

Case No. 17,454. WESTON ET AL. V. NASH ET AL.

[Holmes, 488;¹ 2 Ban. & A. 40; 7 O. G. 1096.]

Circuit Court, D. Massachusetts.

April, 1875.

PATENTS—CONSTRUCTION OF CLAIMS—INFRINGEMENT—CENTRIFUGAL SUGAR-DRAINING MACHINES.

1. The specification of a patent for improvement in centrifugal machines for draining sugar and other substances, described several improvements. One of the claims was for certain devices "in such machines." *Held*, that the words "such machines" referred to centrifugal machines so constructed as to admit of the operation of the claimed devices in substantially the described manner, and not merely to machines containing all the improvements described in the patent.
2. The invention described in the specification and claimed in the fifth claim of the reissue patent granted David M. Weston, Jan. 14, 1868, for improvement in centrifugal machines for draining sugar and other substances, is not anticipated by the English patents of Hardman and Alliott, dated respectively Oct. 5, 1843, and Feb. 3, 1851.
3. A patented improvement in centrifugal machines for draining sugar and other substances consisted in providing openings in the bottom of the revolving cylinder, for the discharge of the drained sugar, &c, and a cover, moving up and down, inside, and on the shaft of, the cylinder, for the purpose of closing the openings during the operation of draining, and uncovering them for the discharge. *Held*, that the patent was infringed by the use of a centrifugal sugar-draining machine, in which the openings in the bottom of the cylinder were closed and uncovered by a cover turning upon the shaft as an axis, instead of moving up and down upon it.

Bill in equity [against Nathaniel Nash and others] to restrain alleged infringement of reissued letters-patent [No. 2,845], granted David M. Weston, Jan. 14, 1868, for improvement in centrifugal machines for draining sugar and other substances. [The original letters patent, No. 63,770, were granted April 9, 1867.]

George L. Roberts, for complainants.

James B. Robb, for defendants.

SHEPLEY, Circuit Judge. Letters-patent, reissue No. 2,845, issued Jan. 14, 1868, to David M. Weston, for improvement in centrifugal machines for draining sugar and other substances. Centrifugal machines had been long known and used, prior to the date of his invention, for the purpose of separating liquid from solid constituents, when mechanically intermixed in the same masses. A metallic drum, with cylindrical periphery perforated to form a strainer to retain the solid matter, while permitting liquids to escape, when subjected to centrifugal action, is so arranged and operated as to rotate with great velocity on its axis. The cylindrical strainer is surrounded by a casing which receives and carries off the liquids thrown through the apertures of the strainer.

When used for purging sugar from the menstruum of syrup or molasses, in which it had been crystallized by boiling, the mass of syrup and sugar was introduced into the rotary perforated cylinder, or basket, and revolved at a high rate of speed. The centrifugal

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force, in a few minutes, eliminated all the syrup through the sieve, leaving the crystals of the sugar standing in a perpendicular wall around the inner surface of the cylindrical sieve. The invention of Weston embraced two contrivances: one to obviate the tendency of the basket to vibrate in its bearings when carrying an unbalanced load; and the other, means for the rapid and easy removal of the sugar from the basket after it had been purged from the syrup.

The inquiry in the present case relates to the complainants' mode of "construction of the cylinder by means of which the contents of the same may be more readily discharged than by the method usually employed, and consists in forming openings in the bottom of the cylinder around the shaft, which are closed by a valve or cover, as will be more particularly described."

The method usually employed to discharge the sugar had been to take it out of the

same opening at the top of the cylinder, through which the syrupy mass had been introduced to be operated upon. Weston constructed openings in the bottom of the cylinder, in the annular space surrounding the shaft, and between the shaft and the perpendicular wall of the sugar. These openings are closed by a movable cover, which surrounds the shaft, and is formed with a sleeve extending upward around the shaft a sufficient height to prevent any liquid matters that may be put into the cylinder from, escaping between the valve and the shaft. The valve, with its sleeves, slides loosely up and down on the shaft which it surrounds. After the materials contained in the revolving cylinder have been acted upon, and the liquids separated and discharged through the apertures in the sides by the centrifugal force thus created, the valve is raised, sliding upwards freely on the shaft out of the way, and the contents of the cylinder are discharged through the openings in the bottom.

The centrifugal cylinder in the Weston machine is suspended from a flexible elastic bearing which supports the rotating parts of the machine and its contents in such a manner as to permit them to revolve about an axis varying in position according to the weight of the material in motion. The rotary cylinder is actuated on a hollow shaft, which is supported and runs upon a spindle or axle within it, suspended from the elastic bearing above. These contrivances for suspending and rotating the cylinder, which form a separate and important portion of the Weston improvements, are not in controversy in this case, and are only alluded to in this connection from the incidental connection they have with the means of discharging the cylinder, by reason of the fact that this mode of suspending the cylinder leaves a free and unobstructed space beneath the openings in the bottom of the cylinder, so that when the contents are discharged through the openings they fall by gravity entirely clear of the machine.

The claim in the patent is as follows: "5. The construction of the openings, I, in the bottom of the cylinder, in such machines, and the valve, J, for the purpose of closing the same, substantially as described." The words "in such machines," in this claim, undoubtedly refer to centrifugal machines. It is claimed by defendants that they refer to such centrifugal machines only as are constructed in all respects like those described in the specification. This, I think, is too narrow a construction of the claim. The true construction of the claim is that which makes it coextensive with the invention. "Such machines" means such centrifugal machines as are so constructed as to admit of the application and operation of the claimed devices in substantially the described mode and by substantially the described means. The unauthorized use of the complainants' openings and valve would be an infringement if used in centrifugal machines, to which they could be usefully applied by reason of there being an unobstructed space at the bottom of the machine into which the sugar could fall, although the cylinder were not suspended from a flexible elastic bearing like that described in the complainants' patent, The claim covers the ap-

plication to centrifugal machines so constructed in other respects as to be adapted to the application and proper working of the patented devices hereafter named, of openings in the bottom of the cylinder, and a valve for closing such openings; such openings and such valve being constructed substantially as described.

The British patent, granted to Hardman, Oct. 5, 1843, shows a bottom plate, with openings or valves for the discharge of the sugar. A disk or plate is kept up against the under side of the bottom, so as to close the openings when the machine is in operation, by means of a nut and spring, and, by the same means, is withdrawn after the operation is completed, giving vent to the discharge-valves. There is no evidence that this Hardman machine ever went into practical use. It did not possess any advantage in construction over the centrifugal machines, in the use of which the sugar was discharged by lifting it over the top of the basket. The evidence proves that it would take more than double the time to discharge the sugar in this mode than by the old way of discharging over the top, and ten times as long as to discharge from the Weston centrifugal cylinder. It differs from the Weston contrivance in the essential particulars of being without a practically unobstructed place for the discharge of the sugar. The plate, when withdrawn as far as possible from the openings, still remains directly under them, so much so as to obstruct the free discharge of the sugar. This is an important element in the operation; for the crystals of sugar, when first discharged, are moistened on their surface with some adhering syrup, and do not glide or fall freely away from inclined plates, but accumulate and remain at rest. The manipulation of the nut from below the cylinder, and the keeping the plate clear from the falling mass below the cylinder, while, at the same time, the operator must be concentrating the sugar over the openings from the upper side of the bottom plate, would be attended with great difficulty and inconvenience; and various other differences make this an impracticable contrivance. Many of these observations apply with equal force to the Alliott patent, also an English patent, granted Feb. 3, 1851, though in some particulars the Alliott device more nearly resembles that of Weston. But the Alliott cylinder had the bearings of the shaft and its foundations directly under the cylinder. Consequently,

there was no free, unobstructed space below the cylinder into which the sugar could be discharged. A funnel is arranged in the pan, or casing, to receive the sugar, and this is too contracted to allow the sugar to flow freely through it. The cylinder must be rotated to bring the hole over the funnel, and held there while the sugar is being discharged, otherwise the sugar would fall into the syrup in the pan. Without the and of the drawings, or a model, it is not easy to point out intelligibly all the differences between the Hardman and Alliott devices and the invention of Weston. But an inspection of models and drawings exhibits readily to the eye not only the diversities between Weston's device for discharging the sugar and those which preceded it; but also shows the impracticability of both Hardman's and Alliott's. This entire failure of either of those devices to accomplish the result aimed at by them, and arrived at in the Weston device, is proved by the fact, that, while there is no evidence that either Hardman's or Alliott's device went into practical use, the Weston device has been almost universally adopted in this country, and extensively in Great Britain, France, and Germany, and to a very considerable extent in all sugar-producing countries.

The proof of infringement in this case depends upon the question whether the valves and openings of the defendants are substantially like those of the complainants in construction and operation, differing only in form. The Weston and Hepworth devices for discharging the sugar are alike in the following characteristics of construction and mode of operation: Each has central openings around the shaft, through which the sugar is discharged into a space below it practically free and unobstructed. These apertures in each are opened and closed from the interior of the basket, and not below the bottom. Each has a central opening through the bottom of the easing, or curb, to permit the discharge of the sugar into a receptacle below the machine. The apertures in both are opened and closed by a central valve surrounding the shaft, extending above the surface of the liquid mass when introduced into the machine. The construction and mode of operation in discharging is substantially the same, differing only in the manner of opening and closing the valves, by turning the Hepworth valve on the shaft, while the Weston valve is raised and lowered. This is not a substantial difference, even if it be an improvement. It is but another form of the same device, with the same mode of operation, so far as the operation is concerned, to which the whole device relates, that of discharging through the bottom of the cylinder the purged contents of the charge.

Decree that defendants infringe the fifth claim of complainants' patent, and for injunction and account.

¹ [Reported by Jabez S. Holmes, Esq., and here reprinted by permission.]