

Centrifugal Machines for Draining Sugar.

Patented Nov. 4, 1873..

A technical drawing of a mechanical component. It features a curved, U-shaped plate labeled 'K' on the left. A horizontal bar, labeled 'L' in the middle and 'K' on the right, is attached to the right side of the plate. The bar has a complex, multi-jointed structure at its right end, possibly a lever or a connecting rod.

Philip A. Sarnes
Edward C. Ellis

Philip Cramer
By Malwood
Attorneys-

UNITED STATES PATENT OFFICE.

PHILIPP CRAMER, OF JERSEY CITY, NEW JERSEY.

IMPROVEMENT IN CENTRIFUGAL MACHINES FOR DRAINING SUGAR.

Specification forming part of Letters Patent No. **144,319**, dated November 4, 1873; application filed October 7, 1873.

To all whom it may concern:

Be it known that I, PHILIPP CRAMER, of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Centrifugal Machines.

My improvements relate to sugar-drying centrifugal machines in which the revolving basket is mounted and revolved at high speed on a vertical spindle.

My present invention consists mainly in a novel construction of the basket, and its combination with a scoop or scraper, whereby the dried contents thereof may be at proper time discharged from the basket while the machine is being driven at its usual speed, thereby economizing in time and power otherwise lost in frequently stopping and starting the machine.

My invention further consists in mounting the machine and securing it to its platform in a novel manner, by means of bolts encircled in elastic cushions which are beneath the floor or platform, and so arranged, in combination with an elastic cushion as formerly employed, that the upward movement of the base of the spindle-standard on either side thereof will be resisted by elastic force of said lower bolt-cushions, in order that the spindle and its standard-bearing may more readily, when in operation, assume and maintain a proper vertical position with relation to the basket than has heretofore been accomplished in this class of machines, and admit of the easy working of the machine, even though the sugar should be unequally distributed in the basket, and also at the same time be firmly secured against lateral movement on the platform.

My invention also consists in constructing the basket with a surface chamber for receiving the sirup charged with crystals, and in providing said chamber with a floor or plate having outwardly and downwardly inclined delivery-ducts near its outer edge, whereby the sirup and crystals will be thrown with great force, in more or less concentrated streams, against the upper interior sides of the basket, by which means the fluids are more readily expelled than if delivered or distributed from the edge of a distributing plate or disk, as usually employed.

My invention also consists in combining with the basket a spray-pipe, which enters the basket from below and approaches its top, whereby lateral jets of water or steam may be thrown against the upper interior wall of the basket for the purpose of washing the sugar or warming the sirup; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a true and accurate description of a centrifugal machine embodying the several features of my invention.

Referring to the drawings, Figure 1 represents one of my improved machines in perspective. Fig. 2 represents the same in central vertical section. Fig. 3 represents in top view the floor of the surface chamber with the upper portion of the basket removed. Fig. 4 represents in perspective the scraper detached from the basket.

A denotes the platform on which the machine is mounted. The basket-spindle B is inclosed within a vertical standard-bearing, C, and is supported therein on a spindle-step of the usual construction, and provided with a lubricating-reservoir, at *e*. The vertical standard is arranged at its base to inclose the driving-pulley on the spindle, and is provided with two vertical apertures for the passage of the belt from the driving-pulley D. The base of the standard is mounted on an annular elastic cushion, *a*, partially embraced within a recess formed by a vertical annular shoulder on the platform, and a corresponding shoulder on the under side of the base. The bolts *b* are provided with large heads and a washer, and each is encircled for a portion of its length by a heavy elastic cushion, preferably resembling a rubber car-spring. These bolts are passed upward through holes in the platform, through corresponding holes in the cushion *a*, and flange of the base, and are provided with nuts at their upper ends, and which, on being screwed down, securely and safely fasten the machine to the platform. I am aware that it is not new to mount the bases of centrifugal machines between elastic cushions; but I am not aware that prior to my present invention a centrifugal machine was ever so mounted that it was cushioned beneath the platform or floor, as described. E denotes the basket, which is of

usual construction at the sides, and is mounted on the spindle B by means of the close cover F, which constitutes the floor of the surface chamber G. The cover F, near its periphery, is provided with downwardly and outwardly inclined ducts *d*, to which surface channels lead from the central portion of the cover, somewhat after the manner of furrows in a millstone. The cover F supports the annular crown-plate *f*, which forms the surface chamber for receiving the sugar and sirup. It will be seen that the contents of the surface chamber G will be with great force thrown to the outer edge thereof, being accelerated by the grooves in the top of the cover, and as a result the contents will be forcibly discharged through said ducts against the interior perforated sides of the basket, and by forcing the liquids through the upper portion of the perforations leave but little to be discharged from the lower portion. The interior base of the basket for holding the sugar as it descends on the sides consists merely in an annular shelf, H, which extends inwardly from the outer edge toward the center about one-eighth, more or less, of the diameter of the basket, while the remaining space is wholly open, surrounding the standard and spindle. Aprons of canvas or leather may be so connected with this opening that falling sugar may be conveyed thereby to a suitable receptacle. On the standard at one side are two brackets, I, which sustain a vertical shaft, K, to which a hand-lever, L, is keyed at its lower end. A scoop or scraper, M, is also connected by a suitable arm to said shaft K, so that, by a vibration of the hand-lever, the scoop or scraper will be carried to or from the inner vertical sides of the basket, adjacent to the upper surface of the annular shelf or base H, and thereby enable the operative, while the machine is at full speed, to gradually discharge the contents of the basket, through the scoop, inward and downward through the central opening. The belt-pulley is wholly boxed in the base of the standard, and boxed passages for the belts may be provided for a proper distance, to relieve the falling sugar

from contact therewith. By having the lower portion of the basket open, currents of air may be readily directed therein, although the centrifugal force has a tendency to create an upward draft or free circulation of air. N denotes a spray-pipe leading from a water-reservoir or force-pump; it extends upward through the opening at the bottom of the basket to a point near the under side of the cover F, and is perforated on the side adjacent to the nearest side of the basket. When desired, this pipe may also be connected with a steam-pipe, with suitable cocks therein at its junction, whereby steam may be injected, as is under some circumstances desirable. O denotes the sirup-chamber, which surrounds the basket, and is mounted on standards of its own, as in other similar machines.

Having thus described my invention, I claim as new, to be secured by Letters Patent—

1. The revolving basket of a centrifugal machine, in combination with the receiving surface chamber G and the cover F, provided with ducts for forcibly delivering the sirup and sugar in streams against the sides of the basket, substantially as described.

2. The revolving basket provided with an annular sugar-receiving shelf, H, and arranged to be accessible from below, for the ready removal of the sugar from the shelf while the machine is in motion, substantially as described.

3. The revolving basket with the annular shelf, in combination with the discharging scoop or scraper, substantially as described.

4. In combination with the base of a spindle-standard in a centrifugal machine, the elastic cushion between the base and the floor or platform, and the bolts and their elastic cushions below the floor, substantially as described.

5. The spray-pipe N, in combination with a basket having a closed top and an open bottom, substantially as described.

PHILIPP CRAMER.

Witnesses:

CHAS. H. ERB,
AUG. MEIER.