

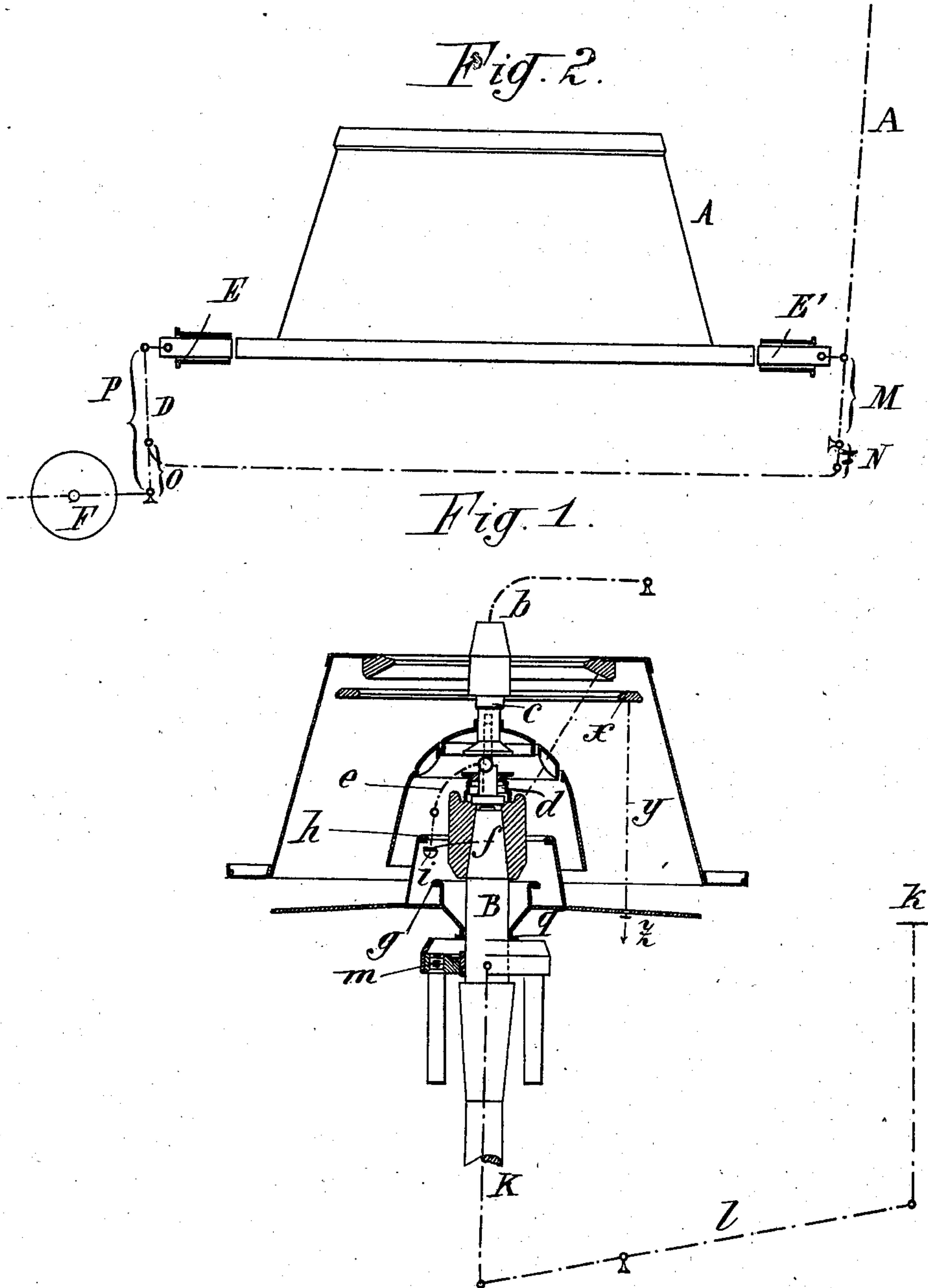
No. 725,560.

PATENTED APR. 14, 1903.

F. HAMPL.
CENTRIFUGAL MACHINE.
APPLICATION FILED JUNE 9, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:
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E. Kamsch

Inventor:
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by B. Singer atty.

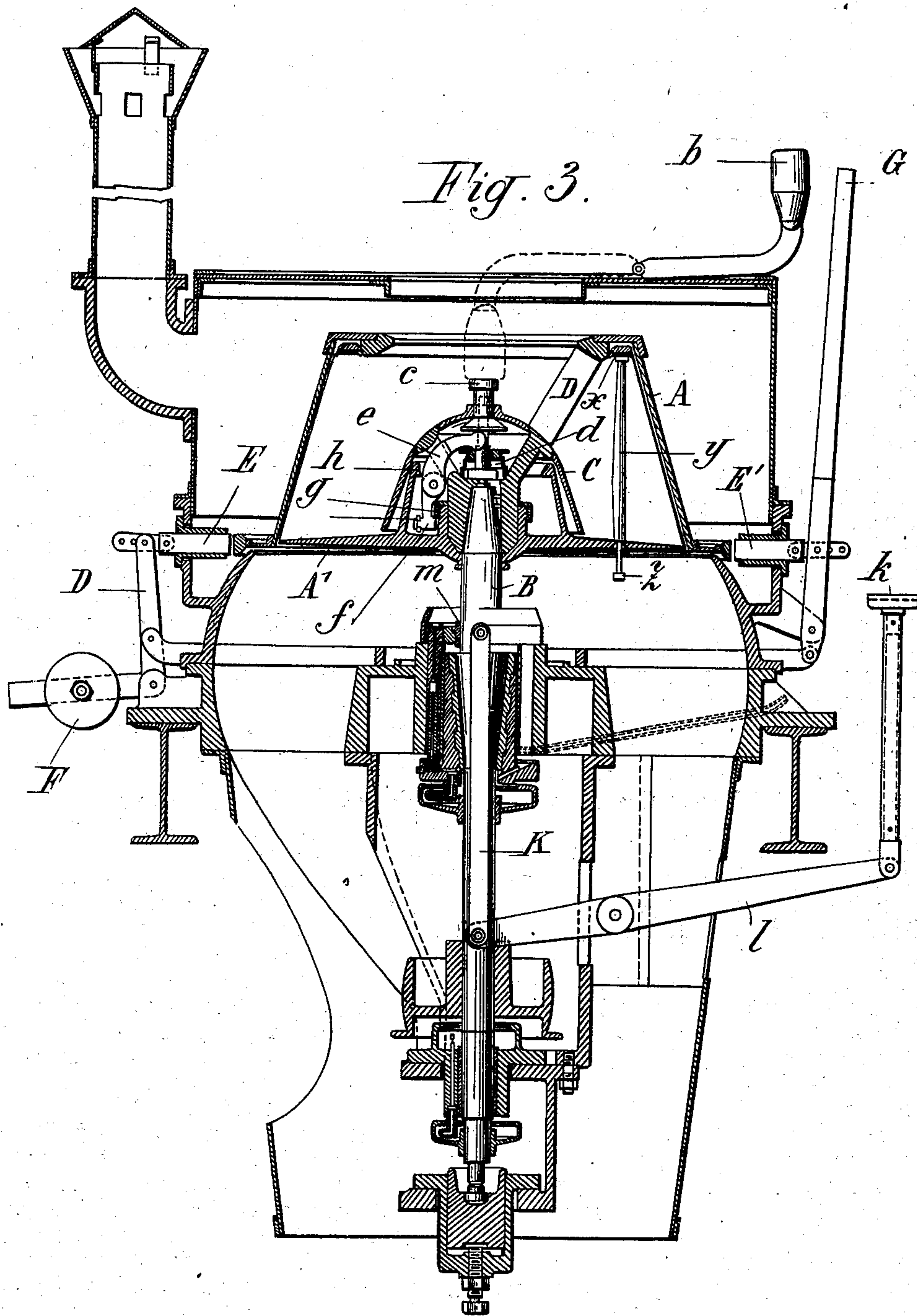
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UNITED STATES PATENT OFFICE.

FRANZ HAMPL, OF ELBE TEINITZ, AUSTRIA-HUNGARY.

CENTRIFUGAL MACHINE.

SPECIFICATION forming part of Letters Patent No. 725,560, dated April 14, 1903.

Application filed June 9, 1902. Serial No. 110,850. (No model.)

To all whom it may concern:

Be it known that I, FRANZ HAMPL, a subject of the Emperor of Austria-Hungary, and a resident of Elbe Teinitz, Austria-Hungary, have invented certain new and useful Improvements in Centrifugals, of which the following is a specification.

This invention relates to improvements in centrifugals, particularly of the class employed in the manufacture of sugar. With apparatus of this character as commonly constructed the intervals of time between the periodic actuations of the centrifugal required for removing the contents of the drum have been relatively long and the operation of removing said contents has been a laborious operation. To avoid these objectionable features incident to earlier apparatus of the same character is the object of this invention. This object is attained by making the body of the centrifugal of such form that the contents thereof will naturally tend to fall or move toward the bottom and making the bottom adjustable toward and from said body.

In the accompanying drawings, Figures 1 and 2 are diagrammatic views, and Fig. 3 a vertical sectional view, through a centrifugal apparatus constructed in accordance with this invention.

Referring to the drawings, A designates the body of the drum or casing of the centrifugal, which body is mounted on the upper end of the vertically-arranged driving-shaft B. Said drum or casing is made of the form shown—that is, gradually decreases in diameter from its lower to its upper end—and is provided at its upper end with a permanently-open aperture, through which it may be filled. Said body is supported from a cap or body C at the upper end of the shaft, as by means of arms or braces D. The top and sides of said casing are permanently and rigidly connected; but the bottom A' is formed separately from said sides and top and is so mounted on the shaft B as to be free to move vertically thereon as well as to rotate therewith and with the other parts of the drum or casing A. Said bottom is held in position to tightly close the lower end of the drum A by a lever or levers e, fulcrumed within the hood or cap C and provided at the lower end with a hook-like lug f, that engages a flange at the

upper end of a central boss on the bottom A'. The upper end of lever e extends inwardly toward the shaft and bears upon a coiled spring d, the pressure of which acts to maintain the lever in such position that the bottom is held in contact with the sides of the drum or casing A.

A sleeve or tip c is fitted on the upper end of the shaft B and contacts at its lower end with the free end of lever e. Above the centrifugal drum A is pivotally mounted a hammer b. By turning said hammer about its pivot from the position shown in full lines in Fig. 3 to where it will fall into the position shown in dotted lines in said figure the tip or sleeve c will be forced downwardly and the spring d compressed to such an extent that the consequent downward movement of the upper end of lever e will disengage the hook f and allow the bottom A' to fall below the horizontal plane of the lower edge of the sides of the drum or casing A.

The downward movement of the bottom A' is limited by the engagement of a flange h, mounted thereon and lying within the hood C when the bottom is in its elevated position with an outwardly projecting hook-like lug i on the lever e. When in its lowest position, the downward projection of the central boss on the bottom A' will be within a ring m, loosely mounted on the shaft B, to move freely longitudinally thereof, but not rotating with the shaft. Such downward movement of the bottom A' will provide an annular opening about the lower end of the drum A, through which the contents of the drum will be discharged as the centrifugal is rotated. The centrifugal is arranged above a suitable hopper, into which the material escaping through the aforesaid annular passage falls.

When thick or viscous material is treated, it will cling quite closely to the walls of the drum or casing, and in order to insure expelling the contents of the drum after the bottom A' has fallen downwardly, as before described, a ring x is arranged within the drum A, normally lying near the top thereof. This ring is connected to suitable arms y, which extend downward, passing through suitable apertures in the bottom A' and having at their lower ends enlarged heads Z. The lower end of each arm y is reduced and when the ring

x is in its elevated position the bottom A' contacts with the shoulders formed at the upper ends of the reduced portions of said arms. As the bottom A' falls it engages the heads z , giving a sudden blow or pull to the arms y or rings x , and during the remainder of the downward movement of said bottom the ring is drawn downward and acts as a scraper or pusher to clear the matter from the under faces of the walls of the drum A .

To restore the bottom A' to its elevated position, a treadle k is depressed. This treadle is connected to one arm of a lever l , the other arm of which is connected by a link k with the ring m . As the treadle is depressed the ring m is elevated and the bottom A' moved upwardly on the shaft B until the flange g thereof is above and engaged by the hook f on the lever e . During the upward movement the ring x is restored to its elevated position, moving upwardly with the bottom as soon as the latter engages with the shoulders at the upper end of the reduced portion of the arms y .

The centrifugal is provided with a brake mechanism by which pressure can be applied simultaneously at diametrically opposite points. Two brake-blocks $E E'$ are employed. The block E is connected to one arm of a lever D' , on the other arm of which is adjustably mounted a weight F . The brake-block E' is connected to a hand-lever G , which lever is connected with lever D' by links H , extending around the hopper below the centrifugal drum or casing A . By moving the lever G both brake shoes or blocks $E E'$ can be simultaneously adjusted to or from position of contact with the braking-surface on the drum A . The weight F acts to withdraw said brake-blocks from engagement with the drum as soon as the lever G is released. By having the several levers and their fulcrums properly proportioned, as indicated on Fig. 2, so that $M:N=O:P$, it is possible to maintain the brakes in such position when they will always operate in the desired manner.

The operation of the apparatus above described will be readily understood. The parts being in the position shown in Fig. 3 and the shaft B set in motion, material to be acted upon will be fed to the drum or casing A through the opening in the top thereof, or said drum may be filled while it is stationary. After the drum has been rotated for the required length of time the speed of the drum or casing A is reduced by applying the brake, and the hammer b is caused to fall upon the part c . This releases the bottom A' , which will fall, as before described, sufficiently far to provide an annular opening about the lower end of the casing A . Continuing the rotation of the drum, the material contained therein will be expelled through said opening and fall in the hopper. By this means the drum or casing is quickly and easily emptied of its contents, after which the bottom is restored

to its elevated position, as before described, and the drum or casing can be again filled.

Having thus described my invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a centrifugal, the combination with a vertical shaft, of a drum or casing mounted on the shaft to rotate therewith, the bottom of said drum being separately connected to the shaft to rotate therewith and also adapted to move vertically to and from the body of the drum or casing.

2. In a centrifugal, the combination of a vertical shaft, a drum or casing secured to the shaft to rotate therewith and having its side walls inclined outwardly from its upper to its lower end, and a bottom for said drum mounted on the shaft to rotate therewith and movable vertically thereof toward and from the lower end of the drum.

3. In a centrifugal, the combination of a vertical shaft, a drum or casing mounted on the shaft to rotate therewith and having a bottom that is movable vertically toward and from the body of the drum, means for holding the bottom in an elevated position to close the lower end of the drum, means for releasing the support for said bottom, and means for limiting the downward movement of said bottom when released.

4. In a centrifugal, the combination of a vertical shaft, a drum or casing mounted on the shaft to rotate therewith, the bottom of said drum being formed separate from the body of the drum and mounted on the shaft to move vertically toward and from the drum-body and to rotate with the shaft in either its upper or lower position, a lever adapted to engage the bottom and hold it in its elevated position, means for actuating said lever to disengage it from the bottom, means connected with said lever for reengaging the bottom and limiting the downward movement thereof, and means for restoring the bottom to its elevated position.

5. In a centrifugal, the combination of a vertical shaft, a drum or casing mounted on the shaft to rotate therewith, a separately-formed bottom for said drum mounted on the shaft to rotate therewith and to move vertically thereon, means for sustaining said bottom in its elevated position, means for releasing said bottom and permitting it to fall below the horizontal plane of the lower edge of the sides of the drum or casing, and a ring supported within the upper part of the drum or casing by the bottom and adapted to be moved downwardly as said bottom falls to assist in expelling the contents of the drum or casing.

In testimony whereof I have hereunto set my hand in presence of two witnesses.

FRANZ HAMPL.

Witnesses:

ADOLPH FISCHER,
ARTHUR SCHULZ.