

upon it was for, "an entirely distinct and independent invention from that embraced in the application as originally filed." Having acquiesced in that ruling, the patentee cannot be heard to insist that the matter so excluded is nevertheless covered by the patent. It follows that the decree of the circuit court, in so far as it declared patent No. 412,751 to be valid and infringed, and No. 420,510 to have been infringed, is erroneous, and should be reversed, and it is so ordered.

DE LA VERGNE REFRIGERATING MACH. CO. v. FEATHERSTONE,
et al.

(Circuit Court, N. D. Illinois. January 21, 1895.)

1. PATENTS—ANTICIPATION—PRIOR STATE OF THE ART.

The Boyle patent, No. 175,020, for an improvement in gas-liquefying pumps used in refrigerating machines, held void for anticipation as to the combination claimed in its first claim, but not as to the removable cages for the valves claimed in its second.

2. SAME—INVENTION.

The introduction of removable cages for the valves of a gas pump of a refrigerating machine, whereby the valves may be replaced with but a few minutes' interruption, and thus the work of refrigeration enabled to go on almost continuously, is a patentable invention, as the presence of such cages performs a proximate office in the function of the machine.

3. SAME—INFRINGEMENT.

Minor differences in the adjustment of parts and in the construction of the mechanism, such as would be naturally suggested to any skilled mechanic with the patented combination clearly in mind, will not save a device from being an infringement.

In Equity. Bill by the De la Vergne Refrigerating Machine Company against John Featherstone and others to enjoin infringement of a patent and for an accounting.

Hubert A. Banning, Banning & Banning, Charles H. Aldrich, and Edmund Wetmore, for complainant.

Bond, Adams, Pickard & Jackson, for defendants.

GROSSCUP, District Judge. The bill in this case is to restrain the infringement of letters patent No. 175,020, issued March 21, 1876, to James Boyle, his heirs or assigns, for "an improvement in gas liquefying pumps." The improvement relates to that class of machinery which is employed for the abstraction of heat for refrigerating and ice-making purposes. The principal defenses are the invalidity of the patent and noninfringement.

Mechanical refrigeration has become an art. Ammonia, destitute of water, by reason of its susceptibility to rapid vaporization from a liquid to a gaseous state, during which heat from surrounding objects is rapidly taken up, is the agent most usually employed. This agent is distributed through the environment to be operated upon by means of pipes and coils, which are connected with a compressor, and the gas, after expanding from a high to a low pressure, during which the heat is taken up, returns for recompression.

When compressed, it is again discharged through the pipes and coils under high pressure, with power of performing its circuit anew, and during each cycle it changes its condition from a gas under high pressure to a liquid, and from a liquid to a gas under low pressure. The gas compressor is a pump, and it is to this part of the refrigerating mechanism that the complainant's improvement relates. The complainant's patent is described in the letters patent as follows:

"A represents the pump cylinder, provided with the heads, B and B¹, bolted thereon in the usual manner. C is the piston or plunger, provided with the piston rod, D, which passes through the head, B, and through a stuffing box, D, thereon. G is a tube or chamber running the entire length on the outside of the cylinder, and provided with the air inlet, G¹. This air tube communicates with the interior of the cylinder, A, close to the head, B. Throughout a passage, a, and at the other end, it communicates with one end of an air tube, G², running across the head, B¹, on the outer side. This air tube, G², is divided centrally by a cross partition, b, and the other end of said tube communicates with the air outlet, G³. The various air tubes or chambers are preferably cast with a cylinder and head, as shown in the drawing, but may be arranged in any other suitable manner. Through the air tube or chamber, G², on each side of the partition, b, is screwed a cage, the upper end of which extends up into an aperture in the cylinder head, B¹, and at the joint are suitable shoulders, x, x, so that when the cage is properly screwed up the joint will be perfectly air-tight. On the upper end of the cage, H, is formed a seat, d, for the inlet valve, I, which has a stem or rod, J, extending downward through guides, h, h, within said cage, and the valve held down to its seat by a spiral spring, l, surrounding the stem between the guides. On the upper end of the cage, H, is formed a seat, d, for the outlet valve, I. The valve stem, J¹, guides, h¹, and spring, l¹, are the same as in the first cage, except that the spring is arranged to hold the valve up to its seat. The lower ends of the cages, H, H¹, are closed by means of screw caps, L, forming tight joints with the chamber, G²."

The patent is a combination patent, and the claims are as follows:

"(1) In combination with the cylinder, A, and its heads, B, B¹, the solid piston head, C, the tube, G, extending the entire length of the cylinder, the air-tubes, G¹, G², air inlet, a, cages, H, H¹, having valves, I, I¹, and the outlet, G³, all constructed substantially as and for the purposes herein set forth."

"(2) In combination with the cylinder, A, and air tube, G², the removable cages, H, H¹, provided with spring valves and exterior screw threads, and exterior screw caps, L, L, all substantially as and for the purposes herein set forth."

It is not contended that any of these parts are new. The validity of the patent must be maintained, if maintained at all, solely on the score of a new and useful combination of old parts. A review of the state of the art satisfies me that, excepting the removable cages, all the other elements of the combination have been united in previous patents, some of them in other arts, such as the Seguin patent of 1838, and some in the refrigerating art itself, such as the Della, Beffa & West, and the Harrison patents. In the two patents last named the cylinders were double-acting, and provided with outlet valves at each end. But I do not think the adaptation from double-acting to single-acting cylinders is invention. Single-acting cylinders are old, and it is at best but mechanical selection to

choose a cylinder of that character, and adapt to it valves in use in the other.

It is urged with some persistency that in the patents named, and some others, removable cages for the valves were employed. I am not wholly free from doubt on that question. The experts and counsel on the respective sides have disagreed, and no models of these patents have been brought to my attention. The question is one of fact, and is to be decided, so far as this record goes, upon the disclosures of the drawings alone. I have looked into these drawings in vain for any certain indication of removable cages. They have some features from which an inference of that character may be drawn, and there are indications which seem to rebut it. The pertinent inquiry is whether, in the state in which they appear in this record, they would suggest, naturally and reasonably, to the inventor, the feature of removable cages. He is limited in his claims by all the information that these patents have given to the world, but he is not limited by all the doubts or conjectures that they may create. My own judgment is that, in the absence of the suggestion aliunde of removable cages in combination with the other elements of the pump, the patents brought to my attention would not suggest them, and I cannot find that they actually contain them. It therefore follows that in respect of the removability of the cages, the complainant's invention is not anticipated by the patents to which reference has been made.

It is not disputed that the removability of the cages containing the valves is a very advantageous feature of the mechanism. It enables the valves to be replaced with but few minutes' interruption, and thus the work of refrigeration to go on almost continuously. It is, in this respect, a highly useful improvement upon previous refrigerating mechanisms. The introduction of such cages into a combination is not, in my judgment, a mere aggregation. Its presence there performs a proximate office in the function of the machine. It may be admitted that in ordinary mechanism a method of easy access to the parts, whereby repairs may be made quickly and inexpensively, is not itself a part of the function of the machine, but is only accessory and incidental. But the product of this machine is a state of temperature, and any interruption affects not only the quantity, but the quality, of the thing produced. Thus, practically uninterrupted refrigeration for weeks and months is a very different result from refrigeration occasionally interrupted by hours of time. The difference between the two is the difference between success and partial success in the art.

It is not contended that the cages themselves, or their feature of removability, are new, but that their introduction into this sort of a pump and mechanism is new. The question, therefore, remains whether such introduction is invention, or simply mechanical selection. This question is in nearly all patent cases the turning one, and the most difficult to solve. After old elements have been put together, and their usefulness for the new purpose demonstrated, it is easy to say that any mechanic could have brought about the

result. Foresight after the event is the simplest and commonest of endowments. But the fact that constancy of temperature was a pressing need in the art of refrigeration, and had been for a long time, and that no mechanism, prior to this combination, had accomplished that end, is a cogent argument that the result, when accomplished, was the product of thought and conception, rather than mere mechanical selection.

In *Loom Co. v. Higgins*, 105 U. S. 580, Justice Bradley says:

"It may be laid down as a general rule, though perhaps not an invariable one, that if a new combination and arrangement of known elements produces a new and beneficial result never attained before, it is evidence of invention."

The discovery of the exact point at which the fault of previous machines lay, and of the expedient of counteracting this by relays of valves, required a reasoning beyond mere adaptation, and were thus pre-essentials to the selection of the removable cage feature. I am constrained, therefore, to look upon the introduction of these elements into the combination as patentable invention.

It is sufficient to say that in the respect pointed out the defendants' device infringes upon the complainant's patent. There are some minor differences in the adjustment of the cages and in the construction of the mechanism, but they are differences which to any skilled mechanic, with this combination clearly in mind, would be naturally suggested. A decree may be entered for the complainant, sustaining both claims of the patent, and for an accounting.

JOHNSON CO. v. PENNSYLVANIA STEEL CO.

(Circuit Court, E. D. Pennsylvania. May 14, 1895.)

No. 53.

1. PATENTS—INVENTION AND MECHANICAL SKILL.

For the purpose of meeting a defense that only mechanical skill was required to produce the device of the patent, complainant showed that a device was made by another person, prior to the application, to accomplish the same result, which was different from and much inferior to the device of the patent, and argued therefrom that a mechanic did not and could not learn from the prior art the mode of construction shown in the patent. *Held*, that this was not conclusive, because the scope of mechanical skill is not restricted to the skill of any particular mechanic.

2. SAME—RAILWAY SWITCH.

The Moxham patent, No. 333,474, for a railway switch for street cars, is void as disclosing only mechanical skill. *Johnson Co. v. Pennsylvania Steel Co.*, 62 Fed. 156, applied.

This was a bill by the Johnson Company against the Pennsylvania Steel Company for alleged infringement of a patent for a street-railway switch.

Harding & Harding, for complainant.

Philip T. Dodge and Joshua Pusey (Mark Wilks Collet, of counsel), for defendant.