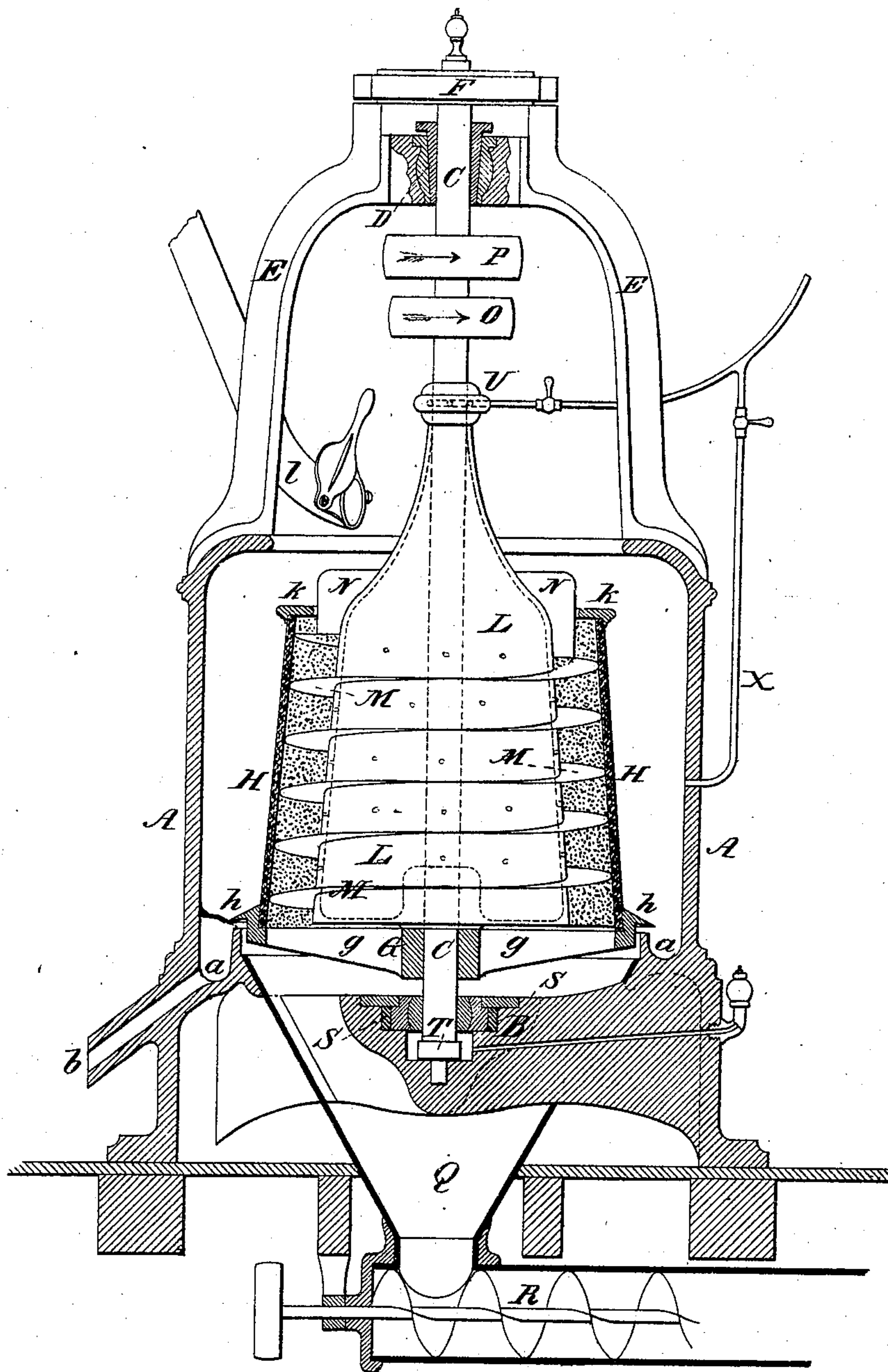


C. T. BURCHARDT.
Centrifugal Machines.

No. 136,485.

Patented March 4, 1873.



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IMPROVEMENT IN CENTRIFUGAL MACHINES.

Specification forming part of Letters Patent No. 136,485, dated March 4, 1873.

To all whom it may concern:

Be it known that I, CARL T. BURCHARDT, of 267 West Thirty-fourth street, New York, in the county and State of New York, have invented a new and useful Improvement in Centrifugal Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

This invention relates to centrifugal machines; and its principal object is a device by which the feed to and delivering from such a machine are made continuous, so as to enable these machines to be worked continually without interruption.

The main feature of this device is a feed and scraper, screw or spiral, which is placed central within the basket of the machine, fitting closely to the inside of it, and which is revolved within this basket with a speed sufficiently different to that of the basket so as to cause a screwing and scraping motion relatively to it in a downward direction. The substance to be worked is fed into the basket and said screw on top and delivered on bottom.

To enable others skilled in the art to make and use my invention, I proceed to describe its construction and operation, reference being had to the accompanying drawing and letters of reference thereon.

The drawing represents a vertical sectional elevation of my centrifugal machine as adapted for operating sugar.

The outer shell or case A is of cast-iron or any suitable material, with the annular trough *a a* and nozzle *b* for the molasses, and with the spider B forming a bearing for the foot-step of the vertical shaft *c*. The top bearing D of shaft C is arranged in the bracket-frame E, the latter forming also the necessary support for the brake F. The hub G is fastened to shaft C with the arms *g g* and the circular rim *h h*, upon which the sieve-basket H H is firmly supported. The latter is constructed in the usual manner of layers of perforated sheet and wire cloth. The upper end of this basket H H is armed with a ring, *k k*. There is, further, a sleeve-like hollow body, L, of suitable material loosely fitting over shaft C, and resting with its lower part on the hub G, and

carrying on its conical surface a screw or spiral thread, M. This screw or spiral M may be made in one continuous strip of sheet metal or other material, or it may also be made by a series of short stave-like pieces or radial wires. If made of sheet metal, a part of this screw or scraper may be perforated to allow, in a certain degree, the liquid sugar to pass easier downward. The outer edge of this screw or spiral thread M fits nicely to the inner surface of the sieve-basket. A ring of sheet metal, N, with inward bended upper edge, is fastened to the upper turn of the screw-thread, serving as a better guide for the sugar admitted by supply-pipe *l* from the mixer or pan. On the neck-shaped upper end of the body L is fixed a pulley, O. Immediately above it is a similar pulley, P, but of larger diameter, fixed to the shaft C. Both pulleys revolve in the same direction, marked by arrows; and the pulleys for driving both (not shown in the drawing) are made of the same diameter, so that the shaft C will revolve slower than the sleeve L. As the screw-thread is a right-hand one the sugar is scraped and screwed from the sieve-basket in a downward direction. The screw, however, may also be made left-handed. In this case the pulleys O and P have to revolve in the opposite direction of arrows, so as to produce the same result. The dried sugar falls in the funnel-shaped hopper Q, and is carried away through the conveyer R. The lower bearing of the shaft C shows at S a rubber ring embedded in the iron spider B, and encircling a ball-joint box and a foot-step, T. The upper bearing of shaft C is constructed in a similar way. This arrangement will insure a smooth working of the shaft without vibrations communicated to the frame. At U is shown, as continuation of a water or steam pipe, a hollow ring-sleeve on neck of body L, with holes on the inside corresponding with holes in L. The object of this arrangement is to enable the washing, by steam or water, of the screw M, the basket H, and case A, if it should be required. Pipe X will admit steam or water from the outside of case A for the same purpose.

Having thus described a centrifugal machine, it will be seen that my invention may be applied to other forms also, viz., where the wire-basket and its shaft is suspended only on

top, or where the lower bearing is supported by springs, or where the outer shell does not rest on the floor, or has any other shape; and that it is only a matter of different application if the shape of the sieve-basket and the body L with screw-thread is conical, as shown in the drawing, or reversed conical, or cylindrical.

What I claim as new, and desire to secure by Letters Patent, is—

1. The revolving screw or spiral shaped scraper inside of a conical or cylindrical basket of a centrifugal machine for the continu-

ous working of the same, substantially as described.

2. The combination of a bottomless basket and screw or spiral shaped revolving scraper within it with a hopper and conveyer, substantially as described.

3. The sleeve-like body L fitting loosely on shaft C with a spiral or screw shaped scraper, substantially as described.

Witnesses: CARL T. BURCHARDT.

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W. HOCHHAUSEN.