

"THE DRIVEN-WELL CASES."-

ANDREWS AND OTHERS V. HOVEY.-

May, 1883.

Circuit Court, S. D. Iowa, C. D.

- 1. PATENTS–DRIVEN WELL–ORIGINAL PATENT NO. 73,425, AND REISSUE NO. 4,372, VOID–DEDICATION TO PUBLIC–PUBLIC USE–ANTICIPATION.
- As the evidence in this case shows that in 1861 Nelson W. Green, who was at that time the colonel of a regiment, in order to supply his men with pure water, devised and put in operation a method of driving wells; that he did not at that time contemplate procuring a patent for his invention, bat intended simply to benefit his regiment; that Ms invention was in open and public seu, with his acquiescence and consent, for more than four years before he applied for a patent; and that this method of driving wells was known and resorted to by certain other persons in Milwaukee, Wisconsin, in 1849 and 1850, and in Independence, Iowa, in 1851,-the reissued letters patent No. 4,372, granted to said Green under date of May 9, 1871, and the original patent No 73,425, dated January 14, 1868, for an "improved method of constructing artesian wells," must be held invalid and void.

2. SAME-REISSUE VOID.

When the original invention did not embrace the idea of creating a vacuum in the lining of the well for the purpose of utilizing the pressure of the atmosphere, nor the original patent, expressly or impliedly, cover or describe the application of this principle, the enlargement of the claims in a reissue for the purpose of covering this idea of atmospheric pressure caused by a vacuum in an air-tight tube will render such reissue void.

3. SAME–REISSUE MAY EMBRACE, WHAT.

- A reissue can be validly granted only for the same invention which was originally patented. A reissue that goes beyond this, and covers other and different inventions or improvements suggested by the use of the original invention, will be void.
- 4. SAME–PRIOR USE–CONSENT OF INVENTOR–ACT, 1839–SECTION 4886, REV. ST.

The two-years' limitation was intended in the act of 1839, as it unquestionably is in section 4886 of the Revised Statutes, to be general, and it applies to all cases in which the invention has been in public use or on sale for more than two years prior to the application, whether with or without the consent or allowance of the inventor. Per Love, J., concurring.

NELSON, J., dissents.

In Equity.

This suit, with a large number of others against other defendants now pending in this court, is based upon reissued letters patent No. 4,372, granted to Nelson W. Green, one of the complainants, under date of May 9, 1871; the original patent, No. 73,425, bearing date January 14, 1868, and having been issued for an "improved method of constructing artesian wells." The bill alleges an infringement on the part of the defendant, and prays for an injunction, accounting, damages, and further relief. The answer, in substance, denies that Green

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the original inventor of the alleged was improvement; avers that the alleged invention was known and in public use for more than two years prior to the date of the original letters patent; that Green, if he was an original inventor, abandoned his invention, and knowingly permitted its public use for more than two years before applying for a patent; that the reissue is a departure from the original letters patent, and embraces different and more extensive claims than are covered by the original; and also denies that defendant has infringed upon the rights and invention held and owned by the complainants. As already stated, there are pending in this court a large number of causes brought by the complainants for alleged infringements upon their rights, and in the district of Minnesota similar suits are pending, in which the issues are substantially the same. For convenience's sake it was agreed that these causes should be heard at one and the same time before the judges of the district of Minnesota and the districts of Iowa, and accordingly, at the October term, 1882, of this court, such hearing was had and the questions at issue were very fully and ably presented, both in print and by oral argument before the court. At that time there was pending before the supreme court at Washington the case of Wahl v. Hine, on appeal from the district of Indiana, in which cause this same patent was involved, and it was hoped the decision of that case would give us a final and authoritative decision upon the more important questions discussed in this court. When the judgment in *Wahl* v. *Hine* was announced, however, it appeared that the judges were equally divided in opinion therein, eight only of the members of that court having sat in the case, and hence no opinion upon the merits was reached or announced in that cause. It became, therefore, the duty of this court to consider the questions submitted, unaided by the decision in Wahl v. Hine, and we have endeavored to give them the consideration which their importance demands. Upon many of the questions involved a very large amount of evidence has been adduced, and the questions of law and fact have been ably argued and presented by the counsel in the cause.

Stoneman, Rickel & Eastman, Hubbard, Clark & Dawey, A. R. West, and Rogers & Rogers, for complainants.

Lake & Harman and *Wilson & Gale,* for defendants.

SHIRAS, J. Assuming for the present that Nelson W. Green is entitled to the credit of being the inventor of what is commonly known as the "driven well," we shall first consider the defense of abandonment; that is to say, the averment that he allowed the use of his invention to become part of the property of the public, without asserting his right to a patent for the protection of his rights as an inventor.

In the case of *Shaw* v. *Cooper*, 7 Pet. 292, it was held that—

"Vigilance is necessary to entitle an individual to the privileges secured under the patent law. It is not enough that he should show his right by invention, but he must secure it in the mode required by law, and if the invention, through fraudulent means, should be made known to the public, he should assert his right immediately and take the necessary steps to legalize it. The patent law was designed for the public benefit, as well as for the benefit of inventors. * * * No matter by what means an invention may be communicated to the public before a patent is obtained, any acquiescence in the public use by an inventor will be an abandonment of his right. If the right were asserted by him who fraudulently obtained it, perhaps no lapse of time could give it validity. But the public stand in an entirely different relation to the inventor. The invention passes into the possession of innocent persons, who have no knowledge of the fraud, and at a considerable expense, perhaps, they appropriate it to their own use. A strict construction of the act, as it regards the public use of an invention before it is patented, is not only required by its letter and spirit, but also by sound policy. * * * The doctrine of presumed acquiescence, where the public use is known or might be known to the inventor, is the only safe rule which can be adopted on this subject. * * * Whatever may be the intention of the inventor, if he suffers the invention to go into public use through any means whatever, without an immediate assertion of his right, he is not entitled to a patent, nor will a patent obtained under such circumstances protect his right."

In the case of the *Consolidated Fruit-jar Co.* v. *Wright, 94* D. S. 96, it is said that—

"The inventor must comply with the conditions prescribed by law. If he fails to do this he acquires no title, and his invention or discovery, no matter what it may be, is lost to him, and is henceforward no more his than if he had never been in anywise connected with it. It is made, thereupon, as it were by accretion, irrevocably a part of the domain which belongs to the community at large."

From the evidence in the cause, it appears that in the summer of 1861 Nelson W. Green was a resident of Cortland, New York; that he was engaged in drilling and organizing volunteers for the army, and especially in connection with the seventy-sixth regiment of New York infantry, of which regiment he was appointed colonel; that while thus employed his attention was called to the subject of procuring pure water for the use of his men, and that he set about to devise a means by which water could be readily procured from beneath the surface of the earth, thus avoiding danger from poisoned wells and springs, and also from the risk of being cut off from access to the ordinary sources of supply, when in the 390 presence of the enemy. The patentee himself testifies that in the summer of 1861 he had devised, in his own mind, a method of accomplishing this result, which he explained first to his drill squad, and then to the officers of his regiment, and which consisted in driving a rod sharpened at the end into the ground, and into the water-bearing stratum, then withdrawing the same and inserting a tube through which the water could be drawn by any ordinary style of pump. As a test of the method proposed, under the direction of Col. Green, an experiment of driving a rod down to the water was made near his house, and this experiment was followed by driving a well at the fair grounds at Cortland, at the expense and for the use of one Graham, who had the contract for furnishing food and other supplies at the camp, on the fair grounds. This well was driven between the first and fifteenth of October, 1861, and was used generally by the men in camp, as well as by Graham and his employes.

We further find in the testimony of Col. Green the following:

Question 60. "After this experiment at the house, and the making and use of the well at the fair grounds, what was your opinion as to the practicability of making wells by that process, either for general use or for the purpose of the army, as you had originally intended?"

Answer. "The result of the two experiments referred to had upon my mind the effect to convince me of the entire practicability and feasibility of the process for all the purposes named in the question."

Question 61. "Did you take any steps, give any orders or directions, for the procurement of material to be taken with your regiment into the field for the purpose of making wells to supply that regiment with water, wherever it might be situated?"

Answer. "1 gave Lieut. Mudge orders to procure such material for the purposes named, and gave Adj. Robinson orders to furnish him with transportation for the same, and when at Albany made arrangements with the quartermaster general for the transportation of that material with the regiment when it went to the front."

By the testimony of the patentee himself it is shown that the invention claimed by him was perfected in conception in the summer of 1861, and was demonstrated to be a success by practical use in October, 1861; that the patentee caused the necessary apparatus to be procured to be taken with the regiment for its use when it moved to the seat of war, and arranged with the authorities at Albany for the transportation needed therefor.

The testimony of the patentee shows, beyond the possibility of a doubt, that his object and purpose in 1861 was to provide a means of supplying the men under his care with pure water, and protecting them from the danger to he apprehended from the polluted or poi-Boned springs and wells, or from being cut off by the enemy from access to the usual sources of supply, and to this end he caused the apparatus to be used in driving wells to be procured, and transportation there for to be provided.

The sinking of the well at the fair grounds at Cortland, and the providing the means for driving these wells whenever and wherever they might be needed by the regiment, establishes beyond question the intent on the part of Col. Green that this invention should be publicly and commonly used by his regiment at any and all times and places. His own testimony shows that he explained his invention and the means of carrying it into effect, first to his drill squad, and then to the officers of his regiment, and subsequently consented to the sinking and public use of the well at the camp ground, and yet he never cautioned any one to keep the method a secret, nor is it shown that in 1861 he ever mentioned to any one the idea of obtaining a patent, or that he proposed doing so, or that he took any action looking to that end. All that he did tended to spread the knowledge of the mode of making these wells and of the success attending their use, and nothing whatever is shown indicating an intent to restrict the right to make and use the same to himself as a patentee.

It is an admitted fact that Col. Green was a man of intelligence and education, and he must have known what the law required of him, in case he desired to secure his rights as an inventor under the provisions of the patent laws. He knew, then, that to secure his rights, if he desired to procure a patent, he must apply there for before permitting his invention to pass into general or public use. His own testimony conclusively shows that he gave publicity to his invention, and consented to, nay, aided in making, the use thereof common and public. There is nothing in the evidence showing that he purposed or intended to make further or different experiments, with a view to perfecting his discovery. He himself expressly testified that the experiment at his house, and the driving and use of this well at the camp ground, convinced him of the feasibility of the process in making wells either for general or army use, or, as counsel for complainants, in their brief upon the facts, pages 17 and 18, state it: "The two experiments fully and satisfactorily demonstrated the general practicability of the process, where no rock intervenes."

The evidence shows conclusively, therefore, that the invention was thought out and, was put into satisfactory use, the use being an open 392 and public one, while Col. Green's regiment was in camp at Cortland; and the necessary machinery and tools, with transportation there for, were provided for continuing the construction and the open and public use of other wells; and yet no step was taken by Col. Green for the procurement of a patent, nor was there at that time any act done, or statement made, indicating a purpose or intent upon his part to apply for a patent in the future.

It is urged, however, that the reason why an application for a patent was not made at that time was because Col. Green had become involved in serious difficulties on account of the shooting of Capt. McNett, one of the officers of his regiment, on the sixth of December, 1861. If it appeared from the evidence that Col. Green had, in the fall of 1861, taken the initiatory steps for the procurement of a patent, or had even unmistakably announced his intention so to do, and it appeared that the accomplishment of such purpose was interrupted by the complications and difficulties arising out of the shooting of Capt. Mc Nett, it might then be claimed that these difficulties formed an excuse for the long delay in applying for a patent on the part of Col. Green. But it will be borne in mind that the idea of this mode of constructing a well was thought out in the summer of 1861, and the well at the camp ground was sunk before the fifteenth of October, and the shooting of Mc Nett was not until December 6th.

It is also shown by Col. Green himself that he gave the proper orders for the construction of the apparatus necessary to be used in sinking wells, and that, when in Albany, he arranged for the transportation thereof with the regiment when it moved to the seat of war. If he thus had time and opportunity enough to provide the means necessary to furnish these wells for the common and public use of his regiment, can it be fairly claimed that he did not have time and opportunity to at least announce his purpose of procuring a patent, if such was then his intent?

It would seem that the utmost that can be said of the effect of the difficulties resulting to Col. Green from the shooting of Capt. Mc Nett is, that thereafter his attention was so fully occupied thereby that he gave no further thought to the subject of driven wells at that time and hence did not, in his own mind, reach the conclusion that he would apply for a patent, until several years had elapsed and these difficulties had begun to pass away, and until it was brought to his attention that, through the use of this mode of driving wells, other parties had reaped large pecuniary benefits. But during this delay, extending to May, 1866, a period of over four years, the public had 393 acquired rights through the open and uninterrupted use of the discovery. What the causes were that led to this long silence on the part of Col. Green are not so material as the fact itself that he made public the knowledge and use of his invention, and then for over four years remained wholly silent, and took no action for the procurement of a patent. Can there be any question that Col. Green did permit his invention to go into public use without an immediate assertion of his rights?

In *Egbert* v. *Lippmann*, 104 U. S. 333, it was held that "to constitute the public use of an invention it is not necessary that more than one of the patented articles should be publicly used," it being also held in the same case that "if an inventor, having made his device, gives or sells it to another, to be used by the donee or vendee, without limitation or restriction, or injunction of secrecy, and it is so used, such use is public, even though the use and knowledge of the use may be confined to one person."

It is not questioned that the well at the camp ground was made with the knowledge and consent of Col. Green. It was for a public use, being constructed at the expense of the sutler, Graham, for the purpose of supplying water for use in the cook rooms, as well as for general use by all connected with the regiment. There was no effort made to keep the mode of its construction secret, but rather the contrary. When the regiment left Cortland, New York, Col. Green exercised no control over this well, nor did he cause it to be taken up or otherwise kept from public use or knowledge. If he was the inventor of that description of well he certainly gave to Graham the full right to construct and use the well, and to permit its use by others, without any limitation whatever, or any injunction of secrecy, thus bringing the case within the rule laid down in *Egbert* v. *Lippmann* even if there were no further facts showing acquiescence in the public use of the invention. But these facts are not wanting, for it is proven by Col. Green himself that he caused the necessary tools and pipes to be procured for the use of the regiment when it went to the front, showing clearly that he proposed and intended to permit any number of wells to be sunk and used that might be needed by the regiment, thus showing that he contemplated a continuous public use of the invention, without restriction or limitation.

Again, the evidence shows that a large number of driven wells were made and used in and about Cortland and neighboring places during the years 1862, 1863, 1864, and 1865. It is now claimed that Col. Green had not actual knowledge of the existence of these wells; but 394 was he not bound to know that the natural result of what he himself had done, and had caused to be done, in the way of giving publicity to the success which attended this mode of making wells, would be to spread their use by the public, unless he promptly prevented such result by procuring a patent? and can he now be heard to say that he did not know, nor have reason to know, that the use of these wells was becoming common in his own neighborhood, when the facts show that such use was the natural result of his own acts? But we are not left to mere inference upon this question, as there is testimony showing satisfactorily that he had knowledge of the existence of a portion, at least, of these wells; and, despite his own testimony, wherein he endeavors to destroy the weight of this evidence, either by direct denial or by claiming that he did not in fact recognize certain wells which came under his notice to be driven wells, yet we think the preponderance of evidence is against him on this proposition, and that it must be held that he knew that such wells were being made and used.

We find, therefore, as conclusions of fact,-

(1) That in 1861 Col. Green's purpose in devising his method of driving wells was to furnish a ready means whereby the men of his regiment could procure a supply of pure water, and that he did not at that time contemplate procuring a patent there for, and that he put his method of driving wells into public use in 1861 for the benefit of his regiment, and thereby dedicated or abandoned his invention to the public. (2) That his invention was in open and public use, with his knowledge and acquiescence, for more than four years before he applied for a patent thereon.

From these conclusions of fact it necessarily follows that the letters patent originally granted, and the reissued letters based thereon, must be held invalid and void.

2. It is also urged on behalf of defendants that the reissued patent enlarges the scope of the original patent, is broader in its terms, including improvements and principles not contained in the original specifications, and is therefore void. This defense demands an examination and determination of what Col. Green's original invention consisted, and of what is embraced within and covered by the issued patent. We will consider the latter proposition before proceeding to the former. William D. Andrews, one of the complainants, in giving his testimony, is asked whether he has read and understands the reissued patent, and, if so, to describe it, which he does in the following language:

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"The invention is for a method of procuring water from the earth by means of a tube inserted into the earth down to and into a water-bearing stratum, and attaching to such tube, in cases where the water does not flow naturally, a pump by an air-tight connection, and by the operation of the pump producing a vacuum within the tube which forms the body of the well and its lining, thereby causing the water in the surrounding earth, under the pressure of the atmosphere, to rush into the well formed by the tube, and furnishing a practically inexhaustible supply of water, by the means as stated and described."

In the opinion of Judge Benedict in the *Carman Case*, cited at length by complainants, it is stated that "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 into the earth the tube to be used as a tube of a pump and at the same time as the pit of the 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."

In the printed argument of counsel for complainants it is said that "the drive-well invented by Col. Green left no open space between the lining and the suction pipe, and is based upon the principle that if a vacuum is formed in the earth at the ordinary depths by the action of the suction pump, the atmospheric pressure communicated through the earth to the water will cause it to respond to the vacuum produced within the well, whose lining is itself the suction pipe of the well, and perfectly air-tight, the earth serving as a filter."

It is not necessary to extend these quotations to show that the principle which it is claimed constitutes the discovery or invention of Col. Green, as described in the reissued patent, is that the production of a vacuum in the earth by means of an air-tight tube driven into the earth, to which is attached a suction pump, will greatly increase the supply of water.

To produce this vacuum it is necessary that the tube forming the lining of the well should be in such close contact with the surrounding earth as to be airtight; and it iB claimed that driving the tube into the ground, whether with or without originally perforating the earth with a rod, constitutes a mode of constructing a well which practically results in producing a well whose lining-to-wit, the tube—is in air-tight connection with the earth. In other words, in order to successfully apply the principle, it is absolutely essential that the tube forming the lining of the well should be in such close contact with the earth that the air cannot pass down around the outside 396 of the tube, and the pump used in drawing up the water must also be attached to the end of the tube by an air-tight connection. Unless both of these conditions are fulfilled it is impossible to create a vacuum in the tube, and about the portion of it inserted in the waterbearing stratum; and as the creation of this vacuum is the essential and only means of applying the principle which it is claimed constitutes the chief merit of Col. Green's invention or discovery, it follows that in order to protect such a discovery by a patent it must be included within the specifications. This may be done by either a proper description of the result to be obtained, with the mode or means to be employed in producing the same, or by simply describing the means employed to accomplish the result; that is to say, it would be sufficient if it was stated that, by the use of certain prescribed means, a vacuum in and about the tube would be created, and thereby the supply of water would be increased, or if it was stated that the tubing of the well was so driven as to be made airtight by contact with the surrounding earth, and the pump to be used was affixed to the tube by an airtight connection. In the latter case the result reached or the principle put into operation would not be described; but as the means described must necessarily produce the result, or apply the principle, it is held sufficient to describe the means employed, without specifying the principle which is thereby brought into play. Indeed, it is not necessary that the inventor, to be entitled to a patent, should himself understand the abstract principle which his invention brings into use. It is sufficient if he is the inventor of a means whereby a new and useful application of the abstract principle is brought about. Still, as already remarked, it is necessary that in the patent and specifications the new and useful application of the principle must be described, either by setting forth the result obtained, with the means of its accomplishment, or else by such a description of the means employed as will, if followed, necessarily produce a result which embodies the practical application of the principle involved.

Let us now examine the specifications originally filed by Col. Green, and see whether there is embraced therein the application of the principle of utilizing atmospheric pressure through the creation of a vacuum in the tube, and the earth surrounding it, where it penetrates the water-bearing stratum. The description of the invention is set forth in the following language:

"My invention consists in driving or forcing an iron or a wooden rod with a steel or iron point into the earth until it is projected to or into the water, 397 and then withdrawing the said rod and inserting in its place a tube of metal or wood to the same depth, through which and from which the water may be drawn by any of the usual well-known forms of pumps."

Finally, in setting forth his claim, he does so in the following terms:

"Having thus fully described my invention, what I claim and desire to secure by letters patent is the herein-described process of sinking wells where no rock is to be penetrated, viz., by driving or forcing down a rod to and into the water under ground, and withdrawing it and inserting a tube in its place to draw the water through, substantially as herein described."

It certainly cannot be successfully claimed that in these statements it is set forth in express terms that the principle to be utilized is the atmospheric pressure forcing the water to and into the tube through the agency of a vacuum created in the tube and in the earth at the lower end of the tube, where it penetrates the water-bearing stratum. There is not to be found in any part of the specifications any reference to a vacuum, either in or out of the tube, nor any mention of atmospheric pressure created thereby. If the application of this principle formed the material and all-important part of Col. Green's invention in 1861, as is now claimed in argument, he certainly failed to set it forth in express terms in his specifications forming part of the original patent; nor can it be inferred from the description of the means to be employed that he then proposed to create a vacuum by making the well lining air-tight, and by attaching a pump thereto by an air-tight connection. He describes a driving rod, having a swell thereon, which is to be driven into the ground and then withdrawn, and a tube of a diameter somewhat smaller than the diameter of the swell of the drill rod is to be inserted in the hole thus made. In no part of the description is it said, either expressly or by fair implication, that the tube, when inserted, must fit so closely into the opening made by the rod that no air can pass down on the outside of the tube to the water, nor is it stated that the pump must be attached by an air-tight connection to the top of the tube. A person can follow with exactness all the instructions therein given, and yet it would not necessarily follow that he had excluded the air from the lining of the well, or from the water-bearing stratum at the place where the tube penetrated the same. In other words, the description of the means to be employed, as set forth in these specifications, does not show that one of the results arrived at is to render the lining of the well air-tight, and to have attached thereto a pump by an airtight connection. The description of the means to be employed can he carried out in practice without making an air-tight lining or tube, 398 and hence without forming a vacuum around the bottom of the tube or in it. This being true, it follows that it cannot, from the description of the means employed, be inferred that Col. Green then intended to claim, as part of his discovery or invention, the application of the principle that by creating a vacuum in and about the tube, the same having been made air-tight, the flow of water would be largely increased. He did not claim it in express words, and the description of his invention, and the means to be used in carrying the same into practical use, fail to show that such was the main or even a necessary part of his invention.

In our judgment his invention or discovery is fully and fairly described in the language of his own claim, to-wit:

"What I claim and desire to secure by letters patent is the herein-described process of sinking wells where no rock is to be penetrated, viz., by driving or forcing down a rod to and into the water under ground, and withdrawing it. and inserting a tube in its place to draw the water through."

What he sought to accomplish was to devise a rapid, easy, and feasible means of reaching an underground supply of water in such a mode that any ordinary pump could be applied to bring it to the surface, and his plan was to drive down a rod into the water, withdraw it, and then insert a tube, through which the water could be drawn by any ordinary kind of pump. In our judgment the evidence introduced by complainants shows that this was all that Col. Green sought to do in 1861, and that in making his experiments at that time he did not contemplate or conceive of the idea that the tube should be made air-tight so as to create a vacuum in it and about it, and thereby utilize the atmospheric pressure. Hence it is that in the specifications attached to the original patent no mention is made of atmospheric pressure, or of a vacuum in and about the tube, nor is it stated, in describing the means to be employed in making the wells, that the tube must be air-tight in its connection with the surrounding earth, or that the pump must be attached thereto.

It is inexplicable, if it was intended to embrace in the original patent the operation of atmospheric pressure in the earth, through the creation of a vacuum, which is now claimed to constitute the chief features and merit of the driven well, that the specifications contain no reference thereto, either expressly or even by fair implication.

We conclude, therefore, that the original patent cannot be so construed as to embrace the application of this principle.

Turning now to the specifications of the reissued patents, what do we find? In the first place, it is stated "that the hole or opening is 399 made by the mere displacement of the earth, which is packed around the instrument, and not removed upward from the hole, as it is in boring." And it is further said that "I prefer to employ a pointed rod, which, after having been driven or forced down until it reaches the water, I withdraw, and replace with a tube made air-tight throughout its length, except at or near its lower end." And further, "I attach to the tube by an air-tight connection any known form of pump." In these portions of the specifications we find it provided that the earth must be packed around the tube forming the lining of well; that this tube must be air-tight throughout its length, except at or near the lower end, which penetrates the water, and the pump used therewith must have an air-tight connection with the tube. Under these specifications it is claimed by complainants that the main feature, of the discovery consists in the utilization of the atmospheric pressure through the creation of the vacuum in and about the tube. (See questions 11 and 12, testimony of William D. Andrews, pp. 210,211, vol 1, of complainant's record.) Giving these specifications the constructions which complainants put thereon, it follows that the reissued patent covers (1) the process of sinking wells by forcing down a rod or tube to the water-bearing stratum without removing the earth upwards, as in boring or digging; (2) creating a vacuum in the tube forming the lining of the well, by making the tube air-tight except at the lower end, compacting the earth around the tube, and by attaching a pump with an air-tight connection to the tube.

In the argument of counsel, as well as in the testimony of complainants, it is urged that the great merit of Col. Green's invention consists of the discovery of the effect of the vacuum thus created. According to the view we take of the original patent, it did not cover or describe the application of this principle. It follows, therefore, that the reissue embraces the application of an important and material principle, not found in the original.

The rule is well settled that a reissue can be validly granted only for; the same invention which was originally patented. If the reissue goes beyond this, and covers other and different inventions or improvements suggested by the use of the original invention, it will he void. See. *Burr v. Duryee*, 1 Wall. 531; *Manuf'g Co. v. Ladd*, 102 U. S. 408; *Miller v. Brass Co.* 104 U. S. 350; *James v. Campbell*, Id. 356; *Manuf'g Co. v. Corbin, 103* U. S. 786.

As we view the evidence in this case, we find that Coli Green in his original invention did not embrace the idea of creating a vacuum in the lining of the well for the purpose of utilizing the pressure of 400 the atmosphere, nor did his original patent, either expressly or impliedly, cover or describe the application of this principle; that this idea of utilizing the atmospheric pressure was an after-thought on the part of complainants; that to protect it as a part of Col. Green's invention it was evidently necessary that the specifications should be enlarged; that the reissue was obtained for the purpose of covering thereby this idea of atmospheric pressure caused by a vacuum in an air-tight tube; that the complainant now claims that the chief merit of the invention consists in creating a vacuum in the tube and the earth surrounding it, where it penetrates the water-bearing stratum, and, through the pressure of the atmosphere, forcing a larger and more continuous supply of water into the tube forming the lining of the well, and that the application of this principle is provided for and embraced within the specifications of the reissued letters patent. Giving these specifications the construction claimed there for by complainants, it follows, in our judgment, that the reissue departs widely from the original, and embraces the application of a principle not covered by the original invention of Col. Green, and consequently that the reissued patent must be held void. In determining this question of the validity of the reissued letters patent, we have assumed that the construction put thereon by complainants and their counsel is legally correct, to-wit, that there is embraced therein the principle of utilizing atmospheric pressure by creating a vacuum in the tube, and about the same where it penetrates the water-bearing stratum. We have also assumed, without questioning it, that the theory of complainants in regard to the creation of a vacuum about the tube* and its effect in increasing the flow of water into the tube through the pressure of the atmosphere upon the other portions of the water bearing stratum, is correct. In the view we have taken of the case, it has not been necessary to investigate fully the scientific points involved in the latter proposition, but we will only Bay that the experiments made before the court, and the evidence adduced on this question in physical science, have not fully demonstrated to our satisfaction the correctness of the theory relied upon by complainants.

3. Upon the issue of originality of invention by Col. Green a large amount of evidence has been adduced, with a view of showing that this method of sinking wells had been substantially described in various publications antedating Col. Green's discovery, and also that wells had been sunken by this method at different times and places. We do not deem it necessary to specially mention more than two of these alleged prior discoveries. While it cannot well be questioned 401 that it is shown that in some of the other instances a near approach was made to the method subsequently adopted by Col. Green, yet we do not think it can be said that these isolated instances were anything more than mere experiments, not developed to an extent sufficient to enable the court to say that they clearly anticipated Col. Green's discovery. There are two instances, however, which cannot be so summarily disposed of, these being: *First,* the well at Independence, Iowa; and, *second,* the wells driven at Milwaukee, Wisconsin, by E. W. Purdy.

In regard to the well at Independence, the query is whether it was in fact constructed in 1861, as claimed by defendants, or in 1866, as averred by complainants. The defendants claim that there were two wells driven at Independence,-One in the early summer of 1861, the other in 1866,-while the complainants aver that there was but one well, *i. e.*, the one driven in 1866, and that the witnesses who place it in 1861 are simply mistaken in the date. In several of the cases heretofore heard, touching the validity of Col. Green's patent, the question in regard to this Independence well has been presented, and it has been therein held that the conflict in the testimony was to be reconciled by holding that the witnesses for the defendants, while testifying truthfully to the existence and character of this well, had mistaken the date, and placed an event in 1861 which really took place in 1866. If the evidence submitted to us was substantially the same as that submitted in the cases referred to, we should not feel disposed to re-examine the question at issue, but we have had presented to us much additional evidence largely intended to prove the date of the driving of the well in question, by proving the date of other facts which are so connected with the existence of the well that proof of the date of the former unmistakably fixes the time when this well was driven and in use. Thus a number of witnesses who probably could not by a mere effort of memory fix the month or the year when they saw and used the well, testify to facts which corroborate their recollection that they saw and used this well when the soldiers were enlisting at Independence and forming companies commanded by Capts. Lee and Hord, for the purpose of entering the Union army. That these companies were organized at Independence in the year 1861 is a fact beyond dispute. So with other facts, the date of which is not open to question, such as the time when Sherwood and Kimball kept the hotel at Independence, the date of Col. Lake's marriage, the use of the well by the cricket club when playing cricket 402 upon the grounds adjoining the lot where the well was driven, and which club was broken up by a number of its members entering the army in 1861. By such facts as these the defendants have greatly strengthened their position in regard to this well at Independence, and while it cannot be doubted that there is much plausibility in the argument urged against the reliability of this evidence, still it seems to us that the preponderance of the evidence upon this question is with the defendant, and that it must be held as a conclusion of fact (1) that in the early part of the summer of 1861 there was constructed at Independence, Iowa, a driven well which proved a success; (2) that this well was constructed by driving a tube down into the water-bearing-stratum, and attaching to the tube a pump by which the water was drawn up through the tube in apparently an inexhaustible quantity.

It does not appear, however, that any other wells came into use by reason of the driving of the one under consideration, and if the decision of the court depended solely upon the effect to be given to the driving of this one well, we might well doubt whether it would not be proper to treat it as a mere isolated experiment, which would not be held to defeat the rights of an independent inventor. In regard to what may be called the Milwaukee wells, it is shown by the testimony of E. W. Purdy that in 1849 and 1850 he was in the business of making wells at Milwaukee, Wisconsin; that he used iron rods about two inches in diameter, and made so they could be coupled together. The first rod was about 16 feet long, the lower end being in shape of a drill. This rod was worked up and down by a rope running over a gin-pole, the rod being raised up and down, and in that way the earth was displaced by the rod as it went down. Tubing of about four inches in diameter was driven down as the rod progressed. This tube formed the lining of the well. No earth was removed upwards, except in case of striking quicksand, when a long sheet-iron bucket, with a valve in the bottom, was used to bring up the quicksand. When the tube had been forced down into the water, if the water did not come to the surface'a pump was used, the tube to which the pump was attached being placed inside the tube first forced down, the latter forming the lining of the well. It is shown by the testimony of Purdy that he drove a large number of these, wells, and the places where and the parties for whom they were driven are given in several instances. In some cases the wells were driven to the depth of 60 and 100 feet. In these wells thus driven there was 403 used—*First*, a rod for puncturing the earth, which was driven down to the water-bearing stratum; second, into the aperture thus made a tube was forced, which was in close contact with the earth and which formed the lining of the well, and through which the water either flowed naturally, or was drawn by the aid of a pump inserted therein. Comparing this method of driving wells and its results with that adopted by Col. Green in 1861 and described in the specifications attached to the original letters patent, we confess our inability to see any substantial difference. What he expressly claimed in his original specifications was the process of sinking wells by driving or forcing down a rod to and into the water under ground, and withdrawing it, and inserting a tube in its place to draw the water through, and it is just this process in substance that was employed in Milwaukee.

These wells driven at Milwaukee cannot be set aside as abandoned experiments. Purdy testifies that he was engaged in sinking them as a regular business. Numbers were put into practical use. This testimony remains uncontradicted, and it is not claimed that these wells are a myth. If, then, it be true that in 1849 and 1850 wells were driven at Milwaukee by a process not distinguishable from that devised by Col. Green in 1861, and these wells were driven, not as mere experiments, nor for the purpose of exhibition, but for public and continuous use, and from aught now shown may be in use to-day, can any other conclusion be reached than that Col. Green was not the original or first inventor of the process of driving wells described in his specifications? In our judgment the method pursued in sinking these wells at Milwaukee is the same in substance as that devised by Col. Green, differing only in minor particulars, and hence it follows that Col. Green's process for driving wells was only a reproduction of a method which had been devised and put to practical public use fully ten years before Col. Green hit upon the same expedient. If this be true, then it necessarily results that the defense of want of novelty must be sustained.

The conclusions we have reached upon the points already discussed, render it unnecessary to consider the other questions, including that of infringement, which are presented in the record. Under the view we have taken of the case it follows that complainants' bill must be dismissed, with costs, and it is so ordered.

LOVE, J., *concurring.* I concur fully in the opinion just delivered by my brother SHIRAS, and I can add nothing to what he has said 404 touching the points

which he has considered. I purpose, however, to give my own views upon one question which has not been discussed in the opinion. The respondent sets up the defense among others that the alleged invention of Col. Green was in public use for more than two years prior to his application for a patent, and after the time when, as Col. Green claims, his invention was perfected. But the complainants insist that this defense cannot be maintained, because one of its essential conditions is that the public use for two years must have been with Green's knowledge and consent, and the complainant contends that the defendant has failed to establish the fact of Green's knowledge and consent. If it were necessary, in my view, to the decision of this point, I would be compelled to find the fact to be that Green did know of the use of the invention for more than two years prior to his application. In my judgment, the preponderance of evidence, both direct and circumstantial, shows that Green did know the fact that driven wells, substantially the same as his, were in public use for a period of more than two years before he made his application.

Several witnesses, apparently credible, against Green alone testify to facts showing directly Green's knowledge and acquiescence in the use of his invention for the time mentioned. Besides, it appears that quite a number of driven wells were put down and used in the town of Cortland, New York, where Green lived, for more than three years before he filed his application, and it is difficult to see how Green could have been ignorant of such a fact, considering the deep interest he must have felt in its results. But, in my judgment, it is unnecessary to this defense to find that Green knew of and assented to the use of his invention for the period in question. Green's original patent was issued when the act of 1839 was in force, and it is clear to my mind that, according to the true construction of that act, a public use of an invention for two years, without the consent of the inventor, is sufficient to invalidate the patent.

The seventh section of the act of 1839 (5 St. at Large, 353) provides 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 of 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 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 as aforesaid, except on proof 405 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."

The section just quoted was no doubt intended as an amendment of the sixth section of the act of 1836, as follows:

"That any person or persons having discovered or invented 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, not known or used by others before his or their discovery or invention thereof, and not at the time of his application for a patent in public use or on sale with his consent or allowance as the inventor or discoverer, and shall desire to obtain an exclusive property therein, may make application in writing to the commissioner of patents expressive of such desire, and the commissioner, on due proceedings had, may grant a patent therefor."

What is the true construction of the seventh section of the act of 1839 just quoted? Is it essential to a defense Bet up under that section that the "sale or prior use" of the invention for more than two years before the application for a patent should be with the inventor's "consent or allowance?"

In the case of *Egbert* v. *Lippmann*, BLATCHFORD, J., said:

"The effect of the act of 1839 is to require that an inventor shall not permit his invention to be used in public at a period earlier than two years prior to his application for a patent under the penalty of having his patent rendered void by such use. Consent and allowance by the inventor are not necessary to such invalidity."

The decree in this case was affirmed by the supreme court of the United States. 104 U. S. 333. Mr. Justice Woods, in delivering the opinion, says that—

"Since the passage of the act of 1839 it has been strenuously contended that the public use of an invention for more than two years before such application, even without his [the inventor's] consent and allowance, renders the letters patent therefor void. It is unnecessary in this case to decide this question, for the alleged use of the invention covered by the letters patent to Barnes is conceded to have been with his express consent."

It is, therefore, to say the least, an open question whether or not the consent of the patentee to the public use is a condition essential to the defense in question. For my own part, I must say that, but for the doubt thus cast upon the construction of the seventh section of the act of 1839, I could not possibly entertain a question about it.

Upon what principle of construction may we attempt to interpolate the significant words "consent or allowance" into the statute? These words do not appear in the statute. No such condition is expressed as these words imply. The plain, simple, and unqualified provision is that "no patent shall he held to be *invalid* by reason of such purchase; sale, or use prior to the application, 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 patent." Not a word is here used, to the effect that such prior use or sale shall be with the "allowance or consent" of the patentee. If we get such a condition into the section we must do it either by construction or interpolation. Now, the interpolation of material words into a statute is ordinarily an act of simple violence. It is a settled rule in the interpretation of contracts and statutes that their meaning and intent must be ascertained from all and not from a part of the words of the act or instrument. It would do violence to this rule in the construction of a statute to cast out certain words and consider only what remained. And surely we may, with much stronger reason, say that it would be wholly inadmissible to incorporate into a statute words not found in it, and thereby give the act a meaning and construction wholly different from that which it would bear without such interpolation.

It may not be amiss here to note what a celebrated writer upon the law of nations says upon the interpretation of treaties:

"The first general maxim of interpretation is that it is not permitted to interpret what has no need of interpretation. When an act is conceived in clear and precise terms, when the sense is manifest and leads to nothing absurd, then there can be no need to refuse the sense which a treaty naturally presents. To go elsewhere in search of conjectures in order to restrain or extinguish it is to endeavor to elude it. If this dangerous method be once admitted, there will be no act which it will not render useless." Vattel, Law Nat. book 2, c. 17, p. 368.

Now, what is there in the clause in question that needs interpretation? It is plain and unambiguous.

It is free from obscurity. Does the language of the clause, when received in its obvious sense, lead to any absurd result? Would it, when so taken, work such gross and palpable injustice as to lead the mind to conclude that the legislature intended it to be received in some other and different sense? On the contrary, the legislature had, in my opinion, a wise purpose in fixing a period of limitation which should not depend upon the uncertainty of the patentee's consent. Its purpose was to require some degree of diligence from the inventor in the assertion of his rights, and to give him full protection when he exercised that diligence; and at the same time to protect the public in the exercise of rights acquired, 407 where the patentee should, by reason of his own negligence, fail even to file his application for a patent for a period of two years. The legislature may justly have considered a period of two years from the completion of the invention quite a sufficient time to enable the inventor to make his application. No injustice could possibly arise to him from such a rule except as a consequence of his own negligence. What but negligence could lead an inventor to delay the assertion of his claims for more than two years from the maturity of his right? And was it the intention of congress to protect him against the consequences of his own negligence? If the complainants' construction is to prevail, there is no time whatever prescribed within which, without the inventor's own consent to the use, be is required to make his application for a patent. The inventor could, under this construction, by simply refusing his consent, withhold his invention from public use for an unlimited time after bringing it to perfection. He might, after the lapse of many years, and after his invention should be in general use, by simply denying his consent, or by mere silence, obtain a patent, and thus override and prejudice intervening investments and industries, unless, indeed, a case of abandonment could be made out. This, it is easy to see, would be against sound policy as well as private justice. The public interest would be prejudiced and individuals injured without real benefit to the inventor, since his true interest would certainly not be promoted by the delay.

Congress did, indeed, in the act of 1836, give to the inventors and discoverers the right to apply for a patent without limit as to time, after they were in public use or sale, when without their own consent or allowance. But the unwisdom of this provision becoming apparent, congress, in the act of 1839, changed the law by prescribing a fixed period of limitation and omitting the words requiring the inventor's "consent or allowance" to the use or sale of his invention. The intention of congress, in the act of 1839, is further illustrated by section 4886 of the Revised Statutes. It will appear by inspection of this section that it embodies so much of the seventh section of the act of 1839, and the sixth section of the act of 1836, as it was the purpose of congress to preserve; and that while the two-years' limitation is in express terms re-enacted in the 4886th section of the Revision, the qualifying words requiring the consent or allowance of the inventor used in the act of 1836 are entirely omitted. The section is as follows:

"Sec. 4886. Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful 408 improvement thereof, not known or used by others in this country, and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof, *and not in public use or on sale for more than two years prior to his application,* unless the same is proved to have been abandoned, may, upon payment of the fees required by law, and other due proceedings had, obtain a patent therefor." It will not, I suppose, be doubted that the twoyears' limitation clause in the seventh section of the act of 1839 must receive precisely the same construction as the two-years' limitation clause in section 4886 of the Revised Statutes. The language of this clause in the two sections being substantially the same, and the purpose of the legislature the same, it follows that the construction must be the same.

Now, does any one for a moment suppose that the words "and not in public use or on sale for more two than years prior to his application," in section 4886 of the Revision, will bear the construction that the two-year' public use, in order to invalidate the patent, must be with the "assent or allowance" of the inventor? Will any court ever interpolate the words "assent or allowance" into section 4886, thus: And not in public use or on sale with the assent or allowance of the inventor for more than two years prior to his application? What possible reason could have moved congress to provide that the public use, in order to defeat the patent and vest a right to use the invention in the public, should continue for two years, if that public use was to be with the consent and allowance of the inventor?

The act of 1839 must, I think, have been specially intended to apply to a class of persons who should make, use, and vend the "machine, manufacture, or composition of matter" before the application, without the allowance or consent of the patentee. The seventh section of that act, it will be observed, provides substantially that any person who has or shall have constructed or purchased such newly-invented thing prior to the inventor's application, shall have the right to use and vend to others such specific thing, without liability to the inventor or other person interested in the same. Now this must surely refer to persons who should construct or purchase the newly-invented thing without the inventor's consent or allowance, because, if it were constructed or purchased with the inventor's allowance and consent, he could not, on general principles, make them liable as infringers.

This particular provision of the seventh section was, therefore, wholly unnecessary and nugatory except as a protection to those who should invade the inventor's right without his "consent or allowance" before the application. And can it be doubted that the words which immediately 409 follow in the same section refer, in part at least, to the same class of persons, namely, those who should purchase or make the inventor's "machine, manufacture, or composition of matter" without his consent or allowance? Can it be questioned that the provision that "no patent shall be held to be invalid by reason of *such* purchase, sale, or use prior to the application for a patent, etc., except on proof that such purchase, sale, or prior use has been for more than two years prior to such application," was intended to embrace at least the class of cases referred to in the immediately preceding part of the section? In my opinion this two-years' limitation was intended in the act of 1839, as it unquestionably is in the 4886th section of the Revised Statutes, to be general, and that it applies to all cases in which the invention has been in public use or on sale for more than two years prior to the application, whether with or without the consent or allowance of the inventor.

It is obvious, from the plain reading of the act of 1836, that under its provisions an inventor who permitted or allowed the public use or sale of his invention up to the time of his application, was not entitled to protection, for the unavoidable implication from the language is that he should not be entitled to a patent. The law Would not permit him to call to account as infringers persons whom he had allowed to use his invention, and perhaps invest their money in it, before he gave notice of his intention to claim it by making his application.

The class of persons, therefore, who used or sold the "art, machine, manufacture, or composition of matter" with the consent of the inventor, were fully provided for and protected by the act of 1836. But there was another class not provided for by that act, namely, those who should use, purchase, or sell the thing invented without the inventor's consent before his application. The public use did not, under the statute of 1836, preclude the inventor from his right to a patent and his right to call infringers to account where his invention was used before the application without his allowance or consent. Yet it is obvious that the latter class of persons might have a certain equity which the law ought to protect, and the primary object of the seventh section of the act of 1839 seems to have been the protection of those who might before the application, without the inventor's consent, use his invention and perhaps invest money in it. Hence the seventh section of that act provides that "any person or corporation who shall or shall have purchased constructed any newly-invented 410 or 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." If the statute had stopped here a possible inference might have arisen that a patent issued to an inventor, where his invention had been on sale or in use even without his consent, would be held invalid. This would have been unjust to the inventor. It was his own fault or negligence if his invention came into public use with his own consent or allowance, and the act of 1836 denied him relief against the consequence of his own fault or negligence. But it was the manifest purpose of the act of 1839 to guard carefully against any possible implication that the sale or use of the invention, without the inventor's consent or allowance, should deprive him of his right to a valid patent. Hence it is further provided in the same clause of section 7, following the words just quoted, that "no patent shall be held to be invalid by reason of such purchase, sale, or use prior to the application for a patent," except what? Except on proof of abandonment, or on proof that such purchase, sale, or prior use has been for more than two years prior to such application for a patent.

Now, what follows from this analysis of the two statutes? Is not the inference plain and irresistible that the purchase, sale, or prior use of the things invented for two years before the application, without the assent and allowance of the inventor, would invalidate the patent? Can we here interpolate the words "with the assent and allowance" of the inventor, seeing that the very object of the thirty-ninth section was to provide for a class of cases in which the invention should be used without the inventor's consent or allowance? The clause of the act of 1839 in question here is, I think, a statute of limitation, and all such statutes are founded rather upon considerations of public policy than private justice. And where no exceptions are made in the statute itself, it is not competent for the courts to introduce them. If married women, infants, and other persons under disability were not excepted from the provisions of a statute of limitations, no court could incorporate into the statute a saving clause in their favor.

Standing upon the broad grounds of public policy it matters not that a statute of limitations may work injustice in particular cases. If my construction of the seventh section of the act of 1839 be correct 411 it is decisive of the present case, since it is established by the evidence beyond doubt that Green's invention was in public use for more than two years prior to his application for a patent. NELSON, J., *dissenting.* I dissent from the conclusions and Judgment of my associates, Judges Love and Shiras, for the following reasons:

1. Because, in my opinion, Green was the first and original discoverer of a patentable process described in the letters patent issued to him, and the claim in the reissue is not enlarged, and is for the same process described in the original.

2. Because, before the act of 1870, it was generally understood, and, in my opinion, correctly decided, that under sections 7 and 15 of the act of 1836, and section 7 of the act of 1839, a use of the invention more than two years prior to the application would not defeat a patent, unless the use was had with the consent and allowance of the inventor. Such use is not proved. *Kelleher v. Darling,* 3 Ban. & A. 449; *Draper v. Wattles,* Id. 618; *Henry v. Prov. Tool Co.* Id. 513. See *Hall v. Macneale,* 23 O. G. 939; S. C. 2 Sup. Ct. Rep. 79.

3. Because the Milwaukee wells testified to by "Purdy" were artesian wells, and Green's process was not used. The tubing described made a reservoir, and a lead pipe attached to a pump was dropped into it and the water drawn through the lead pipe.

4. Because prior use should be clearly established, and where the evidence is contradictory mere preponderance is not sufficient and satisfactory; "to doubt upon this point is to resolve it in the negative." The proof of prior use at Independence, Iowa, leaves room for a fair and reasonable doubt, when weighed with care and scrutiny. 4 Fisher, Pat. Cas. 468-482, 559, 560; *Coffin v. Ogden,* 18 Wall. 124; *Putnam v. Hollender,* 6 FED. REP. 893.

"The statute of 1836 (5 St. p. 117, § 6) did not allow the issue of a patent when the invention had been in public use or on sale for any period, however short, with the consent or allowance of the inventor, and the statute of 1870 (16 St. p. 201, § 24; Rev. St. § 4886,) does not allow the issue of a patent when the invention has been in public use for more than two years prior to the application, either with or without the consent or allowance of the inventor." *Manning* v. *Cape Ann Isinglass & Clue Co.* 2 Sup. Ct. Rep. 863.

The exemptions of married women and infants from the operation of statutes of limitations "rest in every instance upon the express language in those statutes." *Vance* v. *Vance*, 2 Sup. Ct. Rep. 854.–[ED.

* Affirmed. See 8 Sup. Ct. Rep. 101.

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