(No Model.)

H. DECK.

FILTER.

No. 550,597. Patented Dec. 3, 1895.

FIG. 1.

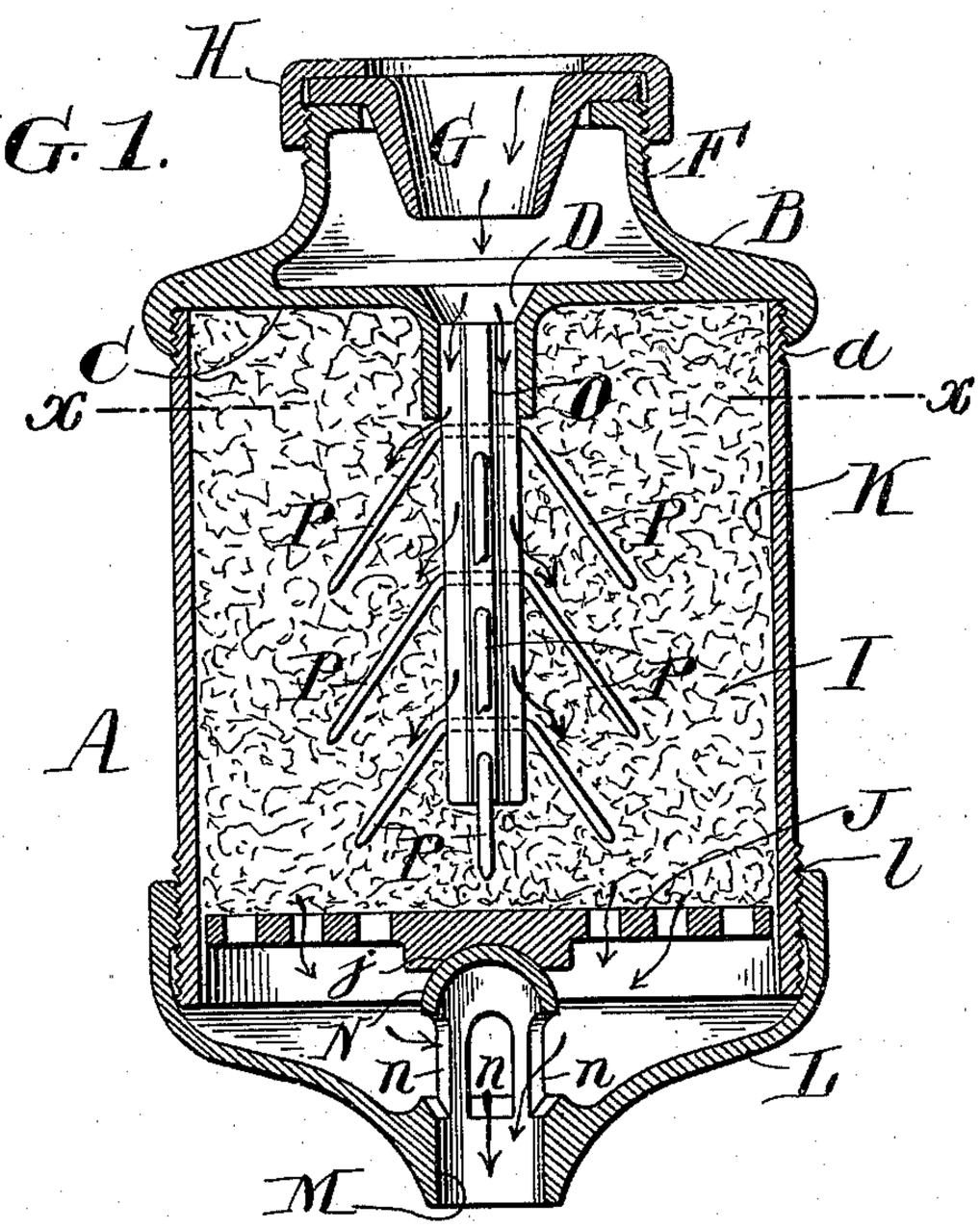
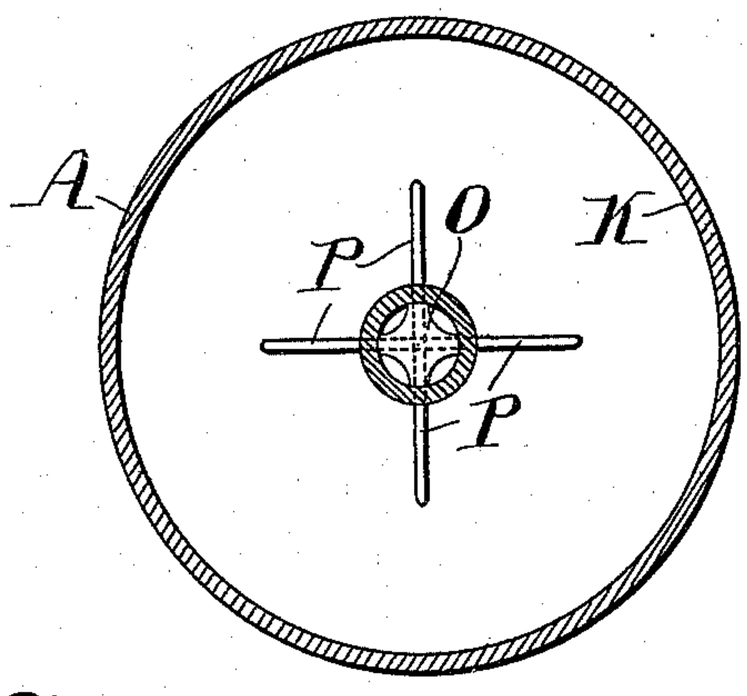


FIG. 2.



WITNESSES:
Henry Drury
H. L. Mothersill.

INVENTOR:
Henry Deck
By his Atty
P. Thompson

UNITED STATES PATENT OFFICE.

HENRY DECK, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO JOHN BRAUN, WILLIAM P. M. BRAUN, AND JOHN F. BRAUN, OF SAME PLACE.

FILTER.

SPECIFICATION forming part of Letters Patent No. 550,597, dated December 3, 1895.

Application filed August 1, 1894. Serial No. 519,174. (No model.)

To all whom it may concern:

Be it known that I, HENRY DECK, of the city and county of Philadelphia and State of Pennsylvania, have invented an Improvement in Filters, of which the following is a specification.

My invention relates to filters; and it consists of certain improvements which are fully set forth in the following specification and are shown in the accompanying drawings.

More particularly my invention relates to that class of filters in which the filtering material is tightly packed within the filtering-compartment by means of an adjustable diaphragm, plate, or piece, and part of my improvements relate to the means for adjusting such diaphragm or plate to compress the filtrant.

My invention also embraces improvements in the devices employed for distributing the water more evenly within the body of compressed or tightly-packed filtering material, so that a more perfect filtering effect may be produced.

It is also an object of my invention to embody my improvements in a small filter adapted for application to an ordinary tap or faucet, and to simplify the construction and reduce the liability of the parts to become out of order or defective.

In the drawings, Figure 1 is a vertical sectional view of a filter embodying my invention; and Fig. 2 is a horizontal sectional view of the same on the line *x x* of Fig 1.

A is the tubular body or case of the filter.

B is the top or cap adapted to be secured to the body A, as by the screw-threads *a*. The top or cap B has a base or bottom C, provided with an opening D, preferably formed with a tubular projection E, so that when the cap is applied to the case A access thereto is closed from above, except through the opening D. The upper portion of the cap B is extended upward and adapted to receive the supply of water. I have shown the cap formed with a more or less contracted neck F, over which is placed an open conical socket-piece G, of rubber, leather, or other suitable material, adapted to hold the filter upon the tap or faucet by frictional contact.

H is a clamping-nut screwed upon the neck F and clamping the socket piece G in place. While this construction for attaching the filter to the tap or faucet is preferred, other forms may be used, if desired.

Within the body or case A is placed the filtering material I. Any suitable filtering material may be employed, but it should be of such character a that it may be tightly compacted within the case. I prefer to use a filtrant of fibrous material, such as cotton-pulp.

J is an adjustable perforated clamping-plate located within the case A and forming the bottom of the filtering-compartment K. The plate J is adapted to be pressed upon the body of filtering material to pack the filtrant tightly within the chamber K.

L is the bottom of the filter, provided with threads *l* by which it is secured to the threaded body A. The bottom L has an outlet M, and is provided with an internal boss or projection N, adapted to bear upon the plate J, so that by screwing up the bottom L upon the case A the plate J may be pressed upon the filtrant I with a greater or less pressure.

In the drawings I have shown the boss N, formed about the orifice M, and provided with a series of lateral apertures *n* for the passage of the water. This is my preferred construction. The plate J may be provided with a bearing *j* for the boss N.

With a filter of this character, in which the filtrant is tightly packed within the filtering-chamber, I prefer to employ means for distributing the water through the body of the filtrant, in order that a more perfect filtration may be obtained. For this purpose I employ the polygonal piece O, which is inserted in the tubular piece E, and projects down into the body of the filtering material. The water which enters the orifice D will pass through the spaces *d* between the tubular orifice D or projection E and the non-circular or polygonal piece O and will travel down the surface of the piece O into the body of the filtrant I. To carry the water away from the piece O and distribute it through the filtrant, I employ a series of projections P, carried by the piece O, and extending out in different directions. These projections preferably consist of wires and may be attached to the

piece O with the ends projecting. The water as it passes down on the surface of the piece O is carried out upon the wires P, and thus becomes distributed in different directions throughout the filter.

Instead of a non-circular or polygonal piece O and a circular aperture or tube E in which it is fitted, the aperture E may be non-circular or polygonal and the piece O circular or of any other convenient shape to form apertures *d* for the passage of the water, or the apertures may be formed by perforations in the piece C, adjacent to the projecting piece O, which may in that case be integral with the plate C or by grooves in the outer surface of the piece O. These and other modifications in the details of construction may be made without departing from the invention.

It is to be understood that I do not herein claim a filter in which the water is introduced into the filtering-chamber and is distributed therein by means of projections extending into the body of the material, as that forms the subject-matter of my application, Serial No. 519,173, filed August 1, 1894.

In operation the filter is applied to a tap or faucet by means of the conical socket-piece G or by such other means as may be employed, and after passing through the orifice D or other orifices, if more be employed, traverses the filtrant I and passes through the perforated plate J and out through the outlet M.

So far as the means of adjusting the plate J by means of the bottom L are concerned, it is immaterial to my invention whether the distributing devices O and P are employed either in the exact construction shown or in any manner.

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

1. A filter having a filtering compartment containing the filtering material, an adjustable perforated plate bearing upon the filtering material and adapted to compress the same within the filtering compartment, the bottom L adjustably connected with the body of the filter by screw threads *l* and having the integral central hollow bearing boss N adapted to the perforated adjustable compressing plate, and provided with aperture *n* leading to the outlet M.

2. A filter consisting of a closed case having a filtering compartment provided with one or more inlets for the water to be filtered, a projecting piece extending into the body of the filtering material, the inlets to the filtering compartment leading the outer water to the outside of the projecting piece so that it may travel down the surface thereof, and one or more projections carried by the projecting piece and extending out into the body of the filtrant for carrying the water from the outer surface of the projecting piece outward into the body of the filtrant.

3. A filter consisting of a closed case having a filtering compartment provided with one or more inlets for the water to be filtered, a projecting piece extending into the body of the filtering material, the inlets to the filtering compartment leading the outer water to the outside of the projecting piece so that it may travel down the surface thereof, and one or more projections carried by the projecting piece and extending out into the body of the filtrant for carrying the water from the outer surface of the projecting piece outward into the body of the filtrant, and an adjustable perforated plate bearing upon the filtering material and adapted to compress the same within the filtering compartment and about the projecting piece.

In testimony of which invention I have hereunto set my hand.

HENRY DECK.

Witnesses:
ERNEST HOWARD HUNTER,
HELEN L. MOTHERWELL.