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DISCHARGE VALVE FOR CISTERNS

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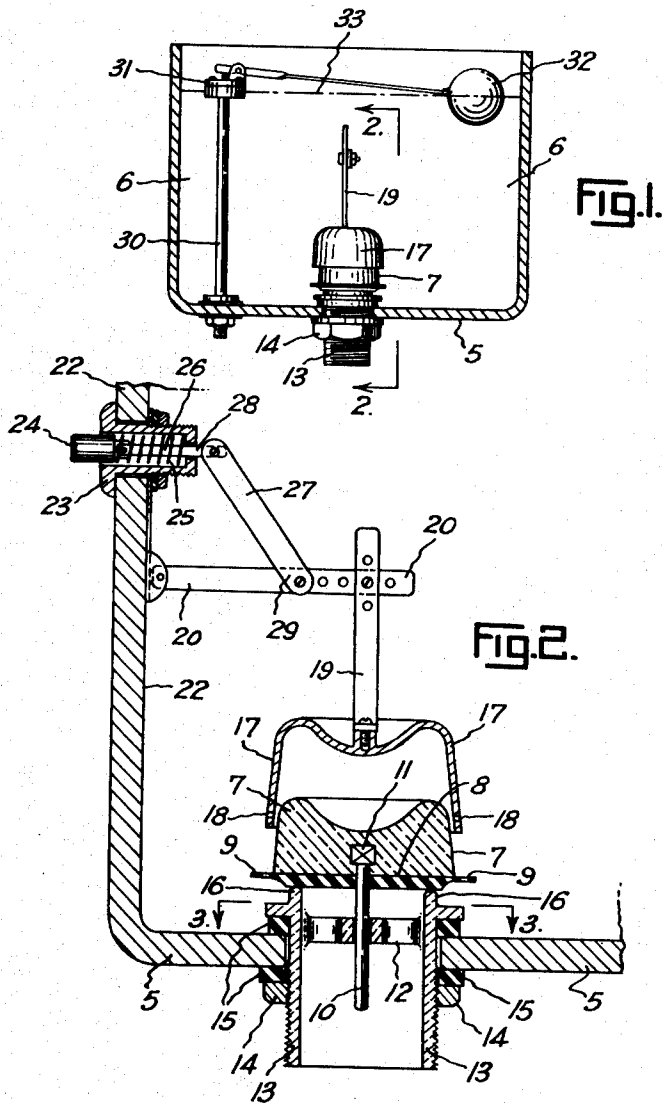


Fig. 2.

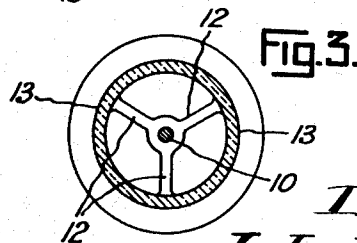


Fig. 3.

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DISCHARGE VALVE FOR CISTERNS

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5 Claims. (Cl. 4—52)

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This invention relates to discharge valves for cisterns and more especially has reference to devices of that description known as "Sucker" valves.

Valves of that description at present in use embody a flexible suction cup which is arranged on operation of a hand lever, to be forced down onto the valve proper and to lift the latter for a sufficient length of time to allow water contained in the cistern to flow freely down the discharge pipe thereof under the influence of gravity.

The known arrangements call for a system of links and/or levers, and as some of those components are relatively long the mechanism as a whole does not always operate satisfactorily. Moreover in many of the known arrangements the suction cup cannot easily be flattened sufficiently to create that degree of vacuum necessary to lift effectively the valve proper, with the consequence that repeated attempts must be made to discharge the cistern, or such attempts are not persevered with. In the case of flushing cisterns that neglect is, of course, objectionable.

The present invention seeks to overcome the recognized defects of existing "Sucker" valves, and at the same time aims at providing arrangements for their operation which will render such valves more efficient and less costly than those now in use.

The invention is characterized chiefly in that the beforementioned suction cup is arranged to be pushed into direct contact with the upper surface of the reduced and pliant marginal portion of a flexible disc designed to bear against the seat of a discharge fitting which is intended to be affixed in the floor of a cistern.

In order however that the invention may be clearly understood and readily carried into practical effect reference is now made to the accompanying drawings wherein:

Figure 1 shows a transverse vertical section of portion of an ordinary flushing cistern with a discharge valve embodying the present improvements in their preferred form; and

Figure 2 is an enlarged view at right angles to Figure 1, and taken on the vertical plane 2—2 indicated in that figure.

Figure 3 is a sectional plan taken on the horizontal plane 3—3 of Figure 2.

According to the invention as illustrated the improved discharge valve as a whole is installed in the floor 5 of an ordinary flushing cistern 6. The head 7 of the valve proper is of a relatively heavy hard-setting composition of known type such as plaster, cement or the like, and said head

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7 has applied or affixed to its underface a disc 8 of rubber or other appropriate flexible material. This disc 8 has a reduced pliant marginal portion 9 which extends beyond the perimeter of the head 7.

A valve stem 10 with its head 11 embedded in the head 7 is slidable vertically in a spider 12 which is moulded integrally in a discharge fitting 13. This discharge fitting 13 is preferably of one of the well known hard setting plastic materials and is secured in the floor 5 with the aid of a back nut 14 and gasket 15. The upper edge of the discharge fitting 13 constitutes a seat 16 for the disc 8.

Above the head 7 of the valve proper there is an inflexible cup 17 also preferably of one of the well known hard setting plastic materials. In fact this cup 17 can conveniently be employed in the first instance as a mould for the head 7 so that the one will be the complement of the other.

The cup has one or more bleed-holes 18 in its skirt and is affixed to the lower end of a vertical stem 19. The upper end portion of this stem 19 is connected to the outer end of a lever 20 which is pivoted to a bracket 21. This bracket 21 lies against the inner face of wall 22 of the cistern 6 and is held in position by a push-button fitting 23 led into said wall 22.

A push-button 24 loaded by a spring 25 is slidable in the mouth of fitting 23, and a stem 26 attached to or integral with the button 24 has one end of a link 27 attached to its projecting end 28. The other end 29 of link 27 is connected to the lever 20.

Any suitable form of inlet fitting may be mounted in the cistern 6 to supply water automatically after each flushing. The fitting 30 shown in Figure 1 is of a known pedestal type having a valve encased in its head 31 and arranged to be opened when the ball float 32 falls with a receding water level.

Assuming that the cistern 6 has been filled automatically to the level indicated by the broken line 33 in Figure 1, flushing is initiated by pressing in the push-button 24.

Movement of the push-button 24 is transmitted to the lever 20 through link 27 and, being multiplied by the leverage, is used to force the cup 17 downwards until its rim presses intimately all around, onto the flexible marginal portion 9 of the disc 8.

The push-button 24 can then be released and it will be returned to its normal position by spring 25. At the same time the spring 25 will raise the lever 20 through the medium of link 27 and con-

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sequently the cup 17 will suck up with it the valve proper.

Poised above the seat 16 the valve proper will be suspended for an interval until sufficient water has seeped through the bleed-hole or holes 18 to break the suction exerted on the valve proper by the cup 17. The interval is long enough to allow sufficient water to rush down through the discharge fitting 13 and effect flushing below.

It will be appreciated that while the construction illustrated incorporates a spring in immediate association with the push-button 24 a compression spring could be arranged say below the lever 20 to elevate the cup 17 after it has been forced down by pressure on the push-button 24, or some other obvious alternative could be adapted.

I claim:

1. A discharge valve for cisterns comprising in combination a discharge fitting provided with means whereby it can be secured in the floor of a cistern, a valve proper having a head with a flexible disc below said head, said disc having a reduced and pliant marginal portion extending beyond the perimeter of said head, an inflexible cup suspended above said head, and a push-button located in a wall of said cistern, said push-button being connected to means whereby the rim of said cup can be forced against the reduced and pliant marginal portion of said disc to lift by suction the aforesaid valve proper.

2. A discharge valve for cisterns comprising in combination a discharge fitting with a valve seat and provided with means whereby it can be secured in the floor of a cistern, a valve proper having a composite head and a vertical stem, a flexible disc below said head with a reduced and pliant marginal portion extending beyond the perimeter of said head, an inflexible cup complementary to said head and suspended above said head, and a push-button located in a wall of said cistern, said push-button being connected to means whereby the rim of said cup can be forced against the reduced and pliant marginal portion of said disc to lift by suction from said seat the aforesaid valve proper.

3. A discharge valve for cisterns comprising in combination a discharge fitting with a valve seat and provided with means whereby it can be secured in the floor of a cistern, a valve proper having a composite head of hard-setting cementitious material, and having a stem rising vertically therefrom, a flexible disc below said head with a reduced and pliant marginal portion extending beyond the perimeter of said head, an inflexible

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cup complementary to said head and suspended above said head, and a spring-loaded push-button located in a wall of said cistern, said push-button being connected to means whereby the rim of said cup can be forced against the reduced and pliant marginal portion of said disc to lift by suction from said seat the aforesaid valve proper.

4. A discharge valve for cisterns comprising in combination a discharge fitting with a valve seat and provided with means whereby it can be secured in the floor of a cistern, a valve proper having a composite head of hard-setting cementitious material, and having a stem rising vertically therefrom, a lever pivoted to said cistern and having its free end fastened to said stem, a flexible disc below said head with a reduced and pliant marginal portion extending beyond the perimeter of said head, an inflexible cup complementary to said head and suspended above said head, and a spring-loaded push-button located in a wall of said cistern, said push-button being connected to a link which in turn is connected to said lever so that said lever will force the rim of said cup against the reduced and pliant marginal portion of said disc and raise said valve proper from said seat when said push-button is pressed.

5. A discharge valve for cisterns comprising in combination a discharge fitting of hard setting plastic material and provided with means whereby it can be secured in the floor of a cistern, a valve proper having a composite head of hard setting cementitious material, a flexible disc below said head and having a reduced and pliant marginal portion extending beyond the perimeter of said head, a cup of hard setting plastic material complementary to said head and suspended above said head, a spring loaded push-button located in a wall in said cistern, and a link connected to a lever whereby movement of said push-button is transmitted to said valve proper to raise it by suction and thereby open said discharge fitting.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
211,260	Ross	Jan. 7, 1879
943,131	Zwermann	Dec. 14, 1909
1,525,475	Tutt	Feb. 10, 1925
1,616,560	Vanderlip	Feb. 8, 1927

FOREIGN PATENTS

Number	Country	Date
1,673/31	Australia	Nov. 5, 1931
2,497	Great Britain	June 16, 1876