

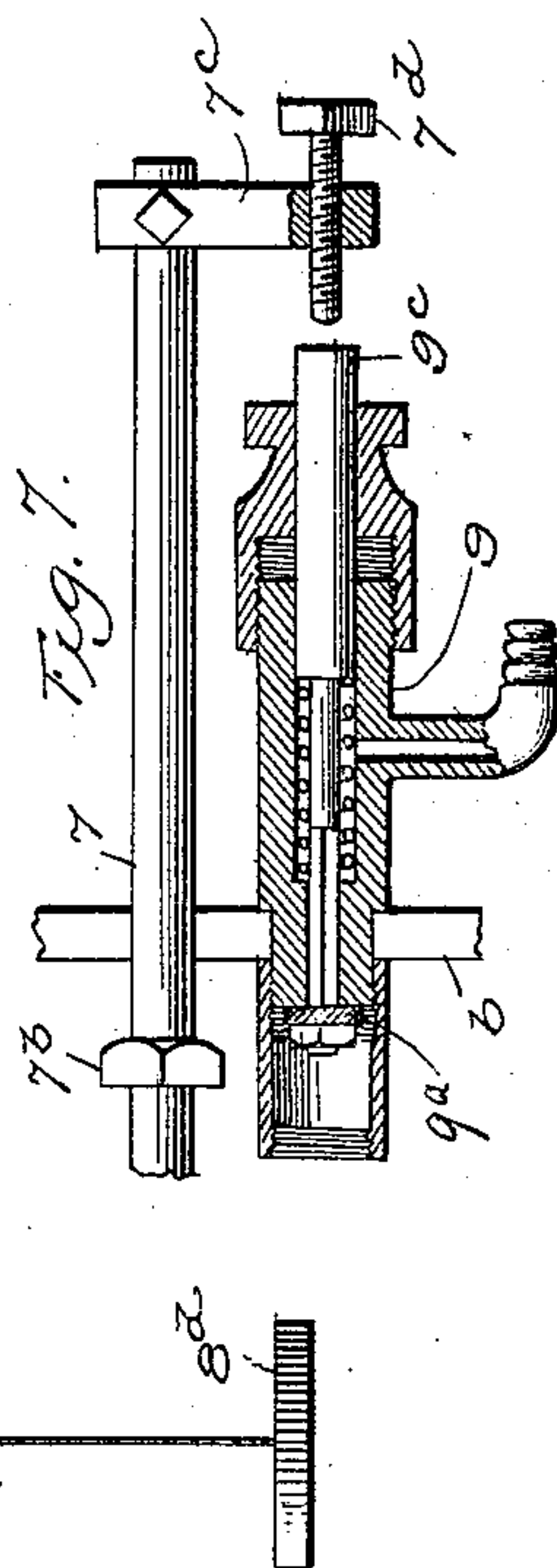
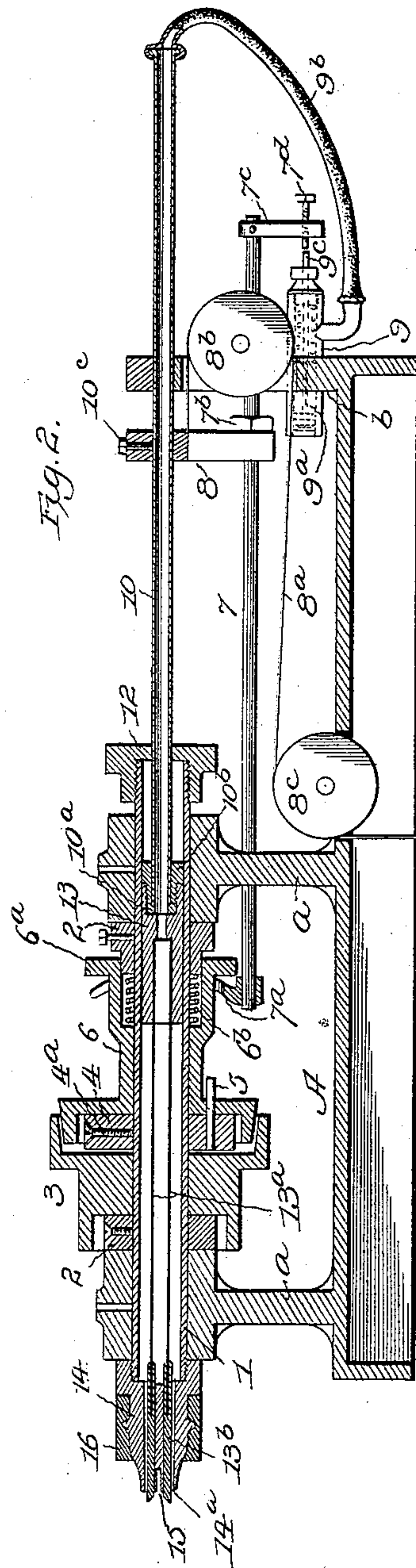
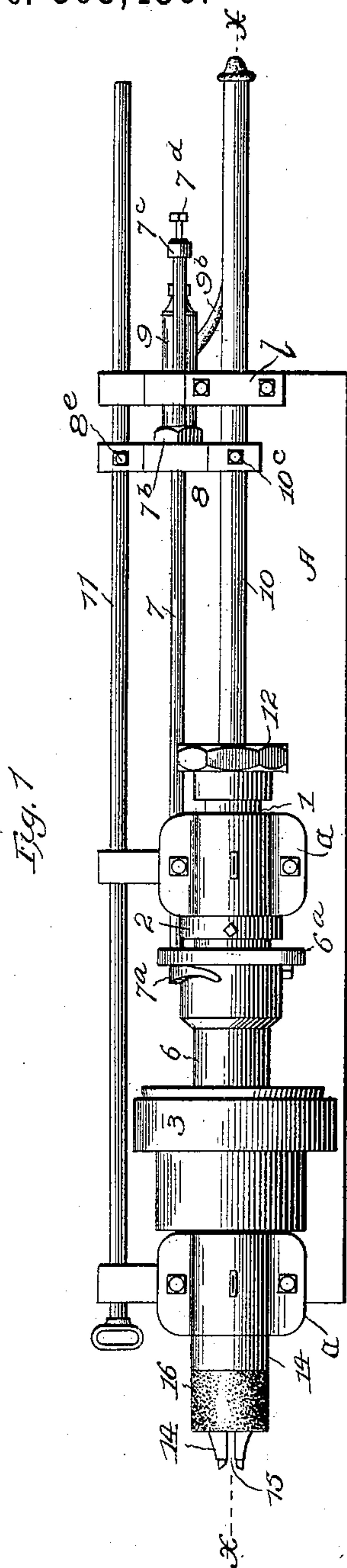
(No Model.)

2 Sheets—Sheet 1.

P. HAMM & J. W. PERTZ.
BOTTLE WASHER.

No. 565,456.

Patented Aug. 11, 1896.



WITNESSES:

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PHILLIP HAMM AND JOHN WM. PERTZ, OF ELWOOD, INDIANA.

BOTTLE-WASHER.

SPECIFICATION forming part of Letters Patent No. 565,456, dated August 11, 1896.

Application filed January 4, 1896. Serial No. 574,357. (No model.)

To all whom it may concern:

Be it known that we, PHILLIP HAMM and JOHN WM. PERTZ, citizens of the United States, residing at Elwood, in the county of Madison, State of Indiana, have invented certain new and useful Improvements in Bottle-Washing Machines; and we hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of a machine embodying our invention, showing the position of the parts when not in operation. Fig. 2 is a longitudinal central section of the same on the line *x x*, Fig. 1. Fig. 3 is a plan view similar to Fig. 1, the parts being in position they occupy when the machine is in operation, a bottle being shown in position on the nozzle of the brush-guide and the brushes only partially advanced, the dotted lines indicating the position of the brushes when fully advanced so as to scrub the bottom of the bottle. Fig. 4 is an enlarged sectional view of the brushes and brush-guide. Fig. 5 is an end view of brush-guide, looking in the direction of the arrow, Fig. 4. Fig. 6 is a view of the end of one of the brush-stems in elevation and of the brush thereon in longitudinal section, the section being at right angles to that of Fig. 4; and Fig. 7 is an enlarged longitudinal central section of the water-supply valve.

Like symbols refer to like parts wherever they occur.

Our invention relates to bottle-washing machines, and wherein the construction hereinafter described is applicable to bottle-washing machines in general no limitation to machines for washing any special form or character of bottle is intended to be imposed; but inasmuch as difficulty has heretofore been experienced in washing by machinery that class of bottles (such as soda or pop bottles) which contain an included and retained stopper, (such as the "Hutchinson" or stem-stopper,) special features of construction have been added to facilitate the cleaning of that class of bottles by means of brushes, and in addition to the general claims, special claims thereto are hereinafter made.

The first feature of our invention therefore embraces the combination, with a rotat-

able cylinder, shell, or chamber, of a perforated head, piston, or brush-carrier, and a hollow stem on which the brush-head or piston is journaled, said brush-head or piston and stem longitudinally movable in the cylinder, and the brush-head capable of rotating with said shell or cylinder, and on the hollow piston-stem, whereby the brush may be rotated by the cylinder or shell and be advanced or retracted by the hollow stem, and an evenly balanced, efficient, and durable machine is obtained.

A second feature of our invention embraces the combination, with the revolving shell and longitudinally-movable water-pipe, of a spring-pressed counterweighted clutch, a spring-pressed valve for the water supply, and means for moving the water-supply valve from the spring-pressed counterweighted clutch, whereby the said devices are simultaneously thrown into and out of operation.

A third feature embraces the combination, with the brushes, of a brush-guide having means for securing and retaining a stem-stopper so that it shall be held out of the way of the moving brushes during the operation thereof.

There are other minor features of invention, all as will hereinafter more fully appear.

We will now proceed to describe the preferred form of our machine more specifically, so that others skilled in the art to which it appertains may apply the invention.

In the drawings, A indicates a suitable bed-plate provided with uprights, pedestals, or pillow-blocks *a a*, on which is journaled a rotatable shell or cylinder 1, and having a third upright *b*, which forms a guide or support for the hollow stem or water-pipe 10. Secured to (or formed on) the rotatable shell or cylinder at suitable distances apart are limit-collars 2 2, which prevent the endwise play or movement of the rotatable cylinder 1.

3 indicates a belt-pulley loosely journaled on the cylinder 1 between pillow-blocks *a a*, adjacent to which is a collar 4, which may be formed on and moved with the rotatable cylinder 1, or it may be secured thereto by a set-screw 4^a, as preferred, and from said collar 4 projects a pin 5, which passes through a hole or perforation in the sliding friction-clutch 6, so that said sliding clutch is also caused to ro-

tate with the cylinder or shell 1. The sliding clutch 6 is coned at the end next the loose pulley 3, and said loose pulley 3 is correspondingly recessed on its side to receive the cone end of the clutch, thus forming the usual friction-clutch, instead of which any approved form of clutch may be employed. Said sliding clutch is provided at its opposite end with a collar 6^a or equivalent means for engaging a shifting mechanism, and is recessed for the reception of a spring 6^b or equivalent means for forcing the clutch 6 into engagement with the loose pulley 3.

7 indicates a shifting-rod having at one end a hook 7^a or equivalent means for engaging the friction-clutch 6, said shifting-rod being passed loosely through a cross-head 8 and provided with an adjustable nut 7^b or equivalent means of engaging said cross-head 8, the other end of said shifting-rod terminating in or provided with an arm 7^c, adapted to engage the valve-stem 9^c of spring-pressed valve 9^a, which controls the water supply of the machine. It will be noted that arm 7^c is provided with a set-screw 7^d, which strikes the valve-rod 9^c, and the same or its equivalent may be used to adjust the movement of valve 9^a and regulate the water supply.

9 indicates the shell or casing of the water-supply valve 9^a, which casing may be attached to or supported on the upright *b*, and from which a flexible hose 9^b leads to the hollow stem 10 or water-supply pipe of the machine.

Connected to the cross-head 8 above referred to is a cord or chain 8^a, which passes over pulleys 8^b 8^c, and to which is attached a weight 8^d, so that as the cross-head 8 engages nut 7^b, which is fast on shifting-rod 7, (though shifting-rod 7 passes loosely through cross-head 8,) and shifting-rod 7 engages spring-pressed sliding clutch 6, through the medium of hook 7^a, it will be noted that said clutch 6 is pressed by spring 6^b in one direction, and at certain times counterweighted in the opposite direction. As the arm 7^c of shifting-rod 7, through the medium of set-screw 7^d, engages the stem 9^c of spring-pressed water-supply valve 9^a, it will be further noted that the water-supply valve is alternately spring pressed in reverse directions.

10 indicates the water-supply pipe of the machine, which is secured in the cross-head 8 by a set-screw 10^c, or its equivalent, so as to move therewith or be moved thereby, and said cross-head 8 is connected by a set-screw 8^e, or otherwise, with the hand (or operating) rod 11, so as to give the operator, (who is stationed at the nozzle end of the machine,) through said rod 11 and cross-head 8, complete control of the machine, to start or stop it, simultaneously turn on or off the water, and project or retract the brushes.

The water-supply pipe 10 passes through guide-pedestal or support *b*, and at one end is connected with the water supply by a flexi-

ble pipe 9^b, as hereinbefore pointed out. The other end of said water-pipe (which is arranged in the axis of rotation of the cylinder) enters the rotatable cylinder 1 through a suitable stuffing-box or cylinder-head 12, and by means of a collar 10^a and threaded sleeve 10^b, or otherwise, is loosely connected with a perforated brush-head 13 or piston, for which the supply-pipe constitutes a hollow stem, so that said brush-head or piston while compelled to move longitudinally with the hollow stem or water-supply pipe 10 is capable of rotation on said stem or pipe and with the rotatable cylinder 1. Secured to said brush-head or perforated piston 13 are brush-stems 13^a 13^a, preferably spring-steel strips, whose outer ends terminate in flexible brushes 13^b 13^b, or wipers, which are usually of rubber, and secured to the stems by means of sockets which are slipped over the irregularly-shaped ends of the stems 13^a, as shown in sectional view, Fig. 6.

Secured to that end of rotatable cylinder 1 from which the brushes 13^b 13^b project is a brush guide and nozzle 14, having a plurality of slots 14^a for the passage and guidance of the brushes 13^b 13^b, between which slots is a notch recess or pocket 15 for the reception of the stem of a stopper, (see *s*, Fig. 3,) and the stopper-stem will, without other provision, be retained therein during the rotation of the cylinder and the operation of brushes 13^b 13^b. Sprung upon the nozzle or projecting end of brush-guide 14 is a rubber sleeve or washer 16, to close against the mouth of the bottle and prevent the escape of water during the operation of the machine.

The operation of the machine is as follows: In case of a bottle having an included or retained stopper, the bottle is inverted until the stem of the stopper projects, and the end of the stem is inserted in the notch or recess 15 in the brush-guide, the mouth of the bottle being held over the nozzle of the guide and against the washer 16. The bottle being in position as aforesaid, the hand or operating rod 11 is drawn forward, (see Fig. 3,) which in turn, through cross-head 8, forces the water-supply pipe 10 (or hollow piston-stem) into cylinder 1 and moves the brush-head 13 forward in the cylinder 1, thus projecting the brushes 13^b, which brushes pass to both sides of the securely-held stopper *S*, (see Fig. 3,) and by the spring action of stems 13^a 13^a are brought in contact with the sides of the bottle. As the brush-head 13 continues to advance, the brushes are carried to the bottom of the bottle, and, being bent or flexed, meet at the center and thus perfectly cleanse the bottom as well as the sides of the bottle. As the brush-guide 14 is attached to and rotates with the cylinder or shell 1, and the brush-stems 13^a, which are attached to the brush-head 13, (or piston,) pass through the brush-guide 14 eccentrically, (or off the axis,) the brushes 13^b, brush-stems 13^a, and head 13 will revolve with cylinder 1.

Simultaneously with the advance of water-supply pipe 10 and cross-head 8, as above noted, the sliding clutch 6 is thrown into engagement with loose pulley 3 by the operation
 5 of spring 6^b, and the cylinder 1 is set in motion, while at the same time and by operation of said spring 6^b the shifting-rod 7 is drawn forward so that arm 7^c on the end thereof, through the medium of set-screw 7^d, strikes the
 10 stem 9^c of water-supply valve 9^a, compresses the spring thereof, forces the valve 9^a off its seat, and thus turns on the water, which passes by supply-pipe 10 (or hollow piston-rod) through the perforated brush-head 13, (or piston,) cylinder 1, and slotted brush-guide 14 to the bottle to be washed.

When the bottle has been sufficiently washed, the hand or operating rod 11 is released or pushed back, permitting or causing
 20 the counterweighted cross-head 8 and attached supply-pipe or hollow stem 10 to recede, which carries with it the brush-head 13 and withdraws the brushes 13^b 13^b from the bottle and into the brush-guide 14, and when
 25 the cross-head 8 has nearly completed its retreat, it strikes nut 7^b on shifting-rod 7, which takes up and carries with it said rod 7 and fork 7^a, compressing spring 6^b, and withdrawing sliding clutch 6, thus releasing loose pulley 3 and stopping the rotation of cylinder 1.
 30 As soon as the recession or backward movement of shifting-rod 7 begins, the arm 7^c on the end thereof releases the valve-stem 9^c of water-supply valve 9^a, and the spring thereof, aided
 35 by the pressure of the water, immediately closes said valve and shuts off the water from the machine.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

40 1. In a bottle-washing machine, the combination with a rotatable shell or cylinder, of a perforated brush-head or piston, longitudinally movable therein, and a hollow stem, on which the brush-head or piston is journaled, substantially as and for the purposes specified.

2. In a bottle-washing machine, the combination with a rotatable shell or cylinder provided at one end with a brush-guide, of a longitudinally-movable brush-head arranged in said shell or cylinder and provided with brushes, and a longitudinally-movable water-supply tube arranged in the axis of the
 45 rotatable cylinder and loosely connected with the brush-head; substantially as and for the purposes specified.

3. In a bottle-washing machine, the combination with a rotatable shell or cylinder, bearings therefor, suitable brushes, and a water-supply pipe, of a clutch for transmitting motion to the rotatable cylinder or shell, a valve for controlling the water-supply pipe, and means for opening the water-supply valve

from the clutch; substantially as and for the 65 purposes specified.

4. In a bottle-washing machine, the combination with a rotatable shell or cylinder, bearings therefor, suitable brushes, and a water-supply pipe, of a spring-pressed clutch for
 70 transmitting motion to the rotatable cylinder, a spring-pressed water-supply valve, and an interposed shifting device whereby the clutch when released is automatically operated and operates or opens the valve of the water-supply pipe; substantially as and for the purposes specified.

5. In a bottle-washing machine, the combination with a rotatable shell or cylinder having suitable bearings and provided with a
 80 brush-guide, of a brush-head longitudinally movable therein and provided with suitable brushes, an axially-arranged longitudinally-movable stem or water-supply pipe to which the brush-head is loosely connected, a loose
 85 pulley and a spring-pressed clutch mounted on the rotatable cylinder, a spring-pressed valve for the water supply, and a shifting-rod arranged to be actuated by the clutch and to actuate the water-supply valve; substantially
 90 as and for the purposes specified.

6. In a bottle-washing machine, the combination with a rotatable cylinder or shell, bearings therefor suitable brushes and a water-supply pipe, of a spring-pressed and counterweighted clutch for transmitting motion
 95 to the rotatable cylinder, a spring-pressed valve for the water supply, and means for moving the water-supply valve from the spring-pressed counterweighted clutch; substantially as and for the purposes specified.

7. In a bottle-washing machine the combination with a suitable brush, of a brush-guide having a slot for the brush and provided with means for holding a bottle-stopper;
 105 substantially as and for the purposes specified.

8. In a bottle-washing machine, the combination with a movable brush, of a nozzle and brush-guide provided with a slot or passage
 110 for the brush, and adjacent thereto a recess to receive the stem of a bottle-stopper; substantially as and for the purposes specified.

9. A brush-guide for bottle-washing machine, said brush-guide having a plurality of
 115 slots for the passage of the brushes, and a center recess to receive the stem of a stopper, substantially as and for the purposes specified.

In testimony whereof we affix our signatures, in presence of two witnesses, this 2d day of January, 1896.

PHILLIP HAMM.
 JOHN WM. PERTZ.

Witnesses:

CASSIUS M. GREENLEE,
 IDA GREENLEE.