

The original claims were two, worded as follows:

"(1) A single-acting pump for liquefying gas for ice machines, in which the gas to be compressed has a free passage into the pump over the piston head as well as through the inlet valve under the piston head, where it is compressed, thus doing away with the necessity of having a valve in the piston head as set forth. (2) In a pump for liquefying gas for ice machines, I claim the removable cages, H, H', with the valve seats, valves, and guides, substantially as and for."

Each of these claims was rejected on references, and the following were substituted:

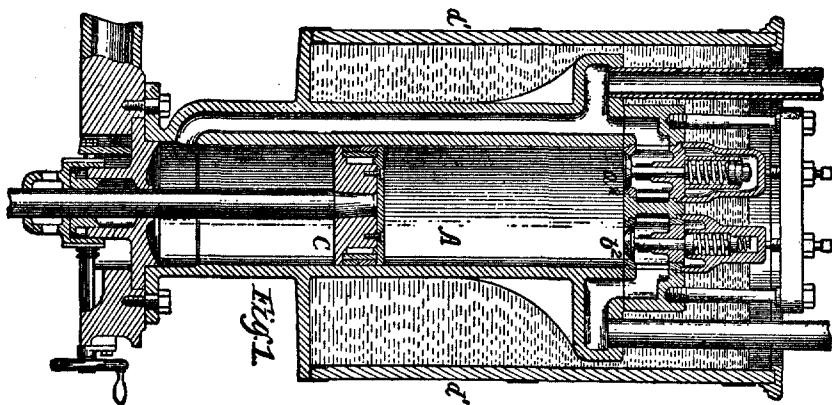
"(1) In combination with the cylinder, A, and its heads, B, B', the solid piston head, C, the tube, G, extending the entire length of the cylinder, the air tubes, G', G², air inlet, a, cages, H, H', having valves, I, I', and the outlet, G³, all constructed substantially as and for the purposes herein set forth. (2) In combination with the cylinder, A, and air tube, G², the removable cages, H, H', provided with spring valves and exterior screw threads, and exterior screw caps, L, L, all substantially as and for the purposes herein set forth."

The first claim is for a combination, one factor in which is the "cages, H, H', having valves, I, I', * * * constructed substantially as and for the purposes herein set forth." The specification and Fig. 1 of the drawings show two cages, each containing a valve, with its stem and guides, and a spring to press such valve back into its seat after the inflow of gas in the one case or the outflow in the other, whereby the appropriate valve has been pushed from its seat, has ceased. The head, B', of the cylinder, which is one of the factors of the combination, is so constructed as to leave therein the spaces on either side of the partition, b, to be occupied by the valve cages. The word "cage" implies a structure complete in itself, and containing the valve with its incidental mechanism. This structure, as described in the specification and as shown in Fig. 1, is removable as an entirety from the head, B'. It is contended that the first claim must be understood as though the cages were integral with the head, B', and not removable. This in view of the words, "removable cages, H, H'," in the second claim, and Fig. 2 of drawings. The patentee says, speaking of his drawings: "Figure 1 is a longitudinal section of my invention. Figure 2 shows one of the valves therein." The structure of the cage and its joints of connection with the head, B', is fully shown in Fig. 1. Fig. 2 was intended to show the inlet valve, and the mode of access whereby the gas is admitted to the under side of the same. Lines indicating the contour of the cage were not essential to the purposes of that figure. There is nothing in the specification to signify any possible construction of the valve inclosure other than a removable cage containing the valves. It is obvious, moreover, when the art to which the invention was to be applied is considered, that removable valve cages were deemed the important and characteristic feature of the invention.

The product of the combination of claim 1 is a state of temperature with reference not only to degree of cold, but to continuity under conditions where loss of property might result from any unduly protracted rise in temperature or stoppage of the pump. The removal of one cage in case of wear or accident and the substitution

of another within such an interval of time as will enable the machine to retain control of the temperature in a refrigerating room without endangering the property to be so preserved is the conception of the patent. If the quality of removability and substitution of cages had no other significance in this patent than mere convenience in mending the machine, the case might be different. But the removability of the cages affects the product of the combination. It would seem entirely clear that the cages, "H, H', having valves, I, I', * * * constructed substantially as and for the purpose herein set forth," of the first claim, are removable cages. Three prior patents, namely, the Seguin, the Harrison, and the Della, Beffa & West, are chiefly insisted on as anticipations. In the first of these there is no removable valve cage. Each of the others is a double-acting pump. In the Harrison it is plain that the inlet valve could not be removed unless the lower cylinder head were taken off; nor in this patent is there any valve cage severable as a structure from the lower head. In the Della, Beffa & West it does not clearly appear that the cages are removable. But the pump in each of the last-named patents, as said, is a double-acting pump. The open and unobstructed inlet, a, which is one of the factors of the first claim of the patent in suit, is not found in either. The mode of operation dependent on this open inlet, a, is not found in either. Moreover, a removable valve cage as a factor in a combination to secure the result obviously proposed by the patent in suit is not even remotely suggested by the structure of Harrison or that of Della, Beffa & West.

We cannot say that the combination of claim 1 does not contain invention, or that it is not novel. The pump as made by appellants is shown in vertical longitudinal section in the following cut:



As compared with the pump of the patent, that of appellants is inverted. The cylindrical jacket indicated by the rectangular spaces on either side is a water compartment, apparently to prevent heating. For the rest, each and every factor of claim 1 is shown. The cylinder, its two heads, and the solid piston head—that is, a piston head containing no valve opening—are obvious. The lower pipe

to the left and lengthwise the cylinder is the tube, G, of the patent. The lower end of this pipe where it enters the cylinder is the inlet, a, of the patent. The upper vertical pipe to the left is the tube, G', of the patent; that to the right, the outlet, G², of the patent. The open space above the cylinder with the partition in the center is G² of the patent. The two removable cages containing the valves above the letters, a², b², are the "cages, H, H', having valves, I, I'," of the patent. In appellants' pump each of the horizontal surfaces constituting the four shoulders of each cage is pressed against the corresponding surface of the head so as to make airtight joints by a setscrew bearing directly on the cap. In the patent the upper shoulder is made tight by a screw thread on the exterior of the lower half of the cage, and the lower shoulder by the threaded cap, L, bearing in the contrary direction. But this is a detail of construction showing a manner in which the horizontal joints, themselves the same in both devices, may be made airtight. This method of tightening the cage to the head is not specifically a feature of the first claim. Appellants' pump, in our opinion, infringes the first claim of the patent in suit. As to the second claim, however, and especially in view of what took place in the patent office, the infringement is not clear. But as to this claim the matter of infringement is immaterial. If the pump made by appellants infringes the first claim, a holding by this court that it does not infringe the second would mean nothing. Neither the decree of January 21, 1895, nor that of August 22, 1895, declares in express terms, or even by necessary implication, any infringement of the second claim. A holding by this court that the second claim is or is not infringed would, on this record, afford no ground for even partial reversal, or for any direction of any kind. The decree is affirmed.

NEW YORK FILTER MANUF'G CO. v. NIAGARA FALLS WATER-
WORKS CO.

(Circuit Court of Appeals, Second Circuit. May 26, 1897.)

1. PATENTS—INFRINGEMENT—METHOD OF FILTRATION.

The Hyatt patent, No. 293,740, for an improved method of clarifying water by introducing into it a coagulant simultaneously with its passage to the filter, thereby avoiding the use of the settling basins of the prior art, and making the process continuous, *held* (on appeal from order granting preliminary injunction) to be infringed by a process in which the coagulant is introduced a few minutes before the water reaches the filter, and the water then passes through two small tanks, which detain it but a few minutes, so that no efficient sedimentation takes place therein before the water passes to the filter. 77 Fed. 900, affirmed.

2. SAME—PRIOR ADJUDICATION—NEW EVIDENCE OF PRIOR USE.

After an exhaustive litigation upon a patent which is of known importance, and has been widely advertised, and after a careful re-examination and favorable adjudication upon its validity by an appellate court, the owner should not be prevented from receiving the advantages accruing from such decisions by mere paper affidavits in regard to prior use by individuals.

3. SAME—INJUNCTION.

A preliminary injunction against the use by a water company of a process of filtration will not be denied on the ground that defendant is a pub-

He servant engaged in supplying a city with water, where defendant has been eager that an injunction bill should be promptly brought, and has stated its desire that it should be accompanied by a motion for a preliminary injunction, so that a speedy decision could be had.

Wallace, Circuit Judge, dissenting.

Appeal from the Circuit Court of the United States for the Northern District of New York.

The New York Filter Company brought its bill in equity before the circuit court for the Southern district of New York against Schwarzwald & Fink to restrain them from the infringement of letters patent No. 293,740, which were issued to Isaiah S. Hyatt on February 19, 1884, for an improved method of clarifying water. The validity of the patent was sustained, an injunction was decreed (61 Fed. 840), and upon appeal to the circuit court of appeals for the Second circuit the decree of the circuit court was affirmed in January, 1895. 13 C. C. A. 380, 66 Fed. 152. The New York Filter Manufacturing Company, the successor of the New York Filter Company, and the purchaser of all its assets, brought, in November, 1896, a bill in equity against the Niagara Falls Waterworks Company, before the circuit court for the Northern district of New York, to restrain the infringement of the same patent, and also made a motion for an injunction pendente lite. From the order of that court, which was dated January 8, 1897, and granted a preliminary injunction, an appeal was taken by the defendants. The Schwarzwald Case was against the use of a filter manufactured by the O. H. Jewell Filter Company of Chicago. The Niagara Falls Waterworks Company is a company for the introduction of pure water for domestic and manufacturing purposes to the city of Niagara Falls, and its filtering plant was erected by the Morrison-Jewell Filtration Company, which manufactures the same type of filter as that sold by the O. H. Jewell Filter Company. The important question upon this appeal is whether the defendant's filtering system differs so materially from the infringing process which was enjoined in the Schwarzwald Case as to remove it from the controlling effect of the former decision.

John R. Bennett and M. H. Phelps, for complainant.

F. P. Fish, Frederick H. Betts, and J. E. Hindon Hyde, for defendant.

Before WALLACE, LACOMBE, and SHIPMAN, Circuit Judges.

SHIPMAN, Circuit Judge (after stating the facts as above). The single claim of the patent in suit is as follows:

"The method hereinbefore described of arresting and removing the impurities from water during an uninterrupted passage of same from a supply pipe into a filtering apparatus, thence through a filter-bed contained therein, and out through a delivery-pipe leading therefrom, which method consists in introducing into the water simultaneously with its passage to or into the filter a substance which will sufficiently coagulate or separate the impurities to facilitate their arrest and removal by the filter-bed, thus obviating the necessity of employing settling-basins."

The history of the art of purification of water by sedimentation and filtration, and of the different and patented art of purification by an uninterrupted process of filtration alone, is given in the decisions to which reference has been made in the preliminary statement. 61 Fed. 840; 13 C. C. A. 380, 66 Fed. 152. The construction which was given by the court of appeals to the claim, and their definition of the invention of Hyatt, are as follows:

"The patent in suit describes a departure from anything which appears to have been done or known in the prior art, so far as appears by the record. It describes a method for the purification of water by the simultaneous applica-

tion of a specified coagulant and a process of filtration, the coagulant being applied to or mixed with the water to be filtered substantially at its introduction into the filtering apparatus, and while it is flowing continuously to the filter-bed. By this method the coagulants perform their principal work within the filter-bed itself. By this change in previous processes the patentee not only dispensed with the use of settling-tanks, thus saving the time and expense required in sedimentation processes like that of Spence, but he also dispensed with the additional chemical treatment of the water, and the use of the more complicated apparatus involved in processes like that of Paget. So far as appears, no one had previously discovered that the agglomerating action of the coagulants could be obtained without waiting a considerable time for precipitation, or during the passage of the water through the filtering-bed."

The defendant's plant is a large one, and, speaking generally, thoroughly and solidly constructed. Its actual rate of flow is 3,600,000 gallons per day. That portion of the plan or method of operation which precedes the delivery of the water into the filter-beds is described by Prof. Main as follows:

"The water enters an intake bay, which is under the floor of the pump room. A dilute solution of alum is forced continuously through a small pipe into the stream of water which is flowing constantly into the open end of the intake main. The end of the alum pipe passes some five or six feet into the intake main, so as to deliver the alum solution well within it. The alum solution is prepared in special tanks, which are shown in the drawing. A small pump, which is kept running at a fixed rate, draws from the alum tanks and delivers the solution as described. The intake main is connected with two basins, which are alike in dimensions and arrangement. Gate valves are provided, so that either one may be cut off for any purpose while the other is kept in operation. When the gates are open, the water in these basins stands at the same level as that in the river. The basins are provided each with three transverse partitions, as shown more clearly in the detailed drawing. The water entering near the bottom passes first over a plank partition, which does not reach to the water level. It then passes downward and under the middle brick partition, through the archway in the bottom. After this it passes upward, and over the last plank partition, and then downward to the suction pipe connected to a large rotary pump, which is driven by an electric motor. This description applies to both basins, as they are alike, and each is provided with a rotary pump. The rotary pumps deliver the alum-charged water into the supply main, which feeds all the filters simultaneously."

The combined capacity of these basins is 28,760 gallons, so that, as the outflow of the water is about 2,500 gallons per minute, the time required for the passage of a given quantity of water through the basins is about 13 minutes, and the water, as it flows over partitions and through an archway, has little rest. The cost of these basins was \$3,500. The patent declared that by the use of the described uninterrupted process the patentee dispensed "with the employment of settling basins or reservoirs as now commonly employed," and in the concluding sentences of the decision of the court of appeals it was said that settling-tanks were used in some of the plants of the defendant between the introduction of the coagulant and the filter-bed, and in this plant the method of the complainant was not appropriated. The defendant therefore urges that, inasmuch as these two basins are settling-tanks, it is freed from the charge of infringement. It is obvious that the patentee was referring to the reservoirs or settling-tanks which, in almost every pre-existing system for the purification of water which contained suspended impurities, had played an important part. The only known testimony in the Schwarz-

walder Case in regard to the use of settling-tanks by the O. H. Jewell Company was that an hour elapsed in its plants at Columbia, S. C., and Chattanooga between the admission of the alum and the passage of the water to the filter-bed; that at Chattanooga the re-agent was fed into the pumps about half a mile from the filtering-bed, and that at Columbia a large subsidence tank is provided to receive the water before it enters the filters, and that settling-tanks were used at Louisville. The concluding sentences of the opinion were inserted out of caution, so as to show that these tanks, as thus stated and described, and with no more knowledge in regard to them than had been thus scantily given, were not to be included in the finding of infringement. The declaration was not that any basin which may be called a settling-tank could take the system with which it was connected outside the scope of the patent, and it is therefore necessary to look at the real function of these basins, and ascertain what they are in fact. If they had been designed to assist materially in the subsidence of suspended impurities, they would probably have been constructed so as to allow more time for the attainment of that result. The whirling of 3,600,000 gallons of water per day through small tanks in 13 minutes would seem to be inefficient for sedimentation to a material degree, but the examination of the tanks themselves by Prof. Main and Mr. Kendrick on October 28, 1896, which was made with great precision, and with the attendance of the defendant's selected experts, leaves no doubt that on that day no material deposit of sediment could be found, and that, so far as those in immediate charge of the tanks were concerned, an accumulation of sediment was neither anticipated, nor was habitually removed. On December 7, 1896, three scientists visited the defendant's plant, at its request, and each found sediment in the tanks, but their general statements on the subject give inadequate data of how much they found. If they had been able to make such computations as to present the amount in figures, rather than by the use of words of general import, their examination would have furnished an exactness of information which is now lacking. Our conclusion is that sedimentation is not effected or promoted by these two basins in any material degree. They are "settling-tanks" or reservoirs in name only. Manifestly, a more important difference, in the minds of the three experts, between the filtrating system of the defendant and the patented method consisted in the fact that the coagulating action of the aluminum sulphate was begun shortly after its admission to the water, and was completed in the basins by the time the water was about to enter the filter. It is said that it is desirable that this reaction should take place before the water reaches the filter-bed, otherwise the water is likely to remain turbid after it passes the filter. It cannot be of practical importance that the coagulating action should take place a few moments only before the entrance of the water into the bed, but the additional point is made that such a process of formation differs from that of the patent, which demands that the salts, or their equivalent, should be introduced into the water coincidentally with its entrance into the filter-bed, and that the sticky hydrate should be formed within the bed. The claim of the patent

said that the method consisted "in introducing into the water, simultaneously with its passage to or into the filter, a substance which will sufficiently coagulate or separate the impurities to facilitate their arrest and removal by the filter-bed." It is true that in the specification the water pipe and the pipe containing the coagulating agent met near the filter-bed, and that the contents of the two pipes passed into the filter together, but the novelty of the process did not consist in the formation of the hydrate at or after the exact instant of time when the solution enters the filter-bed, and accordingly the court of appeals, in defining the patented method, said that the coagulant was to be "applied to or mixed with the water to be filtered substantially at its introduction into the filtering apparatus, and while it is flowing continuously to the filter-bed. By this method the coagulants perform their principal work within the filter-bed," and settling-tanks are dispensed with. To urge that the defendant does not infringe because it mingles the inflowing current of water and the solution of alum while the water is flowing continuously to the filter-bed, but a few minutes before it reaches it, savors of technicality. The defendant has adopted the Hyatt method of clarifying water from suspended impurities by an uninterrupted process of filtration, which is accomplished by introducing into the water while it is continuously flowing to the filter-bed a sufficient quantity of a coagulant.

It is next said that new issues have been presented in the defendant's affidavits and in patents not in the Schwarzwald record, which affect the validity and scope of the patent. The patent of most apparent importance which is referred to was issued by the United States to Franz Pichler and Karl Sedlack—No. 278,178, dated May 22, 1883—for an apparatus for purifying and softening water. It was evidently particularly designed for the softening of water, and consists of an inlet pipe, preferably of two branches, one for the influx of water, the other for the re-agent. The fluid then flows into a series of purifying chambers and of sediment chambers, the latter being of larger cross section than the other chambers, so that the movement of the liquid shall be considerably slower and the deposit of the impurities shall be secured before the water finally reaches the filter. The specification presents the deposit of sediment in the sediment chambers of gradually increasing capacity as the chief feature of the invention, and the entire description contained in the paper patent shows that the alleged invention has no patentable relation to Hyatt's process. Affidavits were also presented in regard to the use of settling basins between the point where the water receives the re-agent and the filter-bed, which were used in two sugar refineries in New Orleans before the date of the Hyatt invention. The Planters' Refinery plant is described with the greater particularity. The water went into a settling tub, where it received its re-agent. It then passed through 3 other settling tubs, and thence to 10 filters, each 3 feet in diameter and 25 feet high. The dimensions of the tubs are not given. The plant delivered about 100,000 gallons per day. If the drawing which the affiant annexed to his affidavit shows the size of the tubs as compared with that of the filters, the settling-tanks had a value for sedimentation, and were