No. 640,721. Patented Jan. 2, 1900.

C. F. VOGLER.

FILTER.

(Application filed Mar. 7, 1899.)

(No Model.)

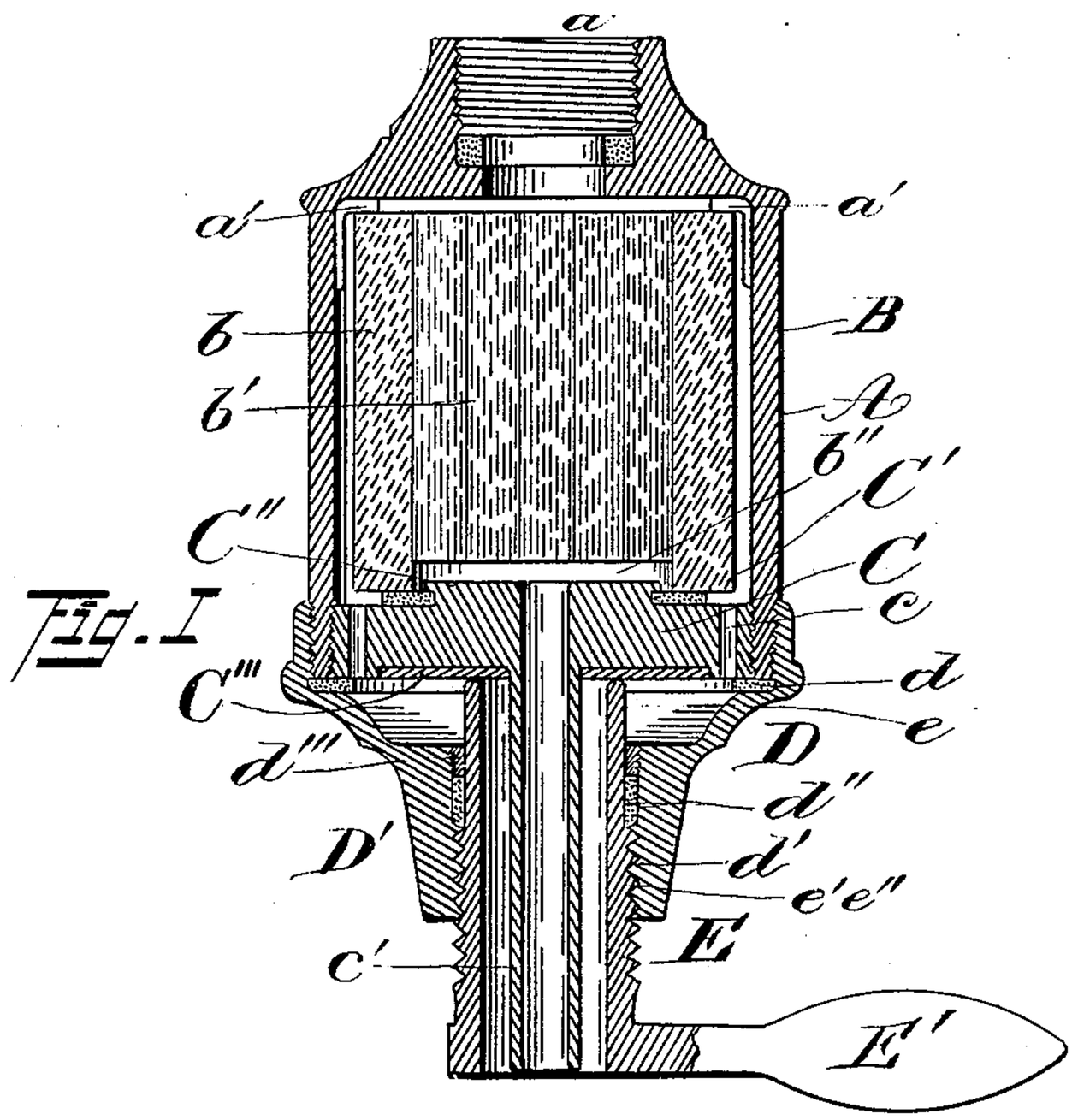

Fig. I

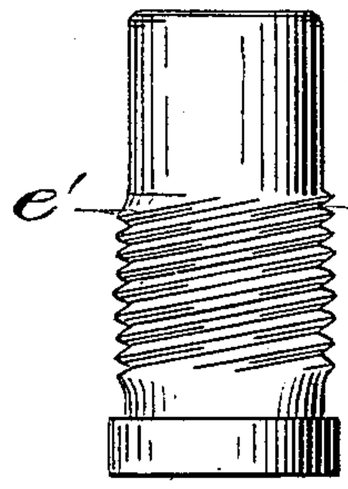

Fig. II

Witnesses:
L. Griswold
Burt E. Nelson

Inventor:
C. F. Vogler,
by Wm. Lecher
Attorney.

UNITED STATES PATENT OFFICE.

CHARLES F. VOGLER, OF CLEVELAND, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE PLUMBERS' BRASS AND IRON MANUFACTURING COMPANY, OF SAME PLACE.

FILTER.

SPECIFICATION forming part of Letters Patent No. 640,721, dated January 2, 1900.

Application filed March 7, 1899. Serial No. 708,158. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. VOGLER, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Filters, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The annexed drawings and the following description set forth in detail one mechanical form embodying the invention, such detail construction being but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure I represents an axial section of my improved filter, and Fig. II a side view of the double-threaded tubular screw-valve.

The cylindrical casing A of the filter is formed with an inlet *a* at its top, which is suitably threaded or otherwise constructed to be coupled to a hydrant, faucet, or other water-supply nozzle. The top of the casing has a number of internal angular shoulders *a'*, against which the upper end of a cylindrical filtering-body, consisting of a block B, rests, so as to space said block from the top and sides of the casing. A disk C is screwed into the lower open end of the cylindrical casing and has an elastic gasket C' sprung beneath an overhanging flange C'' at the center of the disk. The disk forces the filtering-block against the shoulders, and the gasket makes a tight fit for the lower end of the block against the disk. The filtering-block has, preferably, impervious sides *b* and a pervious core *b'*, and has a recess *b''* at the lower end of the core. A yielding seat C''' is secured in the under side of the disk. The disk is formed with passages *c*, which register with the annular space between the walls of the filtering-block and the casing, and has a central outlet-tube *c'*, communicating with the space formed by the recess in the filtering-body. A cup-shaped cap D is secured over the lower end of the cylindrical casing, having a gasket *d* inserted between it and the lower edge of the casing. A neck D' is formed at the center of the cap, and said neck has an internal double screw-thread *d'* and an enlarged bore above said thread, in which a packing *d''* and a threaded ring *d'''*, for tightening said packing, are fitted. A tubular valve E forms an annular space around the discharge-tube *c'* and seats its end against the seat C''' in the partition-disk C. The upper portion *e* of the valve is smooth and fits in the packing, and the lower portion of the valve has a double screw-thread *e' e''*, which fits in the interior thread of the neck. A suitable handle or thumb-piece E' is provided for turning the valve.

The filter is suitably connected to the water-supply nozzle at its inlet, and water passes through the inlet and through the filtering-body into the recess at the lower end of the latter, whence it passes out through the axial discharge-tube. When it is desired to flush the filter or to draw unfiltered water in such quantity and with such freedom as the passage through the filtering-block will not admit of, the tubular valve is turned so as to bring the upper end of the same away from the seat and flush with the bottom of the cap, when the water will have free passage through the by-pass formed by the annular space around the filtering-block and by the ports in the bottom partition and controlled by said valve. A comparatively small turn of the valve will move the same a considerable distance owing to the double screw-thread, which provides ample screw-bearing with quick thread. As the water passes through the top of the filtering-block the greater part of the impurities will collect on top of the same and gradually flow off from the top and down through the annular space of the by-pass into the bottom of the cap, where they will accumulate. When it is desired to clean out such accumulations, the valve is opened, when the free rush of water will sweep the accumulated impurities from the top of the filtering-body down through the by-pass and out through the annular space of the tubular valve. It is consequently important to have the valve for the by-pass at the lower end of the same, and such valve cannot conveniently cover the openings in the partition-disk with-

out involving the friction and difficult closure caused by such large valve-surface and must not obstruct or interfere with the discharge-tube. The tubular valve I have found to be a very convenient and efficient valve in the filter, as it will admit of the outlet for the filtered and unfiltered water at the same point; but other forms of the valve which will control the outlet of the by-pass while leaving the outlet for filtered water open when the by-pass is closed may be employed, the essential object of my invention being to provide such operation, as just above mentioned, at the discharge-opening of the filter.

Other modes of applying the principle of my invention may be employed for the mode herein explained. Change may therefore be made as regards the mechanism thus disclosed, provided the principles of construction set forth, respectively, in the following claims are employed.

I therefore particularly point out and distinctly claim as my invention—

1. The combination with a filter-casing having an outlet, a filtering-body in said casing, a partition in said casing and having an outlet for the filtered water extending through the casing-outlet, and a by-pass for the unfiltered water and passing around the filtering-body and through the partition and ending in the casing-outlet, of a valve controlling the end of said by-pass, substantially as set forth.

2. In a filter, the combination of a casing having an inlet at one end and an outlet at the other end, a partition in said casing near the outlet and formed with openings through it near its edge and having an outlet-pipe extending from its center out through the casing-outlet, a filtering-body supported in the casing to leave a space at its top and sides and to have a tight seat upon the partition, and a valve in the space between the outlet and the partition and controlling such space, substantially as set forth.

3. In a filter, the combination of a casing having an inlet at one end and an outlet at the other end, a partition in said casing near the outlet and formed with openings through it near its edge and having an outlet-pipe extending from its center out through the casing-outlet, a filtering-body supported in the casing to leave a space at its top and sides and to have a tight seat upon the partition, and a tubular valve in the casing-outlet having a space between its interior and the tube of the partition and a seat for its inner end against the partition and having means for longitudinally moving it in the casing-outlet, substantially as set forth.

4. In a filter, the combination of a casing having an inlet at one end and an outlet at the other end, formed with an interior screw-thread and a packing above the same, a partition in said casing near the outlet and formed with openings through it near its edge and having an outlet-pipe extending from its center out through the casing-outlet, a filtering-body supported in the casing to leave a space at its top and sides and to have a tight seat upon the partition, and a tubular valve formed with a smooth portion fitting in the packing of the casing-outlet and a screw-threaded portion fitting in the threaded portion of the same and a handle for turning it and having a space between its interior and the tube of the partition and a seat for its inner end against the partition, substantially as set forth.

In testimony that I claim the foregoing to be my invention I have hereunto set my hand this 26th day of December, A. D. 1898.

CHARLES F. VOGLER.

Witnesses:

WM. SECHER,

MAUDE A. ARTES.