evidence, as well as with its conclusions of law. *Rabasse* v. *Police Jury of Terrebonne Parish*, 30 La. Ann. 287.

In short, there is nothing in the present case, which can be called, in any legal or proper sense, either a statement of facts by the parties, or a finding of facts by the court; and no question of law is presented in such a form as to authorize this court to consider it.

Judgment affirmed.

MARCHAND *v.* EMKEN.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE SOUTHERN DISTRICT OF NEW YORK.

No. 37. Argued October 25, 1889. — Decided November 25, 1889.

Claim 1 of letters patent No. 273,569, granted to Charles Marchand, March 6, 1883, for an improvement in the manufacture of hydrogen peroxide, namely, "1. The method of making hydrogen peroxide by cooling the acid solution, imparting thereto a continuous movement of rotation, as well in vertical as in horizontal planes — such, for example, as imparted by a revolving screw in a receptacle — and adding to said acid solution the binoxide in small quantities, while maintaining the low temperature and the rotary or eddying movements, substantially as described," is invalid, as not covering any patentable subject matter.

In equity for the infringement of letters patent. Decree dismissing the bill. Plaintiff appealed. The case is stated in the opinion.

Mr. W. H. L. Lee for appellant. *Mr. B. F. Lee* was with him on the brief.

No appearance for appellee.

Mr. Justice Blatchford delivered the opinion of the court.

This is a suit in equity, brought in the Circuit Court of the United States for the Southern District of New York, by Charles Marchand against Frederick Emken, to recover for the infringement of letters patent No. 273,569, granted to the

plaintiff March 6, 1883, for an improvement in the manufacture of hydrogen peroxide.

The specification says: "This invention has reference to the manufacture of hydrogen peroxide, or oxygenated water, by addition of barium or calcium binoxide to an acid (sulphuric, nitric, acetic, oxalic, hydrochloric, hydrofluoric, hydrofluosilic, and the like), the binoxide having been mixed with water. Heretofore hydrogen peroxide has been made by adding the barium or calcium binoxide, mixed with water, to the diluted acid, the binoxide being added from time to time in small quantities, the vessel in which the operation is conducted being set in a refrigerating medium, and the liquid being agitated or stirred to facilitate the reaction. The stirring has been performed by hand. The present invention is based on the fact or discovery that the reduction of the barium or calcium binoxide takes place under conditions much more favorable in point of rapidity and yield when the acid to be neutralized is given a movement of rotation, both vertically and horizontally, by a screw or other suitable means, which at the same time creates both constant and ever-changing eddies, the said movement of rotation being imparted continuously during the addition of the binoxide. The present invention consists, therefore, first, in imparting to the acid a movement of rotation, the time required for the chemical reaction being thereby lessened, while the reaction itself is more complete."

The specification gives a description of the apparatus which it says is preferably to be employed and forms part of the invention, in substance as follows: There is a receptacle for the acid, and a jacketing vessel, in which the receptacle rests, for containing the refrigerant or cooling medium. There is a rotating screw and a vertical power-shaft. The acid receptacle need not be of any particular size, but a good capacity is from five hundred to one thousand gallons. It is preferably hemispherical, but may be cylindrical, frustoconical, or of other suitable form; and it is made of or lined with material adapted to resist the action of the acid. For use with hydrofluoric acid, a sheet-iron or, better, a copper vessel lined with lead may be used, or one of platinum, gold, or silver, or one

otherwise rendered non-corrodible. The screw is provided with helicoidal blades, ordinarily two, three, or four in number, set obliquely on the arbor or screw-shaft. The blades are preferably pierced with holes. The screw is suspended in the receptacle, being detachably connected with the lower end of the power-shaft by two pieces, one fixed to the power-shaft, and the other to the screw-shaft, and clamped together by bolts. On the screw-shaft, above the top of the receptacle, is fixed a disc of wood or other suitable material, which catches the oil from the bearings of the power-shaft, and other foreign matters that otherwise would be liable to fall into the receptacle. The power-shaft is suspended in its bearings by suitable collars, which enable it to support the screw, and is driven from a horizontal shaft, through bevelled gearing, or by other well-known or suitable mechanical means. The length of the screw-shaft is such that the blades of the screw do not in operation touch or scrape the interior of the receptacle. The jacketing vessel is of ordinary or suitable construction. The cooling medium commonly employed therein may be placed in it. The vessel being filled with the cooling medium, the proper quantities of acid and water (say twenty parts, by weight, of acid to one hundred parts of water, or other suitable proportions) are placed in the receptacle. The screw is put in motion, and the binoxide of barium or calcium, in the state of a more or less thick emulsion or milk, is added in small quantities. The revolving screw imparts a movement of rotation more or less rapid to the liquid, producing eddies therein and constantly changing the material, and the chemical reaction takes place very regularly and completely. Sufficient binoxide is added to secure the complete neutralization of the acid without rendering the hydrogen peroxide too alkaline. After a certain time, which varies with the quantity of the article manufactured and the amount of binoxide employed, and during which the screw may be stopped, but is preferably kept in revolution, the production of the hydrogen peroxide is finished. It only remains to allow the matters in suspension to settle and to decant the clear liquor. If it is desired to obtain the hydrogen peroxide

in a state of greater purity than results from the above, the clear liquor is subjected to special chemical treatment, which, as it constitutes no part of the present invention, is not described.

Only the first claim of the patent is involved in this suit. That claim reads as follows: "1. The method of making hydrogen peroxide by cooling the acid solution, imparting thereto a continuous movement of rotation, as well in vertical as in horizontal planes — such, for example, as imparted by a revolving screw in a receptacle — and adding to said acid solution the binoxide in small quantities, while maintaining the low temperature and the rotary or eddying movements, substantially as described."

The answer sets up, among other defences, that the alleged invention and patent do not contain any patentable subject matter. After a replication, proofs were taken, and, on a hearing, the court, held by Judge Coxe, entered a decree dismissing the bill with costs. From this decree the plaintiff has appealed. The opinion of the court is found in 23 Blatchford, 435, and 26 Fed. Rep. 629.

It appears from the record that the first claim was three times rejected by the Patent Office, and was then, on appeal, allowed by the examiners-in-chief, who said in their decision: "In the present case, the essence of the invention resides in imparting to the liquid, while making hydrogen peroxide as above, a peculiar motion — one which cannot be given by hand — a continuous movement of rotation, horizontally in opposite directions from the centre, or radially and vortically, or nearly so, according to the shape of the vessel, a vortical motion designated in German as *wirbelbewegung*, the movement of a smoke ring, making what may be termed a ring vortex." They suggested an amendment to the specification, to make it clear that the invention was "no more than in this particular art, all the other steps being old, imparting to the liquid undergoing chemical change this old motion, this motion produced, for example by the egg-beater."

The opinion of the Circuit Court says: "It is not pretended that the complainant discovered hydrogen peroxide, or the

method of adding barium, mixed with water, from time to time, to the diluted acid, or the necessity for stirring or agitating the liquid. Neither did he invent the obliquely bladed screw, the hemispherical receptacle, the jacketing vessel or any part of the apparatus described in the specification. All this was old and well known. The patent itself illustrates how extremely circumscribed was the theatre of invention." It then refers to the fact that the descriptions, in the specification, of the prior process and of the patented process are substantially the same, except that in the former the stirring was performed by hand, and in the latter it is performed by machinery. The opinion then proceeds: "The question, then, seems to be narrowed down to this: Does it constitute invention to stir, by a well-known and simple mechanical device, what had before been stirred by hand? The complainant desired to manufacture in large quantities what had before been produced chiefly in the laboratory. He knew how hydrogen peroxide had been made; every step in the formula was familiar. A mixture that needed stirring, and a vessel provided with a revolving stirrer, were ready at his hand. He put the former into the latter. This was all. The object of agitating the liquid, while making hydrogen peroxide, is to keep the barium, which is three times as heavy as water, suspended in the acid, so that its particles may come in contact with the particles of acid. Whether they come in contact while going round, rising, settling or remaining stationary, can make no difference. Divest the case of the air of mystery with which it is environed, and it seems simple enough. The complainant's predecessors knew that to keep the barium up in the solution they must stir it. The complainant knew this. Unlike them, however, he manufactured on a scale large enough to make it essential to employ a power-shaft. The oar-shaped sticks which formerly went round and round by hand now go round and round by machinery." The court then refers to the contention of the plaintiff that, by the method set out in the patent, a movement was given to the acid which had never before been imparted to it in the manufacture of hydrogen peroxide, because "the liquid is thrown out towards the circumference of the vessel at the

bottom, rises at the sides, returns to the centre, and then descends, to be again thrown out at the bottom, while at the same time it is carried round and round;" and says that this, "being reduced to still simpler language, means, that the machine will stir large quantities of the liquid more thoroughly than the hand-worked paddles." It adds: "The pretence that the complainant had discovered some occult and wonder-working power, in the motion of a screw revolving in the bottom of a tub, is not sustained by the proof. Whether the contents of the tub be oxygenated water, or soap, or lye, or tartaric acid, the action will be the same. That rotary, eddying motions in liquid will result from the revolving screw, that the liquid will rise highest at the periphery of the tub, and thus have the tendency, at the top, to fall towards the centre, were well-understood operations of centrifugal force. As every device, apparatus, formula, law of nature, motion and ingredient adopted by the complainant was old, the patent must be held invalid, unless it can be said that giving to oxygenated water a well-known rotary motion springs 'from that intuitive faculty of the mind put forth in the search for new results or new methods, creating what had not before existed, or bringing to light what lay hidden from vision.' *Hollister* v. *Benedict Manufacturing Co.*, 113 U. S. 59, 72. No such faculty has been tasked in giving form to this patent. There is here no sufficient foundation upon which to rest a claim which, if construed as broadly as the complainant insists it should be, practically makes all pay tribute who stir the mixture in question by machinery, and by hand also, provided substantially the same movement can be produced by hand-stirring, and this seems to be a disputed question upon the proof. The complainant's claim to be enrolled upon the list of inventors is based upon propositions too theoretical and visionary for acceptance." See, also, *Dreyfus* v. *Searle*, 124 U. S. 60; *Crescent Brewing Co.* v. *Gottfried*, 128 U. S. 158.

A careful consideration of the evidence and of the arguments on the part of the appellant (no brief having been submitted on the part of the appellee) induces us to concur in the views of the Circuit Court.

Decree affirmed.