FRANKFORT WHISKY PROCESS CO. *v.* MILL CREEK DISTILLING CO. *ET AL.*

Circuit Court, S. D. New York. February 6, 1889.

1. PATENTS FOR INVENTIONS—NOVELTY—PROCESS FOR MAKING WHISKY.

Letters patent No. 263,087, August 22, 1882, to M. J. Allen and W. E. Bradley, are for a process of making whisky, consisting in the utilization of the small particles of sugar, starch, and yeast contained in the slop, in the subsequent operations of whisky-making by straining the slop of chaff and other large particles, and cooling it quickly to prevent the accumulation of acid. The slop in a sweet condition, with the small particles in suspension, is added to the liquid in the mash tub at the end of the mashing. *Held,* that though the utilization of the slop from which the fine particles were lost, and the use of straining and cooling apparatus were old, yet, the utilization of the small particles being new, the patented process is a novel one.

2. SAME.

The patent is not for the same invention as that described in the patent of July 6, 1880, to the same patentees for the process of freeing the slop, and introducing the liquid obtained in place of water in the succeeding processes of fermentation, the latter not contemplating any straining or cooling of the slop.

3. SAME—PRIOR USE.

With reference to the defense of prior use, the original application and subsequent applications for divisional patents are to be treated as the same continuous proceeding.

4. SAME—NOVELTY—BURDEN OF PROOF.

The grant of letters patent creates a presumption of novelty, which the defendant in a suit for infringement must disprove, and where the evidence leaves the question of the production of a new result in doubt, the validity of the patent will be sustained, and the question of its value will be left for litigation on the accounting, especially where defendant has abandoned the use of the invention.

In Equity.

Bill by the Frankfort Whisky Process Company against the Mill Creek Distilling Company and others for the infringement of a patent.

E. N. Dickerson and *E. N. Dickerson, Jr.,* for complainant.

Bristow, Peet & Opdyke and *Parkinson & Parkinson,* for defendants.

WALLACE, J. This suit is founded upon letters patent No. 263,087, granted August 22, 1882, to Marshall J. Allen and William E. Bradley, upon an application filed April 29, 1882, for "process of making whisky." The complainant alleges that the defendants infringe the first, second, and fourth claims of the patent. The defendants interpose nearly all the statutory defenses. The patent in suit is one of three patents granted to the same patentees for improvements in the process of making whisky. A proper understanding of the case requires some consideration of each of these patents. The first was granted July 6, 1880, and the invention therein as stated in the specification, consists "in freeing the slop or spent beer of bran and other solid particles, and employing the remaining liquid portion in place of water in the succeeding operations with the fresh grain." The succeeding operations are "thinning down the mash, mashing the grain, and filling up the fermenting vats." The advantages of using the liquid of the slop after the solid particles have been eliminated are stated in the specification as follows:

"The starch and sugar in the slop or spent beer, which it is the object of this process to save, are nearly all retained in the liquid portion after Separation. As only this liquid portion is used in this process, there is obtained by the separation of the bran, chaff, and coarse particles of grain a greatly reduced bulk of material, thus making it possible to get into the fermenting vats with the mash the maximum quantity of the starch and sugar contained in the slop or spent beer. It would be impossible to use the slop or spent beer with the bran, chaff, and coarse particles of grain in it in sufficient quantity to obtain the results reached by this process, viz., the saving of the starch and sugar in the slop, and

their conversion into alcohol, for the reason that a few repetitions of the process would cause such an accumulation of bran, chaff, and coarse particles of grain in the fermenting vats, that the beer will become thick, and it would be impossible to work it. By this process, therefore,

the starch and sugar in the slop or spent beer which were not converted into alcohol by the first fermentation, are introduced into the fermenting vats with the mixed mash, and thus are subjected to a second fermentation, producing a large percentage of alcohol which has heretofore been lost."

No mode of treatment of the slop in order to effect a separation of the liquid from the solid particles, or to use it in the subsequent processes, is pointed out in the patent; and the claim is broadly for the process of freeing the slop and introducing the liquid obtained in place of water in the succeeding processes of fermentation. This patent was worthless. There was no novelty in the broad process described and claimed. This sufficiently appears by a reference to the treatise of Dubrufaut on the Art of Distillation, published in Paris in 1824. He says:

"In a continuous operation the spent liquor or swill which is drawn from the still ought to be stored in hogsheads, or in a cistern constructed for the purpose. There the solid matter is deposited and the clear liquid floats above. This liquor may be profitably employed in succeeding operations to dilute the mash. It is found that this practice has the advantage of bringing to the fermentation a liquor which still contains fermentable matters which have escaped in the previous separation. This course may be continued through many successive operations. * * * We should cease to use the clear portion of the spent liquor when, after many operations, it has become so acid as to injure, rather than support, the vinous fermentation."

The material parts of the specification of the patent in suit are as follows:,

"The object of our invention is to increase the yield of whisky from a given amount of grain by utilizing in subsequent processes the refuse product of previous processes; and this we do by first preparing the refuse product, and bringing it into a condition in which it may be advantageously used, and secondly by introducing such prepared product into the subsequent processes of whisky-making. By our improvement we separate from the slop or spent beer the bran, chaff, and refuse particles by mechanical means, and then so operate with the strained slop as to preserve it from acetic, lactic, or putrid fermentation, and utilize it in the process of making whisky, returning with it all the useful bodies which it contains. It is well known that the spent beer contains, in suspension, in the first place, a considerable amount of refuse material of comparatively large size, such as the chaff, bran, and larger particles of grain, and in the second place, minute particles of sugar or glucose, starch, and yeast. This second class of particles it is very important to preserve and introduce into the subsequent operations of whisky-making. This class of particles are so minute as that they will pass through the meshes of a fine sieve, and yet are sufficiently solid and separate from the liquid to form a deposit in any vessel in which the liquid may remain at rest. The purpose of our invention is to retain these fine or valuable particles in the liquid which is to be returned, and to separate from this liquid the coarse or refuse

particles, while at the same time the liquid is maintained in a sweet condition. In carrying out our process practically the slop or spent beer as it is blown from the still is run through a straining apparatus similar to the bolting machine in a flour-mill, provided with a copper wire straining cloth of about thirty wires to the inch. The thick portion strained out is rejected, and may be used as food for cattle, and the liquid portion is run through a coil in a tank of cold water, or some equivalent apparatus. In this way it is rapidly cooled from a temperature near the boiling point down to a point as low as the water will produce. It should be below 80 deg. This cool liquid slop is

then stored ready for use in a tank supplied with suitable agitators to keep the small particles which it may contain in suspension, or to stir them up previous to the further utilization of the slop. It is absolutely necessary for the best results of our process that all of the sugar, starch, and yeast particles be returned with the spent beer, and utilized in the subsequent operation of making whisky. Having so mechanically strained or filtered and cooled our spent beer, we add this cold slop to the liquid in the mash-tub at the end of the mashing, for the purpose of cooling and thinning down the mash, and when the mash is run into the fermenting vats we also use the cold, thin slop or spent beer to complete the filling up of the fermenters, instead of water. We find as the result of this process a greatly increased yield, which we cannot obtain in any other way known to us. The special points to be observed in carrying out our process successfully are—*First,* the sieving or separation by mechanical means—preferably an ordinary sieve—of the coarse or refuse particles; *secondly,* the cooling of the slop or spent beer quickly, by suitable means, in order to prevent the increase and accumulation of acid in the same; and, *thirdly,* the returning of this slop, together with the valuable particles which it contains, and its utilization in the subsequent processes of whisky-making."

The application points out that the broad idea of utilizing the spent beer is old, but as used previously the spent beer has been allowed to stand and settle and deposit without attempting to return the sugar, yeast, and starch particles which have been deposited. The specification contains the following disclaimer:

"We do not here claim the saving of the sugar, starch, and yeast of spent beer by first freeing the latter of its coarser particles by mechanical means, maintaining the useful particles in suspension, and then using this slop with its suspended ingredients in a fresh mash, as this forms the subject of a separate application for letters patent of which this is a division."

The claims in controversy are as follows:

"(1) In the manufacture of whisky, the process described, consisting in rapidly cooling spent beer, and then mixing the slop with fresh material for subsequent fermentation, substantially as set forth. (2) In the manufacture of whisky, the process of saving the sugar, starch, and yeast contained in spent beer, which consists in freeing such spent beer, before permitting it to cool, by mechanical means,—such as sieving off the bran, chaff, and other coarse waste particles,—rapidly cooling the thin slop, and then adding the same to, and mixing it with, fresh material for subsequent fermentation, substantially as set forth. * * * (4) In the manufacture of whisky, the mode of saving the sugar, starch, and yeast contained in spent beer, and in using the same, which consists in freeing the spent beer of coarse particles by mechanical means,—such as a sieve,—of rapidly cooling this thin slop, of causing such an agitation of the slop as will hold the particles of sugar, starch, and yeast

in suspension, and then mixing the thin slop so treated with fresh grain, substantially as set forth."

The patent in suit originates in an application for a patent for an improvement in the process of making whisky, filed by the patentees in June, 1881. That application described the process above set forth in the specification. That application was amended by another in the nature of an application for a divisional patent, filed by the patentees October 29, 1881, The latter application described two of the three steps of the process described in the first application: (1) The separation of

the coarse particles from the minute ones by mechanical means; and (2) the agitation of the liquid, to keep the fine particles in suspension; and stated that the liquid was to be used in the way pointed out in the first application,—that is, at the end of the mashing and subsequently. But it contained two claims for the use of strained slop in a manner apparently not contemplated by the first application, to-wit, for the use of the strained slop while hot, during the process of steeping the malt before the end of the mashing. It also contained this disclaimer:

"When the slop is not to be used immediately it should be cooled to prevent injurious fermentation; but the cooling is not made the subject of this application, but of another division thereof."

In April, 1882, the patentees filed another amendment to their application of June, 1881, in the nature of an application for a divisional patent, which is the basis of the patent in suit. This application described the process of the specification, and contained the disclaimer which is a part of the specification. Thereafter the first divisional application was declared by the patent-office to be in interference with the claim of a pending application of one Taylor, and the subject-matter involved in the interference was stated by the office to be as follows:

"In the manufacture of whisky, the process which consists in screening, straining, or otherwise mechanically separating the bran and other coarse matter from the spent beer, and then mixing it, before it is permitted to become cold, with fresh material for subsequent fermentation."

While that application was in interference the patent in suit was issued; the application of April, 1882, for a divisional patent being treated by the office as a new application. October 23, 1883, a patent was granted upon the application of October 29, 1881; that application for a divisional patent being also treated by the office as a new application. The patent-office had theretofore treated the patents as divisional patents, by requiring cross-disclaimers to be filed. The specifications in each follow the terms of the divisional application, but each patent contains claims, the language of which is appropriate to specify the invention described in the other. This circumstance has complicated the question of construction of the patent in suit. It is obvious that both patents must be read and considered together, in order to ascertain the true construction of the claims of either. Each patent contains a disclaimer in the terms used in the divisional application. It is apparent that it was the intention of the patentees when they filed their application of October 29, 1881, to reserve as the subject of a second divisional patent everything described in the application of June, 1881, which did not relate to the use of hot strained slop in the processes of whisky-making. That the patent-office understood this to be the meaning of the disclaimer in that application is plain from the language of the declaration of interference. The disclaimer in the patent in suit is carefully expressed to reserve all

the subject-matter of the application of June, 1881, which was not transferred by the application of October 29, 1881, to the patent granted in 1883. The scope of each patent can be ascertained by a reference to the processes to which it relates.

In the process of manufacturing whisky the first step to which reference is necessary consists in boiling the ground grain, in order to soften and rupture the soft granules, and dissolve the starch. The second is the infusion of malt, and steeping at a high temperature, for the purpose of converting the starch into sugar by the action of the diastase in the malt, which is an operation known as "mashing," and produces what is known as "wort," or "wash." The third step consists in rapidly cooling this wort or wash from a temperature somewhere above 140 deg. down to one of 75 or 80 deg., the temperature required for fermentation,—an operation which is effected rapidly in order to prevent the development of acetic, lactic, and other injurious ferments. The fourth consists in the addition of yeast and fermentation to convert the sugar into spirits, the product being known as "beer," or "wash." The fifth is the distillation of the wash or beer, the products being spirits and spent wash, otherwise known as "slop." Liquid is used with the grain during the operations of cooking and mashing, and for diluting the wort or wash when the latter is too dense for successful fermentation. The patent in suit and the patent of October 23, 1883, each describes a method for treating the slop, which is one of the products of the fifth step mentioned, and using it again in the operations of whisky-making. In the patent in suit the method requires, among other things, the rapid cooling of the slop after the alcohol has been driven off in the distilling operation. The patent of 1883 does not require the rapid cooling of the slop. The patent in suit, in view of the disclaimer, must be construed to relate exclusively to a process for using the treated slop in the operations of whisky-making which takes place after the mashing,—at the end of the mashing. In this use of the slop cooling is essential. The patent of 1883 must be construed to relate exclusively to a process for using the treated slop before the end of the mashing operation. In this use of the slop cooling is unnecessary, because it is employed as a hot liquid, in steps which are conducted at a high temperature. This interpretation is the only rational one, although each patent contains one or more claims the language of which does not permit them to apply to such a use of the slop as is contemplated by the description and the disclaimer. The seventh claim of the patent of 1883 is plainly in conflict with the disclaimer, and the third claim of the patent in suit is open to the same criticism.

Two of the defenses insisted on by the defendants may now be disposed of. There is no substance in the defense that the patent in suit is for the same invention as that described in the patent of July 6, 1880. It cannot fairly be urged that the patent in suit would be valid as a reissue of the first patent. The patent in suit is doubtless for a narrower invention than that claimed in the earlier patent, but the invention of the first patent did not contemplate any straining or cooling of the slop, both of which are indispensable in the present process. The defense that the process of the patent has been publicly used by the patentees for more than two years prior to their application rests upon evidence that

the patentees used the process in their own distillery in November, 1879. As they applied for the patent in suit in June, 1881, this use of the process

was within the two years authorized by law. The application of June, 1881, and the applications for the divisional patents, are all to be treated as the same continuous proceeding. *Godfrey* v. *Eamea,* 1 Wall. 317; *Smith* v. *Goodyear Co.,* 93 U. S. 500.

The consideration of the other defenses requires a further interpretation of the patent. The process of the patent embraces (1) the separation of the minute from the coarser particles of the slop by mechanical means; (2) the cooling quickly of the slop by any means suitable, to prevent the accumulation of acid; and (3) the use of the cooled slop with the minute particles which remain after separation from the refuse in those operations of whisky-making which begin at the end of the mashing. It is essential to the process that the minute particles be held in suspension, so as to be returned with the liquid slop; and it is also essential that the liquid slop be returned in a sweet condition. If the slop is to be used immediately after being cooled, and the cooling apparatus is such as to keep the minute particles in suspension by agitation, the treatment with any special agitation devices is unnecessary; but if the slop is to be stored long enough to endanger the particles to loss by deposition it must be treated with agitating devices to keep the particles in suspension. With this understanding of the process of the patent the defenses of anticipation and want of novelty may be briefly disposed of. Nothing is disclosed in the prior state of the art which suggests the use of slop or spent wash for fermentation in whisky-making, or any analogous art in which the minute solid particles have been preserved. On the contrary, so far as appears by the patents and publications which have been introduced, the previous treatment of the slop was such as to eliminate these particles from the liquid by deposition or by filtration. Thus in "The Complete Practical Distiller," of M. Lafayette Byrn, published in 1877, the author says:

"In a continuous work the spent wash left in the still should be deposited in vats or cisterns constructed for the purpose. There the solid substances will fall to the bottom, and the liquid will remain uppermost. This liquid may be successfully used in a subsequent operation to dilute the grain after it has been mashed. In this practice is found the advantage of bringing again to fermentation a liquid containing some fermentable substances which have escaped decomposition."

The use of slop in subsequent fermentation, clarified by deposition or filtration, was old in making beet alcohol, in yeast-making, and in whisky-making. It was also previously well known in the art how to cool the slop to the requisite temperature for successful fermentation, and how to cool it so as to protect it against the inroads of acetic or putrid ferment. But this does not detract from the novelty of a process which proceeds upon the discovery that the fine solid particles of the slop which previously were lost are to be carefully saved, and protected for use again in fermentation. The process requires the operations of separation and cooling and subsequent use of the liquid to be carried out

so as to utilize these particles, and thus realize the discovery. This is the essential novelty of the patent. The mechanical separation of the

coarse particles from the fine could have been done with apparatus like that shown in the Springnel & Bernard patent, or with modifications of that apparatus requiring only the ordinary skill of the calling. So, also, the cooling operation could have been performed with apparatus which was well known in the art, and the slop brought to the proper temperature, and conveyed to the fermenter in proper condition for successful use; and the specification does not describe anything essentially new in these respects. Both of those operations, however, are indispensable to the proper treatment of the slop, and must be so performed that the fine particles which have been separated and cooled will be returned with the slop for subsequent fermentation. The use of straining devices and cooling devices, or a mode of carrying out the straining and cooling operations, which is so conducted as to entail the loss of these particles, is not the method of the patent. The two operations are incidental to the last, the return of the saved particles for subsequent fermentation; and it is this which was unknown in the prior art, and impresses upon the whole process the character of the novelty. It is immaterial that a process is capable of being carried on by a variety of apparatus which was well known in the art if the process is new and produces a new result. *Fermentation Co.* v. *Maus,* 39 O. G. 14,191, 7 Sup. Ct. Rep. 1304. It follows that the patent cannot be invalidated by the prior publications or patents which have been introduced, although they may show that every independent operation of the process, except the last, was destitute of novelty, and that competent apparatus adapted to carry out all the mechanical operations of the process was also well known in the art.

It remains to consider whether a novel result ensues by the saving of these particles, and their use in subsequent fermentation. If their use increases the yield obtained, or improves the quality of the product, or introduces any economy or other advantage in whisky-making, a novel result is shown. If nothing is gained by using these particles in subsequent fermentation, not only is there no utility in the process, but the circumstance negatives any presumption of inventive novelty. The specification of the patent states that these particles contain sugar and glucose, starch, and yeast. The argument for the complainant is that valuable properties of these particles do not pass into solution with clarified slop, and are lost when the particles are not preserved. On the other hand, the defendants insist that this theory is purely imaginary, and that there is no advantage whatever in straining the slop, except that the mechanical operation is a quicker and more convenient one in distilleries than that of clarifying by deposition. If this is the only advantage—as it is not one which arises from the process of the patent, but arises only from the use of straining devices—it is to be disregarded in considering the question of patentability. The principal expert for the defendants gives his opinion that where slop is clarified by settling less lactic ferments remain in it than when it is clarified by straining, consequently that in this respect straining is disadvantageous; and that by either treatment all the valuable

properties of the particles pass into the liquid by solution. His theory is that the yeast-cells, if any, which survive in

the slop after it has passed through the heat of the still, do not deposit, if they are alive, and only the dead cells, which he deems worthless for all subsequent purposes of fermentation, are lost by deposition; and that the sugar and glucose are all practically dissolved in the slop while passing through the still. He concedes that unconverted starch remains; but he asserts that this is nothing but starch cellulose, which is practically unconvertible, and will again pass unconverted through subsequent fermentation, while the other starch constituent, starch granulose, would have been already converted into liquid slop. It is obvious that if the yeast-cells, which deposit when the slop is clarified by settling, but remain in the liquid when the process of the patent is followed, are useful for further fermentation, and if the starch particles which remain after the slop has passed through the still contain glucose which has not previously undergone such chemical changes as to be no longer useful for further fermentation, the rationale of the process is vindicated. The complainant has not introduced any expert testimony to controvert the opinion of the expert for the defendants, or to support the chemical theory that valuable properties of either glucose or yeast remain in the minute particles, and do not pass into solution with the clarified slop. It appears by the cross-examination of the expert for the defendants that there are few subjects in organic chemistry about which there is so much dispute and doubt as the constitution of the starch granule, and its composition and reaction; and great emphasis is placed upon this statement in the argument for the complainant. Testimony has been given for the complainant to the effect that since the introduction of the process of the patent an extraordinarily active fermentation takes place in the fermenters. If it is true, as the testimony seems to show, that by the use of the process a yeast-cap is produced in the fermenters from two to two and one-half feet high, instead of six inches high, as previously, this fact is irreconcilable with the theory that there is no virtue left in the yeast-cells which are saved by the process of the patent. Evidence has also been given for the complainant for the purpose of showing that a larger yield of whisky has been obtained by the use of the process than was produced when the previously known processes were employed. The real question upon this branch of the case is whether increased yield is shown in consequence of using cold liquid slop, in the operations succeeding the mashing, when strained instead of settled slop is employed. The only advance in the art secured by the patent is the substitution of mechanically strained slop for slop clarified by deposition. The comparison between the yield of the Hermitage, Old Crow, and Saffel distilleries before and since the process of the patent was used does not throw any light upon this question, because in neither of these distilleries was the former process one which affords a proper basis of comparison. The only evidence of any real value upon the question is that which shows the increased yield of the Barber distillery since the patented process has been used there. Without attempting any detailed consideration of

the evidence which bears upon the question whether an increased yield of whisky is obtained by using the process of the patent, or whether any new result

is effected by saving the minute particles of the liquid slop, it suffices to say that, although it is doubtful whether the patent could be sustained if the affirmative were with the complainant, the doubts which have been engendered by the proofs ought to be resolved in favor of the validity of the patent. This conclusion is reached with hesitation, because it was within the power of the complainant to remove these doubts by convincing proof, if its contention is true. Not only has the complainant failed to produce a single expert witness in support of the chemistry of the process, but it has not seen fit to make tests in its own distilleries, under the observation of competent experts, of the relative advantages of the use of strained slop and settled slop. It would seem that such tests could have been made, and the results proved. Very possibly, however, the omission is attributable to a conception of the prior state of the art, and an interpretation of the patent by counsel when the proofs were taken differing somewhat from the view which has been reached by the court.

The presumption of novelty created by the grant of letters patent is entitled to weight, and the burden of disproving it is upon those who avail themselves of the invention. This rule certainly ought not to be relaxed in the present case, where, since the suit was brought, the defendants have abandoned the use of the patented process, and consequently an injunction will not interfere with their convenience. Upon an accounting the question whether any increased yield can be obtained by the use of the patented process instead of the processes open to the public will not be concluded by the present decision, and can be fully litigated. For the present it can only be said that the evidence leaves the question in doubt, and that the testimony for the defendants does not satisfactorily establish their contention. Their evidence, introduced to show that there was no increased yield at the distilleries of the Storr Company and the Rosville distillery when the strained slop was used in lieu of settled slop, relates only to the yield of high wines; and, in the absence of further details, is unreliable for the reasons given in the testimony of Edson Bradley, Jr.

If the first claim of the patent specifies a process in which straining the slop is not one of the operations, it cannot be upheld. If the second claim specifies a process in which such an agitation of the slop during the interval between the cooling operation and the use of the slop in the fermenters is not to be maintained as to keep the minute particles in suspension, that claim cannot be upheld. Neither claim, if it stood alone, would necessarily require such an interpretation as would invalidate it. The fourth claim seems to embody the most accurate statement of the invention. The proofs establish infringement of this claim. The several defenses of prior public use of the process of the patent have not been argued by counsel for the defendants, and, in view of the evidence, may be disposed of with the observation that such use by others than the patentees is not satis-

factorily established. An interlocutory decree for an injunction and an accounting will be entered.