(No Model.)

J. A. BOWDEN.

FILTER.

No. 601,392. Patented Mar. 29, 1898.

Fig. 1.

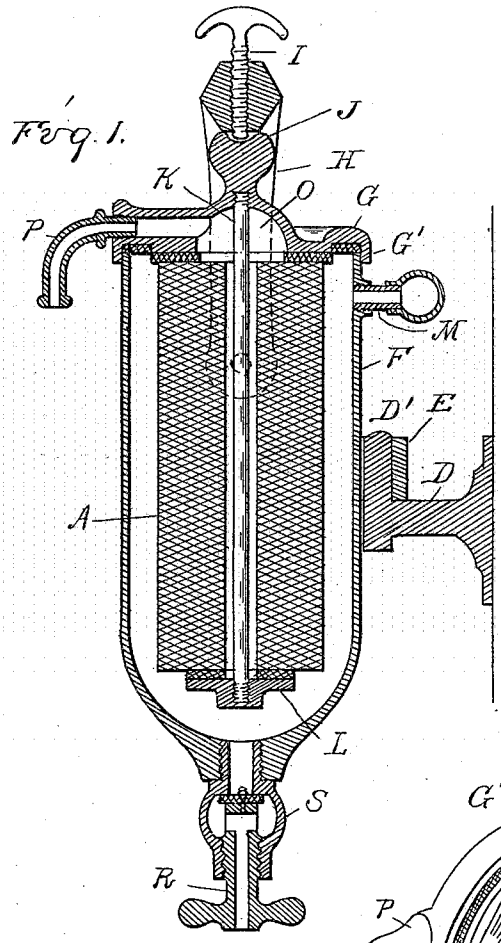


Fig. 2.

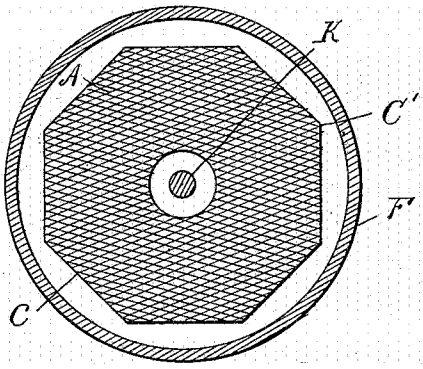


Fig. 3.

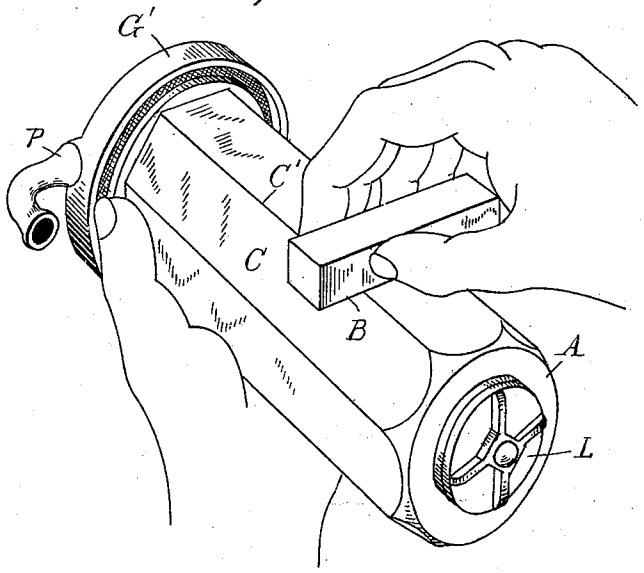
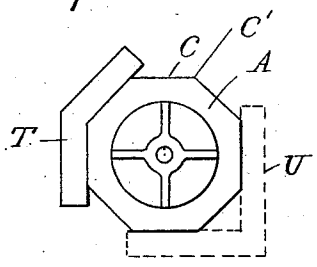


Fig. 4.



Witnesses

M. D. Dougherty

Otto A. Barthel

Inventor

Junius A. Bowden

By Thos. A. Sprague & Son

Attys.

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

UNITED STATES PATENT OFFICE.

JUNIUS A. BOWDEN, OF DETROIT, MICHIGAN.

FILTER.

SPECIFICATION forming part of Letters Patent No. 601,392, dated March 29, 1898.

Application filed August 4, 1897. Serial No. 647,068. (No model.)

To all whom it may concern:

Be it known that I, JUNIUS A. BOWDEN, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Filters, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention consists in the construction of a filter-tube and in the construction, arrangement, and combination of the various parts, all as more fully hereinafter described and claimed.

In the drawings, Figure 1 is a vertical central section through my improved filter. Fig. 2 is a cross-section thereof. Fig. 3 is a perspective view of the filter-tube, showing the manner of cleaning the same; and Fig. 4 is an end elevation thereof.

In the prior state of the art it has been customary to make filter-tubes of suitable porous material, through which the water is filtered. It has been universal, so far as I know, to make such tubes cylindrical.

In that class of filter-tubes in which cementitious material or soft porous stone is used it is customary to clean such filter-tubes either by using a brush to scour off the sediment deposited on the tube or else to use some means or machine for rotating the tube in proper relation to a cutting or trimming tool. In the use of such filter-tubes it has been found that if brushes are used the brush wears off the softer parts, leaving veins and ridges, and also wearing the tube down unevenly and causing it to be misshapen. In fact, it is such a source of trouble as to make such tubes practically a failure. If a knife or other scraping-tool is used on a cylindrical tube, there being nothing to guide the operator, he will get the same poor result as with the brush, leaving ridges of uncleaned tube and gouging out other parts too much, so that the tube quickly becomes so out of shape that the user cannot clean it. This is especially true of such filters as are sold for household use, where all classes of people of all degrees of ignorance have such tubes to clean. I have overcome these objections by forming the tube A with its outer face polygonal, and provided with a series of exterior guide-faces C, upon which an abrasive tool may be used, as shown in Fig. 3. These guide-faces not only enable any unskilled person to apply a flat abrasive tool or block and scrape or scour off a specified space, but also enables the operator to see that all parts of that face are evenly cleaned. Nor does it effect the device if one face has to be scraped a little harder than another. The flat face forms a bearing for the tool, which I have shown at B as composed of a stone or other abrasive substance of harder consistency than the tube. This tool I preferably form, as shown at T and U, Fig. 4, comprising two wings or parts arranged at such an angle to each other as to be guided upon two of the faces of the tube and to thus clean two faces at each operation, besides being more perfectly guided on the tube. The result of this construction of tube having an outer polygonal face and the use of an abrasive tool or scraper to be guided thereon for cleaning the same has in effect changed this style of filter from an objectionable and almost impracticable device to one which is satisfactory and which can be used by and attended to by unskilled and ignorant people.

In connection with the tube thus described I have shown a filter of the following construction:

D is a bracket adapted to be secured upon any suitable place having a pin or stem D′ on its outer end adapted to engage in a socket E, formed on one part of the casing F. This casing is preferably cylindrical and has a cap G. The cap has an annular rim G′ fitting over the top of the casing and suitable packing to make a water-tight joint. It is rotatorily adjustable on the casing and is secured by means of a clamping-screw I, passing through the bail and impinging upon a head or bearing J on the cap.

To remove the cap, all that is required is to loosen the screw I and swing the bail H backward, when the cap can be removed and with it the filter-tube A, which is connected thereto by means of the bolt K, passing centrally through the tube and having a suitable clamping-nut L at the lower end.

The tube is of sufficiently less diameter than the casing to leave a water-passage through the same for the water which comes in through the nipple M from any suitable source.

The water is filtered through the tube, enters the central passage therein, and thence passes into a chamber O in the cap, from which a spout P projects. This spout may be turned at any desired angle to the support for the casing by suitable rotary adjustment of the cap.

The lower end of the casing is curved so that the sediment will settle to a single point and may be drawn out through the bottom by opening the valve R. This valve is fitted in a valve-casing S, and is preferably provided with a hollow stem having lateral ports leading from the valve-casing into the stem, as plainly shown in Fig. 1.

This construction of filter-case and cap is simple and efficient, and is particularly adapted for house use, as its simplicity of structure enables any one able to loosen the screw I to remove the filter-tube for cleaning purposes.

It will be seen that the filter-tube is carried by the cap, which also carries the filtered-water chamber. Thus in removing the filter-tube for cleaning purposes it is never necessary to break the joint between the outer and inner chamber having the filtered and unfiltered water. The cap carries the filter-tube and the bail and its screw are supported on the casing, so that there are no loose parts apt to be lost. The cap also forms, if desired, a handle by means of which the filter-tube may be lifted or held.

A new tube may be applied to the cap by simply removing the nut L and the tube, replacing the tube with a new one and replacing the nut.

What I claim as my invention is—

1. In a portable filter, the combination of the casing, a cap having a filtered-water chamber therein, a filter-tube clamped upon the cap, so as to be movable therewith, a tight joint about the said chamber, a bail hinged and carried by the casing, and a clamping device on the bail adapted to clamp the cap on the casing, substantially as described.

2. In a filter, the combination of the casing open at the top, a chambered cap and a spout leading therefrom communicating with the chamber in the cap, a central bolt on the cap, extending through the filter-tube and by means of which said tube is detachably secured to the cap, the hollow filter-tube having its central passage-way connected with the chamber in the cap, a movable bail supported on the casing extending across the cap and a clamping-screw on the bail engaging a head or bearing on the cap, substantially as described.

3. The combination with a filtering-body of porous stone or the like, presenting a plurality of plane faces, of an abrasive implement presenting one or more plane faces, corresponding to a face or faces of the filter-stone, whereby the filtering-body may be cleaned by the implement, substantially as described.

4. The combination with a filter-tube of soft porous stone or cementitious material, having a series of flat guide-faces formed on the outer face thereof, of a scouring or abrasive tool having its inner face formed at an angle corresponding to the angle of two faces of the tube, whereby the tool is guided thereon while being reciprocated to clean the same as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

JUNIUS A. BOWDEN.

Witnesses:

JAMES WHITTEMORE,

OTTO F. BARTHEL.