v.43F, no.4-10

SUGAR APPARATUS MANUF'G CO. *v.* YARYAN MANUF'G CO. *ET AL.*[1]

Circuit Court, E. D. Pennsylvania. July 8, 1890.

1. PATENTS FOR INVENTIONS—EVAPORTING APPARATUS—NOVELTY.

The combination in an evaporating apparatus of parallel evaporating tubes, discharging both liquid and vapors directly into a common separating chamber, with a provision for an equal and regulated supply of the liquid to be evaporated to each of the tubes, *held* to be a patentable novelty.

2. SAME—EVIDENCE—AMENDMENT OF APPLICATION TO AVOID PRIOR PATENT—ADMISSION.

Yaryan, one of the defendants, and president of defendant company, who was conversant with the art, had applied for a patent for evaporating apparatus, which was rejected on the first patent in suit. He amended his application to avoid this patent. *Held,* that Yaryan's admissions in the patent-office should be regarded as the expressions of a competent expert, and as evidence in support of the validity of the patent in suit.

3. SAME—EXTENT OF CLAIM.

The original application for the first patent in suit included the device afterwards patented in the second; in erasing a description of this, there was also erased a description of a modification of the first, in which a "dome" placed above the evaporating tubes was dispensed with. The claims in issue do not include the dome as an element of the combination. *Held:* the claims should be construed to cover the combination set out therein, and the "dome" should not be read into the claims.

4. SAME—EXTENT OF CLAIM—DRAWINGS.

A claim containing as elements certain tubes, without specifying vertical or horizontal tubes, is not confined to vertical tubes, though the drawings show them only in this position, and their ends are designated as "upper" and "lower," where the invention clearly includes horizontal tubes, especially where, in other claims, the patentee intends to confine himself to vertical tubes, and he so expresses himself in plain language.

5. SAME—LETTER IN REPLY TO REJECTION—NOT LIMIT OTHER CLAIMS.

A letter from applicant for patent replying to a rejection by the patent-office, distinguishing a claim from the references cited against it by calling attention to the fact that the surfaces made, an element therein were vertical, not horizontal as in the alleged anticipation, affects no claim but the one rejected.

6. SAME—LETTERS TO OFFICE BEFORE GRANT OF PATENT—CLAIMS NOT AMBIGUOUS.

A correspondence between the inventor and the patent-office prior to the grant of the patent cannot control the import of claims the terms of which are not ambiguous.

7. SAME—INFRINGEMENT—EXPERT TESTIMONY NOT NECESSARY.

Where expert testimony does not seem necessary to the court, it can proceed to determines the question of infringement without its aid.

8. SAME—LETTERS PATENT NO. 341,669.

Claims of letters patent No. 341,669 sued upon, *held* to be valid claims and infringed by defendant.

9. SAME—ABANDONMENT—ERASURE FROM PRIOR APPLICATION.

The specification of a patent originally embraced matter which was erased before issue, and was after the issue presented in another application arid patent issued thereon. *Held,* not an abandonment of the parts erased from the first specification.

10. SAME—NOVELTY.

Claims which cover merely placing several apparatus side by side, and connecting them in substantially the same manner as had previously been done with analogous apparatus, a pump to cause a flow of liquid from one to another being the only new element, do not, even though the individual apparatus had a special fitness for such connection, cover patentable novelty.

11. SAME—LETTERS PATENT NO. 378,843.

The novel portion of claims of letters patent No. 378,843 sued upon, is fully claimed in prior patent to same inventor, No. 341,669, also sued upon. The question Of infringement and novelty of other claims in patent No. 378,843 not being in issue, not passed upon.

12. SAME—NOVELTY.

The claims sued upon in letters patent No. 378,843, claim merely duplications of the apparatus claimed in letters patent No. 341,669, and the addition of a pump cannot make the subject-matter of said claims, a patentable invention in view of said letters patent.

In Equity.

Bill for injunction and account against the Yaryan Manufacturing Company, Homer T. Yaryan, and Frederick B. Dodge. The apparatus described in complainant's patent 341,669, consisted essentially of a chamber, E, in which were a number of parallel tubes, *b, b, b,* called a "battery," along the interiors of which the liquid to be evaporated was made to pass in thin films. The exterior of the tubes were exposed to the action of hot steam. At the top of the tubes was a chamber, G, which received the liquid, and had devices distributing it over the interior surfaces of the tubes. At the bottom of the tubes was a well or separating chamber, P, that received both the vapors and the unevaporated liquid from the ends of the tubes, and was kept, as were the tubes, in a comparative

vacuum. Outside the apparatus was a condenser which was connected by a conduit Y, with the chamber, P, to draw off the vapor, and to maintain a vacuum in the chamber and evaporating tubes, and in the drawings was shown a "dome" into which the tubes communicated at the top, which also was connected with the condenser. The claims alleged to be infringed were:—

"(4) In an apparatus for evaporating liquids, the combination of a heating chamber Containing the battery of tubes, *b,* chamber, G, communicating with the interiors of the tubes, as described, chamber, P, and conduit, Y, connecting the chamber or well, P, with a suitable vacuum-inducing apparatus, substantially as described. (5) In an apparatus for evaporating liquids, the combination of a battery of tubes contained in a heating chamber, means for delivering a liquid upon the interior surfaces of the tubes near their upper ends, well, P, for receiving the vapors and unevaporated liquid from the lower ends of the tubes, and means for maintaining a more or less perfect vacuum in the well, P, substantially as specified. (6) In an evaporating apparatus constructed and operating as set forth, the combination of a battery of tubes, *b,* contained in a suitable heating chamber, well, P, with which the lower ends of the tubes communicate, and into which the unevaporated liquid from the same flows, and a pump or equivalent means for returning liquid from the well, P, into the interior surfaces of the tubes, substantially as specified." "(11) In an evaporating apparatus, constructed substantially as described, the combination, with the chamber, G, and well, P, of a pump, M, or other suitable means for returning liquid from the well, P, into the chamber, G, substantially as described."

In claim 1, the patentee has used the words "approximately vertical" in reference to the "evaporating surfaces;" and in the second claim the word "vertical" in reference to "tubes" in certain combinations.

Edward, N. Dickerson, Randall Morgan, and *George Harding,* for complainant.

Elmer P. Howe and *Chauncey Smith,* for defendants.

BUTLER, J. The suit is for infringement of two patents, No, 341,669, dated May 11, 1886, and No. 378,843, dated, February 28, 1888,—granted to S. M. Lillie,—the first for "improved apparatus for evaporating sugar solutions," and the second for "vacuum apparatus for evaporating liquids." The defense assails the validity of each patent; and also denies infringement. The specifications of No. 341,669 carefully describe the apparatus covered by that patent,—too elaborately, however, for insertion here. This patent, and the alleged infringement of it, will first be considered.

The process, which the apparatus is designed to carry out is described in the specifications as follows:

"The process consists in causing the sugar solution for evaporation, to flow in thin films over surfaces heated by steam or otherwise, and in maintaining in the space or spaces in which the surfaces are exposed, and in which the evaporation takes place, a more or

less perfect vacuum, to facilitate the evaporation of the solution flowing over the heated surfaces."

The application for this patent was filed on the 25th day of April, 1884. The charge of infringement is confined to the fourth, fifth, sixth,

and eleventh claims. The history of the art, to which the patent belongs, shows that prior to Lillie's invention the most advanced apparatus for vacuum distillation was one patented by Mr. Yaryan in 1884. It is well described in the accompanying specifications, from which the following is copied:

"In the ordinary operations of vacuum distillation a 'vacuum pan' is employed, consisting, substantially, of a large copper or iron vessel for holding the liquid to be evaporated, and provided with steam coils at the bottom of said vessel for heating the liquid. Among the difficulties attending the process as ordinarily followed are, that by reason of the necessity of dealing with only the immediate contents of the vessel at one operation the process is not continuous, and time and labor are lost in the frequent replenishing required. Moreover, owing to the length of time during which the liquid is necessarily exposed to heat, in many cases the color is injured and the value of the ultimate product impaired, while in the case of saccharine solutions this prolonged exposure to heat tends to convert crystallizable into uncrystallizable sugar. Further, in order to deal with a sufficient quantity for commercial practicability at each replenishing, a vessel of large dimensions is required, thereby entailing large original outlay, besides increased cost in maintaining a vacuum and a large waste of heat by radiation from so large an exposed surface. In such pans a large inner space must be allowed for frothing, to prevent loss in boiling over, and the entire operation thus necessitates constant and highly-skilled attention to prevent turbulent boiling;"

Mr. Yaryan's previous patent, of 1878, is also worthy of attention in this connection, and has not been overlooked. It is not necessary however, to enlarge on this branch of the case. The state of the art, the deficiencies of former apparatus, and the object of inventors in this line, are readily seen and understood by an examination of the patents just referred to. Mr. Yaryan's apparatus of 1884 was intended for a more effectual means of applying the process of vacuum distillation. The process itself was old. The apparatus was not successful when applied to sugar distillation. The reasons are stated by Mr. Yaryan in his applications for other patents in 1886. In one of them he says:

"In an apparatus patented by me June 10, 1884, No. 300,185, the advantages of continuous and rapid evaporation *in vacuo,* are fully and correctly stated. In operating the apparatus therein described, where large quantities of liquids are to be operated upon, it becomes necessary to multiply the number of coils in order to obtain the requisite amount of heating surface. To a certain limit this is practicable, beyond which, and especially when used for multiple effects, there are serious objections, among which are cost, space occupied, and the large number of joints exposed to the atmosphere to be kept tight. In the apparatus, and by the methods constituting the subject of my invention, these difficulties are largely overcome; and to this end I employ a cylinder containing a large number of

tubes, each tube being the equivalent of a coil, and so arranged as to receive an equal feed and to discharge into a common separating chamber.".

In the other of said applications of 1886, he says:

"In the apparatus described in said original patent, numbered 300,185, the fluid to be evaporated is fed to a coiled pipe connected with a vacuum pump and surrounded by steam or other heating medium. In its course through said pipe the fluid gives off in vapor its volatile constituents, and the vapor and fluid are discharged into a separating chamber, from whence the vapor

passes over either to a condenser or to the outer air, while the evaporated substance is withdrawn from the separating chamber by a tail pipe or pump, making the evaporating process continuous. In the specification of said letters patent I point out that as the equivalent of the arrangement shown, the coil of pipe conducting the liquid to be evaporated may be inclosed in a larger pipe instead of a drum, and the steam or other heating medium introduced in the space between the two pipes. In practice I find this arrangement to be preferable, as the simpler and cheaper form, and my improvement relates more particularly to a device employing, coils so arranged. When it is desired to increase the capacity of my device so as to treat fluids in large quantities, I find that it is not practicable to do so by increasing to any considerable extent either the diameter or length of the pipe constituting my evaporating coils, for the following reasons: *First,* The coils being usually of copper, the increase of thickness and weight of metal requisite as the diameter of the pipe is increased, renders the cost, as well as the bulk and weight of the enlarged coil, entirely disproportionate to the increase of capacity. *Second.* Unless the diameter or area of the pipe is restricted, a sufficient current of vapor will not be formed to throw the liquid being evaporated into commotion, so as to constantly bathe the whole inner surface of the coil, which is absolutely necessary to insure the greatest efficiency of heating surface and to prevent coating and clogging of the coil. *Third.* In coils composed of pipe of uniform diameter a uniform degree of vacuum and heat cannot be maintained throughout the coil, owing to the constantly increasing volume, pressure, and friction of the vapor as it progresses towards the separating chamber. *Fourth.* When the coil is of too great length, the friction of the contained fluid and vapor amounts to several inches of mercury, or, in other words, a vacuum gauge connected with the outlet will mark some inches higher than one connected with the inlet, which results in unduly heating the substance contained in the inferior vacuum, and in consequent injury to the product."

To overcome the defects of Mr. Yaryan's apparatus of 1884, and of all others then in use, was, as we have seen, the object of his later inventions. Mr. Lillie's efforts bad also been directed to this end, and, as before stated, he applied for the patent under consideration, April 25, 1884. A comparison of the specifications and claims of Mr. Yaryan's application of 1886 (for No. 355,259) with Lillie's shows that the invention described in each (as respects the matters here involved) is substantially the same. Differences in form and construction of some parts of the apparatus, described in the two applications, appear; but they seem to be immaterial as respects the subject of invention now under consideration. In principle, operation, and effect the apparatus are, I think, the, same, to the extent involved. Mr. Yaryan, on being referred to Lillie's patent, amended and obtained letters. The apparatus, however, subsequently underwent other changes, which appear in his subsequent patent of 1888. This reference to the state of the art and acts of the parties brings us to the questions raised by the defense.

First.—Is the patent valid—does the improvement show patentable novelty? It would not be profitable to devote much space to this question. Starting with the usual presumption in favor of the patent, considering the state of the art, and the admissions of Mr. Yaryan, shown in his application for the patent, just referred to, covering similar invention, the conclusion that this question should be answered affirmatively seems unavoidable. I do not attribute to these admissions the

force of an estoppel, but treat them as the expressions of a competent expert. Without them, indeed, it would seem reasonably clear that Lillie was the first to perfect an apparatus adapted to the successful application of this process of vacuum evaporation to sugar liquids. How he accomplished it—the peculiarities of his apparatus—fully appears by his specifications. The substitution of comparatively short parallel tubes for the old coils of pipe, the addition of a separating chamber into which they discharge directly, both the liquid and vapor, with provision for an equal, regulated supply to each of the tubes, constitute the most important new features. These changes from the old devices are of great value; and with others of less consequence, combined as he describes, constitute substantially a new apparatus. The improvement over all former devices, intended for the same use, is such an advance in the art as seems to put the question of invention beyond doubt.

Second.—Has the respondent infringed? As we have seen, the claims involved are the fourth, fifth, sixth, and eleventh. They are for combinations of various elements of the apparatus, and are readily understood. Were they intended to express what their terms (considered in connection with the specifications alone) import; or should they be construed to mean something else? On this question much time and labor were expended. The respondent has subjected the claims to careful analysis, in the light not only of the specification, but also of attending circumstances, in an effort to show that they include by implication the "dome, D," and also a *vertical* arrangement of the tubes.

As respects the first—the implication of the dome—I cannot accept the respondent's view. The point is, however, not free from embarrassment. The difficulty arises, apparently, from carelessness of the patentee in erasing from the specifications (as originally filed) what relates to the "multiple effect" combination. In doing this he included in the erasure a description of modifications of the "single effect" apparatus, dispensing with the dome. This description has no special relation to the combination referred to; it relates particularly to a modification of the previously—described "single effect" apparatus. The claims under consideration were drawn in conformity with it—dispensing with the dome, before the erasure was made, and were subsequently allowed without change. The erasure seems, therefore, to be the result of inadvertence. The embarrassment arises from the insertion of the clause and its erasure combined. If the clause had been omitted originally, I think it would be reasonably clear that the claims should be construed to cover the combinations stated, without the dome, as their terms import. Under the circumstances, I still think they should be so construed. Both the office and the patentee must, I think, have understood them to cover the modification stated. They were drawn, as before observed, prior to the erasure, when it is clear such modification was intended, and were allowed, subsequently, without amendment. I attach no importance to the fact that the patentee included the dome when describing the Operations of his device. From this description the operation without the dome is readily understood; and it would have

been unusual to describe the operation with reference to the various modifications contemplated. Besides, this description, was also written before, the erasure, when, it is clear the modification was contemplated. I cannot seriously doubt that the claims were understood and intended to cover only what they express—a modified combination, dispensing with the dome.

As respects the second—the implication of *vertical* tubes—more should be said. That the claims were originally intended to cover the combinations with tubes differently arranged (varying from vertical) I cannot doubt. It must be supposed that Lillie intended to cover his entire invention. If he confined himself to vertical tubes he did not cover it; for the invention embraces tubes in any other practicable position, as clearly as it does those vertically arranged. There is nothing more to distinguish the latter from what was old, than the former. If tubes in horizontal position, or varying at all from vertical, had been old, a change to vertical would not have been patentable. The specifications show that Lillie so understood the scope of his invention, and the claims show his intention to cover the whole of it. The specifications refer to other than vertical tubes, and the claims are drawn in terms, not only broad enough, but most appropriate to include such other tubes. Where he intends to confine himself to a vertical arrangement he so expresses himself in plain language, as appears by other claims. Where he intends to confine himself to a *slight variation* from vertical, he says so, as in the first claim. While he attaches most importance, as he states, to the vertical arrangement, for reasons, given in the specifications, he attaches importance also to, any other which is practicable. His statement of preference for the former is not an exclusion of the latter, but rather an implied reiteration of his claim to it. The respondent's inference, from what he says on this subject, would seem to limit him to *strictly* vertical tubes. If varied even slightly from this position the tubes might nearly as well be horizontal; for in such case the equal distribution to their surfaces, from which the especial benefit of the vertical position arises, could not be maintained. The respondent further points, in this connection, to the words "upper and lower ends" of the tubes, found in the claims. I do not think importance should be attached to this language. It is strictly appropriate if the tubes vary ever so little from horizontal; and it is not entirely inappropriate, I think, when applied to the receiving ends of horizontal tubes through which a stream flows. We associate the idea of upper and lower with such streams, and I think the source from which they flow may be termed the upper end, without actual misuse of language, even though the course is level and the flow forced. So the expression may be understood in the claims. Slightly more important is the fact that some of these claims call for the "battery of tubes, b," and that the specifications refer to this battery as one of vertical tubes. The drawings exhibit tubes in this position only. The purpose of the drawings is to illustrate the parts and combinations of the apparatus, noth-

ing more. The tubes and their relations can as Well be illustrated in one of the positions specified as another.

It would have been waste of labor, as well as unusual, to draw them in the various positions contemplated. Placed vertically in the battery shown, the specifications properly describe this battery as one of vertical tubes; but it does not follow that the other arrangements, described in the specifications are excluded, and that the claims are to be limited accordingly.

The correspondence between Lillie and the office, is also invoked, as evidence that the claims were intended to embrace vertical tubes only; and also as a reason why Lillie should be so confined in a court of equity, regardless probably of intention. This correspondence is as follows:

"April 25, 1884. 129, 291.

"Claims 1, 2 are met by patent of Percy, 52,197, Jan. 23, 1866. See also patent of Southmayd, 34,651, Mar. 11, 1862. And Matthiessen, 147,149, Feb. 3, '74, and are rejected.

B. S. HEDRICK, Ex."

"1910 LOCUST STREET, PHILADELPHIA, PA., December 14, 1885.

"*To the Honorable Commissioners of Patents:* In reference to my application 129,291, filed Apr. 25, 1884, for improvements in evaporating apparatus, and to your letter of the 7th inst., rejecting the first and second claim of said application. The first claim I hereby abandon as met by the references cited. The second claim I ask a re-examination for on the ground that in no case, in the references, are the evaporating surfaces vertical, or approximately so. In Matthiessen's arrangement (patent No. 147,149, 2, 3, '74) the evaporating trays, B, are nearly horizontal. In Percy's (52,197, 1, 23, '66) the evaporating coils are nearly horizontal, and in Southmayd's (No. 34,651, 4, 11, '62) the wire netting of the plunger is not a continuous vertical surface at all, nor is it an evaporating surface or wall in the sense of one to one side of which heat is applied for the evaporating of liquid in contact with the other side; the plunger and nettings simply act as an agitator and not as a conveyor of beat for evaporating purposes, as stated on p. 2 of the specification of my application. The object in having the evaporating surfaces vertical is that it permits evaporation being carried on on all of the surface inclosing (or exposed) in the evaporating spaces; thus in the tubes of my arrangement are utilized the entire surfaces of interiors of the tubes in evaporating their films of liquid, while in the case of Matthiessen's trays, for example, only the upper surfaces Of the hollow bottoms, c, of the trays, B, are evaporating surfaces. If the trays, B, were vertical, then the liquid could be made to flow down both surfaces of the hollow bottom, c, and the arrangement would meet my claim.

"Yours respectfully,

S. MORRIS LILLIE."

Mr. Lillie's letter is assumed to be an admission that the claims are for vertical tubes. This point was urged with impressive force. I am not satisfied, however, after careful

examination of the letter and the circumstances under which it was written, that this assumption is justifiable. The only claim under consideration was the second—first in the patent. This is for the combination therein stated, with *vertical surfaces.* To apply the admission to other claims, for different elements and combinations, is, I think, inadmissible. That he did not intend it to be so applied, and that the office so understood, seems manifest, from the fact that he did not amend, and that the office granted the claims as drawn. Indeed, the office never objected to them. If Lillie contemplated

such an admission, we would expect him to amend, and if he did not, and the office so understood his letter, we would expect it to reject his application. Yet he did not amend, and the office allowed the claims. Granting, however, that the assumption is justifiable, what is the result? We have seen that notwithstanding the assumed admission, the claims were allowed as drawn, covering, (as we have found,) horizontal tubes, and the patent issued accordingly. This act of the office is not only inconsistent with the belief that the claims were intended to be limited to vertical tubes, but is conclusive, I think, that they were not. If the correspondence evinces an intention, at the time of its date, to restrict the claims, the subsequent act of the office shows that it was abandoned. This was the final act in the transaction, and is entitled to controlling weight. The patent was intended to express and define the patentee's rights. If the claims granted are inconsistent with former expressions of the office, and admissions of the patentee, the logical inference is that further examination led to a change of views. The case is not analogous to one in which the terms of a claim are ambiguous, and susceptible of different constructions, and the acts and declarations of the patentee are appealed to. Here the terms are not ambiguous; and their import cannot be set aside or controlled by the previous correspondence—even if it be interpreted as the respondent desires. In *Vulcanite Co.* v. *Davis,* 102 U. S. 222, the court said:

"We do not mean to be understood as asserting that any correspondence between the applicant for a patent and the commissioner of patents can be allowed to enlarge, diminish, or vary the language of a patent afterwards issued. Undoubtedly a patent, like any other written instrument, is to be interpreted by its own terms."

The doctrine of estoppel, which is also invoked, is inapplicable to the facts. Neither Yaryan nor the respondent was misled. If aware of the correspondence, the subsequent grant of the claims would guard them against misunderstanding. There is no reason, therefore, why equity should not construe the claims as their terms import.

With this construction, are the claims infringed? It is urged, as matter of law, that the court cannot pass on this question, without expert testimony. I do not so understand. Expert testimony is often necessary, in disposing of such questions; and there the court will not proceed without it. Here, however, it does not seem necessary. Mr. Yaryan, as we have seen, amended to escape the objections of the office—founded partly on Lillie's patent. From time to time he made other changes, until the apparatus became what is shown in the alleged infringing devices. The changes, however, seem to be formal and unimportant, so far as respects the claims involved. Looking at Lillie's specifications and claims, and observing the variety in form and combination contemplated, it is, I think, reasonably clear that the devices used by the respondent infringe the claims under consideration. While there are mechanical differences, the apparatus of the complainant and

respondent, so far as respects these claims, seem to be the same in manner of combination, the elements embraced, mode of operation and effect.

It would be a waste of time to enter upon an analysis of the apparatus and point out the infringement more particularly. I think the substance of each claim involved is almost as readily seen in the respondent's as in the complainant's.

The other patent sued upon, No. 378,843, is, in the language of the specifications, for the "combination of a series of evaporating pans, each having a construction substantially as shown in patent No. 341,669, to form a multiple effect evaporating apparatus, and consists further in a series of surface heaters arranged in connection with the pans, and operating to use a portion of the vapor from the several pans for heating either a single liquid passed in succession through the several heaters, in the direction from the coolest to the hottest, or for heating different liquids in the several heaters respectively,"

The claims involved are as follows:

"(3) The combination of the battery of evaporating tubes, their surrounding heating chamber, E, and collecting chamber, P, common to the said tubes of an evaporating pan operated substantially as described, the heating chamber and its contained evaporating tubes of a second similarly operating pan, a vapor conduit leading from the collecting chamber, P, of the first pan to the heating chamber, E, of the second pan, and a liquid conducting pipe and connections leading from the chamber, P, of the former to the feed ends of the evaporating tubes of the latter, substantially as and for the purpose described. (4) The combination of the battery of evaporating tubes, *b,* their surrounding heating chamber, E, and collecting chamber, P, common to the said tubes of an evaporating pan operating substantially as described, the heating chamber, E, and the tubes, *b,* of a second similarly operating pan, and a vapor conduit leading from the collecting chamber, P, of the first pan to the heating chamber, E, of the second pan, substantially as and for the, purpose specified." "(6) The combination, with two consecutive pans of a multiple effect evaporating apparatus, each pan being provided with the evaporating tubes, *b,* and collecting chamber, P, of a pump, C, having its suction pipe connected with the chamber, P, of the first of the two pans, and its eduction pipe, *v.* with the feed ends of the evaporating tubes of the second pan, the pump and its connections operating to draw liquid from the chamber, P, of the first pan, and to deliver it to the evaporating tubes of the second pan, substantially as specified."

The question of validity applies, of course, to these claims only. Whether the patent may be sustained for other claims embraced, is not involved. I attach no importance to the fact that the specifications of the prior patent originally embraced this subject. Mr. Lillie had a right to withdraw that part, as he did, and present it subsequently. I see nothing to justify the allegation of abandonment.

Do the claims, or does either of them, embrace invention? The "multiple effect" process was old, and had long been practiced, when this patent was applied for. Rillieux described, and applied it, in 1843, as appears by his patent of that date. His method of

applying it was to place several "single effect" apparatus side by side, and unite them in such manner that the liquor and vapor, after passing through the first would pass into the second, and so on to and through as many such apparatus as were united, receiving an additional effect from each. To

place several of Lillie's apparatus, covered by the first patent, side by side, and unite them in the same manner and by the same character of appliances that Rillieux employed in uniting the old single effect apparatus, certainly would not require invention. If it be admitted that Lillie's apparatus, so united, constitutes a new combination, a new device, (and in one sense it does,) this admission would not support the claim to patentable novelty. The combination would be new only to the extent of the single effect apparatus combined in it; and this apparatus is covered by the former patent. Nor does it tend to support the claim to such novelty to say that Lillie was the first to make a successful application of the multiple effect process to film evaporation. Here, again, so far as respects the claims involved, the statement is correct only to the extent that his single effect apparatus is embraced. The manner of combining the single effect apparatus is the only thing covered by the claims, and in my judgment, it embraces nothing new. The third is for the liquor and vapor conduits, in the connection stated; the fourth is for the vapor conduit alone, in this connection; while the sixth is for a pump combined with a liquor conduit. I am unable, after patient examination, to find any material distinction between this means of uniting, several single effect apparatus, with a view to multiple effect, and that employed by Rillieux. In construction, character, operation, and effect, the means or devices employed, seem to be essentially the same.

Rillieux did not use the pump to accelerate the flow of liquor, when sluggish, as Lillie does; but the addition of this old means of accomplishing such a purpose did not require invention. Any mechanic directed to increase the flow would presumably have added the pump. It is the most common appliance for such a purpose.—It would have made no difference, as respects this question, if the original application, of 1886, had not been amended by the withdrawal referred to, and these claims had been inserted in the first patent. The objection to them, there would have been the same, that is to say, that all patentable novelty is covered by the other claims.

I have not overlooked the usual presumption in favor of the patent, nor the fact that Yaryan's conduct may probably again be appealed to in its support. But with these considerations fully in mind I am nevertheless forced to the conclusion that the claims cover nothing new. The first patent to Lillie embraces everything mentioned in them to which he is entitled. For the introduction of any of the matters covered by that patent into the respondent's combined devices, it must answer in damages, as we have already determined. It cannot use them, in any connection or combination whatever, without the complainant's assent.

Nor have I overlooked the fact that one of the advantages of Lillie's single effect apparatus is its especial fitness for further combination and use in the multiple effect process. This advantage inheres in that apparatus and is covered by the patent for it. It is one of

the features that renders that invention valuable. Lillie, and others obtaining his assent, may utilize it by making such combinations. If in making

them something new and patentable is introduced protection for it may be obtained. If the other claims of Lillie's 1888 patent cover such new things they will of course be sustained. That question is not involved. The decision here is simply that the claims under consideration embrace nothing new and are invalid.

[1] Reported by Mark Wilks Collet, Esq., of the Philadelphia bar