No. 614,236. Patented Nov. 15, 1898.

A. PERTHOLD.

BOTTLE WASHING APPARATUS.

(Application filed Mar. 15, 1898.)

(No Model.)

Fig. 1.

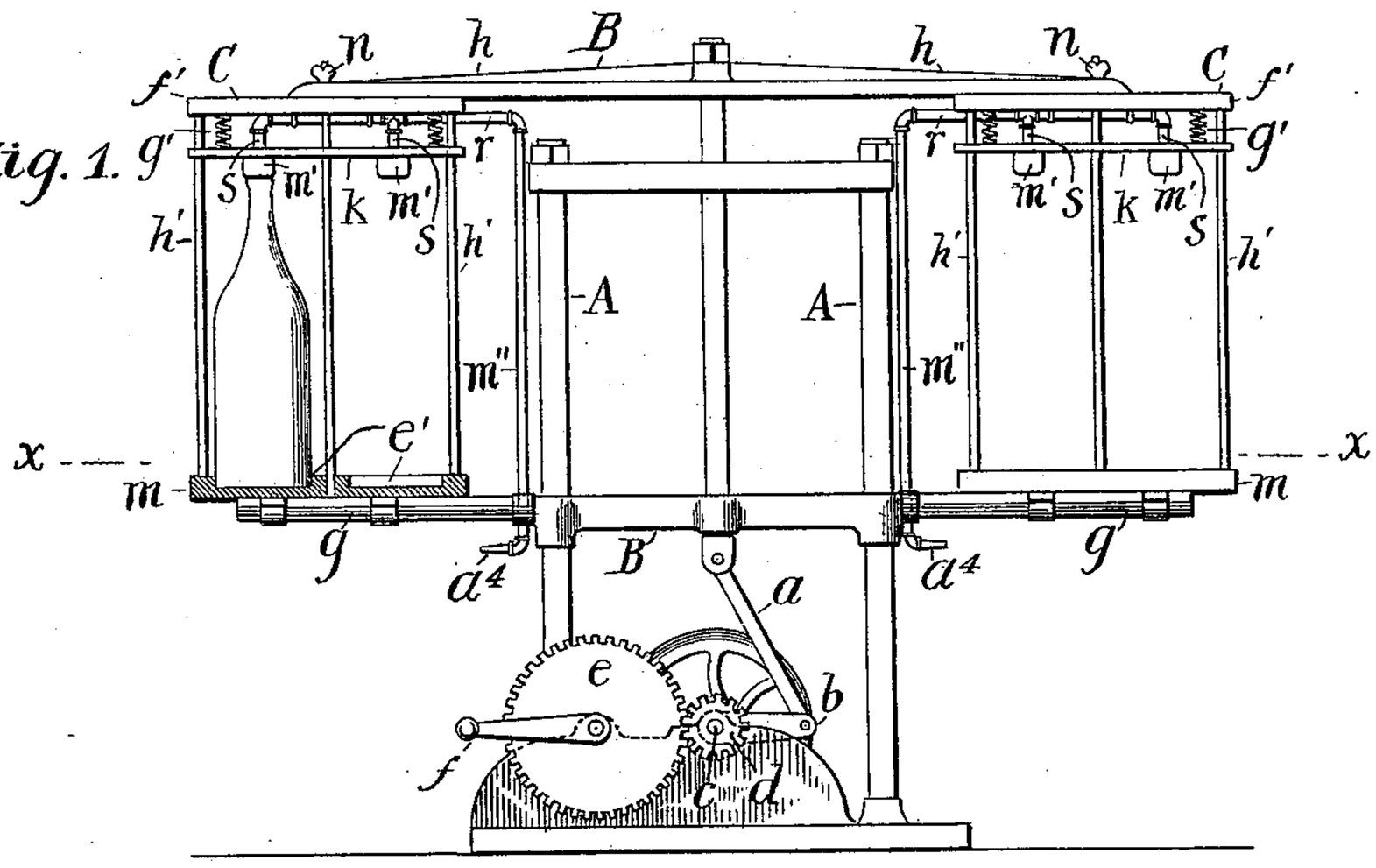


Fig. 2.

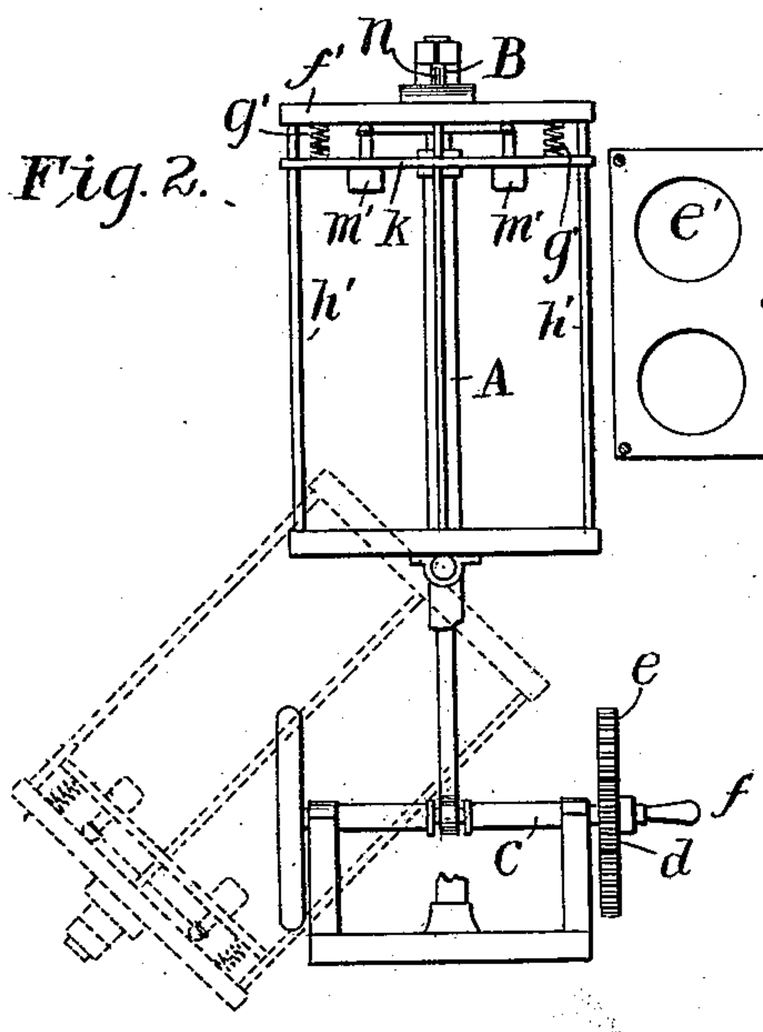


Fig. 3.

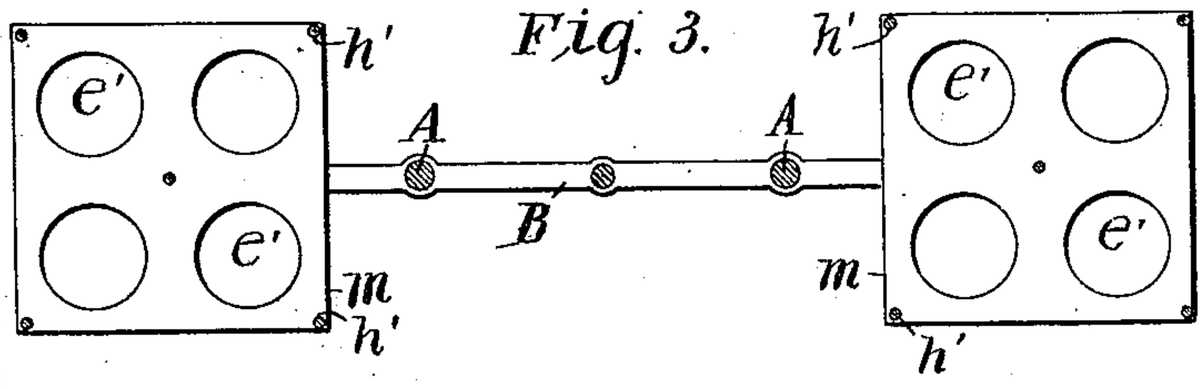
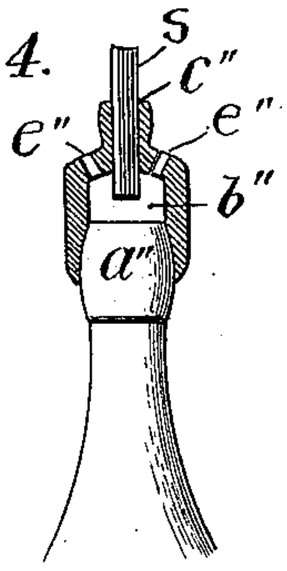


Fig. 4.



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BOTTLE-WASHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 614,236, dated November 15, 1898.

Application filed March 15, 1898. Serial No. 673,921. (No model.)

To all whom it may concern:

Be it known that I, ANDREW PERTHOLD, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Bottle-Washing Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a front elevation, in partial section, of an apparatus made according to my invention. Fig. 2 is an end elevation in partial section. Fig. 3 is a horizontal sectional view taken in the line *x x* of Fig. 1. Fig. 4 is a detail sectional view of certain parts of said apparatus.

This invention comprises certain new and useful combinations of parts whereby I provide an apparatus for washing bottles which is simple and strong in construction, easily operated and manipulated, and of superior efficiency in the speed and thoroughness with which its work is performed.

A are vertical standards placed upon any suitable base or support and which provide guides for a vertically-movable frame B placed thereon. This frame is in a general sense horizontal, and is connected by a pitman *a* with a crank *b*, the shaft *c*, which has a pinion *d*, into which gears a spur-wheel *e*, which is provided with a crank *f*, by which it may be turned. By this means a vertically-reciprocating movement may be given to the frame B. For the purposes of my invention any other suitable means may be used for giving the described vertical motion to the said frame.

The frame B has laterally-extended arms *g* and *h*, the former below and the latter above. These arms carry bottle-holding racks C, which are herein presently described. As shown in the drawings, only two pairs of arms *g h* (for two bottle-racks) are shown; but it is to be understood that one, two, three, or more may be embraced in the apparatus, as may be desired.

Each bottle-rack comprises a bottom *m*, in which are recesses *e'* to receive the ends of bottles to be washed, a top *f'* to resist the thrust of one or more spiral springs *g'*, as presently to be explained, and vertical rods *h'* at the corners of the rack and the upper parts of which form guides for a vertically-movable horizontal bar, spider, or platen *k*, which is pressed downward by the spring or springs *g'* and which carries caps *m*, the structure and purpose of which presently herein appear.

The bottom of each bottle-rack is hinged or pivotally connected with the adjacent lower arm *g*, so that the bottle-rack may be swung outward and downward, as shown in dotted outline in Fig. 2. The top of each bottle-rack is provided with a fastening-drum *n*, which may be of any suitable kind, by which said rack may be fixed in its relation to the adjacent upper arm *h*, as shown in Fig. 1 and in the solid lines of Fig. 2.

Provided at the top of each bottle-rack is a water-pipe *r*, which has nozzles *s*, which should correspond in number with the number of bottles intended to be contained in the bottle-rack. These nozzles are elongated to an extent sufficient to extend them through openings in the platen *k* and to project their lower extremities into the caps *m'*, which, as hereinbefore explained, are carried by the platen and which are movable with the latter. These water-pipes *r* of the bottle-racks connect with a supply-pipe by means of a flexible hose or other means of transmitting water intended to connect at a^4 without interference with the vertical reciprocating motion of the frame B and of the bottle-racks and bottles carried thereby. The supply-pipe may of course be provided with a cock to control the admission of water therefrom to the water-pipes, or the latter, if preferred, may themselves be provided with cocks for a like purpose. The structure of the caps *m'* is shown in detail in Fig. 4. Each cap has its interior so shaped as to be capable of fitting snugly upon and around the throat of a bottle-neck, as indicated at *a''*, with a space *b''* above the same. Formed in the cap and extended therethrough substantially in line with the bore of the bottle-neck when the bottle is placed in position is a bore or passage *c''*, into or through which projects the end of the adjacent nozzle *s*, the parts being so proportioned that as the bottle is raised and lowered in the reciprocating movement of the frame B the nozzle will play through the passage C'' without interfering with or

interference from the said motion of the frame. In each cap m' is one or more orifices e'', which permit exit of air in the filling of the bottles with water or other washing liquid preliminary to the washing or cleansing thereof, and which also permit the escape of the water from the bottles when the latter are inverted after the operation of cleansing. Each rack may be constructed for the reception of any desired number of bottles—as, for example, four, as shown in Fig. 3.

In the use and operation of the invention the bottles to be interiorly cleansed or washed are placed in the bottle-racks, as shown at the left-hand part of Fig. 1—that is to say, with their bottoms in the recesses e' and with their tops or throats inserted, as described, in the caps m'. The spring or springs g' force downward the platen k to bring and retain the caps m' snugly upon the bottles and to hold the latter firmly in place between the caps and the bottoms of the racks. Water is then supplied from the water-pipes through their nozzles to and through the caps to the bottles. This done, the described vertical reciprocating motion is given to the frame A, and of course to the bottles carried by the bottle-racks. This agitation of the bottles with their contents rapidly washes the interiors of the bottles. When this has been carried to the desired degree, the vertical motion of the frame A is arrested. The tops of the bottle-racks are then released from the arms h and each bottle-rack is inverted, as shown in Fig. 2, whereupon the liquid empties from the bottles through the orifices E'' in the caps m'. The bottles may then be removed by simply pressing back the platen k along the nozzles s and guides h', thereby withdrawing the caps m' from the bottle-throats and releasing the bottles. The parts of the apparatus may then be replaced for a repetition of the operation upon another batch of bottles, and so on indefinitely.

What I claim as my invention is—

1. The combination with a vertical guide or guides, a frame arranged to reciprocate thereon, a system of bottle-racks having recessed bottoms and carried by the frame, and means for actuating the frame, of water-inlet pipes upon the racks, elongated nozzles provided upon the water-pipes opposite the recesses in the bottoms of the racks, a platen movable along steadying-guides and along the elongated nozzles, caps provided to the nozzles to connect them with necks of bottles in the racks, and a spring or springs arranged to press the platen to bring the caps against the bottles, all substantially as and for the purpose herein set forth.

2. In a bottle-washing machine the combination with a vertical guide, a frame arranged to reciprocate thereon, a bottle-rack having a recessed bottom, and means for reciprocating the frame, of a horizontal arm extended from the frame, a pivotal connection between the rack and the arm, a water-inlet pipe, elongated nozzles, provided opposite the rack-bottom recesses, steadying-guides at the corners of the rack, a platen movable along the steadying-guides and along the elongated nozzles, caps provided to the nozzles to connect them with necks of bottles placed in the racks, a spring or springs arranged to press the platen to bring the caps against the bottles, and means for fastening and releasing the racks at the top, all substantially as and for the purpose herein set forth.

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