

(No Model.)

J. J. CURRAN.  
FILTER.

No. 479,403.

Patented July 26, 1892.

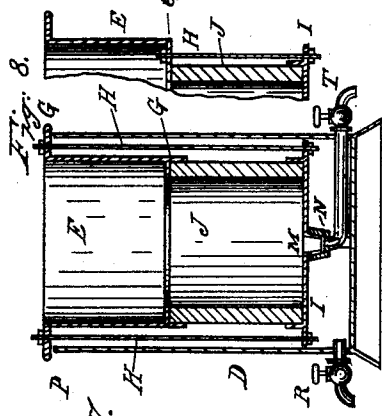


Fig. 8.

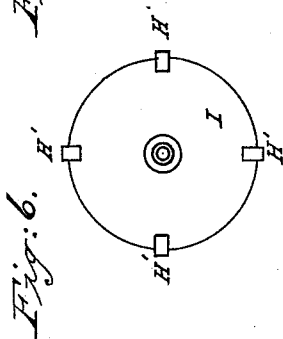


Fig. 6.

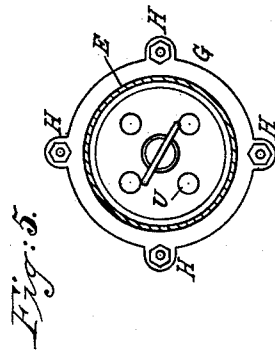


Fig. 5.

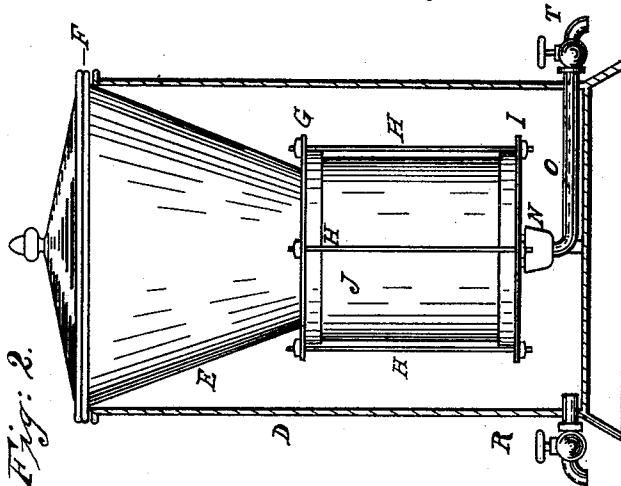


Fig. 2.

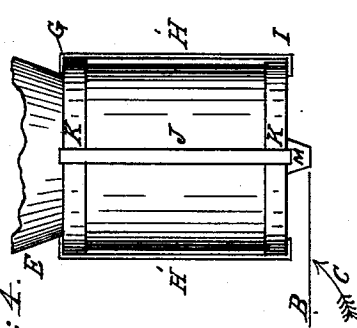


Fig. 4.

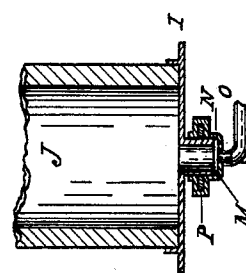


Fig. 3.

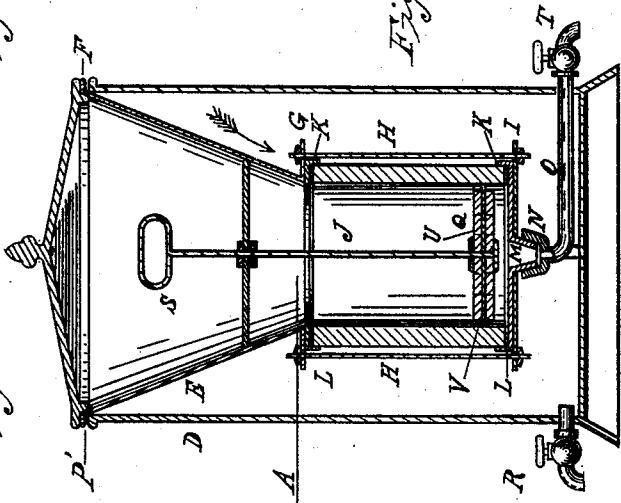


Fig. 1.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

JOHN J. CURRAN, OF TOLEDO, OHIO.

## FILTER.

SPECIFICATION forming part of Letters Patent No. 479,403, dated July 26, 1892.

Application filed March 21, 1891. Serial No. 385,895. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN J. CURRAN, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, 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 the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in water-filters of the class which employ cylinders of calcined pottery as filtering media.

This invention is an improvement upon a filter for which Letters Patent of the United States were granted me July 2, 1889, and numbered 406,126; and the objects of my improvements are, first, to provide, in connection with an outer case adapted to be used as a holder or reservoir for filtered water, a pendent case supported in vertical position within and by the sides of said outer case by the upper extremity thereof or from a locality adjacent thereto, the said pendent case having attached to its lower extremity a downwardly-extending filtering-cylinder of calcined pottery, the said inner case and the said pottery cylinder being connected together by means of flanges and bolts, as will be herein-  
after explained, and adapted to rest upon a pipe connection to which it is removably attached; second, to provide means for removably and adjustably connecting said pendent filtering-cylinder with a refuse-removing pipe, said pipe being located near the lower extremity of the said outer case; third, to provide the said pottery cylinder with a vertically-operating wiper, which wiper is adapted to operate upon the inner walls of the said pottery cylinder in such a manner as to remove adhering accumulations therefrom. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of the entire mechanism. Fig. 2 is a vertical section of the outer case and a vertical outside elevation of the inner pendent case and its attachments. Fig. 3 is a vertical section of a portion of the pottery cylinder, showing one modification of the method of attaching the said pottery-cylinder to its cleansing-pipe.

Fig. 4 is a vertical elevation of the porous cylinder and its pendent supports. Fig. 5 is a cross-section on line A, Fig. 1. Fig. 6 is a cross-section on line B, Fig. 4, and viewed in the direction of the arrow C. Fig. 7 is a vertical section of the entire apparatus minus the cover, showing the pendent case and pottery cylinder and their connections in a modified form. Fig. 8 is a vertical section of detached portions of the pendent case and pottery cylinder differently connected, and therefore illustrating another modification of my invention.

Similar letters refer to similar parts throughout the several views.

D is an outer case; E, a pendent case supported by a top flange F within the said outer case and adapted to be held in position thereby. On the lower extremity of the case E is a horizontal flange G, which is adapted to receive bolts H, and by means of bolts H the flange or plate I is held in position.

J is a pottery cylinder, which is secured in position between the flange G and plate I by means of said bolts H. These flanges G and I may be formed with vertically-extending rims K, (shown in Fig. 1) and adapted to sustain the pottery cylinder in vertical position by impinging against its vertical sides, as shown in said figure. I have shown in Fig. 1 each of these two flanges with their members K as composed of two parts—namely, the bolt H supports and the pottery-cylinder supports; but these two members are preferably made integral, as shown at I in Fig. 3.

L represents any suitable packing between the upper and lower flanges G and I and the adjacent ends of the pottery cylinder J. Attached to the center of the flange I is a threadless conical funnel or tube M, which in form is adapted to closely fit within a contacting funnel N, connecting with an outwardly-extending tube O, which, resting upon the bottom of the case D, is adapted to sustain the combined weight of the parts E, J, I, and H and their connections.

In Figs. 1 and 2 the cases D and E are illustrated as slightly separated from each other at P' in order that the parts imposed upon the tube M and N may insure the contacting of their surfaces M and N when suitably

ground or otherwise fitted together. A modification of this connection is shown in Fig. 3. In this case the tube M is made in a cylindrical form and the part N to correspond and  
 5 cored out to receive an elastic packing P, which is adapted to tightly fit around the tube M and within the holding-socket N, the tube M being thus adapted to be quickly withdrawn and replaced in an obvious manner.

10 Q is a piston composed of two parts, (an upper and a lower head,) between which is inserted a loose packing of cloth or other suitable material V. A handle S is arranged to secure the parts of this head Q together, and  
 15 is also adapted to operate the same.

In Figs. 4, 7, and 8 are illustrated modifications of analogous methods of securing the pottery cylinder to the pendent case E. In lieu of the bolts H employed in Fig. 1, in Fig.  
 20 4 bars H' are adopted, which bars are secured to the flanges G and I in any suitable manner. In Fig. 7, in order to secure more room within the case D for water, the pendent case E is made in a straight cylindrical form and  
 25 the flange G placed at its upper extremity and the bolts H attached thereto. For a similar reason the pendent case E may be enlarged to nearly fill the inner diameter of the case D and the upper extremities of the bolts attached, as shown in Fig. 8, by being passed  
 30 upward through the inturned flanged end G' of the bottom of the case E.

The operation of this apparatus is as follows: The liquid to be filtered is placed in the  
 35 pendent case E and in the pottery cylinder J, when it gradually filters or percolates through the pores of the pottery cylinder into the case D, where it may be drawn out through the faucet R. When it is desired to clean the  
 40 interior of the case D or to enter it for any purpose, it is simply necessary to withdraw the pendent case E and its attachments, which is accomplished by slightly turning and lifting the said case from its position in the case  
 45 D in an obvious manner. When it is desired to cleanse the interior of the pottery cylinder, the operator grasps the handle S and with it raises and lowers the piston Q, which piston impinges upon the sides of the said cylinder,  
 50 removing the adhering accumulations therefrom, which may then be withdrawn through the faucet T, and in order that the impure water above the piston Q may be removed, as described, it is desirable to have suitable  
 55 perforations through the said piston, as shown at U.

Having described my invention, I do not claim, broadly, a porous-pottery filtering-cylinder, nor the same attached to a pendent  
 60 case, nor broadly the pendent case E and its attachments adapted to be removably connected with the pipe o, nor broadly an interior cleansing apparatus; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

65 1. In a water-filter, the combination, with an outer case, of an inner case hanging within the outer and having a horizontal flange at its lower end, a porous cylinder below the  
 70 pendent case, a plate below the lower end of said cylinder, than which it is larger in diameter, and rods detachably connecting said flange and plate, substantially as and for the purpose set forth.

75 2. In a water-filter, the combination, with an outer case, of an inner case hanging within the outer and having an inturned flange at its lower end, a porous cylinder smaller in diameter than said pendent case and resting  
 80 against said flange, a plate below the cylinder and larger in diameter than the same, threaded rods passing through said flange and plate, and nuts thereon, substantially as and for the purpose set forth.

85 3. In a water-filter, the combination, with an outer case and an inner case hanging therein and having a flange at its lower end, of a porous cylinder below the flange, a plate below the cylinder, a vertical ring-shaped member on the plate surrounding the end of the  
 90 cylinder, and rods connecting said flange and plate outside the ring, all substantially as set forth.

4. In a water-filter, the combination, with an outer case, an inner case hanging therein  
 95 and removable therefrom, a flange on said inner case, a porous cylinder, a plate supporting the cylinder, rods connecting the plate and flange, and a downwardly-extending tube at the center of said plate, of a refuse-pipe  
 100 within the outer case and leading outside the same to a faucet, and a socket on the inner end of said pipe, into which said tube passes when the inner case and cylinder are inserted, substantially as and for the purpose set forth.

105 5. In a water-filter, the combination, with an outer case, an inner case hanging therein and removable therefrom, a porous cylinder, a plate below the same having a downwardly-extending tube at its center, and connections  
 110 between said plate and inner case, of a socket into which said tube fits, a refuse-pipe leading thence outside the outer casing, a piston-head within said cylinder, comprising two perforated plates and a sheet of packing between  
 115 and extending beyond the edges thereof, and an operating-rod secured to said head and rising to within said inner case, as and for the purpose hereinbefore set forth.

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

JOHN J. CURRAN.

Witnesses:

• LINDLEY W. MORRIS,  
 F. A. KUMLER.