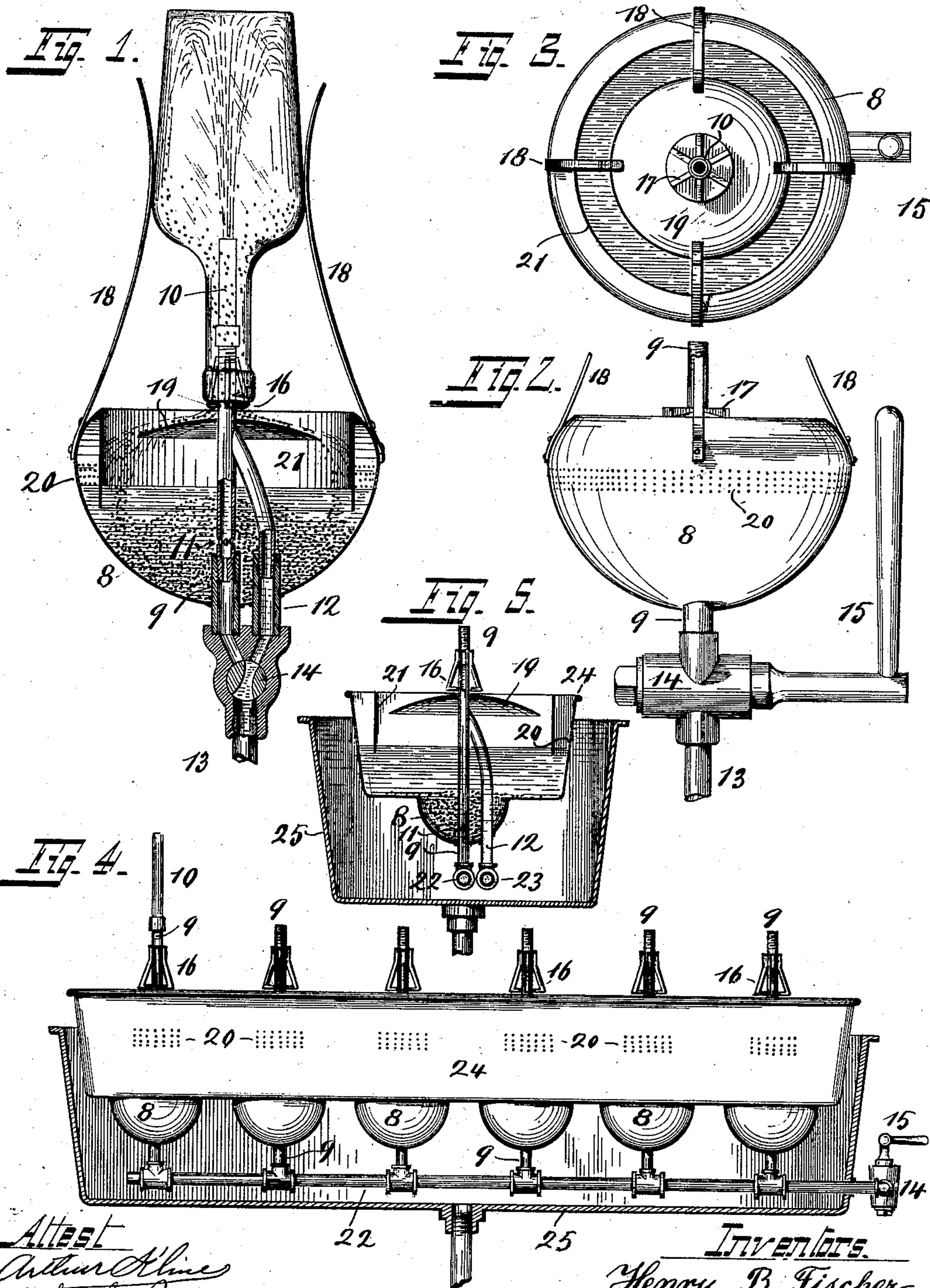


(No Model.)

C. H. & H. B. FISCHER.
BOTTLE WASHER.

No. 605,179.

Patented June 7, 1898.



Attest
Arthur A. Kline
John C. Rogers

Inventors.
Henry B. Fischer
Charles H. Fischer
by C. Spengel Atty

UNITED STATES PATENT OFFICE.

CHARLES H. FISCHER AND HENRY B. FISCHER, OF CINCINNATI, OHIO.

BOTTLE-WASHER.

SPECIFICATION forming part of Letters Patent No. 605,179, dated June 7, 1898.

Application filed March 6, 1897. Serial No. 626,205. (No model.)

To all whom it may concern:

Be it known that we, CHARLES H. FISCHER and HENRY B. FISCHER, citizens of the United States, and residents of Cincinnati, Hamilton county, State of Ohio, have invented a certain new and useful Combined Bottle Scouring and Rinsing Device; and we do declare the following to be a clear, full, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, attention being called to the accompanying drawings, with the reference-numerals marked thereon, which form a part of this specification.

This invention relates to an apparatus for cleaning and washing bottles and whereby they are first scoured for the purpose of loosening and removing the more solid substances adhering to the glass, after which they are rinsed and washed out to remove these substances as well as any remaining parts of the scouring medium which is used. This latter is preferably sand or any other material having a similar action when used as hereinafter described. Water is the other medium used, first in connection with the scouring medium and then alone for rinsing purposes.

The object is to provide a practical and simplified construction for applying these mediums first together and then the water alone.

In the following specification, and particularly pointed out in the claims, is found a full description of the invention, its use, operation, parts, and construction, which latter is also illustrated in the accompanying drawings, in which—

Figure 1 is a central vertical section of the device complete and ready for use. Fig. 2 is an outside elevation of the same, taken at a plane at right angles to Fig. 1, with the construction of the bottle-support slightly modified. Fig. 3 is a top view of Fig. 2, with the same modified bottle-support as shown in the preceding figure. Figs. 4 and 5 show in longitudinal and cross sections, respectively, the device arranged in series.

The scouring medium—sand in this case—is contained in the lower part of a vessel 8, which contains also water. A water-pipe 9 enters vessel 8, preferably at the lowest point thereof, and without any break rises upwardly therein to a certain distance above the upper edge of

the former, ending in a discharge spout or nozzle 10. The bottle is supported in an inverted position above this spout, with the latter within the neck thereof. Pipe 9 has lateral openings 11 piercing its wall and through which it communicates with the lower part of vessel 8. Water under pressure, such as obtained from city service-pipes being sufficient, is now admitted, when an action on the principle of a siphon or injector is obtained, the water drawing in sand by suction through openings 11, which sand is carried upwardly with it into the bottle. In order to obtain the best effect for this purpose, pipe 9, below openings 11, is contracted, as shown, causing the water to enter the upper part of the pipe in the form of a jet, which does not completely fill the pipe. This current of water and scouring medium strikes first the bottom inside of the bottle, where it spreads and passes downward at the side thereof and out at the mouth of the same, cleaning the bottle thoroughly while acting during its passage against the interior thereof. After maintaining this action of the scouring-current a sufficient length of time, contingent, of course, on the condition of the bottle, a few seconds, however, being sufficient in most cases, this current is shut off and a current of clear water injected, which also strikes against the bottom of the bottle and, spreading, runs downward on the side thereof, removing all previously-loosened impurities as well as any sand remaining, rinsing the bottle and washing it thoroughly out. Fig. 1 illustrates this particular part of the operation. This water, which comes from the same source as that entering through pipe 9, is admitted through a pipe 12; but for the purpose of obtaining convenience in construction one water-supply pipe 13 and one discharge-nozzle 10 are used only with a suitable intermediate cut-off device, shown in this case in the form of a three-way cock 14, operated by a handle 15 and by which the water is admitted alternately to pipes 9 and 12. Pipe 12 joins pipe 9 above the point where the same is provided with openings 11, so that when the rinsing-current is admitted the water does not carry any sand up with it. A suitable support 16 is provided to hold the inverted bottle in position on the nozzle, which support should be of a kind to permit free egress

of the water. In Figs. 1, 4, and 5 wires are shown secured to pipe 9, bent to project upwardly and taper inwardly. By reason of this tapering form this support has also the additional effect of centering the bottle, which is preferable, since it causes a central and even application of the current. In Figs. 2 and 3 a rubber support is shown having ridges 17, upon which the mouth of the bottle rests, with depressions between them permitting the water to flow out. This support has the advantage of permitting a quick handling of the bottles, which, even if dropped on without any particular care, avoid the danger of injury by pieces chipping out of the edge around the mouth of the bottle. Since this latter support in the form shown is not capable of holding the bottle to a central position, a separate centering device is shown in the form of upwardly-projecting arms 18, preferably of light spring-steel, which readily yield and admit bottles of most any diameter.

19 is a spreader secured to pipe 9 some distance below the bottle-support, its object being to prevent the discharged water when returning from passing down straight on pipe 9, where it would wash the sand away from openings 11. This spreader causes water and sand to pass down over its outer edge, with the more desirable effect of piling the sand against pipe 9 and around openings 11 therein.

Since it is not desirable that the water should flow over the upper edge of vessel 8, where it might carry some of the scouring medium with it, gradually reducing the same, small-sized overflow-openings 20 are provided below such edge, which permit the water to flow off, but hold the sand back, whereby the same is kept in continuous circulation.

The device should be supported above a sink or waste-basin (not shown in Figs. 1, 2, and 3) which receives the waste water.

21 is a shield inside and in front of the overflow-openings and prevents the water thrown by the spreader against them from splashing therethrough. There should be a certain distance between the discharge end of pipe 9 and the bottom of the inverted bottle when in position to give the discharged current time and opportunity to spread, which is necessary to obtain the proper effect. Again, in very short bottles the bottom might rest direct against the discharge-opening and prevent altogether the operation of the current. Such contingencies, especially where bottles of different depth are to be washed, are provided for by interchangeable nozzles of different length, while for very short bottles no nozzle is used at all, as shown in Fig. 2 and to the right of the first pipe in Fig. 4.

For large establishments the device is used serially, as shown in Figs. 4 and 5. Any number of them may be connected in one or more rows. The advantage in this case is that with the same operation whereby one device is controlled they all may be controlled. For such purpose all pipes 9 and all pipes 12 are

each connected to pipes 22 and 23, respectively, with the cut-off device 14 between the ends of the latter. The upper part of vessel 8 may all be one, forming a long trough-shaped vessel 24, with pockets where the pipes enter for receiving the sand. Spreaders and shields similar to spreader 19 and shield 21 are used, but are each preferably continuous, both running from end to end of vessel 24. As to the bottle supporting and centering device, either one of those described before may be used.

25 is the waste-basin referred to above, which receives the overflow.

Among the many advantages which the device possesses particular attention is called to the fact that bottles of any shape may be cleaned by it—flat or square, for instance—since the scouring-current reaches any corners and all parts of the interior of the bottle, which is not possible by mechanically-operating scouring and cleaning devices. We are aware of devices used for this purpose having two independent discharge-pipes, one for water and sand and one for water alone. Since two pipes are objectionable, however, as being too large to enter the mouth of smaller bottles, we prefer to use only one pipe, from which the scouring-current and the rinsing-current are discharged alternately.

Having described our invention, we claim as new—

1. In a bottle-scouring device, the combination of a vessel containing the scouring medium, a continuous water-pipe entering and passing through said vessel, terminating above it in a discharge-nozzle, having lateral openings in its wall at such height as to be within that part of the vessel occupied by the scouring medium, so that when water is permitted to pass through said pipe, portions of the scouring medium are drawn in through said lateral openings and a bottle-support for sustaining the bottle in an inverted position above the discharge end of said pipe.

2. In a bottle scouring and rinsing device the combination of a vessel 8, pipes 9 and 12, the former having openings 11 in its wall for communication with vessel 8, the two pipes ending in a single discharge spout or nozzle, a support for sustaining a bottle in an inverted position above the latter, a spreader 19 secured to pipe 9 below this support, a pipe 13 supplying pipes 9 and 12 and a cut-off device for admitting the supply to either one of these pipes.

3. In a bottle scouring and rinsing device, the combination of a vessel 8 to receive the scouring medium, two continuous pipes 9 and 12 passing through the former, pipe 9 having openings 11 in its wall at such height as to be in communication with vessel 8 to admit the scouring medium, the two pipes connected above holes 11 to form a single discharge spout or nozzle, a support for sustaining a bottle in an inverted position above the latter, a pipe 13 supplying pipes 9 and 12 and a

cut-off device for admitting the supply to either one of the pipes.

4. In a bottle scouring and rinsing device,
the combination of a vessel 8, pipes 9 and 12,
5 the former having openings 11 in its wall for
communication with vessel 8, the two pipes
ending in a single discharge spout or nozzle,
a support for sustaining a bottle in an in-
verted position above the latter, overflow-
10 openings in vessel 8, a shield 21 in front of

them, a pipe 13 supplying pipes 9 and 12 and
a cut-off device for admitting the supply to
either one of the pipes.

In testimony whereof we hereunto affix our
signatures in presence of two witnesses.

CHARLES H. FISCHER.

HENRY B. FISCHER.

Witnesses:

C. SPENGEL,

ARTHUR KLINE.