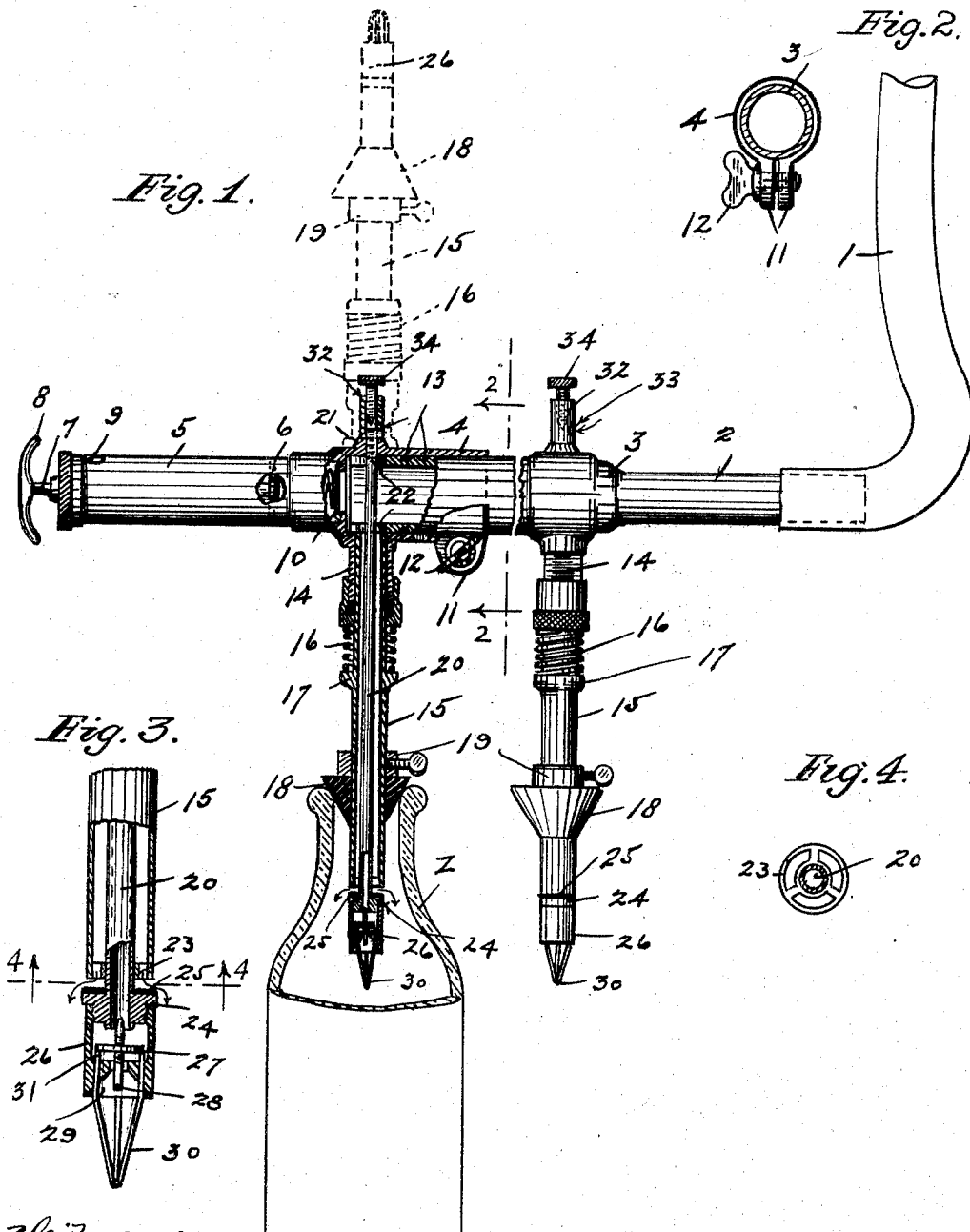


J. OFTEDAHL.
BOTTLE FILLER.
APPLICATION FILED AUG. 7, 1916.

1,308,101.

Patented July 1, 1919.



Witnesses

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JOHN OFTEDAHL, OF HANLEY FALLS, MINNESOTA.

BOTTLE-FILLER.

1,308,101.

Specification of Letters Patent.

Patented July 1, 1919.

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To all whom it may concern:

Be it known that I, JOHN OFTEDAHL, a citizen of the United States, residing at Hanley Falls, in the county of Yellow Medicine and State of Minnesota, have invented certain new and useful Improvements in Bottle-Fillers; and I do hereby declare the following to be a full, clear, 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.

My invention relates to improvements in bottle fillers and particularly to portable bottle fillers for use in filling bottles in cases; and, to this end, generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings,

Figure 1 is a view of the improved apparatus, partly in side elevation and partly in longitudinal vertical section, some parts being shown in different positions by means of broken lines;

Fig. 2 is a detail view in section taken on the line 2—2 of Fig. 1;

Fig. 3 is a fragmentary detail view, partly in elevation and partly in central vertical section illustrating the lower end of one of the filling tubes, on an enlarged scale; and

Fig. 4 is a detail view in section taken on the line 4—4 of Fig. 3.

The numeral 1 indicates a flexible liquid supply pipe or hose leading from an elevated storage tank or other suitable source of supply, not shown. This pipe 1, if desired, may be arranged to form therein a siphon-acting portion, as in my co-pending application filed February 16, 1916, under S. N. 78,589, entitled "Bottle filler". The delivery end of the pipe 1 is telescoped onto the receiving end of a tube extension 2, integrally formed with the member 3 of a two-part cylindrical head, the other member of which is indicated by the numeral 4. The head members 3 and 4 are telescopically connected, the former onto the latter, and the member 4 has integrally formed therewith a pump cylinder 5. The tube extension 2, head members 3 and 4 and pump cylinder 5 are all axially aligned.

Mounted within the pump cylinder 5, is

a piston 6, the stem 7 of which works through the head of the cylinder 5 and has secured thereto a handpiece 8, by which the piston 6 is actuated to produce a suction action through the head 3—4, tube extension 2 and pipe 1. An air discharge vent 9 is formed in the pump cylinder 5, close to the head thereof and is opened by the piston 6, during the suction stroke. The receiving end of the pump cylinder 5 is normally closed by a spring-held valve 10. To hold the members of the head 3—4 in different axial adjustments, the member 4 is longitudinally split at its inner end and provided with a pair of depending lugs 11, in which is mounted a thumb screw 12 for contracting the member 4 onto the member 3. A liquid tight joint is formed between the two head members 3 and 4, by forming in the member 3 annular grooves 13 and packing the same with vaseline, or other suitable substance.

On the under side of each member of the head 3—4, is a stuffing box equipped nipple 14, within which is telescoped a filling tube 15. The filling tubes 15 are arranged to be inserted simultaneously into the necks of bottles Z to be filled, which bottles are usually in cases equally spaced apart by dividers. Normally, the filling tubes 15 are yieldingly held in extended positions by coiled springs 16 compressed between the stuffing boxes on the nipples 14 and annular shoulders 17 integrally formed in intermediate portions of said filling tubes.

Surrounding each filling tube 15 and slidable longitudinally thereon, is a tapered bottle sealing stopper 18, adapted to be inserted part way into the neck of a bottle into which the respective filling tube 15 is inserted. Set screw-equipped collars 19 are mounted on the filling tubes 15, above the stoppers 18, are engaged thereby and hold said stoppers in their different adjustments.

Extended axially through each filling tube 15, is an air escape pipe 20, the upper end of which is extended radially through the head member 4 and has screw-threaded engagement with a boss 21, formed on the top of said head member. The inner end of the head member 3 is notched at diametrically opposite points, as indicated by the numeral 22, to permit the required telescopic movement of the head member 3 past the air pipe 20 and also to hold said members against rotary movement, with respect to

each other. This locking of the head members 3—4 against rotary movement holds the filling tubes 15 properly aligned. The lower end portions of the air pipes 20 work through and are guided by spiders 23, secured in the lower ends of the filling tubes 15. The ends of the air pipes 20 are expanded to form relatively large collars 24, on which are seated valves 25. The nozzles or discharge ends of the filling tubes 15 are normally pressed onto these valves 25 by the springs 16 and closed to prevent the discharge of liquid therefrom. Screwed onto hubs, on the under side of the collars 24, are cages 26 in each of which is mounted a liquid controlled float valve 27.

The stem 28 of the valve 27 is extended axially therethrough and the upper end projects into the respective air pipe 20 and the lower end projects through the bottom of the cage. It is important to note that the bottoms of the cages 26 are conically recessed at 29, so that the lower circumferential edges of said cages are relatively sharp. On the bottom of each cage 26, is a guide 30 for directing the filling tubes 15 into the bottles. These guides 30, as shown, are made up of upwardly diverging wires, the ends of which extend through the bottoms of the cages 26 and afford rest lugs 31, on which the floats 27 rest. The purpose of thus supporting the float valves 27 is to hold the same above the bottoms of the cages 26 and permit the free passage of air and liquid into the cages at points surrounding the valve stem 28.

Screwed on to the upper ends of the air pipes 20, are cylindrical valve casings 32, having radial ports 33, which have communication with the air pipes 20 through the valve casings 32. Needle valves 34 are screwed into the upper ends of the casings 32 and arranged to close more or less of the ports 33 to regulate the escape of air from the bottles.

The apparatus is intended to be held in both hands of the operator, the one hand grasping the tube extension 2 and the other grasping the pump cylinder 5. With the apparatus thus held, the same may be lowered to carry the filling tubes into two of the bottles to be filled and lifted to carry said filling tubes out of the filled bottles. By adjusting the members of the head 3—4 laterally with respect to each other, the filling tubes 15 may be set in positions to enter bottles set at different distances apart. The sealing stoppers 18 may also be adjusted to vary the depth to which it is desired to have the filling tubes 15 enter the bottles.

In filling bottles with the improved apparatus, the filling tubes 15 are inserted into two of the empty bottles and the same sealed by the stoppers 18. These stoppers 18 also

act as stops to limit the downward movement of the filling tubes 15 and by a downward pressure on the head 3—4, the springs 16 are compressed, allowing the pipes 20 to move axially through the filling tubes 15 to open the valve 25, as shown in Figs. 1 and 2. The liquid is discharged radially from the filling tubes 15, strikes the sides of the bottles and thus prevents foaming. As the bottles are filled with liquid, the displaced air passes upward through the openings in the bottoms of the cages 26, around the valves 27, into the air pipes 20 and escapes through the ports 33 to the atmosphere. When the bottles are nearly filled with liquid, the float valves 27 are raised thereby and close the lower ends of the air pipes 20, thus preventing further displacement of the air from the bottles, and hence, stopping the flow of liquid from the filling tubes 15. The pressure on the apparatus is then released, allowing the springs 16 to seat the filling tubes 15 on the valves 25 and cutting off further escape of the liquid, when the apparatus is shifted to the next pair of bottles to be filled.

By screwing the air pipes 20 into or out of the boss on the head member 4, the tension of the springs 16 may be adjusted. The escape of air through the ports 33 may be regulated by adjusting the needle valves 34. The position of the valves 34, with respect to the ports 33, of course, depends on the force with which the liquid is delivered into the bottles.

In case only one bottle is to be filled at a time, the outer filling tube 15 may be turned into an inoperative position, as shown by broken lines in Fig. 1. This movement of the filling tube is accomplished by separating the members of the head sufficiently to carry the notches 22 out of engagement with the air pipes 20 to allow the head member 4 to be rotated on the head member 3. When the outer tube is in an upright position, the member 4 is then telescoped onto the member 3 to again carry the notches 22 into interlocking engagement with the air pipes 20.

While the apparatus shown has only two filling tubes 15, it is, of course, understood that any desired number may be employed. As the action of each filling tube 15 is entirely independent of the other, the same will operate, even if the pressure is much harder over one of the filling tubes than the other to cause a wider opening movement of the respective valve 25 and hence, a faster discharge of the liquid. By making the lower edges of the cages 26 relatively sharp, the liquid, in case any of the same flows down the sides of the cages, will not be sucked by the escaping air into the pipes 20, but will drip into the bottles.

The above described invention, while it is very simple, has, in actual usage, proven highly efficient for the purpose had in view.

What I claim is:—

5 1. A bottle filler having a liquid supply head comprising two telescopically connected members, each having a filling tube, and means for locking the members of the head against rotary movement with respect to
10 each other and in different axial adjustments to vary the distance between said tubes.

15 2. A bottle filler having a liquid supply head comprising two telescopically connected members, each having a filling tube, and means for securing the members of the head in different axial adjustments to vary the distance between said tubes.

3. A bottle filler having a liquid supply

head having two members telescopically connected with freedom for compound axial and rotary adjustments with respect to each other, each of said members having a filling tube.

4. A bottle filler having a liquid supply head having two members telescopically connected, each member having a filling tube, a pump cylinder integrally formed with one of said members, and a flexible liquid supply tube attached to the other of said members.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN OFTEDAHL.

Witnesses:

CLARA DEMAREST,
HARRY D. KILGORE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."