

the patent as a whole forbids acceptance of this understanding. The cross slats, y, and the other parts referred to, are distinctively mentioned, and their respective objects are plainly differentiated. The defense as to claim 2 of patent No. 11,252 has been enforced by the same course of reasoning as that applied to the first claim of each patent; and it is insisted that it maintains the proposition that "cross slat, y, means y with u," and that, therefore, the defendants "do not infringe claims 1 and 2 of No. 11,252, or claim 1 of No. 428,908." I am, as I have said, unable to acquiesce in the reasoning referred to, and consequently cannot adopt the deduction supposed to be derived from it.

2. The defendants have adduced several patents in support of the defense of lack of novelty, and their learned counsel has in argument especially referred to the Robertson, the Jesse, the Hahn, and the Gilbert patents, but by none of these is there disclosed the invention of the presumptively valid patents in suit. Haggemacher unquestionably produced a device by which a marked advance in the art was attained, and the testimony of the experts and practical millers is in substantial accord as to its novelty. As was said by an expert witness for the defendants, neither of the exhibits prior to the Haggemacher patents embraces every feature of construction along with the special motion of the latter.

3. The attack made upon the validity of the reissue cannot prevail. It is, in my opinion, fully met and overcome by the argument submitted in the brief for complainant, from which I quote:

"While one of the two patents sued upon is a reissue, it is open to none of the attacks generally made upon reissued patents. Defendants' machine is equally within the claims of the original. All the claims of the patent, except the eleventh, are literally reproduced from the original. The eleventh is predicated on the same invention as the original patent; stating that invention in terms intended to express more clearly that which would, under the ordinary doctrine of equivalents, be the legal effect of the original."

That such a reissue is within the scope of the statute is, I think, clearly demonstrated by the authorities cited on behalf of the complainant, with which those cited for the defendants do not, upon examination, appear to conflict. *Reed v. Chase*, 25 Fed. 94; *Odell v. Stout*, 22 Fed. 159; *Powder Co. v. Powder Works*, 98 U. S. 126; *Eames v. Andrews*, 122 U. S. 40, 7 Sup. Ct. 1073; *Topliff v. Topliff*, 145 U. S. 156, 12 Sup. Ct. 825; *Walker v. City of Terre Haute*, 44 Fed. 70; *Marsh v. Seymour*, 97 U. S. 348. Decree for complainant.

UNITED STATES GLASS CO. v. ATLAS GLASS CO. et al

(Circuit Court, W. D. Pennsylvania. April 13, 1898.)

1. PATENTS—CHARACTER OF INVENTION—PRIOR ART.

The question of the commercial success or failure of a prior patent is not controlling on the question of its relevancy, as illustrating the generic type of the patented machine in issue and the general process and path of development which the inventor claimed to follow.

2. SAME—EFFECT OF DISCLAIMER—CONSTRUCTION OF CLAIMS.

When an application is rejected as anticipated, and the applicant then files a narrower claim accompanied by a disclaimer, he is bound thereby,

even though, in the light of subsequent developments, it may appear that possibly a more restricted disclaimer could have been framed, and that the additional elements inserted in the claims were more specific than need be.

3. **SAME—CONSTRUCTION OF CLAIMS—DEVELOPMENT OF ART.**

A subsequent advance in the art may show that a claim had a more extended scope than was originally supposed; but, when it covers such advance, it is not because the claim has advanced or enlarged with the advance of the art, but because of its original generic character.

4. **SAME.**

When a claim, read in its common, ordinary meaning, is explicit and clear, there is no room for construction. Construction cannot be resorted to to create a doubt, and then a liberal interpretation be given to the doubt, in order to present to the patentee something he failed to claim.

5. **SAME—INFRINGEMENT.**

Changes of operation are not to be measured by mere words or terms, but by function and operative effect.

6. **SAME—MANUFACTURE OF GLASSWARE.**

The Arbogast patent, No. 260,819, for an improvement in the manufacture of glassware, construed, and *held* not infringed.

Geo. H. Christy and Marshall A. Christy, for complainant.
Wm. L. Pierce and Jas. I. Kay, for defendants.

BUFFINGTON, District Judge. The United States Glass Company, the owner of letters patent No. 260,819, granted July 11, 1882, to Philip Arbogast, files this bill against the respondents, the Atlas Glass Company and others. The patent is for an improvement in the manufacture of glassware, and infringement of its single claim is alleged. As complainant claims the patent is a pioneer one, and the claim should be given a broad and liberal construction, a reference to that part of the glass workers' art bearing on the question at issue will aid in fixing the patent's relative position in such art, and in determining the proper construction of the claim. Long prior to the patent in suit it was known that a finished hollow article of glassware could be formed by pressing, where the diameter of the vessel's mouth was equal to or greater than the interior diameter of every part of the body. This was done by a single operation. A large lump of molten glass of proper size was dropped into a mold, and a plunger thrust in, which caused the soft glass to distribute itself throughout the entire space between the plunger and mold, which cavity formed the contour of the article to be formed. It will thus be noted that the plunger and press mold were recognized and adopted as means for obtaining, in the shapes mentioned, a body of any desired form, one of uniform thickness, and with a finished top, as distinguished from the unfinished top left by off-hand blowing. The single process of pressing could not, however, produce a finished article where the body bulged. Such bulge could only be secured by blowing. It was also a recognized practice to produce, by skilled preparatory blowing and manipulation, a blank, which was a hollow bulb of a size approximating the desired form, and with an even distribution of the glass. This blank was then inserted in a blow mold, and expanded to the pattern of the mold by mere mechanical, as contrasted with skilled, blowing. It will thus be seen that while the final blowing was recognized as a mere mechanical process when a proper blank was initially prepared,

and while pressing was recognized as a means of obtaining, by mere mechanical force, a hollow glass body of such proportion and uniform thickness as were desired, no one seems to have seen the possibility of devising means for conjoining the two mechanical processes, and, by pressing, obtain the desired form of blank, and, by mold-blowing, expand it. The possibility of securing by pressing a preparatory condition suitable for blowing, to at least a limited extent, was soon recognized as feasible, and this is shown by the patent of Gillinder, No. 51,386, issued December 5, 1865. It is contended on one side that this patent shows, in theory and substance, a complete anticipation of the process of the patent in suit, while by the other side it is brushed aside as disclosing merely a particular form of blowpipe, and as having no bearing whatever on the Arbogast patent. We cannot agree with either of these diverse contentions. While the device claimed is a mere blowpipe, yet the manner of its use and the function performed by it in the process in which it was employed are highly significant to the discriminating student of the art. It pre-empted and appropriates in advance of Arbogast a part of that field which, to award him pioneership, he must have been the first to occupy. Such significance lies in the fact that the tools were used in, and made practical, a process in which, by mere mechanical pressing, a hollow glass blank was produced, the upper part of which was in final finished form, and the lower part prepared for the subsequent modifying action of the blowpipe. It is true the claims of the patent only covered the tool, and that the avowed purpose of the applicant was to provide such means for manipulation subsequent to pressing that a handle could be mechanically pressed on the vessel at the first stage, instead of being attached after the blowing and shaping process, as was the prior practice. But it goes without saying the claims made do not measure or limit the disclosure or teachings of the patent, and that the two significant features alluded to were embodied in the process in which the patented tool was used is proven by the patent itself, and by proof of extensive use of that process for many years prior to Arbogast's application. That the upper part of the vessel was in finished form is shown by the fact that the solid plunger was replaced by one of the same diameter, so that the initial upper form necessarily remained unchanged during the secondary process, and that the lower part was blown, or at least was affected or modified by blowing, is shown—First, by the fact that, the second plunger being shorter than the first, a cavity suitable for blowing was provided; second, by the fact a blowpipe was used; and, lastly, by the statements of the specifications following, to wit:

"It [the hollow plunger] is perforated or bored longitudinally through its center, and in this hole one end of the blowpipe, B, is fixed so that the mouth or open end of such vessel from the mold will fit over the plunger, A, in such manner that the operator can safely expose it to the heat of the furnace, and expand it by blowing into it through the said pipe, A. * * * The vessel being thus securely held by the snap, as set forth, the operator proceeds to expand and finish it by heating and blowing in the well-known manner. * * * It will thus be seen that by means of this blowpipe molded vessels can be more expeditiously, uniformly, and perfectly expanded and finished, with the handles on as parts of the same, than by the old modes."

In considering this patent, we have not overlooked complainant's contention that the Gillinder pressing was, so far as the wall thickness of the lower portion of the blank was concerned, a finality; that such thickness was not diminished by the secondary process; and that this latter process was a mere reshaping one,—a shortening up of the vessel, and a formation of the bulge, not by blowing, but by pressure and manipulation. But this theory is negated by testimony of equal, and, we think, of greater, weight, that expansion by blowing does take place during this process, by the contemporaneous statements of the specification noted, that expansion by blowing occurs, and by the evident fact that the offhand blowing by which complainant says the finishing was done was necessarily of a somewhat nonuniform character, and there must perforce have been more or less variation and expansion necessarily resulting from the use of a nonuniform force. Indeed, on the statement of complainant's principal witness, Mr. Ripley, it was common practice "to put an air pressure into articles during their manufacture for the purpose of resisting the pressure of the bulb on the outside, and expanding any portion that had been flattened during the manipulation of the article." But, on complainant's own construction, we have during the process a blank, finished at the top and of uniform thickness in the body. This is formed around a cavity, and is provided with a blowpipe. Now, if such a blowpipe was thus used within the cavity simply to counteract and co-operate with pressure from without to modify the vessel's contour, it is clear that the change from such negative resisting force exerted through the pipe to a positive expansive force by harder blowing, and to less or no pressure from without, would not seem so wide, so radical, and so inventive in its character as to stamp it of pioneer character. And while we have no positive evidence that blow molding (then well recognized, as we have seen, as a finishing process) was used with the Gillinder tool, yet the use of it in that connection would not seem to have been so radical a departure as to be styled a pioneer step.

The fact, disclosed by the file wrapper of the Arbogast application, that no reference was made to this patent by the examiner, can hardly be said to evidence the judgment of that office that it was not deemed pertinent to Arbogast's invention. The mere fact that it was for a tool only may possibly have assigned it to a different class, and it thus have escaped the examiner's attention. But, be this as it may, we regard this patent as disclosing facts pertinent and material to the just place of Arbogast's patent on the question of pioneership.

In the Atterbury patent of 1873 we first find a device for producing machine-made glass articles. It shows both a carrying forward of Gillinder's process and also a new and radical departure from his methods and from the natural carrying forward of his process. Gillinder secured pressing by mechanical means. Atterbury not only proposed to do that, but to extend the mechanical means to blowing as well. In this respect it was an advance in the same general direction. In another, however, it was a radical departure. In Gillinder the article was pressed, the mold was then opened, the article taken from it, the function of the press mold was ended, and, to what-

ever process the article was thereafter subjected, it was extra or separate from such press mold. It is manifest that the removal of the article from the press mold involved two dangers, contact with the atmosphere and breakage. Atterbury proposed to avoid removal, to provide such a press mold that he could confine the glass in it during the entire operation, and to use such mold in connection with other parts to form a blow mold. In Atterbury's combination mold and process, we thus have a step in a wholly different direction from the natural evolution and development of the Gillinder process. We emphasize these facts, because to us they are of importance in rightly determining the scope and effect of Arbogast's disclaimer. Briefly stated, the patent shows a shifting single mold. The press mold consists of the ordinary matrix sides, but with the ring mold integral with it, and the bottom adapted to drop into a press-mold cavity, and form the blow-mold bottom. A plunger, with a central blowpipe, was forced into the press mold, the movable bottom was then dropped to the foot of the blow mold, and the blank blown to shape. The process is thus described by the patentees:

"In our new process we only use one piece of glass—one glass wall—in the article, and we blow the same glass that we press, thus making glassware consisting of blown and pressed glass, either the blown or pressed part being a continuation simply of the other. We put the hot glass in the mold, and press, say the mouth, neck, and handle of a molasses pitcher, and by simply lowering the bottom plate we can and do blow the balance of the pitcher. We press the pressed part of the article quite heavy or thick in the bottom so as to have plenty of glass to expand with the pressure of the air to make the balance of the article. We believe this to be an entirely new process of working glass, and also a new manufacture of glassware."

Upon this application claims were granted for the process of pressing and blowing glassware in the same mold and for a new manufacture of glassware consisting of blown and pressed glass. Now, while bulging glass articles can be made in Atterbury's device by care and skill in its manipulation, yet it seems clear they cannot be commercially made, and consequently the machine was not a success. Yet the question of success or failure is not a controlling one upon the question of the relevancy of this patent to the present issue. It is not cited here as an anticipation of Arbogast, for while its disclosures were sufficient to defeat the broad generic claims which Arbogast originally made, and it was so held by the office, and such decision was acquiesced in by Arbogast restricting his claims accordingly, yet it was not, in our judgment, an anticipation of Arbogast's restricted claim. Its relevancy consists in illustrating the generic type of machine, and the general process and path of development which Arbogast disclaimed to follow.

If Atterbury's process was on wholly different lines from Gillinder's; if Arbogast's was a carrying forward of Gillinder's, an advance on the same general lines; if the respondents followed Atterbury, and remedied the defects in his device,—then it would seem that Arbogast's explicit disclaimer of Atterbury, his method and device, should inure to protect respondents from the charge of infringement.

Let us next consider what Arbogast disclosed and claimed. To the extent of his disclosure he was entitled to claim, but his right to protection is limited to what he did, not to what he might have claimed. In the state of the art outlined Arbogast applied for his patent in 1881. His summary of the prior art was as follows:

"In the manufacture of this class of articles, the body is first blown in a mold after having been roughly shaped in the 'marver.' Then the article is clamped on a tool, and softened at the mouth, after which it is given the desired finish with either a hand tool or press, in which operation some forms require the addition of a ring of extra glass to be stuck on. All these operations are laborious and costly, and require skilled labor."

From which it will be seen he made no mention of the preparatory press process of the Gillinder practice or of the combined press and mold process of Atterbury. Upon this application he made three claims, one of which we cite as illustrative of their breadth, viz.:

"(1) The herein-described improvement in the manufacture of glassware, consisting in pressing the mouth or neck to finished form with a dependent mass of glass, and then blowing said mass to form the body, substantially as described."

The application was rejected as fully anticipated by Atterbury, whereupon the claims made were withdrawn, and the disclaimer, statement, and claim following added and substituted, viz.:

"It is essential to the successful practice of the above invention that the plunger should be very quickly removed from the press mold, as otherwise either the plunger will get heated and adhere to the glass, or, if cool, will chill the glass, and preclude the possibility of subsequent blowing. It is equally essential that two separate and distinct molds be used, one for the pressing and one for the blowing, because the moment the gather is pressed, not only the plunger must be removed, but the gather must also be removed from its mold, as, if it be allowed to remain there, its outer surface becomes chilled from contact with the mold, and cannot be expanded or shaped further by blowing; so that unless the gather is thus removed from contact with both plunger and press mold, and placed in a separate mold for blowing, it is impossible to produce the finished ware. I am aware that it has been proposed to press the article in a mold which finishes one part of the same, and then, while the article is still in the mold, to blow the remainder of the article, a part of the mold being enlarged for such blowing, and the air passing through the plunger into the body of the article. I do not claim such process; but what I claim as my invention is the described improvement in the manufacture of glassware, consisting in pressing the mouth or neck to the finished form with a dependent mass of glass, then withdrawing the plunger, then removing the article from the press mold, and finally inserting it in a separate mold, and blowing to form the body, substantially as described."

As we read these proceedings, Arbogast at first made broad claims, sufficiently comprehensive to have made Atterbury an infringer, the only elements in the principal one being "pressing the mouth or neck to finished form with a dependent mass of glass," and "blowing said mass to form the body." To secure his patent he added these limitations, viz. "withdrawing the plunger," "removing the article from the press mold," and "inserting it in a separate mold." Now, when we consider the fact that the patent office regarded Atterbury as showing a single mold; had allowed him a claim for it as such, viz. "the process of pressing and blowing glassware in the same mold"; that Arbogast stated that it was essential to his invention "that two sep-

arate and distinct molds be used, one for pressing and one for blowing," and "my invention is different, and requires the use of two molds,—a press mold and a blow mold,"—can there be any doubt that his purpose was to withdraw and exclude himself from the broad field he had at first sought to pre-empt, differentiate his invention from the one-mold type of Atterbury, and by these superadded limitations to confine his claim to a process involving the use of these two separate, individual, and well-known appliances in the art, viz. a press mold and a blow mold? He knew Atterbury's suggested mold form was of a shifting type; that it was claimed to be adapted, according to the changed relations of its parts, to be used first as a press mold, and then as a blow mold; and that a broad claim, viz. for "the process of pressing and blowing glassware in the same mold," with no limitations as to details, had been granted. By his own statement, he deemed this system impracticable. He suggested no change or modification of it. Far from that, he differentiated his process from Atterbury by condemning the one-mold system; said the use of two separate molds was essential to his process; and, what is most material and controlling, he embodied these limitations in his claim. The claim was made, granted, and unchangeably fixed by the then conditions and facts, not by subsequent ones. In the light of what then existed, is there any doubt of the purpose of the patentee, of the extent of his disclosure, of the benefit he conferred on the public? Is there any doubt of the clear and unmistakable scope of his claim, of the significance and narrowing effect of the elements with which he ladened it? If, in the light of later developments, it should now appear that possibly a more restricted disclaimer could have been framed,—that the superadded elements of the claim were more specific than need be,—all this will not avail to change what was then done. Subsequent advance may demonstrate that a claim granted had a more extended application than was originally supposed, but it is powerless to change it. When the claim covers the advance, it does so, not because its boundaries have been advanced by the advance of the art, but because as made—as originally made—it was generic enough to cover such advance. Whether wisely or unwisely made, the limitations and disclaimer are there. They are facts. They can not be frittered away, their presence ignored, or their significance minimized. If it be conceded that the later-discovered device of a practical, shifting, telescopic, single mold, combining interchangeably the functions of both a press and blow mold, made possible a much wider application than Arbogast then conceived of the generic process on which his specific device was based, still his restriction of his invention to a limited sphere, and to specific, well-known mechanical appliances, and his embodiment of these limiting, narrowing, specific elements in his claim, did then and of right ought now to correspondingly limit and abridge the ground covered by such claim. As we have seen, Arbogast was no pioneer. True, he sought to place himself on that ground. His claims were broad and generic, but he was forced to abandon them. His claims, as made, would have unquestionably covered Atterbury's process and respondent's also. After the rejection of those claims,

and the grant of a narrower one, should his assignee be now permitted to turn, strain, and recast the granted claim, so as to cover as much as the former one would have?

A careful study of the art satisfies us that Arbogast was an improver on specific lines, not a pioneer; and a study of the file wrapper, that the process disclosed and claimed by him involved the use of the then well-known press mold and blow mold of the art, and that such molds were made separate, individual elements of his claim. Such conclusion is in line with the adjudged cases. "Where a patentee, on the rejection of his application, inserts in his specification, in consequence, limitation and restrictions for the purpose of obtaining his patent, he cannot, after he has obtained it, claim that it shall be construed as it would have been if such limitations or restrictions were not contained in it." *Roemer v. Peddie*, 132 U. S. 317, 10 Sup. Ct. 98. "It is well known," says Mr. Justice Bradley in *Burns v. Meyer*, 100 U. S. 672, "that the terms of the claim in letters patent are carefully scrutinized in the patent office. Over this part of the specification the chief contest generally arises. It defines what the office, after a full examination of the previous inventions and the state of the art, determines the applicant is entitled to. The court, therefore, should be careful not to enlarge, by construction, the claim which the patent office has admitted, and in which the patentee has acquiesced, beyond the fair interpretation of its terms." "The patentee having imposed words of limitation upon himself in his claims, especially when so required by the patent office in taking out his reissue, is bound by such limitations in subsequent suits on the reissue patents." *Crawford v. Heysinger*, 123 U. S. 606, 8 Sup. Ct. 399. See, also, *Caster Co. v. Spiegel*, 133 U. S. 368, 10 Sup. Ct. 409; *Royer v. Coupe*, 146 U. S. 524, 13 Sup. Ct. 166; *Morgan Envelope Co. v. Albany Paper Co.*, 152 U. S. 425, 14 Sup. Ct. 627.

We are urged to give this claim a liberal construction. So be it. In the true sense of the term, every claim should receive a liberal construction,—that is, the awarding to a patentee the full measure, in letter and spirit, of all he fairly disclosed and clearly claimed,—but when, under the guise of liberal construction, a claim is made to cover what it might have embraced, but was not made to embrace, such liberality is not construction, but reconstruction. Moreover, when a claim, read in its common, ordinary meaning, is explicit and clear,—when there is no apparent uncertainty,—there is no room for construction. *Rich v. Close*, 4 Fish. Pat. Cas. 279, Fed. Cas. No. 11,757. The province of construction is to solve doubt, not to create it. If the meaning is clear, construction is not to be resorted to to create doubt, and then a liberal interpretation given to the doubt, which results in presenting to a patentee not what he claimed, but what he failed to claim. A court discharges its duty and exhausts its power when it ascertains and declares what was claimed. It as clearly transcends its power when it reconstructs the claim to cover what the patentee did not, but might have, claimed had he been gifted with prescience.

Now, the press mold and blow mold were common and well-known

appliances in glass making at the date of this patent. Each had separate, individual functions. A plunger was used in the press mold and air in the blow mold. The teaching of the patent was clear and unmistakable that the use of these two forms of apparatus was indispensable, and the declaration of the patentee was that their successive use during the process was essential. This was the extent of Arbogast's disclosure and of his contribution to the art. The claim he made embodied the successive use of the two types of mold,—the use of one for an entire operation, to wit, pressing in the press mold, the removal of the article therefrom, and its insertion in the second form, the blow mold, and a different operation therein. As disclosed by the patent, and by the practice for many years under it, the process necessarily consisted of 24 acts, viz.: (1) Cutting off the gather into the press mold. (2) Sliding press mold into position, beneath the plunger. (3) Pressing the hot mass of glass. (4) Withdrawing the plunger. (5) Sliding the press mold forward from underneath the plunger. (6) Unkeying the press mold. (7) Lifting the pressed blow blank out of the press mold. (8) Carrying the pressed blow blank over to the blow mold. (9) Carefully inserting the pressed blow blank in the blow mold. (10) Sliding the blow mold under the blowing stem. (11) Pulling down the blowing stem to blow up the blank. (12) Raising the blowing stem. (13) Sliding the blow mold forward from under the blowing stem to a position where it can be opened. (14) Unkeying the ring of the blow mold. (15) Opening ring of the blow mold. (16) Lifting ring from blow mold and depositing same on press bed or press mold. (17) Unkeying the blow mold. (18) Opening the blow mold. (19) Removing finished article from blow mold. (20) Closing the blow mold. (21) Keying up the blow mold. (22) Closing ring or neck mold. (23) Keying ring or neck mold. (24) Keying up press mold ready for new operation.

We next turn to the question of infringement. This is alleged in the operation by the respondents of a machine to make Mason fruit jars. In it we find a revolving table carrying five telescopic molds, each of which produces a finished jar, wholly machine made, during each revolution of the table. These molds occupy five different positions during a table revolution which may be styled the charging, pressing, blowing, discharging, and rearranging positions. It will be noted the several operations are going on simultaneously, and several jars are subjected to different stages of the process, according to their respective locations on the table. Each mold consists of an outer open mouth and open-bottom shell, the upper part of which forms the finished neck of the jar, and the remainder the finished sides. Within this shell a smaller open-mouth and closed-bottom shell is nested, the bottom and sides of which form the press blank below the neck, and, in connection with the upper portion of the outer shell, form a press mold and neck ring. By the same motion of a lever, this inner shell is dropped below the outer one, and a moveable bottom, not before in use, is shifted over and forms the bottom for the outer shell. By this means the outer shell is adjusted to act as a blow mold of the old type, but having integral with it a

neck ring. The mold being in the charging position, properly keyed, and with the inner shell raised, the operation of making a jar consists of 10 operations, as follows: First. Charging. In this the gather is dropped in the mold and cut off. Second. Revolving table. Here the table is revolved one-fifth of its circumference, so as to carry the mold to the pressing position. This brings it under a plunger. It will be noted that this part revolution of the table has changed the position of all five molds. As we charge this revolution wholly to the single jar now being made, we will not charge the subsequent part revolutions to it, but wholly to each individual jar following it. Third. Pulling down the lever. By the action of this lever the pressing plunger is forced into this mold, and produces a press blank. It also brings down the blowing head to the preceding mold, automatically opens a valve, and mechanically blows the press blank to fill the matrix of the blow mold. Fourth. Raising the lever. This raises the plunger in the mold now under consideration, and also the blowing head from the mold preceding it. Fifth. Reforming the mold. By pulling a lever attached to the inner shell and the moveable bottom of the outer shell, the inner shell is dropped from within the outer shell, and from contact with the pressed blank, and the moveable bottom is brought into engagement with the outer shell, and forms, in connection with it, a blowing-mold cavity in which the press blank is suspended. A part revolution of the table now brings the mold to the third or pressing position, where the press blank is mechanically blown, as noted above. This done, the next part revolution brings the mold to the discharging position. In this position five operations are carried on, viz.: Sixth. The mold is unkeyed. Seventh. The mold is opened. Eighth. The finished jar is removed. Ninth. The mold is closed. Tenth. It is rekeyed. The next part revolution brings the mold to the rearranging position, and automatically rearranges the mold by a process the reverse of the fifth, namely, it removes the sliding bottom of the outer shell, and nests the inner within the outer shell, in shape for another round of operations.

There is a radical difference in operation and result between the process disclosed by Arbogast and the workings of this machine. The process of Arbogast is partly mechanical; the process in respondents' device is wholly so. Arbogast necessitates intermediate human manipulation during the process; respondents' process can dispense with it, and in point of fact does. The output of the latter is a new article of commerce in glass, viz. a machine-made one, and the output is at least threefold greater than by the Arbogast process. This remarkable difference in results, while not proving, would strongly suggest, the use of different means and methods to produce it, and that it is not a mere reversal of process, as is suggested. And such we find to prove the case on a critical comparison of the two; for, waiving for the present the fact that respondents' mold, not being known in the arts at the date of Arbogast's patent, could not be adjudged an equivalent (see *Manufacturing Co. v. Forgie*, 59 Fed. 775, 8 C. C. A. 261), we are of opinion that, both structurally and in operative principle, the respondents' device is different from

Arbogast's, and the single telescopic interchangeable mold of the one is not the equivalent of the other.

In Arbogast's we find a press mold consisting of two hinged parts, and provided with a key, which must be used every time the mold is. It is adapted for use solely as a press mold, and is susceptible of no rearrangement or adaptation to any other or different function. If the article to be treated in it is to be subjected to another process, it must necessarily be physically and manually removed therefrom. Dealing with so fragile a subject as glass, and that in a susceptible condition, no means were known at the date of the patent, and the 16 years' use of the process have evolved none, by which the glass can be removed from it by any other than manual manipulation. Nor could it even thus be manually removed from it in commercial practice save by unkeying the mold and opening it upon its hinges.

We find also a blow mold which consists of two hinged parts, and provided with a key, which must be used twice every time the mold is used. It also is adapted for use solely as a blow mold, and is susceptible of no rearrangement or adaptation for any different or other function. If the article to be treated in it is to be subjected to any other process, it must be done before it is placed in this mold. From the inherent nature of things, the blow mold must be hinged and actually open to admit bringing the article to be affected into engagement with it, and no means were known at the date of the patent, and in the protracted use of that mold none have been discovered, by which a glass blank could be placed within a blow mold without opening it. It will be noted, too, that a hinged-ring mold, provided with a key, was necessary to the successful use of the press mold; that it was removed therefrom to the blow mold, and was necessary to its successful use, also. In the successive use of these two molds conjointly we find three adverse, inimical factors, so to speak; two of them dangers peculiar to the glass makers' art, viz.: Contact with the atmosphere; contact with some irrefragible object; and loss of time and added work in the unkeying and opening of the press mold, the transfer of the glass, and the closing and keying of the blow mold.

Now, in the respondents' device we find means have been found by which two of these elements have been eliminated, and the third practically minimized. It is said these means are but a reversal of Arbogast's method; that he removed the glass from one mold, and placed it in another, while respondents leave the glass in one position, take away one mold, and replace it with another. In our judgment, there is no such reversal of method. Changes of operation are not to be measured by mere words or terms, but by function and operative effect. If the dangers, drawbacks, and waste of the removal of Arbogast have been eliminated in the respondents' removal, so-called, then, while they are the same in name, it is in name only, and not in nature. Now, what have respondents done? They show means by which transfer, manipulation, and care for the articles have been dispensed with. Practically a mass of molten glass is dropped into the slot of a sealed shell, a lever is dropped and raised,

a table is rotated, and a finished, useful article of commerce is produced. Manifestly, a large part of this is due to the successful application of mechanical power and agents, but the essence consists in the process and means by which this has been made mechanically possible. They have found means by which glass could be initially, and once for all, placed within a blow mold; by which it could be pressed while in the blow mold; means by which the press blank and the press mold could be removed from engagement with each other without opening or unkeying such mold; and the press mold withdrawn from the blow-mold cavity. Their press mold may be called such, but it is not the press mold of the old art. It is a single compact structure, while that had two hinged sections. It has no hinge to permit its opening, and needs no key to secure its closing. So their blow mold may be called such, but it is not the blow mold of the old art. Instead of being a separate, integral structure, whose functions came into play only after the press mold had finished its work, it enters into combination and conjoint operation with the press mold from the first, and performs the entire function of a ring mold as well. It initially forms a sleeve or shell to keep the press mold at a continuous uniform temperature; it serves as a close-fitting support for the mold during the pressing, and in that pressing it gives, by a part of its own structure, a finished form to the neck or mouth of the article, and in such part it retains and holds the article through the pressing and blowing process,—functions which the ordinary blow mold could not exert. If we are warranted in styling this portion of the device the blow mold of the old type, there would seem to be greater reason for styling it the ring mold, since its function more closely follows that article. In point of fact, it is neither. It is a composite structure, combining the functions of both. Nor does the difference of molds end here. In the old art the press and blow molds were adapted to separate and simultaneous use to fulfill their several functions. Here they cannot be simultaneously used, but the use of the one suspends the functional capacity of the other. The use of the mold as a press mold deprives the blow mold of bottom and hollow cavity; its use as a blow mold covers and seals up the press mold.

Measured by these tests, it is clear that respondents' mold is not the equivalent of either of Arbogast's molds considered separately, or of the two jointly. In its machine-made jar the respondents' machine produces a different article of commerce, not different because it is machine made, but because Arbogast's disclosed process, by its inherent limitations, cannot be mechanically used to produce such an article. It accomplishes that result by different means, and those means were not known at the date of Arbogast's patent.

In view of the radical differences between the two processes, in means, method, and product, it is clear to us that infringement has not been shown, and the bill must be dismissed.

WESTERN ELECTRIC CO. v. MILLHEIM ELECTRIC TEL. CO. et al.

(Circuit Court, W. D. Pennsylvania. July 18, 1898.)

1. PATENTS—NOVELTY AND PATENTABILITY—PATENT AS EVIDENCE.

The grant of a patent is prima facie proof of novelty and patentability, and, in the absence of countervailing proof, this prima facies must prevail.

2. SAME—ANTICIPATION—COMBINATIONS.

To find in the prior art each element in isolation is not to anticipate the work of a patentee who, by inventive act, first evolves a new combination of these elements, which by their conjoined functions produce a new result.

3. SAME—ANTICIPATION—PRIOR PUBLICATIONS.

A prior publication, such as will defeat a patent, must contain a description of the complete and operative art or instrument so precise and particular that any one skilled in the art to which the invention belongs can construct and operate it without experiments or the exercise of inventive skill.

4. SAME—TELEPHONE CIRCUIT AND APPARATUS.

The Carty patent, No. 449,106, for telephone circuit and apparatus, held not anticipated, valid, and infringed.

Barton & Brown, for complainant.

Stanley S. Stout, for defendants.

BUFFINGTON, District Judge. This is a bill filed by the Western Electric Company against the Millheim Electric Telephone Company et al. for alleged infringement of letters patent No. 449,106, issued March 31, 1891, to John J. Carty, for telephone circuit and apparatus, and now owned by complainant. The defenses are lack of novelty and patentability. These defenses failing, infringement is conceded. The apparatus in question was designed primarily for use on a multiple line. Prior to this patent it was customary to connect the call-bell magnets at the several stations in series in the main-line circuit together with a normally shunted call-sending generator, and at each station to provide a switch, which, when at rest, maintained the continuity of the main circuit through all the call-bell magnets, and kept the circuit of the local transmitter battery open. When, however, the switch was changed,—which was done when the receiver was taken from the hook for use,—it disconnected or short-circuited the bell magnet or generator from the line, and introduced in place thereof the telephonic transmitting and receiving instruments, and closed the local battery circuit of the former. Though this switch change at the two communicating stations removed the bell magnets at such stations from the circuit, no such action took place at the other stations. Consequently, the voice current had to traverse all the other magnet helices in the line, and was much weakened, not only by the resistance of such magnets, but also by the counter electro-motive forces or inductive resistances developed in each. These were so active and energetic as to hinder conversation; yet it was necessary that all bell magnets should be connected with the circuit, otherwise the several stations cannot signal each other. It will be noted that in this system, which is called a "series circuit," the component parts are so arranged that the current must pass through all its parts, one after another. It is so styled in contradistinction to a "multiple circuit," which is one having two or