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Patented Apr. 21, 1896.



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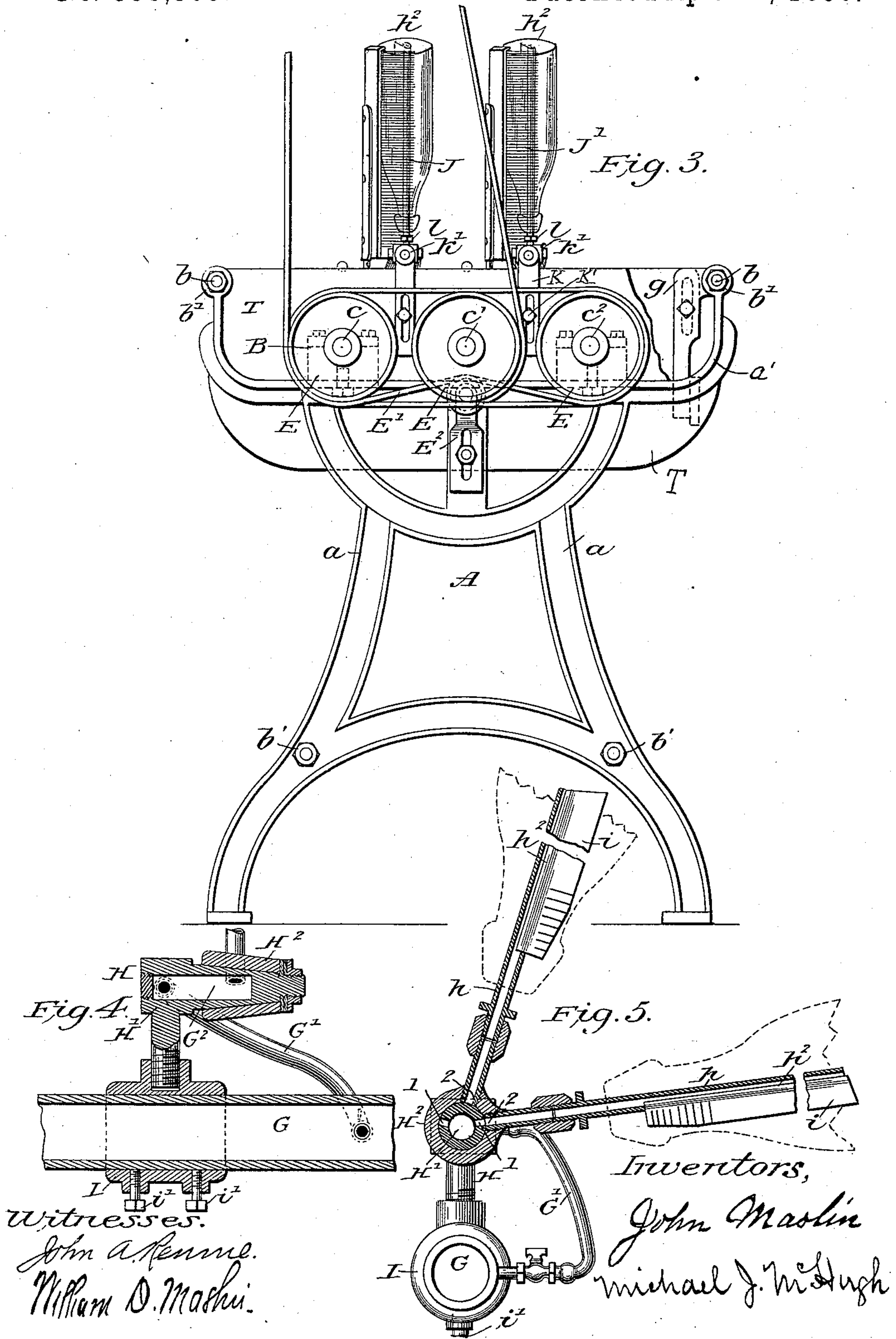
(No Model.)

2 Sheets—Sheet 2.

J. MASLIN & M. J. McHUGH.  
BOTTLE WASHER.

No. 558,505.

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# UNITED STATES PATENT OFFICE.

JOHN MASLIN AND MICHAEL J. MCHUGH, OF JERSEY CITY, NEW JERSEY.

## BOTTLE-WASHER.

SPECIFICATION forming part of Letters Patent No. 558,505, dated April 21, 1896.

Application filed September 24, 1894. Serial No. 524,006. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN MASLIN and MICHAEL J. MCHUGH, citizens of the United States; residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Machines for Washing Bottles; and we do hereby declare that the following is a full, clear, and exact description of the same.

Our invention relates to improvements in machines for washing bottles and other like vessels; and its object is to provide a machine for this purpose which shall be simple and inexpensive in construction, which shall be rapid and effective in its operation, and which may be adjusted so as to cleanse bottles or other vessels of varying sizes.

To these ends our invention consists in certain features of construction and in the combination of parts, which will be hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, wherein similar letters and figures of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of a machine embodying our invention. Fig. 2 is a section on the line 2 2 of Fig. 1. Fig. 2<sup>a</sup> is a section on the line 2<sup>a</sup> 2<sup>a</sup>, Fig. 2. Fig. 3 is an end elevation. Figs. 4 and 5 are detail sectional views showing the devices for holding the bottle during the washing and for turning on and shutting off the water for washing the inside of the bottle. Fig. 6 is a sectional detail taken through the supply-pipes and the branch pipes which supply water to the exterior of the bottles.

The framework A, which carries the working parts of our invention, consists of the two end pieces *a a*, which are fastened together by means of the rods or pipes *b b* and their tightening-nuts *b' b'*. These end pieces *a a* are constructed with a ledge *a' a'*, upon which a series of journal-boxes B are arranged to receive and carry the shafts *c c' c<sup>2</sup>* of a series of rollers C. These rollers C are constructed in the manner clearly shown in the drawings, having an outer covering of coarse matting, felt, or analogous material *c<sup>3</sup>*, covering a drum which is carried by the

shafts, the rollers being arranged with their surfaces inclined toward the end where the neck of the bottle rests while being washed. This inclination of the rollers C allows the water to flow from the inside of the bottle and carry away any refuse or dirt during the operation of washing.

In the drawings we have shown three sets of rollers, although this number may be increased or lessened, as may be desired, and upon the shaft *c* of the first set of rollers we have mounted two pulleys E, while upon the other two shafts *c' c<sup>2</sup>* is mounted but one pulley. A driving-belt passes under the pulleys mounted upon the first and central shafts *c c'* respectively, thus giving motion to them and also to the belt E', which passes around the second pulley on the shaft *c* and around the pulley on the end shaft *c<sup>2</sup>*. In this way rotation in the same direction is given to all the shafts and their respective rollers.

The journal-boxes are held in place upon the ledges *a' a'* by the set-screws *a<sup>2</sup> a<sup>2</sup>*, which pass up through slots in the ledges and screw into the lower part of the journal-boxes. (See Fig. 2<sup>a</sup>.) By this arrangement an adjustment to and from each other of the rollers is obtained, which adjustment will be necessary in order that bottles of varying diameters may properly rest between the rollers, it being obvious that bottles of a larger diameter will rest much higher upon the rollers than those of a smaller diameter, which will necessitate a greater separation of the rollers.

Immediately underneath the shafts *c c' c<sup>2</sup>* and extending the whole length of the framework A is a water-supply pipe G, supplied with water through a hose, which pipe is supported from the framework A by the adjustable brackets *g g*, which brackets are capable of an upward or downward movement, thus giving to the water-pipe a vertical adjustment, which with the adjustment of the rollers C may be required to give a proper inclination to bottle-carrying brushes, to be described.

A series of two-way cocks or faucets H are arranged upon and communicate with the main supply-pipe G through the central plug or core H', which core is also provided with radial ports 1 1, the whole being surrounded



by an outer shell or casing  $H^2$ , forming a bottle-support, said shell being also provided with radial ports 2 2, which lead into and communicate with two sets of pipes  $h$   $h$ , which are each provided with a brush  $h^2$   $h^2$ , corresponding in length to the length of the bottle to be washed. These brushes  $h^2$   $h^2$  are adapted to enter the mouth of the bottle to cleanse the interior.

The water-pipes  $h$  form bottle-holders to receive and hold the bottles, and, being secured on the supports or shells  $H$  and adapted to rock when the said supports are turned, are adapted when so rocked to present the bottles carried by them to the respective series of rotating rollers. These water-pipes  $h$  are arranged in pairs, two on each shell or support  $H$ , and form two series of holders adapted to hold two series of bottles, and the said holders are so located that when one series of bottles is in contact with the series of rollers on one side of the machine the other series of bottles is in position to be removed from the bottle-holder.

In constructing the brushes  $h^2$  we prefer to use a strip of rubber or analogous material  $i$  and to place the said rubber into the pipes  $h$ , allowing the ends to project through a slot in the pipes provided for the purpose. This rubber only partially fills the pipes, thus leaving a suitable outlet for the water above it, and the pipes are left open at their ends, so that the water may readily flow from them into the bottles, as clearly shown in Fig. 5.

Each of the pipes  $h$  is provided with a sleeve having a perforated arm, in which is adjustably clasped, by means of a set-screw, an arm having a socket which receives a brush  $J'$ , which is adapted to bear upon the outside of the bottle while being washed. These brushes  $J'$  are adjacent to and parallel with the brushes  $h^2$   $h^2$  and are made up of coarse hair which not only has the effect of cleaning the bottle but will also remove any labels which may be upon the outside.

Directly above each of the two first sets of rollers  $C$  is a water-pipe  $P$ , which is provided with a series of outlets or holes through which the water is ejected or sprayed upon the bottles being washed. These pipes  $P$  are connected by suitable elbows to vertical and horizontal branch pipes, which latter connect with suitable  $T$ -pipes, which in turn connect with the main supply-pipe  $G$ , from which source water is supplied to the said pipes  $P$ , and stop-cocks may be provided to govern the outflow of water and also serve to shut off the supply when not actually in use.

Sleeves or collars  $I$   $I$  are mounted upon the main supply-pipe  $G$ , and each sleeve is provided at its upper side with a boss, which is threaded to receive the threaded shanks of the cores or plugs  $H'$ , and the lower sides of the sleeves are also provided with bosses tapped to receive set-screws  $i'$   $i'$ , which pass through and bind upon the supply-pipe  $G$ .

Water is supplied to the faucets or cocks  $H$

through the medium of the flexible pipe connections  $G'$ , which lead from the supply-pipe  $G$  to the chamber  $G^2$  of the core or plug, from whence it passes through the pipe, whose port may be in alinement with a port in the plug or core, into the interior of the bottle. These flexible connections  $G'$  are necessary in order to allow the sleeves or collars  $I$   $I$  and their respective faucets or cocks to be moved in one direction or the other to bring the brushes used for the interior of the bottle into a central position with relation to any two rollers.

The faucets or cocks  $H$  are so arranged that while one set of pipes and their brushes are in a horizontal or nearly horizontal position, which will be the case when the bottle rests between any two of the rollers  $C$ , the port which supplies water to that set of brushes will be in alinement with its supply-port in the plug or core  $H'$ , while the opposite or adjacent set of pipes and their brushes will have their supply cut off by reason of the port which supplies water thereto having passed out of register with its supply-port in the plug or core. In this way the supply of water to one set of pipes is shut off while the adjacent set is being supplied. This arrangement not only effects a great saving of water, but it allows the water to drain from the bottle after it has been washed by reason of its vertical or nearly vertical position.

In order that the outside bottom of the bottles may be thoroughly washed, we provide our machine with a series of brushes  $K$ , held in position by suitable uprights or arms  $K'$ , and which are adapted to bear against the bottom of the bottles. These uprights are each provided at their lower ends with a slot through which a set-screw  $k$  passes and screws into the framework  $A$ , and their upper ends have a socket  $k'$ , which receives a brush-carrying device  $L$ . It will thus be evident that an upward and downward adjustment can be given these brushes, thus adapting them to the bottles being washed. Greater pressure of these brushes can be brought to bear upon the bottles by pushing forward the brush-carrying devices  $L$  where they are held by the set-screws  $k$ .

The belt  $E'$  is made long enough to permit the rollers  $C$  to be spread apart to their fullest and predetermined extent, and the frame  $A$  is provided with an adjustable belt-tightening device  $E^2$ , which will take up the slack in the belt as the rollers are adjusted closer together, as will readily be understood by reference to Fig. 3 of the drawings.

Considerable refuse water arises during the operation of washing, and to catch this and avoid useless mess we provide the framework  $A$  with a tank  $T$ , directly beneath the rollers  $C$ . This tank may be connected with a drain by suitable pipe connections.

From the foregoing description and by reference to the drawings our invention may be readily understood. A brief description, how-



ever, of its operation will serve to point out its advantages more clearly.

Water being supplied to the pipe G, the operator places upon the first brush the bottle to be washed, the brush J' bearing firmly against the exterior of the bottle, while the brush  $h^2$  presses against the interior. The bottle is then brought into position to bear upon two of the rollers, which turns on the supply-water to that set of pipes and brushes. Motion is then given to the rollers C through the medium of the pulleys and belts, and a rapid rotation is thus given to the rollers and bottle and the operation of cleaning begins. This operation is repeated until two bottles, as shown in the drawings, are resting between their respective rollers, by which time the first bottle will have been thoroughly cleaned. Then the operator places upon the brush connected with the first brush, which is then standing in its upright position, another bottle, at the same time tilting it over until it falls between the rollers at the opposite side. This has the effect of raising to a vertical position the bottle which has just been cleaned, shutting off the water supply and allowing whatever water which may accumulate in the bottle to drain off.

The bottles are held against the inclined surfaces of the rollers C with their mouths downward, so that the dirty water escapes from the bottle-neck freely during the operation of washing. The removal of the dirty water and the constant supply of fresh water is very essential to the proper cleansing of the interior of the bottle or other vessel being washed.

Although we have shown our invention as arranged to wash but four bottles, it must be understood that any number of rollers may be added, although we have found in practice the number shown in the drawings quite enough for one attendant to handle. We may also do away with the belting and pulleys and employ other means of giving rotation to the rollers without departing from the spirit of our invention.

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

1. In a bottle-washing machine the combination of a frame, a support mounted to rock thereon, two series of bottle-holders on the support, two sets of rollers rotatively mounted on the frame, said bottle-holders when rocked in one direction being adapted to present the bottles carried by one series of said bottle-holders to one set of rollers, and when rocked in the other direction, to present the other bottles carried by the other series of bottle-holders to the other set of rollers, and means for supplying water, substantially as and for the purpose set forth.

2. In a bottle-washing machine, the combination of a frame, a support mounted to rock thereon, two series of bottle-holders on the support, rollers rotatively mounted on the

frame on opposite sides of the support, said support being adapted when rocked to present the bottles carried by its respective series of bottle-holders alternately to the respective rollers, and having its bottle-holders so arranged that when the bottles carried by one series of holders are in contact with the rollers on one side of the support, the bottles on the other series of holders are in position to be removed, and means for supplying water, substantially as set forth.

3. In a bottle-washing machine, the combination of a frame, two sets of rotating rollers mounted thereon, a rocking support mounted on the frame between the respective sets of rollers, bottle-holders on said support, and adapted to carry two sets of bottles, brushes adapted to fit the inner and outer sides of the respective series of bottles carried on said supports, means for supplying water, and means for controlling the water supply by the movement of the said support, substantially as set forth.

4. In a bottle-washing machine, the combination of a frame, rollers mounted thereon, a water-supply pipe mounted on the frame adjacent to the rollers, a support mounted to rock on the water-supply pipe, bottle-holders on said support adapted when the support is rocked, to present the bottles carried on the holders to the rollers, said water-supply pipe having ports and said bottle-holders having water-passages adapted for communication at their outer ends with the interiors of the bottles carried on the holders, and adapted for communication at their inner ends with the ports in the water-supply pipe, said support when rocked being adapted to close the ports in the water-supply pipe whereby the supply of water is cut off from the interiors of the bottles carried on the bottle-holders, substantially as set forth.

5. In a bottle-washing machine, the combination of a frame, two sets of rollers mounted thereon, two sets of bottle-holders on a support, the said support being mounted to rock on the supply-pipe, said bottle-holders being adapted when rocked in one direction to present the bottles carried by one series of bottle-holders to the rollers on one side, the bottles carried by the other series of bottle-holders being then in position to be removed, a water-supply pipe, and means to turn on the supply of water to the bottles when in contact with the rollers and to simultaneously turn off the supply of water to the bottles in position for removal, substantially as set forth.

6. In a bottle-washing machine, the combination of a frame, a support mounted to rock on the frame, two sets of rollers rotatively mounted on the frame on opposite sides of the rocking support, said rollers being adjustable toward and from one another, bottle-holders on the rocking support adapted to present the bottles carried on the holders to the respective rollers when the support is



rocked and means for supplying water, substantially as set forth.

7. In a bottle-washing machine, the combination of a frame, two shafts rotatively mounted therein, and each provided with a roller at each end, said shafts being parallel and said rollers being correspondingly located, a rocking support mounted on the frame between the rollers at opposite ends of the shafts, bottle-holders on said support adapted, when the

same is rocked, to present the bottles carried on said bottle-holders to the rollers, means for driving said shafts and means for supplying water, substantially as set forth.

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MICHAEL J. McHUGHII.

Witnesses:

ROBT. E. MILLER,

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