est intimation that any one had ever before devised any means by which this desirable change could be successfully made. The only one that shows anything of the sort is a certain French patent, which, though issued as long ago as the year 1857, has itself never been reduced to an operative machine, nor led to the production of any device which is operative. Indeed, this patent presents a quite persuasive argument in support of the Donnelly patent; for it is pregnant of the fact that although, in 1857, the want now met by the Donnelly invention had been plainly perceived, it was so difficult to meet it that the effort then made to do so turned out to be abortive, and, until the Donnellys took the field, was not renewed. Upon the first and tenth claims of the Sisum patent, and the second claim of the Donnelly patent, decree for complainant.

DUFF MANUF'G CO. v. FORGIE.

(Circuit Court, W. D. Pennsylvania. February 1, 1897.)

PATENTS—INTERPRETATION OF CLAIMS—INFRINGEMENT—JACKING APPARATUS.

The Barrett patent, No. 455,993, for improvements in "lifting jacks," which are also adapted to produce horizontal motion, the said improvement being based on the principle of a yielding, as distinguished from a rigid, tripping plate, construed, and *held* infringed as to claims 1 and 6, by a jacking apparatus designed to produce horizontal circular motion for the purpose of unscrewing oil-well tools, which apparatus, though different in form, in its principle, design, and functional purposes embodies the substance of the invention.

This was a suit in equity by the Duff Manufacturing Company against William Forgie for alleged infringement of a patent. The cause was heard on complainant's motion for a preliminary injunction.

Kay & Totten, for complainant.
W. L. Pierce, for defendant.

BUFFINGTON, District Judge. This motion for a preliminary injunction is based on two patents, viz. No. 455,993, issued July 14, 1891, and No. 527,102, issued October 9, 1894, to Josiah Barrett, assignor to the complainant company. As respondent's answer consents to a decree as to the latter, we confine our attention to the former, patent. It was before this court in Manufacturing Co. v. Forgie, 57 Fed. 748, where Mr. Forgie attacked its validity on the ground of prior invention by himself. On the prima facies of the patent, priority was adjudged to Barrett, and subsequently thereto an interference proceeding, which was then pending between them, was decided by the patent office in his favor also. In that case it was sought to restrict the claims to a lifting jack. It was, however, held that, though the drawings illustrated "lifting jacks" only, the explanation of that term in the specifications, viz. "by such terms it is, of course, to be understood that the invention includes any device embodying its principle, whether the pow-

er is exerted in a vertical, horizontal, or other line," brought the case within the spirit of the decision in Electric Co. v. La Rue, 139 U. S. 601, 11 Sup. Ct. 670, and that the use of the device shown in the patent on the stationary, curved, horizontal, toothed track of an oil-well jack constituted infringement, and an injunction was granted. Shortly thereafter, about December, 1893, respondent made application to court stating he intended manufacturing and selling a new form of oil-well jack which he proposed to exhibit to the court, and prayed its opinion whether it infringed the patent. In accordance with its practice in that regard (Edison Electric Light Co. v. Westinghouse Electric & Manuf'g Co., 54 Fed. 504), the court declined to express any opinion, and the application was not pressed. During the three years ensuing Mr. Forgie made no jacks of the proposed type. He has lately done so, and begun their sale; whereupon this bill was filed, and a preliminary injunction prayed for. The validity of the patent having been already sustained, the only question now before us is infringement. Norton v. Can Co., 57 Fed. 929; Spindle Co. v. Turner, 55 Fed. 979.

In view of the fact that the entire art of applying a jacking mechanism to oil-well drilling has been developed by Barrett and Forgie, that such art is confined to comparatively narrow limits, and that the whole of it is now before us as fully as it would be on final hearing, we have felt constrained to dispose of this question of infringement at the present time, instead of following our inclination to postpone such action until final hearing. The very fact that respondent has allowed the device now before us to lie dormant and unused for the three years just passed shows that an injunction can do him no irreparable injury, while to remand the complainant, under the facts hereafter noted, to the delay of a final decree, is to put his trade in such shape that the wrong done him in the meanwhile could not be righted even by a final decree in his favor. While, at first view, the case seems involved, the mechanism complicated, and the two types of jacks quite different in form, yet a closer study shows that, stripped of irrelevant matter, the question at issue is a narrow one, the mechanism, when understood, comparatively simple, the difference between the jacks one of form and not of substance, and the consequent right to a preliminary injunction clear. Such being our conclusion, we deem it proper to set forth at some length the reasons thereto moving the court.

The case in hand concerns the application of jacking mechanisms to the drilling of oil and gas wells. A brief account of that art, and the use of such mechanisms therein, will be found in Forgie v. Supply Co., 57 Fed. 742, and Manufacturing Co. v. Forgie, Id. 748. From these cases it will be seen that the first mechanism employed was based on the lifting-jack device shown in Barrett's patent of February 17, 1885, No. 312,316. Briefly stated, this jack consisted of a rigid tripping plate provided with lugs. It was adapted to be so changed in position that its lugs were thrown into engagement with two levers. These latter were pivoted on the side of, and connected by intermediate springs with, two pawls,

which were themselves pivoted on different sides of the pivotal point of a hand lever. The unpivoted ends of the pawls were adapted to alternately engage notches in a lifting bar. When the levers, actuated by the motion of the hand lever, engaged the lugs on the rigid tripping plate, they yielded, and stored spring power so as to throw the pawls alternately out of engagement with the toothed lifting bar. The only uses originally contemplated for the device were lifting and lowering. It was designed and constructed with a view to vertical use alone. Although its general features were afterwards employed in its adaptation in a horizontal plane to use in oil-well jacks, yet, as we have said, the device was not structurally designed (and, as subsequent events showed, not mechanically fitted) to meet the full requirements of a use differing from the original conception. The difference between its employment in vertical and horizontal planes was stated by Judge Greene, speaking for the circuit court of appeals in Manufacturing Co. v. Forgie, 8 C. C. A. 264, 59 Fed. 775, where he said: "The aim of the one was readily to communicate force; the design of the other was positively to resist force." It is true the application of the general principle of the Barrett lifting jack to oil-well jacks was a decided advance in the art, but use soon disclosed weak points and structural defects. The pressure necessary to lock and unlock joints in a string of tools was enormous, and the strain upon the individual parts of a jack excessive and extreme. Incessant pounding of a heavy string of such tools upon solid rock had a tendency to spring or unloosen the joints not drawn to the highest tension. Some conception of the extent of the desired tension may be had from the fact that the weight of the two wrenches used to screw and unscrew the tools was such as to require two men to handle each. The strain of the entire operation largely centered upon the comparatively small jack. Employment in this new sphere soon showed the need of heavier and stronger parts and better mechanical construction. The jacks, moreover, were subjected to rough usage at the hands of the drillers, and, as they were used at points remote from machine shops and facilities for repairs, breaks involved considerable delay.

While the releasing apparatus of this lifting jack was ingenious and meritorious, yet it was constructed in a manner which, mechanically, was at the expense of that strength, simplicity, and compactness desirable in oil-well jacks. In the first place, the levers were pivoted to the pawls, and, to allow space for the intermediate spring, such pivoting was at a considerable distance, and the pivoting had also to be done so as to allow the levers a free, loose motion. The space required in the side by side position of pawl, spring, and yielding lever necessitated a smaller size of pawl than was desirable. The entire shifting or tripping mechanism (except the rigid plate) was connected to and moved with the pawl in each motion. This was objectionable, for, as is well said by respondent's expert, "the pawl being a part which is subjected to very severe duty, it is desirable to have as few parts connected with it as possible." The efforts of both Forgie and Bar-

rett in this line of improvement unite to show that the application of the jacking mechanism to the new sphere demanded other forms of construction. A decided advance in this line was made by Barrett in the patent in suit. While it illustrates and describes the application of this invention to lifting jacks only, yet, as we have noted above, his specification contemplated its use on a horizontal plane, and it was held in the prior case that the patent covered its employment in an oil-well jack. Under the supposed protection of the patent, Barrett, or his assignee, the complainant, has built such a jacking device, and it has gone into extensive and successful use. His affidavit shows, and it is not disputed, that the respondent has cut the price at which this Barrett jack has been uniformly sold, and is now selling the infringing jack, which is of the same general type, at a lower figure. It also avers that unless respondent is enjoined it will permanently affect the trade, and prevent a return to the customary price, even if the respondent were enjoined on final hearing; that such was the permanent effect produced on the trade by respondent's former infringing jack, although it was on final hearing ultimately enjoined.

The new device of Barrett is based on the principle of a yielding, as distinguished from a rigid, tripping plate, adapted to engage with rigid fingers upon the pawls. One specific form of plate shown in detail in the drawings is pivoted at its lower end to the jack frame, and at the other is provided with lugs, adapted, when the plate is thrown into working position by an eccentric button, to engage with the rigid fingers on the pawls. This yielding and unpivoted end of the plate is in engagement with a strong spring seated on the jack frame. When forward or upward pressure is desired, the plate remains out of engagement, and exerts no influence. Starting with the lower pawl in engagement with the notch, and carrying the load, an inspection of the working jack shows the reversing operation is as follows: This pawl, being forward of and below the hand lever's pivot, sinks as that lever is raised, and its pivoted end also moves a trifle inwardly. By the same action the upper pawl, being on the other side of the lever pivot, is forced upward, and its unpivoted end moves inward. This gradually brings it into engagement with a notch on the now descending bar, and by degrees it assumes the load. Meanwhile the downward and inward movement of the lower pawl alluded to has brought its rigid finger in positive engagement with a lug of the tripping plate, and, as the movement proceeds, the lug is forced against the spring until the upper pawl assumes the weight. Then the stored spring power forces the lower pawl from the notch engagement, and the whole weight is shouldered by the upper pawl. The down stroke of the hand lever releases the upper, and engages the lower, pawl in substantially the same way.

It will thus be seen that by this timely-acting, self-adjusting mechanism, the tripping plate, which relieves the pawl of the burden of all reversing appliances, yields and withdraws by the pressure of the to-be-released pawl until the latter is in position to safely surrender, and its fellow to securely accept, the load; where-

upon its stored spring power forces the former from engagement with the notch, and keeps it disengaged until the automatic release of its companion pawl compels its own return. By this device a simple and stronger construction is possible, and the parts reduced in number. The pawls can be increased in size, are relieved from carrying the reversing mechanism, and both levers and one of the springs of the old mechanism are dispensed with. The yielding tripping plate, which is the foundation of Barrett's device, seems wholly new. Nothing in anticipation thereof was cited to the court or by way of reference in the patent office. In addition to the foregoing method of shifting the plate by means of an eccentric, the use of a movable weight is also shown, and, instead of a pivoted plate, the employment of a shifting tripping one, as embodied in Fig. 5 of Barrett's preceding patent, No. 312,316, is suggested. Upon this invention there were allowed, as pertinent to the present case, two claims, which are alleged to be infringed, viz.:

"(1) In a jack, the combination of a bar having teeth on one side thereof, a pivotal lever, two pawls pivoted to said lever and having fingers rigid therewith, and a yielding tripping plate having lugs thereon adapted to engage with said fingers, and through the same draw the pawls from engagement with the toothed bar, substantially as and for purposes set forth."

"(6) In a jack, the combination of a bar, having teeth on one side thereof, a pivotal lever, a pawl pivoted to said lever and having a finger rigid therewith, and yielding tripping plate mounted on the frame and having a lug adapted to contact with said finger, and through the same draw the pawl from engagement with the toothed bar, substantially as and for the purposes set forth."

In addition to the foregoing, it should be noted there were granted in this patent, or in No. 455,994, which was a divisional application of the subject-matter, combination claims for the specific forms of yielding tripping plates shown in the drawings and specifications. The first claim has five elements, viz. a bar with teeth on one side, a pivotal lever, two pawls pivoted on this lever and provided with rigid fingers, and, lastly, a yielding tripping plate. This plate has the limitation of lugs thereon adapted to engage the pawl fingers, and through them draw the pawls from engagement with the toothed bar. Turning now to respondent's alleged infringing device, we find it embodied in an oil-well jack. It has a pivoted lever, and is mounted on a bar with teeth on one side. Two pawls with rigid fingers are pivoted on the lever. Thus far we have the identical elements of Barrett's claim, and, as suggestive of the source from which the constructive ideas came, we find a reproduction in minor details of Barrett's jack, viz. the similarity of measurement of pawls and handles, a departure from Forgie's prior form of handle and a reproduction of Barrett's, the peculiar horn or second handle on the lower side of the lever socket, and the pawl-disengaging chain extending to the stirrup handle.

His reversing apparatus consists of a sliding iron base plate, in which are seated two stiff brass springs with upwardly projecting ends. When a reverse action is desired, the plate is shifted and held rigid by an eccentric button. This shifting places the ends of the springs in positive, tense connection with the rigid

fingers on the pawls. Starting with the upper pawl in engagement with the teeth notch, and counteracting the pressure exerted by the tool wrench on the jack nose, we find that as the lever is rocked forward this upper pawl, being above the lever's pivot, is drawn forward, whereby an increasing spring pressure is encountered. The result is the pawl seeks to disengage itself from the notch. At the same time the other pawl, being pivoted below the lever's pivot, has been forced backward by the forward rocking of the lever. This movement, and the consequent diminished spring pressure, cause the pawl to drop into the notch, and it assumes the pressure force as the other pawl is released. By the return rock of the lever the lower pawl is drawn forward, encounters increasing spring pressure, and is forced out of engagement with the notch, while by a contrary process the other pawl assumes the burden. The jack is ingenious, different in form from Barrett's, and we are free to say, at first view, seemingly different in substance. But detail examination and an analysis of its elements satisfy us very clearly that its principle, design, and functional purposes are based wholly on the conception of the application to this art of the yielding tripping plate which Barrett suggested. To us it seems that a large part of the ingenuity shown in its structure is a studied purpose to so clearly transpose and rearrange Barrett's elements as to obscure the fact that it embodies the substance of his (Barrett's) invention.

It is contended that it is a wholly different type of structure, in that it has no yielding tripping plate, that its plate is rigid, and is not provided with lugs adapted to engage the rigid fingers on the pawls. If we concede Forgie's iron base plate is his tripping plate, this contention is sound; but such is not the fact. In mechanics, "tripping" consists in releasing or setting free some mechanism, and a tripping plate is one performing that function. Neither in its normal nor shifted position has Forgie's base plate, as a plate, any such capacity. It does not trip, and is therefore not a tripping plate. It only becomes one when means are added by which disengaging or tripping is effected, and this is done by bridging the space between it and the rigid fingers of the pawl to be tripped. For this purpose the stiff brass wire ends extend from their seat in the base plate to the finger of the pawl. These answer the functional purpose of lugs, in that they are means of connection or communication between plate proper and finger, and, indeed, answer to the very definition of a mechanical lug, viz. "a projecting thing against which anything presses." That these stiff wire ends, posts, or lugs are yielding or resilient makes them none the less lugs so long as they are stiff enough not to double on themselves, so to speak, but center their yielding from their base point. Of necessity, in both devices the fingers of the pawls are and must remain rigid, else the pawls would not be tripped or disengaged. If, therefore, the mechanism on the plate and the plate as well remained rigid, it is manifest no tripping would result. Now, both devices provide for such yielding, extra or apart from the fingers. In the words of the claim, they have "lugs there-

on adapted to engage with said fingers, and through the same draw the pawls from engagement with the toothed bar."

Being, then, of the same generic type, is there any limitation in Barrett's claims which frees the later device from the charge of infringing the earlier. We think not. There is no limitation which requires the lug to be in itself rigid and unyielding. Moreover, there is an absence in the claims of a limitation or designation of any specific mechanism by which the yielding character or function is imparted, or of any point from which or where such imparting must be done. The terms employed are comprehensive. The prior art does not necessitate a narrower reading than the ordinary meaning and reading of the terms and words employed would themselves suggest. Considered from a functional standpoint, a yielding tripping plate does not necessarily yield at every point. The yielding desired, and which secures the sought for result is a receding of the lug or connecting medium when it comes in contact with the object to be tripped. Yielding at that time insures tripping as soon as such yielding has stored the necessary spring force. This action constitutes the essence and substance of a yielding tripping plate. Manifestly, if Forgie's device, which accomplishes the same thing as Barrett's, had existed in the art prior to Barrett's, it would have been fatal to Barrett's making the generic claim now in controversy. If, then, Barrett be first, why is not Forgie's device subsidiary to the primary and dominant conception. In pursuance of this theory, a patent was granted to Barrett, he was allowed generic claims in combination, the validity of his patent was sustained by the court, and subsequently his presumptive priority of conception, arising from the issue of the patent, was affirmatively proven in his favor in an interference contest with the present respondent. If these protracted and expensive proceedings insured to him the enjoyment of the mere identical form of his patented device, he has gained a barren victory. But we think he is entitled to both form and substance, and, when the substance and gist of his device are a second time seized by respondent, we are of opinion the time is fitting for the exercise by a chancellor of his power of issuing a preliminary injunction. Let such a decree be prepared.

CLINTON WIRE-CLOTH CO. v. HENDRICK MANUF'G CO., Limited.

(Circuit Court, W. D. Pennsylvania. February 1, 1897.)

PATENTS—INVENTION—COAL SCREENS.

The Phillips patent No. 500,508, for improvements in revoluble coal screens, consisting in providing the woven wire segments with protector plates, to connect them together and cover the joints, the plates also having inwardly extended projections to form tumblers, is void, in view of the prior art, as being the product of mere mechanical skill.

This was a suit in equity by the Clinton Wire-Cloth Company against the Hendrick Manufacturing Company, Limited, for alleged infringement of a patent for a revoluble coal screen.