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H. A. SHOWERS

REVERSIBLE CHECK VALVE AND STOP

Filed Jan. 25, 1924

FIG. 1.

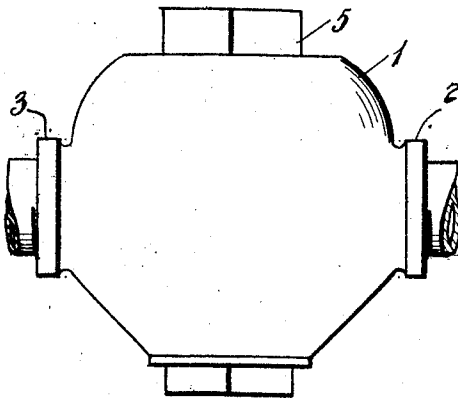


FIG. 2.

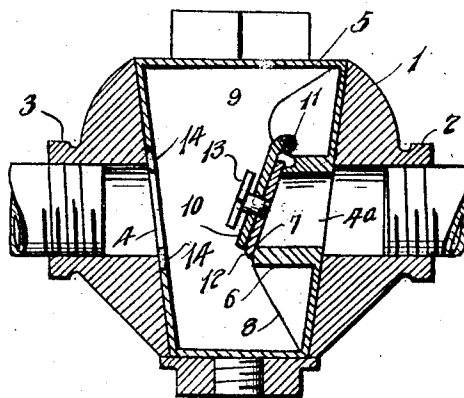


FIG. 3.

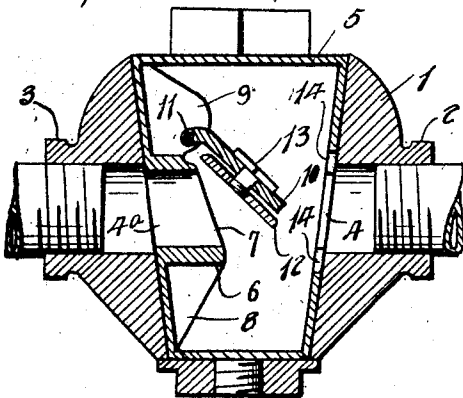
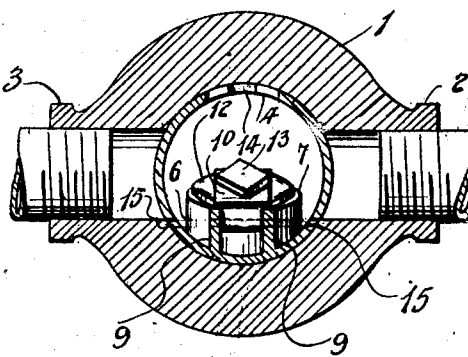


FIG. 4.



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REVERSIBLE CHECK VALVE AND STOP.

Application filed January 25, 1924. Serial No. 688,505.

To all whom it may concern:

Be it known that I, HAROLD A. SHOWERS, a citizen of the United States, residing at Warren, in the county of Warren and State of Pennsylvania, have invented certain new and useful Improvements in Reversible Check Valves and Stops; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has relation to a controlling valve and provides a reversible check valve and stop cock in a single organized structure which may be used effectively in either capacity and for automatically controlling the flow of fluid in one direction or the other as required, the check valve being reversible.

Other objects and advantages will be apparent and suggest themselves as the nature of the invention is understood.

While the drawings illustrate an embodiment of the invention it is to be understood that in adapting the same to meet different conditions and requirements, various changes in the form, proportion and minor details of construction may be resorted to without departing from the spirit of the invention.

Referring to the accompanying drawings forming a part of the application:

Figure 1 is a side view of a reversible check valve and stop cock embodying the invention,

Figure 2 is a longitudinal sectional view of the valve, the check being closed,

Figure 3 is a view similar to Figure 2, the check being reversed and partly open, and

Figure 4 is a horizontal section showing the plug turned to throw the check valve out of operative position and to cut off the flow through the valve in both directions.

Corresponding and like parts are referred to in the following description and designated in the several views of the drawings by like reference characters.

The numeral 1 designates the valve casing having opposed coupling ends 2 and 3 which are adapted to register with the openings 4 and 4^a of the hollow tapering plug 5 fitted in the casing 1 in a manner well understood.

The plug 5 is provided with a hollow boss 6 which is alined with the openings 4 and 4^a

and which has an inclined valve seat 7. The boss 6 extends into the plug 5 from that side thereof in which the opening 4^a is located. A lower reinforcing web 8 and upper relatively spaced reinforcing webs 9 extend from the boss 6 to the adjacent side of the plug 5. A swing frame 10 is pivoted at its upper end to and between the webs 9 by means of a pin 11, and it carries a check valve 12 adapted to close against the seat 7. The check valve 12 is loosely connected to the swing frame 10 by means of a bolt 13 which passes freely through the swing frame and which is threaded into the check valve.

As shown in Figure 2, the check valve 12 is adapted to close against pressure admitted through the coupling end 3 and automatically opens against pressure admitted through the coupling end 2. In order to effect a seating of the check valve 12 against pressure admitted through the coupling end 2 and the unseating thereof against pressure admitted through the coupling end 3, as shown in Figure 3, it is only necessary to give the plug 5 a one-half turn whereby to reverse the position of the check valve. When it is required to use the valve in the capacity of a stop cock, the plug 5 is given a one-quarter turn from either position shown in Figures 2 or 3, whereby the openings 4 and 4^a assume a position at a right angle to the coupling ends 2 and 3, thereby shutting off the flow through the valve in either direction.

To permit the swing frame 10 and check valve 12 to be inserted into and removed from the plug 5, that wall of the plug in which the opening 4 is located is provided with opposed notches 14 which communicate with the opening. In alinement with the openings in the web 9 for the reception of the pin 11, the plug 5 is provided, as shown in Figure 4, with openings 15 which permit the pin 11 to be readily applied and removed when mounting or removing the swing frame 10 and valve 12.

What is claimed is:

1. A valve casing having an opening therethrough, a plug mounted in the casing and having an opening to register with the opening of the casing and adapted to be turned to cut off the flow through the casing in both directions, said opening of the plug being of a size for the maximum flow

of material therethrough, and a check valve carried by the plug and adapted to be reversed to control the flow through the casing in the required direction, said valve being the only obstruction through the plug.

2. A valve casing having an opening therethrough, a hollow plug rotatably mounted in the casing and having alined openings, said opening of the plug being of a size to permit maximum flow of material therethrough, a hollow boss within and integral with the plug alined with the openings therein and provided with an inclined valve seat, a swing frame, and a check valve carried by the swing frame.

3. A valve casing having an opening therethrough, a hollow plug rotatably mounted in the casing and having alined

openings, said opening of the plug being of a size to permit maximum flow of material therethrough, a hollow boss within and integral with the plug alined with the openings therein and provided with an inclined valve seat, a lower web extending from the boss to the adjacent side of the plug, upper spaced webs extending from the boss to said side of the plug, a swing frame pivoted to and between said upper webs, and a check valve carried by the swing frame, said valve being the only obstruction through the plug.

In testimony whereof I affix my signature in presence of two witnesses.

HAROLD A. SHOWERS.

Witnesses:

GEO. B. MUNN,
C. H. MARKER.