

Feb. 10, 1948.

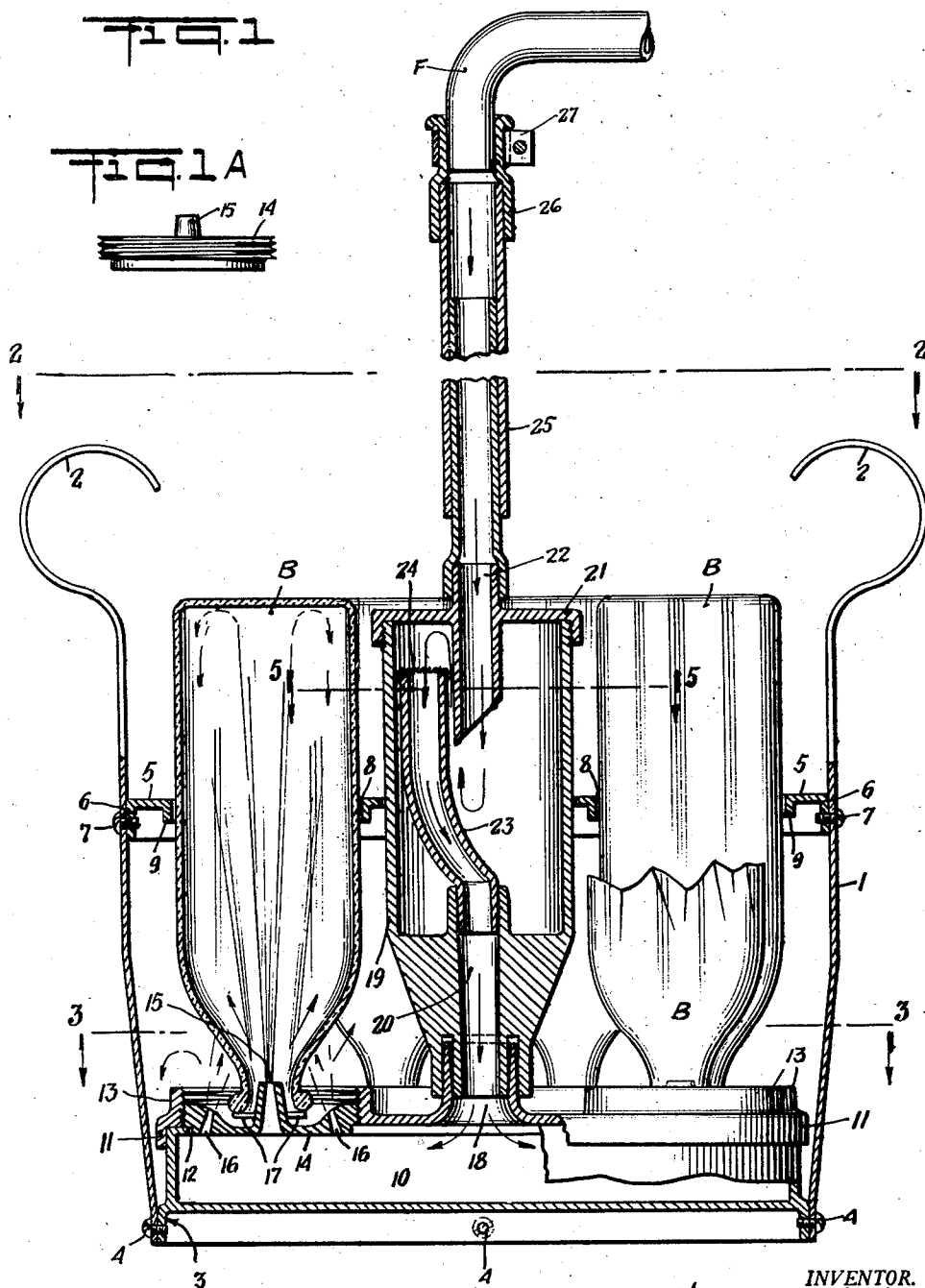
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2,435,807

DEVICE FOR WASHING BOTTLES

Filed Jan. 29, 1944

4 Sheets-Sheet 1



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DEVICE FOR WASHING BOTTLES

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4 Sheets-Sheet 2

FIG. 2

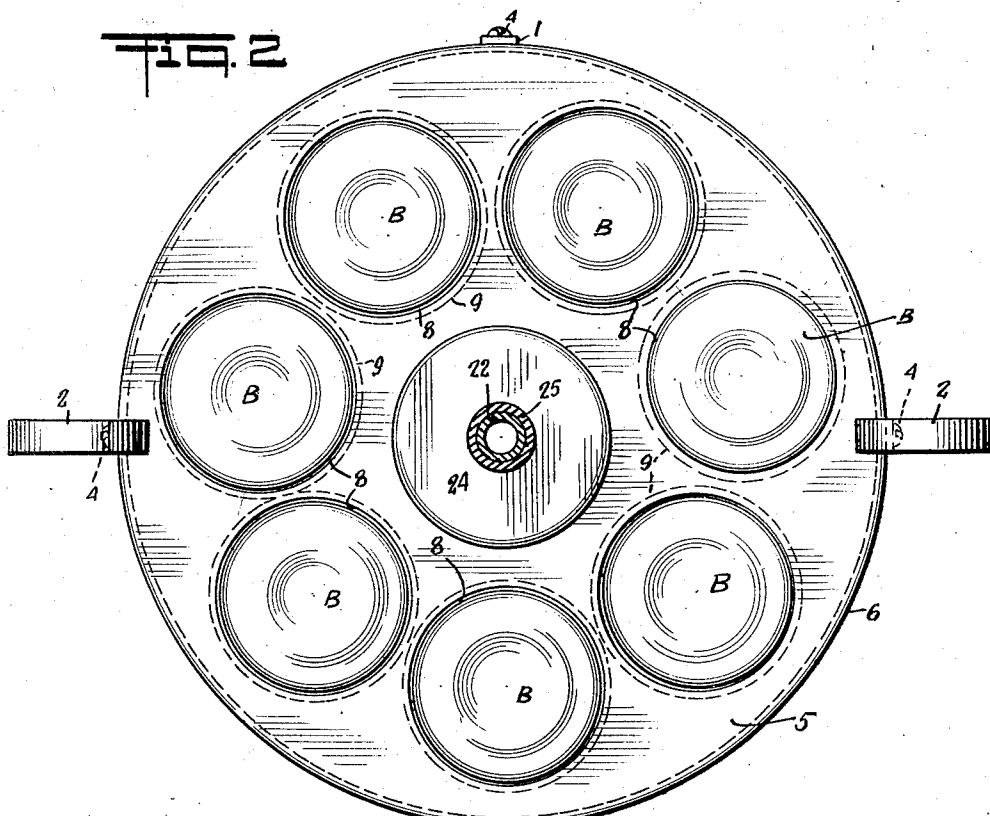
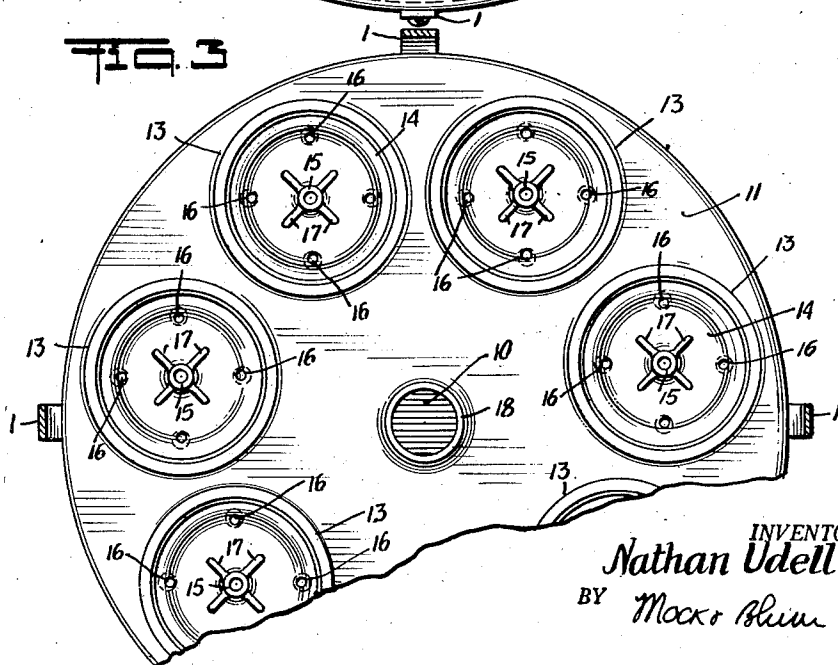


FIG. 3



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4 Sheets-Sheet 3

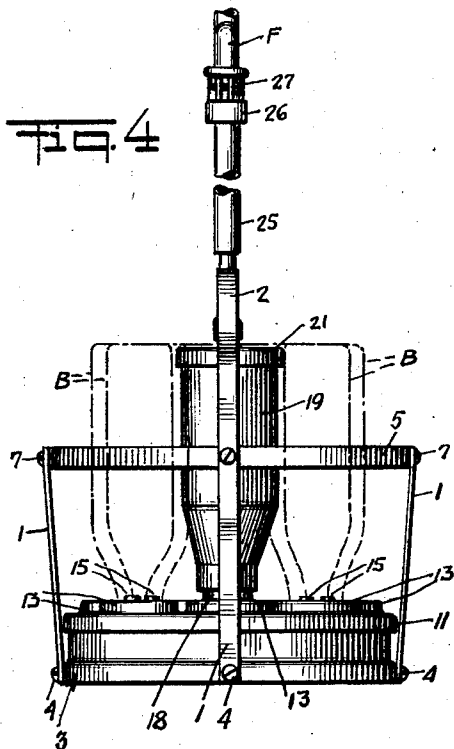
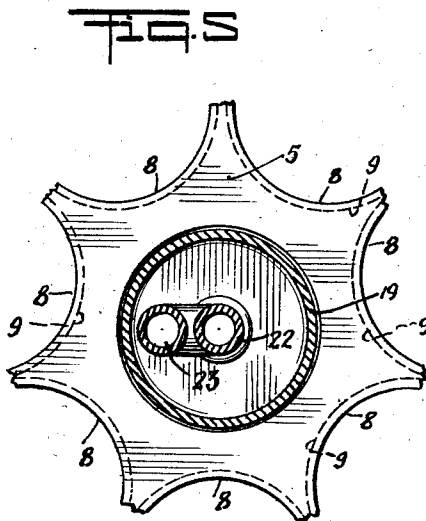


FIG. 12

FIG. 6

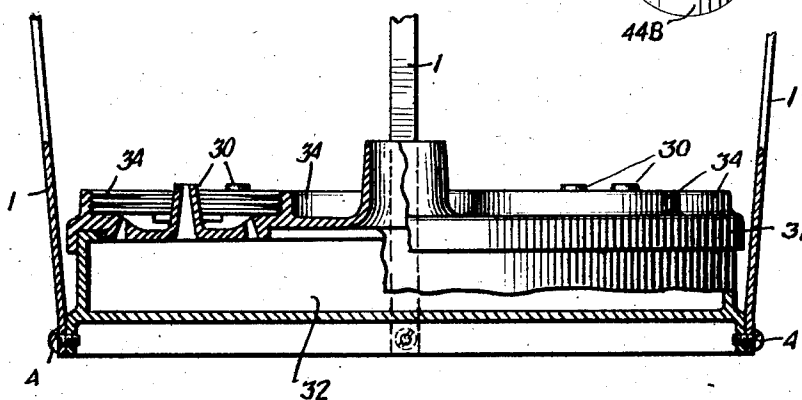
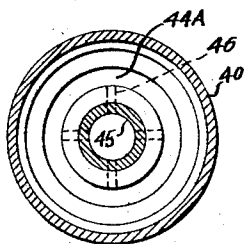


FIG. 11



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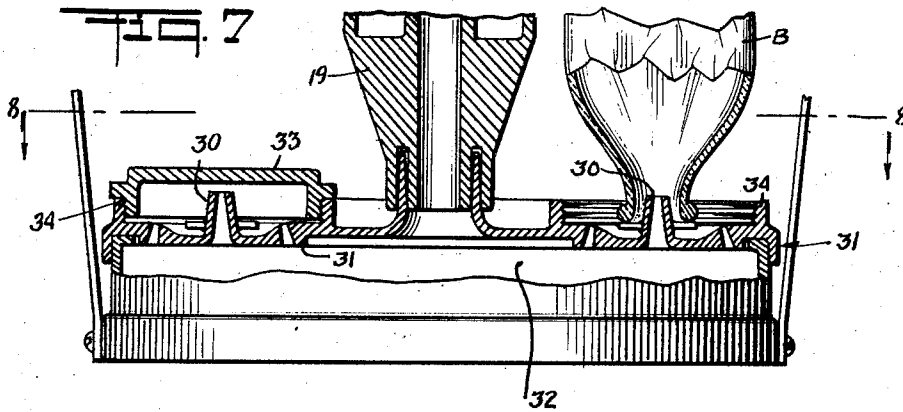
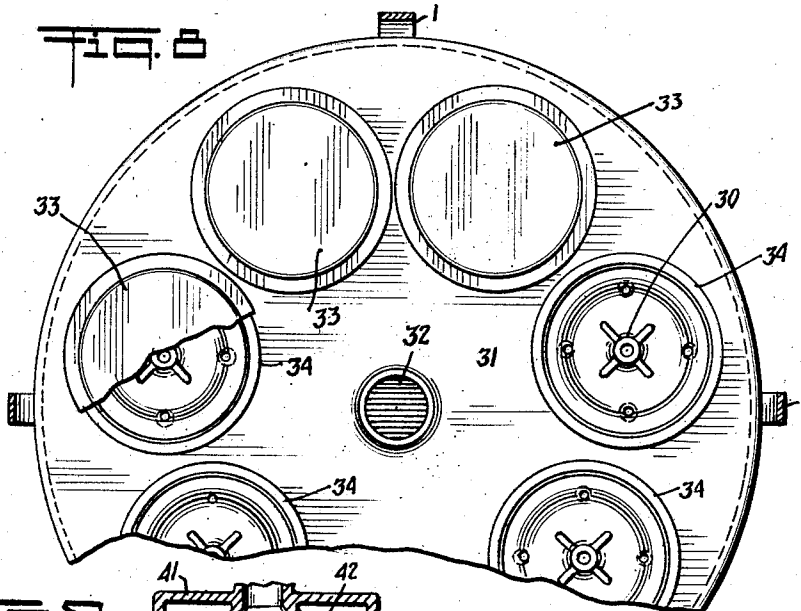
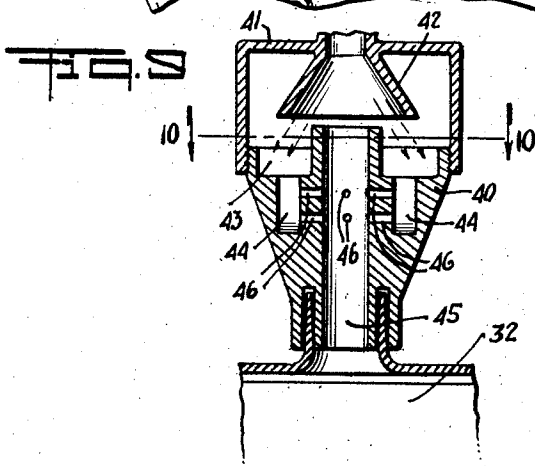
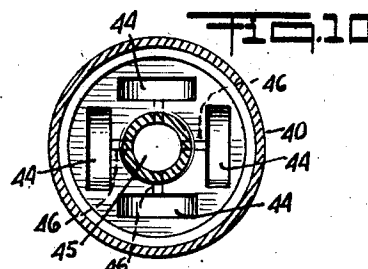
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DEVICE FOR WASHING BOTTLES

Filed Jan. 29, 1944

4 Sheets-Sheet 4



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2,435,807

DEVICE FOR WASHING BOTTLES

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Application January 29, 1944, Serial No. 520,226

3 Claims. (Cl. 134-93)

1

My invention relates to a new and improved device for washing bottles, more particularly infants' nursing bottles.

The principal object thereof is to provide a new and improved device for thoroughly cleansing and washing infants' nursing bottles, which device can be used simply by connecting the same to any water faucet or outlet.

Another object of my invention is to provide a bottle washer in which as many as seven nursing bottles may be properly cleansed and washed at the same time, provision being made for such a number because that constitutes the normal one day feeding complement for the average infant.

Another object of my invention is to provide a bottle washing device which will supply several streams of cleansing liquid to each bottle when connected to a water faucet, the device having means for thoroughly mixing a cleansing material with the water as the water passes there-through.

Still another object of my invention is to provide a bottle washer which will thoroughly and effectively cleanse the interior surfaces of each bottle as well as the exterior surfaces thereof including the external neck and shoulder portions of the same, in a single washing operation.

Still another object of my invention is to provide an infant's bottle washing appliance which is compact, comparatively light in weight, and extremely easy and simple to handle and operate.

Still another object of my invention is to provide a bottle washing device which can be wholly placed within a sterilizer and employed to sterilize the previously washed and rinsed bottles, without the necessity of removing any of the washed bottles from the device.

Still another object of my invention is to provide a device which can be used for two purposes, namely, as a bottle washer and also as an accessory device for a sterilizer.

Other objects of the invention will be stated in the annexed description and drawings which illustrate preferred embodiments thereof.

Fig. 1 is a transverse sectional view, partially in elevation, of the first embodiment, part of the device and one of the bottles being shown broken away for convenience of illustration. The device is shown connected to a water outlet.

Fig. 1A is a detail view of one of the removable closure members which is provided with the upwardly directed nozzles.

Fig. 2 is a sectional view on the line 2-2 of Fig. 1, showing the bottles in position to be washed.

Fig. 3 is a sectional view on the line 3-3 of Fig. 1, a portion of the device being shown broken away for the convenience of illustration, the bottles being removed from the device.

2

Fig. 4 is a side view of the device, shown partially broken away and connected to a water outlet, the bottles being indicated by broken lines.

Fig. 5 is a fragmental sectional view on the line 5-5 of Fig. 1.

Fig. 6 is a sectional view, partially in elevation, of a modified form of the device, showing in detail the construction of the modified bottom portion of the device, the remainder of the device being shown broken away for the convenience of illustration.

Fig. 7 is a view similar to Fig. 6 showing one of the bottles in position to be washed and also showing a cap covering and closing one of the nozzle members.

Fig. 8 is a sectional view on the line 8-8 of Fig. 7, with the mixing compartment and the bottles removed from the device, showing one of the cap members and part of the device broken away.

Fig. 9 is a sectional view of a modified form of the mixing compartment.

Fig. 10 is a sectional view on the line 10-10 of Fig. 9.

Fig. 11 is a sectional view similar to Fig. 10, but showing a single continuous detergent tablet receiving recess.

Fig. 12 is a perspective view of an annular soap tablet adapted for use with the mixing chamber illustrated in Fig. 11.

Referring to the first embodiment (Figs. 1 to 5), particularly to Fig. 1 thereof, the device includes a frame consisting of two pairs of upright supports 1, each of said pairs of supports being of different length, the longer pair terminating at their upper ends in hooked portions 2 which serve as handles by which the device may be lifted, handled or carried. The said four supports are secured at their respective lower ends to the base portion 3 of the device by means of screws or rivets 4.

A circular bottle rack 5 having the peripheral depending annular flange 6 is secured to all four supports 1 by means of the screws or rivets 7 which pass through said supports and said depending flange. It will be noted that said rack 5 is spaced from and is located above base portion 3 and that said flange 6 is secured to the pair of shorter supports 1 adjacent the upper ends of said supports.

Rack 5 is provided with a plurality of spaced openings 8 adjacent the perimeter thereof, all of the said openings being of the same size and shape and all having the depending annular flange 9. Said openings 8 receive the bottles B which are held in an inverted position by means of rack 5.

As shown in Fig. 1, the base portion 3 of the device is hollow, thus forming a distributing chamber or compartment 10. Said chamber 10 is

provided with a cover 11 having formed therein a plurality of spaced and identically shaped and sized openings 12, said openings being axially aligned with the openings 8 in rack 5. It will be noted that the same number of openings, namely seven, are formed in rack 5 as well as in cover 11 of chamber 10. It is to be understood that my invention is not to be limited or restricted to any particular number of such openings. The reason for the selection and provision of seven will hereinafter be explained.

Each of openings 12 in cover 11 are surrounded by an internally threaded upstanding wall or shoulder 13 which is adapted to receive the externally threaded removable closure member 14. Each of said members 14 is provided with an upwardly directed and centrally located nozzle 15 and a plurality of obliquely disposed jet openings 16, four in number. The top face of each of said members 14 tapers downwardly from the peripheral edge thereof towards the base of nozzle 15.

The function of said nozzle 15 and openings 16 will hereinafter be described. When screwed into position, each closure member 14 will close each opening 12 in cover 11 of chamber 10, the only means of communication then being the nozzles 15 and openings 16. In the closed position shown in Fig. 1, the bottom face of member 14 is flush with the bottom face of cover 11.

As shown in Fig. 3, four spaced radial supporting pins 17 project laterally from the upstanding side wall of each nozzle 15, each oppositely disposed pair of pins being in alignment. The said pins 17 may be formed integrally with nozzle 15, the said pins serving as supports upon which the inverted bottles B are positioned for washing. It will be noted that pins 17 are spaced from the top face of closure member 14.

As shown in Fig. 1, cover 11 of chamber 10 is provided with the centrally located and upwardly projecting inlet 18. Removably mounted upon said inlet is the cylindrical and downwardly tapering mixing chamber 19 having an outlet pipe 20 which communicates and is aligned with inlet pipe 18 of chamber 10. Mixing chamber 19 is provided with the removable cover 21 having the inlet 22 integral therewith. I have designated said chamber 19 as a mixing chamber for the reason that the cleansing or soapy material is placed within said chamber to be intimately intermixed with the water passing therethrough. It will be noted that a portion of outlet pipe 20 is curved at 23 so that said pipe is not in alignment with inlet pipe 22. One advantage of this construction is that the water entering chamber 19 through the inlet pipe 22 will strike and impinge against said curved surface 23 of outlet pipe 20 thus swirling and agitating the water and the cleansing material so that a proper intermixing and dispersion is procured. A screen 24 is secured to the upper open end of outlet pipe 20 to prevent the passage or egress of any impurities in the water or any undissolved large particles of the cleansing material.

As shown in Figs. 1 and 4, an extensible rubber or flexible hose or tubing 25 is secured to inlet pipe 22, the opposite end of said hose or tubing being connected to a water faucet F or an outlet of any water supply by means of the coupling element 26 and a clamp band 27. In this manner, the device is supplied with the water necessary to wash and rinse the bottles.

My washing device is used and operated in the following manner:

The bottles B are inverted and placed in open-

ings 8 of rack 5, the neck of each bottle resting upon the supporting pins 17 as shown in Fig. 1. In this position, each nozzle 15 extends into the neck portion of each bottle. Cover 21 of mixing chamber 19 is then unscrewed and the required or predetermined amount of soap powder or powdered cleansing material is placed within said mixing chamber. Cover 21 is then replaced and the entire device is set in a sink or wash basin. Inlet 22 of mixing chamber 19 is then connected to faucet F by means of the rubber hose 25. The faucet is then opened, the course of the water indicated by the arrows shown in Fig. 1 being as follows:

From tubing 25, the water passes through the inlet pipe 22 into the mixing chamber 19, striking against curved portion 23 of outlet pipe 20. The cleansing material within mixing chamber 19 agitated by the entering water is intermixed therewith and the resulting cleansing liquid leaves chamber 19 through outlet pipe 20 and thence passes into compartment 10 in base portion 3 via inlet 18. From compartment 10, the cleansing liquid is jetted into the interior of each bottle through nozzles 15 and against the exterior surfaces thereof including the external neck and shoulder portions of each bottle through jet openings 16. In this manner, five streams of cleansing liquid are directed under pressure to each bottle, one large stream to the interior of the bottle and four smaller angularly directed streams to the exterior surfaces thereof including the external neck and shoulder portions, the latter being the area of the bottle which ultimately receives the feeding nipple. The washing operation is continued until all the powdered cleansing material in mixing chamber 19 is consumed and then clear water is permitted to pass through so that the bottles can be properly rinsed to remove any trace of cleansing material that may have adhered to any of the bottles.

By reason of the fact that the supporting pins 17 are spaced from each other, and spaced from the base of nozzle 15 so that the bottle will not rest upon the nozzle, the sprayed water or cleansing liquid can leave the interior of each bottle B by passing through the spaces between said supporting pins and thence overflowing over upstanding wall 13 and into the sink or basin.

The pressure of the water that flows from the ordinary faucet or water outlet together with the increase of said pressure by the arrangement and construction of the various parts of the device through which the water passes is sufficient to project the cleansing liquid or water with sufficient force into the bottles to be washed as well as against the exterior surfaces thereof. As many as seven bottles can be cleansed, washed and rinsed in one washing operation of only a few minutes' duration. Provision is made for the washing of seven bottles for the reason that the normal daily feeding complement of the average infant is six bottles of milk and one bottle of water. In this manner, a full day's supply of bottles may be prepared in a single washing operation. Of course, less than seven bottles may be washed with any device, if desired. If, for example, it is desired to wash only five bottles, then two of the closure members 14 are covered by a cap or cover 33 as illustrated in Figs. 7 and 8.

Figs. 6 to 8 show a modified form of the device. In this embodiment, the nozzle member 30 is integral with the cover 31 of chamber 32 instead of being removable as in the case of the first described embodiment (Figs. 1 to 5). Other-

wise, the two embodiments are identical in structure and configuration in all other respects. The second embodiment is used and operates in the same manner as the device of the first embodiment.

Provision is made in the second embodiment for the washing of seven bottles in a single washing operation. If it is desired to wash a lesser number, then the nozzle members which are not used are each covered by a threaded cap 33 which is received by the upstanding internally threaded wall 34 which encircles each nozzle member 30. This is clearly illustrated in Figs. 7 and 8.

It will be noted that wall 34 is integral with nozzle members 30 and the cover 31 of chamber 32.

Referring to Figs. 9 and 10, this illustrates a modified form of cylindrical mixing chamber 40 particularly suitable for the use of cleansing or detergent tablets. The mixing chamber 40 is provided with a cover 41 having the integral frusto-conical or tapered inlet nozzle 42 depending therefrom.

Mixing chamber 40 is also provided with the annular recess 43 and four individual counter-sunk tablet receiving recesses 44 communicating therewith. A longitudinal outlet pipe 45 is located below inlet nozzle 42, said outlet pipe extending above annular recess 43 and communicating with the four tablet receiving recesses 44 by means of a plurality of orifices 46.

It will be noted that the base of inlet nozzle 42 extends above and beyond annular recess 43 and tablet receiving recesses 44 so that when water passes through said inlet nozzle it will be directed as shown by the arrows in Fig. 9 into said annular recess and into the tablet receiving recesses, after which it rises above said annular recess and leaves the mixing chamber 40 via the outlet pipe 45.

The four individual recesses 44 may be in the form of a single continuous recess 44A as shown in Fig. 11. In this case, an annular pre-shaped ring of soap 44B (as shown in Fig. 12) can be placed within said continuous recess 44A.

After the nursing bottles have been cleaned, washed and rinsed, the device is placed within a sterilizer for sterilization of the bottles. It is not necessary to remove any of the bottles from the device when placing the same in the sterilizer. If desired, the mixing chamber may be removed preparatory to sterilization. In any event, sufficient water should be left in the chamber in the base of the device so that sufficient steam will be produced for effective sterilization.

With the use of my new and improved device, the bottles may be first washed with hot water, then a mixture of hot and cold water, and finally rinsed with cold water simply by connecting the device to any water faucet or outlet.

There has been illustrated and described preferred embodiments of my invention but it is

obvious that numerous changes and omissions may be made without departing from its spirit. For example, my device can be of any desired shape although it has been illustrated as being circular. Likewise, although my device has been constructed to permit the cleansing and washing of seven bottles, its construction can readily be modified to accommodate a smaller or larger number of bottles than seven.

My device can be made of any suitable metal, plastic, ceramic, or any other suitable material. I claim:

1. A bottle washing device comprising means to support a bottle in an inverted position, a water nozzle extending vertically into the mouth of the bottle, a chamber extending to a level considerably higher than said nozzle, an outlet pipe having an inlet in said chamber, having a curved portion positioned in said chamber and having an outlet connected to said nozzle, and an inlet pipe connected to a water supply and having an outlet in said chamber above said curved portion of said outlet pipe.

2. A bottle washing device comprising means to support a bottle in an inverted position, a water nozzle extending vertically into the mouth of the bottle, a chamber extending to a level considerably higher than said nozzle, an outlet pipe having an inlet in said chamber and having an outlet connected to said nozzle, and an inlet pipe connected to a water supply and having an outlet positioned in said chamber at a level below the inlet of said outlet pipe.

3. A bottle washing device comprising means to support a bottle in an inverted position, a water nozzle extending vertically into the mouth of the bottle, a plurality of water openings surrounding said nozzle, a mixing chamber extending considerably higher than said nozzle and water openings, an outlet pipe having an inlet in said chamber near the upper end thereof and having an outlet in communication with said nozzle and water openings, and an inlet pipe connected to a water supply and having an outlet in said mixing chamber below the inlet of the outlet pipe.

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