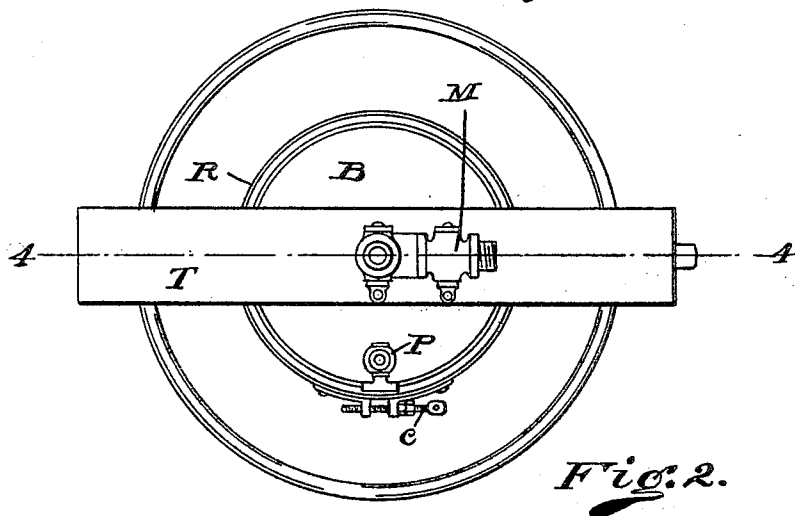
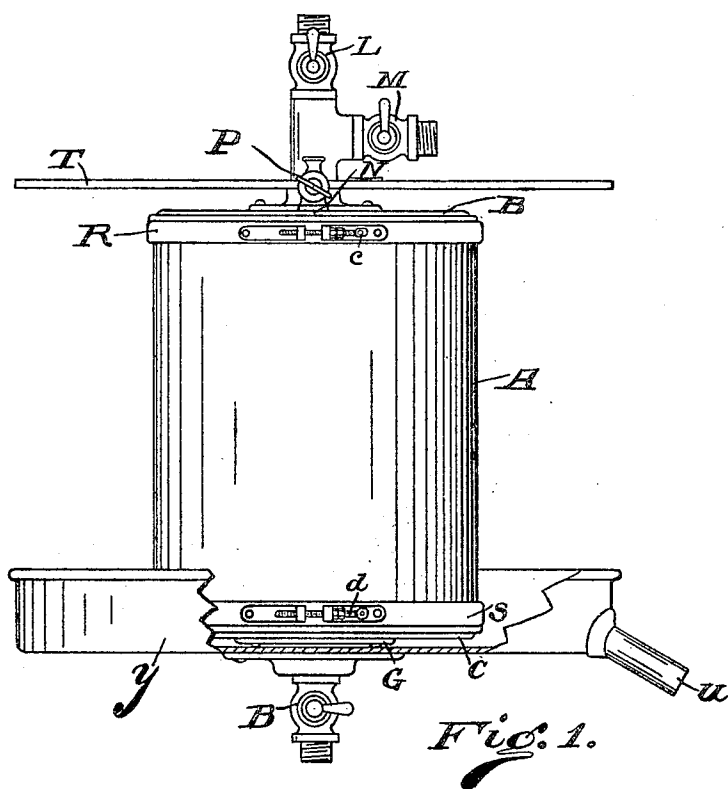


S. G. DERHAM.
PRESSURE FILTER.
APPLICATION FILED NOV. 12, 1903.

2 SHEETS—SHEET 1.



Witnesses
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2 SHEETS—SHEET 2.

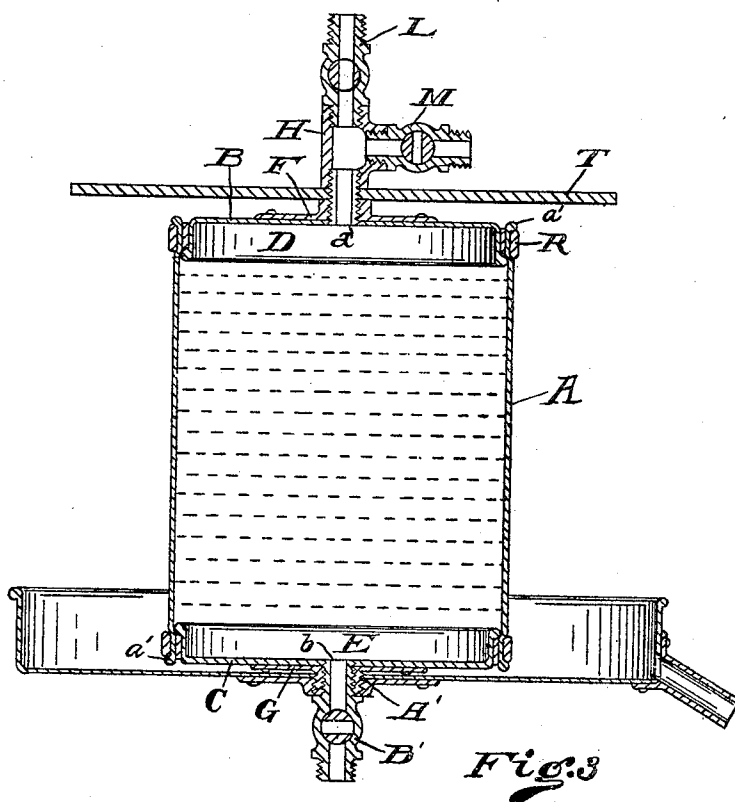


Fig. 3

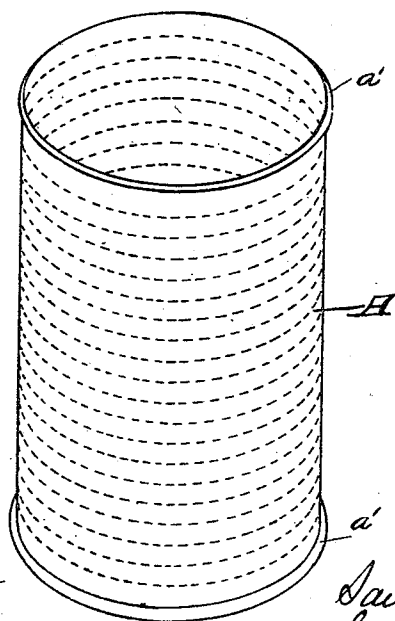


Fig. 4.

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UNITED STATES PATENT OFFICE.

SAMUEL G. DERHAM, OF CINCINNATI, OHIO.

PRESSURE-FILTER.

No. 800,992.

Specification of Letters Patent.

Patented Oct. 3, 1905.

Application filed November 12, 1903. Serial No. 180,840.

To all whom it may concern:

Be it known that I, SAMUEL G. DERHAM, a citizen of the United States, residing in Cincinnati, county of Hamilton, and State of Ohio, have invented certain new and useful Improvements in Pressure-Filters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My improvements relate to pressure-filters in which a pliable filtering material is employed as the filtering medium.

The purpose of my invention is to provide the construction of pressure-filters which can be readily and easily cleaned without the use of any mechanical cleaner and without removing the filtering medium from the supporting devices.

In the drawings, Figure 1 is a front elevation of my improved filter. Fig. 2 is a plan view of same. Fig. 3 is a central vertical section. Fig. 4 is a perspective view of the filter-cylinder.

A is the filtering medium, preferably made of alternate layers of textile fabric and filtering-paper quilted together to form a soft and pliable filtering medium. This fabric is formed into a cylinder, open at each end, by sewing the side edges together, and as many of these cylinders of filtering material may be used as desired, one inside the other, and to prevent the filtering medium from slipping off the holders I prefer to run a cord or form a bead *a'* at the open edges of the cylinders at top and bottom.

For mounting the cylinder or cylinders of filtering fabric I provide the metallic top B and the metallic bottom C, the top and bottom plates having flanges D E to fit within the open ends of the filter-cylinder. F and G are collars mounted around the central opening *a b*, in which top and bottom plates B C and these collars are screw-threaded to receive the necessary couplings. On the top plate is secured a pipe-coupling H, provided with a vertical and a lateral opening, which openings are controlled by stop-cocks L M. The top plate B is also provided with an air-opening N, controlled by a pet-cock P for opening and closing the air-opening. R S are clamps, open at one side, to be sprung around the filter-cylinder at top and bottom, which clamps are drawn together by the thumb-screws *c d* to securely clamp the filter-cylinders to the top and bottom plates. T is a bar mounted

on the top collar F for supporting the filter in any convenient way, such as by resting it on the edge of the receptacle for receiving the filtered liquid.

In order to catch the filtered liquid and conduct it into a suitable receptacle, I provide a pan Y, having an orifice or discharge-opening U for discharging the liquid collected in the pan. This pan has a central opening and is screwed on the pipe-coupling A', which is connected to the bottom plate at the central opening therein. These pans may be of any suitable diameter and size, depending on whether the liquid filters rapidly or slowly. The discharge-pipe A' from the bottom plate is provided with a stop-cock B', so that under normal conditions this discharge-pipe may be closed.

To use the filter, the vertically-extending pipe connection H is coupled by suitable pipes to the tank containing the liquid to be filtered. The stop-cocks M and B' are closed and the stop-cock L opened, and the liquid to be filtered is allowed to run into the filter. At the same time in order to relieve the air-pressure the air-opening N is opened until the filter is filled with the liquid. Then the air-opening is closed and the filtering through the filtering medium continues, the filtered liquid collecting in the pan Y and discharging through the outlet U into the receptacle for collecting the liquid, it being understood that the filter itself is suspended in proper position by the cross-bar T in any convenient way. The bulk of the sediment collects on the bottom C within the annular band S, although of course the surface of the filtering medium also in time becomes coated with the sediment. In order to clean the filtering medium and wash out the sediment, a hose-pipe is connected to the lateral extension of the pipe H, the stop-cock L closed, and the stop-cocks M and B' opened, and the contents of the filter flushed out with water. In addition to this the filter is partly filled with water and the stop-cock M closed, leaving the stop-cock B' at the base open, and inasmuch as the filtering medium is pliable the cylinder can be twisted and pressed together, which causes the air and the water in the filter to pump out and thoroughly clean the filtering medium. This can all be done without disconnecting the filter and the filtering material in this way kept perfectly clean and in good condition.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent, is—

1. A pressure-filter comprising a tube of flexible filtering material, metallic end walls
5 suitably attached to said tube and adapted to be moved toward and from each other, a supply-cock for the material to be filtered connected with the top wall, and a drain-cock connected with the bottom wall.
- 10 2. A pressure-filter comprising a tube of flexible filtering material, metallic end walls suitably attached to said tube and adapted to be moved toward and from each other, a supply-cock for the material to be filtered connected with the top wall, a drain-cock connected with the bottom wall, and means connected with the top wall for admitting a flushing material.
- 15 3. A pressure-filter comprising a tube of flexible filtering material, metallic end walls

suitably attached to said tube and adapted to be moved toward and from each other, a supply-cock connected with the top wall, the said cock having two independently-controlled inlets for the material to be filtered and a flushing material respectively, and a drain-cock connected with the bottom wall.

4. A pressure-filter comprising a tube of flexible filtering material, metallic end walls suitably attached to said tube and adapted to be moved toward and from each other, a supply-cock for the material to be filtered connected with the top wall, a drain-cock connected with the bottom wall, and an air-cock for controlling the admission and discharge of air connected with the top wall.

SAML. G. DERHAM.

Witnesses:

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