

(No Model.)

C. SINGER, Jr., & E. & H. SINGER.

BOTTLE WASHER.

No. 350,643.

Patented Oct. 12, 1886.

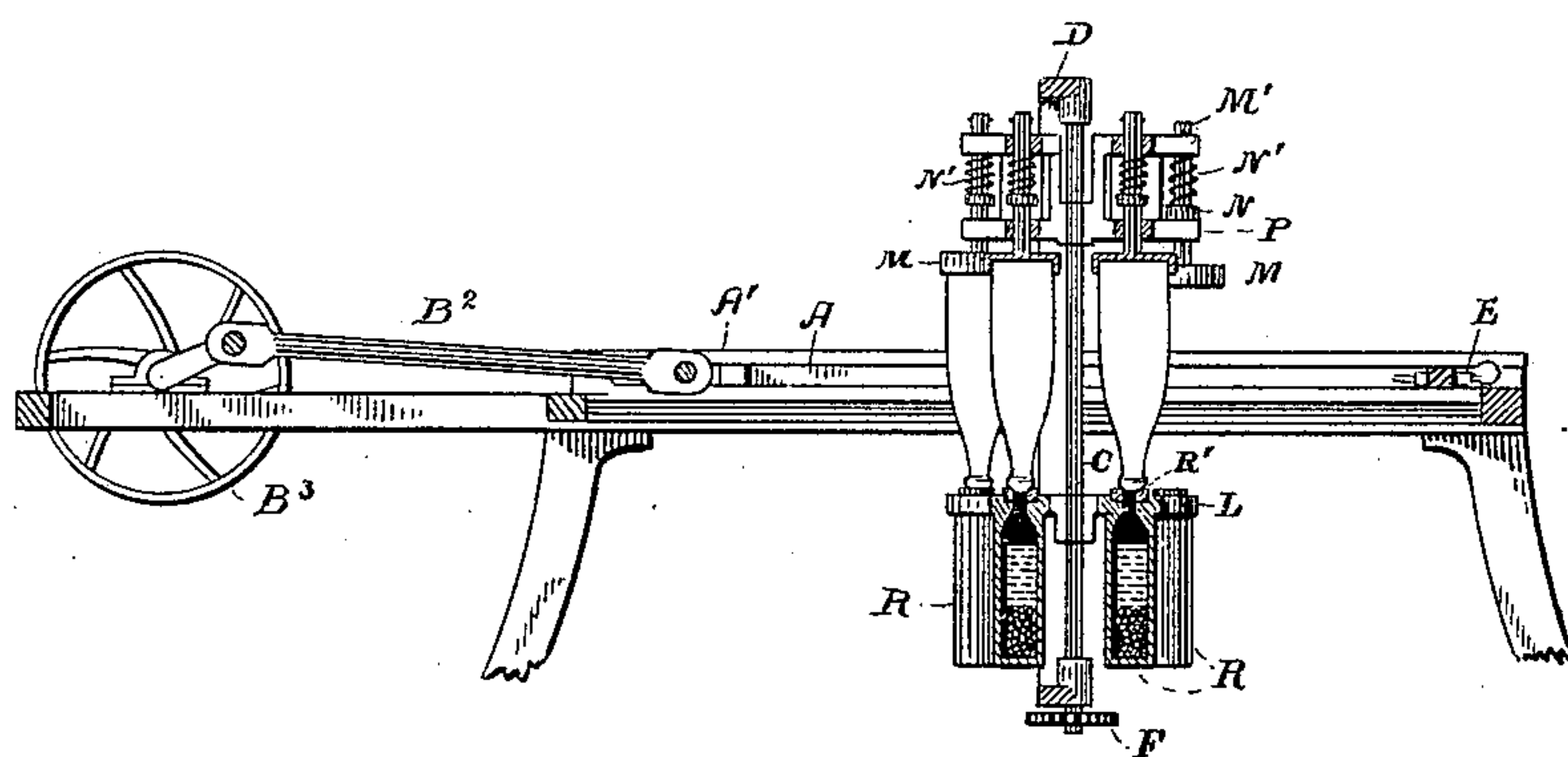


fig. 2.

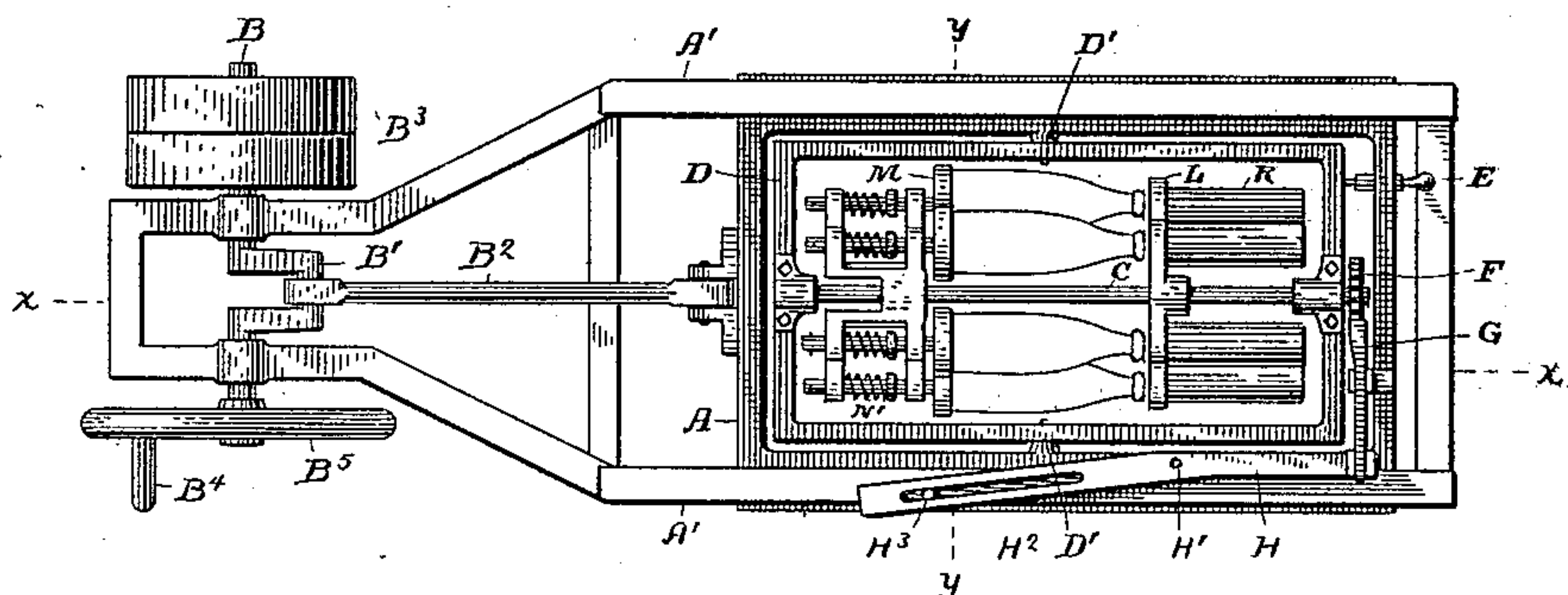
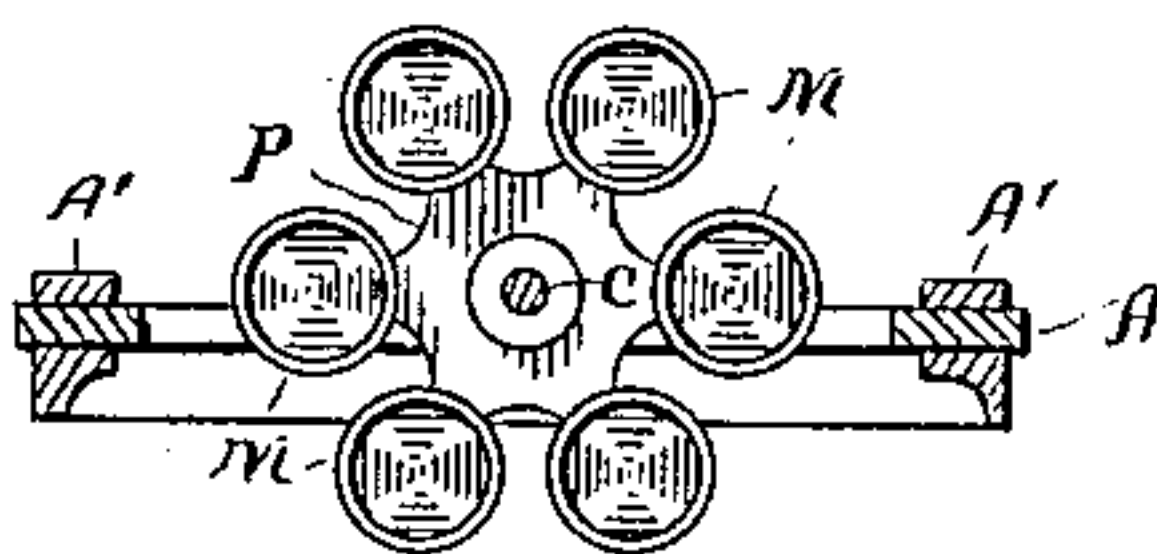


fig. 1.

fig. 3



Witnesses,

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UNITED STATES PATENT OFFICE.

CHARLES SINGER, JR., EMIL SINGER, AND HENRY SINGER, OF PEORIA, ILL.

BOTTLE-WASHER.

SPECIFICATION forming part of Letters Patent No. 350,643, dated October 12, 1886.

Application filed April 10, 1886. Serial No. 198,451. (No model.)

To all whom it may concern:

Be it known that we, CHARLES SINGER, JR., EMIL SINGER, and HENRY SINGER, all of Peoria, in the county of Peoria, State of Illinois, have invented an Improved Bottle-Washer; and we do hereby declare that the following is a full, clear, and exact description thereof.

This invention is in the line of bottle-washers in which small solid particles—such as shot—are, in connection with a liquid, kept in strongly-agitated motion within the bottle until the latter is sufficiently cleansed.

This invention particularly relates to the construction of an improved agitating mechanism for the bottles, a chuck for readily receiving and releasing the bottles from the agitating mechanism, a reservoir for holding the shot and water ready for each bottle, and means for introducing the shot and water into the bottles at the commencement of the agitation and returning the same to the reservoir at the termination of the washing operation.

Our mechanism for securing these several features in one complete and simple apparatus consists, essentially, of a horizontally-reciprocating frame carrying a shaft adapted to swing vertically or be locked horizontally, on which shaft are mounted the bottle-chucks and reservoirs having their openings communicating with the mouths of the bottles, said shaft being provided with means for its slow rotation.

In the drawings connected with this application, Figure 1 is a plan view of our bottle-washing machine; Fig. 2, a vertical section of the same at $x x$ in Fig. 1. Fig. 3 is a vertical cross-section at $y y$ in Fig. 1.

Referring to the drawings, A represents the horizontal frame, longitudinally movable in the ways A' , on one end of which is mounted the shaft B, having crank-arm B' , connected by the pitman B'' with the said frame A. Said shaft is revolved by power connected to the pulleys B^3 , or by means of the crank-handle B^4 on the fly-wheel B^5 .

Within the frame A is another frame, D, pivoted thereto at $D' D'$, and provided with the lock E, for keeping it in a horizontal position. Having bearings at the ends of said frame D is the shaft C, on which are the means for holding the bottles. The means for holding the bottles consist of the disk L and the elastically-repressible chucks M, made with

narrow rims for receiving the bottoms of the bottles. Said chucks are removable parallel to the shaft C by means of their stems M' , held in bearings projecting rigidly from said shaft. Springs N' , pressing between the stops N and opposite bearings, hold the chuck-faces in contact with the bottles.

From the disk L project the reservoirs R, parallel to the shaft C, and opening through said disk. The mouth of each reservoir we usually provide with a rubber ring, forming circular lips for receiving the mouth of a bottle and preventing the leakage of the contents of the reservoir.

At one end of the shaft C is the ratchet-wheel F, fast thereon, and pivoted to the frame A is the operating-lever H, provided with the pawl G, engaging with said ratchet-wheel. In said lever is an elongated slot, H^2 , into which projects a pin from the ways A' . As the frame A moves back and forth the pin H^2 in said slot gives to the lever H a slight oscillation sufficient to enable the pawl G to turn the ratchet-wheel F notch by notch.

The operation of our bottle-washer is as follows: The lock E, which consists of a pin passing through the bar of the frame A into a recess in the frame D, is first made to release the frame D, and the latter is permitted to swing into a vertical position, as in Fig. 2. To insure this swing, the pivotal points D' of the frame D are located nearer the chuck end of said frame, so that the center of gravity of the frame and connected mechanism shall be below said points when the same is in the position shown in Fig. 1. The frame D being vertical, a quantity of shot is poured into each reservoir, and the latter then filled with water. Bottles are then put in place in the machine by introducing the bottom of each beneath a chuck, M, and pressing the latter up sufficiently to permit the mouth of the bottle to be inserted into the rubber lips R' of the reservoir. There may be as many reservoirs and chucks as desired; but we usually employ but six, as shown in Fig. 3. The frame D is now returned to its horizontal position and locked, and the machinery set in motion. As soon as the washer begins its reciprocation, the shot and water in each reservoir is thrown into the bottle connected therewith, and all subsequent motion continually agitates the shot and water

in the bottles until the same are entirely clean. The rotation of the shaft C, and therefore of the bottles, causes the bottles to have the entire interior lateral walls at one time or other to be under the agitated shot, and thereby be cleansed completely. When the bottles are washed sufficiently, the lock E is withdrawn and the frame D permitted to swing to its vertical position. This causes all the shot and water in the bottles to flow into the reservoirs, so that when said bottles are removed they are empty. To replenish the water in the reservoirs, a stream can be directed upon the face of the disk L, thereby filling the reservoirs and washing away the dirty water.

We are aware that prior to our invention bottle-washers have been constructed in which shot and water were inserted into the bottles, which were agitated by being held in chucks adapted to be rotated and reciprocated. We are also aware that there have previously been used reservoirs adapted to receive shot and water, and provided with means for holding the mouths of bottles in contact with the entrances to said reservoirs for enabling the shot to pass from the reservoirs to the bottles, and vice versa; hence we do not claim the same, broadly.

What we claim as our invention, and for which we desire Letters Patent, is as follows, to wit:

1. In a bottle-washer, the combination, with a horizontally-movable frame and mechanism for its reciprocation, of an interior frame centrally pivoted to the reciprocating frame, a lock for rigidly connecting said frames, a shaft mounted on said interior frame, a series of reservoirs connected to said shaft, and chucks for holding the bottles in communication with said reservoirs, substantially as set forth, for the purpose specified.

2. The combination of a shaft, a ratchet-wheel mounted fast thereon, the obliquely-slotted lever, a pawl connected to said lever and engaging with said ratchet-wheel, a reciprocating frame supporting said shaft and lever, and a fixed pin entering said slot, whereby the reciprocation of said frame can rotate said shaft.

3. In a bottle washer, the combination of the reciprocating frame, the interior frame centrally pivoted thereto, the lock for rigidly connecting said frames, the shaft mounted on said interior frame, the ratchet-wheel fast on said shaft, the obliquely-slotted lever and its pawl for rotating said shaft by engagement with said ratchet-wheel, a pin projecting from a fixed point into said slot, the reservoirs connected with said shaft, and the chucks for holding the bottles in communication with said reservoirs, substantially as and for the purpose specified.

4. In a bottle-washer, the reciprocating frame, the interior frame pivoted thereto, the lock for rigidly connecting said frames, the shaft mounted on said interior frame, the ratchet-wheel fast on said shaft, the operating-lever for rotating said shaft, the disk mounted on said shaft, the reservoirs projecting from said disk parallel to said shaft, and the chucks for holding the bottles in communication with said reservoirs, substantially as and for the purpose set forth.

In testimony that we claim the foregoing invention we have hereunto set our hands this 7th day of April, in the year 1886.

CHARLES SINGER, JR.
EMIL SINGER.
HENRY SINGER.

Witnesses:

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