S. H. BELLOWS.
Water Filter.

No. 239,595. Patented April 5, 1881.

Fig. 1.

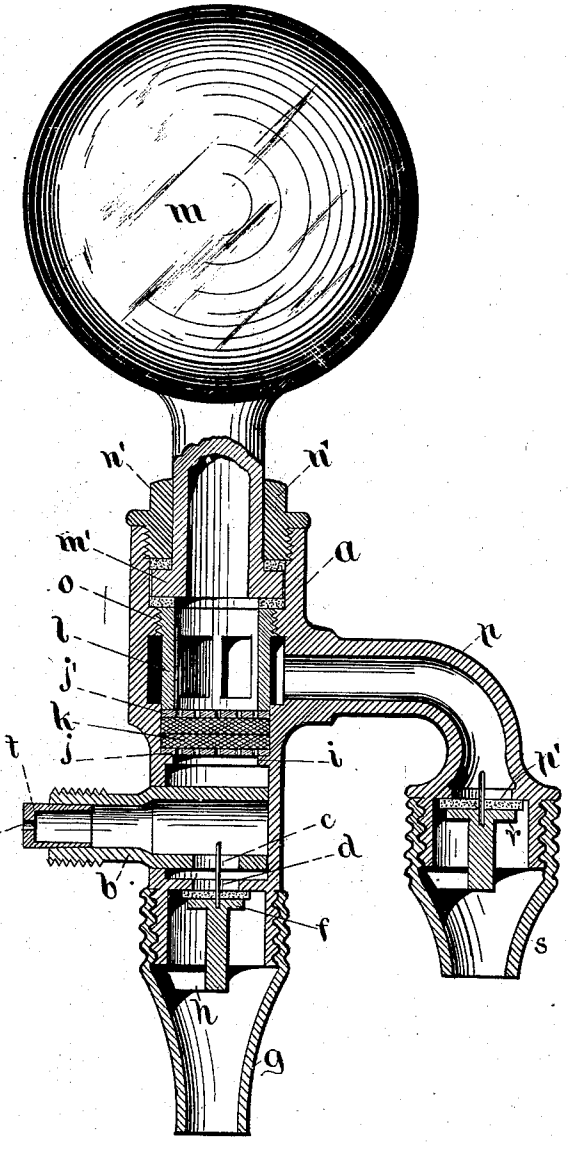


Fig. 2.

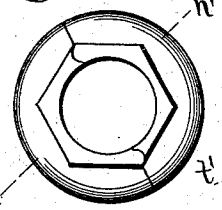


Fig. 3.



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UNITED STATES PATENT OFFICE.

STEPHEN H. BELLOWS, OF ATHOL, MASSACHUSETTS.

WATER-FILTER.

SPECIFICATION forming part of Letters Patent No. 239,595, dated April 5, 1881.

Application filed February 14, 1880.

To all whom it may concern:

Be it known that I, STEPHEN H. BELLOWS, of Athol, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements pertaining to a Water-Filter, of which the following is a description, reference being had to the accompanying drawings, where—

Figure 1 is a view of a filter embodying my improvements, in central vertical longitudinal section. Figs. 2 and 3 are top and side views of the sectional nut made use of.

My invention is an improvement upon that kind of filtering apparatus which has an air-chamber appurtenant to the water-pipe, with a filter between the pipe and chamber and a faucet each side of the filter, through one of which unfiltered water can be drawn, and through the other of which filtered water can be drawn.

The letter *a* denotes the casing of the filtering apparatus—a vertical cylinder in shape.

The letter *b* denotes the inlet-pipe, which enters at the side of the casing *a*, and has a port, *c*, opening toward the port *d*. This port *d* is the one through which unfiltered water is drawn, and it is also the port which is used when it is desired to clean the packing or filter proper.

The letter *f* denotes a valve for port *d* borne by nozzle *g*, (through the medium of spider-arms *h*,) which nozzle is interiorly threaded, and screws upon the exteriorly-threaded portion of the casing *a*. It is obvious that by rotating this nozzle on the casing the valve *f* may be made to open and close the port *d*.

Within the casing, and just above pipe *b*, is a shoulder, *i*, on which lies the strainer-disk *j*, and on this disk lies the packing *k*, preferably one or more thicknesses of felt. On the packing lies the upper strainer-disk, *j'*. The packing and the two disks are held in place by the basket *l*, consisting of an exteriorly-threaded annulus at its upper end, having arms reaching down, and bearing at the lower end another annulus, which bears upon the upper strainer-disk. The exteriorly-threaded portion screws into an interiorly-threaded portion of the casing. This peculiar construction of this basket or basket-nut brings the said interior thread of the casing to a position where it can be conveniently cut, and at the same time allows the water to pass freely through the nut to the air-chamber above, and also allows the water to pass out through the sides of the nut to the filtered water-port.

The letter *m* denotes an air-chamber, preferably of glass, the neck of which bears the collar *m'*. This collar (there being a packing-ring intervening) rests on the shoulder *o*, made within the casing, and is, with the appurtenant air-chamber, secured to place by the sectional nut *n' n'*, a proper packing-ring intervening.

The letter *p* denotes the outlet-pipe, and *p'* denotes the port through which filtered water is drawn.

r denotes the valve for this port borne, through the medium of spider-arms, on the nozzle *s*, which is interiorly threaded and screws upon the exteriorly-threaded portion of pipe *p*.

The letter *t* denotes a removable reducing-plug fitting into inlet-pipe *b*, with a hole, *t'*, through it for the passage of water. This central hole is to be made smaller or larger inversely, as the water-pressure is greater or less, to retard the sudden rush of water which would otherwise occur when a discharge-port is first opened under a great head. It is a simple and cheap device for this purpose, so located that it cannot be readily tampered with by careless or designing persons.

Supposing the ports *d p'* to be closed, water entering the casing through port *c* will rise, and, passing through the packing, will be filtered, and, according to the head or pressure, will fill more or less space in the air-chamber. Now, by opening port *p'*, filtered water may be drawn. By opening port *d*, port *p'* being closed, not only may unfiltered water be drawn, but the water in the air-chamber will be forced and drawn down through the packing, and the packing will thereby be cleansed of its impurities with filtered water. The construction hereinbefore indicated—*i. e.*, having the port *c* opening toward the port *d*—has a peculiar value in this connection. In other apparatus of this same general nature, from which my said peculiar feature was absent, the head or pressure of the incoming current of water was often such as to overbalance the pressure in

the air-chamber and prevent water from passing from the air-chamber through the packing to cleanse it. By having port *c* so located with reference to port *d* as to direct the current toward port *d*, I do not have to rely upon the air-chamber pressure wholly, for the current passing from port *c* to port *d* has a suctorial influence on the water in the air-chamber.

I claim as my invention—

1. In combination, the casing *a*, having the outlet-ports *d p'*, the inlet-pipe *b*, having the port *c*, directing the incoming current toward port *d*, the filter *k*, and the air-chamber *m*, all substantially as described.

2. The combination of the casing *a*, bearing shoulder *i*, and pipe *p*, the filter *k*, and the basket-nut *l*, all substantially as shown and described.

3. In combination, the casing *a*, having the interior shoulder, *o*, the air-chamber *m*, having the collar *m'*, and the nut *n' n'*, all substantially as shown and described.

4. The combination, with the filter-chamber and layers of felt or equivalent material placed within said chamber, of a glass air-chamber and means for securing its neck within the filter-casing, and intervening follower or followers for retaining the filtering material against vertical displacement.

5. The combination, with the filter-chamber, of a discharge-valve located below the same, and a supply-pipe extending within the discharge-chamber.

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