Sept. 19, 1933. R. G. DENK 1,927,582

COMBINED FILTER AND CHECK VALVE

Filed Jan. 21, 1931

FIG. 1.

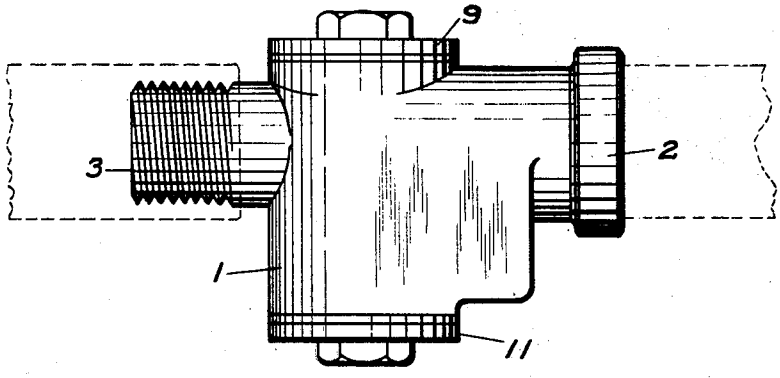



FIG. 2.

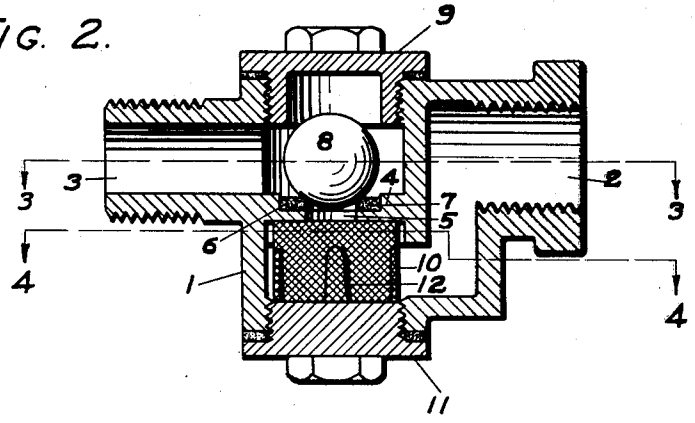



FIG. 3.

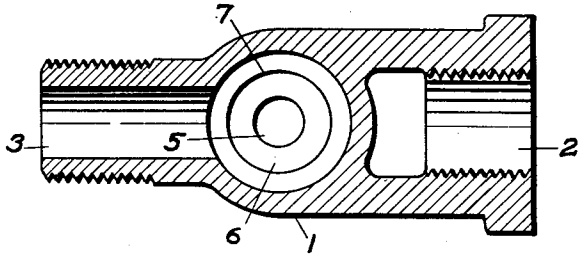
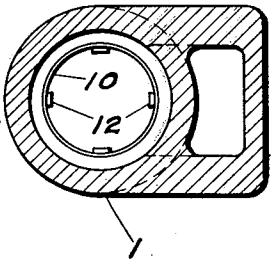



FIG. 4.




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Patented Sept. 19, 1933 1,927,582

# UNITED STATES PATENT OFFICE

1,927,582

## COMBINED FILTER AND CHECK VALVE

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Application January 21, 1931. Serial No. 510,215

3 Claims. (Cl. 210—166)

This invention relates to a combined filter and check valve of that class adapted to be used primarily in connection with hot water heating plants, although it will be understood that it may be used for any purpose desired and one feature of the invention is the provision of a filtering medium in connection with the valve structure for removing foreign particles from the fluids passing through the valve.

A further feature of the invention is the provision of means for removably retaining the filtering medium within the valve structure.

A further feature of the invention is the provision of a buoyant or floating valve for preventing the passage of the fluid through the valve structure in one direction.

A further feature of the invention is the provision of a resilient seat for the valve proper.

A further feature of the invention is the provision of means for removably retaining the filter and valve proper within the casing of the valve structure.

Other objects and advantages will be hereinafter more fully set forth and pointed out in the accompanying specification.

In the accompanying drawing which is made a part of this application,

Figure 1 is a side elevation of a valve structure attached to a pipe line.

Figure 2 is a central vertical sectional view thereof.

Figure 3 is a horizontal sectional view as seen along line 3—3, Fig. 2, and,

Figure 4 is a similar view as seen along line 4—4, Fig. 2.

Referring to the drawing, the numeral 1 designates the body or casing of the valve structure, having an inlet opening 2 and an outlet opening 3, said inlet and outlet being separated by means of a partition 4.

The partition 4 is provided with a valve opening 5, the upper end of which is surrounded by a resilient valve seating member 6, the upper face of the partition, around the opening 5, having a recess 7 for the reception of the seat forming member 6. Adapted to co-operate with the seat forming member 6 is a more or less buoyant valve 8, preferably in the nature of a marble, the upper end of the body 1 having a cap 9 threaded thereinto for retaining the valve 8 within the upper portion of the body, and by means of which the valve may be entered into or removed from the body 1.

On the opposite side of the partition 4 from the valve seat 6, is a filtering member 10, preferably in the nature of a mesh wire screen ring, which extends from the partition 4 to engagement with a plug 11 screwed into the end of the body 1, said plug preferably having a plurality of prongs 12 extending inwardly therefrom, over which the filter 10 is introduced and by means of which the filter is held in fixed position within the body 1. As the filtering member 10 extends from the partition 4 to the end of the plug 11 and entirely encircles the opening 5, any foreign particles contained in the medium passing through the valve structure will be separated therefrom and retained by the filter until such time as the plug 11 and filter 10 are removed from the body 1 and the filtering medium then cleansed thereof.

By providing the resilient seat 6 for the valve 8 and a more or less buoyant valve, it will not require a spring to keep the valve seated, as is usual, the weight and pressure of the liquid in the pipe line serving to positively seat the valve and depress the upper inner edge of the seat 6, thus forming an extended contact surface between the valve and its seat and forming a perfect seal.

What I claim is:

1. A combined filter and check valve having chamber walls, an inlet, an outlet, a partition between said inlet and outlet, a bore extending through said chamber walls and said partition, a valve element which normally rests on one side of said partition over the bore thereof, a band shaped screen, one edge of which is disposed against the other side of said partition concentric with the bore thereof, a plug disposed through the said chamber walls against the other edge of said screen, serving to hold the other edge of same against said partition, said plug having spaced prongs extending within said screen serving to locate same against other contact of said screen except at its edges, said plug serving to permit the removal and replacement of said screen; whereby a liquid entering said check valve will be distributed through all parts of said screen except the limited space contacted by said prongs.

2. A combined filter and check valve having chamber walls, an inlet, an outlet in line with said inlet, a flat partition between said outlet and inlet, a bore extending through said partition transverse to a line passing through said inlet and outlet, a valve element which normally rests on one side of said partition over the bore thereof, a band shaped screen member, one edge of which is disposed against the other

side of said partition at the bore thereof, concentric therewith, said screen member being free of continuous contact except at its edges, a plug disposed through the said chamber walls against the opposite edge of said member, said plug having a substantially flat face serving to hold the other edge of same against said partition and serving to permit the removal and replacement of same; whereby substantially all of said screen member will serve as a screen.

3. A combined filter and check valve having chamber walls, an inlet, an outlet in line with said inlet, a flat like partition between said inlet and outlet, said partition being parallel to the axial center of said inlet and outlet, a bore through said partition at right angles to a line passing through said inlet and outlet, said bore terminating in a counter bore shaped recess at one end, a washer shaped resilient member disposed within said resilient member having a hole concentric with said bore at one end, a valve element which normally rests on said resilient member on one side of said partition over the hole thereof, a band shaped screen, one edge of which is disposed directly against the other side of said partition, concentric with hole of said resilient member, a plug disposed through the said chamber wall, said plug having a flat face disposed against the other end of said screen, serving to hold the other edge of same against said partition and serving to permit the removal and replacement of said screen; whereby a liquid entering said check valve will pass directly from said inlet through said screen and partition and directly into said outlet.

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