(No Model.)

# D. M. WESTON.

## CENTRIFUGAL MACHINE.

No. 351,416. Patented Oct. 26, 1886.

Fig: 1.

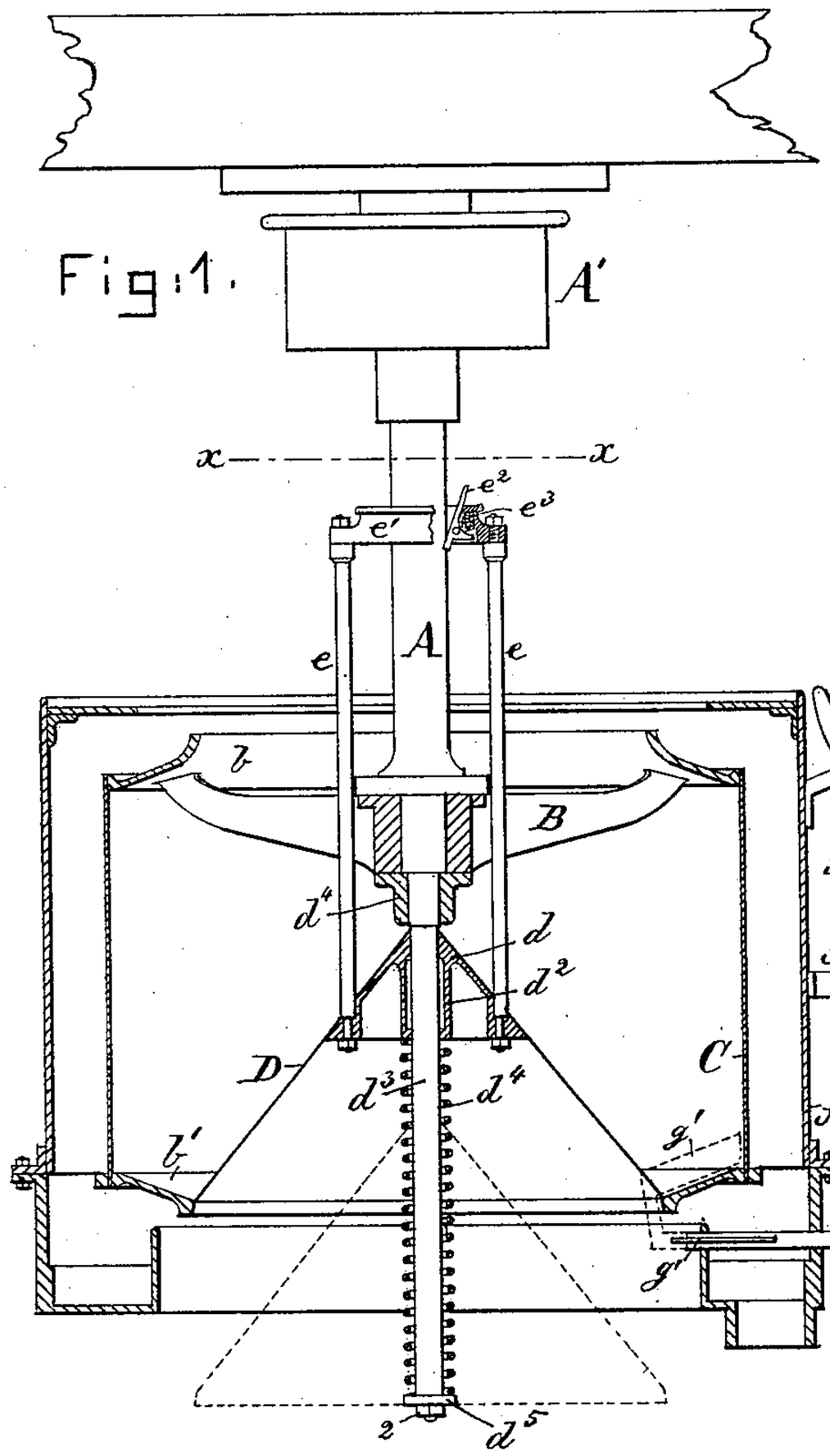



Fig: 3.

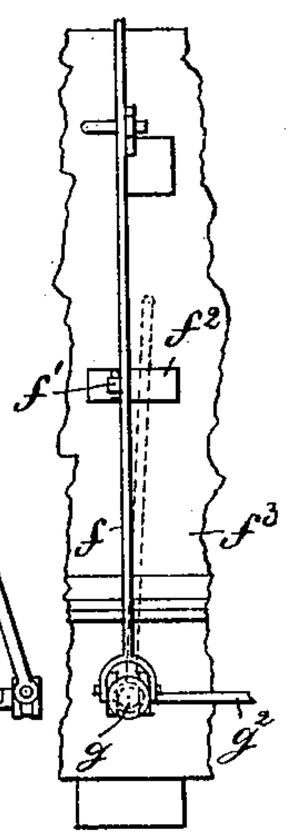



Fig: 2.

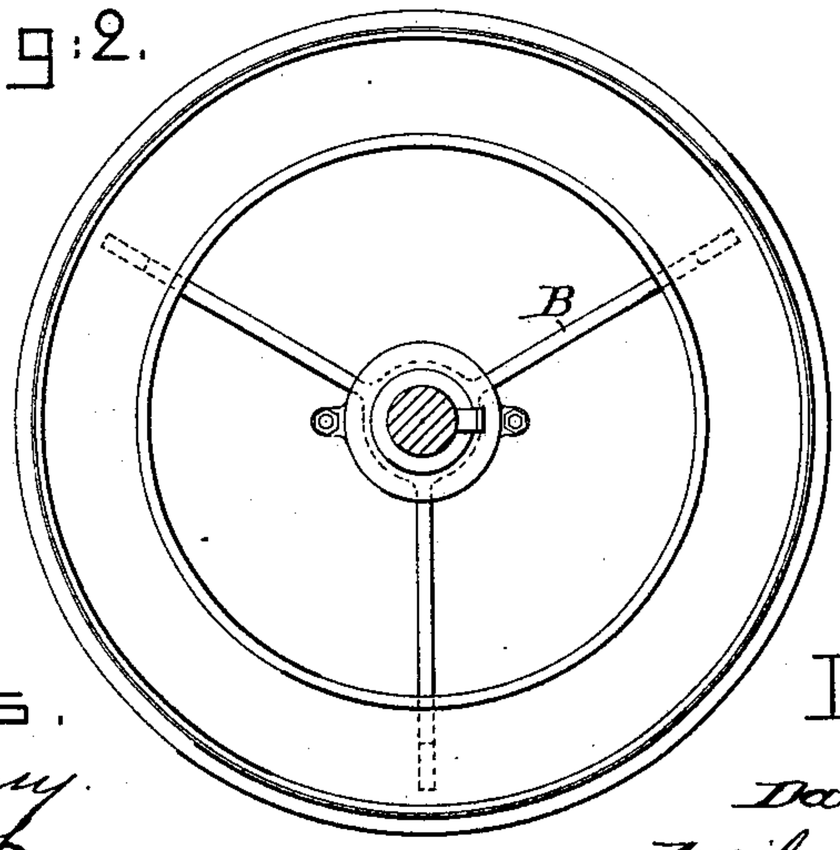
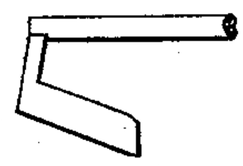



Fig: 4.



Witnesses.
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John F. C. Fairbank

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# UNITED STATES PATENT OFFICE.

DAVID M. WESTON, OF BOSTON, MASSACHUSETTS.

## CENTRIFUGAL MACHINE.

SPECIFICATION forming part of Letters Patent No. 351,416, dated October 26, 1886.

Application filed April 12, 1886. Serial No. 198,544. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID M. WESTON, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Centrifugal Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention in centrifugal machines is an improvement upon the class of machine represented in United States Patents No. 302,612, dated July 29, 1884, and No. 275,875, dated April 17, 1883, to which reference may be had.

The machine described in the former patent has a valve to close its lower end, and the said valve is adapted to be moved upwardly and inwardly toward the center of the machine in coming to its seat, and in the machine described in the latter patent the valve is counterbalanced by a weight; but the normal action of the counter-balance or spring is to lift the said valve away from the seat with which it co-operates.

In my present invention the valve moves in the same direction when closing the bottom of the basket; but herein the devices for opening the valve are extended upward from the valve rather than downward below it, and so, also, the counter-balance acts in the direction to aid in keeping the valve on its seat. I have also shown a novel plow to enter the lower end of the basket and attack the sugar wall.

Figure 1, in partial elevation and vertical section, represents a sufficient portion of a centrifugal machine to illustrate my present invention; Fig. 2, a top or plan view below the dotted line $x\ x$, the curb and its attached parts being omitted; Fig. 3, a detail of the curb and the devices for moving the plow, and Fig. 4 a detail showing the plow and its shaft detached.

The hollow spindle A, having an attached band-wheel, A′, and supported by and moving upon a depending-spindle—such as commonly used in patents heretofore granted to me—has at its lower end a triarmed spider, B, which supports the usual basket, C, having top and bottom curbs, $b\ b'$, the latter having a seat at its inner edge, against which bears the edge of the valve D, shown as a conical metal shell, the lower end of which is more nearly cylindrical than the main body of the valve.

The conical hollow valve D forms part of a hollow shell, $d$, having a hub, $d^2$, to fit a guide-rod, $d^3$, the upper end of which is securely attached to a socket, $d^1$, firmly attached to or forming part of the spider B. The end of the hub $d^2$ rests upon a counterbalancing-spring, $d^4$, the lower end of which rests on a washer, $d^5$, held in place by the nut 2, the said spring $d^4$ having sufficient strength to aid in lifting the valve D into the basket C, as in Fig. 2.

To keep the valve closed when material is added to the basket, I have provided the valve with two lifting-rods, $e\ e$, which are extended upward above the top of the basket, where the said rods are attached to a cross-head, $e'$, having a locking device composed of a latch, $e^2$, acted upon by a spring, $e^3$, one arm of the latch engaging a notch cut in the periphery of the hollow spindle A. To open the bottom of the basket and discharge its contents, the operator will disengage the dog $e^2$, permitting the valve to drop, as in dotted lines, Fig. 1, which it may do while in motion or at rest in order to discharge the contents of the basket. When the valve is to be moved to close the basket, the operator will grasp the cross-head $e'$ or a rod, $e$, and lift the valve, the spring $d^4$ greatly assisting in the operation, as its strength is almost sufficient to lift the valve into its full-line position. When the valve has been lowered, the operator will grasp the hand-lever $f$, pivoted at $f'$ on a stand, $f^2$, attached to the usual curb, $f^3$, and will move its upper end outward, causing the lower forked end of the said lever, having pins or shoes entering an annular groove of a hub or collar attached to the plow-shaft $g$, to move the said shaft and its attached plow longitudinally inward toward the center of the machine, carrying the point of the plow $g'$ inward beyond the inner edge of the rim $b'$, when the operator will move the arm $g^2$ from its full into its dotted-line position, or from a horizontal into a vertical position, (see Fig. 3,) the plow being thereby turned upward, as in dotted lines, Fig. 2, and then the upper end of the handle $f$ is gradually moved toward the curb $f^3$, which causes the plow to be moved outwardly across the rim $b'$, as in dotted line, Fig. 1, at which time it cuts into and through the bottom of the wall of sugar or other material deposited thereon, permitting it to fall, as is well understood.

The plow may be inserted to act upon and

break up the foot of the wall while the basket is being rotated.

The valve and rods and collar revolve with the basket C.

I claim—

1. In a centrifugal machine, a rotating basket open at its lower end, a valve to close the lower end of the basket by moving vertically upward into the said basket from below its lower end, and a guide for the said valve, combined with a spring to support the said valve, substantially as described.

2. In a centrifugal machine, a rotating basket open at its lower end, a valve to close the lower end of the basket by moving vertically from outside of and below the basket upward, combined with the rods and cross-head, and a locking device to keep the valve in elevated position, substantially as described.

3. In a centrifugal machine, a rotating basket open at its lower end, and the curb and the plow-shaft and plow, combined with means to move the plow-shaft and plow horizontally in one direction, to partially rotate it, and then move the plow and plow-shaft horizontally in the opposite direction to enter the basket above the rim $b'$, substantially as described.

4. In a centrifugal machine, a basket open at its lower end, the spindle A, and the spider attached to the rim $b$ at the top of the basket, the guide-rod fixed to the under side of the spider, and the spring supported upon the said rod, combined with the valve to slide upon the said guide-rod, and with rods $e$ $e$, the said valve, when closing the bottom of the basket, being moved vertically from below the open lower end of and into the said basket, all substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DAVID M. WESTON.

Witnesses:
F. CUTTER,
BERNICE J. NOYES.