J. Matthews, Jr,

Bottle Cleaner,

No. 49,538. Patented Aug. 22, 1865.

Fig. 1.

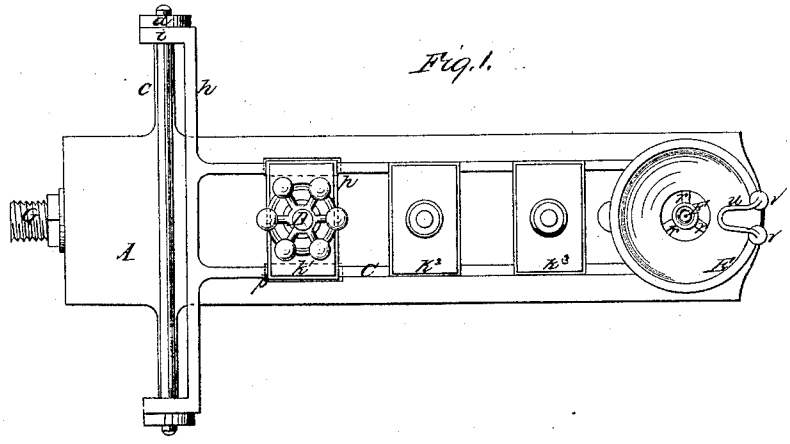
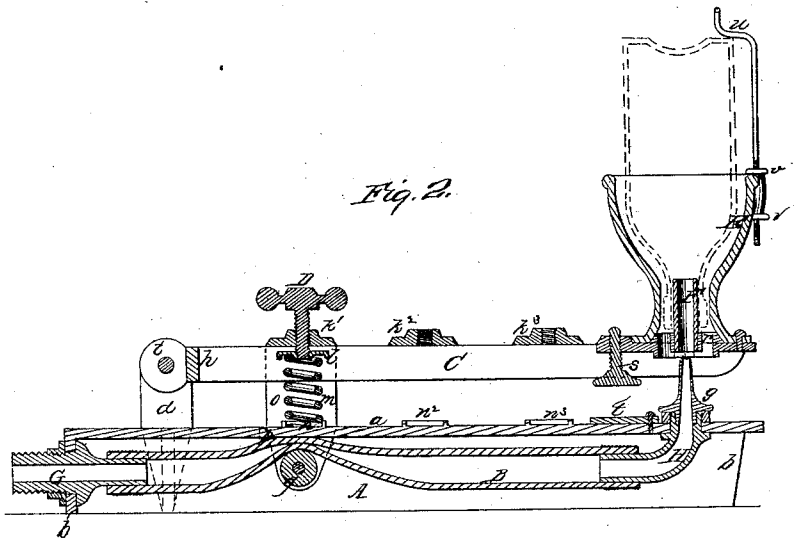


Fig. 2.



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JOHN MATTHEWS, JR., OF NEW YORK, N. Y.

MACHINE FOR WASHING BOTTLES.

Specification forming part of Letters Patent No. **49,538**, dated August 22, 1865.

To all whom it may concern:

Be it known that I, JOHN MATTHEWS, Jr., of the city, county, and State of New York, have invented certain new and useful Improvements in Machines for Washing Bottles; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a top view of a machine for washing bottles constructed according to my invention. Fig. 2 is a longitudinal sectional elevation of the same.

Similar letters of reference indicate corresponding parts of the machine in both figures.

This invention relates to bottle-washing machines in connection with which a head of water is used to wash the bottle by means of a constant jet of water injected forcibly into it; and it consists in a novel construction and arrangement of the parts of such machines, whereby they are brought more perfectly under control and the washing operation is enabled to be performed with greater facility and expedition, so that a greater number of bottles can be washed in a given time.

To enable others to make and use my invention, I will now describe its construction and operation with reference to the drawings.

A is a foundation of convenient size, consisting of a top plate, *a*, with a vertical flange, *b*, of suitable depth projecting downward at both sides and at one end. From the sides of this foundation, near one end, two arms, *c c*, Fig. 1, one on each side, project horizontally, and at the outer end each arm has an upright, *d*, attached or cast in one piece therewith. Into the flange *b*, at the end nearest the arms *c c*, a short tube, G, Fig. 2, of brass or any other suitable metal, is inserted and fastened by means of a screw-nut, or in any other substantial way. Into the top plate, *a*, Fig. 2, near the other end, a short curved tube, H, Fig. 2, is inserted, with the curve below the plate *a* in line with the tube G, Fig. 2, and is fastened in the same manner. The two inside ends of the tubes G and H, Fig. 2, are connected by means of a tube, B, Fig. 2, made of india-rubber or any other suitable elastic or flexible substance. Into the upper end of the tube H a taper-nozzle, *g*, is inserted and firmly secured.

A frame, C, having at one end two arms, *h h*, Fig. 1, one on each side, projecting sidewise, and each arm *h* being provided at its end with an ear, *i*, is by means of the said ears *i i* hinged to the uprights *d d* of the foundation A in such a manner that the said frame C can freely vibrate vertically in planes parallel with the length of the foundation A, but is held firmly in other respects.

The frame C has, besides the connections at each end, three cross-bars, $k' k^2 k^3$, running from one side to the other of the said frame. These cross-bars are centrally drilled and tapped, so that they can receive a set-screw, D. This set-screw D has at its lower end a countersunk plate, *l*, Fig. 2, which rests on a coiled spring, *m*, the lower end of which is inserted into a small cup, *n'*, Fig. 2, cast for that purpose on the plate *a*, Fig. 2. Each cross-bar of the frame C has its corresponding cup on the top of the plate *a*.

On each side of the frame C, in line with the first cross-bar, *k'*, an arm, *o*, projects downward through an opening, *p*, in the top plate, *a*. At their lower ends the arms *o* are provided with a cross-piece, *q*, Fig. 2, covered with india-rubber or other suitable elastic or soft substance, which is situated below and across the elastic tube B, Fig. 2, and is made to compress the said tube by the upward pressure of the spring *m*, Fig. 2, forcing the frame C upward.

By means of the set-screw D the pressure of the spring *m* can be regulated as occasion may require, which will presently be further explained.

The frame C at the vibrating end has firmly attached to it a large cup, E, which is open at top and bottom, and is of proper form to receive the neck and shoulders of an inverted bottle. This cup E has in the bottom opening a short tube, F, of hard vulcanized india-rubber or other stiff, but not too hard, material, placed centrally, which is supported there by means of radial arms *r r r*, Fig. 1. The said tube F is placed opposite the nipple *g* in such a manner that when the frame C is depressed the nipple *g* will enter the said tube F, Fig. 2.

Near the cup E the frame C is provided with a set-screw, *s*, by means of which the downward motion of the frame C is arrested, a piece of india-rubber, *t*, Fig. 2, being attached to the top, *a*, for the screw *s* to strike upon, so as to ease the concussion.

The cup E is provided at the top with a light fixture, u, which can be regulated by means of screw-nuts v v, according to the height of bottles to be washed, and which is shaped at the top end in such manner that it can overlap a portion of the bottom of an inverted bottle placed in the cup E, as shown in red outline in Fig. 2, and retain the so-placed bottle in the cup.

The tube G is to be connected at its outer end with a pipe, through which water is supplied from an elevated reservoir or by means of a pump.

Should the spring m, Fig. 2, being placed in the cup n', Fig. 2, as represented in the drawings, not be strong enough in this position to resist the pressure of water in the tube B, Fig. 2, by removing the spring m from the cup n' to n^2 or n^3 and the set-screw D from k' to k^2 or k^3 the leverage produced by the upward pressure of the spring m on the frame C will be increased, so that the spring m will have power enough by these means to keep the tube B, Fig. 2, closed and resist the pressure of the water. By changing the position of the set-screw D from one of the bars k' k^2 k^3 to another and the position of the spring m from one of the cups n' n^2 n^3 to another, and by the adjustment of the set-screw higher or lower, the effective upward pressure of the spring m may be so adjusted as to exert only just sufficient power to keep the elastic tube B closed and allow the said tube to be relieved of the closing pressure of the cross-piece q by a slight downward pressure of the hand upon the bottle in the cup E, which is very desirable for the easy and expeditious working of the machine.

This machine is applicable for washing bottles the mouths of which are closed by corks, or those closed by valve-stoppers.

The bottle to be washed is placed neck downward into the cup E, so that the tube F will enter the throat of the bottle and open the valve, if the bottle should be of that kind. One side of the bottom of the bottle is slipped under the bent part of the fixture u, and the bottle is now pressed down by hand, carrying with it the cup E and the vibrating end of the frame C. The nipple g then enters the pipe F and the descending frame C withdraws the roller q from the tube B, and the water is allowed to pass through said tube and is ejected through the nipple g and the tube F into the bottle, from which it runs out through the mouth. When the bottle has been sufficiently washed by the flow of water through it, the cup E is allowed to rise by removing the pressure of the hand from the bottle. The cross-piece q will again compress the tube B, and thus stop the flow of water, and as the cup E and bottle rise the water remaining in the bottle will run out through its mouth. The washed bottle is then removed from the machine and replaced by a dirty one, and the operation of the machine repeated by pressing down the bottle.

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

1. The combination of the stationary base A, having an attached water-pipe and nozzle, g, and the vibrating frame C, carrying a receptacle, E, for the bottle, and having connected with it a device for opening and closing the said water-pipe, the whole operating substantially as herein specified.

2. The combination of the fixed nozzle g and the movable cup E, having an attached tube, F, and fixture u, substantially as herein described.

3. The elastic tube B, spring m, and cross-piece q, in combination with the base A and vibrating frame C, substantialiy as and for the purpose herein set forth.

4. The combination, with the base A, vibrating frame C, cross-piece q, movable spring m, and adjustable set-screw D, of the two or more tapped cross-bars, k' k^2 k^3, and cups n' n^2 n^3, substantially as and for the purpose herein specified.

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