(Model.)

C. L. RIDGWAY.

FILTER.

No. 253,103. Patented Jan. 31, 1882.

Fig. 1.

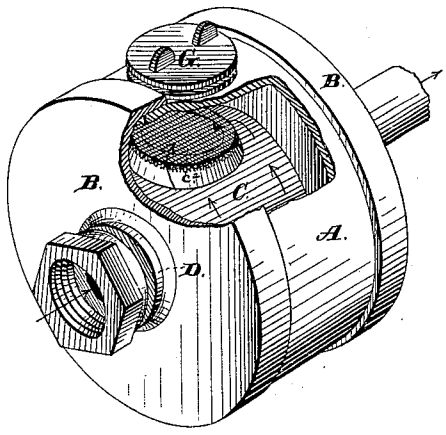


Fig. 2.

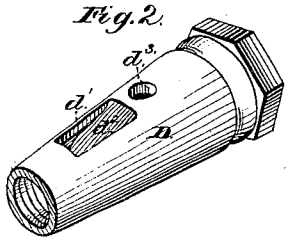


Fig. 3.

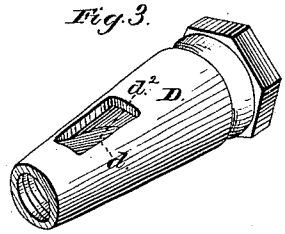


Fig. 5.

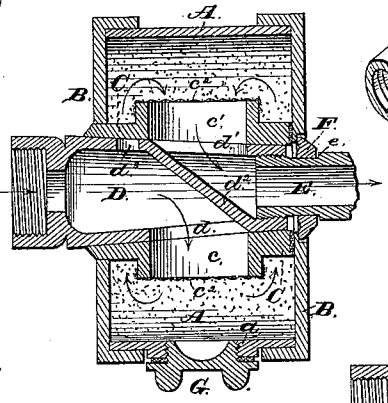


Fig. 4.

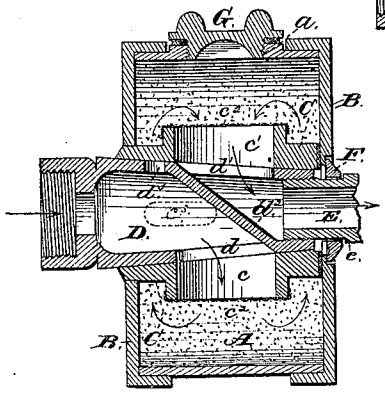
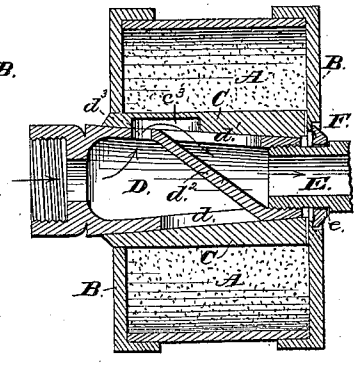


Fig. 6.



Witnesses.

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Henry G. Hazard.

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UNITED STATES PATENT OFFICE.

CHARLES L. RIDGWAY, OF BOSTON, MASSACHUSETTS.

FILTER.

SPECIFICATION forming part of Letters Patent No. 253,103, dated January 31, 1882.

Application filed April 9, 1881. (Model.)

To all whom it may concern:

Be it known that I, CHARLES L. RIDGWAY, of Boston, in the county of Suffolk, and in the State of Massachusetts, have invented certain new and useful Improvements in Water-Filters; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my improved filter, a portion of the casing being broken away to show the interior construction of parts. Figs. 2 and 3 are like views from opposite sides of the plug or tap. Fig. 4 is a horizontal section of said filter when arranged to pass water through the filling from one direction. Fig. 5 is a like view of the same when arranged to pass water in an opposite direction, and Fig. 6 is a horizontal section of said device when arranged to pass water without filtration.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to enable water to be easily and thoroughly cleansed from all impurities held in suspension; and it consists in the construction and combination of parts of the filter, substantially as and for the purpose hereinafter specified.

In the annexed drawings, A represents a cylindrical shell, having any desired dimensions, the ends of which are inclosed by means of heads B, that are adapted to and secured in place by any of the usual methods.

Extending axially through the shell A is a pipe or casing, C, which is provided with a round tapering axial opening that receives and contains a correspondingly-shaped hollow plug, D, which is secured in place by means of a thimble, E, that screws into the interiorly-threaded smaller end of said plug, and is provided with a shoulder, *e*, that bears directly against the outer face of the head B, or against a washer, F, which is interposed between said shoulder and head.

At opposite sides of the casing C, at its longitudinal center, are provided radial openings *c* and *c'*, the wall of each of which extends slightly above the periphery of said casing, and furnishes a support for and upon which is secured a strainer, c^2, that is formed of woven wire, reticulated sheet metal, or other like material.

Within the space between the shell A and casing C is placed charcoal or other suitable filtering material, that is introduced thereto or removed therefrom through an opening, *a*, in the wall of said shell, which opening is closed by means of a screw-plug, G.

The plug D is provided at opposite sides with two ports, *d* and *d'*, which may be caused to coincide with the openings *c* and *c'* of the casing C, or by the rotation of said casing to come opposite to the solid portions of the same. A partition, d^2, within the interior of said plug, extending diagonally from the end of one of said ports, *d*, to the opposite end of the opposite port, *d'*, divides the interior of the same into two parts, one of which extends between one of said ports, *d*, and the rear end opening, and the other between the remaining port, *d'*, and the front end opening of the plug, as seen in Figs. 4, 5, and 6.

The apparatus thus constructed is used as follows, viz: The rear or large end of the plug D is connected with a water-supply pipe and its front or small end with a pipe leading to the place to be supplied with water. Upon rotating the shell until the ports *d* and *d'* of the plug D coincide with the openings *c* and *c'*, respectively, of the casing C, water will pass from the port *d* through the opening *c*, and thence through the filtering material placed within the shell, until it reaches the opening *c'*, when said water, relieved from its impurities, will pass through said opening and the port *d'* into and from the discharge end of said plug. After the filter has been used until a considerable quantity of the matter removed from the water has accumulated within the filtering material adjacent to the opening *c*, such matter may be washed out by giving to the shell A a one-half revolution, so as to bring the openings *c* and *c'* opposite to the ports *d'* and *d*, respectively, and to cause a reverse current of water through the filter.

In order that when desired water may pass directly through the apparatus without being filtered, an opening or port, d^3, is provided within the plug D, opposite to the port *d* and immediately in rear of the partition d^2, which port

d^3 communicates with the space that connects said port d with the rear end opening of said plug.

At a point circumferentially midway between the openings c and c' a recess, c^3, is formed within the casing C, which corresponds in width to the like dimension of the port d^3, and has such length as to connect the latter with the port d' when said plug is turned so as to cause said ports and recess to coincide, as seen in Fig. 6. As thus arranged it will be seen that water entering the rear end of the plug D will pass through the port d^3, recess c^3, and port d' into and from the front end of said plug without coming into contact with the filtering material.

In consequence of the form of the shell and the admission of water at and discharge from its center, great simplicity of construction is secured, and a material increase in capacity may be obtained by means of a slight increase in the diameter of said shell.

It will be seen that, aside from the interior of the plug and the very short openings between the same and the filtering material, there is no exposed surface upon which sediment can be deposited, and when from use the filling of the filter becomes foul it may be quickly and easily removed through the opening prepared for such purpose. Another advantage obtained is in the certainty that no water can pass the filter, when the same is adjusted for filtration, without passing through the filling and being cleansed.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

The hereinbefore-described filter, consisting of the cylindrical shell A B, the axial pipe C, provided upon opposite sides with radial central openings, c and c', which are covered by means of wire strainers c^2, and having the recess c^3 midway between said openings, the hollow plug D, provided with radially-opposite ports d, d', and d^3, and having its interior divided by means of the diagonal partition d^2, and the thimble E, fitted into the smallest end of said plug, in combination with each other and with filtering material placed within said shell, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 1st day of April, 1881.

CHARLES L. RIDGWAY.

Witnesses:
JAS. E. HUTCHINSON,
HENRY C. HAZARD.