No. 608,663.

Patented Aug. 9, 1898.

W. M. FOWLER.

FILTER.

(Application filed Mar. 31, 1897.)

(No Model.)

Fig. 1,

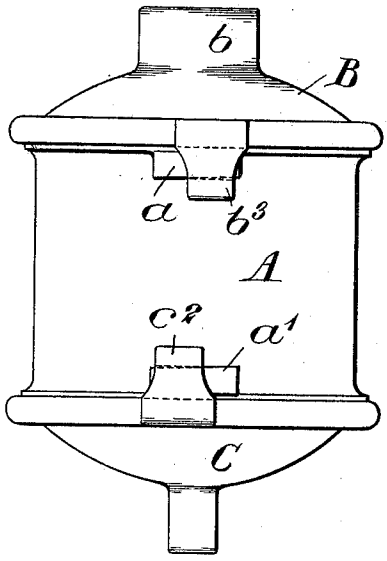


Fig. 2,

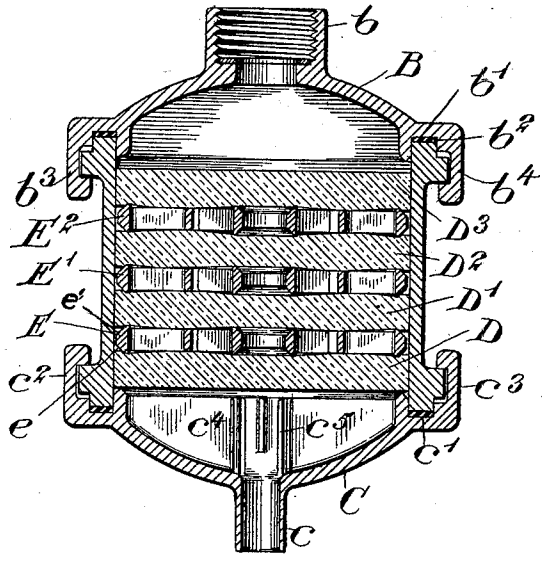


Fig. 3,

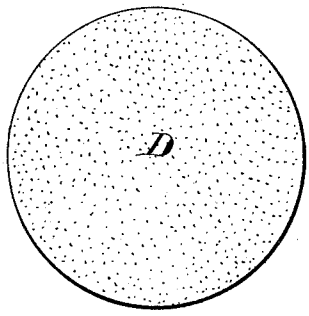
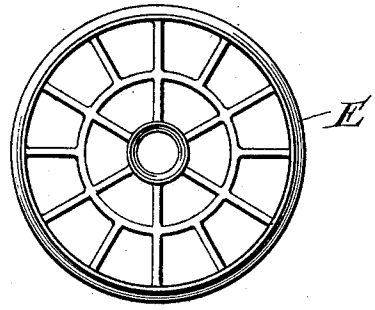


Fig. 4,



WITNESSES:

W. N. Naylor

Edward Visser

INVENTOR

William M Fowler.

BY

Brown & Seward

ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM M. FOWLER, OF STAMFORD, CONNECTICUT.

FILTER.

SPECIFICATION forming part of Letters Patent No. 608,663, dated August 9, 1898.

Application filed March 31, 1897. Serial No. 630,030. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. FOWLER, of Stamford, in the county of Fairfield and State of Connecticut, have invented a new and useful Improvement in Filters, of which the following is a specification.

My invention relates to an improvement in filters, with the object in view of providing a convenient filter for general use in connection with water-supply and which may be readily renovated in an economical and expeditious manner.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a view of the filter as it appears in elevation. Fig. 2 is a longitudinal section. Fig. 3 is a plan view of the porous laminas, and Fig. 4 is a plan view of one of the skeleton spacing-disks.

The filter is composed of a hollow cylinder or barrel within which one or more porous laminas of suitable filtering material are adapted to fit and slide, the said barrel being provided with removable ends for the purpose of sliding the porous lamina, when it has become most fouled, out at one end and inserting a fresh porous lamina in at the opposite end.

A represents the barrel or body casing of the filter, which in the present instance is made cylindrical in cross-section and is provided on its diametrically opposite sides and near its opposite ends with incline-faced retaining-lugs denoted, respectively, by a a'. The closure for one end of the barrel is denoted by B and is here shown as provided with an interiorly-screw-threaded nozzle b for the purpose of attaching the filter to an exteriorly-screw-threaded nipple at the end of the spigot or such branch pipe as may be conveniently arranged for locating the filter.

The end cap B is provided with an annular recess b' near its outer edge for the reception of the upper edge of the barrel A, and within this recess b' there may be located a gasket b^2 to make the closure liquid-tight. The end cap B is further provided at diametrically opposite portions of its periphery with depending recessed lugs b^3 b^4, adapted to engage the inclined faces of the lugs a on the barrel and by rotating the end cap B force the said cap snugly onto the end of the barrel and lock it in removable position.

At the opposite end the barrel A is closed by an end cap C, provided with an outlet-spout c and, like the end cap B hereinabove described, provided with an annular recess c' for the reception of the opposite end of the barrel A and a suitable gasket, and, like said end cap B, provided with recessed lugs c^2 c^3 for engaging the incline-faced lugs a' on the opposite sides of the barrel A to lock the end cap C in removable adjustment. The inner face of the cap C is further provided with cross-webs c^4 c^5 for the purpose of holding the porous lamina at the bottom of the barrel away from the spout c to leave the water a free clearance after passing the filtering-lamina at the outlet end of the filter.

In the present instance I have shown four filtering-laminas, represented, respectively, by D D' D^2 D^3, separated by interposed skeleton disks denoted, respectively, by E, E', and E^2. The laminas D D', &c., consist in the present instance of felt three-eighths of an inch thick, more or less, and fitted snugly to the interior of the barrel A, in practice made of a diameter slightly greater than the diameter of the barrel A, so as to provide for an expansion at their peripheries under the pressure of the edges of the spacing-disks E to prevent the passage of liquid between their peripheries and the interior of the barrel.

The expanding of the outer edges of the filtering-laminas is effected by making the opposite edges of the rims of the spacing-disks narrow and leaving a space between said edges and the interior wall of the barrel for the extended edges of the filtering-laminas to be crowded into. I prefer to make the rim of the spacing-disks E with a double bevel on their outer faces, as shown at e e', thereby forming a gradually-contracting space between the narrowed edges of the rim and the interior of the barrel to insure a greater resistance against the flow of liquid at the periphery of the filtering-lamina than elsewhere throughout their extent.

In practice, the filtering-laminas having been placed in position spaced apart by the disks E, as shown in Fig. 2, and the ends B and C having been locked in adjustment, the liquid will be caused to pass successively through

the several laminas D^3 D^2 D' D before it can escape from the outlet-spout *c*. After the filter has been employed to an extent which will render the lamina which first receives the water foul, the time depending upon the amount of impurities in the water being filtered, the barrel may be removed from the end B by a partial rotary movement. The end C may then be removed, and by pressing on the outer face of the lower lamina D the entire set may be forced toward the opposite end of the barrel until the lamina D^3 is removed from the barrel and the lamina D^2 placed in position to first receive the inflowing liquid. A fresh lamina may be then inserted at the discharge end of the filter after a spacing-disk has been placed in position and the parts then assembled as before, ready for continued action. In this manner the filter may be kept at all times as free from impurities as may be desired, and by increasing the number of filtering-laminas the impurities may be entirely removed from the liquid.

While I have shown the removable ends B and C as fastened by means of bevel-faced lugs and find this a convenient structure in practice, I do not wish to limit myself to that particular form of fastening, as other well-known or approved fastenings might be employed, and while I have shown a form which is particularly adapted to use in connection with water-supplies for removing impurities from water under head with pressure I do not wish to be understood as limiting its structure and use to that particular purpose.

What I claim is—

1. A filter comprising a barrel or casing, a plurality of filtering-laminas within the casing, skeleton separating-disks interposed between the said laminas and serving to space the filtering-laminas apart, the said skeleton separating-disks and laminas being free to be slid consecutively into one end of the barrel and out of the opposite end of the barrel and movable inlet and outlet caps for opening and closing the opposite ends of the barrel at pleasure, substantially as set forth.

2. A filter comprising a barrel or casing, a disk of filtering material fitted to the interior of the barrel or casing and a skeleton disk provided with a rim having its edge spaced from the interior wall of the barrel or casing and adapted to impinge against the yielding disk of filtering material at a short distance from its outer edge, whereby, when pressure is applied to the disk of the yielding material, its periphery will be forced against the inner wall of the barrel by the edge of the rim of the skeleton disk to prevent the flow of liquid past the periphery of the yielding disk, and caps for closing the opposite ends of the barrel or casing, substantially as set forth.

WILLIAM M. FOWLER.

Witnesses:
FREDK. HAYNES,
EDWARD VIESER.