

THE  
AMERICAN LAW REGISTER.

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JANUARY, 1868.

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PATENTING A PRINCIPLE.

THE opinions of professional men are far from being settled, apparently, upon all the questions involved in patenting a principle. Perhaps there are not many who suppose that having discovered such a principle entitles the discoverer to appropriate it under a patent, provided he has reduced it to practice. The current of decisions has been so uniform in recognising the title as belonging to the one who has first made a useful application of a law of nature; and upon that ground alone, that a person can hardly be found who believes the title to be strengthened in consequence of having brought the law to light. A much greater diversity of sentiment exists as to the extent of the right which the individual acquires in the principle so applied, and the form in which a patent should be expressed in order to protect the right. On the one hand it seems to be held that he is entitled to the exclusive use of the principle, when employed for the same purpose by whatever instrumentalities the purpose is effected; and that the patent should expressly claim, not only the instrumentalities adopted by the patentee, but also the use of the principle for the purpose however applied. Others believe that, having shown by what means the principle can be made to accomplish the object, the patent, although it covers only those means in express terms, yet confers an exclusive privilege in the employment of the principle to accomplish the object, let the means

resorted to be ever so different. On the other hand it is regarded by many as well settled, that he who has invented a method by which a property of matter can be, for the first time, rendered useful for a particular purpose, is entitled to a patent for the method, or process or mechanism which he has contrived, and that he can set up no claim to anything more, nor vindicate a right to anything more.

Several things have contributed to this discordance of sentiment. One of the most prominent is a misapprehension of the effect and bearing of some of the cases on the subject. It is not necessary to engage in an exhaustive discussion of all the reported decisions in which the question is involved; but some examination of a few of the leading ones seems to be requisite in order to render it clear.

From the earliest date the established doctrine of the English courts has been that a principle cannot be patented. It has been pronounced from the bench times without number, has been uniformly assumed as the law, and has never once been questioned since *Hornblower v. Boulton* was determined. It appears to have been made the subject of consideration for the first time in two suits brought upon Watt's patent for his steam-engine. In one of them, *Boulton & Watt v. Bull*, 2 H. B. 463, and Dav. Pat. Cas. 162, the court were divided in their construction of the patent, and consequently no judgment was ever rendered. All were agreed in condemning the idea that a principle could be patented, and two of the judges interpreted the grant as embracing a monopoly of a principle, and held it to be void on that ground. The other two understood it to cover only the structure of the engine, and therefore maintained its validity. Lord Chief Justice EYRE uttered the following noticeable sentiments on the occasion: "Undoubtedly there can be no patent for a mere principle. But for a principle so far embodied and connected with corporal 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 is, in my judgment, the thing for which the patent 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 method of doing it; and for that practical method of doing it he has

taken out a patent. Surely this is a very different thing from taking out a patent for a principle." The expression "a principle embodied and connected with corporal substances," &c., may have had some part in originating the idea that the principle itself is what may be patented. It may be doubted whether the distinction between a principle embodied in a material structure, and a machine embodying a principle, was in his lordship's mind at all. If it was, the latter part of the quotation shows that it was the machine he contemplated: he says it was "for that practical method of doing it he has taken out his patent."

Having failed to establish their title in that suit, the plaintiffs brought another, which was subsequently carried by writ of error to the Court of King's Bench, and is reported by the name of *Hornblower v. Boulton*, 8 T. R. 99. Judgment was given in their favor upon the sole ground that the patent was for a machine, and not for a principle, as may be seen from the following language of Lord KENYON, Chief Justice: "By comparing the patent and the manufacture together, it evidently appears that the patentee claims a monopoly for an engine, or a machine composed of material parts, which are to produce the effect described." "But having heard everything that can be said on the subject, I have no doubt in saying that this is a patent for a manufacture, which I understand to be something made by the hand of man." LAWRENCE, J.; rested the same conclusion upon the language of the Act of Parliament, under which the patent had been extended; saying, "From this it is clear that the legislature understood that the patent was for an engine for some mechanical contrivance." The other judges concurred in these views, and, notwithstanding the strenuous efforts of the counsel to sustain the patent upon the ground that a principle could be patented, they emphatically condemned the position.

Passing over several cases, which will be adverted to in the following pages, the case of *Neilson v. Harford*, 1 W. P. C. 273, and 8 M. & W. 806, next demands attention. The action was brought upon the patent for using the hot-blast in smelting iron, and the like, and was considered at great length in the Court of Exchequer Chamber. The court were chiefly occupied with the objection, that the patent represented the form of the vessel in which the air is heated to be immaterial, and this the jury had found was not true, certainly in one sense. It was also urged

that the patent was for a principle; and respecting this Baron PARKE, who pronounced the opinion, made these observations: "Then taking the construction of this specification upon ourselves, as we are bound to do, it becomes necessary to examine what the nature of the invention is which the plaintiff has disclosed by this instrument. *It is very difficult to distinguish it from a patent for a principle, and, this at first created in the minds of some of the court much difficulty*; but, after full consideration, we think the plaintiff does not merely claim a principle, but a machine embodying a principle, and a very valuable one. *We think the case must be considered as if, the principle being well known, the plaintiff had first invented a mode of applying it by a mechanical apparatus to a furnace.* And his invention then consists in this, by interposing a receptacle for heated air between the blowing apparatus and the furnace" (W. P. C. 370, 371). It is difficult to see how they could have more emphatically denied that a principle can be patented. The inventor had brought to light a property of matter of immense value, and had rendered it practicable. If there was ever a case in which such a discovery should be protected it was this, and the court were evidently actuated by an earnest desire to secure to the discoverer his reward. Yet they found themselves compelled to put a forced interpretation upon his grant, and to construe it as covering the structure he employed, because they could not, with due regard to their legal convictions, allow him to monopolize the property of matter. They add this pregnant remark: "We think the case must be considered as if, the principle being well known, the plaintiff had first invented a mode of applying it." They give him no credit for having been the first to eliminate it, and make it known. They estimate his merit by the application which he had made of it, and by that alone.

The same patent came under consideration soon after in *The Househill Co. v. Neilson*, W. P. C. 673, a case which requires a more careful examination, perhaps, than any other on the subject, both on account of the erroneous significance which has been attached to it, and the influence it has exerted in misleading many of the profession. It was tried first by the Court of Sessions in Scotland, Lord Justice Clerk HOPE presiding, and then on appeal by the House of Lords. The defendants undertook to raise questions which involved the objection that the patent was

for an abstract principle, and therefore void. Lord HOPE thereupon (p. 677) expressed his conviction that they were not at liberty under the pleadings, or issues as settled, to go into that defence. On inspecting the issues (p. 674), it will be clearly seen that no such point was raised. Nevertheless, in order to enable the defendants to carry up the question, he concluded to entertain the objection, and treat it as if it were legitimately before him. Accordingly he proceeded to instruct the jury, in unqualified terms, that the plaintiff, having discovered the principle, and shown how it might be applied usefully, was entitled to a patent for the principle. All this, however, was on the erroneous hypothesis that the objection had been properly taken.

It has been said, however, that this ruling of Lord HOPE's was affirmed upon the hearing of the appeal before the House of Lords. It is true that all the exceptions taken by the defendants to his Lordship's instructions were overruled on that occasion, saving one, which has no bearing on the question under consideration. The reason is to be learned from a foot note to the report, on p. 711. From that it appears that, when the counsel for the appellants (the defendants below); approached this part of the case, the Law Lords expressed such a decided conviction that the objection to the patent on account of its being for a principle, could not be raised under the pleadings and issues, that the objection was abandoned. And in accordance with this we find Lord CAMPBELL interposing in the course of the argument, and asking the counsel for the appellants "what issue have you on this record to raise the question of the patent being for a principle?" And after some further conversation he told them "You might have pleaded that it was a patent for a principle, and not for any particular mode of applying a principle. There is no issue for the direction of the judge upon that point:" pp. 701, 702. And Lord LYNDBURST mentioned, in delivering his opinion, that he understood the counsel to abandon that defence (p. 711). The decision below was affirmed, nevertheless, because, since the defendants could not raise the question at all, they were not injured by an adverse ruling respecting it, and could not allege it as an error, so as to set aside the judgment. The whole authority of the case, therefore, rests upon the instructions given by Lord HOPE to the jury, hypothetically and upon a supposition that had no foundation, as he himself believed.

Among the American cases on this subject two are prominent: those of *Le Roy v. Tatham*, 14 How. 156; and *O'Reilly v. Morse*, 15 How. 62.

In the first of these the patentees described in their specification a property of lead, which had been discovered by them, viz.: that, if divided when just congealed, and then pressed together while still hot, the edges will unite. This they had reduced to practice in a machine for making lead pipe, and it was found to be a valuable improvement. Judge MCLEAN, who gave the opinion of the majority of the court, interpreted the patent as embracing the machine only, and as they determined that to have been anticipated, they condemned the patent. The minority put a different construction upon the grant. They held that it appropriated the newly discovered property of lead, and that the plaintiff had a right to so appropriate it, and ought to recover. Lord HOPE's views were greatly relied upon, and it was evidently supposed that they had been sanctioned by the House of Lords. It should be observed, further, in order that the bearing of this case may be fully understood, that, in *O'Reilly v. Morse* (which was decided the next year), Chief Justice TANEY said that it was held by the court in *Le Roy v. Tatham*, that the plaintiff "was not entitled to a patent for this newly discovered principle, or quality, in lead, and that such a discovery was not patentable:" p. 117. It would seem, therefore, that the doctrine of the minority on this point was not acquiesced in by their colleagues, though it was passed over in the opinion given for the majority.

The patent came under the consideration of the court again in the case of *Le Roy v. Tatham*, 22 How. 132, and was sustained in consequence of a new view which was taken of it. In delivering the opinion of the court, Judge MCLEAN took occasion to declare, in emphatic terms, that Lord HOPE's doctrine was not law in this country.

In *O'Reilly v. Morse*, the principal question arose upon the eighth claim in the patentee's specification. It was expressed in these words, viz.: "The use of the motive power of the electric, or galvanic current, however developed, for making or printing intelligible characters, signs, or letters, at any distance." The patentee did not pretend to have been the first one who had discovered that the electric current would produce motion at a distance. But he did claim, and truly, to have contrived a mechan-

ism, or process, whereby it could be made to print characters at a distance. He set up a claim, therefore, to the exclusive right of doing this by any process or machinery whatever. This claim the court negated in the most unequivocal terms, and Chief Justice TANEY, in delivering their judgment, used this language, which will bear repetition: "Whoever discovers that a certain useful result will be produced in any art, machine, manufacture, or composition of matter by the use of certain means, is entitled to a patent for it, provided he specifies the means he uses in a manner so full and exact that any one skilled in the science to which it appertains can, by using the means he specifies, without any addition to, or subtraction from them, produce precisely the result he describes. And if this cannot be done by the means he describes, the patent is void; and if it can be done, then the patent confers on him the exclusive right to use the means he specifies to produce the result or effect he describes, and nothing more. And it makes no difference, in this respect, whether the effect is produced by chemical agency or combination, or by the application of discoveries or principles in natural philosophy, known or unknown before his invention, or by machinery acting altogether on mechanical principles. In either case he must describe the manner or process as above mentioned, and the end it accomplishes. And any one may lawfully accomplish the same end, without infringing the patent, if he uses means substantially different from those described:" p. 119. And he also declared that the doctrine of Lord HOPE is not law in this country.

After the elaborate discussion and full consideration which these cases underwent in the Supreme Court, it can hardly be required to examine at length those in which the subject has been touched upon in the Circuit Courts. What was said in substance respecting them by TANEY, C. J., in *O'Reilly v. Morse*, will answer the purpose. The earlier decisions are in uniform accordance with the ruling in that case, and the idea of patenting a principle is never mentioned but to be denounced. (See *Evans v. Eaton*, Pet. C. C. 341; *Stone v. Sprague*, 1 Story 272; *Wyeth v. Stone*, Id. 285; *Blanchard v. Sprague*, 2 Id. 166, 170; 3 Sumn. 536, 540; *American Pin Co. v. Oakville Pin Co.*, 3 Am. Law Reg. O. S. 137, and Law's Dig. 260; *Smith v. Downing*, Law's Dig. 593.) A change was undoubtedly produced by the proceedings upon Neilson's patent, and the instructions of Lord HOPE were in seve-

ral instances adopted as the law by the judges in their circuits. *Parker v. Hulme*, 7 West. Law J. 419, Law's Dig. 593, and *Foote v. Silsby*, 2 Blatchf. 265, may be mentioned among them. It is a grave mistake, however, to assert that the decision upon this question in the last case was affirmed in the Supreme Court. The question arose upon the first claim alone in the plaintiff's patent; and on the hearing in the Supreme Court it was expressly stated by the learned judge, NELSON, who pronounced the decision, that the first claim was found to have been anticipated, and was not before the court: *Silsby v. Foote*, 20 How. 378.

Since *O'Reilly v. Morse* was decided, the right to patent a principle has never received the slightest countenance from the bench, but, whenever it has been adverted to, it has been denied in unqualified terms. It was so in *Le Roy v. Tatham*, 22 How. 132. In *Wintermute v. Redington* (U. S. Cir. Ct. N. D. Ohio, 1856), a patent was tried which eminently deserved all the favor to which the discovery of a new and valuable law of physics could entitle it, it being for the well-known reaction waterwheel. Yet the learned judge, WILSON, who presided at the trial, used the following language respecting it: "If the defendant, in the use of a reaction waterwheel, whether on a vertical or horizontal shaft, whether single or in pairs, has run, or caused it to be run by the aid of the vertical motion of the water upon the wheel in its line of motion, he has violated the patent; *provided he has used, in so doing, any or all of the patentee's mechanical means for producing that vertical motion, or mechanical equivalents for all or any of them to produce it.*"

We may now recur to the cases which are usually referred to in discussing this branch of the law, and which have been passed over. It will be found, on examination, that they, every one of them, involved an invention consisting exclusively in the new application of some law of mechanics, or what is equivalent to such a law. And what were held to be infringements consisted in the employment of what were mere mechanical substitutes for the devices which the patentee had described in his specification. They were neither more or less than equivalents for those devices, at least they were so regarded by the court. It is true that the judges frequently speak of the principle of the patented structure, and vindicate the patentee's exclusive right to it. But the term principle is used by them in a qualified sense. As Judge STORY

said in *Barrett v. Hall*, "care should be taken to distinguish what is meant by a principle. In the minds of some men, a principle means an elementary truth or power," &c. "No one, however, in the least acquainted with law, would for a moment contend that a principle in this sense is the subject of patent." "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:" 1 Mass. 470. So it was said also by Judge McLEAN in *Brooks v. Jenkins*, "The word principle is not used here in its general signification, but as applied to the structure of a machine. It means the operative cause by which a certain effect is produced:" 3 McL. 451. Or, as Judge STORY defined it on another occasion, it means "the *modus operandi*; the peculiar manner or device of producing any given effect:" *Whittemore v. Cutter*, 1 Gall. 480. When, therefore, we find it announced from the bench that the patentee, having shown one way in which this principle of his machine is made to work effectively, is entitled to the use of all other ways in which it may be utilized for that purpose, we apprehend that nothing more is intended than that his patent shall not be evaded by what are only equivalents for the mechanisms he employed.

In *Jupe v. Pratt*, 1 W. P. C. 145, for instance, there can be no pretence that the plaintiff had found out any new property of matter, any law of physics, or even any new principle of mechanics. He had, at the most, made an ingenious and novel application of well-known mathematical truths. This enables us to understand the just import of the language used by Baron ALDERSON on that occasion, which has been so often quoted. He first denied explicitly that a patent can be taken out for a principle. He adds, however, "You may take out a patent for a principle, coupled with the mode of carrying that 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 some mode of carrying it 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." Now, if the learned judge intended by principle any law of nature, then his remarks were entirely foreign to the case. The plaintiff had made no such discovery, and, if he had, his discovery of it would have

given him no property in what he discovered. But, if his Lordship is understood to be speaking of what has been sometimes called the *modus operandi* of the invention, he is intelligible and consistent, and in harmony with what has been advanced above. The patentee of such an invention must have originated the principle in that sense. And having originated it, and described one method of applying it, he is entitled to all other methods of applying it. For all other methods of applying such a principle can be nothing more or less than substituting some equivalent or other for the mechanical device or devices, which are embodied in the method he has described.

So of *Crossley v. Beverley*, 1 W. P. C. 106, 3 C. & P. 513. The operation of the machine, for which the plaintiff had a patent, depended upon a well-known law of hydrostatics, the tendency of water to rise to the same level, wherever different bodies of it are in free communication. A great deal was said about the principle of the machine, the experts testifying that after the principle was once discovered, there were a hundred ways of reducing it to practice. Now they could not be speaking of the law of hydrostatics, which has been known from time immemorial. They evidently meant the *modus operandi*, the principle of mechanism by which that law was made to contribute to the purpose of the machine. The defendant's machine was wholly unlike the plaintiff's in appearance, and even in construction. But it was shown to operate upon the same principle, and so was held to be an infringement. Not because he availed himself of the same law of hydrostatics—everybody might make use of that. But he employed the same mechanical principle of operation. In other words, his devices were mere mechanical equivalents for those which were described in the plaintiff's patent.

Again, in *Walton v. Potter*, 1 W. P. C. 585, 3 M. & G. 411, 3 Scott N. R. 91, the patentee had made no discovery of any law of physics. He had merely made an ingenious application of the well-known qualities of india-rubber, in order to hold the teeth of wool-cards in a suitable position, yet have them flexible. He used for this purpose a sheet of the gum between two layers of cloth. The defendant used cloth enveloped in the gum, by having been dipped in a solution of it and dried, and thus effected the same object: and he was held to have infringed the patent. Why? Because he used india-rubber? No; but his fabric ope-

rated on the same principle; that is, the same principle of mechanics; and was a mere substitute for that of the plaintiffs.

We have seen that the plaintiffs' patent in *Neilson v. Harford*, was construed to cover the process of heating the air in a vessel placed between the blowing apparatus and the furnace. The defendant used a vessel in that position for the same purpose; but the construction of it was entirely different from that of the plaintiffs. It was held, nevertheless, to be an infringement. It performed the same functions, more effectually it is true, but still the same. In a mechanical point of view it operated on the same principle, and was its counterpart.

It is unnecessary to go through all the cases in the English books to which this explanation applies. One, which was determined by our own Supreme Court, deserves to be noticed here, especially because it was considered at the same term with *O'Reilly v. Morse*, and both must have been together in the minds of the judges—that of *Winans v. Dennacad*, 15 How. 330. The plaintiff's invention consisted in constructing coal-cars in the form of the frustum of a cone. The defendant's cars were octagonal instead of circular, but otherwise resembled the plaintiff's. One of the judges inclined to the opinion that the plaintiff was, by the terms of his patent, limited to the precise form he had described, and could have no remedy against others who used a different one. It was shown that there was no practical difference between the two; but either would derive especial strength from the mechanical law involved. And, though the plaintiff's claim was, in express terms, to the frustum of a cone; though he did not pretend to claim the mechanical law thus applied, the defendant was held to have violated his patent. This could not be on the ground that the principle of mechanics was patented. It must have been on the ground that the form adopted by the defendant was a mere equivalent for that of the plaintiff.

It may be said that what have been designated as mechanical laws in the preceding pages, are in truth laws of nature, physical just as much as the properties of matter, and that the two classes run into each other, so that no distinction can be made between them. It is not necessary to insist that there may be in theory. In practice, there is a radical difference which fully justifies their being considered as belonging to two classes. In the case of inventions founded on what have been termed mechanical principles, the patentee obtains full protection in the exclusive enjoy-

ment of the principle by being allowed an action against every one who uses an equivalent for his device. No machine can be constructed on the principle of his which does not embrace such equivalents. It may not be so where the novelty of the invention consists in some property of matter first brought to light by the patentee. Neilson's patent covered the use of a vessel for heating air placed between the blower and the furnace—not the introduction of heated air into the furnace, which was truly his discovery. If any one could have contrived to heat the air sufficiently before it entered the blower, he might have availed himself of Neilson's discovery with impunity. The difficulty of doing this constituted the whole strength of his patent. Anybody might have availed himself of the quality of lead discovered by the Tatham's, if he could have got up a machine of a different construction. It is very possible that the courts may give a larger range to the doctrine of equivalents, in order to secure to the discoverer of a new physical property an adequate reward for his ingenuity. Thus far, it is only as the defendant has been found to have employed mechanical equivalents for the construction specified by the patentee, that he has been held guilty of infringement, or the patentee has obtained protection.

There are a few other cases upon this subject which are not open to the explanation given to those heretofore mentioned, and which may be thought to require a passing notice.

The plaintiff in *Forsyth v. Riviere*, 1 W. P. C. 97, after describing in his specification the explosive compounds employed by him in igniting the charge in fire-arms, added: "I do not lay claim to the invention of any of the said compounds," &c., "my invention in regard thereto being confined to the use and application thereof to the purposes of artillery and fire-arms as aforesaid. . . And the manner of priming and exploding which I use is," &c., proceeding to describe it. There was no specification of claim. It is manifest that this patent was for the method he employed. It is true that the reporter says the defendant's lock was constructed differently; but he does not furnish the slightest intimation in what respect it varied. The note of the case is very short and unsatisfactory. The report, bearing the same title in Chit. Pr. C. 182, is upon another point entirely. But from the statement of the counsel in *Minter v. Wells*, W. P. C. 128, we learn that all the difference between the locks was this: in the

patentee's the hammer struck the pan containing the composition, and in the defendant's the pan struck the hammer.

No one can read the patent of the plaintiff in *Hall v. Boot*, 1 W. P. C. 100, without perceiving that he laid claim to his machinery when used in connection with gas flame. There was no positive evidence what machinery the defendants used, it is true; but this does not warrant the inference that the court recognised the plaintiff's title to the exclusive use of gas flame with any machinery for the same purpose. There was circumstantial proof of the strongest kind that the defendants' was borrowed from the plaintiff's, and was identical with it.

The claim set up in *Booth v. Kennard*, 1 Hurls. & N. 527, was for "making gas direct from seeds and matters herein named for practical illumination, or other useful purposes, instead of making it from oils, resins, or gums previously extracted from such substances." Upon the trial of the case, POLLOCK, C. B., held this claim to be too broad, and directed a verdict for the defendant. The verdict was set aside in the Court of Exchequer Chamber; and from the report it would certainly seem as if the court considered the patent valid. But when the cause came on for trial again before Chief Baron POLLOCK, he said that the court had decided nothing more than this: that the invention "was one which, if new, might be patented if properly specified." He added, "we are also of opinion that the claim is too large, and that such claim cannot be supported." There was a verdict for the defendant again. But as there was also strong evidence upon that trial that the invention was not new, the plaintiff probably deemed it unsafe to proceed any further, after moving that a verdict should be entered up for him, and being denied. Little or no reliance is manifestly to be placed on the report of the decision in the Exchequer Chamber, after the explanation given by Chief Baron POLLOCK.

The plaintiff in *Seed v. Higgins*, 8 Ell. & Bl. 755, 771, and 6 Jur. N. S. 1264, had originally taken out a patent for the application of the law or principle of centrifugal force to the particular or special purpose above set forth; "i. e. to fliers used for preparing, slubbing, or roving cotton, &c., so as to produce a hard and evenly compressed bobbin. He afterwards discovered that centrifugal force had been employed already for the same purpose, though by different means; and he therefore filed a

disclaimer, by which he limited himself to the mechanism he had described in his specification. Upon this a question arose whether his patent did not, when thus amended, appropriate a different invention from anything embraced in his original specification, and was not therefore void. The case was very fully discussed in several courts, but was finally decided against the plaintiff upon the ground that the defendant's machine was no infringement of the patent. In the course of delivering their opinions it was incidentally mentioned by one or more of the judges, that the defendant's machine came within the purview of the patent as originally framed. But there was no opinion expressed throughout as to the validity of the original patent, nor any allusion made to the subject. If it may be inferred from the silence observed respecting it that the validity of the instrument was admitted, there is some propriety in referring to the case when examining this doctrine. It will probably be regarded by most as of no weight whatever.

The court interpreted the second claim made by the plaintiff, in *Bovill v. Keyworth*, 7 Ell. & Bl. 724; to be for "exhausting the air from the cases of the millstones, combined with the application of a blast to the grinding surfaces." Upon this Lord CAMPBELL, who presided, remarked as follows, viz.: "Still if the specification does not point out the mode by which this part of the process (No. 2) is to be conducted, so as to accomplish the object in view, it would be a statement of a principle, and the patent would be invalid." He held it to be sufficient, however. And it may well be doubted whether it was fairly open to the objection that it would have been for a principle without a description of the process, though such a description was no doubt essential. The case belongs to a class which has been often supposed to involve the legality of patenting a principle, but really has little to do with it. A blast and an exhaust are two mechanical forces as well known as a stream of water or as steam. Every artisan skilled in the business is perfectly familiar with them, and knows how to produce them. The invention in this instance consisted in combining the two so as to produce a particular effect. After describing how this might be done, the specification defines the invention as consisting in the combination of these two forces, each applied to a particular and well-known mechanism. In all this we see nothing like patenting a