2 Sheets—Sheet 1.

R. A. BEAN.

WATER-FILTER.

No. 184,131. Patented Nov. 7, 1876.

Fig 1

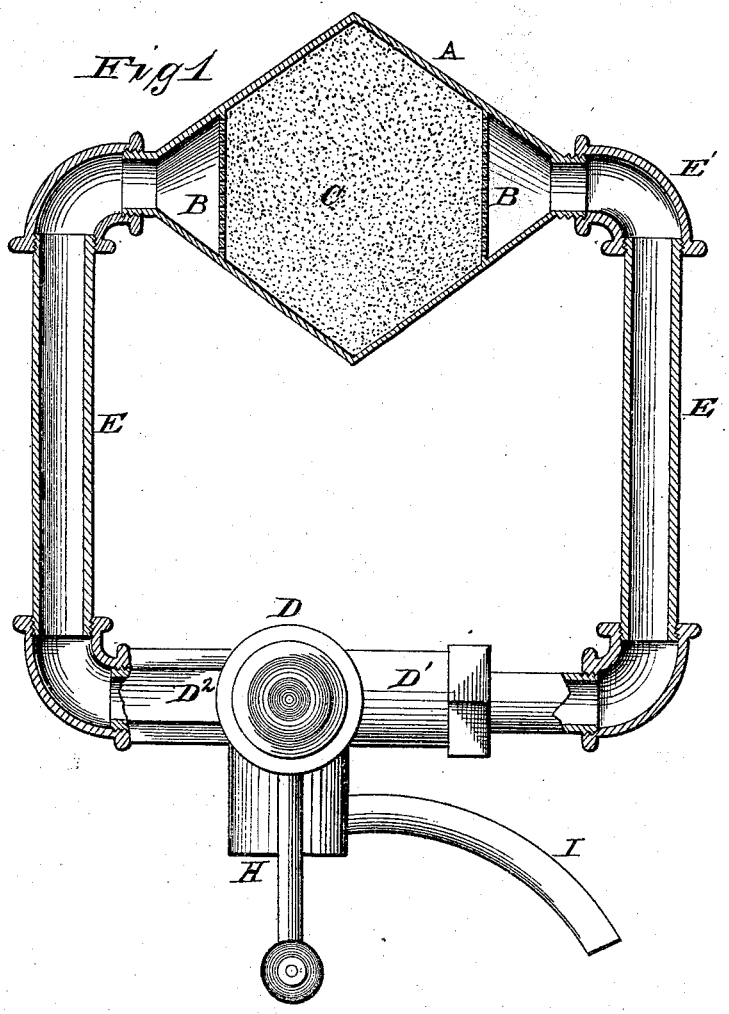
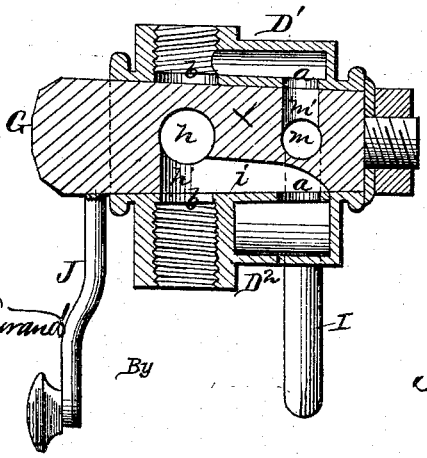


Fig 2



WITNESSES
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2 Sheets—Sheet 2.

R. A. BEAN.

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Fig 3

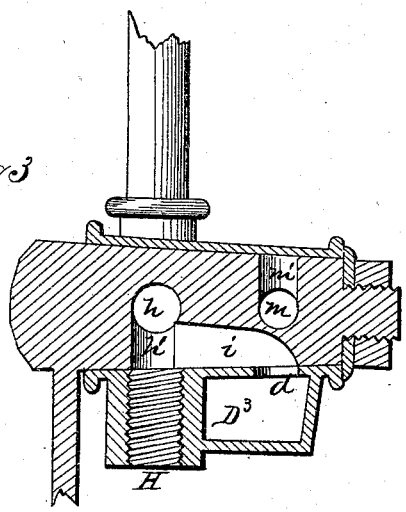


Fig 5.

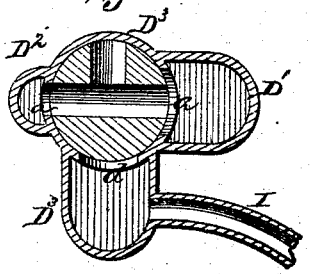


Fig 4.

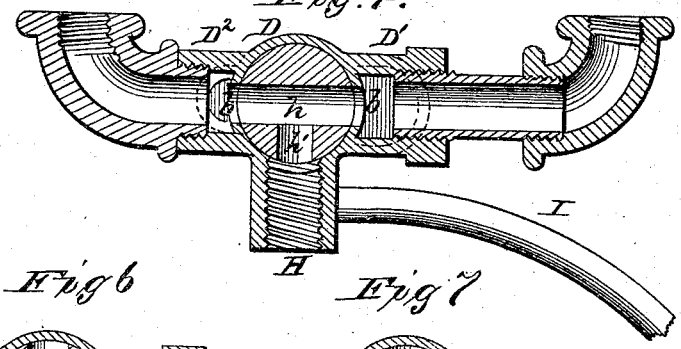


Fig 6

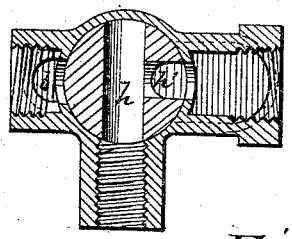


Fig 7

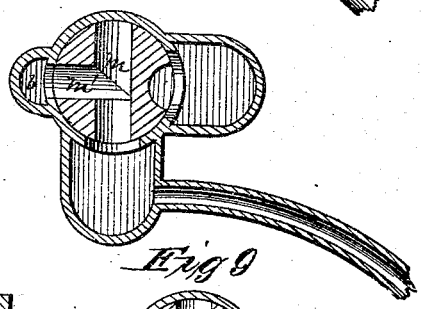


Fig 8

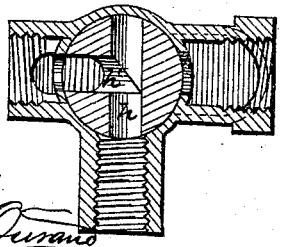
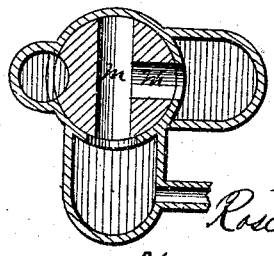


Fig 9



WITNESSES

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UNITED STATES PATENT OFFICE.

ROSCOE A. BEAN, OF HUDSON, MICHIGAN.

IMPROVEMENT IN WATER-FILTERS.

Specification forming part of Letters Patent No. **184,131**, dated November 7, 1876; application filed October 11, 1876.

To all whom it may concern:

Be it known that I, ROSCOE A. BEAN, of Hudson, in the county of Lenawee, and in the State of Michigan, have invented certain new and useful Improvements in Water-Filter; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a filter to be applied to hydrants or other places for filtering water or other liquids, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a side elevation, partly in section, of my filter. Fig. 2 is a longitudinal horizontal section through the faucet. Fig. 3 is a longitudinal vertical section of the same. Figs. 4 to 9 are transverse sections of the same, showing various positions of the faucet-plug.

A represents the filter-case, formed in double-cone form, as shown, and provided near each end with an interior perforated diaphragm, B. Between these two diaphragms the filtering material C is sustained. The ends of the filter-case A are, by means of vertical pipes E E and elbows E′, as shown, connected with a valve or faucet-barrel, D, through side chambers D^1 and D^2, into which they enter. Each of these chambers is, by two ports, *a* and *b*, connected with the interior of the barrel D, the connecting-pipes E being located directly opposite the ports *b b*, as shown in Figs. 2 and 4. On the under side of the barrel D is the inlet-port H leading directly into the barrel, midway between the two ports *b b*. At the side of this inlet is another chamber, D^3, communicating with the interior of the barrel through a port, *d*, midway between the ports *a a;* and said chamber has on one side the outlet-spout I.

G represents the plug or valve of the faucet, made in the usual tapering form to correspond with the similar form of the interior of the barrel. Through this plug are made two parallel ports, *h* and *m*, running transversely through the center of such points, that when the plug is inserted in the barrel, said parts will coincide with the circles upon which the ports *b* and *a*, respectively, are located. From the center of the port *m* extends a port, *m′*, at right angles through one side of the plug; and from the center of the port *h* extends another port, *h′*, at right angles therewith, through the opposite side of the plug. This latter side of the plug has a passage, *i*, leading from the outer end of the port *h′* to a point on the plug opposite the port *m′*, as shown fully in Fig. 2.

The plug G is, at one end, provided with a handle, J, extending in the same direction as the port *h′*. When the handle or lever J is turned down, the plug stands in the position shown in Figs. 3, 4, and 5, the ports *h* and *m* being respectively on lines with the ports *b* and *a*, the port *m′* is closed, and the port *h′* corresponds with the inlet-port H. The water then enters through the port *h′*, and, as communication is opened with both ends of the filter, it will pass directly through the passage *i* and port *d* into the chamber D^3 and out at the spout I. When the handle is turned to the right, the plug is in the position shown in Figs. 2, 6, and 7, the water entering through the inlet H passes through the ports *h h′*, passage *i*, into chamber D^2, from thence up around through the filter, down on the opposite side into the chamber D^1, through the ports *m′ m*, into the chamber D^3, and out through the spout I. When the lever is turned to the left, the course of the water is reversed. When the lever is turned directly upward, the water is shut off, as the part *x* of the plug then is opposite the inlet H, and closes the same.

It will thus be seen that my filter is so arranged that the water passes through both ways, by the turning of the faucet each way below the filter; and when the water is shut off below, all the water above the faucet and within the filter and pipes drains out through the upper part of the faucet, so that the frost will not affect the pipes.

The pipes between the faucet and filter are filled with air when at rest. Now, when the

water is turned on by the faucet, the air in these pipes is driven through the filter, and helps to stir and purify the filter, and is followed by water, which washes out the dirt or impurities that has collected when in use; then the water runs pure. By turning the faucet the opposite way, the water will reverse and run through the filter the other way, thus clearing the filter as before.

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

The faucet-plug G, provided with ports *h h'* and *m m'* and passage *i*, as described, in combination with the barrel D, having chambers D^1 D^2 D^3, ports *a b d*, and inlet H, the pipes E, filter A, and spout I, all constructed substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 18th day of January, 1876.

ROSCOE A. BEAN.

Witnesses:
T. W. TOLCHARD,
JAMES B. THORN.