No. 614,861. Patented Nov. 29, 1898.

P. HAMM & J. W. PERTZ.

BOTTLE WASHER.

(No Model.) (Application filed Sept. 14, 1897.)

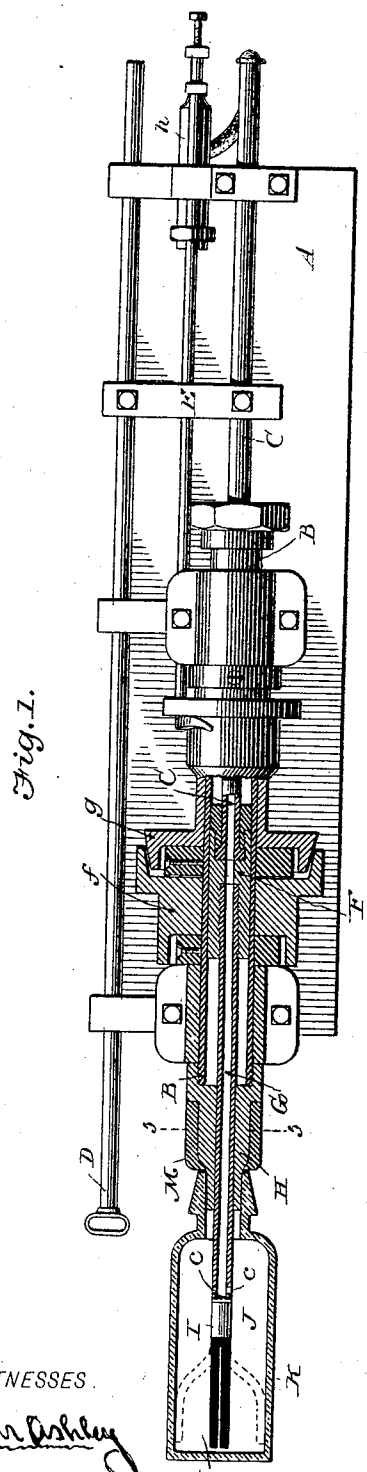


Fig. 1.

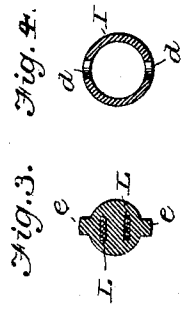


Fig. 4.

Fig. 3.

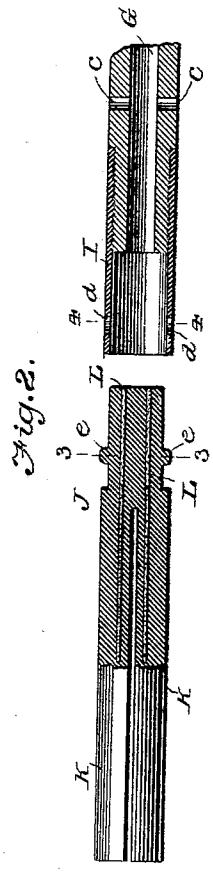


Fig. 2.

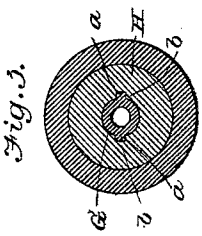


Fig. 5.

WITNESSES.

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

BOTTLE-WASHER.

SPECIFICATION forming part of Letters Patent No. 614,861, dated November 29, 1898.

Application filed September 14, 1897. Serial No. 651,634. (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 thereof, such as will enable others skilled in the art to make and use the same.

Our invention relates to that class of machines forming the subject-matter of United States Letters Patent No. 565,456, issued to us jointly on the 11th day of August, 1896. The present invention, however, may be said to reside in the flexible cleaning-brushes used in connection with such machines. These brushes will be hereinafter particularly described and pointed out in the claims following, general reference being made to the machine shown as a means of practicing or carrying out our invention, a particular description whereof may be found in the patent above noted.

Our invention therefore has for its object the production of means for cleaning the interior of bottles with great rapidity and efficiency, such means consisting of flexible brushes specially reinforced and adapted for their intended use.

In the accompanying drawings, which form part of this specification and whereon the same reference-letters indicate corresponding parts in the several views, Figure 1 represents a plan view of our invention, partly in section, showing action of brushes upon the interior of a bottle. Fig. 2 is an enlarged side view of brush and brush-socket, partly in section. Figs. 3 and 4 are transverse sections of brush and holder, taken, respectively, on the lines 3 3 and 4 4 of Fig. 2; and Fig. 5 is a transverse vertical section taken on the line 5 5 of Fig. 1.

Reference being had to the drawings and letters thereon, A indicates the bed-plate of a bottle-washing machine.

B is a cylinder rotatably mounted in suitable bearings.

C is a water-pipe which penetrates the head of cylinder B and is adapted to reciprocate therein under action of a hand-lever D, also longitudinally movable and connected by a cross-head E. Within cylinder B is located a reciprocally and rotatably movable brush-head F, to one end of which is joined the water-pipe C and to the other a hollow brush-stem G, the latter projecting through brush-guide H and bearing side feathers *a a* in engagement with corresponding splines *b b* on the interior of said guide H, as shown by Fig. 5.

Near its extremity hollow stem G is provided with small outlet-ports *c c*, by which water may be introduced into bottles being cleansed, while beyond this is affixed to said stem a ferrule I, perforated by side openings *d d* for the reception of our improved form of brush.

J indicates a flexible brush bifurcated, as shown, or divided longitudinally into a greater number of sections K K, if desired. At its coupling or socket end this brush J is reduced and provided with side lugs *e e*, projecting from opposite sides thereof, designed and adapted to coact with the openings *d d* of ferrule I in effecting a rapid and effectual coupling between the two members.

Brush J is of flexible material, preferably rubber, within which is embedded a flexible metallic ribbon or ribbons L L, extending well into each section of the brush for the purpose of reinforcing same at its points of most severe strains, as best shown by Figs. 2 and 3.

Surrounding the brush-guide H is an annular cushion M of elastic material for the purpose of cushioning the neck of a bottle when introduced to the machine for cleaning, as shown by Fig. 1, while surrounding cylinder B is a loose pulley *f*, driven at constant speed and adapted to transmit power to the cylinder aforesaid through the agency of a friction-clutch *g*, adjacent thereto.

The operation of our invention is as follows: A bottle to be cleansed having been introduced to the machine, as shown, lever D is drawn forward, the single movement serving to open valve *h*, permitting a head of water to enter pipe C and at same time to advance said pipe and dependent parts, including the brushes K K, projecting the latter from their guide H, into the interior of bottle operated upon and simultaneously with said movements to throw the friction-clutch *g* into en-

gagement with revolving pulley *f*, whereby rotary motion is communicated to cylinder B, the brush-guide H, and thence, through the agency of splines and feathers *b a*, to the reciprocating brushes K K. These brushes thus attaining rapid rotary motion are distended by centrifugal force until they hug closely the inner walls of the bottle, which are thereby thoroughly scraped and cleaned, the operation being aided materially by a liberal supply of water introduced to the bottle through outlets or ports *c c* in the brush-stem G. This operation may then be repeated as frequently as bottles are presented to the machine for the purpose of cleansing, and it will be noted that the construction of brushes K and their retaining-sockets I is such as to permit of rapid removal or replacing of the brushes, which, however, when once adjusted are securely retained against accidental dislodgment, the liability of derangement or breakage being reduced to a minimum, the durability as well as efficiency of the brushes being materially increased by the metallic reinforcing-ribbons L L, extending into each member of the brush, as shown by Fig. 2.

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

1. In a bottle-cleaning machine the combination with a rotatable hollow supporting-stem, of a longitudinally-divided flexible brush, flexible metallic ribbons embedded in the brush, and a yielding elastic connection between said brush and its stem, substantially as described.

2. In a bottle-cleaning machine the combination with a rotatable hollow supporting-stem, of a longitudinally-divided flexible brush, flexible metallic ribbons embedded in the brush, and coupling members upon said brush and its stem consisting of correlative projections and depressions adapted to interlock, substantially as described.

In testimony whereof we affix our signatures, in presence of two witnesses, this 7th day of September, 1897.

PHILLIP HAMM.
JOHN WM. PERTZ.

Witnesses:
B. R. CALL,
CASSIUS M. GREENLEE.