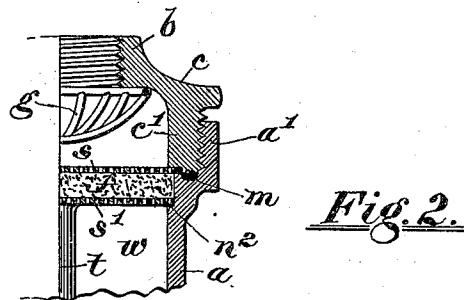
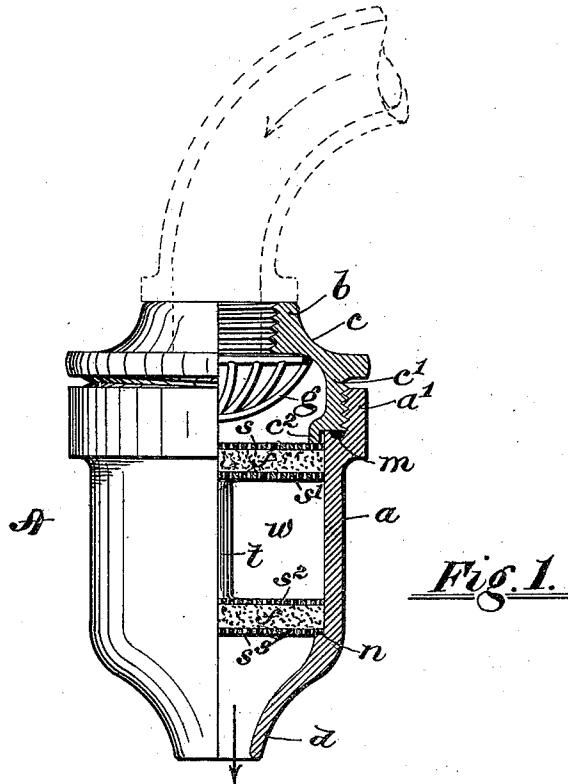


(No Model.)

C. E. INCE.
FILTER.

No. 555,773.

Patented Mar. 3, 1896.



WITNESSES.

Fred Arnold.

Harold Senior

INVENTOR.

Charles E. Ince.

by Remington & A. S. Thorn,
X
Attys.

UNITED STATES PATENT OFFICE.

CHARLES E. INCE, OF PROVIDENCE, RHODE ISLAND.

FILTER.

SPECIFICATION forming part of Letters Patent No. 555,773, dated March 3, 1896.

Application filed March 14, 1895. Serial No. 541,763. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. INCE, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Filters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as 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 letters of reference marked thereon, which form a part of this specification.

My invention relates to water-filters—that is, to the class of portable filters adapted to be removably secured to the usual water cocks or faucets connected with the domestic water-service; and it consists essentially in a separable filter provided internally with a double series or sets of filtering mediums separated from each other vertically to form an intermediate chamber and having the cap or inlet member provided with a diffuser or separator adapted to break the force of the water before it comes in contact with the upper filter-bed, all as will be more fully hereinafter set forth and claimed.

I am well aware that filters of the class adapted for domestic or household use have been devised prior to my invention, but such former filters have usually been quite complicated in construction and correspondingly expensive, and even requiring considerable skill on the part of the user to properly recombine the several parts after they have been taken apart and cleansed.

The object I have in view is to produce a water-filter which is simple in construction and also inexpensive. Moreover, it can be readily taken apart and quickly cleaned, or, if desired, the filtering-beds, when foul or charged, may be removed and clean filtering material substituted without the possibility of getting the various parts misplaced.

By means of my improved filter the force of the inflowing water is broken and distributed or diffused over the entire surface of the top screen. The device is adapted to collect any comparatively large piece or mass of foreign matter or substance, thereby pre-

venting injury to the screen and practically unaffected the efficiency of the filter.

Another advantage of my device is that the water first passes through an upper or initial filter-bed, thence into an intermediate chamber, and from the latter the water flows through the bottom filter-bed into any vessel or receptacle.

In the accompanying drawings, Figure 1 is a side elevation in partial central section showing my improved filter, and Fig. 2 shows a modified form of the joint.

A, referring to the drawings, indicates my improved filter complete. The body or casing *a* is enlarged at its upper end and is tapped, as at *a'*, to receive the screw-threaded rim or circular flange *c'* of the cap or cover member *c*. The casing is cylindrical intermediate of the end portions and is provided with a seat *n*, to which is secured in any suitable manner the bottom screen or strainer, *s*³. The bottom end of the casing is contracted in diameter to form the outlet-nozzle *d*. The said cap *c* is provided with a central inlet-nozzle, *b*, adapted to be secured to a water faucet or cock in any suitable manner. Within the cap *c* is secured a cage *g*, the same forming a coarse strainer and diffuser. As drawn, it consists of a series of upwardly-bent wires radiating from a common center and located directly below and communicating with the main inlet-passage. The lower end or face of the cap-rim *c'* is arranged to snugly engage a flexible packing *m*, let into the adjacent portion of the casing or shell *a*. The cap-rim is further adapted to engage the upper screen, *s*, the former being reduced in diameter and extending downwardly at *c*² into the barrel-chamber for the purpose.

The several strainers or screens consist of suitably perforated or reticulated disks of metal. The bottom one, *s*³, is secured to the seat *n*, as before stated. The upper one, *s*, is in contact with the cap-rim, and the upper and lower intermediate strainers, *s'* *s*², respectively, are joined together by a central tie *t*, the space between them constituting an intermediate chamber *w*. I may state that the disks *s* *s'* form the upper series of strainers and *s*² *s*³ the lower series. Interposed between each of said series of strainers is located a bed of

suitable filtering material *f*—as, for example, felt, cotton, &c. The filter-beds may be of any desired texture, such as will permit the water to pass through.

- 5 The size of the perforations or "mesh" of the several strainers may be uniform or not, as desired. They act simply as a backing or support to the filtering material proper and keep the latter in position.
- 10 The strainers are made of metal not liable to become easily corroded or affected by the action of the water—such, for example, as aluminum, brass, &c. The parts *a* and *c* may be made of cast-iron or of brass and finished
- 15 in any suitable manner.

- While I have represented the two parts composing the shell of my improved filter as screwed together, it is obvious that other well-known means may be adopted for the purpose—that is to say, they may be made to interlock by what is termed a "bayonet-fastening." The form of the rim *c'* of the cap *c* and the adjacent part of the shell *a* may be modified, as shown in Fig. 2, wherein the upper
- 25 intermediate strainer, *s'*, is slightly enlarged in diameter and rests on a small seat *n²*, the top strainer, *s*, being still further enlarged and held snugly between the face of said rim and the packing-seat. I prefer the arrangement
- 30 shown in Fig. 1, wherein the several interior parts are practically interchangeably alike.

In use my improved filter *A* is suitably secured, say, to the service-faucet. (Partly in-

35 dicated by the dotted lines in Fig. 1.) Now upon opening the faucet or cock the pressure forces the water into the upper chamber formed within the cap *c* and at the same time upon its striking the cage *g* the water is diffused over the surface of the top screen, *s*. The water next passes through the upper filter-bed, thereby mechanically separating from the fluid more or less of any foreign matter present, and thence into the intermediate chamber *w*. From the latter the water flows through the lower filter-bed, which in turn serves to practically arrest and retain any impurities which may have passed the top filter-bed. The clear or purified water is drawn off at the outlet-nozzle *d*, located at the bottom of the filter.

I claim as my invention and desire to secure by United States Letters Patent—

In a filter, the combination of the casing *a* having the seat *n*, said casing being of undiminished diameter above said seat, the strainer *s²*, the strainers *s'*, *s²* integrally connected by the supporting-post *t* the strainer *s*, the upper and lower filter-beds between the strainers, and the screw-cap for the filter, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

CHARLES E. INCE.

Witnesses:

GEO. H. REMINGTON,
FRED. ARNOLD.