Jan. 5, 1932. H. R. SAGE 1,839,413

VALVE CONSTRUCTION

Filed Aug. 13, 1930

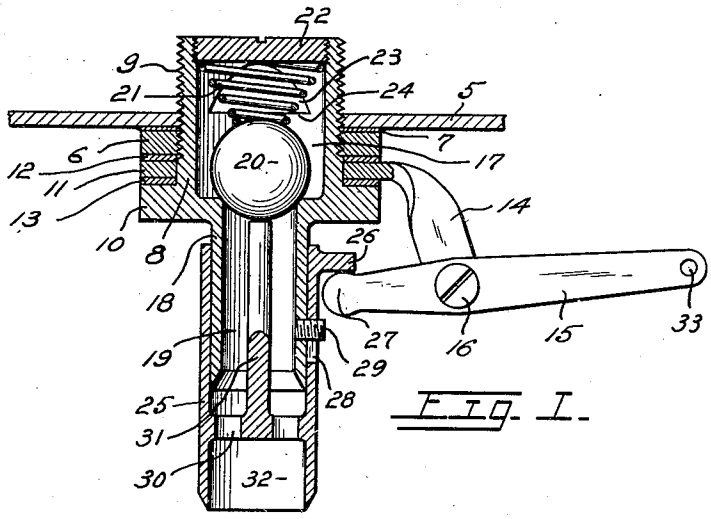


FIG. 1.

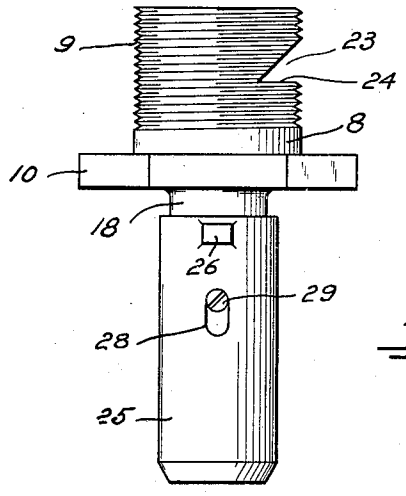


FIG. 2.

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UNITED STATES PATENT OFFICE

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VALVE CONSTRUCTION

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My invention relates to valve constructions, and particularly to valve constructions that are adapted for discharging the contents of tanks and the like. Among its principal objects are: first, to provide a valve that may be opened very quickly to its full capacity, by a slight movement of an operating lever; second, to produce a valve adapted for being installed in a tank bottom, and that is capable of draining the contents of the tank completely; third, to supply a valve of the foregoing character which requires no packings for any of its moving parts, and which, nevertheless, will not permit of any leakage or discharge of fluid except through the passage provided and intended for that purpose; fourth, to supply a valve embodying the above characteristics and that has a discharge spigot adapted for being inserted vertically into bottle necks and similar restricted inlets of receiving vessels; and, fifth, to accomplish the foregoing objects by means of a very simple and relatively inexpensive construction.

My objects are attained in the manner illustrated in the accompanying drawings, representing an embodiment of my invention that is intended primarily for the dispensing of fluids into containers that have restricted inlets, and in which:—

Figure 1 is a side elevation of my improved valve construction, in cooperative relation to a tank bottom, and its operating mechanism, most of the parts being shown in central longitudinal section; and,

Figure 2 is an elevation of the above valve by itself, when revolved 90 degrees about its axis from the position shown in Fig. 1.

Similar reference numerals refer to similar parts throughout both views.

In such uses as the self-serving dispensing of fluids, it is highly desirable to provide for discharging an accurately predetermined quantity of the fluid. This may be accomplished by providing a storage container of the exact capacity desired, if there are accompanying means for completely draining its contents. The obvious way of accomplishing this is to install the discharge valve at the lowest part of the container, arranged in such a manner as to completely drain it. Such a valve should have facilities for allowing it to be opened to its full capacity very quickly; for permitting its discharge outlet to be inserted into an orifice of a receiving container; and for preventing any drip or flow of fluid through any other passage than the discharge outlet. Packings are objectionable, since they require attention and may become a possible source of leakage, and also because they introduce more or less frictional resistance to the operation of the parts packed.

Passing to a detailed description of the form of my invention that I have selected for illustrative purposes, I have indicated a portion of the bottom of a sheet metal tank at 5. Where the metal of the tank is relatively thin, it is desirable to re-enforce it around the discharge orifice. This may be accomplished by means of a metallic ring 6, surrounding the orifice at the outside, and brazed or sweated onto the tank bottom as indicated at 7. The thus re-enforced outlet of the tank is tapped.

My valve comprises a tubular body member 8, the upper end of which is exteriorly screw-threaded at 9 and screwed through the tank orifice. It frequently is desirable to provide a flange 10 on the body member, for supporting the valve operating mechanism. Such mechanism may consist of a supporting washer 11 through which the valve body extends, clamped between ring 6 and flange 10, with gaskets 12 and 13 respectively therebetween. This supporting washer has an integral, or otherwise attached, portion 14, serving as a bracket for the operating lever 15, the latter being pivotally attached thereto by pivot screw 16.

The upper end of body member 8 constitutes a cylindrical chamber 17, and the lower end constitutes a nozzle portion 18 having a discharge passage 19 therethrough communicating with the chamber. The diameter of this passage is considerably smaller than that of the chamber, and it is normally closed by a ball 20, within the chamber and seated upon the margin surrounding the mouth of the passage. Since the axis of this valve is vertical, the ball will normally be retained against its seat by gravity. If additional seating force for this valve is desired, a

tapered helical spring 21 may be provided, and a plug 22 is screwed into the top of the body member to serve as the reaction base for the spring, and to retain the parts within chamber 17.

Fluid from the tank is allowed to enter chamber 17 through an orifice in its side wall. This may be in the form of the V-shaped notch 23, the base 24 of the notch being horizontal and flush with, or slightly below, the level of the tank bottom.

Surrounding nozzle 18, and longitudinally slidable thereon, is a tubular spigot 25. This has a lug 26 projecting from its side, adapted for being engaged by the cam-ended extremity 27 of lever 15. Angular movement of the spigot is prevented, and its longitudinal movement is limited, by the provision of a longitudinal slot 28 in its wall, and by the insertion of a stop-screw 29 through this slot and tapped into the wall of nozzle 18.

Within the bore of spigot 25, near its lower end, is a perforate partition or spider 30, and an axial rod 31 extends upwardly therefrom and terminates just short of ball 20, when the spigot is in its lowermost position. Therefore a slight upward movement of the spigot will serve to unseat the ball, and allow the contents of the tank to be discharged through passage 19 of the nozzle and passage 32 of the spigot. The raising of the spigot is accomplished by pulling down on the operating lever at its right hand end, as by a chain (not shown) depending from hole 33 in the lever.

Obviously the dimensions of spigot 25 may be made such that it may readily be inserted into a small bottle neck, or other restricted passage of a receiving container. It will also be apparent that all of the discharge from the tank must necessarily pass through passage 32. These provisions prevent splashing or any other diverted flow of the fluid, and there will be no loss thereof in delivery to a customer.

Having thus fully described my invention, I claim:

1. Valve construction comprising; a tubular body member adapted for being inserted through a tank bottom and having a tubular nozzle extending downwardly therefrom; a valve within said body at the upper end of the nozzle, adapted to close the passage therethrough; a tubular spigot surrounding said nozzle and slidable thereon; and means external to said body for moving said spigot upwardly; said spigot being provided with an axial rod extending upwardly through the nozzle passage and normally terminating just short of said valve, adapted to unseat the valve when the spigot is raised.

2. The construction set forth in claim 1 in co-operation with a tank bottom through which the body member is inserted, and wherein the body member is provided with an inlet orifice substantially at the level of the inside wall of the tank bottom.

3. Construction as set forth in claim 1 in co-operative association with a tank bottom through which the tubular body extends; the upper end of said tubular body having an orifice cut therethrough; and the lower side of said orifice being shaped to conform to the tank bottom and being substantially flush therewith.

HERBERT R. SAGE.