

Case No. 371.

ANDREWS ET AL. V. CARMAN.

[13 Blatchf. 307; 2 Ban. & A. 277;¹ 9 O. G. 1011; Merw. Pat. Inv. 249.]

Circuit Court, E. D. New York.

April 24, 1876.

PATENTS FOR INVENTIONS—VALIDITY OF
REISSUE—PROCESS—NOVELTY—MANUFACTURE—ANTICIPATION—ABANDONMENT.

1. The reissued letters patent granted to Nelson W. Green, May 9th, 1871, for a process of constructing wells, are valid.

[Cited in *Andrews v. Cross*, 8 Fed. 277; *Eames v. Andrews*, 122 U. S. 47, 7 Sup. Ct. 1073. Followed in *Green v. French*, 11 Fed. 591; *Andrews v. Eames*, 15 Fed. 110; *Green v. French*, Case No. 5,757.]

2. The state of the art of constructing wells at the time Green made his invention, explained. The peculiar features of Green's well, called the "driven well," explained.

[Cited in *Andrews v. Cross*, 8 Fed. 277; *Eames v. Andrews*, 122 U. S. 47, 7 Sup. Ct. 1073. Followed in *Andrews v. Eames*, 15 Fed. 110; *Green v. French*, 11 Fed. 591.]

3. The claim of the patent, namely, "The process of constructing wells by driving or forcing an instrument into the ground until it is projected into the water, without removing the earth upwards, as it is in boring, substantially as herein described," is a claim to a process: and the element of novelty in the process consists in driving a tube tightly into the earth, without removing the earth upwards, to serve as a well pit, and attaching thereto a pump, so that the process puts to practical use the new principle of forcing the water in the water-bearing strata of the earth from the earth into a well pit, by the use of artificial power applied to create a vacuum in the water-bearing strata of the earth, and at the same time in the well pit.

[Cited in *Green v. French*, Case No. 5,757; *Andrews v. Cross*, 8 Fed. 277; *Eames v. Andrews*, 122 U. S. 47; 7 Sup. Ct. 1073. Followed in *Green v. French*, 11 Fed. 591; *Andrews v. Eames*, 15 Fed. 110.]

4. The claim may also well be construed as claiming the well as a manufacture constructed according to the process described.

[Cited in *Andrews v. Cross*, 8 Fed. 277; *Eames v. Andrews*, 122 U. S. 47, 7 Sup. Ct.

1073. Followed in *Green v. French*, 11 Fed. 591; *Andrews v. Eames*, 15 Fed. 110.]

5. A chance operation of a principle, unrecognized by any one at the time, and from which no information of its existence, and no knowledge of a method of its employment, is derived by any one, if proved to have occurred, will not be sufficient to defeat the claim of him who first discovers the principle, and, by putting it to a practical and intelligent use, first makes it available to man.

[Cited in *Green v. French*, Case No. 5,757; *Andrews v. Cross*, 8 Fed. 277; *Maxheimer v. Meyer*, 9 Fed. 462; *Eames v. Andrews*, 122 U. S. 47, 7 Sup. Ct. 1073; *Electrical Accumulator Co. v. Julien Electric Co.*, 38 Fed. 128; *Boyd v. Cherry*, 50 Fed. 283. Followed in *Green v. French*, 11 Fed. 591; *Andrews v. Eames*, 15 Fed. 110.]

6. The question of the dedication and abandonment of his invention, by Green, to the public, considered. The question of Green's delay in applying for a patent, for more than four years after he made his invention, considered, as bearing on the question of abandonment.

[Cited in *Andrews v. Wright*, Case No. 382; *Green v. French*, Id. 5757; *Andrews v. Cross*, 8 Fed. 277; *Eames v. Andrews*, 122 U. S. 47, 7 Sup. Ct. 1093; *The Driven Well Cases*, 122 U. S. 47, 7 Sup. Ct. 1077. Distinguished in *Andrews v. Hovey*, 123 U. S. 269, 8 Sup. Ct. 102. Followed in *Andrews v. Wright*, Case No. 382; *Green v. French*, 11 Fed. 591; *Andrews v. Eames*, 15 Fed. 110.]

[7. Under the act of 1839 there is no abandonment unless public use of the invention more than two years prior to the application for the patent. and with the knowledge and allowance of the inventor, is affirmatively proved.]

[Cited in *Campbell v. James*, Case No. 2361.]

[See *Elizabeth v. Pavement Co.*, 97 U. S. 126; *Campbell v. Mayor, etc., of New York*, 9 Fed. 504. See, contra, *Andrews v. Hovey*, 124 U. S. 715, 8 Sup. Ct. 676.]

[In equity. Suit by William D. Andrews and others against Theodore A. Carman to enjoin infringement of reissued patent No. 4,372, and for damages. Decree for complainants.]

George Gifford, Milo Goodrich, Benjamin F. Tracy, and Joseph C. Clayton, for plaintiffs.

William D. Shipman, Samuel L. Warner, and Silas A. Robinson, for defendant.

BENEDICT, District Judge. This is a suit in equity brought by the owners of a patent issued to Nelson W. Green, on May 9th. 1871, designated as reissue No. 4372. [patent No. 73,425,] against Theodore A. Carman, for an injunction and damages because of an infringement of their patent. The case presents issues belonging to nearly every class known in patent litigations. Of the various questions so elaborately discussed before me, I shall first notice those relating to the construction of the patent.

The patent is for a process of constructing wells. In order to a correct understanding thereof, the state of the art should be first briefly explained. A well consists of a pit sunk in the earth until a water-bearing stratum of the earth is reached. from which the water therein will flow into the pit, and a supply of water be thus obtained. Two forms of well have long been known—one, the ordinary domestic well; the other, the artesian well. In the ordinary well, the well pit is sunk to a water-bearing stratum of the earth, from which the water will, by reason of the natural forces operating upon it, as it lies in the earth, ooze

or flow from the earth into the bottom of the pit as a reservoir, in sufficient quantities for the ordinary purposes of domestic use. In the artesian well, the well pit is sunk in the earth until a water-bearing stratum is reached where the water lies under the pressure of such a head, that, when struck by the well pit, it will come into the pit so rapidly that a stream of water is produced, flowing, by the force of its own current, from the earth, into and through the well pit, to the surface. These two forms are not different in their method of operation. Both rely upon the natural forces, as they are found operating upon the water in the water-bearing stratum reached by the well pit, to force the water from the earth into the pit. In both these forms the pit has uniformly been made by loosening the earth or rock and removing it upwards and out upon the surface, either by means of the spade or the drill or augur. and the sand bucket.

In this state of the art of obtaining a supply of water from the earth, a new form of well appeared, now known as the driven well, which forms the subject of this controversy. This well embodies an idea not present in any other form, namely, that the water in the water-bearing strata of the earth may, by the application of artificial power, be forced to flow from the earth into the well pit, with increased rapidity, so that a well pit only a few inches in diameter, sunk to a moderate depth, will afford an abundant supply of water, and constitute a practical and productive well. The characteristic difference between the driven well and other forms consists in the practical application of this new idea. In previous forms, the rapidity with which water flows from the earth into the well pit is dependent upon the natural forces as they happen to be found operating upon the water lying in the water-bearing stratum to which the well pit is sunk. The driven well adds artificial power, so applied as to cause a great increase in the rapidity with which the water in the earth will flow from the earth into the well pit. The foundation of this new form of well is the discovery that, if a pipe, with an opening at the lower end, be driven into the earth, extending down air-tight until it reaches the water, and have a pump attached air-tight to its upper end. and a vacuum be created in the pipe so fitted and connected with the water in the earth, water will flow abundantly from the earth into the pipe. The novelty consists in making the well pit to consist of the

tube of a pump connected tightly with the earth. This is accomplished by driving in to the earth a tube to be used as the tube of a pump and at the same time as the pit of a well. This manner of inserting the tube renders it possible, by means of a pump attached to the tube, to create a vacuum in the pit of the well, and at the same time in the water-bearing stratum of the earth.

This discovery once made, its application to the purpose of obtaining a supply of water from the earth, for the use of man, was a natural consequence; and it was at once applied to practical use, by substituting, in place of the larger excavation ordinarily made to serve as a well pit, a moderate sized tube driven tightly into the ground and having a pump attached. The advantages secured by this method are manifold. As the force with which the water will flow into the well pit is greatly increased, a tube of moderate diameter forms a sufficient well pit, thereby saving much expense and labor in constructing the well pit. Good water may, by this method, be reached when the surface water is bad. The well pit being airtight, all water is excluded except that lying in the water-bearing stratum to which the pit is sunk. By this method, a quicksand may be overcome, when it would otherwise prove an insurmountable obstacle. By this method, all danger of using water fouled by dirt or noxious matter thrown in from the surface is avoided; and, by this method, water can, in most localities, be obtained with cheapness and without delay. To these obvious advantages must be added the noticeable one, apparently demonstrated by the experiment made, that the supply of water thus obtained directly from the water-bearing strata of the earth, by the simple action of an ordinary pump attached to a tube driven tightly into the earth, is measured by the quantity of water lying in the stratum to which the tube is sunk, so that, in most instances, the supply obtained by this method is constant and inexhaustible, when the reservoir of an ordinary well sunk in the same place would speedily give out. The difference in this respect is remarkable, and apparently of great importance.

It is plain, therefore, to see that the subject under consideration has utility. It seems also plain that it is patentable as a new process. A well is not a machine, but a process. It is a method of obtaining a supply of water from the earth. No change in the qualities of water is effected by a well. The water is subjected to no treatment whereby a better article is produced. No mechanical device is necessary. A pit is sunk under such circumstances that water flows into it from the earth, and thus becomes available for use. What is accomplished by the process is, that water is obtained by the operation of the powers of nature upon the water lying in the earth.

The difference between the new process under consideration and the old is, that the pressure of the atmosphere, which, in the ordinary well, operates at the sides and bottom of the well pit, to maintain an equally distributed atmospheric pressure upon the water, whereby the flow of water into the well is made dependent upon the force of gravity, in

the new process is removed from within the well pit, and ceases there to operate against the inward flow of water, so that the pressure of the atmosphere operates with its full power to force the water in the earth from the earth into the well pit, and without any opposition caused by meeting, in its flow, the pressure of the atmosphere at the sides or bottom of the pit. This process involves a new idea, which was put to practical use when the method was devised of fitting tightly in the earth, by the act of driving without removing the earth upwards, a tube open at both ends but otherwise air-tight, and extending down to a water-bearing stratum, to which is attached a pump, a vacuum in the well pit, and at the same time in the water-bearing stratum of the earth, being necessarily created by the operation of a pump attached to a pipe so driven.

It has been supposed by the counsel for the defence, that the invention under consideration must consist of some new instrument, machine, or mechanical device, and they say: "The well, consisting of a vertical shaft with a reservoir of water at the bottom, being known, in all its varieties, from time immemorial, what was there for any one to invent? Clearly, nothing but some new instrument, machine or mechanical device for sinking the shaft down to the water, or of raising the water to the surface. It is impossible to conceive any other field of invention connected with the subject." Here is disclosed a clear misapprehension. The novelty of the process under consideration does not lie in a mechanical device for sinking the shaft or raising the water to the surface, but in the method whereby water by the use of artificial power, is made to move with increased rapidity from the earth into the shaft, whence it results, that a tube but a few inches in diameter, driven down tightly to a water-bearing stratum of the earth, affords an abundant supply of water to a pump attached thereto, and constitutes a practical and productive well. Such an invention is without the field of mechanical contrivance. It consists in the new application of a power of nature, by which new application a new and useful result is attained. There is no new product, but an old product—water—is obtained from the earth in a new and advantageous manner.

There can be no patent for a 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 trade, mystery or manual occupation,

there may be a patent.” The idea or principle of forcing water from the earth into a well pit by the use of artificial power is new, but is not by itself patentable. The idea, when made available by a method whereby it is put to practical use, is patentable as a process, and is thus secured to the person who has conceived the idea and invented the method. That method, in the present instance, consists in accomplishing the result first conceived by the inventor to be possible, by creating a vacuum in the water-bearing stratum of the earth and at the same time in the well pit, by means of a tube projected into a water-bearing stratum of the earth, and connected tightly with the earth, to which tube a pump is attached at the upper end. This constitutes “a combination or arrangement of processes to work out a new and useful result.” It is “a process combining instrumentalities before known, but not employed together, to accomplish a new and useful result.” The elements of the process may be old, but, when combined for the purpose of putting to practical use the new idea of forcing water in this way from the earth into a well pit, they constitute a new and useful process, within the meaning of the patent laws.

I have now pointed out what, in the light afforded by the history of the art, appear to me to be the patentable features of the structure known as the driven well. These views I conceive to be in harmony with the law upon this subject, as declared by the authorities, and to derive support from the following cases: *Roberts v. Dickey*, [Case No. 11,899;] *McClurg v. Kingsland*, 1 How. [42 U. S.] 202; *Foote v. Silsby*, [Case No. 4,919;] *Le Roy v. Tatham*, 22 How. [63 U. S.] 132; *Nellson v. Harford*, 1 Webst. Pat. Cas. 310; *Tilghman v. Morse*, [Case No. 14,044;] *Crane v. Price*, 1 Webst. Pat. Cas. 377.

I next proceed to examine the language of the patent upon which this action is founded, in order to determine whether the invention I have thus described is secured thereby. And here I meet one of the many sharp issues of this controversy; for, while the eminent counsel for the plaintiffs is clear that the patent does describe and cover such an invention, counsel on the other side, also eminent, contend with great earnestness, that the patent describes and covers nothing but the process of making a hole in the ground, and declare that the “pretended invention is a fabrication as discreditable as the patent is absurd.” It is not difficult to agree with counsel that the patent is absurd, if it be true that it describes nothing but the process of making a hole in the ground. On the other hand, it is not easy to understand how a patent for nothing but the process of making a hole in the ground could be the result of the vigorous contest waged before the examiner, the examiners-in-chief, and the commissioners of patents, and also, on appeal, before the experienced judge of the supreme court of the District of Columbia, which was supposed to have terminated successfully for the inventor, when it was finally decided, upon appeal, that a patent must issue to Green for the invention described in his “broad claim.” It seems natural to suppose, that a patent issued under such circumstances was intended to cover something more than the process of making a hole in the ground; and I think it

can be shown, that the language of the patent, when construed according to the settled rules applicable in such case, does cover something more, and secures the invention I have above endeavored to describe.

The language of the claim may be first considered. It is as follows: "What I claim as my invention, and desire to secure by letters patent, is, the process of constructing wells by driving or forcing an instrument into the ground until it is projected into the water, without removing the earth upwards, as it is in boring, substantially as herein described." Here the invention is stated to be "a process of constructing wells," not a process of making holes. A well is more than a hole. As has been shown, it is a process of obtaining a supply of water from the earth. The words, "the process of constructing wells, substantially as herein described," are, therefore, equivalent to "the herein described process of obtaining a supply of water from the earth."

Nor is the scope of the claim, as thus understood, limited by the other language of the claim, wherein it is stated that an instrument is to be driven, and driven into the ground, and driven until it is projected into water, and so driven that the earth is packed tightly around it—for that is the necessary result of driving the instrument without removing the earth upwards—and, when so driven, is to remain. Here is described the characteristic feature of the process of constructing a driven well, but no well is described. Not even a hole in the ground is described; for, it is not stated that the instrument driven into the ground is to be withdrawn, or that it is to be hollow. To suppose, therefore, that it was the intention to secure no more than the operation described in the claim, as being a process for constructing a well, is to suppose an absurdity. The operation described in the claim not only will not produce a well, but it is no step in the operation of constructing any kind of a well, except the driven well. The claim points out that an instrument is to be driven to form a well pit, but how it can be that a well pit is the result of such an operation is not pointed out in the claim. Plainly, it was not intended, by the language of the claim, to describe fully the invention intended to be covered by the patent. Necessarily, therefore, and naturally, we are referred by the claim to the specification, for the full description

of the process which the patent was intended to secure. In the specification, we find stated more clearly the distinguishing feature of the process, wherein it differs from any process before adopted for procuring a supply of water from the earth; for, the specification says, that an instrument is to be driven into the ground until it reaches water, having the earth packed tightly around it. It is by means of this packing of the earth tightly around the tube, that the force developed by the creating of the vacuum in the well pit is brought to bear directly upon the water lying in the water-bearing stratum, to force it into the well pit; and this driven tube forms the well pit of the new invention, for, as stated, it is to be a tube made air-tight throughout its length, except at its lower end, where are to be perforations for the admission of water, and through and from which the water may be drawn by a pump. The specification also mentions the vacuum, and points out where it is to be created, for, a vacuum must of necessity be formed in the well pit and in the water-bearing stratum, by operating a pump attached to such a tube, so driven into the earth.

I find, therefore, in the specification of this patent, either set forth in terms, or by necessary implication, all the elements of the process known as the driven well; and this description is such, that no one can perform the operation thus described, without obtaining a supply of water by the process under consideration, and by the use of the same idea which it is claimed was first conceived by Green.

Neither is there anything in that part of the specification stated to be made with reference to the drawings, to enable the process to be put to use, which excludes this invention from the patent. It is there said, that the tube may be contracted at its lower end, but it is also carefully stated, that the contraction must be "slight," and only to insure an easy passage to the place to which the tube is to be "driven or forced," thus maintaining the necessary feature of a tight connection between the tube and the earth, effected by the driving of the tube without removing the earth upwards, upon the preservation of which the success of the process depends. So, it is stated that the diameter of the tube to be driven may be "somewhat" smaller than the diameter of the well. Still, it is plain that the tube is always to be driven, whence, of necessity, it results that the earth is packed tightly around it.

But, it is said that the specification covers a flowing well, in which the features of the driven well do not exist. It is true, that the patent contains the statement, that, "In some cases, the water will flow out from the tube without the aid of the pump;" but, it will be observed, that this statement of a fact is not contained in the description proper of the invention. The specification first states in what the invention consists. Then, to enable others to use the invention, a description is given with reference to drawings; and, following this, is the statement under consideration, which can properly be considered to be simply the statement of a circumstance that sometimes occurs in conducting the operation, and

which, when it does occur, obviously renders it unnecessary to go further in the operation by adding the pump, which, plainly, is supposed to be necessary in all cases where such a stream of water is not struck.

It thus appearing that the invention claimed by Green is found described in his specification, inasmuch as no violence will be done to the language of the claim by construing it to cover the invention, it is the clear duty of the court so to construe it. "If, by examination of the specification, and applying it to the then existing state of the art, we can learn what the invention was, then the claim, which was designed to be a condensed summary of the invention, is to be construed so as to be co-extensive with the invention, if that can be done without doing violence to its language." *Whipple v. Middlesex Co.*, [Case No. 17,520.] See, also, *Waterbury Brass Co. v. New York Brass Co.*, [Case No. 17,256;] *Le Roy v. Tatham*, 14 How. [55 U. S.] 181; *Haworth v. Hardcastle*, 1 Webst. Pat. Cas. 480; *Turrill v. Railroad Co.*, 1 Wall. [68 U. S.] 491. So construed, this patent becomes co-extensive with the discovery, and secures an exclusive right to use the new idea or principle put to practical use by the new process described; for, to use the language of the defendant's counsel: "If Green invented a process, it was not in fact dependent on the particular form of the instrument, nor does his specification so claim it." The right secured by the patent is not, then, the right to certain instruments, nor to a combination of instruments, but it is the right to use his discovery in any method presenting the characteristic features of his method, and accomplishing the same result in substantially the same way.

But, it is said, that the evidence shows that no such idea or process was in the mind of Green at the time when he claims to have made his invention. As I view the testimony, the contrary of this is shown. Not to mention the testimony which Green now gives, when he describes his invention, there are several witnesses who heard him describe his invention at the time when he claims to have made it, and what they say he then disclosed as his new method of obtaining a supply of water from the earth, appears to be a complete description of the invention covered by the patent, as I have construed it. The proofs show that the patentee not only conceived this process and put it in operation, but stated, in terms, that its success depended upon a vacuum being formed by the pump, and that the tight connection between the earth and the well pit,

by the act of driving the tube, was necessary to enable the vacuum to produce the sought for result upon the water lying in the earth.

Furthermore, it may be remarked, as bearing not only upon the language used by Green when he first described his invention, but also upon the language used in the patent, that the statement that a pump is to be attached to a tube forming a well pit, and driven to a water-bearing stratum without removing the earth upwards, involves, by necessary implication, the idea of a vacuum in the earth and in the well pit, as such a vacuum must result from the operation of the pump, provided the tube be driven tightly in the earth, as described. And this leads to the further remark, that the idea of a pump to be attached to the tube forming the well pit seems necessarily to be involved in the idea of using a tube as is described for the pit of a well. The sole object of the well being to obtain a supply of water, and it being manifest that water could not be procured from such a tube by hand or bucket, the statement that such a tube is to be the well pit, carries with it the idea of a pump attached thereto, that being the only practical method by which water could be drawn from such a tube.

I, therefore, understand this patent to be a patent for a process, and that the element of novelty in this process consists in the driving of a tube tightly into the earth, without removing the earth upwards, to serve as a well pit, and attaching thereto a pump, which process puts to practical use the new principle of forcing the water in the water-bearing strata of the earth from the earth into a well pit, by the use of artificial power applied to create a vacuum in the manner described.

But a somewhat different reading of the patent may be adopted, and supported by authority high in this court upon such a question. The claim, it will be recollected, states the invention to consist of "the process of constructing wells, substantially as herein described." This language is nearly identical with that which came under the consideration of Mr. Justice Nelson, in *Many v. Jagger*, [Case No. 9,055.] There, the claim was for the manner of constructing wheels "with double convex plates, one convex outwards and the other inwards, and an undivided hub, the whole cast in one piece, as herein fully set forth." This language was held to secure the thing made by the process described. There was, it was there said, no claim to the parts of the wheel taken separately and distinct from the perfect wheel, but the claim was for the entire wheel, as the patentees had constructed it, as a new manufacture. There was no novelty in the parts taken separately, but the "instrument," that is, the wheel produced in the manner described, was held to be secured by the claim. The form was held not to be material, as the wheel was one of those manufactures where the particular form of the thing is not essential to its utility. In the present case, then, the well may be taken to be a manufacture, and the claim of "a process of constructing wells," like the claim of "a manner of constructing wheels," will cover all wells constructed according to the process described, without regard to form,

and whether the parts taken separately be new or old. See *Many v. Jagger*, [Id. 9,055.] See, also, *Goodyear v. Central R. Co.*, [Id. 5,563.]

I have now to speak of a third construction of this patent, which has been strenuously contended for. It has been supposed that this patent can be upheld as being for an operation claimed to be new, as an operation in the process of making a well, or in its association with other operations of making a well, namely, the making of a well pit by forcing an instrument into the ground and moving the earth only laterally. The point of the invention is, by this construction, made to consist in a new manner of constructing the well pit, that is, by puncturing instead of excavating. The great stress which has been laid upon this view of the patent by counsel so learned, the opinion expressed by the expert called by the plaintiffs, and the vigor of the opposition made to such a construction, have led me to pause and consider whether I must not have fallen into error in supposing that the patent can rightfully be held to cover and secure, not a process of sinking a well pit, but the process of obtaining a supply of water from the earth, which I have found to be detailed in the specification, and endeavored to describe. But, the view I have expressed is so firmly impressed upon my mind, that I shall rest my decision upon it, and leave the more learned judges before whom the patent must shortly come to detect my error, and to uphold or destroy the patent as being for a method of sinking a well pit by puncturing instead of excavating.

The interpretation I have thus given to the patent renders it unnecessary to pass upon the evidence in the case, given to show that, prior to the time when Green claims to have made his invention, well pits had been sunk by puncturing the earth.

Was Green the man entitled to secure the invention which his patent describes? The evidence is convincing, that Green first conceived the idea, explained his idea to others, and caused the feasibility of his process to be tested by actual experiment. Comment has been made upon the fact that the particular tools and devices used in constructing the first wells made were not pointed out by Green. But, such comment loses its force, when it is considered that the tools and devices employed in sinking the shaft form no part of the invention claimed by Green. The invention consists in the method of putting to a practical use the new idea or principle of increasing the productive capacity

of a well, by forcing water directly from the earth into the well pit, artificial power being employed to create, by the operation of a pump attached to a tube driven tightly into the earth, a vacuum within the tube and the water-bearing stratum into which it is projected, whence follows an increased pressure upon the water in the earth towards the well pit, and an abundant supply of water is afforded to the pump. This conception was of such a character, that, when described, there was left nothing to be done but to test its correctness by an experiment so simple, and involving the use of means in such common use, that it could be fully tested by any one, upon the mere statement of the idea. In the present instance, the process was, at the outset, put to the test of an experiment conducted near Green's house, in his presence, and under his directions. His idea, and his process of putting it to a practical use, then became part of the property of the public, available for the purposes intended, unless it be secured by the patent in question. Subsequent experiments are spoken of in the evidence, which may properly be claimed by Green as his experiments, for, they were conducted in pursuance of his directions, by those acting at the time under his orders.

Furthermore, it should be remarked, in this connection, that, when Green first stated his idea and described his process, there were two points of doubt—one, whether force could be called into operation by the creation of the vacuum, sufficient to overcome the resistance of the soil, and afford a supply of water to the pump; the other, whether, practically, a tube could be driven to a water-bearing stratum of the earth under various conditions of soil, always excluding, of course, rock formations. The general utility of the invention depended upon the result of tests applied to the latter of these points of doubt. A wide range of subsequent experiment might, therefore, well be allowed for such an invention, notwithstanding the circumstance that the first experiment proved that the principle was sound, and could be usefully applied in some circumstances.

Upon this branch of the case, the contention has been, whether Green was the inventor, or Byron Mudge, the person who, under the direction of Green, conducted the early experiments; and a patent issued to Mudge, October 24th, 1865, is set up in the answer. The defendant does not, however, claim under Mudge's patent or under any patent. In fact there is no patent to Mudge, as his original patent was surrendered, and, upon his application for a reissue, a case of interference between him and Green was declared, which, after a severe contest, upon a large amount of testimony, and after careful argument, was decided in favor of Green. No patent to Mudge is, therefore, in this case, nor is Mudge called as a witness. But the defendant contends, as he may rightfully do, that the evidence shows Mudge to have been the inventor, and not Green. I cannot find, upon the evidence, that this defence is sustained. On the contrary, it appears quite clearly that the inventor was Green.

A patent to James Suggett is also set up. That, however, is not a patent for a process, but for a combination which does not involve the use of Green's process, and to which Green makes no claim.

The whole question of prior use may at this place be disposed of. The answer sets up, that Green's process had been long before described in Ure's Dictionary of Arts and Manufactures, as well as in McKenzie's Five Thousand Receipts, and had been used in certain wells, constructed prior to the date of his invention, in the towns of Cortland, Ithaca, Dansville, Napierville, and Dexter, and in the salt wells at Syracuse. In respect to a well claimed to have been constructed by Stephen R. Hunter, at his planing mill in Cortland, I am compelled to the conclusion, that no such well was made at the time stated. In respect to the other wells as to which proof is given, a critical examination of the evidence would be here required, if the patent under consideration were considered to be a patent for the mere process of making the pit of a well, without removing the earth upwards. Over these wells there has been an extended controversy as to whether, in any of them, the well pit was constructed without removing the earth upwards. However this may be, it cannot be successfully contended that the evidence affords room to claim that any one engaged in the construction of these wells had, at that time, conceived the idea of using artificial power to force water directly from the earth into a well pit, as a means of obtaining an increased supply of water, or that any one of these wells presents the characteristic feature of Green's method, whereby the above idea is utilized and made practically available to accomplish that result. It becomes unnecessary, therefore, for me to determine whether or not the pit of any of the prior wells was constructed by puncturing or by excavating. The remark already made is also applicable to the evidence given in respect to the manner of sinking the salt wells. Plainly, the salt wells do not anticipate the process invented by Green. Nor is his process described in the printed publications set up in the answer; and, upon the evidence, it must be held, that the principle of Green's process was first conceived by him, and by him first made a practical and operative feature in a well.

It is, of course, true, that, prior to Green's invention, water had been pumped from a hole in the ground, and from a small hole. Doubtless, it is also true, that, in some such case, where a pump had been inserted in a small hole, for the purpose of raising therefrom

the water found therein, the principle of Green's invention may at times have been called into operation. No such case is here proved; but, if such fact were proved, Green's right to a patent would not thereby be defeated. A chance operation of a principle, unrecognized by any one at the time, and from which no information of its existence, and no knowledge of a method of its employment, is derived by any one, if proved to have occurred, will not be sufficient to defeat the claim of him who first discovers the principle, and, by putting it to a practical and intelligent use, first makes it available to man.

As bearing upon the question whether the idea claimed to have been conceived by Green, and to have been put to practical use by him in his process, had before that been known and applied, it should also be noticed, that, while the advantages of the process claimed by Green are many and obvious, and, although, since the date claimed for his invention, numerous patents have been issued—some one hundred and fifty, I think, the evidence shows—for instruments to be used in putting down the tubes of such wells, no application for any such patent appears to have been made before that time. Moreover, the invention, when it was announced by Green, was received as a novelty, and, since then, an extensive business of constructing driven wells has sprung into existence, a business of such importance that the number of driven wells since constructed is computed by hundreds of thousands. In this state alone, the number is stated by a witness to be one hundred and fifty thousand and upwards. The change in the art of well making which the evidence discloses, of itself goes far to prove novelty. Indeed, when it is considered that the methods in use for obtaining a supply of water from the earth are matters of common knowledge, and that a well is a thing of every day use, everywhere, reference may be made to the common knowledge of mankind to show that it has not always been understood that a supply of water may be obtained in almost any place by simply driving down tight in the earth a tight tube and attaching thereto a pump. Even now, it is doubtless a new thing to many, to be told that, if an ordinary well, from which the water is drawn by a pump, be filled up with dirt and the dirt packed tightly about the pump, the productiveness of the well will be thereby increased.

My conclusion upon this branch of the case, therefore, is, that the invention of Green has not been shown to have been anticipated, and is properly claimed by Green as a new and useful invention made by him.

I come now to consider the question of dedication and abandonment, which is presented by the evidence here, and is a question as important as any raised in the case. It is contended that Green, at the time of his invention, dedicated it to the public, and also that he abandoned it as not worthy to be patented. The law pertinent to this branch of the inquiry is the law in force prior to January, 1866. By the patent act of 1870. as well as by the Revised Statutes, all rights previously acquired were preserved. The law governing

here is to be found, therefore, in the acts of 1836 and of 1839, as those statutes have been interpreted and applied by the courts.

The facts relied upon as showing a dedication of his invention by Green, are, that he permitted a well made by his process at the Fair Grounds, in Cortland, where the 76th New York regiment, of which he was colonel, was then stationed, to be there publicly used, and that he arranged for providing tubes to be taken with his regiment when it should move, in order to supply it with water when in hostile localities. That these facts do not amount to a dedication, I think, is plain. The occasion which called forth this invention was the rumor that the rebels were intending to poison the wells in places where the Union armies might come, and the report that some part of the Union army had been compelled to surrender for want of water. There was supposed to be a necessity for some form of well that would be tight, to prevent the possibility of poison, and that could be constructed quickly, cheaply and easily, so as to be available for a moving army. Under the pressure of this supposed necessity Green conceived the idea of his well, and also devised the method by which that idea could be put to practical use. Once conceived, a very simple experiment would test the soundness of the position he had taken and maintained, in discussions had respecting his plan, that it was possible to force water from the earth into the pit of a well, by using a tube driven tightly into the earth for a well pit, and creating a vacuum therein by a pump attached. This experiment, as the evidence shows, was made under the direction of Green, and in pursuance of the directions he had given, at or near his house in Cortland. The first experiment was a success, in this, that it proved the possibility of obtaining a supply of water by this process; but, of course, it could not prove that a tube could be driven down to a water-bearing stratum in all localities, with the cheapness and dispatch necessary to render the process one of general utility. It was natural, therefore, to suppose, that, before the process could be declared to be satisfactory, other experiments, in other and different localities, should be made. He could, by law, use his invention for this purpose, and permit it to be used, for two years, without forfeiting his right to a patent. Under such circumstances, it would be going far to say, that his act of permitting the use of his process at the camp in Cortland, where his regiment was then in camp, and of providing material wherewith to construct such wells

for his regiment when it should move into hostile territory, amounted to a dedication of his invention to public use, and worked a forfeiture of his right to it.

But, it is said, that the patent is invalid under the provision of the act of 1839. The act of 1839, as has repeatedly been held, has no effect to invalidate a patent, unless there be proof of a use of the invention more than two years prior to the application for the patent, and that such use was with the knowledge and allowance of the inventor. Here, there is no evidence of any use or sale of the invention by Green, prior to his application for a patent. Nor is there any direct proof of knowledge on his part of any such use or sale by others, during that period. There is, however, evidence, that, within two years prior to Green's application, some wells called driven wells were sunk in Cortland, and, as it is claimed, under such circumstances of publicity and locality, as to compel the inference that Green knew of the use of his process in their construction. It cannot be denied that knowledge of the putting down of some of these wells on the part of Green, seems highly probable. Still, there is no direct evidence of such knowledge, and Green denies the knowledge under oath. Furthermore, two witnesses produced by the defence, who also resided in Cortland, and one of whom was a justice of the peace, being asked as to these wells, say that no knowledge of such wells came to them. It seems necessary, therefore, to conclude, that the existence of those wells was not so notorious as to compel the inference that they were known to Green.

Here it may be noticed, also, that wells put down by James Suggett were under a patent issued to him March 9th, 1864, which patent was for a combination of three instruments—an iron perforated tube, a pointed plug to use as a drill, and a pump,—*Haselden v. Ogden*, [Case No. 6,190,]—and which it is a mistake to suppose necessarily involved the use of the process claimed by Green. It does not, therefore, follow, that knowledge of the fact that Suggett had put down wells in Cortland necessarily amounts to notice that the process of Green was being employed by Suggett. The rule of law being, that “proof of knowledge and acquiescence must be beyond all reasonable doubt, as every presumption is the other way,—*Jones v. Sewall*, [Id. 7,493,] Clifford, J.,—I am of the opinion that Green is entitled to the benefit of the doubt raised by his own oath and the testimony of the two Hunters.

Again, it is contended that the acknowledged fact that Green made no application for a patent till January, 1866, between four and five years after the date of his invention, shows an abandonment of the invention. But, says Woodruff, J.: “Lapse of time does not, per se, constitute abandonment. It may be a circumstance to be considered. The circumstances of the case, other than mere lapse of time, almost always give complexion to delay, and either excuse it or give it conclusive effect. The statute has made contemporaneous public use, with the consent and allowance of the inventor, a bar, when it exceeds two years. But, in the absence of that, and of any other colorable circumstances, we know of

no more period of delay which ought, per se, to deprive an inventor of his patent." *Russell & Erwin Co. v. Mallory*, [Case No. 12,166.]

In the present instance, the circumstances attending the delay are unusual, and, as I consider them sufficient to excuse a delay which certainly must be deemed extraordinary, a statement of these circumstances seems necessary. I premise the statement by repeating, that, upon the evidence, there is no room to doubt the fact that Green, at the time of his invention, claimed to have made a valuable discovery and to have invented a new process; and, furthermore, that he then declared an intention to secure his process by patent, and expressed his belief that large profits would accrue to him therefrom. At that time, Green, who had been partly educated at West Point, was engaged in organizing a regiment at Cortland, his residence, and was expecting soon to take part in the war of the rebellion. Within a few days after his invention, in the discharge of what seemed to him to be his duty, he felt compelled to shoot one of the captains of his regiment, named McNett. The shot was not mortal, but inflicted serious injury. In the then state of the public mind, this occasion gave rise to intense public excitement, out of which sprang a controversy of extraordinary bitterness, involving numerous persons and continuing for several years. The effect upon Green was disastrous in the extreme. He was suspended from his command, then tried by a court of inquiry, at Albany, and reinstated in command. His regiment, after having, it is said, required the protection of a battery to save it from violence at the hands of evil-disposed people of the county, removed to Washington, where Green was relieved from his command, and then dismissed the service, and subjected to military charges. He was, in addition, harassed by civil suits brought to charge him with personal liability for articles used by his regiment. He was also arrested, and then indicted, for the shooting of McNett, and, after repeated postponements of the trial, effected because of the excited state of the public mind, was tried in 1866, and, the jury having disagreed, was discharged. During this period, he also became involved in church difficulties arising out of the shooting of McNett, was expelled from the church and compelled to appeal to the Bishop, and also became involved in litigation with the pastor of his church. His efforts during this period to secure a reversal of the order dismissing him from the service were constant and absorbing,

and were attended with such anxiety of mind as to give rise to the charge that he was insane. This state of things continued up to 1866, during which period he was of necessity often absent from Cortland, at Albany and at Washington; and he devoted his entire time to the controversy in which he had become involved, abandoning all other occupation, and exhausting all his means. The pressure of these circumstances was such, that he became discouraged and despondent, and was in fact driven near to madness. The extraordinary nature of the circumstances in which the man was placed during these years is fully proved, by many witnesses of character. These circumstances certainly give complexion to his omission to secure his invention by patent, and serve to furnish a proper excuse for such omission. In regard to a man so circumstanced, it would hardly be safe, in face of his positive oath to the contrary, to infer an intention to abandon an invention which evidently he always considered of great importance. This conclusion is strengthened by the uncontroverted fact, that when, in November, 1865, Green saw, by an advertisement in the papers, that driven wells were being put down, although he was advised by counsel defending him on the indictment, not to apply for a patent, as he would thereby increase the number of his enemies, and prejudice himself on the trial of the indictment then about to come on, nevertheless he did then, and in opposition to the advice of his counsel, file his application and assert his right to the invention. I conclude, therefore, that, upon the facts of this case, it must be held that the defendant has not produced that full measure of actual proof which is necessary to sustain the defence of abandonment.

I have now disposed of all the issues which have been seriously contested in this important case. There are several objections taken to the patent as a reissue, but they have not been greatly pressed, and I do not find in any of them ground for declaring the reissue void. I have given to these objections all the attention they appear to deserve, but it seems hardly worth while to extend this opinion by a statement of the reasons which have led me to reject them. I content myself with saying, that I consider the original patent to have been for a process, as is the reissue, and that the process I find described in the reissue is also to be found described in the original patent.

As to the question of infringement, I do not understand that it is disputed. At any rate, it is clearly proved. There must, therefore, be a decree for the complainants, in accordance with the prayer of the bill.

[NOTE. Patent No. 73,425 was granted January 14, 1868, to N. W. Green, reissued May 9, 1871, No. 4,372. For other cases involving this patent. see note to *Andrews v. Denslow*, Case No. 372.]

¹ [Reported by Hon. Samuel Blatchford. District Judge, reprinted in 2 *Ban. & A.* 277; and here republished by permission.]