

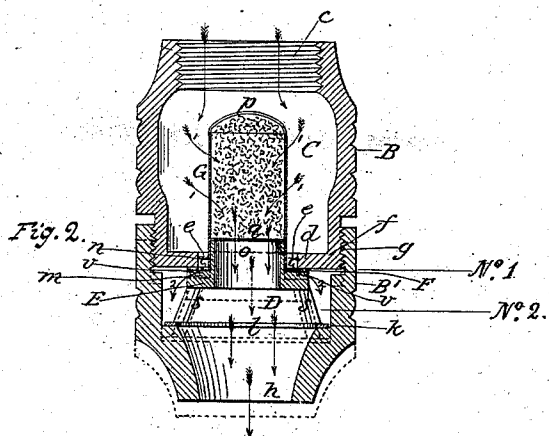
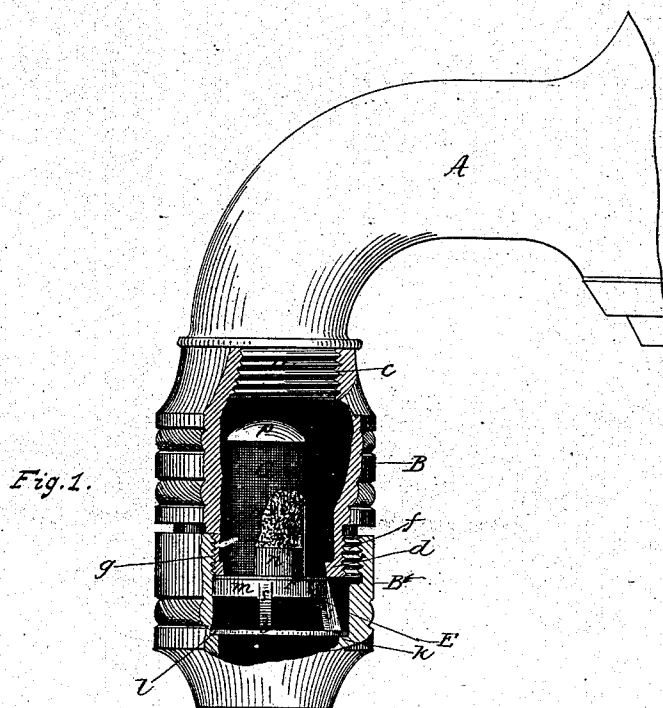
(No Model.)

2 Sheets—Sheet 1.

J. E. HEATH.
WATER FILTER.

No. 292,912.

Patented Feb. 5, 1884.



Witnesses:

Charles L. Smith
Richard P. Dumas

John E. Heath

Inventor.

By his Atty Alex. Sellick.

(No Model.)

2 Sheets—Sheet 2.

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WATER FILTER.

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Fig. 3.

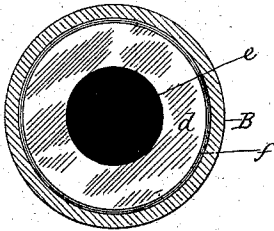


Fig. 4.

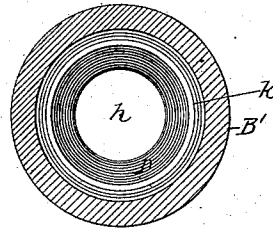


Fig. 5.

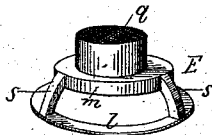


Fig. 6.



Fig. 7.

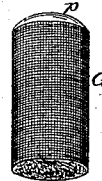
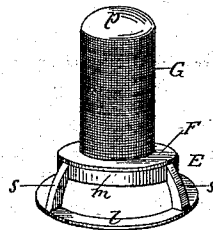


Fig. 8.



Witnesses:

Charles Seivert
Richard P. Sumner

John E. Heath

Inventor.

John E. Heath
Atty.

UNITED STATES PATENT OFFICE.

JOHN E. HEATH, OF ALBANY, NEW YORK, ASSIGNOR OF ONE-HALF TO
HENRY L. SMITH, OF SAME PLACE.

WATER-FILTER.

SPECIFICATION forming part of Letters Patent No. 292,912, dated February 5, 1884.

Application filed August 16, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. HEATH, a citizen of the United States, and a resident of the city and county of Albany, and State of New York, have invented a new and Improved Water-Filter, of which the following is a specification.

My invention relates to a water-filter in which the shell is composed of two sections and provided with coupling screw-threads, with the bottom of the upper section perforated, forming a centrally-perforated diaphragm for supporting the chambers of each section from the other. Its lower section is provided with an internal ring-seat, and adapted to unitedly clamp, within the chamber of the lower section, a perforated stand having a perforated nipple and platform for holding a filtering-hood within the chamber of the upper section of the shell.

The objects of my invention are to provide means by which the water drawn from a faucet or other device will be made, at the will of the operator, to pass through the perforated sides of a filtering-hood located within the pressure-chamber of the filter, and thence into a lower chamber to the discharge-opening below in a cleansed or filtered condition, or be made to pass downward against the outer side of the perforated wall of the filtering-hood, and thence into the chamber below, for carrying away the foreign matter resulting from a previous filtering of water, and thereby cleansing the filter from such foreign matter at any time. I attain these objects by means of the mechanism illustrated in the accompanying drawings, in which there are eight figures illustrating my invention, in all of which the same letters of reference indicate like parts throughout the several views.

Referring to the drawings, Figure 1 represents a faucet having my improved water-filter attached, parts of the shell of the filter being broken away to expose the improved internal parts thereof. Fig. 2 is a sectional elevation of my improved filter. Fig. 3 is a view of the lower end of the upper half or section of the shell of the filter, as at line No. 1, Fig. 2. Fig. 4 is a vertical view, taken at horizontal line No. 2 in Fig. 2, of the lower half or section of the shell of the filter. Fig. 5 is a perspective view of the filtering-

hood stand. Fig. 6 is a perspective view of the sealing-gasket. Fig. 7 is a perspective view of the filtering-hood, and Fig. 8 is a perspective view of the filtering-hood in attachment with its stand.

Referring again to the drawings, A represents any well-known faucet, and *a'* is a screw-thread for attachment of my improved filter. The outer shell or case of the filter is composed of the upper half or section, B, and the lower half or section, B'. Upper section, B, has its upper end perforated with a screw-threaded hole, *c*, made to correspond with screw-threaded end *a* of faucet A. Its lower end is made with the plain diaphragm *d*, having central perforation, *e*, Figs. 2 and 3, which central perforation is made with a diameter which will be hereinafter described. The lower end portion of this upper section of the shell is provided with a screw-threaded coupling-nib, *f*, with the lower end of which diaphragm *d* is made, as shown in Figs. 1 and 2. This upper section of the shell, being thus formed, is made to contain water-pressure chamber C. The lower half or section, B', of the shell is made in its upper end with an internal coupling screw-thread, *g*, corresponding with the screw-thread of nib *f* of the upper half or section, B, so as to couple with the same. This lower section has washing-chamber D, communicating with discharge-perforation *h*. Made at the bottom of chamber D is seat *k*. When sections B and B' are coupled together, chambers C and D will be separated by diaphragm *d*, and the former will have communication with the latter through perforations *e* of said diaphragm.

I provide a perforated filtering-hood stand, E, which is shown in Figs. 1, 2, 5, and 8 to be made with a circular base, *l*, (corresponding with seat *k* at the bottom of wash-chamber D,) and with a circular seating-platform, *m*, having an upwardly-projecting central nipple, *n*. A central perforation, *o*, is made to extend through both said nipple and circular platform. This circular foot and platform are connected by standards *s*. The upper end of perforation *o* is shown to be closed over by a perforated web, *q*, which may be made of thin perforated metal or wire-cloth, as may be preferred. The diameter of perforation *e* in diaphragm *d* is made considerably greater—say

one-eighth of one inch, more or less—than the diameter of the base of filtering-hood when on nipple *n*, so as to readily permit a free passage of water from upper chamber, C, to the lower chamber, D, when the lower section of the shell of the filter is lowered, by means of the screw-threads *f* and *g*, to position shown by dotted lines in Fig. 2. A gasket, F, Fig. 6, is provided around the base of nipple *n* and on platform *m*, which platform is shown to be of such greater diameter than perforation *e* that diaphragm *d* will have its marginal surface around perforation *e* bear all around on the marginal upper surface of platform *m*, packed by gasket F.

G is a filtering-hood made of wire cloth or gauze, or finely-perforated metal, and having a cylindrical form, as shown in Fig. 7. The lower end of this hood is made open, and its upper end is closed by a thin, close, or imperforated cap, *p*, securely united with the perforated body of hood G. The diameter of the open end of said hood is made to correspond with that of nipple *n*, so that the latter will receive the former and hold with the same.

The manner in which the above-described parts of my improved water-filter are arranged in relation to each other are as follows: The perforated filtering-hood stand E is placed into wash-chamber D, made in the lower half or section, B', of the case, with its circular base *l* resting on seat *k*, when the upper side surface of platform *m* will project a little above the plane of the upper end of wash-chamber D, as shown in Figs. 1 and 2. Gasket F is slipped over nipple *n*, and rests on platform *m*. Filtering-hood G is then placed in position on nipple *n*. The lower half or section, B', will then be coupled with upper half or section, B, by means of screw-threaded nib *f* and screw-thread *g*. When the two sections B B' are coupled together, with the lower section run up on the screw-threaded nib of the upper section until the lower side of diaphragm *d*, made with section B, has bearing on gasketed platform *m*, the passage of water from pressure-chamber C to wash-chamber will be cut off, and the water will be forced to pass through the side of perforated hood G and enter within the chamber-room of the same, and pass thence down vertically through the chamber below and be discharged through discharge-opening *h*, all as indicated by arrows 1 in Fig. 2. When the lower section, B', of the shell is loosened one turn of its screw-thread *g*, (as indicated by dotted lines in Fig. 2,) the top surface of the gasketed platform supporting filling-hood G will be lowered from contact with the lower side surface of diaphragm *d*, made with the upper half, B, when the water in pressure-chamber C will have passage into wash-chamber D through the annular opening *v*, (between the base of filtering-hood G and the wall of perforation *e* of diaphragm *d*,) and the horizontal opening *v* be formed between the lower side of diaphragm *d* and the upper side of the gasketed platform *m*, (indicated by full and dot-

ted lines in Fig. 2,) and thence be discharged through opening *h*, as indicated by arrows 2 in the same figure. In these operations the gasketed platform *m* operates as a valve to open openings *e* for the free passage of the water from chamber C to chamber D, or to close the same and prevent such a passage of water, so that the water will escape from hood G through nipple *n*, to be discharged at *h*. In the passage of the water from pressure-chamber C to the chamber below (when the two sections of the shell are secured fully together) in the direction of arrows 1, Fig. 2, the water will be forced to pass through the sides of the filtering-hood and the perforated closing-web *q* of nipple *n*, to be discharged at exit-opening *h* in a filtered condition; but when the lower section, B', is turned loose on section B, so as to be carried downward to a short distance—say about one-sixteenth of an inch, or to dotted lines B²—the water will pass from faucet A down into pressure-chamber C, and thence, in direction of arrows 2, into the wash-chamber, to be discharged therefrom through exit-opening *h*; and the running water will wash all sediment and foreign substances from filtering-hood G, and out from chamber C into wash-chamber D below, and thence out through discharge-opening *h*, when the interior of the filter will be cleansed from all foreign matter.

Sections B B' of the shell may be made of any metal or alloy or material preferred.

When faucet A has the wall of its discharge end made plain and without a coupling screw-thread, the screw-thread *a* in the attaching end of the upper section will be dispensed with, and a set-screw passing through the upper portion of the wall of the upper section of the shell, at a point opposite to the orifice for receiving the end of the faucet, and working against the latter, will be provided for holding the filter in connection with the faucet.

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

1. In a water-filter, the shell composed of the upper section and lower section, constructed substantially as shown and described, and containing within its uppermost section a vertically-arranged filtering-hood attached to a valve adapted to close and open annular opening *e* between the lower portion of said section and the base of the hood, and containing within its lowermost section the valve which supports the hood, the said valve being centrally perforated, and supported from the lower section by a base, which is perforated in its sides and lower end for communication from both the interior of the hood and upper chamber to the interior of the lower chamber, accordingly as said valve is raised or lowered, for operations as set forth.

2. In a water-filter, the combination, with hood-stand E, supported in a seat made in lower section, B', provided with a coupling

screw-thread, of upper section, B, containing a water-pressure chamber, and having centrally-perforated diaphragm *d* and screw-threaded nib, and inclosing a water-filtering hood 5 attached to the perforated platform of said hood-stand, for operations substantially as set forth.

3. In a water-filter, the combination, with 10 upper section, B, containing a pressure-chamber, and provided with a centrally-perforated diaphragm, *d*, and screw-threaded nib *f*, of the lower section, B', containing a wash-chamber, and having seat *k* and screw-thread *g*, the said sections being unitedly adapted to clamp

the perforated stand which supports the filter- 15 ing-hood and the valve which closes the central perforation in diaphragm *d*, and release said perforated stand and lower the valve carried by the same, for alternately changing the 20 direction of the passage of the water from the pressure-chamber to the wash-chamber, accordingly as the lower section is raised or lowered, substantially as and for the purposes set forth.

JOHN E. HEATH.

Witnesses:

RICHARD P. DUMARY,
CHAS. SELKIRK.