

Oct. 27, 1925.

W. L. HILBISH

1,558,608

FILTER

Filed April 7, 1924

Fig. 1.

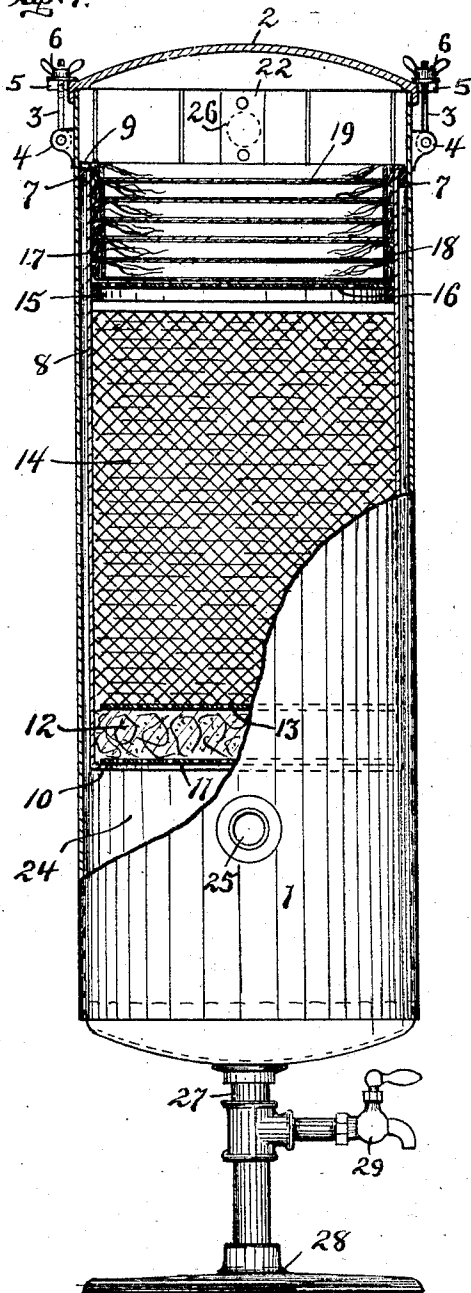


Fig. 2.

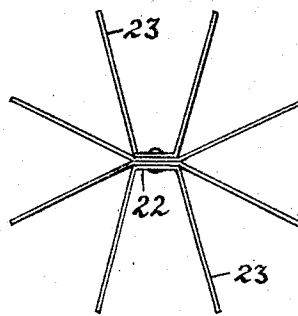
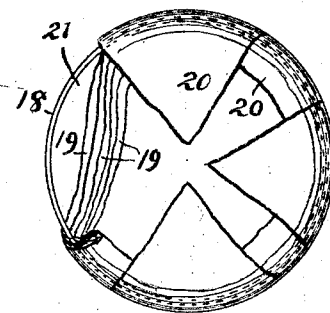


Fig. 3.



William L. Hilbish

INVENTOR

BY

A. G. Burns

ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM L. HILBISH, OF FORT WAYNE, INDIANA.

FILTER.

Application filed April 7, 1924. Serial No. 704,565.

To all whom it may concern:

Be it known that I, WILLIAM L. HILBISH, a citizen of the United States of America, and resident of Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Filters, of which the following is a specification.

This invention relates to improvements in water filters for connection in the pipe line between a cistern or other source of water supply and the distributing pipe system of a residence, and the object thereof is to provide a filtering apparatus so constructed as to admit of convenient cleansing and renewal of the filtering material without disconnection of the apparatus from the pipe line, and which will be easily accessible for cleansing and renewal operations.

These objects are accomplished by the construction illustrated in the accompanying drawings, in which:

Fig. 1 is an elevation of a construction embodying the invention, partly broken away;

Fig. 2 is a plan view of a removable spider used in the apparatus; and

Fig. 3 is a plan view of one of the filtering drums employed in the construction.

The characters appearing in the description refer to parts shown in the drawings and designated thereon by corresponding characters.

The invention comprises a tank 1 having a removable head 2 at the top thereof that is held in place by means of a series of swing bolts 3. Upon the exterior of the tank are a series of lugs 4 in which the respective bolts 3 are hinged, and the head 2 has a corresponding series of lugs 5 that are engaged by thumb-nuts 6 on the bolts respectively.

The tank has near its upper end an internal annular shoulder 7 that forms support for a cylindrical sleeve 8 which is removably positioned in the tank, there being an external flange 9 at the top of the sleeve that rests upon said shoulder when the sleeve is in position. At the bottom of the sleeve is an internal flange 10 upon which is removably positioned a perforated plate 11. A layer composed of sponges 12 is superimposed upon the plate 11, and over said layer is placed a second perforated plate 13, and in the sleeve above the plate 13 is placed a quantity of filtering material, such as

charcoal 14. The sleeve 8 has also at a point suitably distant from its upper end an internal shoulder 15 upon which rests a removable perforated plate 16, and in that part of the sleeve above the plate 16 are positioned a series of removable filtering drums 17 arranged in vertical successive order.

Each filtering drum comprises a hoop 18 upon which is placed a head composed of a series of sheets 19 of coarse woven muslin or other fabric, the margins 20 of the sheets being folded over the perimeter of the hoop so that the opening 21 through the hoop is closed by the head. The drums are forced into position through the upper end of the sleeve and are held frictionally in position by the pressure of their contact with the interior wall of the sleeve.

In the upper end of the tank 1 is positioned a spider 22, the arms 23 of which rest upon the flange 9 of the sleeve and extend over the series of drums. The outer ends of the arms of the spider are clamped between the flange of the sleeve and the head 2 when the latter is secured in place and thus the upper end of the sleeve is held in close relation with the shoulder 7.

The lower end of the sleeve terminates at a point suitably distant from the bottom of the tank so that when the sleeve is in place therein a chamber 24 is left in the lower end of the tank for sediment.

The tank has an inlet opening 25 leading into its settling chamber, and also an outlet opening 26 leading from a point above the uppermost drum. The tank is supported upon a tubular post 27 that has communication with the tank at its lowermost point and is closed by a base 28 at its lower end, there being a draw-off cock 29 in connection with the post for the removal of sediment from the chamber 24.

In utilizing the invention the water from the cistern passes through the tank as it is pumped from the cistern, entering the inlet opening 25 and out through the outlet 26, and during its passage the water rises through the sleeve and filters successively through the layer of sponges, the pack of charcoal and the drum-heads into the top of the tank from which it is discharged through the outlet into the distributing pipe (not shown).

Such sediment as accumulates in the settling chamber is periodically removed through the draw-off cock, and when the

filtering material and the drum-heads become fouled by the accumulations of foreign matter, the sleeve with its content is bodily removed through the top of the tank. Access is gained to the sleeve by first removing the head 2 and the spider. The drums, the charcoal pack and the layer of sponges, as well as the several perforated plates are then removed from the sleeve and cleansed in any suitable manner. The filtering substances and materials are then reassembled in the sleeve, as in the first instance, and the sleeve is replaced in the tank in readiness for resumption of the filtering operation.

What I claim is:

1. In filtering apparatus, a closed tank having a removable head at its top and an internal annular shoulder in its upper part spaced from the head; a removable sleeve in the tank having an external flange at its top seated on the shoulder, and an internal flange at its lower end; a series of perforated plates spaced apart and arranged in the sleeve; filter packs in the spaces between the perforated plates; a series of filtering drums positioned in vertical succession in said sleeve

above the uppermost of said plates, each drum comprising a hoop and a series of fabric sheets folded over the hoop and closing the opening thereof; and a spider positioned in the space within the tank between the top of the sleeve and the removable head and extending over the series of drums, said tank having an inlet at a point beneath the lower end of the sleeve and an outlet at a point above the top thereof.

2. In filtering apparatus, a closed tank having an internal annular shoulder in its upper portion spaced from its top; a removable head at the top of the tank; a removable sleeve in the tank having at its top an external flange seated on said shoulder; a filtering means removably lodged in the sleeve; and a spider clamped by the head upon the flange of the sleeve and operable to hold the sleeve and filtering means therein in position, said tank having an inlet below the lower end of the sleeve and an outlet at a point above the top thereof.

In testimony whereof I affix my signature.

WILLIAM L. HILBISH.