No. 650,563. Patented May 29, 1900.

J. E. MORRIS.

WATER FILTER.

(Application filed June 27, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

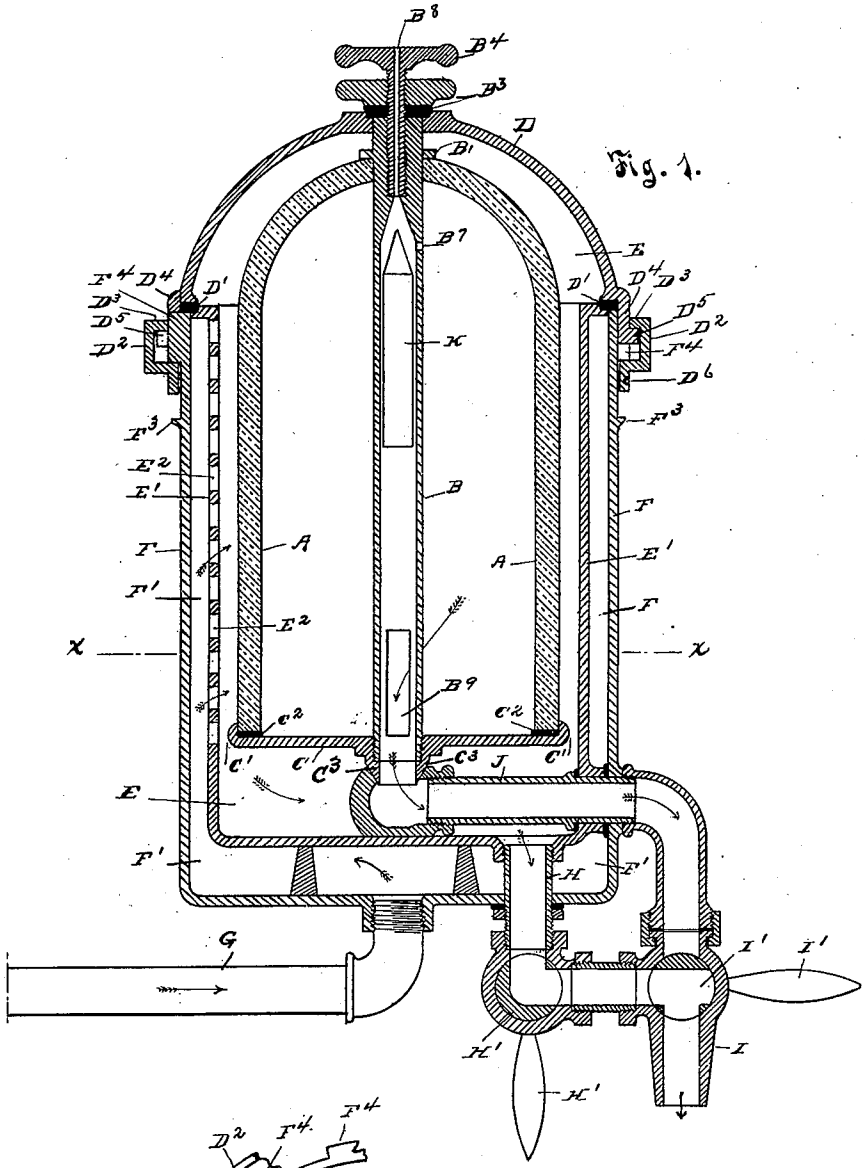
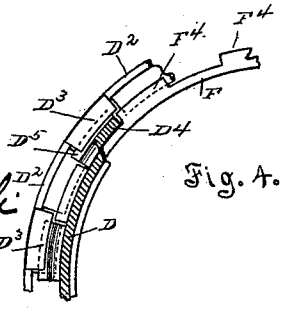


Fig. 4.



WITNESSES:

Martin V. Merle

Jno. S. Robbins

INVENTOR.

Joseph E. Morris

BY

E. G. Siggers & Co

ATTORNEYS

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(No Model.) 2 Sheets—Sheet 2.

Fig. 2.

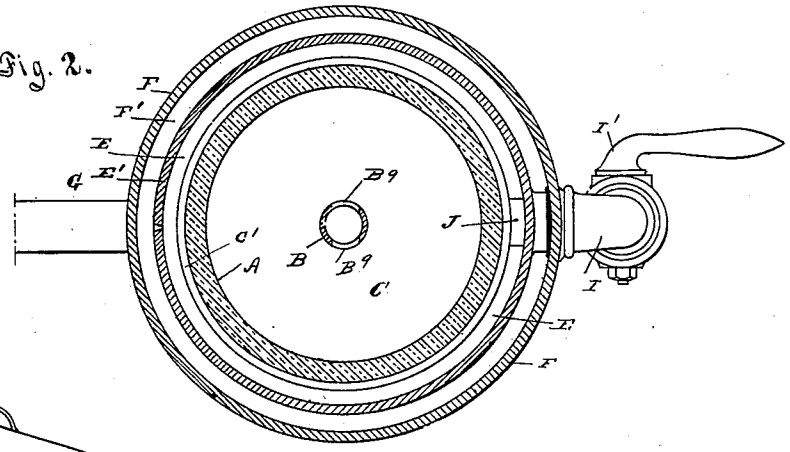
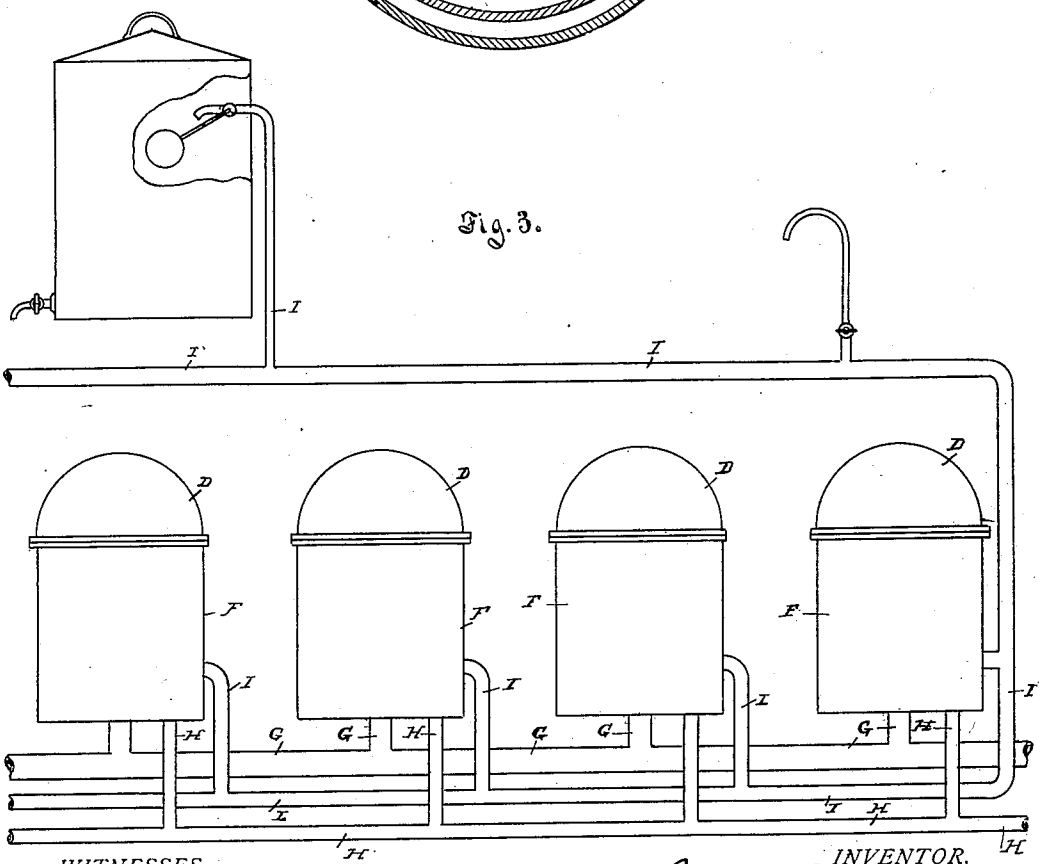


Fig. 3.



WITNESSES:

Martin V. Merle

Jno. S. Robbins.

INVENTOR.

Joseph E. Morris

BY

E. G. Mundock & Co.

ATTORNEYS

UNITED STATES PATENT OFFICE.

JOSEPH E. MORRIS, OF OAKLAND, CALIFORNIA, ASSIGNOR OF ONE-HALF TO WILLIAM W. WHITMAN, OF SAME PLACE.

WATER-FILTER.

SPECIFICATION forming part of Letters Patent No. 650,563, dated May 29, 1900.

Application filed June 27, 1899. Serial No. 722,071. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH E. MORRIS, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Water-Filters; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

This invention relates to improvements in water-filters; and it consists in the novel arrangement and construction of the parts hereinafter set forth and described.

In the drawings, Figure 1 is a vertical sectional view of a filter constructed in accordance with this invention. Fig. 2 is a cross-section of the filter, taken on the line *x x* in Fig. 1. Fig. 3 is a diagrammatic view of the arrangement of a number of filters constructed in accordance with this invention arranged and adapted to supply a common draw-off faucet. Fig. 4 is a detailed view in plan of the means employed by me for securing the cover.

The objects of the present invention are to provide a filter having a capacity within the filtering-tube to supply a desired quantity of filtered water; further, to provide a construction by means of which the outer surface of the filtering-tube may be cleansed and the dirt carried away by the waste-pipe; further, to so construct and arrange the filter upon a supply-pipe that the filtered water and the unfiltered water may be drawn through the same faucet.

To facilitate the description of the present invention with reference to the drawings, I have assigned the letter A to designate the filtering-tube. This in the present invention is constructed of the usual material, but is shaped to form a large interior chamber. It is domed at the top and is mounted about a central tube B. The central tube B is mounted upon the circular holding-plate C, which is provided with an upward-turned flange C′ to receive and guide the filtering-tube. Between the lower edge of the filtering-tube and the surface of the holding-plate C is inserted a suitable gasket C^2. The central tube B is provided near the top with an annular flange B′, which may be mounted upon the tube, with a screw-thread constructed thereon or integrally formed therewith. Near the bottom the tube B is provided with a screw-thread. By means of this construction the body of the tube A is clasped firmly between the plate C and the upper flange B′.

The tube B is extended upward through a central perforation in the cover D. The cover D forms the covering for the chamber E and rests on the gasket D′, which rests on the upper edge of the holder E′ and the casing F. The cover D is secured in position by the ring D^2. This encompasses the casing F above the lugs F^3, the lower portion of the ring resting upon the said lugs F^3 when the cover is removed and under the lugs F^4, which are extended outward from the side of the casing F. The upper portion of the ring D^2 is provided with hook-like extensions D^3, which when the cover D is removed rest against the outer surface of the lugs F^4. The cover is provided with depending extensions D^4, which have outwardly-extending lugs D^5, adapted to pass downward between the extensions D^3 on the ring. These lugs D^5 are slightly inclined on top, so as the extensions D^3 are forced over them the cover is drawn down hard on the gasket D′. To draw the ring around over the lugs D^5, there is provided a socket D^6 in the ring to receive the end of a spanner-wrench.

When the cover D is removed, the extensions D^3 rest in line with the lugs F^4. The cover is placed in position by the extensions D^4 being inserted between the lugs F^4 when the lower portion of the inclined surface of the lugs D^5 are below the extensions D^3 of the ring D^2. By turning the ring to force the extensions D^3 over the lugs D^5 the cover D is drawn down tightly on the gasket D′ and the chamber E is effectually closed.

The tube B is provided with an internally-threaded perforation where it passes through the cover D. Into this is screwed a shank carrying the handle B^4 and serves to support the tightening-nut B^3. When this nut B^3 is screwed down hard, the tube B and the filtering-tube A are clamped firmly in position. When the said nut B^3 is loosened, the said

parts are loosened from the cover D and may be rotated by means of the handle B^4 upon the coned pivot C^3, which is extended down from the plate C. By means of this construction the cleaning above mentioned is effected. The side wall of the holder E′ is perforated, as shown in the drawings. These perforations E^2 are disposed vertically in the holder E′. By reason of this construction when the water is drawn from out of the inner chamber E, formed by the holder E′, the water which flows into this chamber is driven in small jets against the surface of the tube A. It is to permit the water to be drawn from the chamber E that I have provided the pipe H. This pipe H is provided with a stop-cock H′ and is constructed to enter the stop-cock I′, which is a usual two-way faucet. When it is desired to cleanse the filtering-tube A, all that is required is to turn the stop-cock H′, so that the water will flow. The water from the chamber E, being unobstructed, flows rapidly and freely from the chamber, when the water entering the chamber through the perforations in the side walls thereof does so under pressure, with the effect as hereinbefore mentioned. The nut B^3 is loosened and the tube A is rotated slowly, presenting all the surface of the tube to the jets being thrown through the perforations E^2 and in this manner clearing the tube A from the outside deposits due to filtration.

As the stop-cock H′ is designed to be used whenever a large volume of unfiltered water is desired, as in drawing the water for washing or cooking purposes, this arrangement and construction has the effect that the tube A is being frequently cleansed by reason of the fact that the unfiltered water is drawn frequently through the pipe H.

It is to draw the filtered water which has passed to the inner chamber of the tube A that I have provided the pipe J. This pipe penetrates the side walls of the casing F and the holder E′ and is provided at its inner end with a cup-like construction to receive the coned pivot C^3. The tube B is provided with the perforations B^9, so that the water contained within the inner chamber of the tube A finds egress therefrom.

Near the upper end of the tube B, I have provided a perforation B^8, the lower end of which is coned. Within the tube B, I place a float K, the upper end of which is coned to fit within the lower end of the perforation. When now the water is introduced into the filter, the float K is raised to seat its upper coned end within the lower end of the perforation B^8, so that the water will not rise upward through the perforation. When, however, the water is drawn from the filter, the float K will be lowered. The perforation B^8 is then open to admit air into the tube B and through the perforations B^7 into the inner chamber formed in the filtering-tube A. By this means air is admitted over the top of the water contained in the filtering-tube, and the ready flow of water therefrom is thereby assured. By means of this construction a limited supply of filtered water may be immediately drawn from a filter whose constant action is too slow to give a steady and large supply. In many instances, however, where this style of filter is desired this feature may be amplified by mounting as a battery upon a common supply-pipe G a number of filters of this construction, as shown in Fig. 3.

When a known or large quantity of filtered water is desired, the stop-cock I′ is turned on, while the stop-cock H′ is closed, and a receptacle is placed beneath the faucet I. The filtered water will then run more or less slowly into the receptacle placed to receive it. If during this time, however, it is desired to use the unfiltered water, this may be arrived at by closing the stop-cock I′, removing the receptacle containing the filtered water, and opening the stop-cock H′, when the usual flow of unfiltered water under the usual pressure will be drawn.

Having thus described this invention, it is claimed—

1. In a water-filter, the combination with a filtering-tube; of an outlet-pipe leading from the interior of the said filtering-tube and provided with a faucet; a containing-tube for the said filtering-tube, the walls of which are perforated; a casing connected to the water-supply and surrounding the said containing-chamber, substantially as described.

2. In a water-filter the combination with a filtering-tube; of a containing-chamber for the said filtering-tube, having a series of perforations in the wall thereof; a casing connected to the water-supply and surrounding the said containing-chamber; suitable discharge-pipes leading from the interior of the filtering-tube and from the containing-chamber to discharge into a common faucet; and suitable means for controlling the flow through both discharge-pipes; substantially as described.

3. In a water-filter the combination with a filtering-tube rotatably mounted within a containing-chamber and provided with a handle extended beyond the containing-chamber whereby the said filtering-tube may be rotated; of a containing-chamber for the said filtering-tube having a series of perforations in the walls thereof; a casing connected to the water-supply and surrounding the said containing-chamber; and suitable discharge-pipes leading from the interior of the filtering-tube and from the containing-chamber; substantially as described.

In testimony whereof I have hereunto set my hand this 8th day of June, 1899.

JOSEPH E. MORRIS.

Witnesses:
E. F. MURDOCK,
MARTIN V. MERLE.