Jan. 2, 1923.

A. I. S. HALVORSEN.

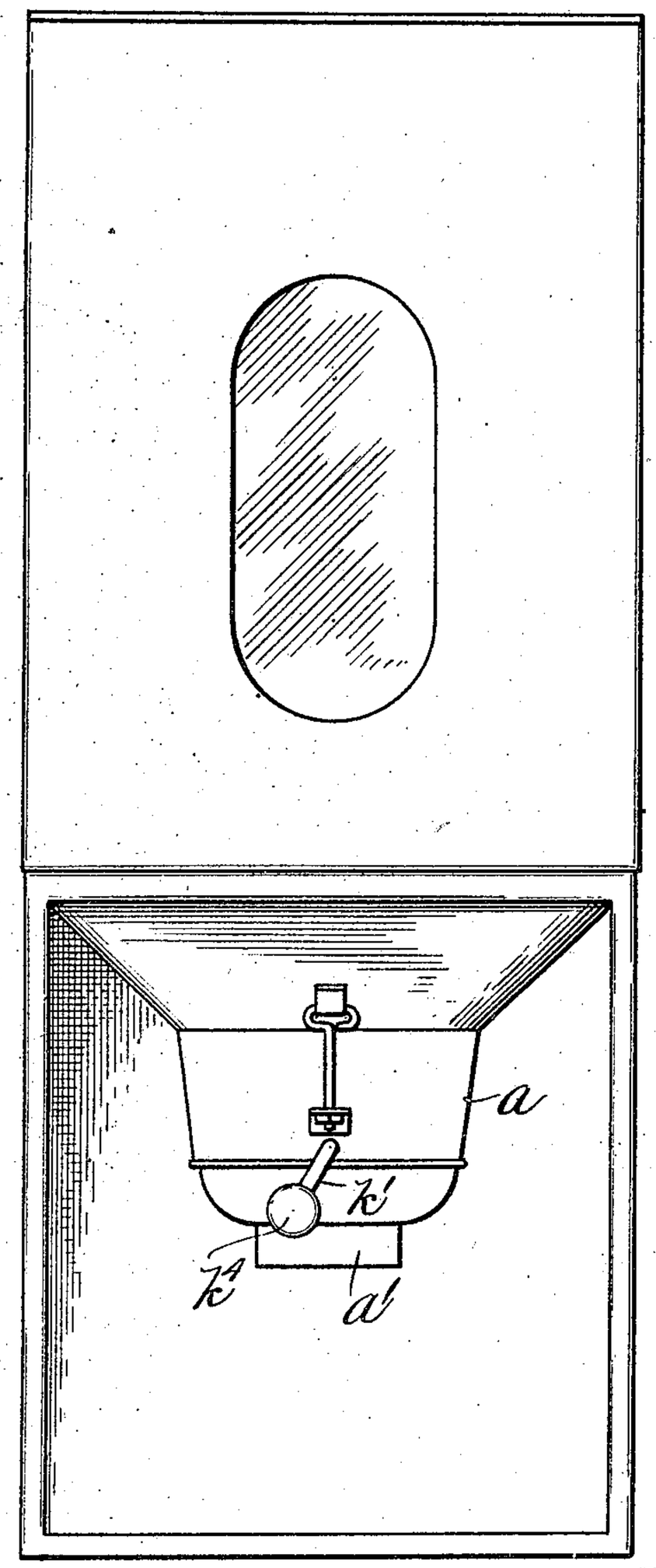
SIFTER MECHANISM.

FILED JULY 17, 1922.

1,440,539.

2 SHEETS—SHEET 1.

Fig. 1.



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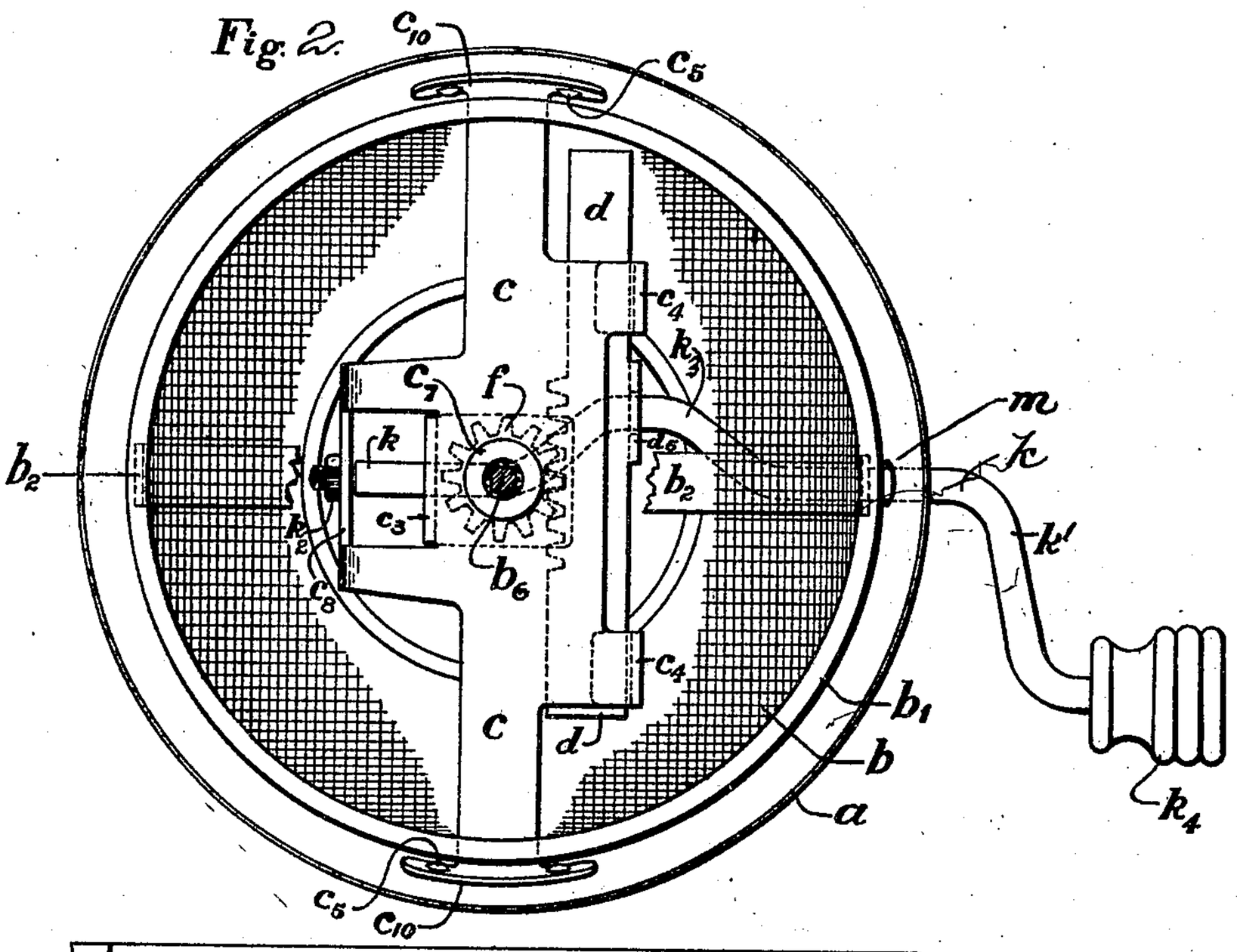
2 SHEETS—SHEET 2.

Fig. 2.



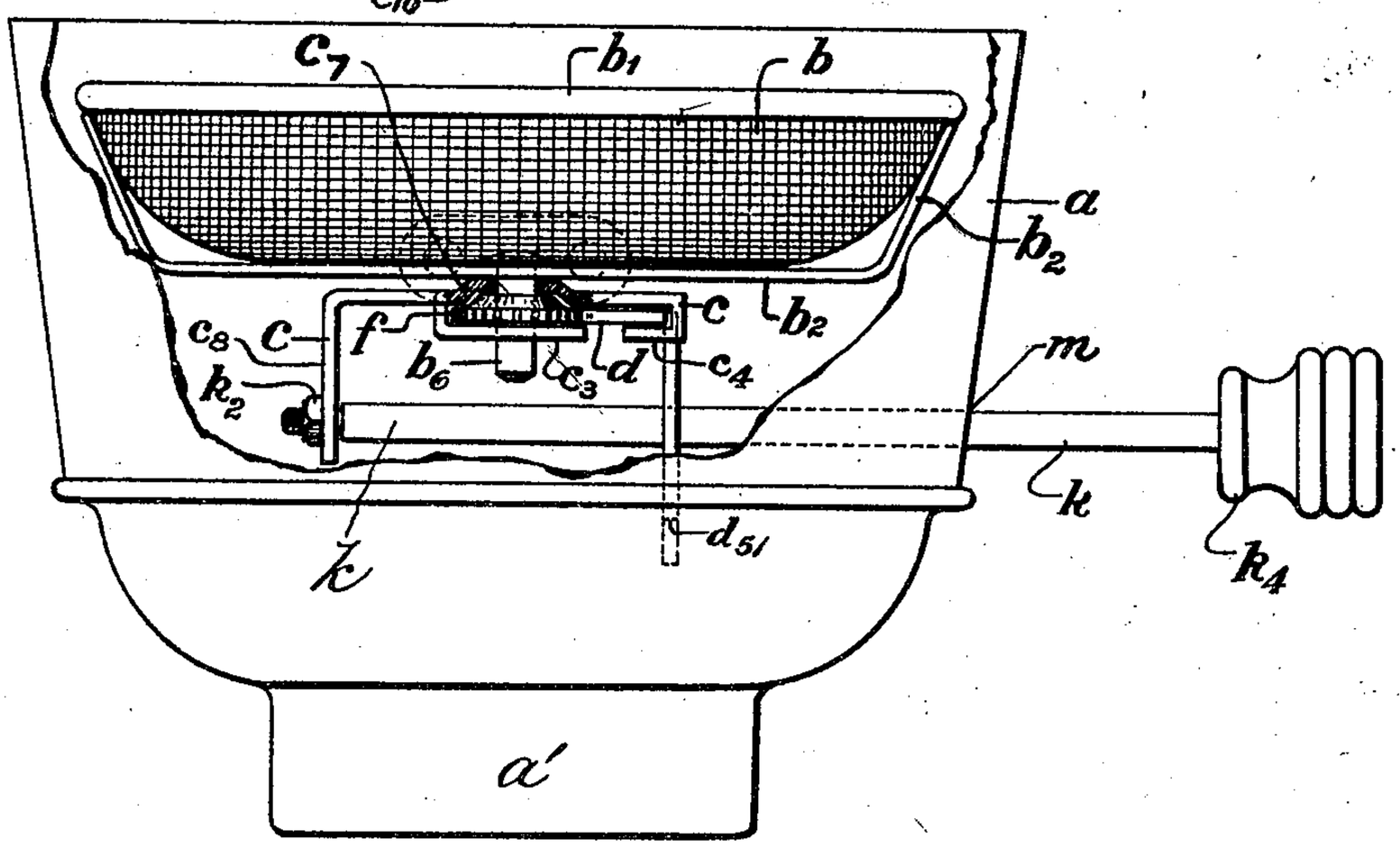


Fig. 3.

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Patented Jan. 2, 1923. 1,440,539

UNITED STATES PATENT OFFICE.

AXEL I. S. HALVORSEN, OF ALBANY, INDIANA.

SIFTING MECHANISM.

Application filed July 17, 1922. Serial No. 575,702.

To all whom it may concern:

Be it known that I, AXEL I. S. HALVORSEN, a citizen of the United States, residing at Albany, in the county of Delaware and State of Indiana, have invented certain new and useful Improvements in Sifter Mechanisms, of which the following is a specification.

My invention relates to sifters for flour bins and the like and it has for its object to simplify and improve the construction thereof.

Bins such as are incorporated in kitchen cabinets and the like for holding flour are commonly constructed with a sifter outlet at their lower ends within which is arranged a rotatably supported sieve that is manually oscillated to cause the flour to discharge by gravity through the same. This sieve is mounted within a sifter body detachably connected with the bin and means, including a manually operated handle, upon the outside of said body, is provided by means of which the sieve is operated to cause sifted flour to be discharged from said outlet. The principal object of my invention is to improve the construction of the sieve mechanism of bins of this kind and the invention consists of a sifter mechanism having the peculiar features of construction and mode of operation hereinafter pointed out.

In the accompanying drawings:

Figure 1 is a front elevation of a flour bin including a sifter mechanism constructed in accordance with my invention.

Figure 2 is a plan view of the sifter mechanism.

Figure 3 is a side elevation, partly in section, of the sifter mechanism shown in Fig. 2.

Having reference to the drawings, a is the body of my improved sifter mechanism and b the sieve. The body a is made from sheet metal and at its lower end is formed with a spout a' adapted to receive upon it a cap or cover (not shown) by which it is closed when the sifter is not in use. The sieve b is a saucer-shaped, or concaved, circular piece of wire screen having its edge or margin soldered to a chine wire b' by which said marginal portion is strengthened and reinforced. The sieve b is disposed within a bail-shaped yoke b^2 (broken away in Fig. 2) made from a narrow metal strip, the bottom portion of said sieve resting upon the middle portion of said yoke, and the ends of the latter being soldered to the chine wire b' and screen b. At its middle the yoke b^2 has rigidly fastened to it a depending spindle or stud b^6 which, as shown in Fig. 2, is square in cross-section. This square stud occupies a square hole provided at the middle of the hub of a gear f that is supported by a shelf c^3.

The shelf c^3 is a flap or tang provided upon a girder c which extends diametrically across the interior of body a and has its ends c^{10} fastened by rivets c^5 to the latter. At its middle the girder c is provided upon its under side with a countersink or socket c^7 that is occupied by the hub of gear f so that the latter is held against lateral displacement, and this countersink provides a boss upon the top side of girder c by which the yoke b^2, and parts carried thereby, are rotatably supported without liability of interference between yoke b^2 and girder c. Circular apertures formed through girder c and flap c^3 are occupied by the stud b^6 so that the yoke b^2 and parts carried thereby are held against lateral displacement, said stud being free to rotate in said apertures.

At one side thereof the girder c is made with two integral tangs c^4 which are bent downwardly and then laterally under the body portion of the girder to provide two shelves for supporting a metal rack d provided at one side with gear teeth in mesh with the teeth of pinion f, the space between said shelves and the body portion of girder c being slightly greater than the thickness of the rack to permit free movement of the latter. As will be clear the rack d is held against lateral displacement by pinion f and the two tangs c^4.

At one side thereof the rack d is made with an integral downwardly extending yoke tang d^5 that is formed with a vertical slot whose lower end is indicated at d^{51}. This slot is occupied by a crank k^3 forming part of a crank shaft k journaled at its inner end in a bearing provided in a depending tang c^8 integral with girder c, said inner end portion of shaft k being of reduced diameter so as to provide a shoulder immediately adjacent one side of tang c^8 which prevents endwise displacement of said shaft in one direction. To prevent endwise displacement of shaft k in the opposite direction the reduced end portion thereof is threaded to receive upon it a nut k^2 disposed immediately adjacent the other side of said tang.

A crank k' at the outer end of shaft k provided with a handle k^4 serves as means by

which the shaft *k* may be manually rotated, and when so rotated the crank k^3 acts through yoke tang d^5 to reciprocate rack *d*. As will be clear, reciprocation of rack *d* acts through pinion *f* and stud b^6 to oscillate the sieve *b*. Thus a continuous rotary motion of shaft *k* imparts an oscillatory movement to the sieve *b*.

The body *a* is telescopically fitted at its upper end upon the usual outlet spout of the bin and when a supply of flour or the like is within the bin, said flour feeds by gravity down on to the sieve *b*. It will therefore be clear that by means of handle k^4 the rack *d* may be manually reciprocated and said rack will then act through pinion *f* and stud b^6 to oscillate the sieve causing the flour to pass through the latter and discharge from nozzle *a'*.

The construction above described is efficient, simple and inexpensive, and as will be clear, the location of the rack *d* and pinion *f* below the girder *c* prevents clogging of the gear teeth with flour. It will also be observed that the construction described has the advantage that the sifter may be removed for cleaning by simply removing body *a* from the bin and lifting the sieve out, and that when so removed the pinion *f* is held in its proper normal position by the pocket c^7.

What I claim is:

1. A sifter mechanism comprising a hollow sheet metal body for attachment to a bin; a girder within said body extending diametrically across the same and having its ends fastened to said body, said girder being made at its middle and upon its under side with a recess; a pinion pocketed within said recess; a spindle connected with said pinion and extending upwardly therefrom through said girder; a sieve rotatably and removably supported upon the top side of said girder and connected with said spindle; a rack slidably supported beneath and by said girder, said rack being in engagement with said pinion, and a shaft extending from the exterior of said body through the wall of the latter made with a crank directly engaging said rack so that continuous rotary motion of said crank in one direction reciprocates said rack and the latter oscillates the pinion, spindle and sieve.

2. A sifter mechanism comprising a hollow sheet metal body; a girder within said body extending diametrically across the same and having its ends fastened to said body, said girder being made at its middle and upon its under side with a recess; a pinion pocketed within said recess; a spindle connected with said pinion and extending upwardly therefrom through said girder; a sieve rotatably supported upon the top side of said girder and connected with said spindle; a rack slidably supported beneath and by said girder, said rack being in engagement with said pinion, and a shaft extending from the exterior of said body through the wall of the latter made with a crank directly engaging said rack so that continuous rotary motion of said crank in one direction reciprocates said rack and the latter oscillates the pinion, spindle and sieve.

3. A sifter mechanism comprising a hollow sheet metal body; a girder within said body extending diametrically across the same and having its ends fastened to said body, said girder being made at its middle and upon its under side with a recess; means carried by said girder and extending beneath said pinion to support the latter within said recess; a spindle connected with said pinion extending upwardly therefrom through an aperture in said girder; a sieve rotatably supported upon the top side of said girder and connected with said spindle; a rack immediately beneath said girder meshing with said pinion and provided with a downwardly extending yoke; means slidably connecting said rack with said girder, and a shaft extending from the exterior of said body through the wall of the latter made with a crank engaged with said yoke so that continuous motion of said crank in one direction reciprocates said rack to cause the latter to oscillate the pinion, spindle and sieve, said shaft being provided at its outer end with a crank handle.

4. A sifter mechanism comprising a hollow sheet metal body; a girder within said body extending diametrically across the same and having its ends fastened to said body, said girder being made at its middle and upon its under side with a recess; means carried by said girder and extending beneath said pinion to support the latter within said recess; a spindle connected with said pinion extending upwardly therefrom through an aperture in said girder; a sieve rotatably supported upon the top side of said girder and connected with said spindle; a rack immediately beneath said girder meshing with said pinion and provided with a downwardly extending yoke; two tangs integral with said girder, one at each side of said yoke, said tangs extending under said girder to slidably support said rack with provision for endwise movement thereof and so as to hold the same against sidewise displacement, and a shaft extending from the exterior of said body through the wall of the latter made with a crank engaged with said yoke so that continuous rotary motion of said crank in one direction reciprocates said rack to cause the latter to oscillate the pinion, spindle and sieve, said shaft being provided at its outer end with a crank handle.

In testimony whereof I have affixed my signature.

AXEL I. S. HALVORSEN.