2 Sheets—Sheet 1.

C. MICHEL.

Bottle Washing Machine

No. 202,740. Patented April 23, 1878.

Fig. 1.

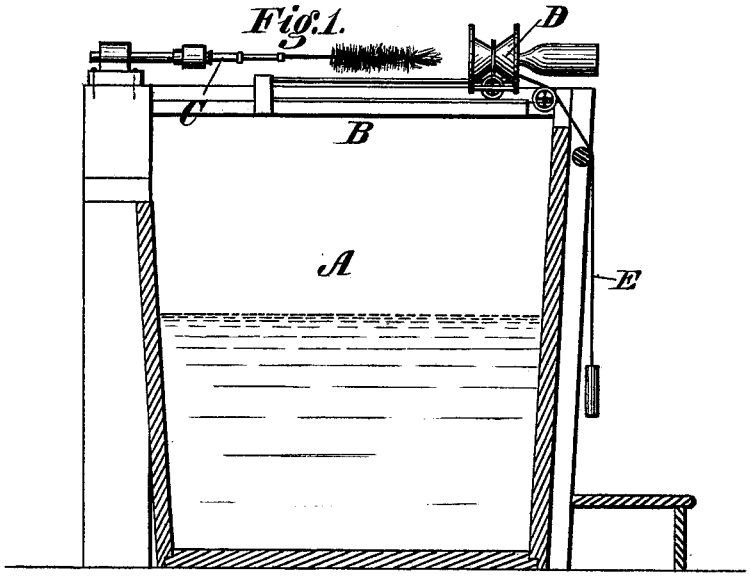
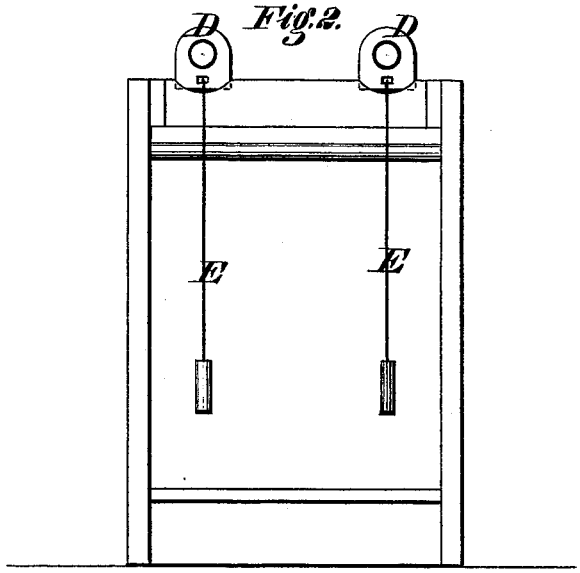


Fig. 2.



Witnesses:

Donn P. Twitchell.

D. P. Cowe

Inventor:

Charles Michel

By his Attys.

Dodgerson

2 Sheets—Sheet 2.

C. MICHEL.

Bottle Washing Machine

No. 202,740. **Patented April 23, 1878.**

Fig. 3.

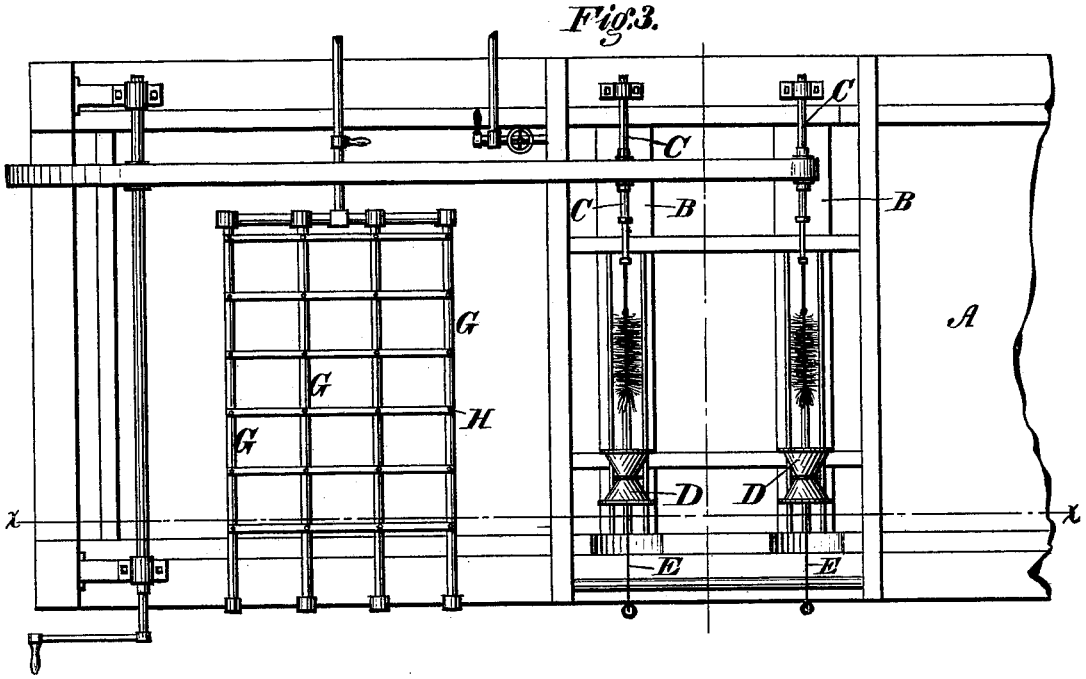
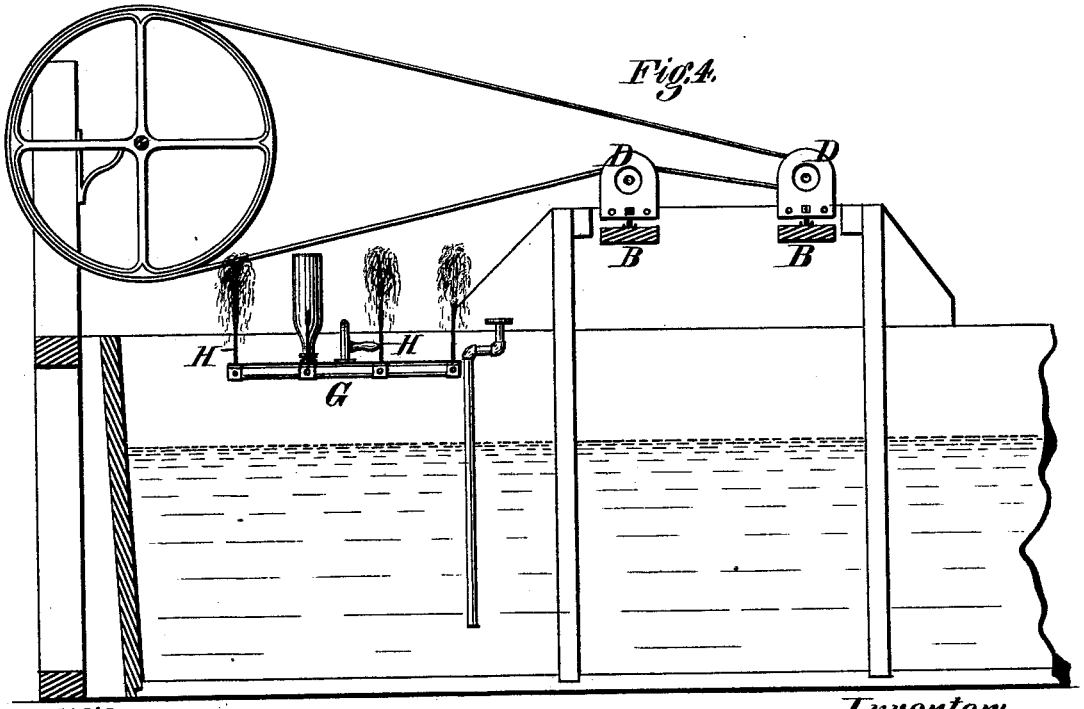


Fig. 4.



Witnesses:

Donn P. Twitchell.

D. P. Cowe

Inventor:

Charles Michel

By his Attys.

Dodger & Sr

UNITED STATES PATENT OFFICE.

CHARLES MICHEL, OF LA CROSSE, WISCONSIN.

IMPROVEMENT IN BOTTLE-WASHING MACHINES.

Specification forming part of Letters Patent No. **202,740**, dated April 23, 1878; application filed January 30, 1878.

To all whom it may concern:

Be it known that I, CHARLES MICHEL, of La Crosse, in the county of La Crosse, State of Wisconsin, have invented an Improvement in Bottle-Washing Machines, of which the following is a specification:

My invention relates to improvements in machinery for washing the interior of bottles; and consists more especially in the use of a movable guide in the form of a double cone or funnel, one side of such guide being intended to receive the mouth of the bottle and the other to guide the brush into said mouth as the bottle and guide are advanced toward the rotary brush, which latter may be of any ordinary form or arrangement.

Rotary spindle-brushes have hitherto been arranged in various ways for the purpose of washing the interior of bottles; but, no means being provided for guiding the brush in its entrance into the bottle, much difficulty has been experienced upon account of the rapid destruction of brushes and the difficulty and inconvenience of introducing them in the bottle.

My invention is designed to overcome these difficulties, and enable the operator to guide the brush directly and accurately into the bottle without the usual loss of time, and without danger of breaking, bending, or otherwise injuring the brushes.

Figure 1 represents a cross-section of a vat or tube having my improved devices mounted thereon, the devices thus being shown in the side elevation. Fig. 2 represents the end elevation of the same. Fig. 3 represents a top plan view of the entire apparatus, showing, in addition to the brushes and attending devices, jets by which the bottles are rinsed out after being removed from the brushes. Fig. 4 represents a longitudinal section of the same on the line *x x*.

A represents the tub or vat, of suitable size and form, and B a transverse frame mounted thereon. In suitable bearings upon the frame B there are mounted two transverse shafts or spindles, C, which receive a rapid rotary motion, through pulleys and belts, from any suitable motor. The inner overhanging end of each spindle is provided with a long slender brush of any ordinary construction, such as generally used for the purpose of cleansing bottles.

Directly in front of and in line with the axis of each brush there is mounted, on a suitable track or support, a guide, D, consisting of two hollow truncated metal cones, having their smaller ends secured permanently together. Cords E, having weights attached to one end, are passed over suitable pulleys or guides, and connected at their upper ends to the guides D, for the purpose of drawing the latter forward away from the brushes.

In operating the apparatus the mouth of the bottle to be washed is inserted in the outer flaring side of the guide D, and pushed snugly inward to the center. The bottle and guide are then moved forward toward the brush, which, by the rear flaring face of the guide, is guided directly and accurately into the mouth of the bottle. After the rotation of the brush is continued for a suitable length of time within the bottle, the latter is withdrawn, and the guide is immediately drawn back from the brushes by the weight, in position to receive the mouth of the next bottle.

It will thus be seen that the attendant, instead of being required, as heretofore, to hold the bottle steadily and guide the same carefully upon the brush by hand, has only to enter its mouth firmly into the guide and push the same forward toward the brush, the arrangements of the parts insuring the instantaneous and direct entrance of the brush.

The rail or support upon which the guides D travel may be of any suitable construction; but by preference the guide is supported upon one or more rails, as indicated in the drawing, in order that there may be no danger of the parts binding in case of corrosion.

It is manifest that a single brush may be employed, if desired; but it is preferred to arrange the brushes in pairs, as described and shown, in order that the operator may wash two bottles at a time, holding one in either hand.

The guides D may be varied in form, construction, and arrangement, as circumstances may require or experience dictate, provided only that they have flaring mouths or openings on the two sides to receive the brush and the bottle respectively.

For the purpose of rinsing or washing out the bottles after their removal from the brush, I locate in convenient proximity to the latter

a system of pipes, G, provided with upright jet-tubes H, upon which the bottles are placed in an inverted position as fast as they are removed from the brush.

It is obvious that, instead of moving the guide D toward the brushes, the guide may be made stationary, and the brushes be arranged to advance in order to enter the bottles, and also that the guide D may be used with good results without either one of the two flaring mouths, in order to guide the brush or the bottle respectively; but it is obviously desirable that it should be made in the form represented, in order to serve as a ready means to guide both the bottle and the brush.

Having thus described my invention, what I claim is—

1. In a bottle-washing machine, the combination of a rotary brush adapted to enter the bottles, and a movable guide, D, having flaring mouths or openings on its opposite sides to receive the brush and the bottle respectively.

2. In a bottle-washing machine, the combination of a rotary brush and a conical or flaring guide, adapted to reduce the end of the brush and guide the same into the mouth of the bottles, substantially as shown and described.

3. In a bottle-washing machine, the combination of a rotary brush and a guide, having a flaring or conical mouth, arranged to receive the mouth of the bottle and retain the same in line with the axis of the brush.

4. In a bottle-washing machine, the combination of a rotary brush and a guide or support to hold the mouth of the bottle in line with the axis of the brush, the brush and guide being movable only in relation to the other, for the purpose of permitting the introduction and withdrawal of the brush.

5. In a bottle-washing machine, the combination of a rotary brush and movable guide, D, and the weighted cords E, or their equivalent.

CHARLES MICHEL.

Attest:
CHARLES W. BUNN,
VISSCHER V. BARNES.