

(No Model.)

C. M. KELLER.
FILTER.

No. 531,464.

Patented Dec. 25, 1894.

Fig. 1.

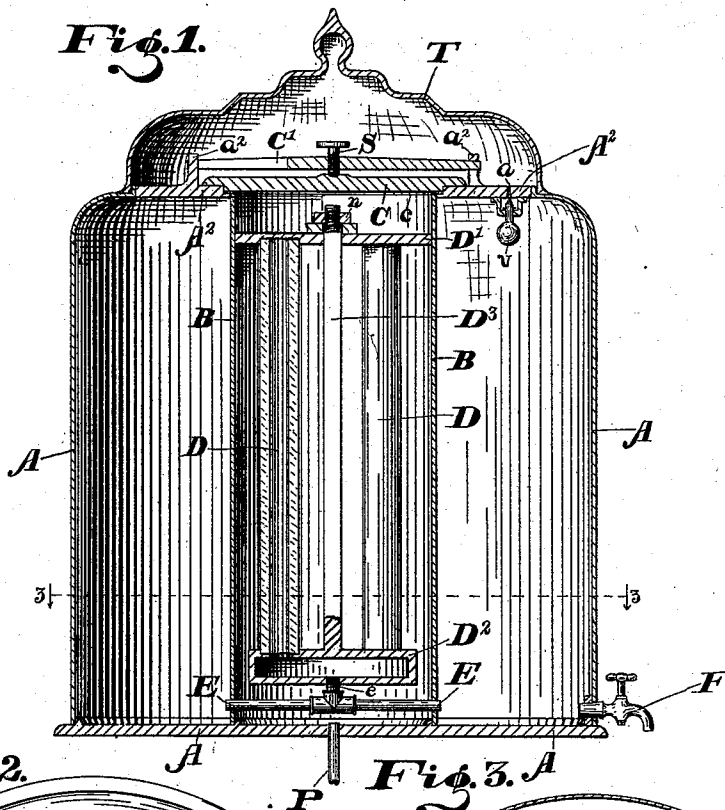


Fig. 2.

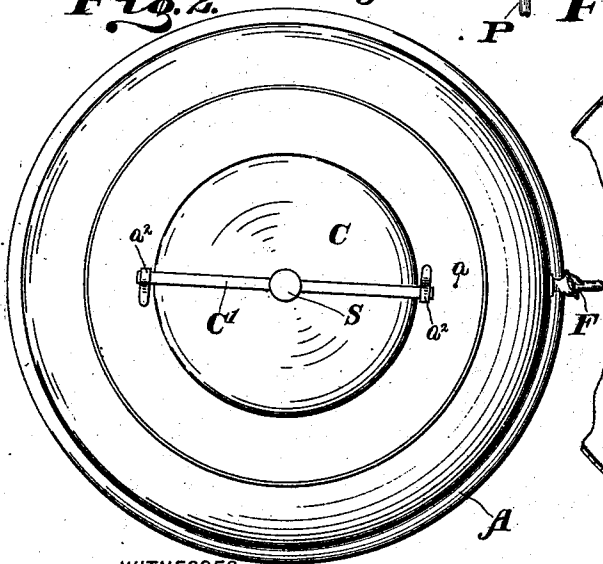
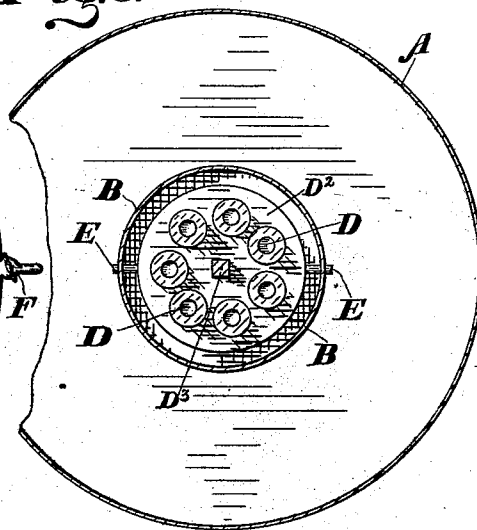


Fig. 3.



WITNESSES:

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FILTER.

SPECIFICATION forming part of Letters Patent No. 531,464, dated December 25, 1894.

Application filed July 10, 1894. Serial No. 517,087. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN M. KELLER, a citizen of the United States, residing at Columbus, in the county of Bartholomew and State of Indiana, have invented certain new and useful Improvements in Filters, of which the following is a specification.

My invention relates to that class of filters in which the water is caused to pass through cylinders of structurally solid, but porous material; and it consists in certain improvements in such filters, tending to simplicity and efficiency, as will be hereinafter more particularly described and claimed.

Referring to the accompanying drawings, which are made a part hereof and on which similar letters of reference indicate similar parts, Figure 1 is a central sectional view of a filter embodying my present invention; Fig. 2, a top or plan view with the ornamental top removed, and Fig. 3 a horizontal sectional view looking downwardly from the dotted line 3 3 in Fig. 1.

In said drawings the portions marked A represent the body of the filter; B, a central cylinder therein; C, a cover to the space containing the cylinder; D, filtering tubes secured within said cylinder B, and E discharge pipes for conveying the filtered water into the body of the filter, or water reservoir.

The body A is an ordinary reservoir or tank, such as is commonly employed to contain water for drinking and other purposes, and the main portion of it is tightly inclosed, except that a small air vent *a* is provided, through which air may enter and escape as the water is drawn off or introduced. A float valve *v* is provided to close this vent when the water rises sufficiently near the top, and this will have the effect of preventing the ingress of any more water until some is drawn away, as it will make the tank water and air-tight. As there is mechanism (hereinafter described) on the upper end of this filter, I prefer to cover it with an ornamental top T, which rests upon the body A, as shown in Fig. 1, and which can at any time be easily removed and replaced, as may be necessary or desired.

The cylinder B is attached at its respective ends to the bottom A' and top A² of the filter A. The joints being water-tight, it is adapted to receive the water in its original

condition before filtration,—which water is supplied by a supply pipe P.

The cover C extends over the central opening in the top A², and thus forms also a cover for the upper end of the cylinder B. This cover is seated firmly in place, where it is preferably held by a set screw S passing through a cross-bar C', which is in turn held by standards *a*² on the cover A². A packing *c*, in the cover seat, secures a water-tight joint.

The filtering tubes D are of a structurally solid, but somewhat porous material, through which water will percolate. I prefer to make these tubes of carbon rods having a longitudinal perforation throughout their length, as I have found carbon in this form to be a superior material for the purpose. In making these tubes I take large sized carbon rods, similar to those used in large electric lamps, bore them out in the center, and remove the glaze from the outside. They are then in perfect condition for my purpose. These tubes, as will be seen by an inspection of Fig. 1 of the drawings, are secured in a top D' and bottom D². The top is a plate of substantially the size of the interior of the cylinder B, counter-bored on the under side to receive the upper ends of the filtering tubes, and having a central perforation to receive the rod B³ by which the top and bottom are united together. The bottom D² is of considerable thickness, and hollow in its center, its upper side being counter-bored to receive the lower ends of the filtering tubes, with perforations (corresponding to the internal diameter of said tubes) extending through said upper side and communicating with its interior, through which the water may be freely discharged into said interior, or opening, as it percolates through the tubes from the outside to the interior thereof. The structure embodying the filtering tubes is made up of this top and bottom and the tubes themselves,—said top and bottom being united by the rod D³. Said rod is preferably suitably shaped, as square, at the upper end, where the top D' passes over it, (said top having a corresponding perforation) to prevent said top from turning, and its extreme upper end is round and carries a nut *n*, by which the whole may be firmly secured together, and the joints between the tubes and top and bottom thus rendered water-

tight. The bottom D^2 is of somewhat less diameter than the interior of the cylinder B, in order to permit the water to flow up around the outside of the filtering tubes freely. This structure is first assembled together, and then inserted in the cylinder B and screwed onto the branch pipe e , as shown, which completes the connection.

The tubes E are fixedly located near the bottom of the cylinder B, and their open outer ends discharge into the open space within the water reservoir A. Centrally, a branch pipe e leads up into the hollow opening in the bottom D^2 with which the filtering tubes communicate. The water is thus, as it is discharged from said filtering tubes, led off through these pipes E into the water reservoir, ready to be drawn off through the faucet F.

As will be readily seen upon an inspection of the drawings, the water to be filtered is totally separated from that which is filtered, and the reservoir containing the filtered water is wholly inclosed, except the necessary small air vent, while overflow through said vent is carefully guarded; and, finally, the construction is all of the most durable character, although inexpensive, and all mechanism is concealed from view.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a filter, of the large body or tank closed as described, a central cylinder united thereto at the upper and lower ends by water-tight joints, and a filter positioned within said cylinder and consisting of the filtering tubes D secured between the heads D' and D^2 , the latter of which is hol-

low, and pipes communicating with the hollow or opening in said part D^2 and leading to the water reservoir or tank, substantially as shown and described.

2. The combination, in a filter, of the body or tank portion, a cylinder within the same, and in contact with both ends thereof a filter within said cylinder, a cover C covering the space containing said cylinder, and devices for securing said cover firmly in place, substantially as shown and described.

3. The combination of the filter body A having the bottom A' and top A^2 , the latter having a central opening, the cylinder B secured to the bottom A' and to the opening in the top A^2 , the cover C adapted to extend over said opening, a cross-bar C' and set-screw S securing said cover in place, a filter within said cylinder, and an inclosing cover T for inclosing the mechanism, substantially as shown and described.

4. The combination, in a filter, of the main body or reservoir thereto, a central cylinder B containing filtering elements and secured to the top and bottom of said main body or reservoir, which latter is entirely closed except the small air vent a , and a float valve for closing said vent when the reservoir is nearly full, thus preventing overflow, substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Columbus, Indiana, this 3d day of July, A. D. 1894.

CHRISTIAN M. KELLER. [L. S.]

Witnesses:

FRANK P. BROCKMAN,
EDGAR R. COCHRANE.