(No Model.)

O. WILLCOX.

BOTTLE WASHING MACHINE.

No. 404,141. Patented May 28, 1889.

Fig. 2.

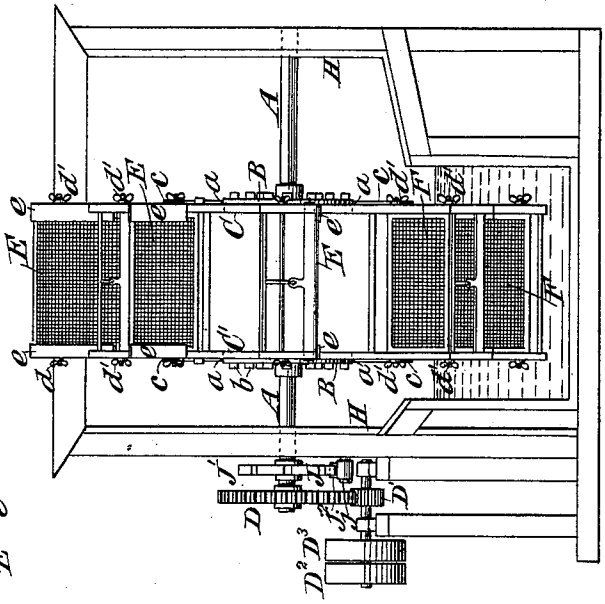


Fig. 3.

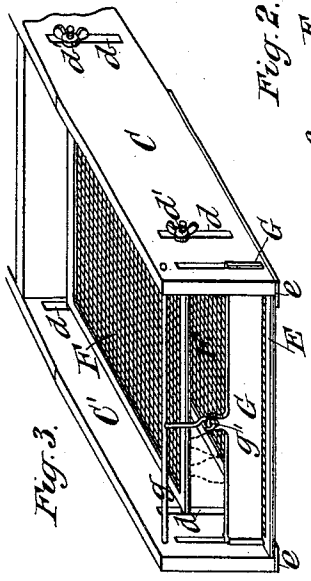
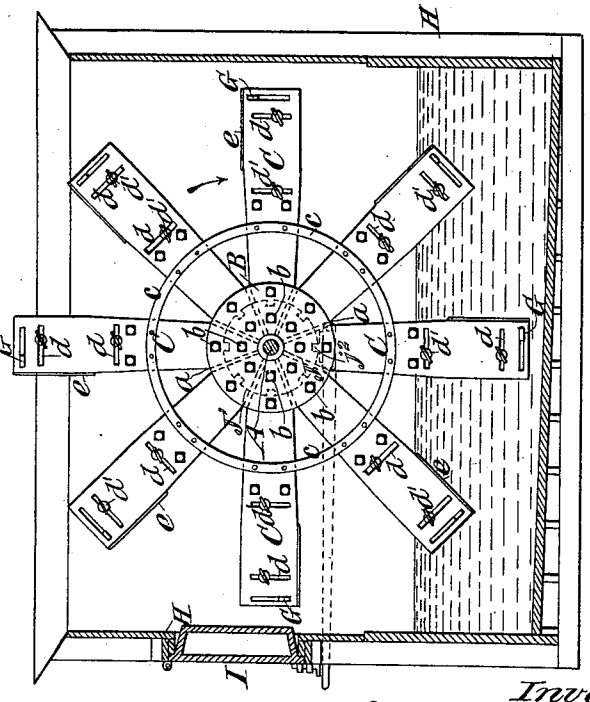


Fig. 1.



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UNITED STATES PATENT OFFICE.

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BOTTLE-WASHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 404,141, dated May 23, 1889.

Application filed November 16, 1888. Serial No. 291,055. (No model.)

To all whom it may concern:

Be it known that I, OLIVER WILLCOX, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Bottle-Washing Machines, of which the following is a specification, reference being had to the accompanying drawings.

I will describe in detail a bottle-washing machine embodying my improvement, and then point out the novel features in claims.

In the accompanying drawings, Figure 1 is a side elevation of a bottle-washing machine embodying my improvement, one side of the case or box in which the same is contained being removed. Fig. 2 is an edge view of the same, the side of the box or case being also removed. Fig. 3 is a detail in perspective, and on a larger scale, showing a certain part of a wheel comprised in the machine and bottles arranged therein.

Similar letters of reference designate corresponding parts in all the figures.

The machine consists, essentially, of a rotary wheel in which the bottles are arranged to be washed.

A designates a shaft upon which the washing-wheel is supported and by which the wheel is rotated.

B designates hubs for the wheel. These hubs are of spider-like construction and are provided with inwardly-tapering or wedge-shaped recesses *a*.

C C′ designate spokes for the wheel. These spokes are provided with inwardly-tapering or wedge-shaped inner ends, which fit within the inwardly-tapering or wedge-shaped recesses *a* of the hubs B and extend radially from the axis of the wheel. They may be secured in said recesses by bolts *b*, passing through the hubs and the inner ends of the spokes. Metallic bands *c* may be bolted to the spokes and serve to brace or stay them against tangential displacement. The spokes C are at some distance from the spokes C′, so that there may be a space between the two sets of spokes. As shown, motion is transmitted to the shaft by means of gear-wheels D D′, deriving motion from the belt-pulleys D^2 D^3.

The bottles to be washed are arranged upon trays E. These trays E comprise metallic frames, (shown as rectangular,) and wire-netting or some similar material secured upon the frames, so as to form a bottom for the trays. Upon one of the side edges of each of the spokes C C′ are bolted or otherwise secured plates *e*. The plates *e* extend toward each other and constitute ways or slides along which the trays may be slid to be supported while arranged on the spokes.

One of the trays having been filled with the desired number of bottles having their mouths extending upwardly, I move downwardly upon the tops of the bottles a securing device, F, here shown as a screen comprising a metallic frame and wire-netting or similar material secured thereto. This screen is adjustable toward and from the tray, in order to accommodate bottles of different heights. I have shown the ends of the frames as provided with screws extending through slots *d* in the sides of the spokes C C′. By loosening clamp-nuts *d*′, with which the said screws are provided outside the spokes, the screens may be raised or lowered, as desired, and by again tightening the clamp-nuts may be secured in position. In order to prevent the bottles from being moved outwardly by centrifugal force during the rotation of the wheel, I provide with each pair of spokes a gate, G. The ends of this gate extend into guideways arranged in the spokes C C′ at approximately right angles to the length of the spokes. The gate may be moved in one direction to admit of the tray of bottles being slid in or out, or it may be moved in the other direction into such a position as to inclose the end of the tray and prevent the bottles from being thrown out while the wheel is rotated. I have shown a bar, *g*, extending between the spokes C C′ of each pair, and a hook, *g*′, depending from said bar and adapted to engage the gate, in order to secure it in position.

I have shown eight pairs of spokes C C′; but it is to be understood that I may use any desired number of pairs of spokes, and it is also to be understood that when the machine is in operation there is a tray of bottles arranged upon each pair of the spokes in the manner described.

The washing-wheel rotates in a tank or case,

H, in the lower portion of which water is contained to substantially the height illustrated in the drawings. I have shown the lower portion of the tank or case as inwardly contracted, so as to form a comparatively narrow space through which the wheel rotates. In Fig. 1 I have shown at one side of the tank or case a door, I, by which access may be had to the wheel. When it is desired to load or unload the spokes, the wheel is rotated to bring each pair of spokes successively opposite this door. The tray of washed bottles is then removed and a fresh tray of unwashed bottles inserted, the retaining-screen moved to the desired position if its alteration in position should be necessary, and the gate again secured in place. The wheel is then rotated to bring the next pair of spokes opposite the door, and so on.

Assuming that the wheel is rotating in the direction shown by the arrow in Fig. 1, it will be seen that the tray of unwashed bottles will be presented opposite the door I with the mouths of the bottles upwardly. When the wheel is fully loaded, it is set in rotation. The bottles then passing around present their open mouths to the water in the bottom of the box or case, whereby the water is violently agitated and the insides of the bottles are thoroughly washed. When the bottles leave the water, they will of course be full. As they pass upwardly and assume a position at the top of the tank or case, where their lengths are extending horizontally, a portion of the contained water of course is spilled out. This water runs down from the upper of the bottles over and around the bottles which are beneath. When the wheel is rotated a little farther, all the water is dashed out from the bottles upon the bottoms and sides of the bottles contained in the next preceding tray. These operations being repeated for a few times, the bottles will be thoroughly washed both inside and outside.

J designates a brake or stop, by which accidental rotation of the wheel while the bottles are being removed or inserted may be prevented. It comprises a lever fulcrumed upon a stud, j, extending from the case or box, and provided with a tooth, j^2, adapted to engage notches in a wheel, J', keyed upon the shaft A.

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

1. In a bottle-washing machine, the combination, with a tank, of a rotary wheel arranged in said tank, spokes comprised in said wheel, trays for containing the bottles arranged upon the spokes, and screens for maintaining the bottles upon the trays during the rotation of the wheel, substantially as specified.

2. In a bottle-washing machine, the combination, with a tank, of a rotary wheel arranged in said tank, spokes comprised in said wheel, trays for containing the bottles arranged upon the spokes, and adjustable screens for maintaining the bottles upon the trays during the rotation of the wheel, substantially as specified.

3. In a bottle-washing machine, the combination, with a tank, of a rotary wheel arranged in said tank, spokes comprised in said wheel, trays arranged on said spokes for holding the bottles, screens for maintaining the bottles upon the trays during the rotation of the wheel, and gates for preventing the trays and bottles from being thrown outwardly by centrifugal force, substantially as specified.

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