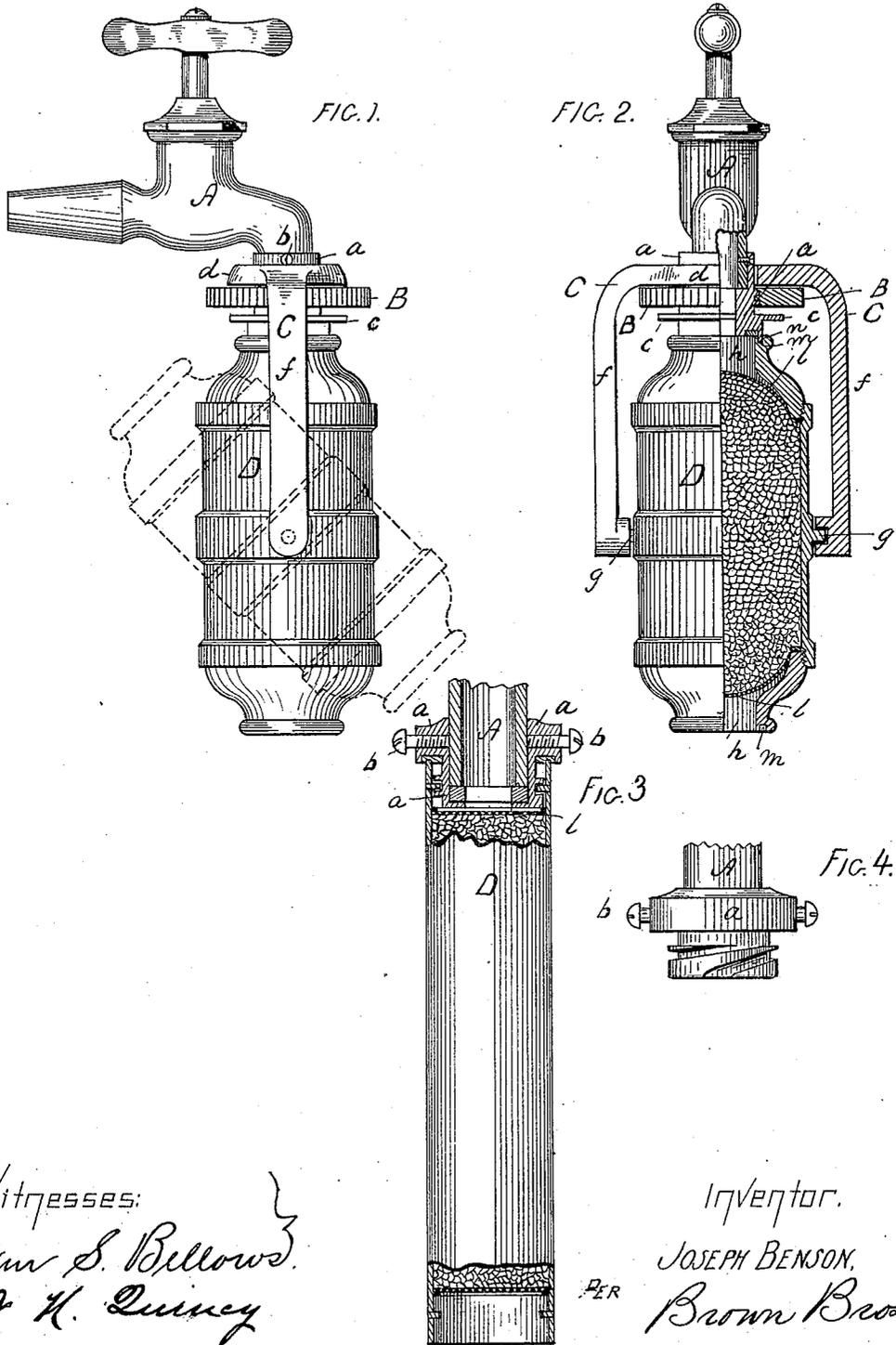


(No Model.)

J. BENSON.  
LIQUID FILTER.

No. 251,335.

Patented Dec. 20, 1881.



Witnesses:  
Mrs S. Bellows }  
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# UNITED STATES PATENT OFFICE.

JOSEPH BENSON, OF BOSTON, MASSACHUSETTS.

## LIQUID-FILTER.

SPECIFICATION forming part of Letters Patent No. 251,335, dated December 20, 1881.

Application filed October 5, 1881. (No model.)

To all whom it may concern :

Be it known that I, JOSEPH BENSON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Liquid-Filters, of which the following is a full, clear, and exact description.

This improved filter consists of a chamber open at each end for the passage through it of the liquid to be filtered, and at one end adapted to be attached to the conduit for the liquid, and within it and between its said two open ends provided with a filtering compound or mixture, (composed of pumice-stone and French sponge-stone in equal parts reduced to a granulated condition of the size of a pea, or thereabout,) and confined in place at each end by a perforated or wire-screen partition suitably secured to the chamber. The filter also has its filtering-chamber, which inside is provided with a suitable filtering material, and is open for the flow of the liquid through such filtering material, suspended by trunnions between the arms of a stirrup-shaped frame, so as to be rotated thereon, and this frame is adapted to be attached to the liquid-conduit, and the filtering-chamber, together with said liquid-conduit, adapted to be secured together to establish a connection between it and the said liquid-conduit, and to allow such connection to be broken, as may be desired.

In the accompanying plate of drawings, Figure 1 is a side elevation of a liquid-filter of my improved construction connected to a compression-faucet or stop-cock; Fig. 2, a front elevation of the same in part vertical section; Fig. 3, a part side and sectional view, illustrating the filtering-chamber, having a filtering medium of the character described secured to the faucet in a manner varying in detail only from that shown in the preceding figures; Fig. 4, a view in detail of Fig. 3, which will hereinafter fully appear.

In the drawings, A represents a compression-faucet, which at and about its discharging-nozzle is surrounded by an exterior screw-threaded collar, *a*, secured by a set-screw, *b*. This collar projects below its screw-threaded portion, and intermediate of the length of such projection the collar has a flange, *c*, surrounding it, and a screw-nut, B, arranged to screw upon

the screw-threaded collar, and milled around its outer edge for convenience in turning it.

C is a stirrup-shaped frame, loosely surrounding by its cross-piece *d* the collar *a* above the screw-nut, and projecting downwardly therefrom. This stirrup C, between its two legs, *f*, has a filtering-chamber, D, suspended by trunnions *g*, so as to be rotated between such legs in a vertical plane. This chamber D is provided with a filtering medium composed in the present instance of pumice-stone and French sponge-stone in equal parts and reduced to a granulated condition of the size of a pea, or thereabout, and confined in place between the two open ends *h* of the chamber by a wire screen or perforated partition, *l*, suitably located and fastened in position therefor. Each open end *h* of the filtering-chamber is interiorly shouldered, as at *m*, and either of such open ends, according as one or the other is in place, is to receive the projecting end *n* of the faucet-collar, suitably shaped therefor and for the said end and shoulder of filtering-chamber to come to a seat or rest against each other, when, by the turning of the screw-nut upon the screw-threaded collar—a quarter of a turn being sufficient—the filtering-chamber is drawn through the stirrup-frame upward against the projecting end of the collar. By this means the filtering-chamber is secured to the faucet, and, obviously, to detach it therefrom it is only necessary to turn the screw-nut in the opposite direction, which releases the bearing between the filtering-chamber and screw-nut, and places the open end of the filtering-chamber off the said screw-nut, leaving it free to be revolved upon its trunnion-hanging, and its other open end to be placed in position to be fastened to the faucet when desired to reverse the filter to clean it of its impurities.

As shown in Figs. 3 and 4, the filtering-chamber is attached directly to the screw-threaded collar *a* of the faucet, in lieu of through the medium of a screw-nut, as shown in the preceding figures, and as has been herein particularly described.

The mechanical operation of the attaching parts herein described, obviously is not dependent upon any particular medium of filtration.

The several joints have suitable washers, as usual, to make tight connections.

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

5 1. A liquid-filter composed of a filtering-chamber open for the passage of liquid through it, and adapted to be put in place, and provided with a filtering medium composed of  
10 granulated pumice-stone and French sponge-stone in suitable proportions, all substantially as described.

15 2. A liquid-filter composed of a filtering-chamber open for the passage of liquid through it, and suspended by trunnions *g* in a stirrup, *f*, in turn suspended from the faucet, &c., in combination with the screw-threaded collar *a*, and screw-nut B, all severally constructed and  
20 arranged together, substantially as and for the purpose described.

3. In a filter, the combination of a faucet, A, an exteriorly screw-threaded collar *a*, attached to the discharge-mouth of the faucet, a rotary screw-nut, B, fitted to the threaded collar, and a reversible filtering-chamber, D, hav- 25  
ing its two open ends, *h*, constructed to engage the screw-threaded collar, and by the screw-nut be adjusted and confined in position, substantially as and for the purpose de-  
scribed. 30

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOSEPH BENSON.

Witnesses:

EDWIN W. BROWN,  
WM. S. BELLOWS.