Oct. 9, 1923. 1,470,235

H. A. HOUSE, JR

FILLING APPARATUS

Filed Feb. 16, 1921

Fig 1.

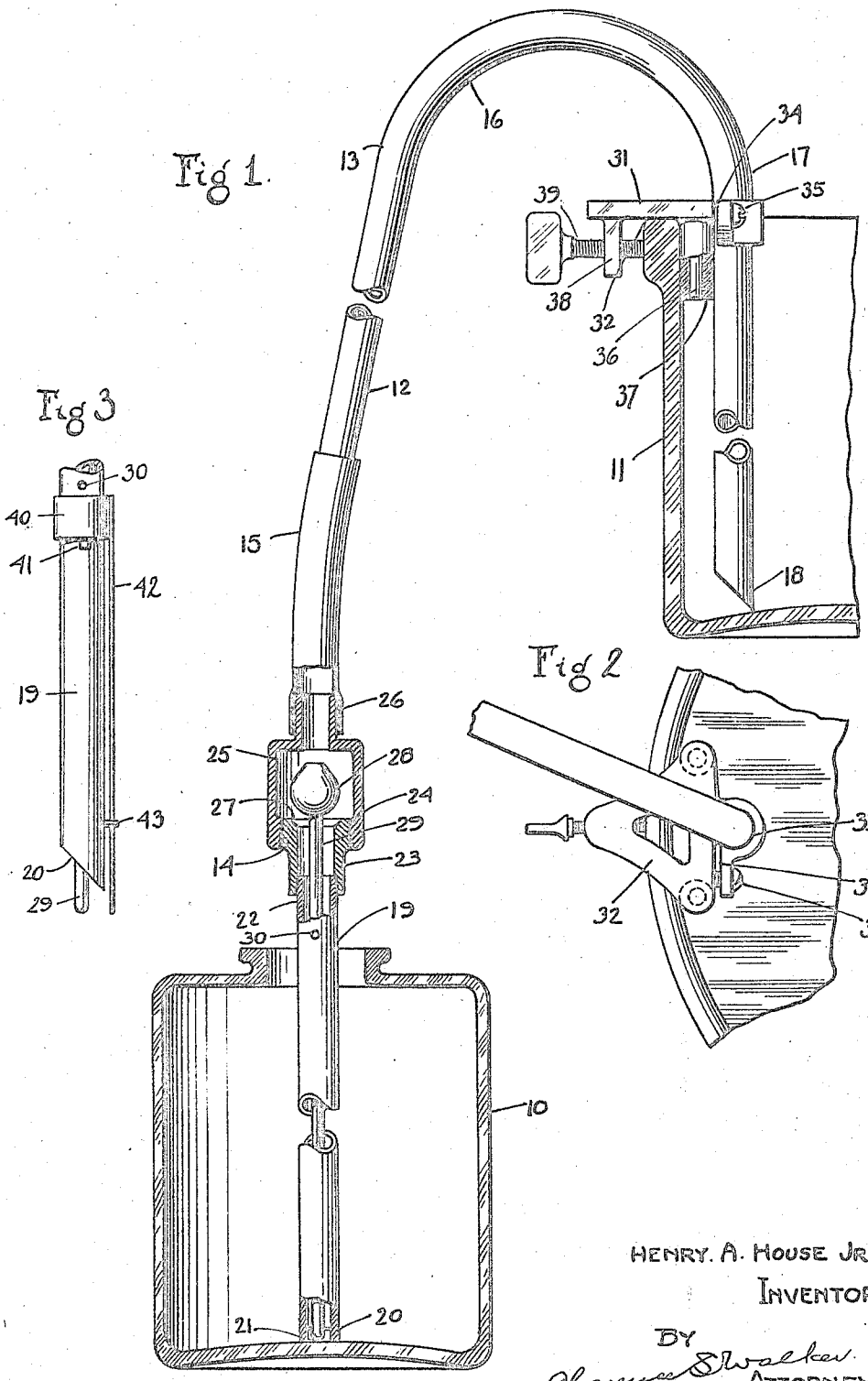


Fig 3

Fig 2

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HENRY A. HOUSE, JR., OF BUFFALO, NEW YORK.

FILLING APPARATUS.

Application filed February 16, 1921. Serial No. 445,487.

To all whom it may concern:

Be it known that I, HENRY A. HOUSE, JR., a citizen of the United States, and resident of Buffalo, in the county of Erie and State of New York, have invented a certain new and useful Improvement in Filling Apparatus, of which the following is a specification.

This invention relates to an improvement in siphons of the type embodying a valve.

One object of the invention is to provide a siphon having a valve, the operation of which is controlled by the receptacle to be filled.

Another object is to provide means for securing the siphon firmly to the reservoir.

A further object is to provide means whereby the liquid in the siphon below the valve will run out quickly as soon as the valve is closed.

Other objects will appear from an examination of the specification and of the drawings which form a part thereof and in which

Fig. 1 shows one embodiment of this invention;

Fig. 2 is a plan view of the reservoir and siphon clamp, and

Fig. 3 is a detail view of a modification of my invention.

Referring to the drawings, the reference numeral 10 designates a receptacle and 11 a reservoir from which liquid is transferred to the receptacle by the siphon 12. The siphon 12 is made of two sections 13 and 14 connected by flexible tubing 15.

The upper section 13 consists of a metal tube 16 substantially U-shaped, one branch 17 of which is rigidly clamped to the reservoir with its mouth 18 in contact with or adjacent the bottom of the reservoir. The mouth 18 is usually cut at an angle so that it can rest on the bottom without interfering with the flow of the liquid.

The lower section 14 which acts as a valve comprises a straight tube 19 the mouth 20 of which is provided with notches 21 at the sides so that the liquid will flow freely even though the end rests on the bottom of the receptacle 10. Welded or otherwise rigidly secured to the upper end 22 is a tube 23 externally threaded at one end 24. A cup 25 is internally threaded to engage firmly the tube 23, and has a neck 26 on which the flexible tubing 15 is slipped.

On the upper face of the tube 23 is formed a spherical depression 27 on which the spherical ball valve 28 seats when the siphon is not in use. Extending from the valve 28 is a valve stem 29 which, when the valve is seated, projects from the lower end 20 of the tube. Through the wall of the tube 19 is drilled a hole 30 having a function which will be described later.

The branch 17 is held in place in the reservoir 11 by a clamp 31. This clamp comprises a plate 32 through a hole 33 in which the branch 17 is passed. A slot 34 is cut through the side of the hole and the branch 17 is firmly held by a screw 35 which holds the sides of the slot 34 together. Projecting from the under face of the plate 32 are two parallel pins or pegs 36. These pins, when the clamp is in operation, are held against the inner wall of the reservoir 11 and are preferably covered by tubing 37. A leg 38 parallel to but spaced from the pins 36 projects from the plate 32. Through the leg 38 and parallel to the plate 32 is threaded a wing bolt 39 which bears against the outer wall of the reservoir 11. The three points at which the pins 36 and the bolt 39 bear against the wall, form, as shown in the drawing, an isosceles triangle, the apex of which is where the bolt 39 bears against the outer wall.

In assembling the parts the clamp 31 is fixed to the edge of the reservoir 11 and the branch 17 adjusted so that the end 18 rests on the bottom. Since the branch 17 is firmly clamped to the reservoir it cannot move during the operation of the siphon and stir up any sediment that might form at the bottom. Moreover, by reason of its angular outlet all the liquid will not be taken over since the operation of the siphon will cease when the level falls below the top of the outlet.

The siphon is filled at the beginning of the operation in any desired manner, usually by sucking through the end 20, the valve being unseated and the hole 30 being sealed by a finger. Once filled the flow through the siphon is started by pressing the end 20 of the tube 19 against the bottom of the receptacle to be filled and thus raising the stem 29 and lifting the valve 28 from its

seat 27. When the receptacle is filled the siphon is either raised or the receptacle is lowered, the valve 28 seats itself and the flow is cut off. The liquid remaining in the tube 19 must be allowed to drain off and this is, in the ordinary siphon, a slow process since it must rely upon the air rising from the mouth of the tube. By the provision of the hole 30 air is at once admitted at the top of the tube and the liquid runs out quickly instead of passing out, a drop at a time.

In the use of this invention it has been discovered that under certain conditions a little of the liquid in the siphon will spurt out through the hole 30. To prevent this and to insure that the hole is covered during the filling operation a construction similar to that shown in Fig. 3 may be employed. In that construction the hole 30 may be covered by a sleeve or ferrule 40 which is slipped over the tube 19. Stops 41 are provided to so support the sleeve that it normally does not cover the hole. The sleeve 40 is automatically raised to cover the hole when the siphon is operated by the actuation of an arm 42 which projects down from the sleeve and is guided by a strap 43 on the lower end of the tube. The lower end of the arm 42 projects below the mouth 20 as far as the valve 29 so that when the siphon rests on the bottom of the receptacle the sleeve 40 and the valve 28 are both raised.

The mouth 20 of the tube 19 shown in Fig. 3 is shaped like the mouth 18 so as to give the liquid freer passage than is possible with the notched form shown in Fig. 1.

The threaded union of the tube 23 and cup 25 permits easy separation so that the valve 28 and stem 29 can quickly be removed for cleaning.

While one embodiment only of this invention has been shown and described, it is obvious that others can be made without departing from the spirit and scope of the invention as set forth in the following claims.

Having thus set forth my invention that which I claim as new and for which I desire the protection of Letters Patent of the United States is the following:

1. In a filling apparatus, a tube, a valve in said tube, a valve stem normally projecting from the mouth of said tube, said tube having a hole through its wall below said valve, a sleeve mounted to reciprocate on said tube normally below said hole, an arm projecting from said sleeve normally below the mouth of said tube, whereby when the mouth of the tube is on the bottom of the receptacle to be filled the valve will be unseated and the sleeve will be raised to cover said hole.

2. In a filling apparatus, a tube having a hole through its wall, a sleeve reciprocatably mounted on said tube, and means extending from said sleeve to move it over the hole when the filling apparatus is in use.

3. In a filling apparatus, a tube having a hole through its wall, a sleeve reciprocatably mounted on said tube, and an arm projecting from said sleeve below the mouth of said tube whereby when the mouth of the tube is on the bottom of a receptacle to be filled the sleeve is raised.

4. In a filling apparatus, a tube having a spherical depression at one end thereof, a spherical ball valve adapted to seat in said depression, a valve stem depending from said valve and extending through and beyond the other end of said tube, a cup enclosing said valve, and removably secured to said tube, and means for feeding liquid into said cup, said valve being raised to permit escape of the liquid by pressing the tip of the valve stem extending beyond the mouth of said tube against the bottom of the vessel to be filled.

5. In a filling apparatus, a tube having a spherical depression at one end thereof, a spherical valve adapted to seat in said depression, a cup removably threaded upon said tube and enclosing said valve whereby said cup can quickly be removed to allow cleaning of said valve and tube.

In testimony whereof I affix my signature.

HENRY A. HOUSE, JR.