions of the monopoly held by assignees and grantees, as subjects of trade and commerce, but the patented articles or machines throughout the country, purchased for practical use in the business affairs of life, are embraced within the operation of the extension. This latter class of assignees and grantees are reached by the new grant of the exclusive right to use the thing patented. Purchasers of the machines, and who were in the use of them at the time, are disabled from further use immediately, as that right became vested exclusively in the patentee. Making and vending the invention are prohibited by the corresponding terms of his grant.

Now, if we read the clause in question with reference to this state of things, we think that much of the difficulty attending it will disappear. By the previous part of the section, the patentee would become reinvested with the exclusive right to make, use, and vend the thing patented; and the clause in question follows, and was so intended as a qualification. To what extent? is the question. The language is, 'And the benefit of such renewal shall extend to assignees and grantees of the right to use the thing patented, to the extent of their respective interests therein;' naturally, we think, pointing to those who were in the use of the patented article at the time of the renewal, and intended to restore or save to them that right which, without the clause, would have been vested again exclusively in the patentee. The previous part of the section operating in terms to vest him with the exclusive right to use, as well as to make and vend, there is nothing very remarkable in the words; the legislature intending thereby to qualify the right in respect to a certain class only, leaving the right as to all others in the patentee, in speaking of the benefit of the renewal extending to this class. The renewal vested him with the whole right to use, and therefore there is no great impropriety of language, if intended to protect this class, by giving them, in terms, the benefit of the renewal. Against this view it may be said, that 'the thing patented' means the invention or discovery, as held in *McClurg v. Kingsland*, 1 How. 202, and that the right to use 'the thing patented' is what, in terms, is provided for in the clause. That is admitted; but the words, as used in the connection here found, with the right simply to use the thing patented, not the exclusive right, which would be a monopoly, necessarily refer to the patented machine, and not to the invention; and,

Woodworth's planing machines, in the city of Pittsburg. The term for which Woodworth's patent was originally

indeed, it is in that sense that the expression is to be understood generally throughout the Patent Law, when taken in connection with the right to use, in contradistinction to the right to make and sell.

The 'thing patented' is the invention; so the machine is the thing patented, and to use the machine is to use the invention, because it is the thing invented, and in respect to which the exclusive right is secured, as is also held in *M'Clurg v. Kingsland*. The patented machine is frequently used as equivalent for the 'thing patented,' as well as for the invention or discovery; and, no doubt, when found in connection with the exclusive right to make and vend, always means the right of property in the invention; — the monopoly. But when in connection with the simple right to use, the exclusive right to make and vend being in another, the right to use the thing patented necessarily results in a right to use the machine, and nothing more. Then as to the phrase, 'to the extent of their respective interests therein,' that obviously enough refers to their interests in the thing patented; and in connection with the right simply to use, means their interests in the patented machines, be their interest in one or more at the time of the extension.

This view of the clause, which brings it down in practical effect and operation to the persons in the use of the patented machine or machines at the time of the new grant, is strengthened by the clause immediately following, which is, 'that no extension of the patent shall be granted after the expiration of the term for which it was originally issued.' What is the object of this provision? Obviously to guard against the injustice which might otherwise occur to a person who had gone to the expense of procuring the patented article, or changed his business upon the faith of using or dealing with it, after the monopoly had expired, which would be arrested by the operation of the new grant. To avoid this consequence it is provided, that the extension must take place before the expiration of the patent, if at all. Now it would be somewhat remarkable if Congress should have been thus careful of a class of persons who had merely gone to the expense of providing themselves with the patented article for use, or as a matter of trade, after the monopoly had ceased, and would be disappointed and exposed to loss if it was again renewed, and at the same time had overlooked the class, who, in addition to this expense and change of business, had bought the right from the patentee, and were in the use and enjoyment of the machine, or whatever it might be, at the time of the renewal. These provisions are in juxtaposition, and, we think, are but parts of the same policy, looking to

granted, expired in 1842, but it was extended seven years by the board established by the 18th section of the Act of 1836. And afterwards, by the Act of Congress of February 26, 1845, this patent was extended for seven years more, commencing on the 27th of December, 1849, at which time the previous extension would have terminated.

the protection of individual citizens from any special wrong and injustice on account of the operation of the new grant. The consequences of any different construction from the one proposed to be given are always to be regarded by courts, when dealing with a statute of doubtful meaning. For between two different interpretations, resting upon judicial expositions of ambiguous and involved phraseology, that which will result in what may be regarded as coming nearest to the intention of the legislature should be preferred.

We must remember, too, that we are not dealing with the decision of the particular case before us, though that is involved in the inquiry, but with a general system of great practical interest to the country; and it is the effect of our decision upon the operation of the system that gives to it its chief importance.

The eighteenth section authorizes the renewal of patents in all cases where the board of commissioners is satisfied of the usefulness of the invention, and of the inadequacy of remuneration to the patentee. Inventions of merit only are the subjects of the new grant; such as have had the public confidence, and which it may be presumed have entered largely in one way and another into the business affairs of life.

By the report of the commissioners of patents, it appears that five hundred and two patents were issued in the year 1844 — for the last fourteen years, the average issue yearly exceeded this number — and embrace articles to be found in common use in every department of labor and art, on the farm, in the workshop, and factory. These articles have been purchased from the patentee, and have gone into common use. But if the construction against which we have been contending should prevail, the moment the patent of either article is renewed, the common use is arrested, by the exclusive grant to the patentee. It is true, the owner may repurchase the right to use, and, doubtless, would be compelled from necessity; but he is left to the discretion or caprice of the patentee. A construction leading to such consequences, and fraught with such unmixed evil, we must be satisfied, was never contemplated by Congress, and should not be adopted unless compelled by the most express and positive language of the statute."