

UHLMANN *ET AL.* V. BARTHOLOMÆ & LEICHT BREWING CO. *ET AL.*

Circuit Court, N. D. Illinois.

December 16, 1889.

1. PATENTS FOR INVENTIONS—ANTICIPATION—BEER-FILTERING PROCESS.

Patent No. 378,379, granted February 21, 1888, to Simon Uhlmann and Frederick Uhlmann, as assignees of Heinrich Stockheim, of Germany, for a filtering process for beer, was not anticipated by the devices known as the "Johnson Filter," the "Meller Filter," and "Enzinger's 1878 Patent."

2. SAME.

A rude pencil sketch of an apparatus, never made and carried into practical use, is not sufficient to defeat a patent on the ground of anticipation.

In Equity. On bill for injunction.

William A. Jenner and *West & Bond*, for complainants.

Dyrenforth & Dyrenforth, for defendants.

GRESHAM, J. This suit is brought for infringement of letters patent No. 378,379, granted February 21, 1888, to complainants, as assignees of Heinrich Stockheim, of Germany, for a beer filtering process. The bill prays for an injunction and accounting. It is averred in the answer that Otto Zwietusch was the original and first inventor, and that he sold an apparatus which was used in carrying it out, to the defendants. Zwietusch guarantied the defendants against damages resulting from the use of the apparatus and process, and has thus far defended the suit at his own expense. It is not denied that the defendants have infringed, if Stockheim first invented the process.

Lager-beer, owing to fermentation, contains yeast germs, albuminoids or gluten, and other impurities, which need to be removed without depriving the beer of its carbonic acid gas, also the product of fermentation, before the beer is marketable. Prior to the use of the Stockheim process, the subject of this suit, when beer had reached its proper age, it was conveyed from a storage cask to a cask, at the bottom, of which chips and shavings had been placed, for the purpose of attracting and retaining, the yeast particles and other extraneous substances. The finer impurities were not, however, thus attracted, and precipitated, and, in order to force them to the bottom of the cask, isinglass, made of fish sounds, a glutinous substance, was dissolved and injected at the top of the cask, which, spreading over the top surface of the beer, gradually sank to the bottom, carrying with it smaller impurities not already attracted there by the chips and shavings.

The state of the art, the invention, and its advantages are thus described in the specifications:

“The object of this invention is the filtration of beer which contains mechanical impurities, and also carbonic acid gas under pressure. In the filtration of such liquids it is important that the liquid—beer, for example—should be filtered continuously in its passage from the store-cask to the keg into which it is drawn for sale, without material loss of the gas contained in the beer, and without material foaming in the keg into which the filtered beer is delivered. The methods in use prior to my invention for clearing beer of the yeast which is produced in it as a product of fermentation have generally involved the use of isinglass, by which the yeasty particles are collected and precipitated to the bottom of the tun or cask containing the beer. Isinglass is, however, costly, and involves a very large annual expenditure, where any considerable amount of beer is brewed, and much trouble in preparing it for use as a ‘fining,’ and it is slow in its operation; nor are the results entirely satisfactory, as all of the yeasty particles are not thereby removed, but some portion remains, and, yeast being a fungous growth, that which remains propagates more yeast, fermentation continues, and in consequence the beer is apt to become cloudy and spoiled. This result is especially noticeable in beer which is bottled, and intended to be kept for some time, either for export or domestic use. In mechanical filtration, variations in the supply of beer to the filter, and in the speed with which the filtered beer is discharged into the keg, permit the carbonic acid gas generated in the beer to escape in considerable quantities while the beer is passing through the filter, and the beer, having lost its carbonic acid gas, or a considerable quantity of it, comes out flat and insipid, or is discharged into the keg in a foamy condition, and soon becomes worthless, besides which the escape of the gas in the filter causes foaming therein, the foam collects upon and clogs the pores of the filtering substance, or the gas permeates the filtering substance, thereby affecting its efficiency as a separator of mechanical impurities, or both results ensue, and thus the operation of the filter is materially retarded, the variations of supply and discharge are increased, and in consequence the filtering substance fails to collect much of the yeast. To modify these results would require the frequent changing of the filtering substance, and this would involve, not only expense for filtering material, but considerable loss of beer and delays in the filtering operation. Continuous filtration, without material variation in the speed with which the beer is discharged from the cask, is also important; because, if the speed of the discharge is materially diminished, the accumulated air pressure will burst the cask, unless it is closely watched, and the cask being usually in a cellar, where neither continuous sunlight nor gaslight is permitted, because either would elevate the temperature of the cellar, such watching is inconvenient. For these reasons, among others, mechanical filtration has not, I believe, been generally or successfully practiced by beer brewers before my invention. By my improved method of filtering I dispense entirely

with the use of isinglass, or other finings, and thus very great economy is secured; the beer is thoroughly clarified, all, or substantially all, of the yeasty particles being removed; the operation of filtering is rapid and continuous, without material variation in speed, and without the necessity of changing or cleansing the filtering substances; the carbonic acid gas is substantially preserved in the beer, and the beer comes out of the filter retaining all its brilliancy and liveliness, ready to be discharged into the keg at the racking-off bench without any danger of subsequent cloudiness or other deterioration due to the filtration, and without having had imparted to it any undesirable taste.

“The drawings illustrate the arrangement of mechanism in and by which my improved filtering method is carried out. Figure 1 shows the situation

of the tun or store-cask, the filtering apparatus, and the racking-off bench, relatively to each other. Fig. 2 shows the filtering apparatus in sectional view. C, Fig. 1, is the store-cask, containing the beer to, be clarified, being shown in the drawings, relatively, very much smaller than the store-cask's generally in use, which contain from fifty to two hundred barrels of beer. *c* is an air-pump, of any suitable construction, by which air is pumped into the cask as the beer is withdrawn, and so that a pressure of thirteen to twenty pounds, or other desired pressure, may be maintained in the cask. The air pressure in the cask serves not only to keep the carbonic acid gas in the beer which is in the cask, and to prevent forming therein, but also to force the beer through the filter with sufficient rapidity, to maintain a constant and full head at the racking bench. *k* is the supply pipe or hose which conducts the beer from the cask to the filter, I, and preferably enters the filter at or near the bottom: *M* is the pipe or hose which conducts the beer from the filter to the racking bench, J, where, under the control of the faucets, *j*, it is let into the kegs. In the filter, I, Fig. 2, the entrance chamber, A, for the beer, is separated from the discharge chamber, E, by the filtering material, B, which is contained between perforated plates, *d. f.* At the highest point of the entrance and discharge chambers, and preferably, above the filter-line, are vent-cocks, l^1 , l^1 and l^2 , for the escape of such gas as may separate from the beer in its passage from the cask to and through the filtering apparatus. When the vent-cock is combined directly with the chamber of pipe to which it appertains, the vent-cock must be operated frequently to prevent the possible accumulation of gas in the chamber of pipe to which it appertains. In order that this frequent operation of the vent-cock may be dispensed with, the vent-cock is combined with the chamber or pipe to which it appertains through the intervention of a vessel in which the gas may be caught, and permitted to accumulate, without affecting the operation of the filter, as L^1 , L^1 and L^2 , thereby obviating any difficulty that might accrue from the accumulation of gas in the filter itself. In order that such gas as may separate from the beer in its passage from the store-cask to the filtering apparatus may escape without entering the filtering apparatus, the supply pipe, *k*, has a vent-cock, *l*, combined with it, either directly or through the intervention of the gas-trap, L. In order that the accumulation of gas in the gas-trap may be detected, each gas-trap has either its body made of glass, or has glass panels inserted in its side, or the gas-trap, if made of metal, has a glass water-gauge of the usual construction connected with it. A gas-trap of either of these constructions I denominate a 'lantern' gas-trap. Through the coils, S, a cooling liquid may be circulated for the purpose of keeping the beer cool, or the same thing may be accomplished by means of an exterior jacket containing ice or a cooling liquid. The discharge pipe, G, passes, preferably, from the lower part of the discharge-chamber, E, up and out of the filtering apparatus; and at or near, *e*, or at any other convenient point, by a coupling of any construction which will make, as nearly

as possible, an air and liquid tight joint, is attached the hose, M, having a valve, e^1 ; or, if desired, the hose, M, provided with the valve, e^1 , may be connected with an orifice in the bottom of the discharge-chamber, and the beer be discharged thereby without passing through the internal pipe, G. When the hose, M, is so connected, the discharge opening of the pipe, G, should be closed by a cap.

“The filtering *media* which I prefer to use consists of several layers, as follows: *First*, a layer of long-fibered wood pulp, of from one to two inches thickness; *second*, a layer of paper and long-fibered wood pulp, also from one to two inches in thickness; *third*, a sheet of cloth or flannel, preferably a cloth which has a web of cotton and a filling of wool. The wood pulp and paper pulps should be deprived of their resinous or other properties, which would impart a disagreeable taste to the beer passing through them, by being treated

in the manner described in my application for a filtering compound about to be filed. These different filtering substances should be so arranged in the filter as that the unfiltered beer passes first through the wood pulp, which restrains the coarser impurities, next through the mixed paper and wood pulp, which restrains finer impurities, and lastly through the cloth, which acts not only to restrain the finer impurities that may have passed the other layers, but also to catch and hold any shreds of the latter that may have been dislodged by the beer passing through them, and these different substances should preferably be separated from each other by perforated tinned metal plates; but my filtering process may be employed when only two, or even one, of the above-named substances, or paper, or any other substance suitable for beer filtration are used. I also prefer that the filtering apparatus shall be circular or pyramidal in form, and that the filtering *media* shall be in a vertical plane, or nearly so, because the greatest amount of surface is thus presented by the filtering substance to the incoming beer, and the least amount of air space or room for the gathering of foam and escape of carbonic acid gas is afforded.

“In starting the operation, the air-pump is connected with the store-cask, and is so regulated as to maintain the desired pressure in the cask as the beer is discharged. The hose, *k*, is connected with the cask and filter on the entrance side, and the hose, *M*, with the filter and faucets at the racking bench on the discharge side, by couplings made air and liquid tight, as nearly as possible, and one of the faucets, *j*, is then opened. Everything being in readiness, the tap-cock, *b*, is opened, the air-pump is started, and the cock, *a*, being open, the beer passes through the hose, *k*, into the entrance chamber of the filtering apparatus, forcing the air which was in the entry-chamber, the gas which has separated from the beer, and the foam thereby formed into the gas-traps, *L* and *L*¹, none of it passing through the filtering *media*. The vent-cocks, *l* and *l*¹, are now opened, and the air, gas, and foam in the gas-traps, *L* and *L*¹, respectively, or in the entrance chambers, and collected in the said gas-traps, are drawn off. The beer, meanwhile having passed through the filtering *media*, forces the air which was in the discharge chamber, and the gas escaping from the beer, and the foam forming therein, into the top of the gas-trap, *L*². The vent-cock, *l*², is now opened, and the air and gas in the gas-trap, *L*², and the foam formed therein, or in the discharge chamber, and collected in said gas-trap, *L*², are drawn off. The vent-cocks, *l*¹ and *l*², are kept open until all the air, gas, and foam in the gas-traps to which they respectively appertain are drawn off, and the gas-traps, *L*¹, are seen to be filled with unfiltered beer, and the vent-cock, *l*², is kept open until the gas-trap, *L*², is seen to be filled with beer. They are then closed, and the filter is now filled with beer,—the entrance chambers with unfiltered beer, and the discharge chamber with filtered beer. The cock, *e*, is now opened, and the air pressure at the cask continues to force the beer into the en-

trance chambers, through the filtering *media*, into the discharge chamber, and out through the pipe, G, and its extension, M, to the racking bench, where it is drawn into the kegs in the usual manner. In case any air enters the filter, either through the connecting pipes or otherwise, or if any gas escapes from the beer from changes or variations of pressure either on the entrance or discharge side, or by reason of partial clogging of the filtering *media* or from other cause, the air or gas, as the case may be, at once ascends to the top of one or other of the gas-traps, where, being easily observed, it is, together with the foam thereby caused, allowed to escape through the vent-cock, the filtration meanwhile proceeding without any interruption or disturbance. In the drawings, Fig. 1, the racking bench is shown as situated on the floor, or on a level above that of the store-cask, and this is the arrangement, I believe, in most breweries. The result is that, the column of beer in the pipe, G, and hose, M. constitutes a back pressure, by which the filter and the gas-traps at the top

thereof may be kept completely filled with beer; but in some breweries the racking bench is situated on the same floor or level as the cask. In such case a back pressure sufficient to keep the gas-traps filled with beer should be formed by elevating the hose, *M*, at a point between the filter and the racking-off bench; a little above the top of the lantern, or by narrowing the capacity of the hose, *M*, relatively to the capacity of the hose, *k*, and the air-pressure at the cask. As there is always more or less circulation of beer in the lantern, and the lantern being of glass, the beer therein may be conveniently observed, and the quality of the beer passing through the filter—that is, its freedom from impurities—may be known. Of course, if the gas-trap is not of lantern construction, a sample of the filtered beer may be from time to time drawn off for observation, by means of the vent-cock, and the vent-cock may from time to time be opened to allow the escape of any air, gas, or foam which may have accumulated in the gas-trap; but this is less convenient than to make the trap of lantern construction. The interior of the chambers of the filter may also be so formed as to constitute traps for air, gas, or foam, the vent-cocks being placed at their highest points; but such arrangement is still less desirable.”

The four claims, all of which it is alleged are infringed, read as follows:

“(1) The process of filtering beer, consisting in drawing the beer to be filtered from the cask under a pressure exceeding atmospheric pressure, conducting the same to and through a filtering apparatus in which that pressure is maintained during the filtering operation, keeping the filtering apparatus full of beer, collecting and carrying off any air entering the filter along with the beer and gas separating from the beer during the filtering operation, and discharging the filtered beer from the filter under pressure, substantially as hereinbefore set forth. (2) The described process of filtering and keeping beer, which consists in forcing the beer under a pressure exceeding atmospheric pressure from the store-cask, through a filtering apparatus, and thence to the keg, keeping said apparatus full of beer during the operation, and collecting and carrying off from the beer during its passage from the store-cask to the keg air that may be mingled with the beer, and gas that may separate from the beer, substantially as and for the purposes hereinbefore set forth. (3) The process of filtering, beer, consisting, in drawing the beer from the cask under a pressure exceeding ordinary atmospheric pressure, forcing the beer under said pressure through a filter, maintaining that pressure in the filter during the filtering operation, and creating and maintaining a back pressure in the filter, so as to keep the filter full of beer, substantially as described. (4) The process of filtering beer, consisting in drawing the beer from the cask under a pressure exceeding ordinary atmospheric pressure, forcing the beer under said pressure through a filter, maintaining that pressure in the filter during the filtering operation, creating and maintaining a back pressure in the filter, so as to keep the filter full of beer, and collecting and carrying off from the beer any gas separating from the

beer, on its way from the store-cask, to or through the filtering apparatus, substantially as described.”

Prior to the introduction of the Stockheim filter into the United States, no method had been devised for the filtration of beer which did not allow it to foam, and thus permit the escape of carbonic acid gas, which it is essential should be retained. The German Enzinger and Teller patents had been tried without success. Zwietusch and his partner, Dr. Frings, commenced manufacturing New Era beer some time in 1882; and early in April, 1883, Zwietusch ordered a Johnson filter press

from New York for the use of the firm, in Wisconsin. In the order he said: "I have concluded to give the experimental press a trial, and, if it proves satisfactory for the purpose desired, we shall have opportunity to sell and use numerous of them." Zwietusch testified that when the firm received one of the Johnson filters, which need not be here particularly described, he altered or modified it, by adding to it lantern gas-traps and vent-cocks, and that, thus altered, he used it twice, filtering 80 gallons of lager-beer each time, and demonstrated its complete success in carrying out the patented process. This, it is claimed, was done in the first half of April, 1883. The testimony of Zwietusch, and the witnesses who were introduced to support him on this point, is unsatisfactory. Zwietusch was an inventor of considerable experience. Prior to this time he had obtained a number of patents for inventions. He understood the art of brewing beer, and preparing it for the market, and he must have realized the great value of the new process, as compared with the old, slow, and expensive process; and yet, instead of promptly applying for a patent for his invention, he abandoned the altered Johnson filter, and forgot it. In connection with the claim now urged of prior invention on the part of Zwietusch, it is a significant fact that he delayed filing an application for a patent for his alleged useful and valuable process, perfected in April, 1883, until after a Stockheim filter had been introduced into this country, and successfully operated. One of the unsatisfactory reasons given by Zwietusch for setting aside, the modified Johnson press was that the iron of the filter affected the taste, color, and brightness of the beer, and that this effect was not manifest until a week or more after filtration. But Prof. Chandler and others testified that the slight contact of the beer with the iron in passing through the filter would not have such an effect, and, if it did, it would be manifest at once. Moreover, the complainants produced two specimens of beer, one of which was unfiltered, and the other had been passed through the identical Johnson filter, which showed no trace of contact with iron. A month or more after the alleged successful demonstration in the use of the modified Johnson filter, Zwietusch's partner went to New York to sell rights under his patent for New Era beer, and for that purpose took with him alleged samples of beer filtered by the new process, and yet he mentioned to no one in New York what he and his partner had succeeded in doing in Milwaukee. A nephew of Zwietusch went to Jacksonville, Fla., in December, 1883, to start a brewery for the manufacture of New Era beer, and to sell patent rights under the Frings patent, and, later, he went to Philadelphia for the same purpose, but at neither place did he mention what had been accomplished at Milwaukee; and, although he started a brewery at Jacksonville, he made no effort there to filter beer. Early in 1886 the Milwaukee Extract Company commenced brewing New Era beer at Kenosha, Wis., under the supervision of Zwietusch. He directed what machinery should be used, and, instead of introducing the modified Johnson filter, he clarified the beer by the old isinglass process. Zwietusch also

testified that about November 1, 1886, while on a train from New York to Milwaukee,
he

made a pencil sketch of a device showing the essential features of the Stockheim filter. He did not say, however, that in making this sketch he had in mind the modified Johnson filter. A rude pencil sketch of an apparatus, never made and carried into practical use, is not sufficient to defeat the complainants' patent, and, if the sketch was made as claimed, it is not clear from the evidence that a mechanic skilled in the art could construct a filter adapted to carry out the patented process.

Neither the Enzinger pamphlets of 1881 and 1885, nor Enzinger's 1878 patent, disclosed the Stockheim invention. It does not appear that the pamphlets would enable a skilled workman to construct a filter which would carry out the Stockheim process. The Enzinger patent proved unsatisfactory, and on November 28, 1888, Enzinger obtained another patent by which he hoped to remedy the defects in the first. The Obermann Brewing Company of Milwaukee bought a filter in 1886, which was covered by the Enzinger patent of 1878. After being tested, and found worthless, this filter was set aside; and about April 1, 1887, Zwietusch got permission to ship it to his brewery at Kenosha, where he put a glass receiver on a floating Valve arrangement attached to the supply-pipe and a cook on the outlet-pipe, and, with the filter thus changed, Zwietusch testified he was able to carry out the process in suit. But here, again, his conduct was inconsistent with his claim of invention; for, after using this filter a few times, it was shipped back to Milwaukee in November, 1887, where, in its altered condition, it was again used, under the personal management of Zwietusch, without success, and abandoned. BartholomÆ & Leicht bought a Meller filter in September, 1886, which does not appear to have been of any practical use. It is not claimed that this filter, in its original condition, was capable of carrying out the patented process. Zwietusch testified that he bought this filter from BartholomÆ & Leicht in June, 1887, agreeing to pay for it, if he could use it to advantage, and that, after receiving and putting lantern gas-traps upon it, he used it during the same summer. During that summer, perhaps in August, an unsuccessful effort was made to operate a Meller filter on Staten island, N. Y., and shortly afterwards, perhaps early in September, the first Stockheim filter was placed in a brewery on the same island, where it carried out the process in suit, in the presence of Meller and others. With knowledge thus obtained of the merits of the Stockheim process, Meller went west in the latter part of September. He met Zwietusch at Chicago, and accompanied him to Milwaukee, where Zwietusch undertook to improve the Meller filter, and accepted an agency for its sale. On one of the filters, which he received October 6th, he placed the Stockheim lantern gas-traps and on the 15th of the same month delivered it to the defendants. Zwietusch testified that he never saw or heard of the Stockheim filter until two weeks after this.

That Zwietusch made the necessary additions to the Meller filter to adapt it to carry out the patented process for the defendants is not denied, but it is incredible that he

made those changes before hearing of the Stockheim filter. What more natural than that Meller should have

told Zwietusch in September, when the latter agreed to improve the Meller filter and accept an agency for its sale, what Meller had previously witnessed on Staten island? Stockheim's application for the patent for the machine carrying out the process in suit was filed March 2, 1887, and one of his filters was introduced, into the United States, and actually used in carrying out the patented process, late in August or early in September of that year. This was prior to the improvements made in the Meller filter by Zwietusch, which improvements were added, no doubt, with knowledge obtained from Meller or others of the Stockheim filter. It is not necessary to carry Stockheim's invention back of the filing of his application for a patent for the apparatus, for he was not anticipated by the alleged modified Johnson filter, the pencil sketch, the alleged Enzinger filter, or the Enzinger pamphlets. From April, 1883, when Zwietusch now claims he invented the patented process, until the bringing of this suit, his conduct, and the conduct of his nephew and his partner, was inconsistent with the theory of the defense. None of them used the modified Johnson filter, or the process, at Wisconsin or elsewhere, in the manufacture of New Era beer, and there was nothing in the pencil sketch to indicate that, when it was made, Zwietusch had in mind the Johnson filter. If he had discovered the patented process in April, 1883, why did he endeavor in April, 1887, to experiment with an Enzinger filter in the hope of adapting it to carry out the patented process? And when he failed in that experiment why, in June, 1887, did he experiment with the Meller filter? And if, in September, 1887, he had in mind the modified Johnson press as an apparatus capable of filtering beer, and making it fit for the market, why did he then accept the agency for the Meller filter? He cannot expect the court to accept, as true; statements so inconsistent with his conduct, and so consistent with the theory that, after being informed of the nature and operation of the Stockheim filter, he endeavored to imitate it, and thus appropriate what belonged to another. The defendants infringe all the claims of the patent, and a decree will be entered as prayed for in the bill.