No. 847,518. PATENTED MAR. 19, 1907.

C. M. SHILTZ.

FILTER.

APPLICATION FILED MAY 12, 1906.

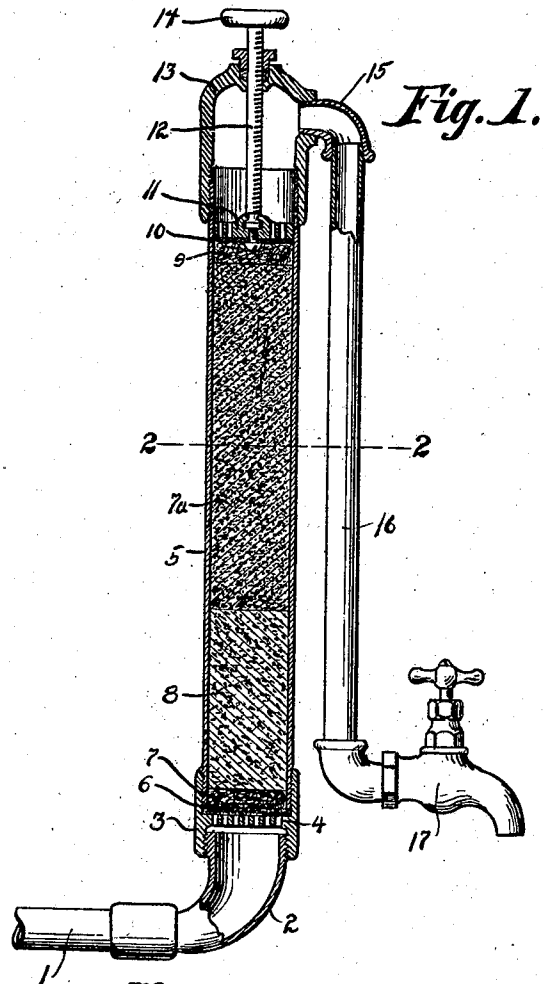

Fig. 1.

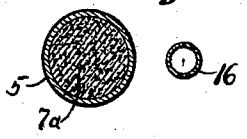

Fig. 2.

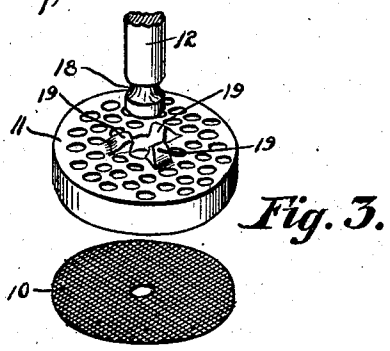

Fig. 3.

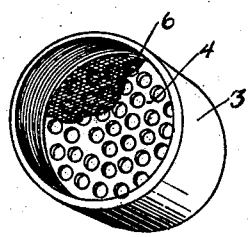

Fig. 4.

Witnesses

Jos. J. Hosler.

Sylvia Boron.

Inventor

Charles M. Shiltz.

By F. W. Bond

Attorney

UNITED STATES PATENT OFFICE.

CHARLES M. SHILTZ, OF CARROLLTON, OHIO.

FILTER.

No. 847,518. Specification of Letters Patent. Patented March 19, 1907.

Application filed May 14, 1906. Serial No. 316,652.

To all whom it may concern:

Be it known that I, CHARLES M. SHILTZ, a citizen of the United States, residing at Carrollton, in the county of Carroll and State of Ohio, have invented certain new and useful Improvements in Filters; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, making a part of this specification, and to the numerals and figures of reference marked thereon.

The present invention has relation to filters especially designed to be attached to a city-water-supply pipe at any desired and convenient place; and it consists in the novel arrangement hereinafter described, and particularly pointed out in the claim.

Figure 1 is a vertical longitudinal section. Fig. 2 is a transverse section on line 2 2, Fig. 1. Fig. 3 is a view showing the pressure-disk, a portion of its operating-rod, and the disk strainer. Fig. 4 is a detached view of the filter-coupling.

Similar numerals of reference indicate corresponding parts in all the figures of the drawing.

In the accompanying drawing, 1 represents a portion of the feed-pipe, to which is attached the elbow 2, or, if desired, the elbow 2 may be dispensed with and a filter-coupling 3 attached direct to the end of the feed-pipe 1. The only object in providing an elbow is to bring the filter proper into a vertical position. The coupling 3 is provided with the integral perforated web 4 and the coupling screw-threaded upon its inner periphery upon opposite sides of the perforated web 4.

The object and purpose of screw-threading the coupling is to provide a means for attaching the filter-casing 5 and the elbow 2 or the feed-pipe 1, as the case may be. The filter-casing 5 is formed of any desired size in cross-section and of any desired length; but in use the diameter of the filter-casing need not exceed to any great extent the diameter of the feed-pipe. However, there should be some difference, so as to provide a filter-casing of sufficient size to hold the necessary amount of filtering material. Upon the top of the perforated web 4 is located the gauze disk 6, which gauze disk is formed of a size to properly cover the top of the perforated web 4. On the gauze disk 6 is located a quantity of cotton or like fibrous material and such material that is capable of being compressed by pressure. Upon the top of the cotton or like material 7 is located a quantity of charcoal 8, and upon the charcoal is located a quantity of sand 7^a, preferably grit sand. Upon the top of the sand is located a quantity of cotton or other fibrous material 9, which cotton is located between the top of the sand and the bottom or under face of the gauze disk 10. To the pressure-disk 11 is rotatably attached the screw-threaded rod 12, which screw-threaded rod is extended upward through the cap 13, and is provided with the operating handle or knob 14.

It will be understood that by rotating the rod 12 in one direction will move the pressure-disk down or toward the web 4 and by rotating the rod in the opposite direction will move said pressure-disk away from the web 4.

The pressure-disk is perforated in substantially the same manner as the web 4 and of course is so perforated for the purpose of allowing the free passage of water or other liquid. To the cap 13 is attached the elbow 15, and to the elbow 15 is attached the pipe 16, and to this pipe 16 is attached an ordinary faucet 17. However, the elbow 15, the pipe 16, and the faucet 17 are shown conventional, and of course the precise arrangement shown is unnecessary.

It will be understood that by opening the faucet water is free to flow through the perforated web 4, the gauze disk 6, the cotton 7, the charcoal 8, the sand 7^a, and the upper strata of cotton 9, the gauze disk 10 and the perforated pressure-disk 11, and thence into the chamber formed by the cap 13, and thence to the faucet 17. By moving the pressure-disk 10 downward or toward the web 4 the cotton at the top and bottom of the filter proper will be compressed, thereby increasing the solidity of the cotton or fibrous substance, which in turn increases the filtering efficiency in proportion to the degree of pressure brought to bear upon the cotton or like material.

It will of course be understood that when pressure is brought to bear upon the cotton the different filtering materials will be held in close contact and are to be so held when the filter is used in the ordinary manner.

It is well understood that filters become contaminated from long use, and it is necessary to clean the filter from time to time, and by my peculiar arrangement I am enabled to

elevate the pressure-disk 10 a sufficient distance to remove all pressure, at which time water is free to flow through the filter proper, the cotton offering little resistance to the rapid flow of water, and by relaxation of pressure the filtering materials are washed, so that when they are brought into normal position they will be in condition for use. It will therefore be readily seen that the filter can be flushed or washed with little difficulty and without disturbing any of the filter elements.

For the purpose of preventing the perforated disk 10 from rotating during the time the rod 12 is rotated said rod should be so attached that it will not rotate the disk 10, and in order to provide for this the rod 12 may be and preferably is provided with the groove 18 and the tangs 19 bent so as to engage the groove, and thereby cause the disk 10 to move up and down with the longitudinal movement of the rod, but not to rotate with said rod.

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

The combination of a coupling provided with a perforated web located intermediate the ends of the coupling, a filter-casing secured to the coupling, a gauze disk located in contact and supported by the perforated web, a stratum of cotton located upon and in contact with the gauze disk, a stratum of charcoal located above and upon the cotton, a stratum of sand located above the charcoal, and a stratum of cotton located above the sand, an adjustable perforated pressure-disk provided with a gauze disk upon its under side, a chambered cap secured to the upper end of the filter-casing, a screw-threaded rod carried by the cap, said screw-threaded rod provided with a groove and tangs adapted to be bent into the groove, whereby the screw-threaded rod is rotatably connected to the pressure-disk, substantially as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

CHARLES M. SHILTZ.

Witnesses:
J. A. JEFFERS,
F. W. BOND.