No. 669,267. Patented Mar. 5, 1901.

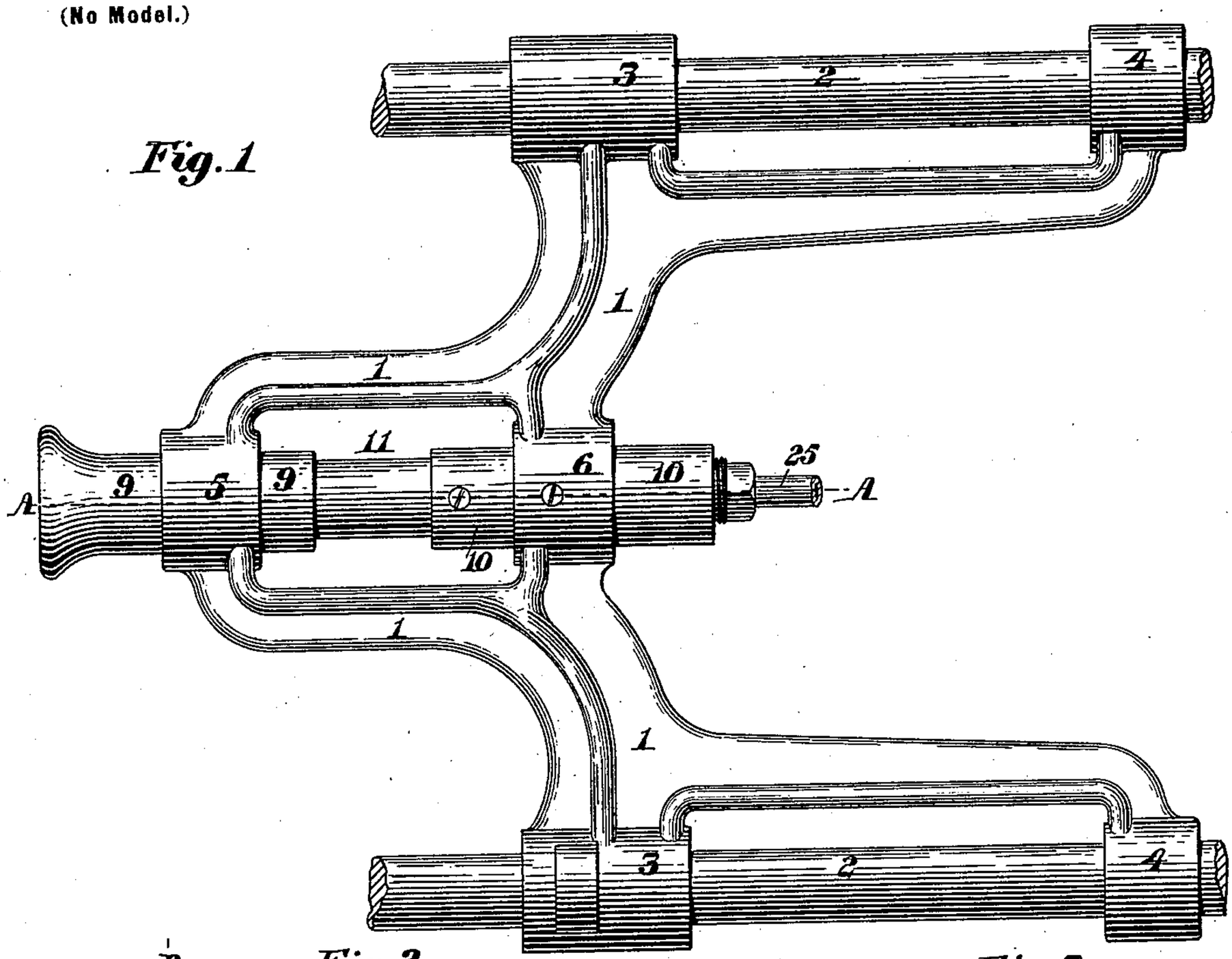
J. H. REED.

BOTTLE WASHING MACHINE.

(Application filed Dec. 15, 1900.)

(No Model.)

Fig. 1



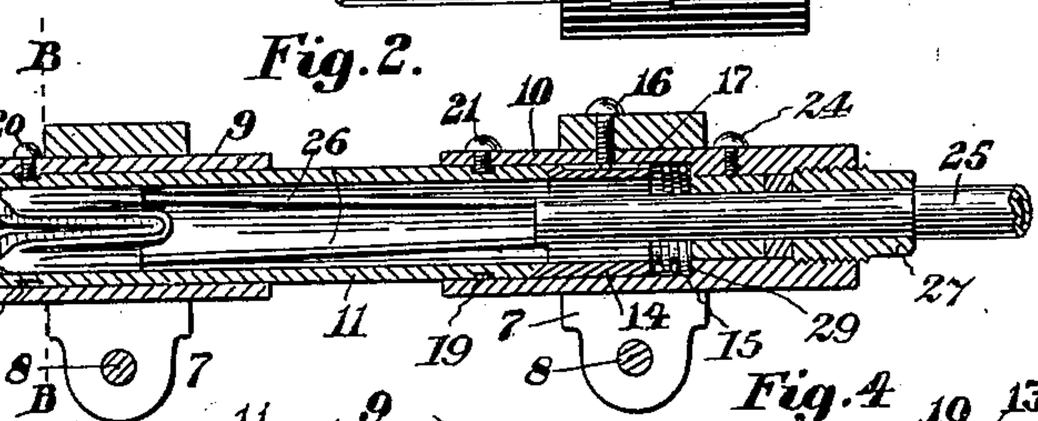


Fig. 2.

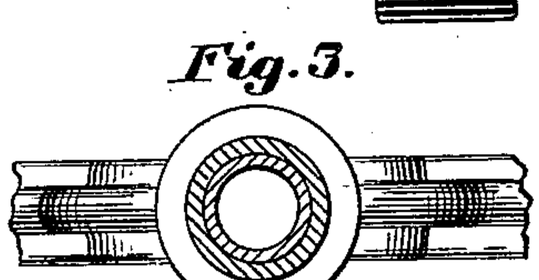


Fig. 3.

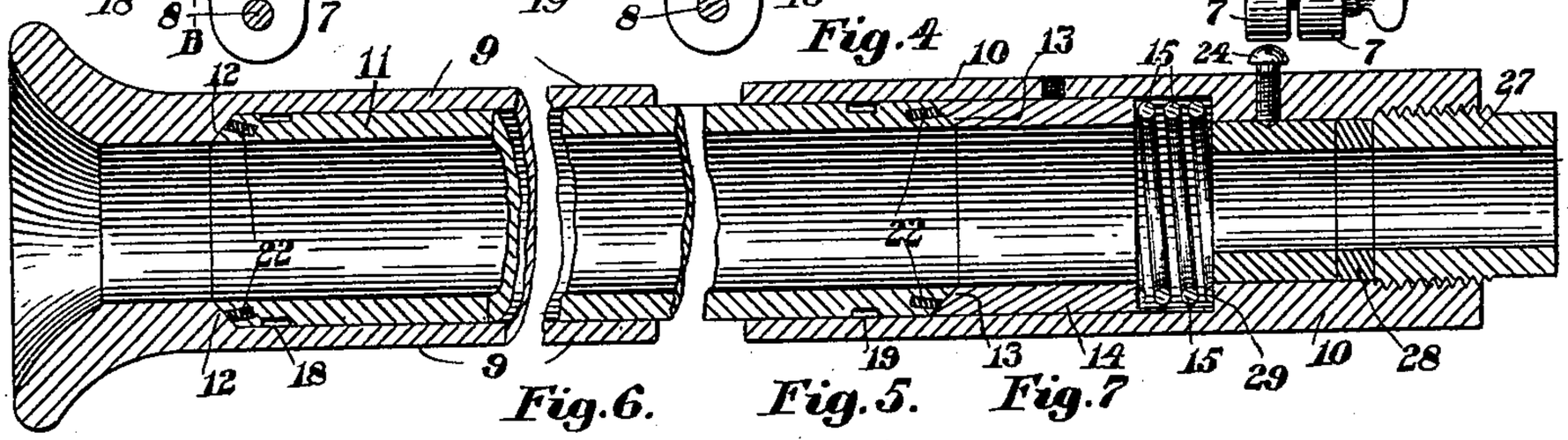
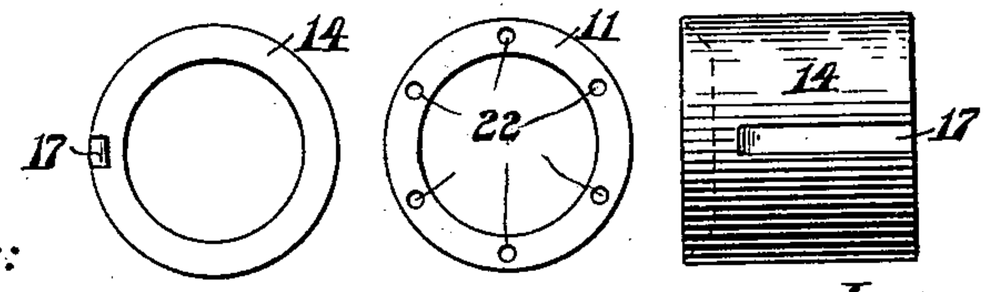


Fig. 6. Fig. 5. Fig. 7

Fig. 4



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES H. REED, OF SWAMPSCOTT, MASSACHUSETTS, ASSIGNOR TO JOSEPH M. HOYT, WILLIAM G. HOYT, AND CHARLES HEALY, OF LYNN, MASSACHUSETTS.

BOTTLE-WASHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 669,267, dated March 5, 1901.

Application filed December 15, 1900. Serial No. 40,038. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. REED, of Swampscott, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Bottle-Washing Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to bottle-washing machines, and especially to a brush-inclosing sleeve, is an improvement upon the invention shown and described in the Letters Patent No. 329,390, granted to Joseph M. Hoyt and William G. Hoyt October 27, 1885, and it consists in certain novel features of construction, arrangement, and combination of parts, which will be readily understood by reference to the description of the accompanying drawings and to the claims hereto appended and in which my invention is clearly pointed out.

Figure 1 of the drawings is a plan of the brush-inclosing sleeve and the cross-head for carrying the same. Fig. 2 is a section on line A A on Fig. 1. Fig. 3 is a transverse section on line B B on Fig. 2. Fig. 4 is a longitudinal section of the sleeve drawn to an enlarged scale. Fig. 5 is an end view of the revoluble section of said sleeve. Figs. 6 and 7 are respectively an end view and a plan of a non-revoluble bushing for the rear non-revoluble section of said sleeve.

In the machine illustrated in the above-cited Letters Patent the brush-inclosing sleeve, the body of which was non-revoluble, was provided with a revoluble bushing which surrounded the brush when said sleeve was in its most advanced position and revolved therewith. This revoluble bushing was entirely inclosed by the main body of the sleeve, and therefore was not visible to the eye, and there was no means of knowing whether said bushing did revolve with the brush or not; but as a matter of fact it has been found that said bushing did often become clogged, so that it would not revolve while the brush continued to revolve, and as a consequence the brush would soon be so badly injured as to make it necessary to replace it with a new one. Another disadvantage of the construction shown in said patent was that the revolving bushing was subjected to great wear both circumferentially and endwise, and there being no means provided for taking up the wear said bushing and its inclosing sleeve soon became so badly worn as to necessitate the removal of said worn parts and replacing them with new ones at a considerable expense. To obviate these objectionable features is the object of my invention, and to this end I construct the brush-inclosing sleeve and its supporting cross-head as illustrated in the accompanying drawings, in which—

1 is the sleeve-supporting cross-head, mounted upon and movable endwise of the guide-rods 2 2, only portions of which are shown, said cross-head having two bearings 3 and 4 on each guide-rod in order to give greater stability thereto and is also provided with two clamping-bearings 5 and 6 for holding the non-revoluble sections of the brush-receiving sleeve, the lower portions of the bearings 5 and 6 being slotted through and provided with ears 7 upon opposite sides of said slot, which have fitted therein clamping-screws 8, by which said bearings may be firmly clamped to the front and rear sections 9 and 10, respectively, of the brush-receiving sleeve, so that said sections cannot revolve.

The sleeve-section 9 has its front end bored out to form a bell-mouth to receive the end of the neck of the bottle to be washed, and by the pressure of which the sleeve and its carrying cross-head is moved toward the rear till the brush enters the bottle and reaches its bottom.

The bore of the sleeve-section 9 for about two-thirds of its length from its rear end is bored to a larger diameter to receive the front end of the revolving sleeve-section 11, the front end of said counterbore of section 9 being frusto-conical or in the form of a conical valve-seat 12, against which the correspondingly-shaped front end of the revoluble section 11 is seated. The rear non-revoluble section 10 of the brush-holding sleeve is also counterbored at its front end to receive the rear end of the revoluble section 11, which is also made frusto-conical and fits a correspondingly-shaped non-revoluble seat 13 in said sleeve-section 10. This seat 13 may be formed as a part of the sleeve-section 10, or it may be formed on the front end of a bushing 14, fitted within the counterbore of said

section and movable endwise therein to contact with the conical end of the section 11 by the tension of the spring 15, but prevented from revolving with the brush by the screw-pin 16, which enters the longitudinal groove or keyway 17, all as shown in Figs. 2, 4, 6, and 7. The exterior diameter of the sleeve-section 11 is made slightly less than the diameter of the counterbores of the sections 9 and 10, and as a consequence if the conical ends of the section 11 are kept in contact with the seats 12 and 13 there will be no contact of the periphery of said sleeve-section 11 with the inner surfaces of the counterbores of said sleeve-sections 9 and 10, and therefore no circumferential wear of said parts.

Between the sleeve-sections 9 and 10 the revoluble section 11 is not inclosed, but is visible to the eye of the operator, and if at any time while the brush is inclosed therein said section does not revolve the operator will know that something is wrong and he will proceed to investigate and remedy the difficulty.

The sleeve-section 11 has formed in its periphery two circumferential grooves 18 and 19, into which the inner ends of the screw-pins 20 and 21, respectively, enter without pressing upon said section to clamp it and prevent it from revolving when it is moved forward to inclose the brush, the office of said pins and grooves being to prevent the separation of the three sections of the brush-inclosing sleeve when removed from the bearings in the cross-head 1 until such time as it is desired to separate said parts.

The two frusto-conical ends of the sleeve-section 11 have formed therein a series of cavities 22, which are filled with plumbago, as shown in Figs. 4 and 5, said plumbago serving to lubricate the frusto-conical bearings of said sleeve-sections, and thus reduce the endwise wear of said bearings to a minimum.

A bushing 23 is secured in a fixed position in the sleeve-section 10 by the set-screw 24, the bore of said bushing being made to fit the tubular shaft 25, to the front end of which is secured the brush 26, and also has mounted upon its rear end suitable driving-pulleys, (not shown, but constructed and operating substantially as in said prior patent hereinbefore cited,) and said tubular shaft is also connected to a source of water-supply and is packed within the sleeve-section 10 by means of the screw plug or gland 27 and suitable packing 28 placed between said gland and the bushing 23, all of the parts mentioned in this paragraph being constructed and arranged to operate substantially as in said before-cited patent.

Between the shoulder 29, formed at the rear end of the counterbore of the section 10, and the rear end of the endwise-movable bushing 14 is inserted the coiled spring 15, the tension of which tends to press said bushing into contact with the rear end of the sleeve-section 11 and the front end of said section into contact with the frusto-conical shoulder or seat 12 in the sleeve-section 9.

I claim—

1. In a bottle-washing machine, the combination with a revolving tubular shaft, constructed and arranged to supply water to the brush and bottle, and an expansible brush carried by the front end of said shaft and revoluble therewith, of a brush-inclosing sleeve made in three sections, two of which are non-revoluble and separated from each other, while the third and central section has its end portions fitted to bearings in said non-revoluble sections so as to be revoluble therein while its central portion is uninclosed and visible to the eye of the operator; and means connecting said sleeve-sections whereby all of said sections may be moved endwise in unison to cover or uncover said brush.

2. In a bottle-washing machine the combination with a revolving and expansible brush, of a brush-inclosing sleeve comprising two non-revolving sections in axial line with but separated from each other; and each provided with an internal frusto-conical shoulder or seat, and a revolving section mounted in bearings in said non-revoluble section and engaging said frusto-conical seats, with its central portion, between said non-revoluble sections exposed to view; and a cross-head constructed and arranged to clamp said two non-revoluble sections and mounted upon suitable slides and adapted to be moved with said sleeve to cover and uncover the brush.

3. In a bottle-washing machine a brush-inclosing sleeve comprising two non-revolving sections in axial line with but separated from each other, and each provided with an internal frusto-conical shoulder or seat, and a revoluble section fitted to bearings in said two non-revolving sections and having frusto-conical ends to engage said frusto-conical shoulders or seats in said non-revolving sections, said revoluble section having a series of cavities formed in each of its frusto-conical ends; and a lubricating substance as plumbago inserted in and filling said cavities.

4. In a bottle-washing machine the combination with a revolving and expansible brush, of a brush-inclosing sleeve comprising the non-revoluble section 9 provided with the frusto-conical seat 12, the non-revoluble section 10 provided with the shoulder 29, the section 11 having frusto-conical ends; the non-revoluble bushing 14, and the spring 15 all constructed, arranged, and operating substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 13th day of December, A. D. 1900.

JAMES H. REED.

Witnesses:
N. C. LOMBARD,
J. HOUSTON STEVENSON.