

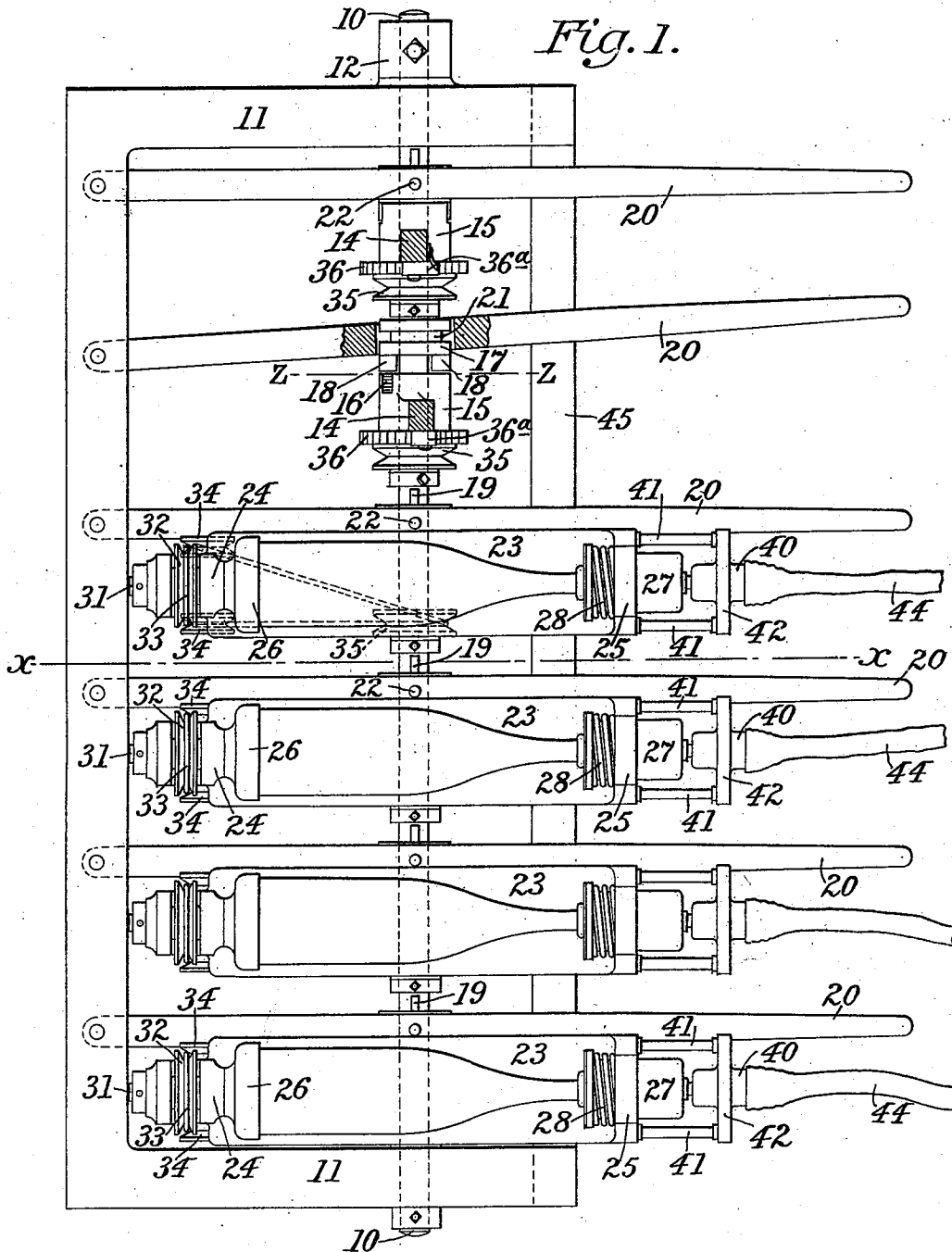
(No Model.)

2 Sheets—Sheet 1.

F. G. LITTELL.
BOTTLE WASHER.

No. 510,866.

Patented Dec. 12, 1893.



Witnesses:
J. Petri-Palmedy
A. N. Jesbera.

Inventor:
Frederic G. Littell
By William B. Greeley
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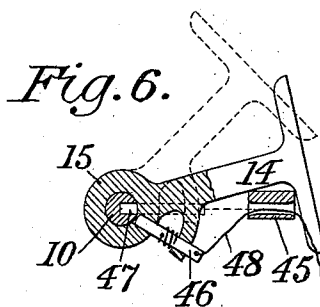
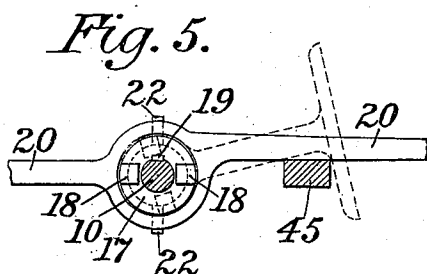
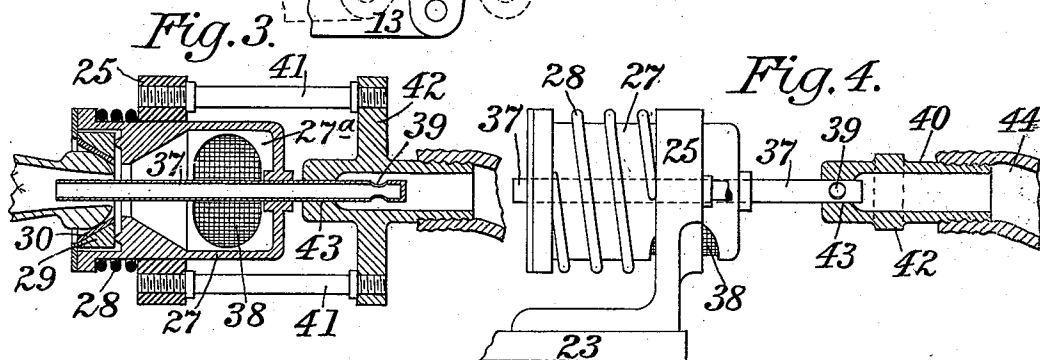
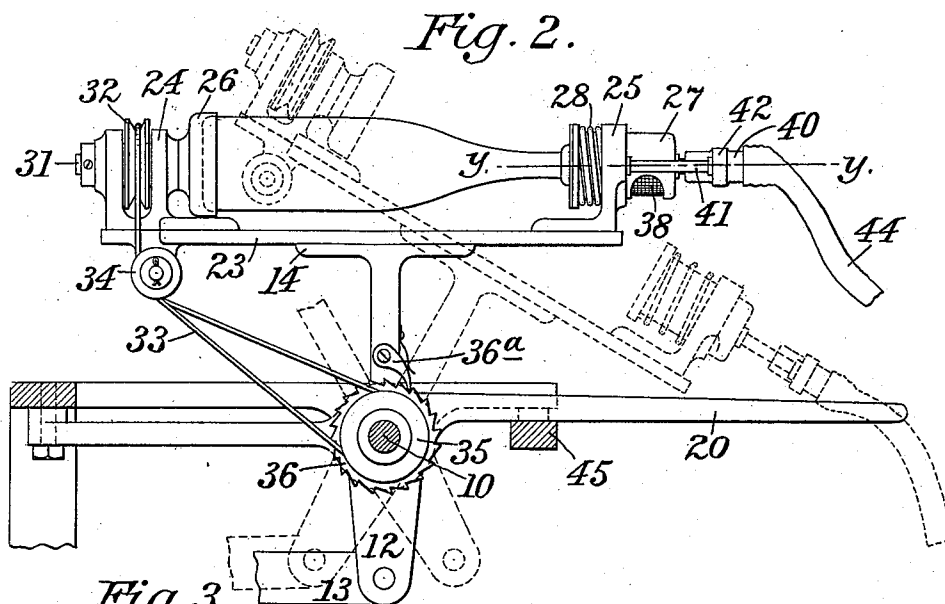
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2 Sheets—Sheet 2.

F. G. LITTELL.
BOTTLE WASHER.

No. 510,866.

Patented Dec. 12, 1893.



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UNITED STATES PATENT OFFICE.

FREDERIC G. LITTELL, OF BROOKLYN, NEW YORK.

BOTTLE-WASHER.

SPECIFICATION forming part of Letters Patent No. 510,866, dated December 12, 1893.

Application filed March 6, 1893. Serial No. 464,758. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC G. LITTELL, of Brooklyn, in the county of Kings 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 and exact description thereof, reference being had to the accompanying drawings, and to the figures of reference marked thereon, making a part of this specification.

This invention relates to bottle washing machines of that class in which shot are depended upon, with water, to effect the cleansing of the interior of the bottle.

One object of the invention is to provide a machine in which a number of bottles can be washed at the same time and yet in which any one bottle can be taken out and replaced by another at any time without stopping the washing of the rest of the bottles.

A further object is to provide for the rotation of each bottle upon its own axis while it is being shaken or oscillated to and fro.

Still another object is to provide for throwing a stream of water into the bottle continuously during the shaking of the same and particularly to rinse the bottle after the shaking has ceased and to provide means whereby the stream of water is automatically cut off as the bottle is removed.

In the accompanying drawings: Figure 1 is a plan view of the improved machine with some of the bottles in place and with a portion of the machine in horizontal section. Fig. 2 is a vertical section on the line $x-x$ of Fig. 1. Fig. 3 is a horizontal, central section of one end of the bottle holder, on the plane indicated by the line $y-y$ of Fig. 2, but on a larger scale. Fig. 4 is a side elevation of the same, with parts in vertical, central section. Fig. 5 is a vertical section on the line $z-z$ of Fig. 1, showing the clutch device in detail. Fig. 6 is a view similar to Fig. 5 but showing a different form of the clutch device.

As indicated in the drawings, a shaft 10 is mounted in bearings in a suitable frame 11 and is adapted to be oscillated by means of an arm 12 rigidly fixed to the shaft, and a link 13 from a crank which is not shown. Any other convenient means may be employed, however, for oscillating the shaft.

The several bottle holders 14 may be mounted directly upon the shaft, or, if desired, they might be otherwise supported and connected to the shaft. As represented in the drawings, however, each bottle holder 14 has a hub 15 which is sleeved upon the shaft 10 and is adapted to be connected thereto or disconnected therefrom by a suitable clutch. As shown in Figs. 1 and 5 the hub 15 is notched, as at 16, to constitute one member of the clutch, while the other member 17, having teeth 18 to engage the notches 16, is secured to the shaft by a feather 19 so that it shall oscillate therewith while being free to slide longitudinally thereon. The member 17 is adapted to be engaged by a handle 20, being grooved circumferentially, as at 21, to receive pins 22 which are fixed to the handle 20. If desired, the handle 20 may be formed to embrace the clutch member 17 as shown in Fig. 5.

Each bottle holder is adapted to receive and hold a bottle in such manner that the bottle may be shaken to and fro. For this purpose the construction represented in Figs. 1 and 2 is well adapted. A plate 23 is fixed to the shank of the holder and is provided at its ends with lugs or brackets 24, 25, between which the bottle is secured. The bracket 24 is provided with a cup 26 which forms, with reference to the holder, a longitudinally fixed support for the bottom of a bottle while the bracket 25 supports a cup 27 which is movable longitudinally with respect to the axis of the bottle and is thrust forward by a spring 28 so that every bottle, notwithstanding the slight differences in length, may be properly seated and held securely in the holder. In order that the bottle may be rotated upon its own axis in the holder the cup 27, which is not necessarily rotatable itself, is provided with an inwardly-tapering ring 29 which is seated within the cup so that it may turn with as little friction as possible, and is provided with a rubber or other elastic lining 30 for contact with the mouth of the bottle. The cup 26 is fixed to a short shaft 31 which is free to rotate in the bracket 24 and bears a pulley 32. A band 33 passes about the pulley 32 under guide pulleys 34 which are carried by the holder and about the pulley 35 which is mounted loosely on the shaft 10.

The pulley 35 may be rotated by means of a ratchet wheel 36 fixed thereto and a driving pawl 36^a which is pivoted upon the shank of the holder 14, so that as the latter is oscillated it shall advance the ratchet wheel and cause the rotation of the bottle on its axis. Each bottle to be washed might have a quantity of shot placed within it and be partly filled with water before it is placed in its holder but it is preferable that the charging with shot and the filling with water be effected automatically. For this purpose the sliding cup 27 is extended to form a shot chamber 27^a into which the shot from the bottle shall run as the holder is tipped forward for the removal of the bottle and from which the shot shall run into the bottle when the holder is oscillated. A nozzle 37 is also carried by the cup 27 and, being connected to a water supply, is so disposed as to throw a stream of water into the bottle while it is being shaken. The water finds its way out from the bottle through a sieve or strainer 38 in the lower side of the shot-chamber 27^a, the sieve or strainer being fine enough to prevent the escape of the shot. The water may be allowed to flow continuously through the nozzle 37 or a valve to be controlled by the attendant might be placed in the tube which conducts the water to the nozzle. It is preferable, however, to employ a valve, such as that shown in Figs. 3 and 4, which shall open as the bottle is placed in the holder and shall close as it is removed therefrom. In the arrangement shown the nozzle 37 is extended outside of the cup 27 and is provided with lateral perforations 39 while its end is closed. A short tube 40 is supported in line with the nozzle 37, as by rods 41 and a cross-bar 42. For a portion of its length, as at 43, the tube 40 has a bore which fits snugly about the end of the nozzle 37, and beyond this portion the bore is enlarged. The outer end of the tube 40 is adapted for connection to a flexible hose 44 through which the water may be supplied.

The operation of the improved machine will be understood readily from the foregoing description of the construction. As the shaft 10 is oscillated the several bottle holders are also oscillated. Whenever it is desired to remove a cleaned bottle and replace it by another the proper handle 20 is moved to release the clutch of the corresponding holder when the latter has reached the forward limit of its oscillations, which is indicated by the dotted lines in Fig. 2. Being released at that point the holder then drops forward until it rests against the string-piece 45, as shown by the dotted lines in Fig. 5, thereby bringing the bottle to a nearly vertical position, mouth downward and causing all the shot to run from the bottle into the shot-chamber, while the bottle is thoroughly rinsed by the stream of pure water from the nozzle. As the bottle is removed from the holder the cup 27 springs up and brings the apertures 39 of the nozzle

37 within the portion 43 of the tube 40 as shown in Fig. 4, thereby stopping the flow of water through the nozzle. When another bottle is placed in the holder the cup is pressed down again and the apertures 39 are pushed back into the larger portion of the tube 40, thereby again permitting the flow of water into and through the nozzle. When the bottle has been fixed in the holder the latter is raised by the attendant until the clutch can again be engaged either by a spring or by the movement of the handle by the attendant.

Another convenient form of clutch between the holder and the shaft is shown in Fig. 6. In this construction the hub 15 of the holder is provided with a spring-pressed pin 46 which is adapted to enter a slot or hole 47 in the shaft 10 to couple the holder to the shaft. The pin may have a cord 48 attached by means of which the pin may be pulled out by the attendant to uncouple the holder and permit it to drop forward into the position indicated by the full lines in said Fig. 6.

Various other modifications of the clutch and of other details of the machine will readily suggest themselves.

I claim as my invention—

1. The combination of a series of bottle holders, means for shaking them to and fro, and an independent clutch for each holder whereby any one holder may be disconnected without stopping the rest, substantially as shown and described.

2. The combination of an oscillating shaft, a series of bottle holders, and an independent clutch for each holder to connect it to the shaft, whereby any one holder may be disconnected without stopping the rest, substantially as shown and described.

3. The combination of an oscillating shaft, a series of bottle holders mounted on said shaft, and an independent clutch to connect each holder to the shaft, whereby any one holder may be disconnected without stopping the rest, substantially as shown and described.

4. The combination of a bottle holder, means to shake said holder to and fro, a rotatable cup mounted in said holder to receive the end of the bottle, a pulley fixed to said cup, a band passed about said pulley, and means to drive said band, substantially as shown and described.

5. The combination of a shaft, a bottle holder mounted on said shaft, a rotatable support for the bottle in the holder, a pulley fixed to said support, a pulley mounted on said shaft, means to rotate said last named pulley and a band passed about said pulleys, substantially as shown and described.

6. The combination of an oscillating shaft, a bottle holder mounted on said shaft to oscillate therewith, a rotatable support for the bottle in said holder, a pulley fixed to said support, a pulley loosely mounted on said shaft, a band passed about said pulleys, a ratchet wheel fixed to the pulley, and a pawl

carried by the holder and adapted to engage the ratchet, substantially as shown and described.

7. The combination of a bottle holder, a longitudinally fixed support for the bottom of the bottle at one end of the holder, a spring-pressed, longitudinally movable cup to receive the mouth of the bottle and mounted in the other end of the holder, a nozzle carried by said cup and adapted to conduct a stream of water into the bottle, a tube supported by the holder, and a valve to permit or prevent the flow of water from the tube to the nozzle and opened or closed by the movement of the cup with respect to the holder during the placing or removal of a bottle, substantially as shown and described.

8. The combination of a bottle holder, means to shake said holder to and fro, a longitudinally fixed support for the bottom of the bottle at one end of the holder, a spring-pressed, longitudinally movable cup to receive the mouth of the bottle and mounted in the other end of the holder, a nozzle adapted to conduct a stream of water into the bottle, a flexible tube to supply water to said nozzle, and a valve oscillating with the holder and operated by the movement of the cup with respect to the holder to permit or prevent the flow of water through the nozzle, substantially as shown and described.

9. The combination of a bottle holder, a

support for the bottom of the bottle, a spring-pressed, longitudinally movable cup to receive the mouth of the bottle, a nozzle carried by said cup and extended outside of the same with its outer end closed and with lateral perforations near its outer end, and a tube supported in line with said nozzle and having for a portion of its length a bore to fit snugly about the extended end of the nozzle and to cover said perforations and having a bore of larger diameter beyond the bore of smaller diameter, substantially as shown and described.

10. The combination of a bottle holder, adapted to be shaken to and fro and to be turned down to cause the bottle to stand mouth down, a support for the bottom of the bottle, a cup to receive the mouth of the bottle and having a chamber to receive the shot from the bottle when the holder is turned down, and a nozzle carried by said cup and adapted to direct a stream of water into the bottle while it stands mouth downward, substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FREDERIC G. LITTELL.

Witnesses:

A. N. JESBERA,

A. WIDDER.