June 16, 1936. C. W. SCHOLFIELD 2,044,594

PUMP

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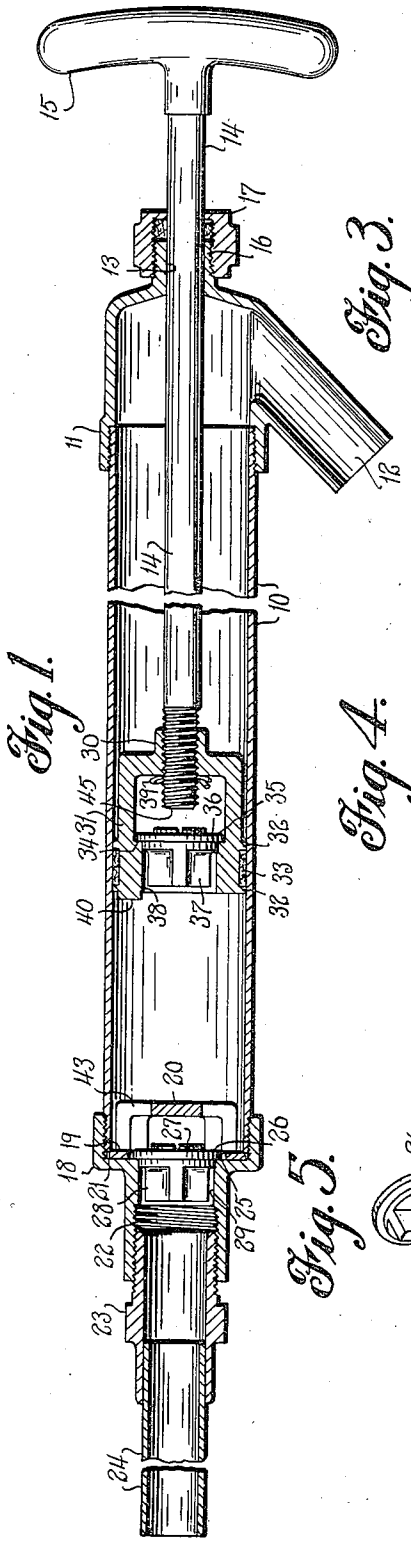


Fig. 1.

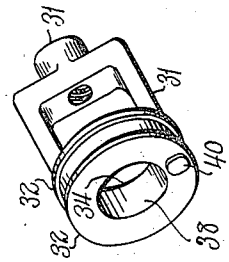


Fig. 3.

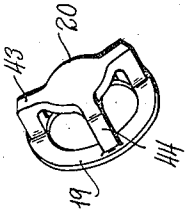


Fig. 4.

Fig. 5.



Fig. 6.

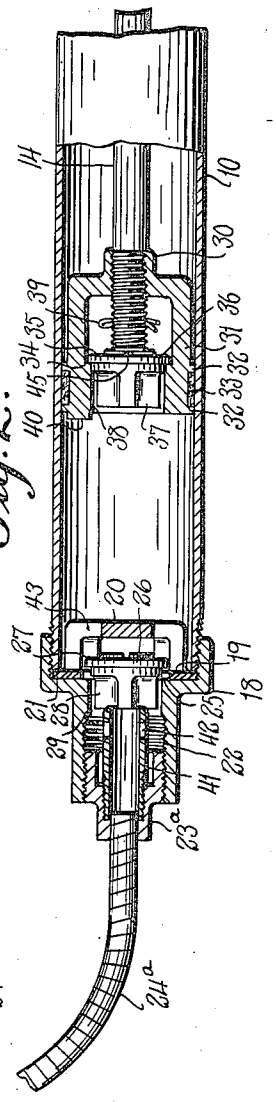


Fig. 2.

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PUMP

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Application April 12, 1935, Serial No. 15,932

1 Claim. (Cl. 103—10)

This invention relates to improvements in pumps.

One object of this invention is to provide an improved pump having interchangeable parts which can be substituted for one another to adapt the pump to perform different functions in connection with withdrawing all the water from water-closet bowls and the like, of various types, to prevent their becoming frozen and broken in houses not occupied during the wintertime.

Another object of this invention is to provide an improved pump formed of simple elements readily manufactured and readily assembled to produce a compact, durable, efficient construction.

With the above and other objects in view, this invention includes all improvements over the prior art which are disclosed in this application.

In the accompanying drawing, in which certain ways of carrying out the invention are shown for illustrative purposes:

Fig. 1 is a central longitudinal sectional view of a pump constructed in accordance with this invention;

Fig. 2 is a view similar to Fig. 1 of a portion of the pump, but with a different tubular end substituted in place of the tubular end shown in Fig. 1 and serving to hold the lower valve locked open, and with the piston-rod adjusted to a different position to lock the upper valve closed;

Fig. 3 is a perspective view of the piston head;

Fig. 4 is a perspective view of the cage for the lower valve;

Fig. 5 is a bottom perspective view of one of the valves; and

Fig. 6 is a face view of the valve shown in Fig. 5.

In the description and claim, the various parts are identified by specific names for convenience, but they are intended to be as generic in their application as the prior art will permit.

Referring to the drawing, 10 is a pump-cylinder having screw-threadedly connected to its upper end a pump-cap 11 provided with a discharge-opening 12 and with an opening 13 at its upper end through which extends the piston-rod 14 which is secured to and carries an operating-handle 15. The upper end 16 of the pump-cap 11 is screw-threadedly connected to a gland-nut 17, which serves to compress suitable packing, serving to prevent leakage past the opening 13.

The lower end of the pump-cylinder 10 is screw-threadedly connected to a coupling 18 which firmly holds the flange or rim 19 of the valve-cage 20 firmly secured against the lower end 21 of the pump-cylinder 10. The coupling 18 is screw-threaded at 22 and has screw-threaded connection with a nipple 23 having a tube 24 sweated or otherwise secured in the lower end of the nipple. The coupling 18 has a valve-seat 25 on which fits the flange or rim 26 of the lower valve 27, with the guide-portion 28 extending down into the tubular opening 29 of the coupling 18.

The lower end of the piston-rod 14 is threadedly engaged with the cage-portion or extension 30 of the piston 31. A cotter-pin 39 extends transversely through a hole in the piston-rod 14 to prevent accidental withdrawal of the piston-rod from connection with the extension 30. The piston 31 has spaced-apart annular flanges 32 between which is a suitable packing 33. The piston 31 has a suitable annular valve-seat 34 on which fits the rim or flange 35 of the upper valve 36, which has a guide-portion 37 within the cylindrical opening 38 in the piston. A lug or extension 40 is formed on or secured to the lower end of the piston for a purpose to be later described.

With the pump constructed as shown in Fig. 1, the tube 24 can be inserted in any place, such, for example, as a water-closet, from which liquid is to be drawn, whereupon, by operating the pump-handle 15 up and down, the fluid is alternately drawn into the pump-cylinder 10 and then expelled out through the discharge-opening 12, this action taking place in consequence of the two automatic valves 27 and 36 functioning in a manner well known in pumps of the type shown.

When, however, it is desired to remove liquid through very small openings, and to completely remove liquid, as is at times necessary, the nipple 23 is unscrewed from the coupling 18 and another nipple 23^a is screwed into place in the coupling 18. The nipple 23^a has a smaller tube 24^a secured thereto by sweating or other suitable means and, if desired, the tube 24^a may be of flexible tubing. The other end of the nipple 23^a has screw-threadedly or otherwise secured therein a tubular extension 41 having a transverse hole 42. The upper end of the tubular extension 41 engages against the guide-portion 28 of the valve 27 and lifts and holds the valve 27 locked open away from its seat.

Next, the handle 15 is pushed inward as far as possible to bring the lug 40 into the space between two portions 43 and 44 of the cage 20, whereupon, by rotating the handle 15 clockwise, the piston-rod 14 is screw-threaded downward through the extension 30 until the lower end 45 of the piston-rod 14 jams against the valve 36 and locks it closed.

With the parts thus arranged, as shown in Fig. 2, the tube 24a can be inserted to remove the final amount of liquid, as desired. Upon pulling upward on the handle 15, liquid is drawn through the tube 24 into the pump-cylinder 10, the entire pump is thereupon removed, and by forcing the handle 15 inward, the piston 31 is forced to its lowermost position, thus expelling the liquid out through the tube 24 into a suitable container, or otherwise disposing of it. If this operation has not completely removed the liquid, the operation is repeated as often as necessary.

It will thus be seen that by the adjustment and substitution of parts heretofore described, one pump can be selectively adapted to operate in two quite different manners to perform two different necessary functions when used for the purpose described.

The invention may be carried out in other specific ways than those herein set forth without departing from the spirit and essential characteristics of the invention, and the present embodiments are therefore to be considered in all respects as illustrative and not restrictive, and all changes coming within the meaning and equivalency range of the appended claim are intended to be embraced therein.

I claim:

A portable hand-pump designed and adapted for withdrawing water from water-closet bowls comprising: a pump-cylinder; a first automatic valve at the lower end of said cylinder a piston slidable in said cylinder and including a piston-head, and a piston-rod threadedly connected to said piston-head; said piston-head having a second automatic valve and said piston-rod being adapted to lock said second automatic valve closed by being rotated; the lower end of said cylinder below said first automatic valve being provided with an opening; and a tubular member adapted to be detachably secured in said opening and having an extension adapted to engage said first automatic valve and lock it open.

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