

UNITED STATES PATENT OFFICE.

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BOTTLE-WASHER.

SPECIFICATION forming part of Letters Patent No. 770,797, dated September 27, 1904.

Application filed May 12, 1904. Serial No. 207,528. (No model.)

To all whom it may concern:

Be it known that I, HENRY E. DECKER, a citizen of the United States, and a resident of New York city, county and State of New York, have invented Improvements in Bottle-Washers, of which the following is a specification.

This invention relates to bottle-washing machines, and involves novel features of construction and arrangement of parts whereby the cleansing of bottles is perfectly performed and such work greatly facilitated.

The machine devised by me is designed by the use of rotary scrubbing devices or brushes to clean both the insides and outsides of bottles, said devices or brushes being so formed that all parts of the insides and the outer sides of bottles will be fully acted upon by said devices or brushes, which are so arranged relatively to one another that the inside and outside cleansing operations will be simultaneously performed. The preferred arrangement includes the use of a plurality of interior and one exterior scrubbing devices or brushes, so arranged that the exterior one will act on the outsides of all of the bottles which are applied to those adapted to scrub or brush the interiors of the bottles.

The invention includes a suitable frame with bearings, in which the shafts of the scrubbing devices or brushes are fitted to rotate, a motor or power device, and means for causing the simultaneous rotation of all of the scrubbing devices or brushes.

It also includes the arrangement of two sets of cleansing devices, with the motor or power device located between them and connected to impart motion to the two sets, thereby providing means for the simultaneous scrubbing and cleansing of the insides and outsides of one, two, or more bottles at each side of the machine.

An embodiment of my invention is given in the accompanying drawings, in which—

Figure 1 is a plan view. Fig. 2 is a side elevation with the motor-casing partly broken away. Fig. 3 represents in plan, on a smaller scale, a modification of the power device of the machine; and Fig. 4 represents a portion of the apparatus shown at Fig. 1, showing the

interior brush-holding shafts elongated to run in bearings formed in the sides of the motor.

As shown at Figs. 1 and 2, the main supporting-frame comprises a cylindrical casing *a*, the parts of which are suitably bolted together and formed to provide an annular chamber which constitutes the cylinder of the motor, and a base or foot piece *a'*, by means of which the apparatus may be securely fastened in operative position. Fitted to rotate in this cylinder is the piston or moving part of the motor *b*, with a series of buckets or cups against which the motive fluid under pressure impinges, the inlet for which is at *c* and the outlet at *c'*. This style of impact-motor being of simple construction is well adapted for the power purposes of this apparatus. Any kind of rotary motor may be used. The rotary part *b* is carried on the central part of the shaft *d*, the ends of which are provided with chucks *d'* *d'* for holding the brushes *e* *e'* by means of their shanks or shafts. Bearings for the shaft *d* are formed in the bracket-frames *f* and *f'*, secured by bolts to the sides of the casing *a* and formed to leave spaces between the casing and their inner sides, thus locating the bearing some distance away from the motor. Adjacent to and on either side of the bearings for the shaft *d* are formed bearings *g* and *g'*, in which are fitted to rotate shafts *h* and *h'*, whose outer ends are provided with chucks *i* and *i'* for carrying the brushes *j* and *j'* by means of their shanks or shafts, and to the inner ends of these shafts *h* and *h'* are secured gear-wheels *k* and *k'*, which respectively mesh into the gear-wheels *l* and *l'*, secured to the shaft *d*. If a heat-motor is used to drive the brushes—as, for instance, when steam is the motive force—then it is advantageous to insulate the shaft-bearings as much as possible therefrom to prevent the lubricant used for the same being wasted, for which purpose it is proposed to place a suitable insulating material between the frames *f* and *f'* and the casing *a*, as shown at *m* and *m'*.

The brushes *e* and *e'*, which are to act on the outsides of bottles, and the brushes *j* and *j'*, which are to act on the insides, may be shaped

to properly perform the work, according to the shape of bottles to be washed. Two bottles, as indicated at $n n'$, may be cleansed by each operator at each side of the apparatus, the brushes e and e' acting on the outsides of the two bottles held over the brushes j and j' , thus cleansing the insides and outsides of bottles at the same time. The washing-water into which the bottles are dipped will be conveniently contained in tanks located under the brushes. (Not shown in the drawings.)

Where power may be obtained from a separate motor or a line of shafting or other source, then in place of the rotary motor a a pulley o , adapted to be driven by a belt, may be secured to the center of the shaft d , as shown at Fig. 3, the frame of the apparatus being modified to meet this mode of driving and which may be of the simple form p shown.

Changes in the construction and arrangement of parts may be made without departing from the spirit of the invention, the essential feature of which is plural rotary brushes arranged and operated to simultaneously scrub or wash the insides and outsides of bottles. As shown in the drawings, a style of brush is illustrated adapted to clean large-mouth vessels, such as milk-bottles. To clean small-mouth, suitable expanding brushes may be used.

The construction shown at Fig. 4, in which the shafts h and h' are extended toward the center of the apparatus and have end bearings in the bases h^2 , formed on the sides of the motor, has some advantages over the structure shown at Fig. 1, as the said shafts h and h' will run more steadily and the brushes j and j' , carried at their ends, will perform their functions in a better manner in acting on the interior of bottles.

I claim as my invention—

1. In a bottle-washing machine, in combination, a shaft and bottle-exterior-scrubbing brushes attached to its ends; means for rotating this shaft applied to its central part; bottle-interior-scrubbing brushes arranged adjacent to the brushes on the two ends of the power-driven shaft; and gearing for imparting motion from this shaft to the interior-scrubbing brushes.

2. In a bottle-washing machine, in combination, a shaft and bottle-exterior-scrubbing brushes attached to its ends; means for rotat-

ing this shaft applied to its central part, shafts arranged parallel to the driven shaft; bottle-interior-scrubbing brushes attached to these shafts and arranged adjacent to the brushes on the ends of the power-driven shaft; and gearing for imparting motion from the power-driven shaft to the shafts of the interior-scrubbing brushes.

3. In a bottle-washing machine, in combination, a rotary motor having bracket frames on its two sides in the central parts of which the motor-shaft has its bearings; bearings on each of the bracket-frames adjacent to and at the sides of the motor-shaft bearings; shafts in these side bearings; gears connecting these side shafts at each side of the motor to the motor-shaft and located between the sides of the motor and the inner sides of the bracket-frames; and scrubbing devices or brushes attached to the outer ends of all of the shafts.

4. In a bottle-washing machine, in combination, a rotary motor having bracket-frames on each of its sides in the central parts of which the motor-shaft has its bearings; plates or strips of insulating material between the bracket-frames and the sides of the motor; bearings on each of the bracket-frames adjacent to and at the sides of the motor-shaft bearings; shafts in these side bearings; gears connecting these side shafts to the motor-shaft and located between the sides of the motor and the inner sides of the bracket-frames; and scrubbing-brushes attached to the outer ends of all of the shafts.

5. In a bottle-washing machine, in combination, a rotary motor; a bracket-frame secured to the side of the motor, in the central part of which the motor-shaft has a bearing; side bearings on the bracket-frame adjacent to the central bearing of the motor-shaft; bearings on the side of the motor-casing arranged in alinement with the side bearings on the bracket; shafts fitted to rotate in the side bearings and the alined bearings on the motor-casing; gears connecting the shafts in the side bearings to the motor-shaft; and scrubbing-brushes on the ends of the shafts.

In testimony whereof I have hereunto subscribed my name this 9th day of May, 1904.

HENRY E. DECKER.

Witnesses:

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