

No. 622,698.

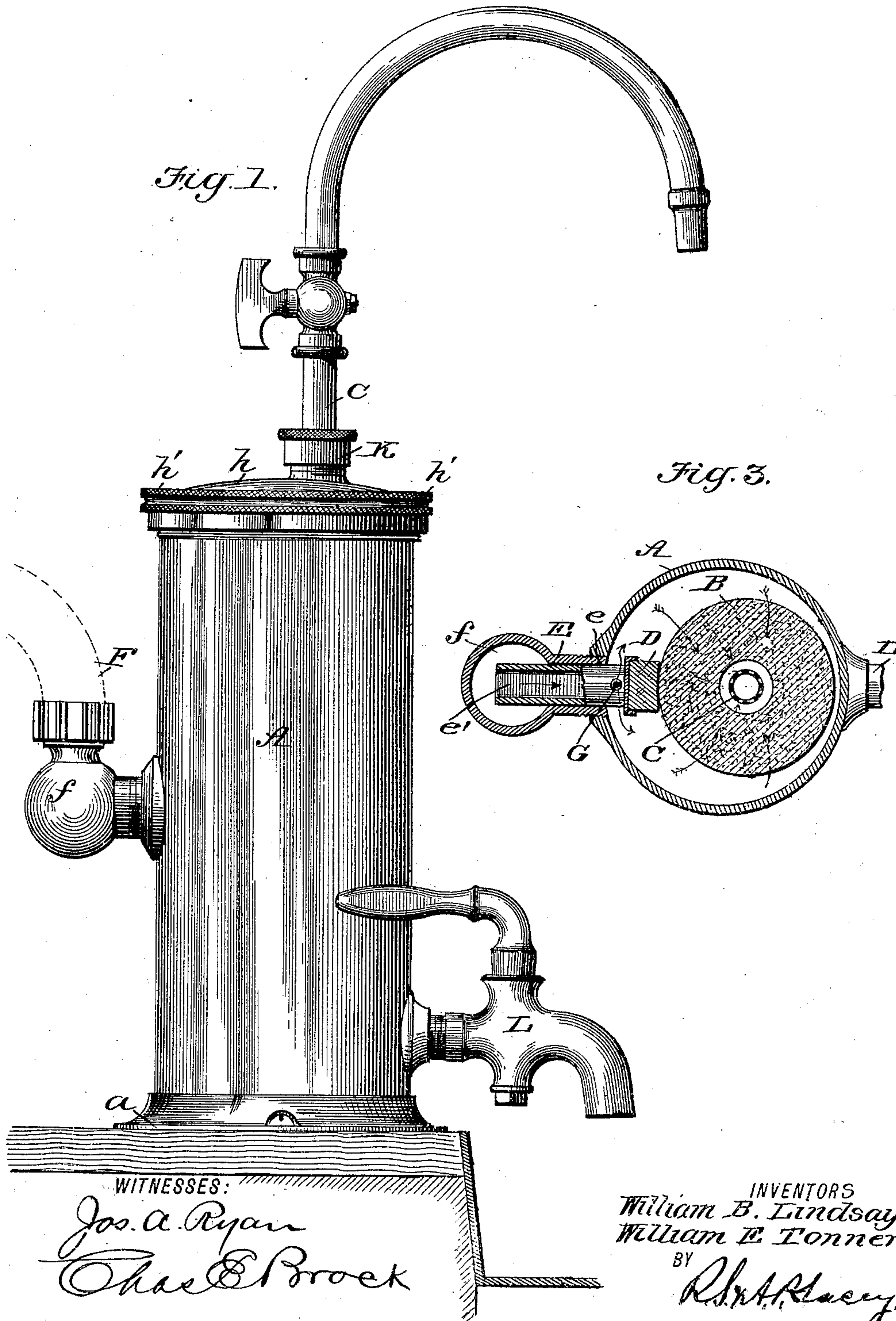
Patented Apr. 11, 1899.

W. B. LINDSAY & W. E. TONNER.
FILTER AND CLEANER.

(No Model.)

(Application filed Oct. 28, 1895.)

2 Sheets—Sheet 1.



WITNESSES:

Jos. A. Ryan
Chas. E. Brock

INVENTORS
William B. Lindsay
William E. Tonner.
BY
R. H. H. H. H.
ATTORNEYS.

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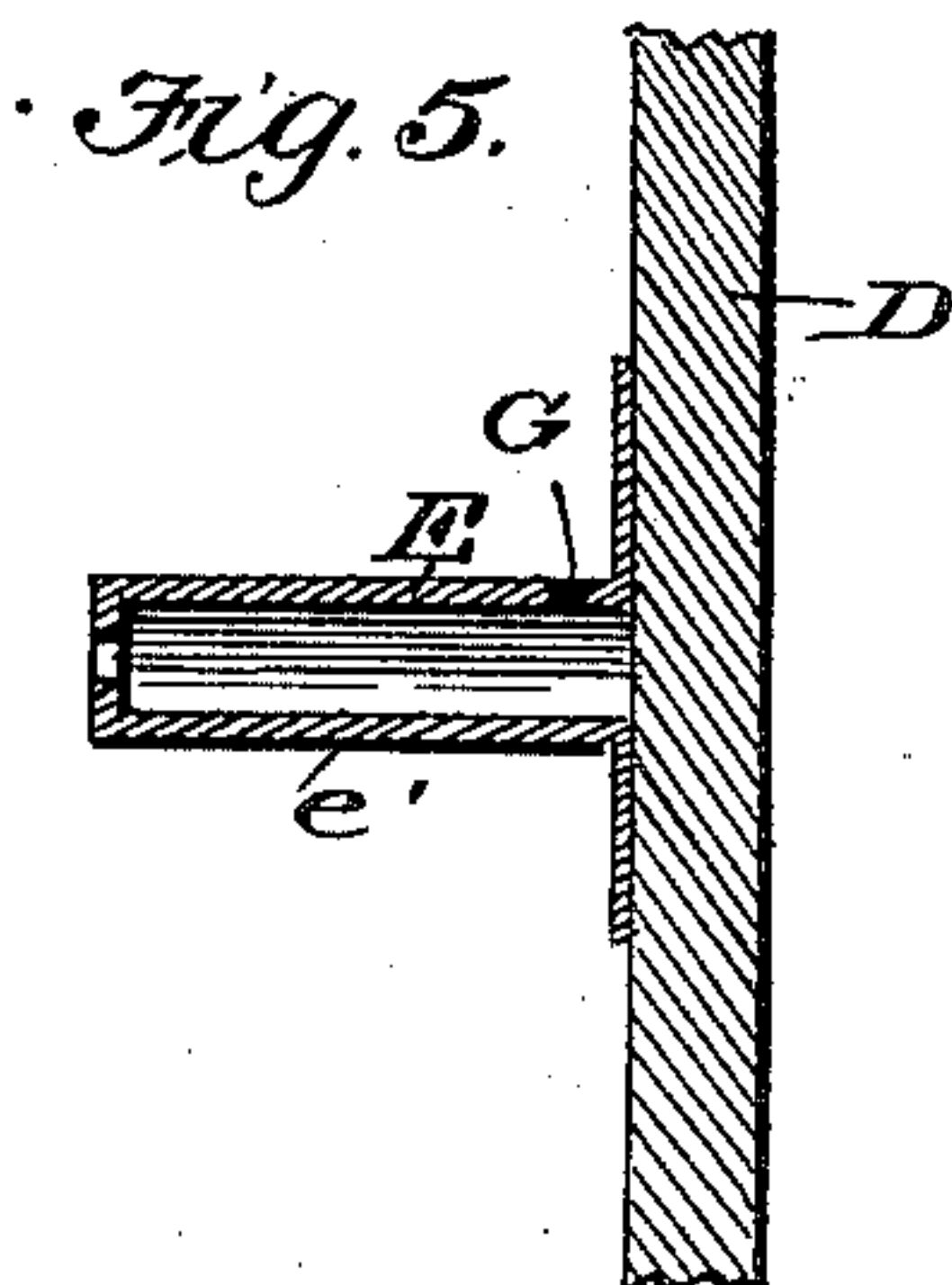
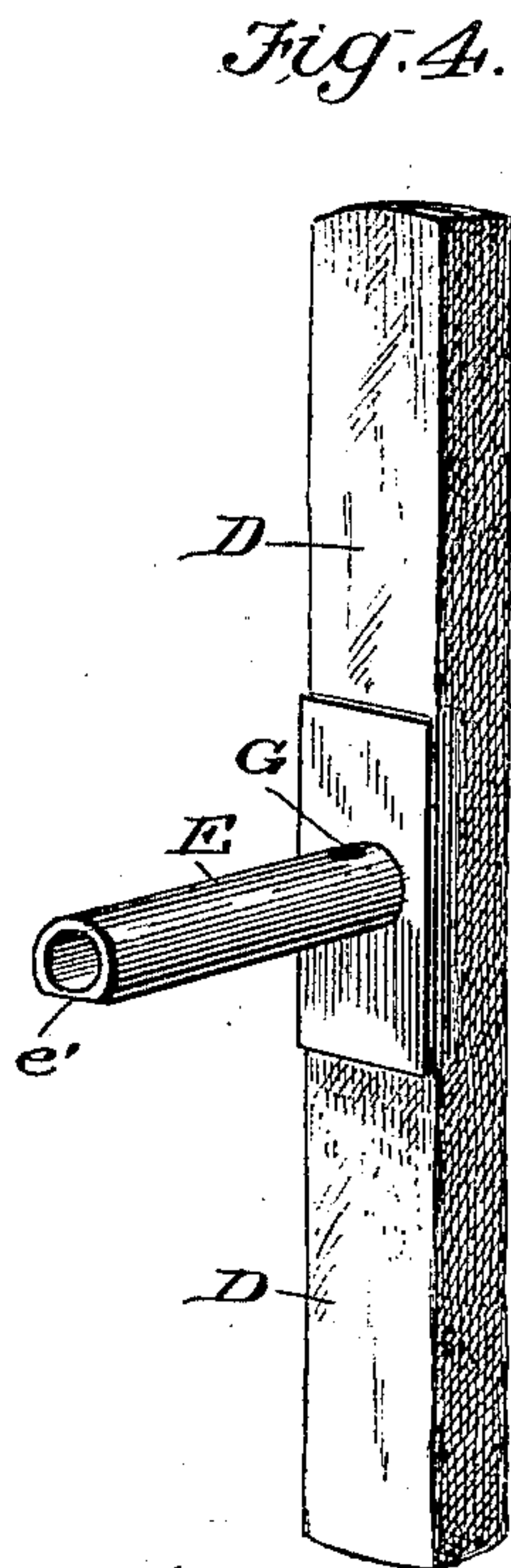
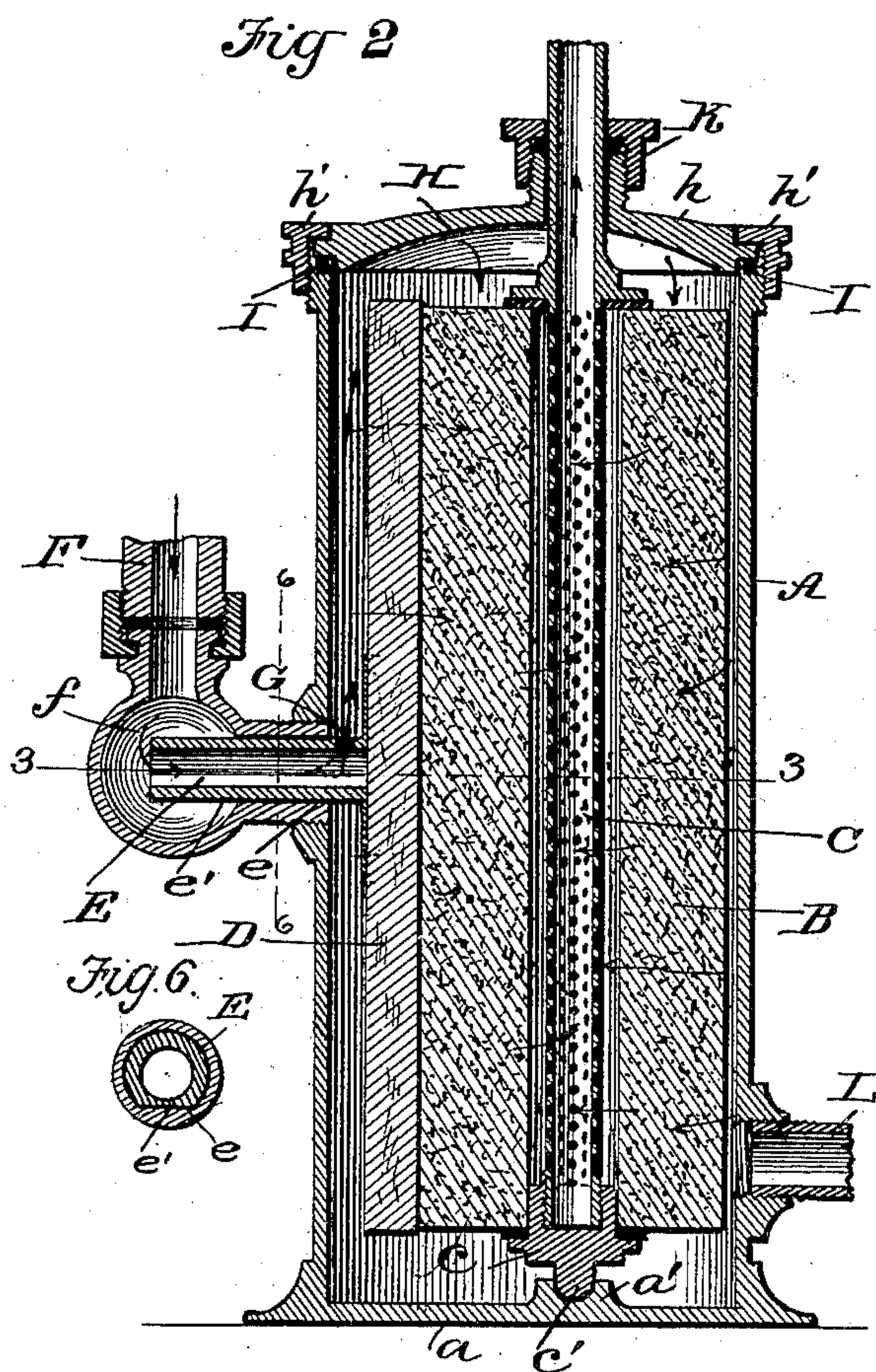
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Jos. A. Ryan
Chas. E. Brock

INVENTORS
William B. Lindsay
William E. Tonner
BY
R. A. Lacey
ATTORNEYS

UNITED STATES PATENT OFFICE.

WILLIAM B. LINDSAY AND WILLIAM E. TONNER, OF STEUBENVILLE, OHIO.

FILTER AND CLEANER.

SPECIFICATION forming part of Letters Patent No. 622,698, dated April 11, 1899.

Application filed October 28, 1895. Serial No. 567,143. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM B. LINDSAY and WILLIAM E. TONNER, of Steubenville, in the county of Jefferson and State of Ohio, have invented an Improvement in Filters and Cleaners, of which the following is a specification.

This invention relates generally to filters, and particularly to that class thereof known as "porous-wall" filters, in which the water is forced through the walls of a porous cylinder or receptacle.

More particularly stated, the invention is a device for cleaning the exterior of such receptacle, and is an improvement upon the devices shown, described, and claimed in our applications filed May 14, 1895, Serial No. 549,310, and June 10, 1895, Serial No. 552,237.

The object of this invention is to avoid certain objections which we have found in existing devices and to provide for a greater and steadier hydraulic pressure and also to provide a construction whereby water will be distributed more evenly over the filtering-surface and at the same time the cleaning operation will be greatly facilitated.

With these objects in view our invention consists in the peculiar construction of the several parts and the novel manner of combining or arranging the said parts, all of which will be fully described hereinafter and pointed out in the claims.

In the drawings forming a part of this specification, Figure 1 is a side view of our filter, partly broken away. Fig. 2 is a vertical longitudinal section. Fig. 3 is a horizontal section on line 3 3 of Fig. 2. Figs. 4 and 5 show details of construction.

In carrying out our invention we employ an outer case A, having a bottom *a*, on which is produced a socketed boss *a'*. The filtering-cylinder B is of porous material and has a discharge-pipe C extending thereinto, said pipe being closed at the bottom by means of a nut *c*, which has a lug *c'* adapted to fit in the socketed boss *a'*, and thus act as a pivot for the filtering-cylinder when it is desired to revolve the same.

The porous filtering-cylinder is arranged eccentrically within the outer case and nearer the front side than the rear, the purpose of

which is to allow ample space for the introduction of a cleaner or scraper D, which is preferably composed of natural stone of the character described in our Patent No. 528,104, dated October 23, 1894. This scraper D has a piston E centrally mounted upon the rear side, which piston projects through an opening *e* in the outer case and into the water-supply pipe F, which is preferably constructed with a globe-shaped chamber *f*, into which the rear end of the piston extends. This piston is made hollow and may be left open or partially closed at the rear end and near the forward end is provided with an upwardly-opening aperture G, through which the water issues in a fine stream and is sprayed against the top H of the outer case, and then streams down evenly upon the exterior of the filtering-cylinder. The piston is made flat on one side, as shown at *e'*, and the end of supply-pipe is similarly shaped, so that when said piston is set in a vertical position it cannot turn or become misplaced. The water passes through the supply-pipe and piston out through hole G, and in doing so the cleaner of stone is pressed against the side of the filtering-cylinder. The cylinder being eccentric to the case and having the discharge-tube projected through the top, said top is made in two parts—namely, the cap-piece *h*, through which the pipe projects, and the clamping-ring *h'*, which binds the cap-piece to the top of outer case, a suitable packing-ring I being interposed to prevent leakage, and a stuffing-box K surrounds the discharge-pipe, which is preferably constructed with a detachable curved end and a regulating-cock, whereby the discharge of filtered water can be regulated.

A discharge-faucet L is located at one side of outer case, near the bottom, and is used when cleaning the filter, as presently described.

In operation the water is admitted through the coupling and, passing through the supply-pipe and tubular piston, is sprayed upward and upon the outer side of the scraper or cleaner and strikes against the dome-shaped cover of the outer case or receptacle, and in this manner is sprayed over the entire top of the filtering-cylinder. The water then streams down over the exterior surface of the filter.

ing-cylinder, and thus renders the filtering operation quicker and easier.

When it is desired to clean the exterior surface of the filtering-cylinder, the discharge-faucet is opened and the cylinder revolved by simply turning the discharge-pipe, and as the water is being sprayed over the entire exterior surface the cleaning operation can be accomplished very quickly and easily, and an abundance of hydraulic pressure will always be had through the medium of the tubular piston pressing against the tubular lug, producing, when the filter is full of water, a thorough agitation and rapid circulation of the water, cleaning perfectly without emptying the filter, as is necessary in others.

It will thus be seen that we provide a filter in which the maximum pressure of the water is obtained at the desired point, and yet the water itself is uniformly distributed over the filtering-surface. It will also be noticed that by arranging the cylinder eccentrically ample room is provided for a stone cleaner, which stone cleans the cylinder evenly and thoroughly and much better than a metallic or composite cleaner.

While we have mentioned a natural-stone cleaner as best adapted for cleaning the filtering-cylinder, it is obvious that a metallic cleaner can be employed without departing from the spirit of our invention. The cleaner could also be projected against the cylinder by air-pressure, if so desired.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a filter of the class described, the combination with the outer case and the inner filtering-cylinder, the cleaner and the supply-pipe, of the tubular piston attached to the cleaner, having a longitudinal bore, and upwardly-discharging aperture communicating with said bore, said piston having a flat-

tened side, substantially as and for the purpose set forth.

2. In a filter of the class described, the combination with the outer case, of an eccentrically-arranged inner filtering-cylinder, and arranged between the inner and outer cases a scraper of natural stone, a tubular piston attached to said scraper, said piston having a flattened lower side, and the water-supply pipe, and discharge-pipe, together with the discharge-faucet, all arranged substantially as shown and described.

3. In a filter, the combination with an outer cylindrical case, of an inner filtering-chamber, arranged eccentrically within said case, the eccentric top and clamping-ring, and the discharge-tube extending from the inner cylinder through the eccentric top, and a scraper arranged between the outer case and the inner filtering-chamber, substantially as and for the purpose set forth.

4. In a filter, the combination with the outer cylinder, of a filtering-cylinder situated therein, an eccentric top to said filter, the discharge-pipe and draw-off cock, the inlet arranged about midway the height of the cylinders, a piston movable in said inlet-pipe, a cleaner rigidly fixed to the inner end of said piston, said piston being tubular in form and closed at the inner end and having an opening in the upper side causing the stream to project upward toward the top of the cylinder, the inner cylinder being revoluble, and the cleaner being fixed, substantially as shown and described.

In testimony whereof we affix our signatures in the presence of two witnesses.

WILLIAM B. LINDSAY.
WILLIAM E. TONNER.

Witnesses:

THOS. B. LINDSAY,
H. H. FICKER.