ous forms," it cannot be claimed that the combination in question exhibits such novelty as amounts to invention. These considerations make it unnecessary to examine the other grounds of defense. The bill will therefore be dismissed for want of equity, at the cost of the complainants.

WELLS v. CURTIS et al.

(Circuit Court of Appeals, Sixth Circuit. February 5, 1895.)

No. 141.

1. PATENTS—CONSTRUCTION OF COMBINATION CLAIMS—DISCLAIMER.
   Where the claim is only for the combination of certain described elements, this amounts to a disclaimer, so far as that patent is concerned, of anything new in any one of the elements, whatever might be its value as ground for an independent application.
2. SAME—ACCIDENTAL FEATURES.
   A patent should not be construed to cover a means which, without the inventor's design, performs a function not within his contemplation; nor should it be held to embrace anything which is not pointed out as new, either by express declaration, or by reasonably clear implication from the language used.
3. SAME—LIMITATION OF CLAIMS—EQUIVALENTS.
   After describing an "elongated" pinion as one of the elements of his combination, and showing the necessity of a pinion of such form in his specifications, the patentee cannot assert that such description is immaterial, and that any kind of pinion is an equivalent and covered by the claim.
4. SAME—RANGE OF EQUIVALENTS—COMBINATION CLAIMS.
   In inventions of specific devices, the range of equivalents recognized is much wider than in inventions of combinations. In the latter an element is not an equivalent, unless it is substantially the same thing as the patentee has described, operating in the same way.
5. SAME—LIMITATION—INFRINGEMENT—SCREW-CUTTING DIES.
   The Forbes patent No. 253,996, for an improvement in screw-cutting dies, is of doubtful validity; but, if sustainable at all, it must be limited to the specific devices which make up the elements of the combination, and is not infringed by a machine made according to the Wells patent No. 355,737.
6. SAME—INVENTION—RATCHET WRENCH.
   The Forbes patent No. 277,256, for a ratchet wrench, *held* invalid, as disclosing only the exercise of mechanical skill.

Appeal from the Circuit Court of the United States for the Western Division of the Northern District of Ohio.

This was a bill in equity by Roderick P. Curtis and Louis B. Curtis against Willett C. Wells for infringement of certain patents. The circuit court entered a decree for complainants, and defendant took this appeal.

The bill in this case was filed by the appellees to restrain the appellant from the alleged infringement by him of the rights secured to William D. Forbes by letters patent No. 253,996, bearing date February 21, 1882, for an "improvement in screw-cutting dies"; and also of the rights secured by letters patent No. 277,256, bearing date May 8, 1883, for an "improvement in ratchet wrenches," issued to said Forbes and the said Roderick P. Curtis, all which rights it is alleged have come by assignment to the appellees. The bill contains the proper averments, showing title in the appellees; alleges

that the inventions described in the two patents are susceptible of connected use in operating screw-cutting dies; and further alleges that the appellant infringes both of said patents. The appellant appeared and answered. He denied that the alleged inventor of the improvements covered by said letters patent was the first inventor or discoverer thereof, and also denied the infringement of either of them. As anticipations of No. 253,996 he set forth the following patents: British patent No. 1,765, of 1873; United States patent to Joshua Heap, No. 153,770, dated August 4, 1874; United States patent to Roberts, No. 158,314, dated December 29, 1874; United States patent to Eaton & Latham, No. 179,530, dated July 4, 1876; and, as an anticipation of No. 277,256, he sets forth United States patent to Gates, No. 198,291, dated December 18, 1877. He also added a clause by way of demurrer on the ground of multifariousness, but that has been abandoned. A replication was filed and proofs were taken. The prior patents shown by the evidence are the patents to Heap and Roberts for inventions of improvements in screw-cutting dies, and the patent to Gates for the invention of improvements in ratchet wrenches.

The invention claimed by Forbes in this patent No. 253,996, consisted of "the combination, in die stocks, of the following elements, namely: First, a casing, A, adapted to be secured to the object to be threaded; second, a threaded die-carrying ring having teeth on its periphery, and a screw head adapted to a corresponding thread in the casing; and, third, an elongated pinion having teeth adapted to those of the die-carrying ring, all substantially as set forth." In his specifications, A is described as a cylindrical casing provided with a hub into which and into the casing is introduced the pipe to be threaded, the pipe being secured in the hub by set screws or otherwise. The die-carrying ring is described as threaded externally and adapted to an internal thread of the casing, and having teeth on its periphery, the screw thread being cut into the edges of these teeth, the latter running parallel with the axis of the die-carrying ring, and extending the whole length of the ring. The ring is thus described as having capacity for being moved forward and backward along the screw thread inside the casing on the axial line of the pipe to be threaded, and also of taking rotary movement from the elongated pinion next to be described. The elongated pinion is small in its diameter, and is located in a chamber projected outwardly from the casing and parallel therewith. It runs along the whole length of the casing, and has teeth adapted to mesh with the teeth on the die-carrying ring, and long enough to operate upon the whole length of the ring during its entire travel in the operation of threading. The pinion is journaled in the ends of the projection, and at one end extends outside of the latter, so as to receive the handle by which power is communicated to the machine. The dies are located in the face of the ring perpendicularly to its center line, and adjustable to the size of the pipe to be threaded. There is also projected inside the casing, from the end at which the hub is located, a sleeve or hollow cylinder, somewhat larger in its inside diameter than the inside of the hub, and long enough to correspond with the length of travel of the die carrier in its operation. The inside of the die-carrying ring "fits snugly, but so as to slide freely" on the outside of this sleeve. In operation, the pipe to be threaded is inserted through the hub and through the ring until it comes to the dies, the ring containing which has been carried back to the rear of its room. The pipe is griped by the set screws or other like device in the hub. On turning the handle of the elongated pinion, the die carrier is revolved, and is also drawn forward upon the pipe by the screw on its periphery leading upon the screw inside the casing. In this way the dies are made to engage the pipe, and the operation is prolonged until a sufficient length of the pipe is threaded. The pitch of the thread cut will, of course, correspond with the pitch of the thread on the die carrier. The patentee suggests, as a modification of this construction, the omission of the threading on the inside of the casing and the screw thread on the edge of the teeth at the periphery of the die-carrying ring, and accomplishing their purpose by threading the outside of the sleeve projected into the casing, and making a corresponding thread upon that part of the die-carrying ring which in the first construction slides upon the sleeve. He states that the object of his invention is to make a die stock which can be used to advantage and with facility in cutting screw threads on pipes of

large diameter. The advantages which he mentions as peculiar to his invention are that his "improved die stock is one adapted to the threading of large pipes such as are used for oil wells, owing to the facility with which the die-carrying ring can be rotated by turning the elongated pinion," and that it does away with "any necessity for griping the pipe in a vise or other retaining device, for the threading of the pipe may be accomplished while it is simply resting on any support which may be at hand."

In the Heap patent, No. 153,770, dated August 1, 1874, in which the invention was described as being of an improved machine for threading tubes and bolts, there was a framing, A, which supported the die-carrying ring (called a cutter-head) and its shaft, which were integral, in a journal, which, as illustrated, was somewhat larger than the object to be threaded, but considerably smaller than the die head. The die carrier had teeth on its periphery, and was actuated by an elongated pinion running parallel with the movement of the die carrier, and lengthwise, along which the die carrier moved when in operation. There was also supported by the frame a vise which held the object to be threaded in line with the axis of the die head and shaft. The general method of operation was the same as that of the Forbes machine, as above described, and the construction contained all the elements of the latter, except that it had no casing surrounding the die-carrying ring and shaft, other than the box or cylindrical portion of the frame in which the shaft revolved. The Roberts patent was similar in most respects to that of the Heap, but, as the comparisons made by the court in its opinion are with the Heap machine, it is not deemed necessary to describe that of Roberts.

The appellant uses a machine patented by himself February 11, 1887, as shown by letters patent No. 355,737, with a modification thereof involving the form of the pinion. This machine has a casing surrounding the working parts. The pinion differs from the elongated pinion of the Forbes patent. In the Wells patent there is instead a small worm gear placed transversely across the end of the casing, and this actuates a ring having a corresponding gear revolving within the casing. In the modification which he uses there is, instead, a short pinion placed parallel to the axis of the die carrier, revolving into the teeth on the ring last mentioned. This ring carries teeth on only a portion of its length, the other portion fitting smoothly to the inside of the casing. The ring is stationary as respects longitudinal motion, but revolves freely within the casing, and is much shorter than the member called the "die-carrying ring" in the Forbes patent. On the inside of the ring, and running lengthwise of it, are short tongues or splines, which fit into grooves running lengthwise of the surface of the die carrier. The die carrier has a hollow shaft leading upon a sleeve by screw threads on each, in much the same manner as in the modified form of the Forbes patent, as above described. Thus, when rotary motion is communicated to the die carrier by the splines on the inside of the ring, its shaft is screwed upon the sleeve, and the die carrier slides lengthwise on the splines of the ring, engages the object to be threaded, and performs the operation. There is a vise to hold the pipe, as in the other machines.

The Forbes ratchet wrench, patent No. 277,256: This purports to be an invention for the improvement of ratchet wrenches, the object being, as stated by the patentee, to construct a cheap and compact reversible wrench, which can be readily changed from a right to a left handed wrench. It consists of a combination in a casing of a ratchet wheel having an opening in its center to receive and engage the head of the thing to be turned, and a reversible pawl beveled on the rear edge, of such width, relatively to the distance between the teeth of the wheel, as that it is guided thereby and prevented from accidental reversal, and held down into the teeth of the wheel by a spiral spring surrounding its stem, together with a cap through which the stem projects and offers a thumb piece, by which the pawl can be drawn up against the spring out of engagement with the wheel, and reversed. The casing has sockets at each end for the reception of the handles by which the wrench is turned. The result is a wrench which can be turned continuously either way without removing it from the thing which is turned thereby. The court below sustained both of the Forbes patents, and entered a decree for the complainants.

William Webster and Thomas & Hiett, for appellant.

Morris W. Seymour, Howard H. Knapp, and Almon Hall, for appellees.

Before LURTON, Circuit Judge, and BARR and SEVERENS, District Judges.

SEVERENS, District Judge, having stated the case as above, delivered the opinion of the court.

The advantage claimed for the Forbes patent is that the cylindrical casing performs the function in the combination of furnishing a bearing for the die-carrying ring, and thereby more rigidly holding the die ring to a right line in its forward movement upon the material on which it operates. It is claimed that this was a weak point in former machines. It is material to observe that the invention claimed is not of the specific device in providing the casing as a bearing for the ring, but is of the combination of certain described elements, of which that is one. This amounts to a disclaimer of anything new in that element, so far as this patent is concerned, whatever might be its value as the ground of an independent application. That feature must therefore be treated as old. The Corn-Planter Patent, 23 Wall. 181, 224; Miller v. Brass Co., 104 U. S. 350; Rowell v. Lindsay, 113 U. S. 97, 5 Sup. Ct. 507.

But, indeed, it is well known that it was a familiar device in machines. It existed in the cylinder of the steam engine, in the cylindrical guide for the crosshead, in the pump, and in the tubular guides for drills moving directly or spirally through them. There had previously existed devices for accomplishing the same results as those contemplated by Forbes, by similar methods. In the Heap machine was a clamp or vise to hold the object to be threaded, a die-carrying ring having a shaft integral with it, the latter carrying a screw thread which co-operated with a corresponding thread in the casing attached to the frame, to actuate the die in its forward movement when cutting the thread, and an elongated pinion working into cogs on the periphery of the die-carrying ring during every part of the travel of the ring in performing the work of threading. The casing in which the shaft of the ring turned was sufficient, to some extent at least, to hold the die-carrying ring in alignment with the object to be threaded, and resist any lateral thrust or twist of the parts from their alignment during the operation. The Heap machine included all the elements of the Forbes combination, unless it be that the casing in the latter performed a new function.

Much is said in the testimony and in the briefs of the casing as circumferentially journaling the die ring, and thus contributing an additional function to the combination. But it is difficult to find any indication in the claim, as explained by the specifications, of the discovery of anything new or peculiar in that direction, or that the patentee intended the casing to perform any such function. And while it is true that the patentee is not required to point out and describe in express language what he has invented that is

new, or the principle of his invention, and that it is sufficient if they can be gathered by implication from what is set forth, yet the implication ought to be clear, so that it may not be left in obscurity and doubt whether the patentee has in reality invented and produced something new. If nothing appears, either by express declaration or reasonably clear implication, to show that the patentee has made some new and valuable discovery, has thrown a light into a place which before was dark, and illuminated what was inert, there is nothing in the patent law to give him any standing. 1 Rob. Pat. § 79.

In his specifications Forbes says nothing of journaling his die-carrying ring by the casing, which seems singular if he had such an idea in his mind, for confessedly it was the only new thing in his invention, as he now claims it. Such a circumstance was noticed and commented on in Setter Co. v. Keith, 139 U. S. 530, 539, 11 Sup. Ct. 621, where counsel for the plaintiff endeavored by argument to prove that their combination performed a function not set forth in the patent. In Fastener Co. v. Kraetzer, 150 U. S. 111, 14 Sup. Ct. 48, the suit was for the infringement of a patent for the socket member of a ball and socket glove fastener. The patent was for a combination, the elements of which were described. The plaintiff's counsel contended that there was a peculiar advantage in the means specified by him not mentioned in the patent. As to this it was said (page 116, 150 U. S., and page 48, 14 Sup. Ct.): "If this feature be an advantage, as now claimed, it is strange that no allusion is made to it in the specifications." Then, after pointing out that the patentee had stated what his purpose was and the advantage in making the structure in that form, the opinion of the court goes on to say: "This would indicate that the advantage now claimed of a tighter compression of the leather was not originally within the contemplation of the patentee, but is an afterthought;" and that feature was laid out of the further consideration of the case. In speaking of the advantages claimed for his improved die stock, he says it "is well adapted to the threading of large pipes such as are used for oil wells, owing to the facility with which the die-carrying ring can be rotated by turning the elongated pinion." And again he says: "Another advantage is the operation of my improved die stock without griping the pipe in a vise or other retaining device, for the threading of the pipe may be accomplished while it is simply resting on any support which may be at hand." If the idea of furnishing a circumferential journal to the die-carrying ring was not present to his mind, but is an afterthought perceived from subsequent experience or scientific inspection and analysis, it is obvious that there was no invention in thus by accident, as it were, supplying the means of a function not contemplated. The most significant indication that the idea now attributed to the patentee was present in his mind is the fact that in his specifications he describes the die-carrying ring as having a thread upon its periphery co-operating with a screw thread on the inside of the casing,

and the drawings also show the necessary contact between the two members for that purpose. But in another part of his specifications, suggesting a modification thereof, he entirely dispenses with this feature of his combination, and transfers it to the inside of the ring and the outside of the sleeve projected from the casing; thus showing that the bringing of the ring and casing in contact was useful in one only of the forms suggested, and therefore not an essential feature. Trimmer Co. v. Stevens, 137 U. S. 423, 435, 11 Sup. Ct. 150.

And, inasmuch as in both forms there must be close contact between the sleeve and the part of the ring operating as a shaft in order to answer the specifications, it seems quite as probable, to say the least, that the patentee intended the journaling to be there as that he intended it to be upon the casing. It may be that he had it in mind that the adoption of a cylindrical form would give the frame more strength, as compared with its weight, in order to meet what he says was the object and an advantage of his invention, namely, a machine for threading large pipes, and capable of being used where any support was at hand, apparently contemplating a use out of the shop and where it would be carried about. However, this is conjecture merely, and is not what is claimed for it. But, assuming this function to have been contemplated, it seems difficult to hold that, in view of the prior inventions and constructions in this art, there was any such invention in the provision of this casing as a bearing for the die-carrying ring and its shaft (for that is what the prolongation of the ring really is) as to be worthy to be put upon the plane of new and valuable discoveries, recognized by the patent law. It is sufficient to compare it with the Heap patent, already mentioned, to show in what Forbes' improvement consisted. A machine constructed upon that patent possessed every element of the Forbes patent, unless it be the casing journaling the die-carrying ring.

It is not shown that any difficulty existed in the die-carrying ring and shaft in the Heap machine, owing to the inefficiency of the provision therein for counteracting or resisting the effect of lateral rack or torsion incidental to its work, and from an inspection of the model shown us we see nothing, having regard to the nature of the work it is designed for, which indicates with probability that such inefficiency did in fact exist. But, if any defect of that kind existed, it would seem that any skilled mechanic trained in the art of such mechanism ought promptly to have seen the manifest ways for providing a remedy; that is, by making the shaft longer, by making it larger, or providing a rest or bearing for the other end of the shaft or of the integral member of which it formed a part, and, if a bearing, that it should be circumferential, in order to meet the indicated requirements. It is elementary in the law upon this subject that this is not invention. He simply enlarged the shaft, which, of course, enlarged the "casing" or "bearing," by whatever name called, and lengthened the casing so as to take in the whole, instead of a part, of the shaft member. That which in the patent is called a "die-carrying ring" is that, and more

At one end is the ring, which occupies a part only of its length. The other part is essentially a shaft, and performs the same office as the shaft in the earlier patents. This was merely an enlargement and extension of the means already provided for accomplishing the same functions. It matters not that the means might have been so feeble or inadequate as to only imperfectly perform their duty; the mere extension of those means in size or number, or change of form, would not, in the absence of special circumstances, make the improvement produced thereby patentable. "It is a mere difference in degree; a carrying forward of an old idea; a result perhaps more perfect than had heretofore been attained, but not rising to the dignity of invention,"—to use the language of Mr. Justice Brown, in Wright v. Yuengling, 155 U. S. 47, 15 Sup. Ct. 1.

To apply another test: Suppose the Heap patent had succeeded that of Forbes, and the question were whether a machine constructed under it infringed the latter. The other elements being present, the controversy would turn upon the inquiry whether the stripping away of the cylindrical bearing from the head of the die-ring member of the combination, while retaining it upon the shaft which is part of that member, relieved it from the charge of infringement. We do not doubt that the plaintiff in such a controversy would urge that such a difference was an evasion; that what the defendant had done was merely to weaken and cut down the bearing of the die-carrying member, leaving it efficient enough for light work, but still operating in the combination to perform the same function as the cylindrical bearing in the Forbes patent extended along the whole of that member; and it would seem to us that such a contention would rest on stronger reasons than those which are here urged to support the identity of the other members of the combination, upon the question of infringement, hereafter to be considered. If the charge of infringement could be sustained in the case we have supposed, it shows that the Heap machine was an anticipation of the Forbes patent. Peters v. Manufacturing Co., 129 U. S. 530, 9 Sup. Ct. 389; Knapp v. Morss, 150 U. S. 221, 14 Sup. Ct. 81; Miller v. Manufacturing Co., 151 U. S. 186, 14 Sup. Ct. 310. For these reasons it seems to us doubtful whether the Forbes die-stock patent can be sustained.

But, if the patent is sustainable, we should think the Wells machine is not an infringement of it. It is obvious that the former would stand on narrow grounds, and involve the specific devices which make up the elements of the combination. It is contended that Forbes' was a primary invention. But it follows from what we have said that we are of opinion that there is no ground for any such contention. The professed object of the patentee was to make an improvement on existing machines employed for the same purpose, and the only advance upon existing machines was, at most, adding an element of doubtful originality. In view of prior inventions in this kind of mechanism, Forbes cannot be deemed "a pioneer in the art," and therefore cannot invoke the doctrine of equivalents, as the courts apply that doctrine to primary inventions, so as to include all forms of devices which operate to perform the same

functions or accomplish the same result. Miller v. Manufacturing Co., 151 U. S. 186, 207, 14 Sup. Ct. 310.

The small pinion of the Forbes patent, elongated to mesh with the teeth on the periphery of the die-carrying ring throughout its travel, is not found in the Wells machine, and it is clear that neither the worm gear nor the small pinion which has been added to the Wells machine to actuate the stationary ring (having reference to the longitudinal movement of the latter) can be regarded as its equivalent, within the rule applicable to patents not representing primary inventions. Having described the elongated pinion, and claimed it according to the description as an element in his combination, neither he nor his assignee can now claim that the description is immaterial, and that any kind of pinion is embraced in his claim (Wright v. Yuengling, 155 U. S. 47, 15 Sup. Ct. 1); although, as was said in respect to a similar contention in that case, it might be different if the patent had been a primary one. This the appellees substantially admit. But they claim that the small pinion and the grooves in the periphery of the die ring, which provide for movement on the line of its axis in the Wells machine, make up an equivalent for the elongated pinion in the Forbes patent. The facts compel the appellees to take that position. It is obvious, however, that it cannot be maintained. The respective elements do not operate in the two machines in the same way. To admit the equivalency of the single device in the one element in one machine with the compound device found partly in one element and partly in another of the other machine would be to extend the doctrine beyond its recognized limits in this class of inventions. But there is also a marked difference in the construction and operation of the die-carrying rings. In the Wells machine the ring which is actuated in its rotary movement by the teeth of the pinion remains fixed at one station, and does not advance during the operation. The die-carrying ring is located within it, and slides on the tongues of the outer ring, forward to the work. The tooth gear, as before remarked, does not advance with it. It is true that the die-carrying ring is actuated by the outer one, but so is every part of the machine by the initial force. The most that can be said is that the die carrier and its attachments in the Wells machine are similar in some respects, but not in all, to that in the Forbes patent. But it is not the ring described in the latter, and operates in a different way.

In the case of Wright v. Yuengling, above cited, the patent on which the bill was founded was for an improvement in frames for steam engines, and one of the claims was for the combination of a steam cylinder head, a guiding cylinder for the crosshead, and a semicircular connecting piece between the first two elements. The connecting piece was open at the top like a trough, and afforded access to the stuffing box of the cylinder. The defendant's device contained the first two elements, but his connecting piece consisted of a prolongation of the guiding cylinder, oval openings being provided in the sides of the prolongated part. It was contended that this prolongation of the guiding cylinder was an equivalent of the connecting piece of the first patent. But it was held that while the

defendant's construction afforded a facility of access to the working parts, not, however, equal with that of the complainant's, yet that the latter, having made his connecting piece as described by him an essential element of his combination, was not at liberty to say that a device which dispensed with it was an infringement, even if it accomplished the same purpose in an equally effective manner. And this was so held, notwithstanding that in place of the dispensed connecting piece there was substituted the prolongation of the guiding cylinder. In the case of Fastener Co. v. Kraetzer, 150 U. S. 111, 14 Sup. Ct. 48, above cited, one of the combination claims included as an element a socket having an elastic mouth which received the knob of the other part of the fastening, and held it. The defendant's structure, which it was claimed infringed it, consisted of a socket which performed the same function of receiving and holding the knob; but, instead of having its mouth elastic, had a split ring located in a circular cavity just within the lips of the socket, which ring, being elastic, received and held the knob, but was itself supported and held in place by the circular cavity built in the mouth of the socket. But it was held that this was a different construction from that of the one first mentioned, operating in a different manner, and so was not an infringement. On such a question, and in similar circumstances, it was said by Judge Acheson in Johnson Co. v. Steel Works, 50 Fed. 90, 95: "The scope of the claim must, on well-settled principles, be limited to the specific forms of construction shown and described by the patentee." And since all the elements are treated as old, it matters not in which one of them the variation exists, if the difference is not merely colorable, which, as we have shown, is not the case here. Indeed, we think there is quite as much difference between the defendant's machine, in either form, and that of Forbes, as there is between the latter and previous constructions, and quite as much of an approach towards what might be called invention.

This is not the case of an integral thing made in parts, and then combined so as to constitute but one integer, operating in the same way as if constructed as a unit. In this connection it is necessary to observe the wide distinction which prevails between inventions of specific devices and inventions of combinations. In the former a much wider range of equivalents is recognized. In the latter the range is limited, and an element is not an equivalent unless it is substantially the same thing as the patentee has described, operating in the same way. 1 Rob. Pat. § 254, and cases there cited. We do not say what the result might be if the patentee makes his description of the elements of his combination broad enough to include in each or any of them any kind of mechanism adapted to produce the same result as a step in the operation. In Caster Co. v. Spiegel, 133 U. S. 360, 368, 10 Sup. Ct. 409, it was said by Mr. Justice Blatchford of the Martin combination patent for furniture casters:

"In view of the state of the art, as shown by the various patents put in evidence, the words, 'the rocker-formed collar bearing, or its mechanical equivalent,' in the claims of the Martin patent, cannot embrace all modes of af-

fording vertical support between the floor-wheel housing and the furniture plate, whereby lateral oscillation of such housing is permitted; and those words must be restricted to such a bearing, resting on a collar beneath the floor-wheel housing, as is shown in the Martin patent."

But such a question is not before us, and we take the claim as we find it.

The ratchet-wrench patent, No. 277,256: The answer denies that Forbes was the original inventor of his alleged improvements in ratchet wrenches, and sets out that they were anticipated by the Gates patent, No. 198,291, of five years' earlier date. In the course of introducing testimony, the defendant introduced a patent to one Gallagher, No. 137,432, dated April 1, 1873, against the complainants' objection that it was not pleaded by the answer; but, as the Gates patent included substantially the features of the Gallagher patent which are relevant here, it is not material to consider the latter. The state of the art was such at the date of Forbes' invention that, as shown by his expert, Mr. Smith, his claim must be narrowed so as to cover only the feature of a pawl constructed of such width relatively to the distance between the cogs of the ratchet wheel that it cannot be turned without being first withdrawn from engagement with the wheel. In the Gates patent there was a reversible pawl beveled on the rear of its edge used for the same purpose, which, like the pawl in the Forbes patent, trailed back over the teeth when the lever was reversed to take a new hold, but the expert says it was free to turn without disengagement from the wheel. And he testifies that "the advantage of the Forbes construction is that there can be no accidental reversal of the pawl, and this is not true of Gates'." And the sum of the matter is that, if the supposed improvement was required in consequence of the defect suggested, it consists of widening the pawl so that its heel will rest upon the tooth behind it, and, as the tooth is straight across the periphery of the wheel, the pawl would be prevented from turning. This was a mere change in the form of a part of the combination adopted for the purpose of correcting its occasionally defective action,—a modification so obvious to a person skilled in that subject as not to have required anything more than the ingenuity which such a person might be expected to possess. We think it would be a misnomer to call this "invention," and that the patent therefor cannot be sustained. For the reasons stated, we are of opinion that the decree of the court below should be reversed, and the case remanded, with directions to dismiss the bill.

DOZE v. SMITH.

(Circuit Court, S. D. Iowa, C. D. December 12, 1893.)

1. PATENTS—NOVELTY—WATERING TROUGHS.

The Campbell patent (No. 221,031) for an improved watering trough for stock, consisting, in claim 4, in the combination of a trough and drinking cap with a valve-feed mechanism, an open-bottom chamber, and a horizontal partition between the drinking cap and chamber, whereby air is prevented from entering the bottom of the latter, is valid, as showing patentable novelty.