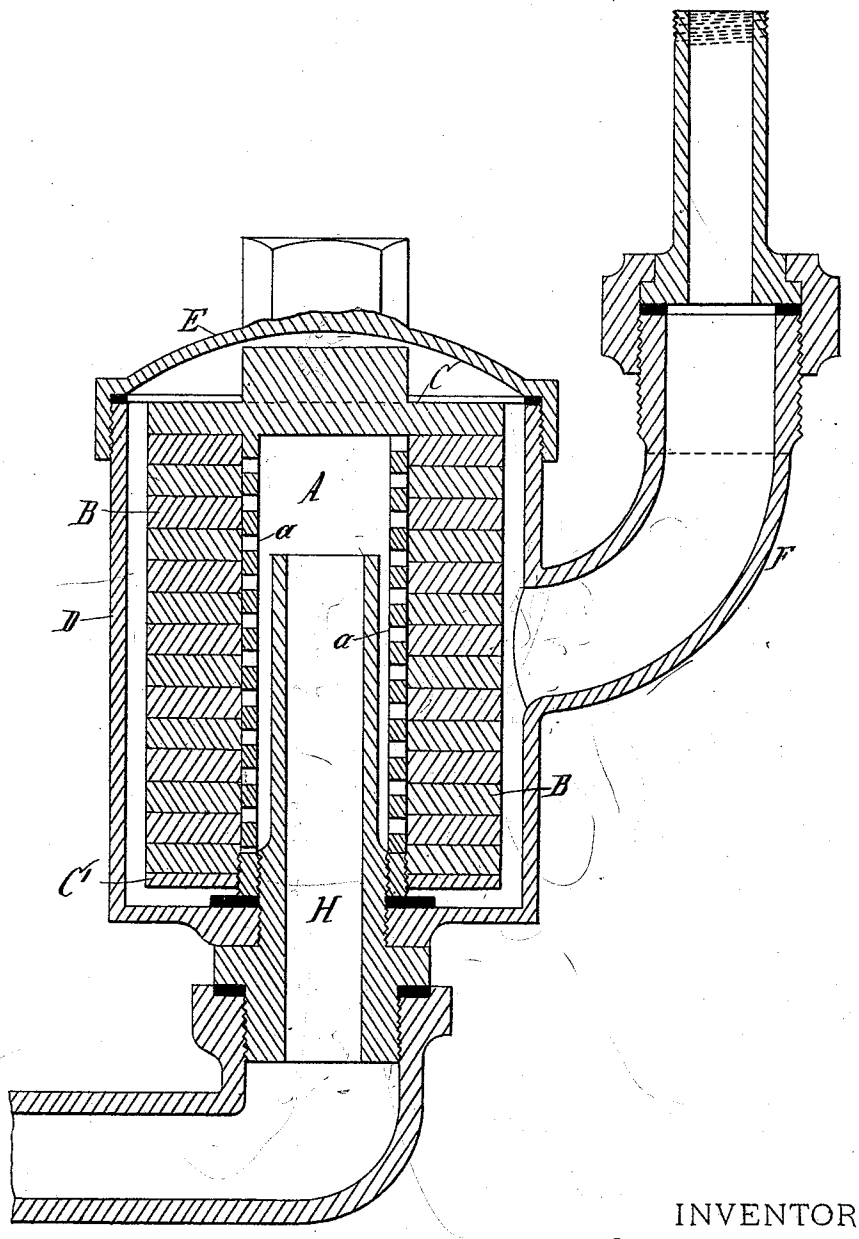
(No Model.)

E. MERTZ.

FILTER.

No. 437,443. Patented Sept. 30, 1890.



INVENTOR:
Emile Mertz

WITNESSES:
E. A. Brownell
Carleton Ellis

By Arthur C. Fraser and Co
his Attorneys

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

UNITED STATES PATENT OFFICE.

EMILE MERTZ, OF BASLE, SWITZERLAND.

FILTER.

SPECIFICATION forming part of Letters Patent No. 437,443, dated September 30, 1890.

Original application filed November 24, 1888, Serial No. 291,749. Divided and this application filed March 8, 1890. Serial No. 343,217. (No model.) Patented in France September 11, 1888, No. 192,906; in Belgium September 17, 1888, No. 83,288; in England September 21, 1888, No. 13,666; in Italy December 6, 1888, No. 24,147/471, and in Austria-Hungary September 24, 1889, No. 14,001 and No. 31,120.

To all whom it may concern:

Be it known that I, EMILE MERTZ, a citizen of France, residing at Basle, Switzerland, have invented certain new and useful Improvements in Filters, of which the following is a specification.

The present invention is the subject of Letters Patent in foreign countries as follows: France, No. 192,906, dated September 11, 1888, and of certificate of addition thereto dated November 4, 1889; Belgium, No. 83,288, dated September 17, 1888; Great Britain, No. 13,666, dated September 21, 1888; Italy, No. 24,147/471, dated December 6, 1888, and Austria-Hungary, No. 14,001 and No. 31,120, dated September 24, 1889.

The present invention relates to filters for filtering water under pressure; and it consists in the construction of the filter itself, which is composed of a casing having inlet and outlet openings, a vertical discharge-tube extending within the casing and communicating with the outlet-opening, a perforated pipe which slips over said discharge-tube, whereby a sediment-chamber is formed between them, and an envelope of fibrous material which surrounds said perforated tube.

The improved filters can be used for a variety of purposes, and the invention is not limited to any particular purpose. They can be used in residences for filtering the water which is supplied for ordinary household uses, for purifying the water-supply of cities before it is introduced into the supply-mains, in connection with apparatus for moistening the air in factories or elsewhere, and for any other purpose. It is necessary, however, that the water passing through the improved filters should be forced therethrough, and the necessary force may be applied either by suction or by pressure.

The construction and operation of the improved filters are illustrated in the accompanying drawings, wherein is shown a sectional elevation of the improved filter as the same is constructed when arranged in the supply-pipe of an air-moistening apparatus.

Referring first to the drawing, A is a perforated metallic tube having numerous holes or apertures *a a* extending through its walls, and provided at or near one end with a fixed annular projecting flange C. Around this tube A are placed a number of flat annular disks or washers B B, composed of a dense fibrous material, such as felt. These felt disks or washers are placed one above the other, surrounding the tube A and seating against the flange C until they cover all of the apertures *a a* of the tube. They are held closely and compactly together, and retained in place on the perforated tube by means of a movable disk C', which screws onto the tube A. The perforated tube A is thus surrounded by an envelope of dense fibrous material—such as felt—which is retained on the tube between a fixed flange and a removable disk. The perforated tube, with its inclosing-felts, is located within a casing D, having screwed into it a central discharge-tube H, over which latter the perforated tube A is slipped and onto which the perforated tube is screwed and so maintained in position. The open end of the casing D, through which the perforated tube is introduced, is closed by a screw-threaded cap E.

The water-supply pipe F enters the outer wall of the casing D and supplies the water to the annular space within the casing exterior to the felt washers B B. In order to pass out through the discharge-tube, the water must pass through the closely-felted fibers of the washers, whereby all impurities in the water are removed and only pure clear water is discharged from the filter. The discharge-tube H extends vertically within the perforated tube, reaching nearly to the upper part thereof, as shown, and its exterior diameter is somewhat less than the interior diameter of the perforated tube, so that an annular space is formed between the two tubes, which constitutes a sediment-chamber. In case any fine silt should be forced through the fibrous envelope after long use, it would settle in this sediment-chamber.

A special merit of this improved filter consists in the readiness with which it may be cleaned. To clean it, the cap E is first removed, and then the tube A, with its fibrous

envelope, is unscrewed and wholly removed from the casing D. The disk C′ can then be removed and afterward the several disk-washers B, which can then be separately cleaned and restored in position. In the same manner worn-out felt washers can be replaced by new ones.

The filter is particularly designed to be used in the supply-pipe of a water-spraying and air-moistening device, such as is shown in Letters Patent of the United States granted to me April 1, 1890, No. 424,652, the application for which was filed November 24, 1888, Serial No. 291,749, (of which the present application is a division;) but an exactly similar construction may be employed in any supply-pipe where there is sufficient pressure to cause the water to percolate through the felt envelope.

It is evident that, instead of annular felt disks superimposed one upon the other, the fibrous envelope of the perforated tubes may be composed of a number of felt tubes or muffs, or these latter may be employed in connection with the felt washers.

I claim as my invention—

A filter having a casing D, a water-inlet F, and a vertical discharge-tube H, extending within the casing, in combination with a perforated pipe A, which slips over said tube H, whereby a sediment-chamber is formed between said tubes, and an envelope of fibrous material surrounding said perforated tube, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

EMILE MERTZ.

Witnesses:
GEORGE GIFFORD,
CHAS. A. RICHTER.