Oct. 10, 1933. J. J. REEDY ET AL 1,930,284

DEVICE FOR FILLING AND DRAINING WASHING MACHINES, AND THE LIKE

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Fig. 1

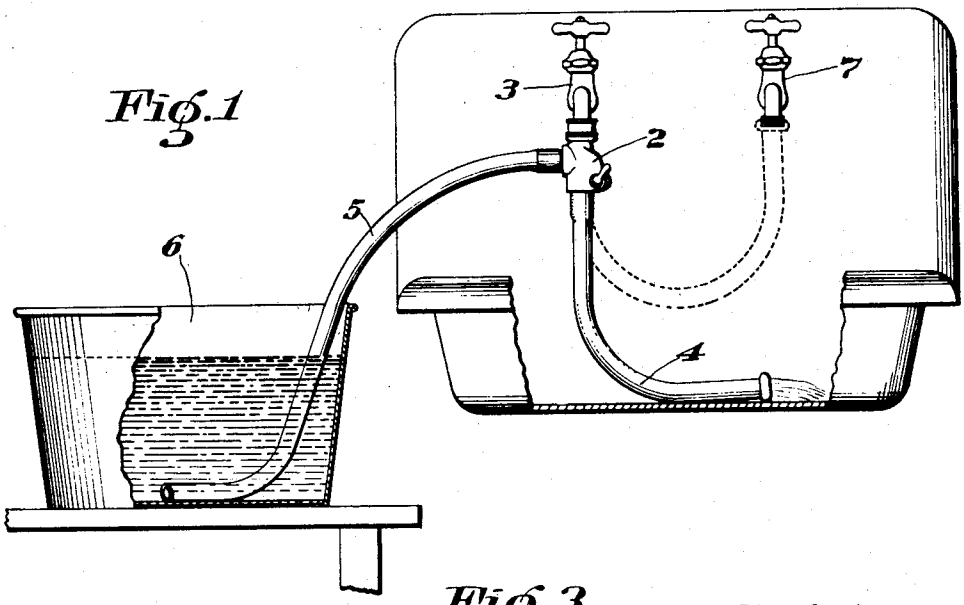


Fig. 2

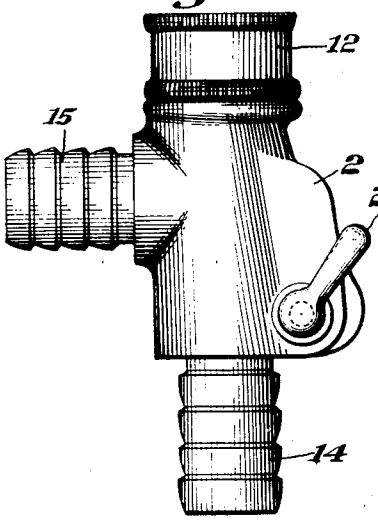


Fig. 3

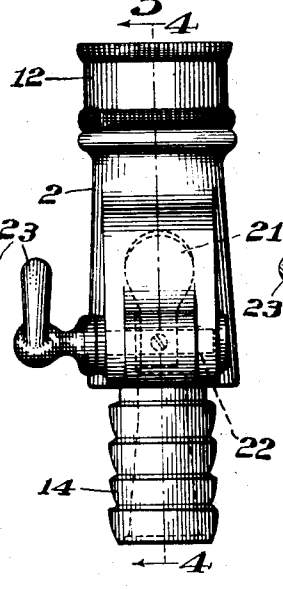


Fig. 4

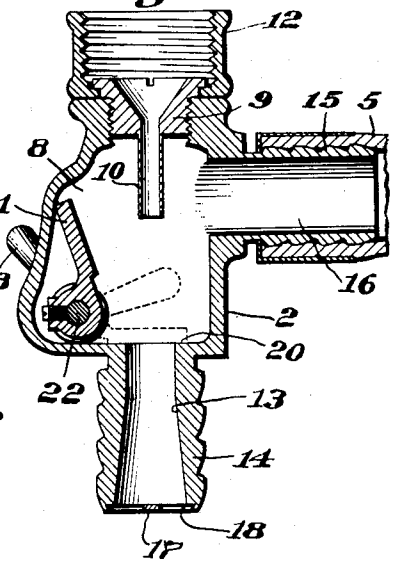
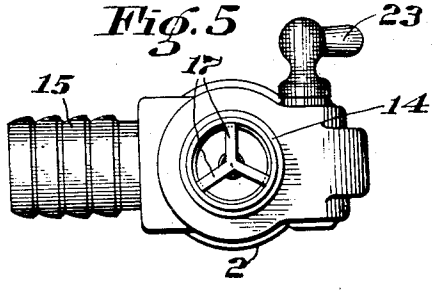


Fig. 5



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DEVICE FOR FILLING AND DRAINING WASHING MACHINES, AND THE LIKE

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3 Claims. (Cl. 103—262)

This invention relates to apparatus for filling and draining washing machines and other receptacles.

It has been proposed heretofore to use an apparatus working on the injector principle for this purpose, and the present invention aims particularly to improve this general type of apparatus with a view to making it more reliable in operation and more convenient to use.

The nature of the invention will be readily understood from the following description when read in connection with the accompanying drawing, and the novel features will be particularly pointed out in the appended claims.

In the drawing,

Figure 1 is a front elevation of a device embodying the present invention, illustrating one method of using the same;

Figs. 2 and 3 are front and side views, respectively, of the injector element of the apparatus;

Fig. 4 is a sectional view on the line 4—4, Fig. 3; and

Fig. 5 is a bottom view of the device shown in Figs. 2, 3 and 4.

Referring first to Fig. 1, the device there shown comprises an injector element or unit 2 which is shown more in detail in the other figures, and which is designed to be connected to a faucet 3. A discharge hose 4 is connected to the injector 2 in line with the faucet so that the flow of water directly through the injector will create suction in the body of the injector. A suction inlet opens laterally into this body and a tube or hose 5 is connected laterally to the injector and serves as a suction hose to conduct water from the washing machine tank 6, or other receptacle, into the injector where it will be discharged through the hose 4.

This general organization is similar to that used heretofore. It has been found, however, that difficulty is experienced with the starting of the injector action in devices of this character, particularly if the hydraulic head through which the water must be lifted from the receptacle 6 is substantial, say for example, two or three feet. In addition to using devices of this kind for emptying or draining a washing machine or other receptacle, they are also used to fill it. This operation is accomplished by pinching the hose, or doubling it back upon itself, so that the water will not flow through it and maintaining it in this condition while the faucet 3 is opened and the receptacle is filled. Or, if two faucets are used, the hose 4 is connected to the other faucet, such as that shown at 7, in the manner indicated in dotted lines in Fig. 1, both faucets then supplying water for the filling of the tub, or other receptacle. The pinching or bending of the hose 4 in the manner above described results in breaking the hose after a time and requires the constant attendance by the operator while the tub is being filled.

The present invention deals especially with these objections, and it aims to facilitate both the draining and filling of the tub, and to make the draining action more positive and certain.

Referring now to Figs. 2, 3 and 4, it is seen that the injector device 2 comprises a main body which is provided with a relatively large internal suction chamber 8. Since this device is normally in an upright position when in use, it will be described as located in this manner, it being understood, however, that such description and the terminology used in connection therewith is intended solely for the purpose of clearly explaining the invention, and does not limit the use of the device to any particular position. The main inlet for the chamber 8 is provided at its upper end, the incoming water flowing through a member 9 which is screw threaded into the body 2, is internally tapered, and is provided with a tubular extension 10 projecting downwardly into the chamber 8 for a considerable distance so that it delivers the water into the chamber in the form of a jet. This member is also utilized to hold the coupling 12, by means of which the injector may be secured to the faucet, in its operative position on the body. When the device is being used to drain a receptacle, the water discharged through the inlet member 9 into the chamber 8 flows directly through the bore 13 of the outlet nipple 14, this outlet being in line with the inlet. The suction tube 5 is connected to a side nipple 15 and communicates with a suction inlet 16 which opens laterally into the chamber 8 at approximately the level of the lower end of the tube 10.

We have found that the automatic starting of the injector action is made far more certain and positive by breaking up the stream of water which is discharged through the outlet 13. This preferably is accomplished by locating a small spider 17, see Figs. 4 and 5, in the lower end of the nipple 14. As shown, the spider consists of a three legged member positioned in a groove 18 formed in the lower end of the nipple 14, the walls of the groove being peened over to lock the spider securely in place. This member offers relatively little resistance or obstruction to the

discharge of the water, but it serves to break up the solid stream of water which otherwise would flow through the outlet, and thus assists very substantially in starting the injector action. It is particularly valuable when the device is required to work under unfavorable conditions.

In order to facilitate the use of the device in filling the receptacle 6 when the water is supplied from a single faucet, a simple and inexpensive form of valve is provided to close the outlet 13. For this purpose the lower wall of the chamber 8 immediately surrounding the upper end of the outlet 13 is faced off to provide a valve seat at 20, and a flap valve 21 is mounted to swing into and out of engagement with the seat. This valve is secured on a shaft 22 which is mounted to rotate in the walls of the chamber, and a handle 23 is secured on the shaft outside of the body 2 and projects in the same general direction as the valve 21 so that the weight of both the handle and the valve are utilized in holding the valve in its closed position as shown in dotted lines in Fig. 4. This valve swings in approximately a vertical plane under the lower end of the tube 10. The chamber 8 is enlarged at the side in which the valve is located, and the shaft 22 is positioned at one side of the outlet 13 so that the entire valve and its supporting parts are out of the line of the jet of water discharged through the nipple 10. It will also be observed that the valve is positioned opposite to the suction inlet 16 so that the water entering the chamber through this inlet tends to hold the valve open. This tendency is also assisted by the fact that the center of gravity of the swinging parts 21, 22 and 23 lies at the left, Fig. 4, of the axis of the shaft 22 when the valve is opened.

In using this device to fill the receptacle, the valve 22 is closed and the faucet 3 is opened. No further attention is required until it becomes necessary to shut off the faucet. In using the device on two faucets, it may be connected to them in the usual manner, in which case the valve 22 is not used.

The invention thus provides a form of filling and draining device which can be manufactured economically, is very convenient to use, and in which the draining action is far more reliable than any prior constructions of this general character.

Having thus described our invention, what we desire to claim as new is:

1. A filling and draining device comprising a body having a suction chamber with a main inlet and an outlet opening into said chamber at the top and bottom thereof, respectively, and a suction inlet opening laterally into the chamber, said main inlet and said outlet being substantially in alinement with each other, a member in said main inlet for directing the incoming water into said chamber in the form of a jet, a valve seat at the upper end of said outlet, and a flap valve pivotally mounted at one side thereof, in said body to swing into and out of engagement with said seat to close or open the outlet.

2. A filling and draining device comprising a body having a suction chamber with a main inlet and an outlet opening into said chamber at the top and bottom thereof, repectively, and a suction inlet opening laterally into the chamber, said main inlet and said outlet being substantially in alinement with each other, a member in said main inlet for directing the incoming water into said chamber in the form of a jet, a flap valve seat at the upper end of said outlet, a valve for engaging said seat, means pivotally supporting said valve at one side thereof, for swinging movement in an approximately vertical plane into and out of engagement with said seat, and an operating element for said valve located outside of said body.

3. A filling and draining device comprising a body having a suction chamber with a main inlet and an outlet opening into said chamber at the top and bottom thereof, respectively, and a suction inlet opening laterally into the chamber, said main inlet and said outlet being substantially in alinement with each other, a member in said main inlet for directing the incoming water into said chamber in the form of a jet, a valve seat at the upper end of said outlet, a horizontal shaft extending into said chamber at one side of said outlet, a valve mounted on said shaft for movement into and out of engagement with said seat, and a handle secured on said shaft outside of said body and extending in the same general direction as said valve.

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