Oct. 9, 1923. 1,470,290

M. F. RYAN

SAND FILTER VALVE.

Filed Nov. 20, 1922

Fig. 1.

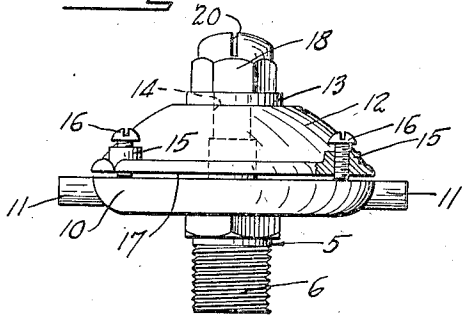


Fig. 5.

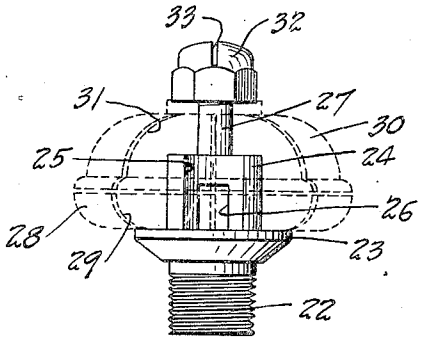


Fig. 2.

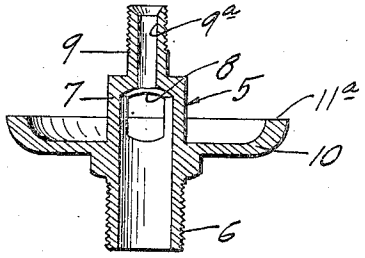


Fig. 6.

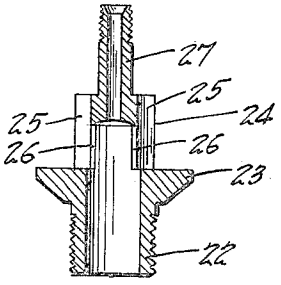


Fig. 3.

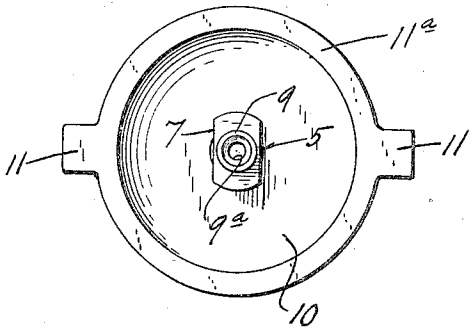
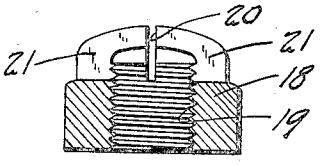


Fig. 4.



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UNITED STATES PATENT OFFICE.

MATHEW F. RYAN, OF FLORENCE, MASSACHUSETTS.

SAND-FILTER VALVE.

Application filed November 20, 1922. Serial No. 602,258.

To all whom it may concern:

Be it known that I, MATHEW F. RYAN, a citizen of the United States, residing at Florence, in the county of Hampshire and State of Massachusetts, have invented certain new and useful Improvements in Sand-Filter Valves, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to sand filter valves, and has for its object to provide a valve wherein the valve stem serves as supporting means for strainer cups used in connection with the valve.

It is another object of the invention to provide a valve of this character wherein the means used to hold the strainer cup on the stem of the valve also serves as inlet means for the valve.

It is a further object of the invention to provide a valve of this character including strainer cups with means for adjusting said cups relative to each other to increase or decrease the outlet opening of the valve.

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

Figure 1 is a view in elevation of a sand filter valve constructed in accordance with an embodiment of the invention;

Figure 2 is a longitudinal sectional view of the valve stem and plate shown in Figure 1;

Figure 3 is a top plan view of the structure shown in Figure 2;

Figure 4 is a sectional view of the nut;

Figure 5 is a side elevation of another form of the invention, the strainer cups being shown in dotted lines; and

Figure 6 is a longitudinal sectional view of the stem shown in Figure 5.

Referring to the drawings, 5 designates a valve stem, the lower end portion 6 of said stem being threaded for connection to an outlet member in the sand filter. The central portion 7 of the stem is reduced on two sides thereof and provided with openings 8 by means of which the water may pass through the valve. The end portion 9 of the valve is reduced, rounded and threaded. The end portion 9 is also provided with a longitudinally extending, centrally disposed opening 9^a, the upper portion of the opening being flared so as to permit the discharge of water into the central portion 7.

Formed integral with the stem and projecting from the stem at the junction of the central portion 7 with the end portion 6 is a strainer plate 10 which is preferably circular, said plate having its upper face dished so as to direct the water to the outlets 8. Carried by the periphery of the strainer plate 10 at opposed points are lugs 11 by means of which the stem may be inserted in the outlet member of the sand filter without difficulty and without the use of a wrench. The upper marginal edge portion 11^a of the plate 11 is constructed flat for a purpose to be hereinafter described.

In connection with the plate 10, a strainer cup 12 is provided, said cup including a collar 13. The cup is also provided with a central smooth bore or opening 14 adapted to receive the end portion 9 of the valve stem. The exterior face of the cup 12 at spaced intervals is provided with a plurality of threaded sockets 15 adapted to receive set screws 16.

The lower marginal edge portion 17 of the cup 12 is constructed flat. The cup 12 is intended to be placed on the portion 9 of the valve stem, the cup being arranged to engage the shoulder formed at the junction of the end portion 9 with the central portion 7. In order to secure the cup 12 to the stem, a nut 18 is provided, said nut having a socket 19 which is centrally threaded and does not extend through the nut, so that it substantially forms a cup. The top of the cup is provided with intersecting slits 20 and 21 which permit water to enter the valve stem to prevent the entrance of matter such as sand. In use, the flat portion 17 of the cup 12 is disposed in parallel relation to the portion 11^a of the plate 11 so as to permit the entrance of water between said plates without the entrance of sand.

Should a greater flow of water be desired, the opening between the cup 12 and plate 11 may be regulated by the set screws 16 so as to raise the cup 12, disengagement of the cup 12 being prevented by the nut 18. By this means, regardless of the fact that the cup 12 may not always engage the shoulder of the valve stem, it is possible for said cup to be held in a rigid position through the cooperation of the screw 16 and the nut 18.

In Figures 5 and 6 another form of the invention is shown. This form consists of a

stem 22 having its lower portion threaded similar to the stem 5 and having an annular flange 23 projecting from the upper portion of the threaded end. The central portion 24 of the stem is slightly larger than the end portion 23, said central portion having concaved recesses 25 disposed at opposed points, said central portion having inlet openings 26 adapted to communicate with the opening in the threaded end portion of the stem. Projecting from the upper portion of the central portion 24 is a rounded stem portion 27, the upper portion of said stem being threaded. The stem 27 has a longitudinally extending bore, the upper edge of the bore being flared. This form of stem is intended to be used in connection with a sand filter valve. The flange 23 of the stem is intended to support a strainer cup 28, said cup having a plurality of radiating slits 29.

An upper strainer cup 30 is provided, said cup having a plurality of radiating slits 31, adapted to register with the slits 29 of the cup 28. The cup 30 is intended to engage the shoulder formed at the junction of the end portion 27 with the central portion 24 so as to hold the cup 30 in spaced relation to the cup 28. The end portion 27 is intended to receive a cap nut 32 which is somewhat similar to that of the nut 18 in that it has a socket for the reception of the end portion 27 of the stem and intersecting slits 33 which permit water to pass through the stem.

From the foregoing it will be readily seen that this invention provides a novel form of sand filter valve wherein the water may be discharged through the valve stem, regardless of the fact that a nut is carried by the stem and is used to hold portions of the valve. In addition to this, the first mentioned form of the invention is provided with means whereby the cup 12 may be adjusted relative to the plate 11 to increase or decrease the distance therebetween. These features provide a valve which is simple in construction and which may be readily disassembled for cleaning without removing the stem from the outlet of the sand filter.

What is claimed is:—

1. A device of the character described comprising a tubular body member having one end threaded, the side portions of the stem above the threaded portion thereof having outlet openings, the upper portion of said body member being reduced and threaded and provided with an opening adapted to communicate with the tubular body portion, strainer means carried by said stem, and a nut engaged with the upper portion of said stem for connecting said means to the stem, said nut having openings to permit the passage of matter through said nut into the stem.

2. A valve of the character described comprising a body member threaded at its lower portion, a plate formed integral with and extending from the upper portion of the central portion, an extension projecting from the central portion of the plate, said extension having outlet openings communicating with the threaded end portion, a threaded stem carried by the extension, said threaded stem having an opening communicating with the extension, a strainer cap mounted on the stem, and a cap nut engaged with said stem, said nut having intersecting openings communicating with the opening in the stem.

3. A valve of the character described comprising a body member threaded at its lower portion, a plate formed integral with and extending from the upper portion of the central portion, an extension projecting from the central portion of the plate, said extension having outlet openings communicating with the threaded end portion, a threaded stem carried by the extension, said threaded stem having an opening communicating with the extension, a strainer cup mounted on the stem, a cap nut engaged with said stem, said nut having intersecting openings communicating with the opening in the stem, and adjusting means carried by the strainer cup and arranged to engage the plate for adjusting the cup relative to the plate.

4. A filter valve comprising a tubular stem having its lower end portion threaded, the central portion of said stem having opposed outlet openings, the upper portion of said stem being reduced and threaded, a plate formed integral with the central portion of the stem, said plate having oppositely extending lugs, and a strainer cup engaged with the threaded stem, said cup having threaded sockets disposed at spaced intervals adjacent the periphery for the reception of set screws, said screws being arranged to engage the plate to increase or decrease the distance between said cup and the plate.

In testimony whereof I hereunto affix my signature.

MATHEW F. RYAN.