No. 837,309. PATENTED DEC. 4, 1906.

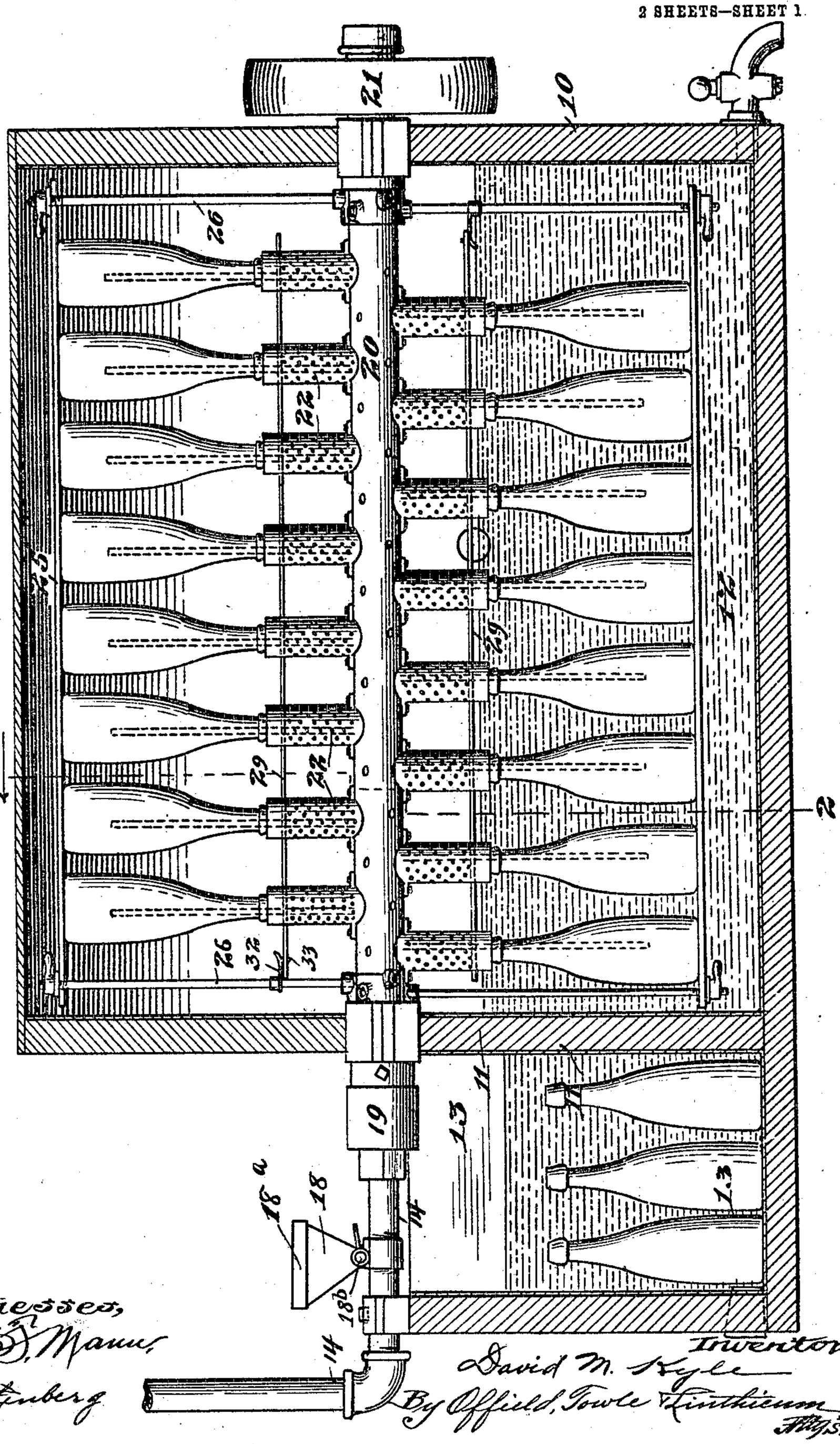
D. M. KYLE.

BOTTLE WASHING APPARATUS.

APPLICATION FILED MAY 19, 1904.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

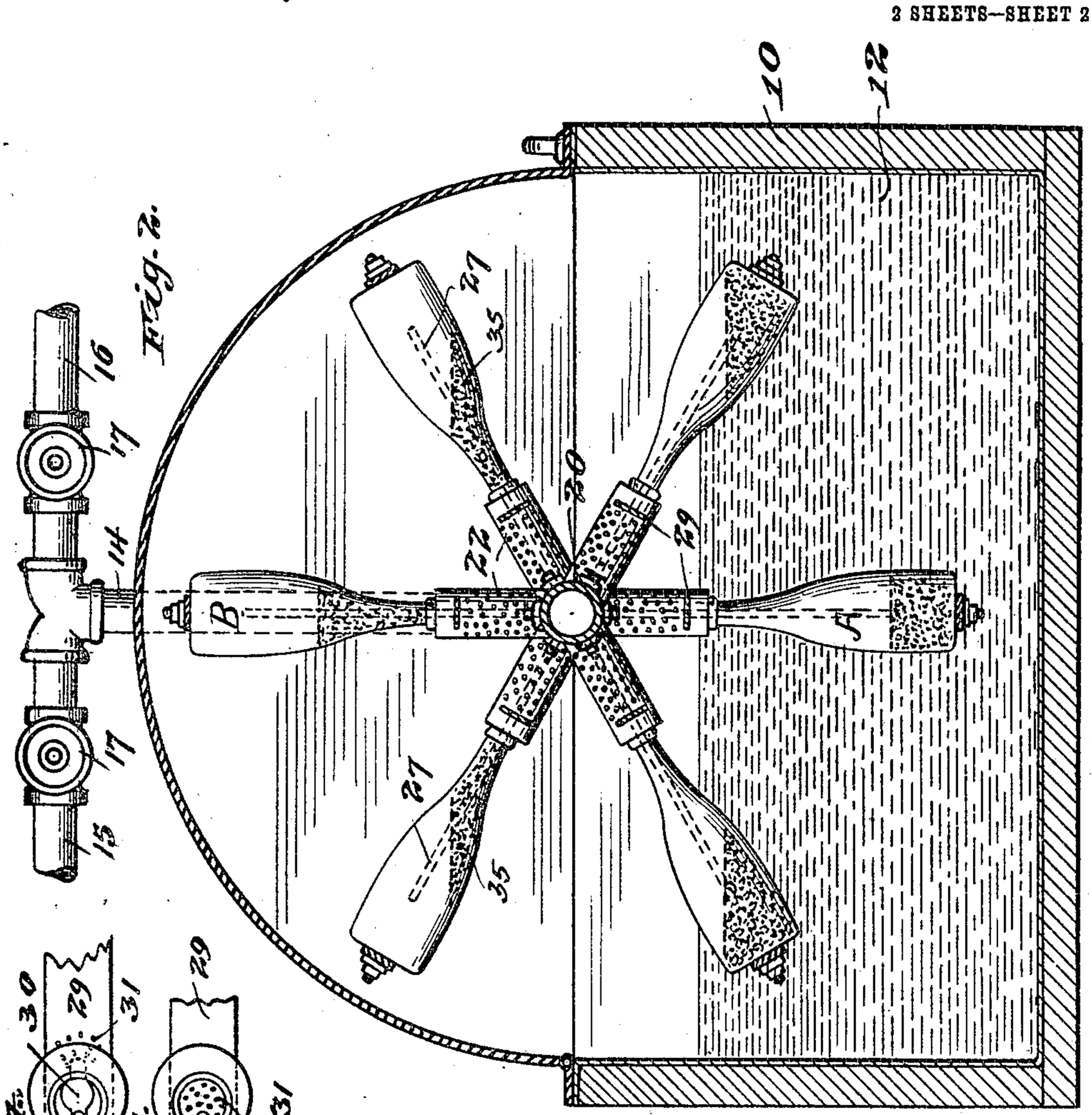


Fig. 3.

Fig. 4.

Fig. 5.

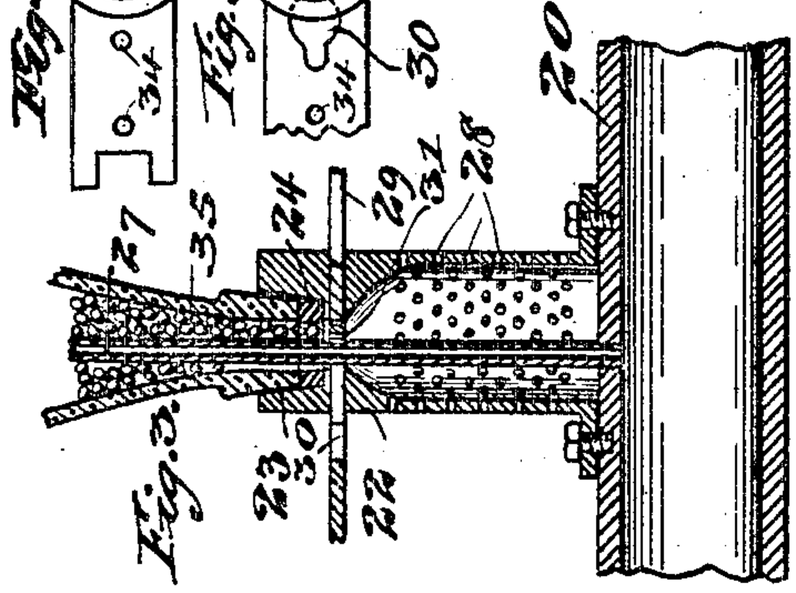


Fig. 6.

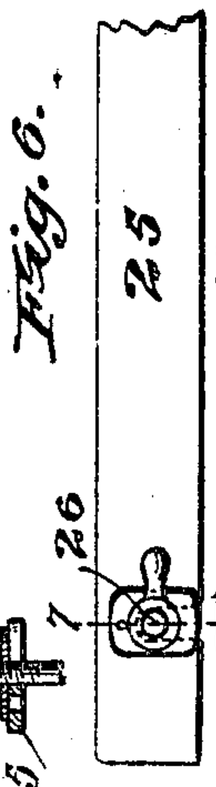
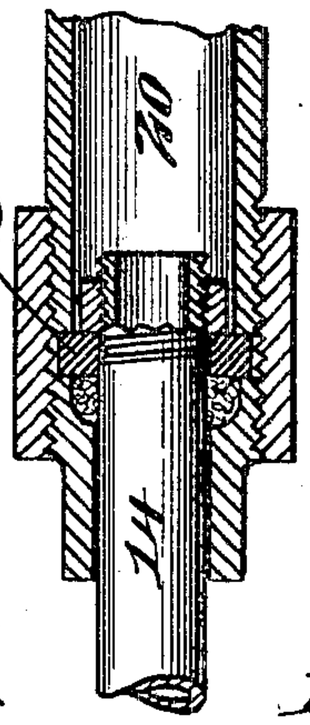


Fig. 8.



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UNITED STATES PATENT OFFICE.

DAVID M. KYLE, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO THOMAS D. KYLE, OF CHICAGO, ILLINOIS.

BOTTLE-WASHING APPARATUS.

No. 837,309. Specification of Letters Patent. Patented Dec. 4, 1906.

Application filed May 19, 1904. Serial No. 208,729.

To all whom it may concern:

Be it known that I, DAVID M. KYLE, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bottle-Washing Apparatus, of which the following is a specification.

This invention relates to improvements in bottle-washing apparatus, and refers to a rotary bottle-holder having clamping means for securing the bottles to said holder and means for introducing a cleansing fluid to the interior of the bottles and at the same time submitting the exteriors of the bottles to a liquid-bath.

Referring to the drawings, Figure 1 is a sectional elevation taken centrally of the apparatus with parts omitted for clearness. Fig. 2 is a transverse section taken on the line 2 2, Fig. 1, looking in the direction of the arrows. Fig. 3 is an enlarged sectional view of one of the bottle-holders. Figs. 4 and 5 are plan views of the bottle-holder, showing the slide-bar in two different positions. Fig. 6 is a plan view of one end of the clamping-bar. Fig. 7 is a sectional view taken on line 7 7, Fig. 6. Fig. 8 is a sectional view of a packed pipe-joint.

In the drawings, 10 is a tank having partition-wall 11, dividing the tank into compartments 12 and 13, the former compartment serving as a washing or cleaning chamber and the latter as a compartment in which bottles may be placed which require soaking to remove labels or other adhesive substances. A supply-pipe 14 is connected at one end with branch pipes 15 and 16, which branch pipes are provided with controlling-valves 17 to regulate the temperature and supply of water or other fluid which is delivered under pressure from any suitable source of supply, one of the branch pipes being supplied with hot and the other with cold liquid. A tank 18, provided with a suitable cover 18^a, is secured to pipe 14 and is designed to contain a soluble substance, such as soda, which may be admitted into the main pipe 14 through a valve 18^b when such substance is required in the cleansing operation. The soda may be admitted into pipe 15 when the apparatus is at rest and the fluid-supply cut off; but the valve 18^b may be left open, and the soda will gradually be dissolved by the water. A packed joint 19 connects the supply-pipe with a larger pipe or hollow shaft 20, which is mounted in suitable bearings and has a pulley 21 or other suitable gearing mounted upon its outer end, whereby the shaft may be rotated.

Holders 22 are secured upon the rotatable shaft at regular intervals in rows extending lengthwise of the shaft and are provided at their outer ends with sockets 23, having yielding gaskets 24 to insure a yielding seat for the bottles which are placed thereon with their mouths within the sockets and secured thereto by means of clamping-bars 25, secured to rods 26, extending radially from the shaft.

Tubes 27, secured with the shaft, extend through the holders and afford means for admitting the fluid to the interior of the bottles. The holders are hollow at their inner ends and have perforations 28 in their shells, through which the fluid escapes from the bottles into the tank 12. Valve-bars 29 are slidably mounted in the holders beneath the sockets 23 and are provided with large openings 30, that register with the sockets when the bar is in one position, and small perforations 31, which may be brought beneath the sockets when the bar is shifted to a second position, as shown in Figs. 4 and 5. The bar 29 is locked in the desired position by a spring-catch 32, which has a pin 33 to enter the holes 34 in the end of the bar. Shot or other metallic hard particles 35 are designed to be carried in the hollow part of the holders and shifted into the bottles when required to assist in the cleaning operation. The valve-bars 29 are manually operated to transfer the shot from the holders into the bottles when the bottles are in the lower vertical position, (indicated at A, Fig. 1,) and conversely operated when the bottles are in the upper vertical position, (indicated at B, Fig. 1.)

It will be seen that as the shaft is rotated the shot will exert a scrubbing action on the interior of the bottles, while the exteriors of the bottles will be cleaned by passing through the water in the tank 12.

I do not limit myself to the exact details of construction, as changes may be made without departing from the spirit of the invention.

I claim—

1. In a bottle-washing apparatus, the combination with a tank, of a movable tubular

shaft therein provided with a series of radially-disposed hollow bottle-holders directly and continuously communicating therewith, clamping devices coöperating with said holders to secure the bottles, and means for injecting a fluid into the bottles.

2. In a bottle-washing apparatus, the combination of a tank, a revoluble tubular shaft mounted upon the tank and provided with a series of radially-disposed hollow bottle-holders directly and continuously communicating therewith, clamping-bars coöperating with said holders to secure the bottles and tubes adapted to admit fluid from the hollow shaft into the bottles.

3. In a bottle-washing apparatus, the combination with a tank, of a revoluble shaft, hollow bottle-holders upon and communicating continuously with said shaft, yielding gaskets within said holders, clamping-bars to hold the bottles in the holders, and tubes for admitting the fluid within the bottles.

4. In an apparatus of the class described, the combination of a tank, a revoluble hollow shaft, bottle-holders upon the shaft having hollow bases with perforated shells adapted to contain shot, valve-bars to control the position of the shot clamping-bars to hold the bottles in the holders, and tubes to inject a fluid into the bottles.

5. In a bottle-washing apparatus, the combination with a tank, of a movable tubular shaft therein provided with a series of radially-disposed hollow bottle-supports directly connected thereto, means for clamping the bottles to said supports, and means in continuous communication with said hollow shaft for injecting the fluid into the bottles.

6. In a bottle-washing apparatus, the combination with a tank, of a revoluble tubular shaft mounted upon the tank and provided with a series of radially-disposed bottle-supports directly connected thereto, clamping-bars for securing the bottles upon said supports, and tubes passing through said supports and in continuous communication with said hollow shaft adapted to admit fluid from the latter into the bottles.

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Witnesses:
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