No. 638,742. Patented Dec. 12, 1899.

E. E. MURPHY.

WATER FILTER.

(Application filed Feb. 10, 1899.)

(No Model.)

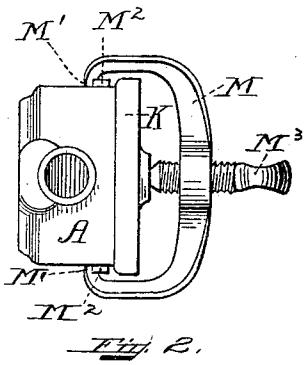


Fig. 2.

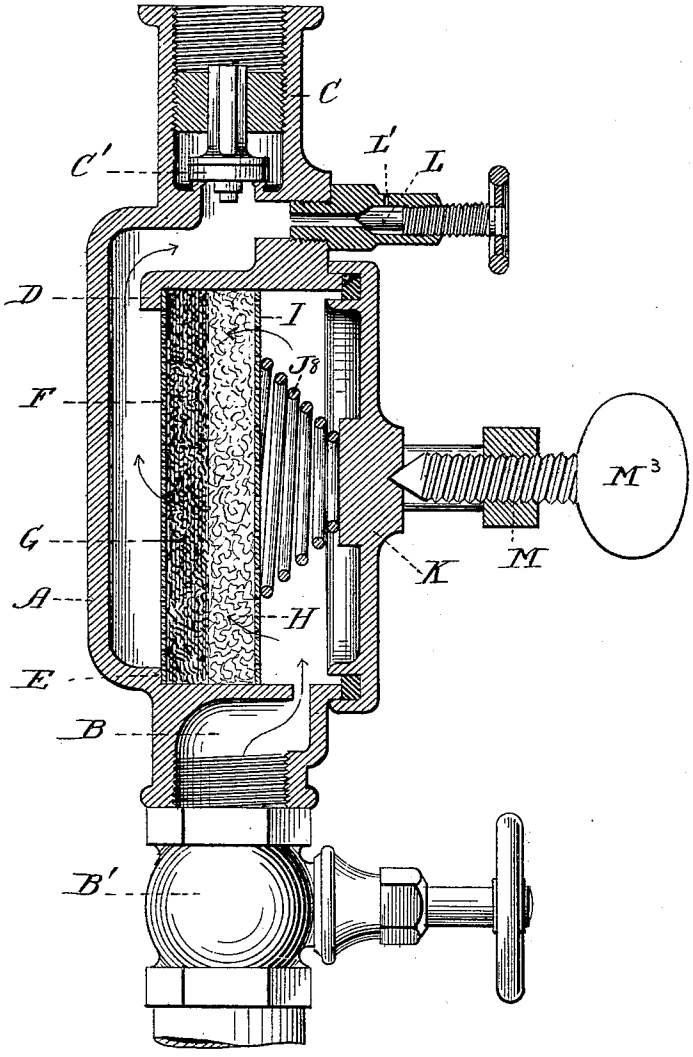


Fig. 1.

Witnesses
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

EDWARD E. MURPHY, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE NEW ERA CARBONATOR COMPANY, OF CHARLESTOWN, WEST VIRGINIA.

WATER-FILTER.

SPECIFICATION forming part of Letters Patent No. 638,742, dated December 12, 1899.

Application filed February 10, 1899. Serial No. 705,153. (No model.)

To all whom it may concern:

Be it known that I, EDWARD E. MURPHY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Water-Filters, of which the following is a specification.

My invention relates to new and useful improvements in water-filters; and the object is to filter water by removing organic and foreign matter held in suspension.

My invention consists of certain novel features hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, which illustrate a construction embodying my invention, Figure 1 is a central vertical cross-section of my improved water-filter. Fig. 2 is a plan view looking at the bottom of the filter.

Like letters of reference refer to like parts throughout both views.

The hollow shell A has a suitable inlet B, controlled by the valve B′, and a suitable outlet C, controlled by the check-valve C′. Situated within said shell and resting on the shoulders D and E is a perforated diaphragm F. Located against said diaphragm is a fine felt close-packed disk G, and covering the same is a disk H of prepared cotton or other fine fibrous material. The disk G is a compact body, while the disk H is made up of loosely-carded cotton or other fibrous material. Located against said disk H is a perforated diaphragm-cover I, to which is secured a volute spring J, which is also attached to the cover K, so that in removing the cover the spring and diaphragm I are also removed at the same time. The water entering passes through the disk H, where the organic or other foreign matter is accumulated, and the water then passes through the disk G. In practice the disk H takes up the bulk of the foreign matter, and as it becomes loaded with foreign matter it may be removed and another disk supplied, thereby removing all the accumulated impurities. The disk G will remain for a much longer period than the disk H, which takes up, as previously stated, the bulk of the impurities. The water after passing through the disks G and H passes out through the outlet C, raising the check-valve C′ from its seat by its pressure. The perforated diaphragm I is movable to and fro by reason of the tension of the spring J, and the object of said spring is to move the diaphragm I up and hold the disks G and H in position as they become reduced in volume by the water-pressure.

L represents a suitable air-valve, which may be opened to allow the escape of air which enters the shell when the cover is removed to change the disks. When the shell has been recharged with filtering material and the cover closes, the water entering the shell will force the air out through the opening L′, which is allowed to remain open until the presence of the water is known, when the valve L is then closed to shut said opening L′.

The cover K is held down on the shell A by means of the clamp, the opposite ends of which are turned inwardly, as shown at M′, to engage with the projecting lug M^2 on the side of the shell A. By tightening up the screw M^3 the clamp holds the cover tightly in place, and in order to obtain access to the shell the screw is loosened up and the clamp removed, so that the cover can be taken off.

I do not limit myself to the arrangement and construction shown, as the same may be varied without departing from the spirit of my invention.

Having thus ascertained the nature of my invention and set forth a construction embodying the same, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a water-filter, a shell, a water-inlet to said shell, a valve controlling said water-inlet, a water-outlet, an automatic valve controlling said water-outlet, a fixed perforated diaphragm, a movable perforated diaphragm, filtering material between said diaphragms, a spring secured to said movable diaphragm and acting thereon to hold said filtering material in place as it becomes reduced in volume by the pressure of the water, a removable cover to which the other end of said spring is connected, and means for holding said cover in place on said shell.

2. In a water-filter, a shell, a water-inlet to said shell, a valve controlling said water-inlet, a water-outlet, a valve controlling said water-outlet, a fixed perforated diaphragm,

a movable perforated diaphragm, filtering material between said diaphragms, a spring secured to said movable diaphragm and acting thereon to hold said filtering material in place as it becomes reduced in volume by the pressure of the water, a removable cover to which the other end of said spring is connected, and means for holding said cover in place on said shell.

3. In a water-filter, a shell, a water-inlet to said shell, a valve controlling said water-inlet, a water-outlet, a valve controlling said water-outlet, a fixed perforated diaphragm, a movable perforated diaphragm, filtering material consisting of a closely-packed disk and a loosely-packed disk in contact with each other and located between said diaphragms, a spring secured to said movable diaphragm to hold said filtering material in place as it becomes packed by the pressure of the water, a removable cover to which the other end of said spring is connected, and means for holding said cover in place on the shell.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 28th day of January, A. D. 1899.

EDWARD E. MURPHY.

Witnesses:
A. L. MESSER,
C. A. STEWART.