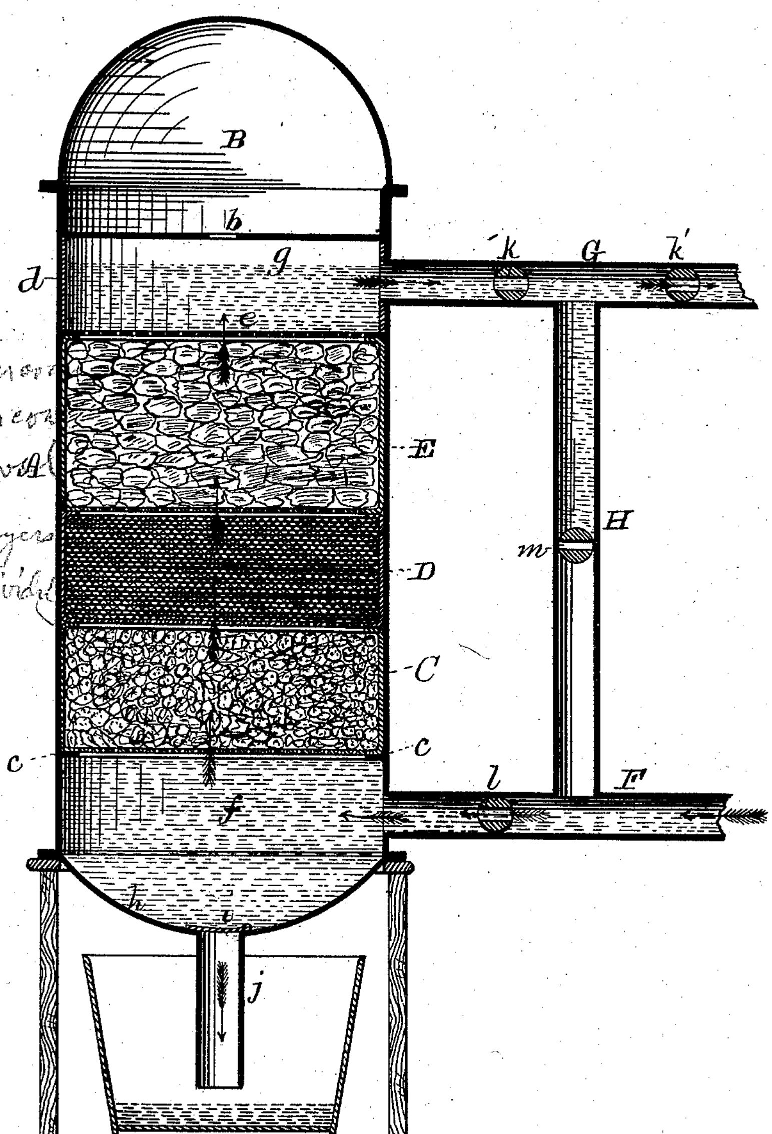
J. FOLEY.

FILTER.

No. 192,750. Patented July 3, 1877.



animal charcoal
or wood charcoal
or sand or gravel
alternate layers
of Felt and dividing
rings.
Sponge

WITNESSES:
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UNITED STATES PATENT OFFICE.

JAMES FOLEY, OF MONTREAL, QUEBEC, CANADA.

IMPROVEMENT IN FILTERS.

Specification forming part of Letters Patent No. **192,750**, dated July 3, 1877; application filed January 31, 1877.

To all whom it may concern:

Be it known that I, JAMES FOLEY, of Montreal, in the Dominion of Canada, have invented certain new and useful Improvements in Filters; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, and in which the figure illustrates a vertical section of my improved filter.

This invention relates to a certain improvement in filters; and it consists of the parts of which it is composed, substantially as hereinafter more fully described and claimed.

In the annexed drawing, A refers to an upright cylinder, which may be supported in any known way, and in proximity with the "service-pipe," with which it is connected, as will be hereinafter pointed out. Upon the cylinder A is placed a dome or air-chamber, B, resting upon a flange upon the cylinder, to which it is firmly secured. The dome or air-chamber B is let into the cylinder a suitable distance, and provided with a bottom having an orifice, *b*, for the egress of air. The air-chamber B equalizes the current of filtration, and prevents injury to the filter upon the sudden opening or closing of the service-pipe cocks or valves. Within the cylinder A are a number of receptacles, C D E, having perforated bottoms, and placed one upon the other, the lower one resting upon internal flanges *c c* of the cylinder. Upon the upper receptacle E is placed a perforated diaphragm or plate, *e*, which is held down thereon by an internal ring, *d*, reaching up to the bottom of the air-chamber B, or by any other means of fastening, to resist the upward pressure of the water from the water-works main. Within these receptacles is placed the filtering material or substance, the lower one being preferably filled with sponge, the next or middle one with alternate layers of felt and dividing rings or bars, and the upper one with animal charcoal, wood charcoal, clean silicious sand, gravel, or other suitable material. I prefer to use the first-named of the last-enumerated materials. The upper edges of these receptacles are provided with internal or inwardly-projecting flanges to provide supports for the upper two. Above the upper receptacle or plate *e*, and below the lower receptacle C, is a space, lettered, respectively, *f g*, for the unfiltered and filtered water. To the lower end of the cylinder A, directly below the unfiltered-water space *f*, is secured a bottom, *h*, concaved or of a basin shape upon its inner surface, to precipitate the silt or sediment, which is carried off by a valved pipe, *i j*. F is the pipe which connects the filter with the water-works main, and G is the discharge-pipe, also connected to the service-pipe, and which is connected with the supply-pipe F by the pipe H. To the pipe G is supplied two valves or cocks, *k k'*, one on each side of the point of connection between it and the pipe H. The pipes F and H are also provided with valves or cocks *l m*, the valve or cock *l* being between the connection of the pipe F with the cylinder A and the conjunction of the pipe H with the said pipe F. By opening the valve *l* and closing the valve or cock *m*, the filter can be filled, and the water, thus filtered, be drawn off or discharged by opening the cocks or valves *k k'*. Close the valves or cocks *k'* and *l*, and open the cocks *m* and *k* and valve *i*, closing the discharge-pipe *j* in the bottom *h* of the cylinder, and the flow of the water will be directed downwardly in the filter, by which the latter will be cleansed. Instead of the valve *i* disposed over the entrance of the pipe *j*, a cock or globe-valve, similar to the other-named valves, may be inserted in the said pipe, operated in the usual way. When it is desired to have the water enter the service pipe or pipes without the necessity of being filtered, close the cocks or valves *l* and *k*, and open the valves or cocks *k'* and *m*. To draw off the refuse water in the service-pipes at night, to prevent its freezing therein in cold weather, close the cocks or valves *l m*, and open the valves or cocks *k k'* and valve *i* of the pipe *j* in the bottom of the cylinder.

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

The cylinder or receptacle A, having a sediment-chamber, *h*, perforated receptacles for receiving the filtering material, pipes F, G, and H, provided with valves, and an air-chamber, B, with or without its transverse plate, having the orifice *b*, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I hereunto affix my signature in presence of two witnesses.

JAMES FOLEY.

Witnesses:
W. A. MORRILL,
ARTHUR FERNS.