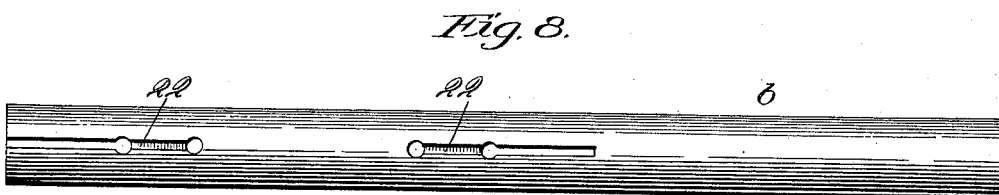
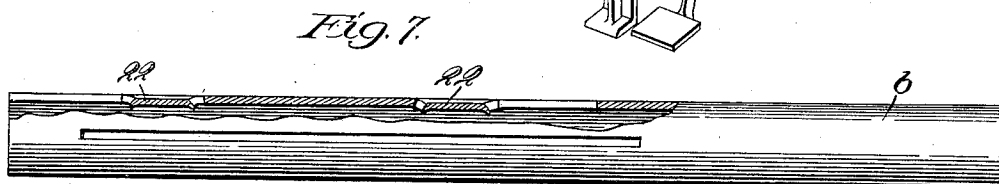
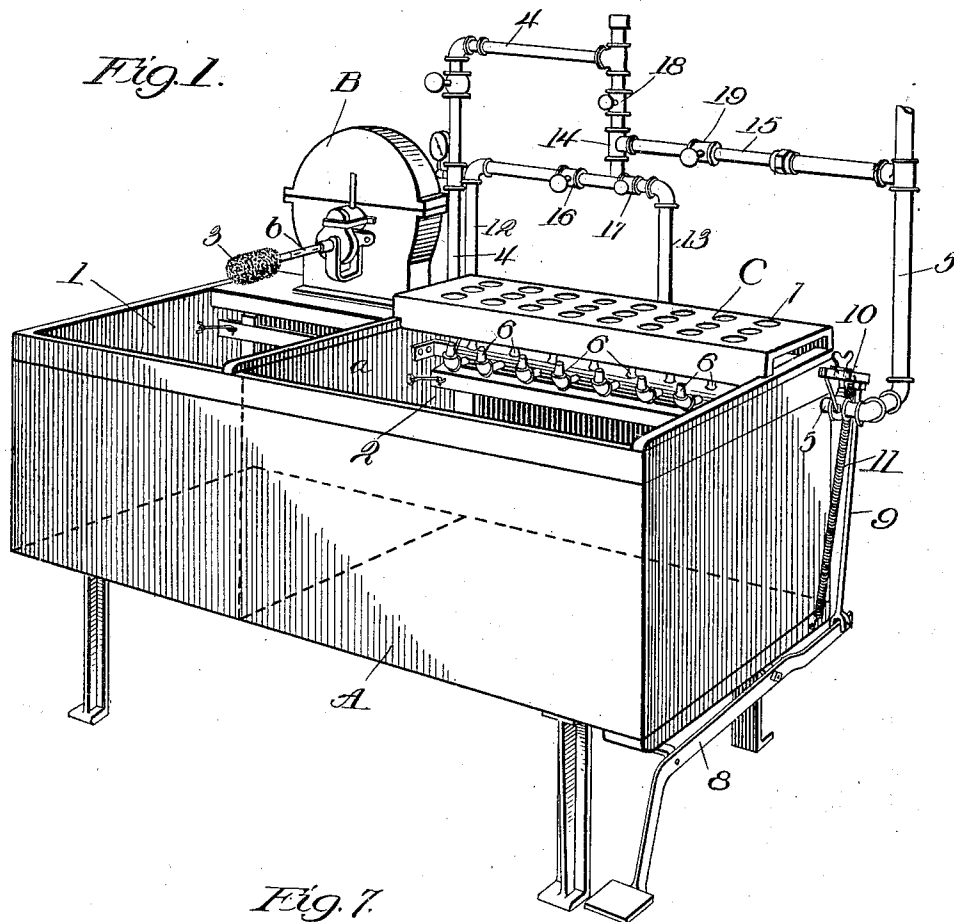


H. L. BELKNAP.
BOTTLE WASHING MACHINE.

(Application filed May 11, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
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BOTTLE WASHING MACHINE.

(Application filed May 11, 1900.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 3.

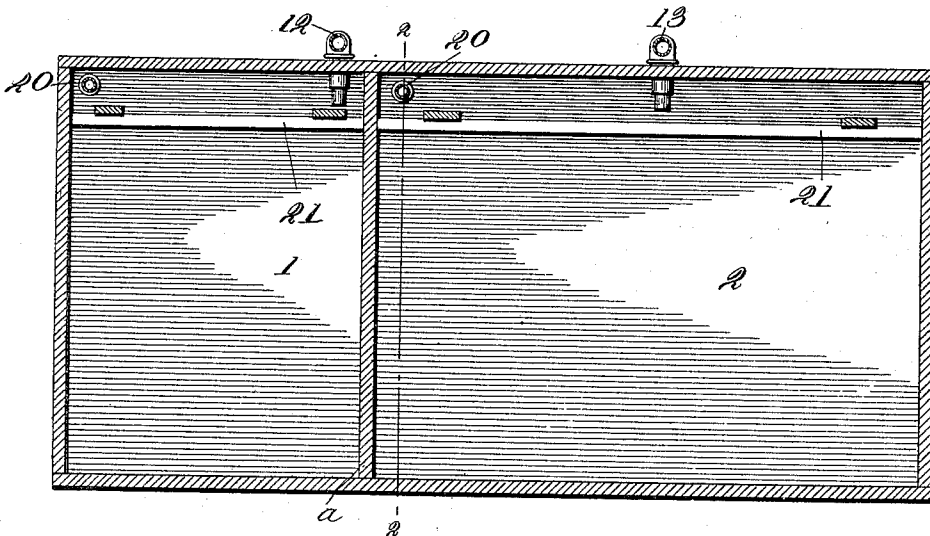


Fig. 4.

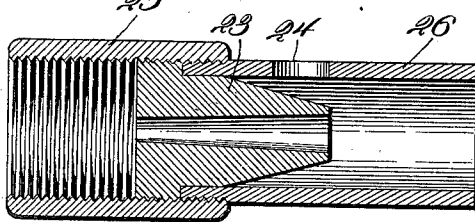


Fig. 5.

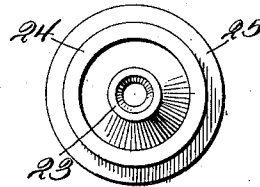


Fig. 2.

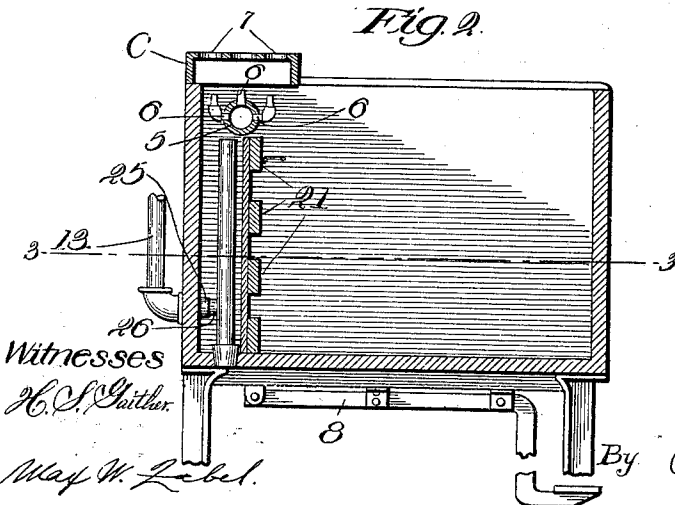
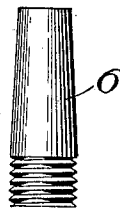


Fig. 6.



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UNITED STATES PATENT OFFICE.

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BOTTLE-WASHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 701,129, dated May 27, 1902.

Application filed May 11, 1900. Serial No. 16,317. (No model.)

To all whom it may concern:

Be it known that I, HIRAM LEWIS BELKNAP, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Bottle-Washing Apparatus, (Case No. 1,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to machinery for washing bottles and like receptacles. Its object is to provide a simple, inexpensive, and practical machine by which bottles can be rapidly, easily, and thoroughly washed or cleaned in a very short space of time.

To the attainment of the foregoing and other desired ends my invention consists in matters hereinafter set forth.

In the accompanying drawings, Figure 1 is a perspective view of a machine embodying my invention. Fig. 2 is a transverse section of the same. Fig. 3 is a horizontal section taken on the plane indicated by the line 3 3 in Fig. 2. Figs. 4 to 8, inclusive, are views of details of construction.

The bottle-washer illustrated in the drawings comprises a suitable tank A, having a vertical partition *a* dividing it into two horizontal compartments 1 and 2, which I shall call the "washing" and "rinsing" tanks, respectively. Resting upon the back of the tank behind the left-hand compartment 1 is a rotary turbine B, which may be of any suitable or preferred construction. The axle or shaft *b* of this turbine B is provided with a brush or sponge 3, which of course is rotated at a very rapid speed by the operation of the turbine. The turbine is provided with a steam-pipe 4, which extends upwardly from its lower end. The right-hand compartment 2 of the tank is provided with a horizontally-extending water-pipe 5, having three series of spouts or nozzles 6 6 extending upwardly from it. This water-pipe 5 is understood to be connected with a suitable source of water-supply. Arranged upon the walls forming the rinsing-tank 2 is a spraying-rack C, having a series of openings or holes 7 7, adapted to receive bottles or receptacles to be cleansed.

The holes 7 7, it will be understood, are positioned above the various nozzles 6 6, as shown in Figs. 1 and 2.

The water-pipe 5 is provided with suitable means for opening and closing it to allow water to emerge from the nozzles 6 6. As a simple arrangement I have shown a foot-lever 8 pivotally connected to the bottom of the tank and having a rod 9, which extends upwardly, so as to operate a valve 10, situated in the pipe 5, just outside of the tank. This arrangement is such that a depression of the forward end of the lever opens the valve 10. A spring 11 is employed for maintaining the valve in a normally closed condition.

Pipes 12 and 13 are arranged at the rear of the tanks 1 and 2, respectively, and extend upwardly from nearly the bottoms of such tanks. They are then united and connected to a pipe 14, which extends upwardly to and is connected with the steam-pipe 4. The pipe 14 is also connected with the water-pipe 5 by a horizontal pipe 15. By this arrangement either or both of the tanks 1 and 2 can be supplied with either steam or cold water or any mixture of these two. To permit this, the pipe 12 is provided with a valve 16, the pipe 13 with a valve 17, the pipe 14 with a valve 18, and the pipe 15 with a valve 19. To supply the tank 1 with steam, the valves 16 and 18 are open, and to supply the tank 2 with steam the valves 17 and 18 are opened. To supply either one or both of these tanks with cold water, the valve 19 and either one or both of the valves 16 and 17 are opened. To supply either or both of them with a mixture of steam and water or water heated to some extent by steam, either or both of the valves 16 and 17 are opened and the valves 18 and 19 are opened to an extent sufficient to secure the desired mixture.

In operating my invention the washing-tank 1 is filled with warm water, and the bottles or other articles are dipped or plunged by hand into this water and then moved so as to force the sponge or brush into them, so that the brush scrubs their interiors. They are then placed upon the spraying-rack C in an inverted position. When milk-bottles are to be washed, the apertures 7 7 in this rack are

desirably of such size and shape as to receive the necks of bottles, in which case the body portions of the same extend above the rack.

When the rack has been filled, the foot-lever 5 8 is then operated so as to allow water to be sprayed through the nozzles 6 6 into the bottles or other receptacles. When this has been done a sufficient length of time to thoroughly rinse the bottles, the rack C is removed to allow the bottles to dry. It is preferably placed 10 in a sterilizer, so that the bottles will dry in an antiseptic condition. Another rack is then placed upon the tank and the operation proceeded with as before.

15 Water in the two tanks can be properly changed and its temperature properly regulated by means of the steam and water pipes and connections heretofore referred to and explained.

20 Each tank is provided with an overflow 20 to prevent water from flowing over the sides of the tank. Each tank is also provided with an open or lattice work partition 21 to prevent the bottles from coming into contact with the ends of the pipes 12 and 13 and the over- 25 flows 20 20.

As a matter of further and specific improvement the shaft *b* of the turbine B is constructed as shown in Figs. 7 and 8. In this construction the shaft is made with its outer end 30 in tubular form, so as to receive the wooden handle on the brush or sponge 3, and is provided with indentations or depressed portions 22 22, which act as knives to cut grooves in the wooden handle when the same is inserted 35 in the shaft. In this way the handle, and therefore the brush, is held securely against becoming loose relatively to the shaft. As a matter of still further specific improvement 40 the nozzles 6 6 are constructed as shown in Fig. 6. In this case they are made of soft or Babbitt metal and provided with bores or outlets, which taper toward their outer ends.

As a matter of further improvement also 45 the ends of the supply-pipes 12 and 13 are provided with mufflers, and these are desirably constructed as shown in Figs. 4 and 5. In this arrangement a nozzle 23 is located at a point forward of the end of the pipe, and 50 apertures 24 24 are arranged in the pipe in the rear of the end of the nozzle. In this way the inrushing steam draws the liquid in the tank in through the apertures 24 24, and this incoming liquid prevents gurgling or other 55 noises on the part of the steam. As a simple construction the end of the pipe is provided with a collar 25, and the nozzle is screwed into this collar, and then an end piece 26, containing the apertures 24 24, is screwed into 60 the collar 25 to hold the nozzle in place.

From the foregoing it will be seen that my invention provides a simple, practical, and efficient apparatus for quickly washing bottles and the like and that it also contains novel and advantageous features of construction. 65

What I claim as my invention is—

1. A bottle-washing apparatus, consisting of a tank having a partition dividing it into washing and rinsing compartments, a water- 70 pipe arranged horizontally in the rear of the rinsing-compartment below the top thereof and provided with upwardly-directed nozzles, and a rack arranged to rest upon the top of the side walls of this rinsing-compartment 75 and provided with apertures corresponding to the nozzles of the said water-pipe, substantially as described and for the purpose set forth.

2. A bottle-washing apparatus consisting 80 of a tank having a vertical partition dividing it into washing and rinsing compartments, a water-pipe extending into the rinsing-compartment and arranged horizontally in the same below the top thereof, the said pipe hav- 85 ing upwardly-directed nozzles, a rack arranged to rest upon the tops of the side walls of the rinsing-compartment and provided with apertures corresponding with said nozzles, supply-pipes 12 and 13 extending to the 90 washing and rinsing compartments respectively, connections between the steam and water pipes and the supply-pipes 12 and 13, whereby either steam or water or both may be supplied at will to either or both of the 95 compartments of the tank, a valve in the water-pipe outside of the rinsing-compartment, a valve-lever 10 for operating said valve, a link for operating the valve-lever, a spring tending to hold the valve-lever in such position as to normally close the valve, and a foot- 100 lever for operating the link, substantially as described.

3. The combination with the tank, and a water-pipe therein having upwardly-directed 105 nozzles, of a valve in said water-pipe, a lever for operating said valve, a spring tending to hold said lever normally in position to maintain the valve closed, a link 9 extending downwardly from the valve-lever, and a foot-lever 110 8 pivoted to the bottom of the tank and having its rear end connected with the link 9 and its forward end provided with a pedal for the foot, substantially as described.

In witness whereof I hereunto subscribe my 115 name this 9th day of May, A. D. 1900.

H. LEWIS BELKNAP.

Witnesses:

A. MILLER BELFIELD,
HARVEY L. HANSON.