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M. F. RYAN  
SAND FILTER VALVE  
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Fig. 1.

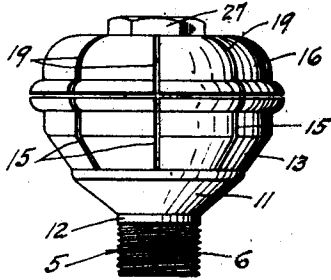


Fig. 2.

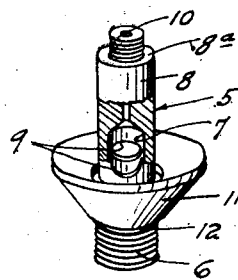


Fig. 3.

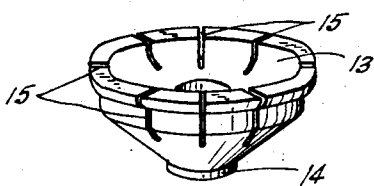


Fig. 4.

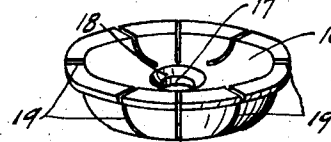


Fig. 5.

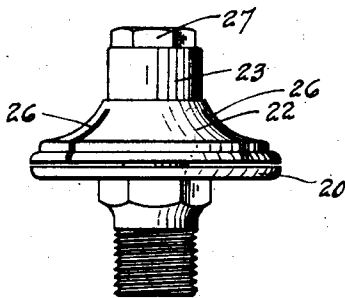


Fig. 6.

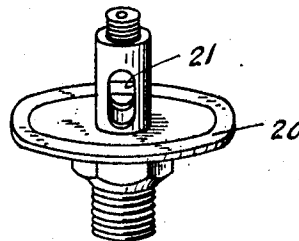
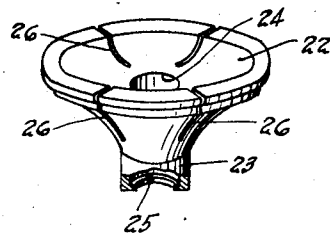


Fig. 7.



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## UNITED STATES PATENT OFFICE.

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## SAND-FILTER VALVE.

Application filed December 24, 1921. Serial No. 524,806.

This invention relates to sand filter valves and has for its object to provide a device of this character constructed to permit the unobstructed flow of liquid through the valve but prevent the entrance of sand and like matter or sediment.

Another object of the invention is to provide a valve of this character capable of being readily applied and removed, and wherein the sections of the valve may also be readily disassembled for cleaning without disengaging the main portion or stem of the valve from its support or conduit.

It is also an object of the invention to provide a valve of this character including a stem and a spaced straining member or guard and a strainer cap, the stem of the valve being adapted to hold the cap in spaced relation to the strainer member or guard.

A further object of the invention is to provide a valve of this character including a supporting stem and spaced strainer or guard members substantially embracing the stem, the strainer or guard members being spaced from each other to permit the entrance of fluid or water and prevent the entrance of sand or solid matter.

With these and other objects in view, the invention consists in the improved construction and arrangement of parts to be herein-after more particularly described, fully claimed and illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation of a sand filter valve;

Figure 2 is a perspective view of the stem, a portion of the stem being shown in section;

Figure 3 is a perspective view of the strainer member;

Figure 4 is a perspective view of the cap;

Figure 5 is a side elevation of another form of the invention;

Figure 6 is a perspective view of the valve stem and plate of the form shown in Figure 5; and

Figure 7 is a perspective view of the cap shown in Figure 5.

Referring to the drawings, 5 designates the valve stem, the end portion 6 of the valve being enlarged and exteriorly threaded, said stem having a bore 7 extending longitudinally of the stem through the end 6 and terminating inwardly of the end 8, the stem being provided with opposed open-

ings 9 in the side walls thereof, said openings communicating with the bore 7. The end 8 of the stem is reduced to provide an annular shoulder 8<sup>a</sup> and a threaded extension 10, the extension 10 having a relatively small opening extending therethrough and communicating with the bore 7. Formed integral with the enlarged end portion of the stem and extending toward the end 8 is an annular dished flange 11, said flange having an annular groove 12 provided at the junction of said flange with the enlarged end 6. The purpose of the flange 11 is to provide a seat or receptacle for the various types of the strainers or guards and to also permit new strainers or guards to be applied without disengaging the stem of the valve from the conduit or pipe.

In connection with the stem 5 a guard or strainer member 13 is provided, the exterior portion of said strainer member being substantially concavo-convex, while the inner portion of said member is substantially dished or concaved. The apex portion of said guard or strainer member having an opening, an annular flange 14 being provided at the outer face of the opening, said collar being adapted to extend into the annular groove of the enlarged end 6 to hold said opening in spaced relation to the stem 5 and to also properly position the guard or strainer member within the seat or flange 11. Extending from the outer edge of the guard or strainer member and terminating at the intermediate portion thereof, is a plurality of slits 15 which provide water inlets for the valve, the slits substantially radiating from the apex portion of the guard or strainer member, and while they permit the entrance of liquid such as water, they positively prevent the entrance of sand, sediment and the like.

In connection with the guard or strainer member 13, a strainer member or cap 16 is provided, said cap being substantially concavo-convex and having a central opening 17, the inner face of the cap 16 adjacent the end of the opening 17 being reduced to provide an annular recess 18 corresponding in diameter to the diameter of the stem 5. A plurality of slits 19 are provided in the cap, said slits extending from the edge of the cap inwardly and terminating at the intermediate portion of the cap, every other slit being longer than the adjacent slit.

In assembling the valve, the guard or

strainer member 13 is placed upon the seat or support 11 and the extension of the stem passed through the opening 17, to permit engagement of the shoulder 8<sup>a</sup> with the inner wall of the recess 18. The shoulder 8<sup>a</sup> is intended to hold the cap 16 in spaced relation to the upper edge of the strainer member 13, a distance corresponding to the width of one of the slits, so as to permit the passage of water but prevent the passage of sand and like matter, the water entering the valve passing through the openings 9 into the bore 7 and out through the enlarged end 6 of the stem which is disposed in a conduit or tank.

In Figures 5, 6 and 7, another form of the invention is shown. This form comprises a stem, somewhat similar in construction to the stem 5 with the exception that the dished flange member is omitted and a guard or plate 20 substituted, the plate being formed integral with the stem and having its upper face substantially dished. The stem is also provided with opposed elongated inlet openings 21, while positioned beneath the plate and formed integral with the enlarged portion of the stem, is a many-sided collar adapted to facilitate application of the valve with the use of a wrench. In connection with the guard or plate 20 a strainer cap 22 is provided, the exterior portion of the cap being substantially frusto-conical, while the interior portion is dished. Projecting from the exterior portion of the cap is an extension or collar 23 having an opening or bore 24, the bore being reduced at the extremity of said collar to provide an inner annular shoulder 25 adapted to engage the shoulder carried by the upper end of the stem. The threaded end of the stem passes through

the opening, so that similar to the strainer cap 16, the strainer cap 22 is disposed in spaced relation to the plate or guard 20 to permit the entrance of water and prevent the entrance of sand or like foreign matter. The cap 22 is also provided with a plurality of substantially radiating slits 26 which extend from the periphery of the cap and terminate adjacent the face of the collar or extension 23. To secure each of the caps 22 and 16 to their respective stems, nuts 27 are provided, said nuts being engaged with the threaded extensions of the stems.

From the foregoing it will be readily seen that this invention provides a novel arrangement of a sand filter valve which is highly efficient, in that the various parts of the valve may be disassembled for cleaning without requiring the removal of the main part of the valve, such as the valve stem, from the conduit or tank, so that the valve may be used indefinitely with entire satisfaction.

What is claimed is:—

A device of the character described comprising a stem having a longitudinal bore therethrough and lateral openings intermediate its ends communicating with said bore, an enlarged member on the stem spaced from the lower end thereof, a guard seated upon said member, a reduced threaded extension at the upper end of the stem defining a shoulder, a cap seated upon said shoulder with its lower edge in spaced parallel relation to the guard, and a nut screwed upon the reduced extension for holding the cap in place.

In testimony whereof I hereunto affix my signature.

MATTHEW F. RYAN.