J. HAUK, Jr.

BOTTLE WASHING MACHINE.

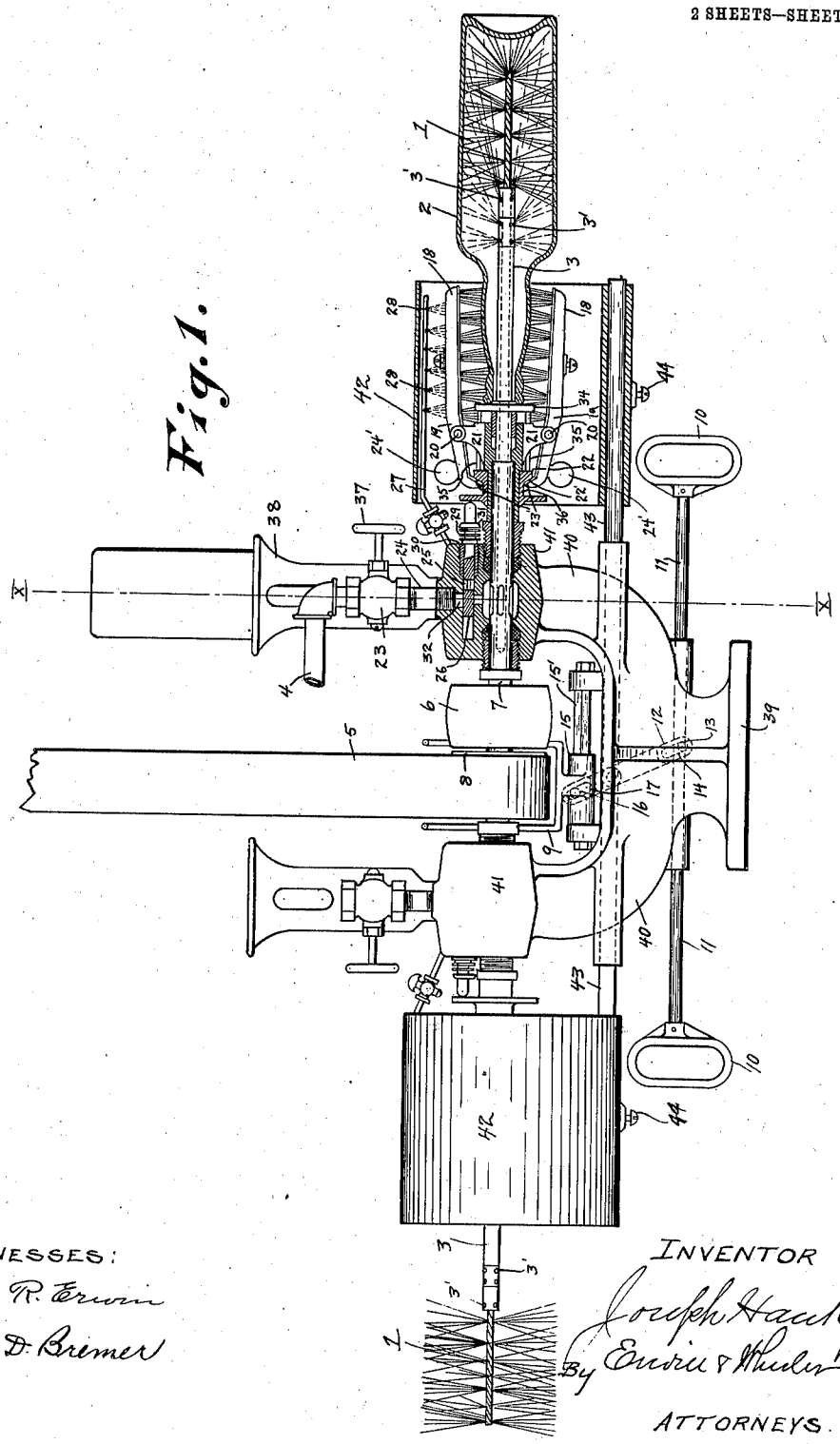
APPLICATION FILED FEB. 15, 1909.

947,775.

Patented Jan. 25, 1910.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

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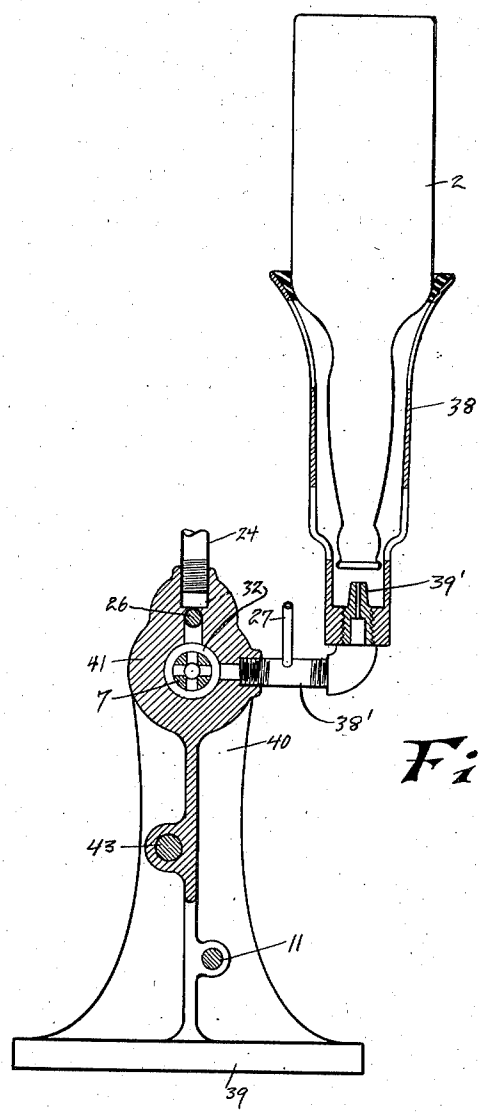

Fig. 2.

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UNITED STATES PATENT OFFICE.

JOSEPH HAUK, JR., OF MILWAUKEE, WISCONSIN, ASSIGNOR TO TWENTIETH CENTURY MACHINERY COMPANY, OF MILWAUKEE, WISCONSIN, INCORPORATED.

BOTTLE-WASHING MACHINE.

947,775. Specification of Letters Patent. Patented Jan. 25, 1910.

Application filed February 15, 1909. Serial No. 477,886.

To all whom it may concern:

Be it known that I, JOSEPH HAUK, JR., a citizen of the United States, residing at Milwaukee, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Bottle-Washing Machines, of which the following is a specification.

My invention relates to improvements in bottle washing machines.

The object of my invention is, among other things, to provide a machine by which a plurality of washing brushes may be simultaneously operated from a single motor driven shaft and both the interior and exterior surfaces of the bottle simultaneously washed, while each bottle after having been washed is thoroughly rinsed with fresh water as the next succeeding bottle is being acted upon by the brushes, whereby the labor of washing bottles is greatly reduced and the number which may be cleaned in a given time is greatly increased.

My invention is explained by reference to the accompanying drawings, in which—

Figure 1 is a side view, part in vertical section; and Fig. 2 is a detail in section drawn on line *x*—*x* of Fig. 1.

Like parts are identified by the same reference figures in both views.

While all the operative parts of the machine are formed in duplicate comprising two sets of brushes, brush supporting spindles and mechanism for supporting and rinsing the bottles, which operative mechanism is adapted to be simultaneously driven from the same motor driven shaft, for convenience and brevity of description, I have referred to the movable parts in the singular as they appear upon one side of the vertical center of Fig. 1, it being understood, however, that duplicates of all such movable parts are shown upon the opposite side of such vertical center.

1 represents a brush of ordinary construction for washing the interior of the bottles 2, one of which bottles 2 is shown in position to be operated upon by the brushes on the right hand side of Fig. 1. The bottle 2 is placed over the hollow spindle 3 into the interior of which water is conducted from the inlet duct 4, passing through the several valves and ports hereinafter described, thence through the hollow shaft 7, hollow spindle 3 and outlet spray nozzles 3′, as said brush is being revolved. Motion is communicated to the brush 1 from the motor driven belt 5, through the pulley 6 and shaft 7. The shaft 7 is coupled to the spindle 3 by a water tight joint and such parts are adapted to be revolved together. The belt 5, as shown in Fig. 1 is adapted to run freely upon the idler 8. When, however, it is desirous to start the machine, the belt is shifted from the pulley 8 to the driving pulley 6, motion being communicated to the belt from the operating handle 10, through the slidable rod 11, pivotally supported link 12 and belt shifting arms 9, said link 12 being connected with the rod 11 through the transversely arranged pin 13 operating in the slot 14 of said link, the opposite end of said link being connected with said shifting arms 8 through the slidable sleeve 15 and transversely arranged pin 16 operating in the slot 17 of said link. Thus it is obvious that when it is desirous to start the machine, the handle 10 is pushed to the left, whereby the belt 5 will be moved from the idler to the shaft driving pulley 6, when the brushes will be caused to revolve.

15′ is an angular shaft upon which the sleeve 15 is slidably supported.

While the interior of the bottle is being washed by the brush 1, the exterior of the neck is simultaneously being washed by a plurality of brushes 18. The brushes are pivotally connected with the hollow shaft 7 through the pivotal bolt 20, radial lugs 21 and the lug supporting sleeve, which sleeve is rigidly affixed to said hollow shaft in any convenient manner. The brushes 18, when rotated, are adapted to pass over and upon the neck of the bottle, while such brushes are caused to simultaneously bear against such neck by the forward pressure of the bottle against the disk 34. As the end of the bottle is thus pressed forward, motion is communicated therefrom to said brushes through said disk 34, the slidable sleeve 36, angular collar 22, angular bearings 23′ formed on the converging ends of the levers 19, whereby said brushes are forced toward each other and against the exterior surface of the bottle neck. As the brushes 18 are being thus revolved upon the neck of the bottle, water is simultaneously discharged thereon, as indicated in Fig. 1, the water being led from the pipe 4 so as to discharge upon the neck

of the bottle through the valve 23, duct 24, valve port 25 formed in the sliding valve 26, duct 27, and a plurality of spray apertures 28, whereby as the machine is operated, both the interior and exterior of the bottle are simultaneously cleansed.

24′ are weights rigidly affixed to the arms 19 and are adapted by their centrifugal force to counteract the centrifugal force of the brushes 18 as the same are revolved. The sliding valve 26 is adapted to be thrown to the right and closed, as shown in Fig. 1, by the re-coil of the spiral spring 29, which spring is interposed between the end 30 of the valve casing and the shoulder 31, and when the valve is in such position, the port 25 is brought out of alinement with the port 32, whereby all water is prevented from escaping from the inlet duct 4. When, however, the machine is in operation, the valve 25 is opened by an inward pressure upon the bottle, as stated, motion being communicated from the bottle to the slidable valve 26 through the collar 34, mounted on the hollow spindle 3 a plurality of longitudinally arranged rods 35 and slidable sleeve 36, which slidable sleeve 36 is adapted, as it is pushed inward toward the center of the machine, to contact with the opposing end of the valve 26, whereby the valve port 25 is brought in line with the valve port 32, when water is simultaneously led and discharged upon both the exterior and interior surfaces of the bottle, as previously described.

37 is a hand wheel by which the valve 23 is opened and closed. When a bottle has been placed in the machine and has been acted upon by the brushes 1 and 18, as previously described, it is withdrawn from the spindle 3 and placed in a vertical position indicated in the funnel 38 preparatory to being rinsed. The lower end of the funnel 38 is provided with a duct 38′, and jet nozzle 39′ through which water is led from the valve port 32 into the mouth of the bottle.

It will be understood that as each bottle is successively placed in the machine, as indicated upon the right in Fig. 1, and pressed forward, and the sliding valve 25 opened, water will be simultaneously led, not only to the bottle which is being brushed, but also to the bottle which is supported in the funnel, whereby as the second bottle is being brushed, the first bottle will be simultaneously rinsed. It will of course be understood that as soon as the bottle is withdrawn from the spindle 3, the valve 26 will be thrown back into its closed position, shown in Fig. 1, by the recoil of the spiral spring, whereby the escape of water is prevented, except only while the bottles are being pressed forward by the operator in contact with the brushes, as previously described. To prevent the water from being thrown by centrifugal force from the brushes and the exterior surface of the bottle as the machine is being operated, I preferably surround the brushes by which the neck of the bottle is cleaned and the duct 27 leading thereto with an inclosure 42, which is adjustably supported from the side arms 40 on the shaft 43 and secured at any desired point of adjustment by the set screw 44.

As previously stated, the machine is preferably formed in duplicate, as shown in Fig. 1, and such duplicate parts are supported from the base 39 through the laterally projecting arms 40 and journal bearings 41. The base 39 serves as a convenient means of bolting the machine to a solid foundation for use.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for washing bottles, the combination of a motor driven shaft provided with a longitudinal duct, an inlet side duct, a revoluble brush having a hollow spindle detachably connected with said hollow shaft, a journal box for supporting said shaft provided with a water chamber communicating through said side duct with the longitudinal duct of said shaft and spindle, a water pipe communicating from a water supply with said water chamber, a self closing valve located in the water chamber of said journal box, a sleeve slidably mounted upon said hollow shaft, a radial projection carried by the slidable sleeve for communicating the required motion from said slidable sleeve for opening said self closing valve, and means for controlling the revolving movement of said hollow shaft and brush.

2. In a machine for washing bottles, the combination of a motor driven shaft provided with a longitudinal duct, an inlet side duct, a revoluble brush having a hollow spindle detachably connected with said hollow shaft, a journal box for supporting said shaft provided with a water chamber communicating through said side duct with the longitudinal duct of said shaft and brush spindle, a water pipe communicating from a water supply with said water chamber, a self closing valve located in the water chamber of said journal box, a sleeve slidably supported on said hollow shaft, a radial projection carried by said sleeve for communicating motion to said self closing valve, a bottle supporting funnel having open connection with the water chamber in said journal box, a jet nozzle centrally located in the lower end of said funnel and adapted as said valve is opened, to discharge a jet of water into a bottle, whereby as a bottle is moved forwardly over said revoluble brush and against said slidable sleeve, said valve will be opened and water will be simultaneously led to the interior of both bot-

tles and means for controlling the revolving movement of said hollow shaft and brush.

3. In a machine for washing bottles, the combination of a motor driven shaft provided with a longitudinal duct, an inlet side duct, a revoluble brush having a hollow spindle detachably connected with said hollow shaft, a casing surrounding said brush, a journal box for supporting said shaft provided with a water chamber communicating through said side duct with the longitudinal duct of said shaft and spindle, a water pipe communicating from a water supply with said water chamber, a self closing valve located in the water chamber of said journal box, a sleeve slidably supported on said hollow shaft, a radial projection carried by the sleeve, contact bearings carried by said sleeve for communicating motion from said slidable sleeve to said self closing valve, when a bottle is pressed against said sleeve, a bottle supporting funnel, a branch duct communicating from the water chamber in said journal box to said funnel, a jet nozzle connected with said branch duct and adapted to discharge a jet of water into the interior of the bottle supported by said funnel, a jet tube communicating from said branch duct to the casing surrounding said brush provided with a plurality of apertures through which water is adapted to be discharged upon the exterior of the neck of the bottle, whereby as said valve is opened by the forward movement of the bottle in contact with the brushes, water will be simultaneously discharged upon the interior and exterior surface of the bottle that is being brushed and also upon the interior of the bottle supported in said funnel.

In testimony whereof I affix my signature in the presence of two witnesses.

JOSEPH HAUK, Jr.

Witnesses:
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