NEW PROCESS FERMENTATION CO. *v.* MAUS AND OTHERS.

Circuit Court, N. D. Indiana. June, 1884.

1. PATENTS FOR INVENTIONS—PROCESS—RIGHTS OF HOLDER OF PATENT.

A party is not entitled to the exclusive right to have his beer ferment or he come clarified, by stopping up the bung-holes of the casks and making the carbonic acid gas escape some other way.

2. SAME—PROCESS—PATENTABILITY.

A person cannot patent a result, but only the means or art by which the result may be effected.

3. SAME—CHEMICAL COMBINATION—MECHANICAL COMBINATION—NO CONFLICT.

If a process consists of a chemical combination, by which the particular result is produced, its existence does not prevent another inventor from making a mechanical combination which produces the same result.

This was a bill filed against the defendants for an alleged infringement of a patent granted May 20, 1879, to Bartholomae, as assignee of Meller & Hofmann. Bartholomae has assigned his interest to the plaintiff, a corporation of the state of Illinois. Meller & Hofmann bad previously (1876 and 1877) taken out patents in France and Belgium. The specifications give a description of the manner in which beer had been brewed previously, viz.: That after cooking and cooling it was put in open vessels for fermentation, and after a certain number of days it was drawn off from the yeast into large casks nearly closed, where it remained for a considerable time, in some instances for months, to settle; that the beer was then put into shavings casks and mixed with young beer or kræusen; that during the process of fermentation the carbonic acid gas rose, so that often the lighter particles of yeast and solid matter were thrown to the top and escaped over the

edges of the cask, some portion of the beer being thus wasted, which had to be replaced daily by new beer. This wastage was supposed to be about one barrel in 40; the escape of the beer in this manner, falling upon the floor of the cellar where the casks were, affected the air so as to be injurious to persons there working, and the flavor of the beer. In remedying this, by the washing of the outside of the barrels, the temperature of the cellar was raised. After the beer had been in the shavings casks from 10 to 15 days, the clarifying substance was introduced and the beer became clear. The casks were then closed, in order to confine the last portions of the rising carbonic acid gas; that then it must be immediately drawn off

into kegs and used. At the time Of drawing off the beer from the shavings casks, the beer was never to be under more than a certain pressure. If the beer were not put upon the market at once, the bungs had to be removed, and the escaping gas then stirred up the yeast and the impurities that were settled at the bottom, and it had to be again put through the shavings casks. According to a process then in use it required about 20 days to put the beer on the market after it had been placed in the shavings casks, and this delay required a large amount of capital to be invested during the time.

The specifications then proceed to state that the object of the invention was to overcome these difficulties, and to produce in a shorter time a better quality of beer, containing more sugar and less alcohol; and they state further that the invention consists in treating the beer, when in the shavings casks step of operation, in one or more closed casks under carbonic acid gas pressure, automatically controllable, and caused by the fermentation of the beer. The pressure in the cask is thus equalized, and the effervescing quality of the beer in all the casks, when two or more are connected together, is uniform. The casks being

closed, none of the beer wastes, and the foul smell and washing of the casks are avoided. The escaping carbonic acid gas is conducted from a relief-valve to the open air; and further, the invention consists in treating the beer in the same way at the kræusen stage, or subsequently thereto, or both; that is to say, the invention consists in so treating the beer at any time or times previous to racking off, or bunging and bottling. And then the specifications proceed to give an account of the manner in which the invention becomes useful and practicable by describing the drawings which are annexed. There are three shavings casks with faucets and valves inserted in their bungs. These faucets are connected to what is called the main pipe, by means of flexible sections provided with couplings. The connections have valves. The pipe bends upward and passes above the level of a water column, and then passing downward enters the base of the column, at the top of which a cup is provided. The water column has a faucet to draw off the water when it is desired to decrease the pressure. A branch pipe serves to discharge any condensed moisture, and there is a pressure-gauge to indicate the pressure. There is a gas generator connected with the pipe, which is so constructed as to test the joints of the apparatus and drive all atmospheric air from the pipes when the operation begins. A pipe is projected out of the building and leads all the gas into the open air, and there is a device by which, when the gas in its escape becomes so rapid as to lift the body of water upward, the water will be arrested by a "diaphragm."

This general description is supplemented by reference to the various parts of the apparatus, by letters, so as to designate particularly the manner in which it is constructed and operates. It is declared that the pressure in all the shavings casks connected with the pipe will be equal, and will be kept so indefinitely; whereas, in the process before

practiced, the beer had to be bunged at a particular time, for a particular day' market. But this process enables the brewer to keep on hand merchantable beer which can be shipped at once, or, if not then desired, a stock can be kept on hand for future use. And it is alleged that what is true of a series of shavings casks, applies equally to a single cask. The specifications declare that other means than a water column may be adopted for equalizing the pressure of the gas, as by safety-valves and the like, and that the apparatus is susceptible of many other variations. A description is then given of the result of what is alleged to be this new method. They then refer to the introduction of what is called "clarifying gelatine" into the shavings casks, and they state what is done when it is desired to make beer for bottling. There are annexed to the specifications eight distinct claims, all of which are qualified by the terms "substantially as described," the first of which refers to holding the beer under controllable pressure of carbonic acid gas when in the kræusen stage; the second, to the mode of treating beer when in the kræusen stage, by holding it in a vessel under automatically controllable pressure of carbonic acid gas; the third refers to holding it under controllable pressure of carbonic acid gas from the beginning of the kræusen stage until such time as it is transferred to kegs and bunged; the fourth, to the method of preserving the beer after it has passed the kræusen stage, which consists in holding it under pressure of carbonic acid gas, the pressure automatically regulated by a contracting hydrostatic pressure; the fifth, to the treatment of the beer when it is in the second fermenting stage, "ruh beer," which consists in holding it under automatically controllable pressure of carbonic acid gas; the sixth, to the treatment of beer in holding it in closed connected vessels under automatically controllable pressure of

carbonic acid gas; and the seventh refers to the process of clarifying and settling the beer in a series of shavings casks equalizing the rate of fermentation, etc., as before; the eighth refers to the machinery or apparatus by which the process is carried into effect.

Among other defenses set up in the answer it is alleged that Meller & Hofmann were not the original and first inventors of the process of preparing beer for the market by holding it under automatically controllable carbonic acid gas pressure when in the kræusen stage, nor of the process of treating beer when in the kræusen stage by holding it in a vessel as described, under the pressure of carbonic acid gas; that this had been known long before, and as to some parts or divisions of the apparatus described, the defendants say they do not infringe; and various patents are set forth, granted to others, which it is alleged show that the same principle and combination, or substantial and material parts thereof, described in the plaintiff's letters patent, had been described in the patents of other parties issued prior to the plaintiff's. The answer then proceeds to state and describe the apparatus and processes used by the defendants, which they say is an entirely different

apparatus from that described in the letters patent of the plaintiff, and in the specifications annexed thereto.

F. W. Cotzhausen, P. C. Dyrenforth, and *Banning & Banning,* for complainant.

C. P. Jacobs and *Duncan, Smith & Duncan,* for defendants.

DRUMMOND, J. Nearly all the claims in this case, as well as the specifications, speak of the beer in what is called the kræusen stage. The specifications term "kræusen" *young beer,* and also use the words "kræusen stage," the inference being that it refers to that condition of the beer when it is considered

young. But, in the evidence of the plaintiff, one of the witnesses particularly describes what the kræusen stage is. He calls kræusen a fermenting sweet-beer work during the first stage of the main fermentation, in which a foam of a very dense, curly white appearance is formed on the surface, and it is so termed because the beer has the appearance of curling, as kræusen in German means "curls." The kræusen stage, he declares, is the new fermentation which sets in after the "kræusen beer" has been added. Under the old method, when the beer was in this condition in shavings casks, and the bung was left open, the foam and some of the ingredients of the beer escaped through the bung-hole. As claimed in the plaintiff's patent, this was avoided by stopping up the bung-holes, and devising a method by which the carbonic acid gas formed in the fermentation was permitted to escape upon a certain pressure, which removed the danger, that otherwise would exist, of bursting the casks, or of injuring the beer when in fermentation, or while being clarified.

All the claims except the last, it is insisted by the plaintiff, are for a process, and that as to them the particular manner or instrumentalities by which the process is accomplished are immaterial.

It is well known that the term "process" is not used in the statute, but it has been uniformly held that there may be a patent for a process, because it is regarded as an art, which is a word used in the statute. But it must be confessed that it is often one of the most difficult questions to decide, in the practical application of claims made in a patent, what is a process which may be the subject of a patent. To illustrate and prove this, it is only necessary to refer to the case of *Mitchell* v. *Tilghman,* 19 Wall. 287, which was most elaborately argued and fully considered, and where a majority of the court held that although the manufacture of fat acids and glycerine from fatty or oily

substances by the action of water at a high temperature and pressure was a process, yet that the patentee was limited to the particular method or means of applying highly-heated water under pressure, pointed out in the specifications, although the claim was on its face broader than that, and to the case of *Tilghman* v. *Proctor,* 102 U. S. 707, where the same patent was in question, and where the court held that it was a patent for a process, irrespective of the particular mode or form of apparatus for carrying it into effect. If, then, we now consider this last case in connection with one of the first cases 729 decided by the supreme court, (*Corning* v. *Burden,* 15 How. 252,) and some of the intervening cases where patents have been sustained for a process, we ought to be able to determine the rule established by that court as to what is a process for which a patent can issue.

In *Corning* v. *Burden* the court said that one might discover a new and useful improvement in the process of dyeing, tanning, etc., irrespective of any particular form of machine or mechanical device, and another might invent a labor-saving machine, by which the same process might be performed, and each might be entitled to his patent; that one by exposing India rubber to a certain degree of heat, in mixture or connection with certain metallic salts, might produce a valuable product and be entitled to a patent for his discovery as a process or improvement in the art, irrespective of mechanical devices. And another might invent a furnace or stove, or some apparatus by which the same process might be carried on with a saving of labor and of expense, and he would be entitled to a patent for his machine as an improvement in the art, and yet one could not have a patent for a machine, nor the other for a process. Each would be entitled to a patent for the method of producing certain results, but not for the result itself. And the court further stated that it was when the term "process" was used

to represent the means of producing a result that it was patentable, and it would include all methods or means not effected by mechanism. This definition is intelligible. A part of it, but not the whole, is cited in *Tilghman* v. *Proctor.*

In *Corning* v. *Burden* the court held that Burden had not discovered any new process, but a new machine or combination of mechanism by which the result was produced.

In *McClurg* v. *Kingsland,* 1 How. 202, where the only change made in the method of casting iron rolls was by directing the metal into the mould, when in a liquid state, at a tangent, the patent was sustained, although there does not seem to have been much discussion directly upon the patentability of the claim. All that was done in that case was simply to change the direction of the tube which carried the metal into the mould, the old method being to convey it from the furnace to the mould in a horizontal or perpendicular direction.

In *Mowry* v. *Whitney,* 14 Wall. 620, and *Tilghman* v. *Proctor, supra,* the court sustained the claim in each as a patent for a process. In the latter case, the court says that the patent law is not confined to new machines and new compositions of matter, but extends to any new or useful art and manufacture, and that a manufacturing process is an art.

Goodyear' patent was for a process; namely, vulcanizing India rubber. The apparatus for performing the process was not material, and was not patented, and the court then refers to Neilson' English patent. Neilson' patent was for the discovery, which he made, of applying a blast of hot air, instead of cold, to a smelting furnace, and for describing a method by which that was accomplished, that 730 method not being material, and the court declares that Neilson's patent was sustained as a process patent, and quotes the language of the court of exchequer, "that the

plaintiff did not merely claim a principle, but a machine embodying a principle, and a very valuable one;" and also the language of Lord Campbell, in the house of lords, that "the patent must be taken to extend to all machines, of whatever construction, whereby the air is heated intermediately between the blowing apparatus and the blast furnace;" and therefore it was unnecessary to compare one apparatus with another.

The court, in *Tilghman* v. *Proctor,* also quotes the language of Chief Justice Taney in *O'Reilly* v. *Morse,* 15 How. 112, where he says, in commenting on *Neilson' Case,* 8 Mees. & W. 806,—"That the manner in which air might be heated was immaterial. His patent was supported because he (Neilson) had invented the mechanical apparatus by which the current of hot air could be thrown in. The interposition of a heated receptacle in any form was the novelty he invented."

And, after quoting still further from the opinion of the Chief Justice in *O'Reilly* v. *Morse,* the court states:

"It seems to us that this clear and exact summary of the law affords the key to almost every case that can arise. 'Whoever discovers that a certain useful result will be produced in any art by the use of certain means, is entitled to a patent for it, provided he specifies the means.' It is very certain that the means need not be a machine or an apparatus; it maybe, as the court says, a *process.* A machine is a thing. A process is an act, or a mode of acting. * * * The mixing of certain substances together, or the heating of a substance to a certain temperature, is a process. If the mode of doing it, or the apparatus in or by which it may be done, is sufficiently obvious to suggest itself to persons skilled in the particular art, it is enough in the patent to point out the process to be performed, without giving supererogatory directions as to the apparatus or method to be employed."

The majority of the court in *O'Reilly* v. *Morse* refused to sustain the eighth claim of Morse, because he disavowed the specific machinery or means mentioned, but claimed the use of the motive power of the electric current, however developed; and this was held to be a principle simply.

There has always been some difference of opinion as to the true grounds upon which this rejection of the eighth claim of Morse was placed, it being maintained by some that Morse was not entitled to have a patent including all applications of what he termed electro-magnetism in the transmission of words, letters, and signs, but only his own particular application.

It has been uniformly held that a patent for a mere principle, or what is sometimes called a law of nature, cannot be sustained; but in all the cases referred to, from the Neilson to the Tilghman patent, the law or laws of nature discovered were utilized, and it is said that in giving this construction to principle and process, a patent for a process leaves the field open to future inventors; whereas a patent for a principle or a law of nature would give a monoply to the person making that discovery. So that the rule established by the supreme 731 court is said to be that the patent for a process will include every application of the principle that involves the use of the process described and claimed by the patentee, and this does not include the particular machine or apparatus described by the patentee, but the mode of operation which is carried out by means of the apparatus. Walk. Pat. § 14.

In *Neilson' Case* the defendant did not use the means employed by Neilson in throwing the hot air to the smelting furnace, for it was admitted he used a better device; but it was assumed that when once the idea existed in the mind of the superiority of a hot-air blast to a cold one, any person skilled in smelting could devise his own mode of introducing the hot air

to the furnace. And see *Cochrane* v. *Deener,* 94 U. S. 780, and *Rubber Co.* v. *Goodyear,* 9 Wall. 796.

It is to be regretted that the difficulty inherent in the subject is so great that a more intelligible distinction has not been made, for it must be admitted that the application of the rule which has been established by the supreme court to other cases, as they hereafter arise, may cause embarrassment, for there must be a method by which the principle or law which has been discovered is applied; and, if that method is immaterial, then it is difficult to understand why it does not become substantially a patent for the discovery of the principle or the law of nature. Such seems to have been the opinion of Mr. Justice NELSON. See *Foote* v. *Silsby,* 1 Blatchf. 445, and 2 Blatchf. 260; and the case on appeal, 20 How. 378; *Le Roy* v. *Tat-ham,* 14 How. 156, and 22 How. 132.

If it be true that the defendants have used the mechanical devices of the plaintiff, the question is whether, within these cases and the rules which have been established upon the subject, the plaintiff is entitled under his patent to the claims which he has made and as set forth; namely, the process of preparing beer for the market by holding it under controllable pressure of carbonic acid gas when in the kræusen stage; the process of treating it, when in the kræusen stage, by holding it in a vessel under automatically controllable pressure of carbonic acid gas; the process of preparing and preserving beer for the market, holding it under controllable pressure of carbonic acid gas from the beginning of the kræusen stage until it is transferred to kegs and bunged; to the method of preserving beer; to the process of treating it when in the second fermenting stage, and the process of treating it in the course of its manufacture; and to the process of clarifying and settling beer in a series of shavings casks and equalizing the rate of fermentation in all of them, whereby the beer is more

rapidly and thoroughly clarified, irrespective of the mechanical means by which the specifications declare these various processes can be accomplished. That is to say, were Meller & Hofmann the first persons to hold the beer, when in its kræusen stage, under controllable pressure of carbonic acid gas, and were the means by which that result was accomplished immaterial?

732

There is not entire accord among the witnesses as to what constitutes the kræusen stage, but we may assume that it was understood to be, when the beer was in that condition in the shavings casks that young beer was added, upon which fermentation was produced, and during which the process of clarification was going on, in addition to other results caused by the mode adopted to act upon the beer; because, as soon as the fermentation began by the introduction of the kræusen, the shavings operated upon the ingredients contained in the beer.

Where, in a process, there is a combination of different substances, and to that combination another substances or element is added, by which a new result is obtained, that is a process which we can easily understand; and if unknown before, and it is useful, the person devising it may be entitled to a patent. Where there is a result produced by machinery, which result may be brought about by a process, and which may consist of different steps caused by a combination of different parts of the machine, and another part is added, before unknown, and by which a useful result is produced, that we can understand. The difficulty is to comprehend a process which may consist partly of a combination of different substances operating chemically, and the combination of different parts of a machine operating mechanically.

If a process exists which consists of different steps created by machinery, and there is an improvement

in that process caused by a new element added to or taken away from the machinery, then, the process existing and being known, the party who added or took away the part of the machinery might, if it were useful, be entitled to a patent, not for the process which formerly existed and was well known, but only for that which had been added to or taken from the mechanism.

To apply the principle to this case: the process of manufacturing beer was not, at the time this patent was issued, *per se,* patentable, for beer had long been manufactured; in the first place by the preliminary steps which are referred to in the specifications, and which have already been mentioned, and by adding to the beer the kræusen while it was in shavings casks, and then permitting fermentation to proceed, then clarifying it so as to retain in the beer some of the carbonic acid gas, which of itself constituted an important ingredient in the beer, and then preparing it for the market, so that whatever was patentable in the process of manufacturing beer must consist of something new and useful being added to the process chemically or mechanically, and for whatever was new and useful the inventor might be entitled to a patent, whether it was connected with the chemistry or the mechanism of the process. It is very important to observe this distinction in discussing the patentability of a process.

It seems to be admitted in the various process cases decided in the supreme court, which have been referred to, and others which might 733 be named, if the process consists of a chemical combination by which the particular result is produced, that does not prevent another inventor from making a mechanical combination which produces the same result. Otherwise, there would be a revolution in what has always been understood to be a principle of the patent law, that a person could not patent a result, but only

the means or acts by which the result was produced; and that certainly should be true as well of a chemical as a mechanical combination.

It will be borne in mind that the patentee in this case insists that the invention is not limited to the particular instrumentalities described, by which the beer is held under controllable pressure of carbonic acid gas when in the kræusen stage, because it is said that other means than a water column may be adopted for equalizing the pressure of the gas, without departing from the spirit of the invention,—as, for example, safety-valves, springs, and the like; and it is added that the apparatus is susceptible of many other variations without affecting the process itself. Now, a water column had been previously used to regulate the pressure of the carbonic acid gas, and valves and springs had often been used for the same purpose; and, indeed, some of the witnesses of the plaintiff seem to imply that the Wallace and Hicks devices, in use long before the plaintiff's patent, were, in their application to the manufacture of beer, like those of the plaintiff. I am, therefore, not prepared to concede that Meller & Hofmann were the first to hold under controllable pressure of carbonic acid gas the beer when in the kræusen stage, for, as already stated, that had been done as well by a column of water as by springs and valves when the shavings casks were bunged and stopped; and the gas was permitted to escape when the pressure became so great as to raise the valve or force the spring. This is shown by the evidence of Maus and Sturm. It may be admitted that the mode adopted by the plaintiff is valuable, and that it has facilitated the manufacture of beer, both as to quality and as to time. But it seems to me that this has been caused by the more complete mechanical devices of the plaintiff, without really changing the principles upon which beer had been theretofore manufactured.

No new principle or scientific fact has been discovered, as was true in the process patents which have already been referred to. The most that can be claimed is, and, indeed, the chief merit ascribed to the patent by the plaintiff's counsel is, that it applies the controllable pressure created by the carbonic acid gas, in a state of fermentation, at an earlier stage than was before known. But the essential parts of the apparatus used by the patentee were known before, and the same controllable pressure had been applied at various stages of the manufacture, and the application at one stage of the condition of the beer, instead of another, would seem not to involve anything more than a mere mechanical change, which could be employed by any one skilled in the art.

734

If we assume that the invention of a process always authorizes a patent, irrespective of the means by which the result is produced, it would seem to be attended with very important and far-reaching consequences, and to involve substantially a monopoly of the principle, or of the discovery of a new scientific fact; and in this way we would impair, if not destroy, the effect given by the supreme court to the various rules which have been heretofore referred to as established by that court, one of which has always been held to be firmly fixed; namely, that a person should only have a patent for the means by which the result is produced, and not for the result itself.

It follows, therefore, from what has been said, that the claims of the plaintiff for a particular process, irrespective of the means by which that process has been reached, cannot be sustained; and that the effort made to enlarge the construction of the patent law so as to cover any means which may be used in the process of the manufacture of beer—namely, by the methods which have been heretofore substantially employed—cannot succeed, it being a process well

known before. A person could only have a patent for that by which the process was improved or cheapened; and it cannot be successfully claimed, I think, that the defendants have used the various mechanical devices which are set forth in the specifications. It is not necessary to declare in this case that those devices, taken in the aggregate, might not be the subject of a patent as mechanical devices.

The result is, the plaintiff's case fails on both grounds on which it is put: *First,* as a patent for a process, as described and claimed; and, *secondly,* for an infringment of the mechanical devices of the patent.

The bill must be dismissed.