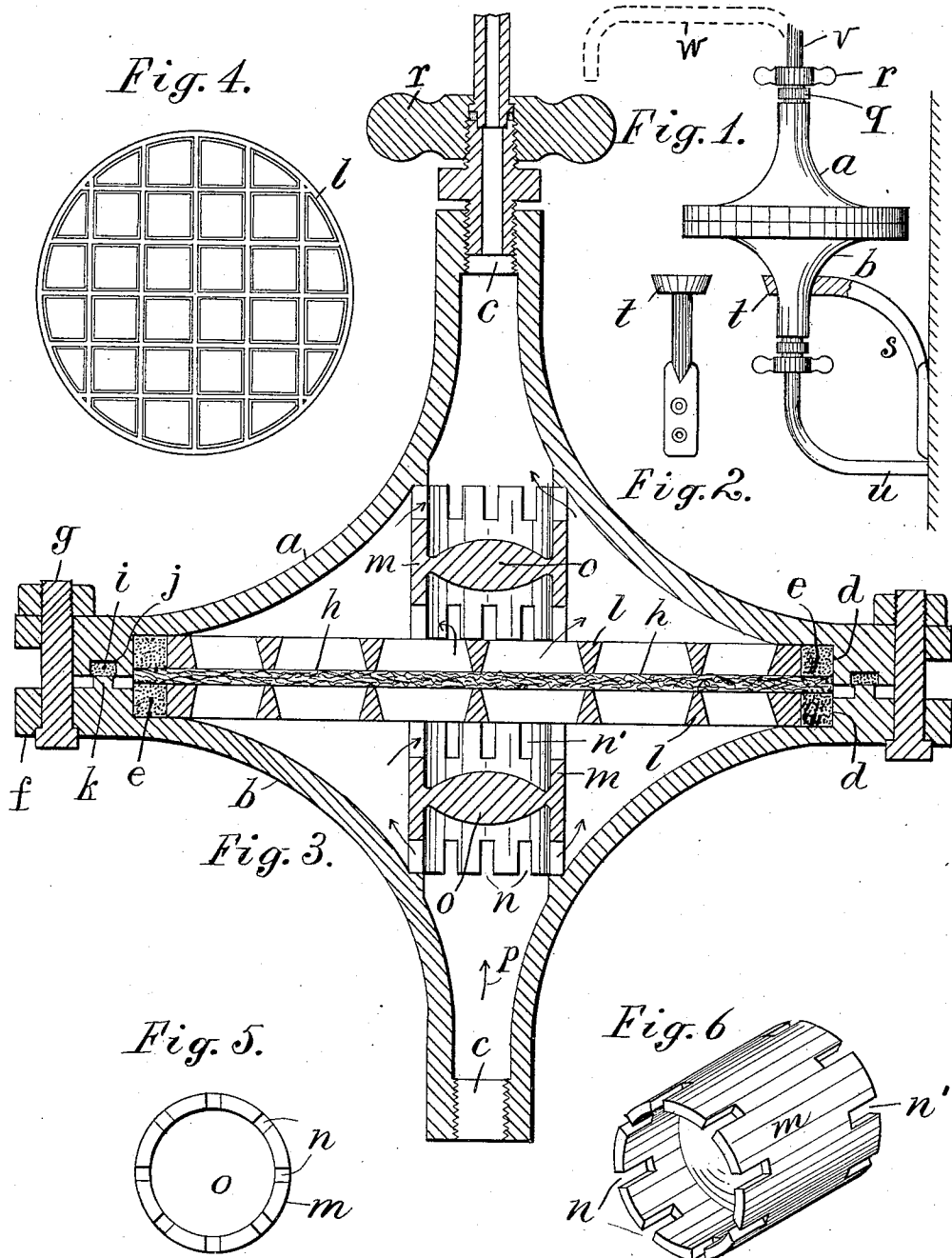


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PATENTED SEPT. 10, 1907.

J. H. FOX.
PRESSURE FILTER.
APPLICATION FILED OCT. 27, 1906.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN H. FOX, OF NEW YORK, N. Y.

PRESSURE-FILTER.

No. 865,691.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN H. FOX, a citizen of the United States, residing at 228 East One Hundred and Twenty-third street, New York, county of New York, and State of New York, have invented certain new and useful Improvements in Pressure-Filters, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention consists in a particular construction for a reversible filter which adapts it to be readily cleaned by reversing it; the construction also providing means for supporting the filter reversibly upon a bracket-carrier and joining it detachably to its connecting pipes.

In the drawing, Figure 1 represents the filter-casing supported upon the bracket, the socket of which is shown in section; Fig. 2 is a front view of the bracket-carrier; Fig. 3 is a vertical section of the filter upon a much larger scale than Fig. 1; Fig. 4 is a plan of one of the gratings upon only one-half the scale of Fig. 3; and Figs. 5 and 6 are an end view and perspective view of the tubular deflector upon the same scale as Fig. 3.

The casing is formed with opposed detachable tapering sections *a, b*, having each a central nozzle *c* and cylindrical recess *d* in which an annular rubber packing *e* is fitted. The marginal flanges *f* of the casing are connected by bolts *g*, and a filter-disk *h* is clamped, by the casing, between the rubber packings, which thus make a tight joint between the filter-disk and the casing. The disk is preferably made of fine felt which is compressible in its nature, and the margin of the disk is thus pressed hard upon the rubber packings. An annular rubber packing *i* is also shown fitted to a groove *j* in the flange of the section *a*, and an annular ridge *k* is provided upon the section *b* to press upon the same and thus prevent any possible leakage from the filter through the compressed edges of the filter-disk. Gratings *l*, of which one is shown in Fig. 4, are fitted to opposite sides of the filter-disk and contact with the inner sides of the sections.

It has been found that where a filter-disk is supplied with fluid through a central nozzle upon a tapering casing, the greater proportion of the fluid passes through the center of the filter-disk and tends to clog the same. To distribute the flow more evenly over the disk, I insert a deflector within the casing upon each side of the filter-disk in a line with the nozzles, and thus prevent the direct passage of the fluid from one nozzle to the other. The deflector is made separately from the casing and is held detachably in place by fitting it between the grating and an interior annular shoulder upon the casing. When the casing is taken apart for cleansing, the deflector can thus be readily removed and cleansed independently. The deflector is shown in the drawing formed of a short tube *m* having notches *n, n'*, in its op-

posite ends, and a partition *o* which closes the middle portion of the tube.

The fluid entering by the lower nozzle in the direction of the arrow *p* in Fig. 3, is deflected by the partition through the notches *n*, which scatter the fluid over the outer portions of the disk, the center portion also being supplied by a flow into the pipe through the notches *n'*. The water escapes by a similar path.

This device is designed to furnish a rapid pressure filter, one in which water operating under a pressure of from thirty to sixty pounds upon the square inch (such as is commonly found in the service pipes of water supplies) will deliver the water rapidly, and when clogged by sediment or deposit upon the filter-disk, can be readily cleansed by reversing its relation to the current.

The filter was especially designed for use in carbonating apparatus, in which the water and carbonic acid gas are supplied separately to a mixer, the inlet and outlet of the filter in such case having pipes connecting them tightly with the water supply and with the mixer.

To reverse such a filter, I form the nozzles *c* with similar screw-threads in which union couplings are screwed, and the opposite ends of the connecting pipes are coupled thereto by collars *q* having handles *r* to turn the same.

The filter when in use is supported removably upon a bracket-carrier *s* having a tapering socket *t* adapted to fit the tapering sections of the casing interchangeably. The filter may thus be supported in the bracket-carrier, as shown in Fig. 1, with either end downward, and coupled to the service pipe *u* and the delivery pipe *v* by the coupling collars *q*.

When the filter requires cleansing, it may be instantly uncoupled by turning the collars *q*, the casing reversed in the bracket-carrier, and a temporary waste-pipe *w* attached to the outlet, as shown in dotted lines in Fig. 1, to wash the filter until it is clean, when it may be coupled again with the delivery pipe *v*.

Having thus set forth the nature of the invention what is claimed herein is:

1. A filter having the opposite detachable tapering sections *a, b*, having each a central nozzle *c* and a cylindrical recess *d* with annular rubber packing *e* fitted therein, a filter-disk of porous and yielding fibrous material fitted between the two packings and its edge compressed between the same, preventing any escape of fluid past the filter-disk or from the casing at the edge of the filter-disk, and gratings fitted within the packing rings upon the sides of the filter-disk, the margins of the gratings lying in contact with the tapering inner surfaces of the casing sections and pressed thereby upon the surface of the filter-disk.

2. A filter having the opposite detachable tapering sections *a, b*, having each a central nozzle *c* and a cylindrical recess *d* with annular rubber packing *e* fitted therein, a filter-disk of porous and yielding fibrous material fitted between the two packings and its edge compressed between the same, preventing any escape of fluid past the

filter-disk or from the casing at the edge of the filter-disk, gratings fitted within the packing rings upon the sides of the filter disk, the margins of the gratings lying in contact with the tapering inner surfaces of the casing sections and pressed thereby upon the surface of the filter-disks, each of the casing sections having an interior annular shoulder, and a deflector being inserted loosely between the said shoulders and gratings in line with the nozzles, upon opposite sides of the grating, to distribute the fluid over the grating.

10 3. A filter having a casing with the opposed detachable tapering sections *a*, *b*, having each a central nozzle *c* and

cylindrical recess *d* with annular rubber packing *e* fitted therein, a filter-disk clamped between the said packings, gratings upon opposite sides of the filter-disk, and tubular 15 deflectors having each an interior partition and notches in the ends fitted between the grating and the casing in the line of the nozzle to distribute the fluid over the grating.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN H. FOX.

Witnesses:

L. LEE,

THOMAS S. CRANE.