

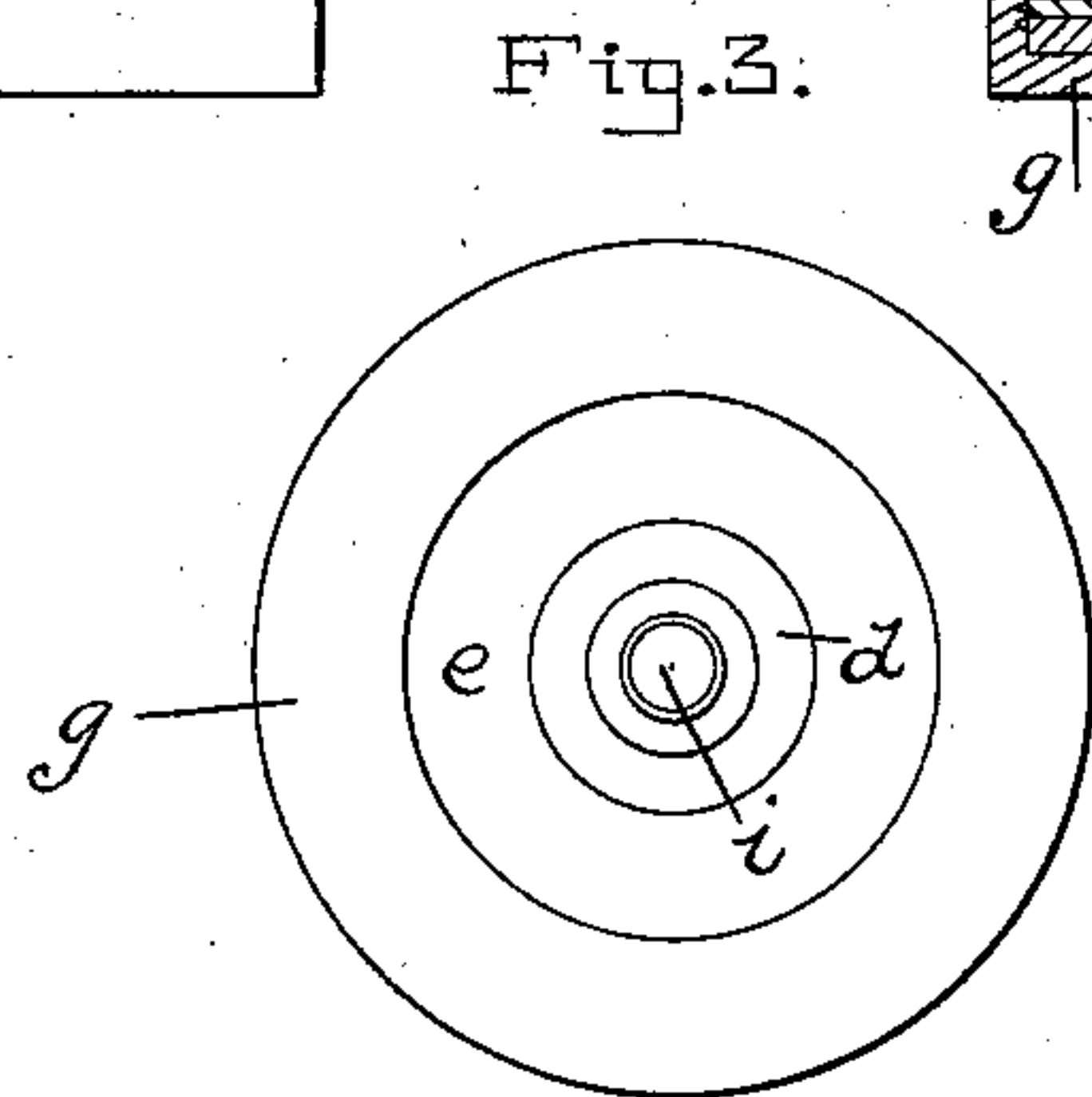
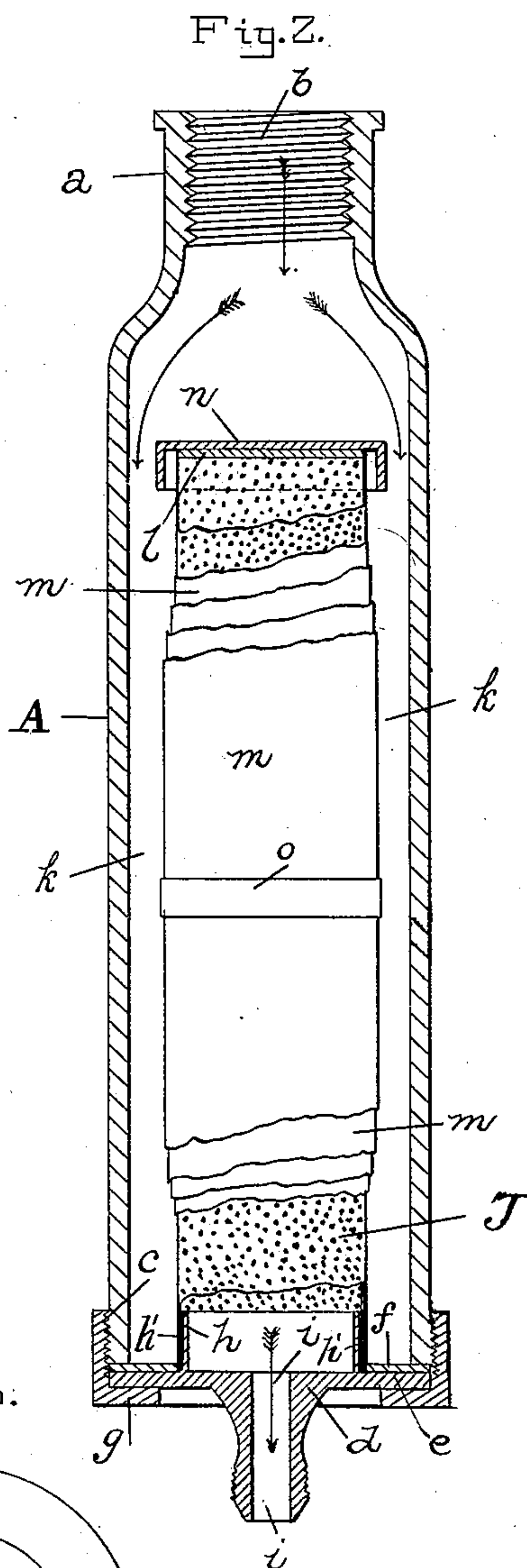
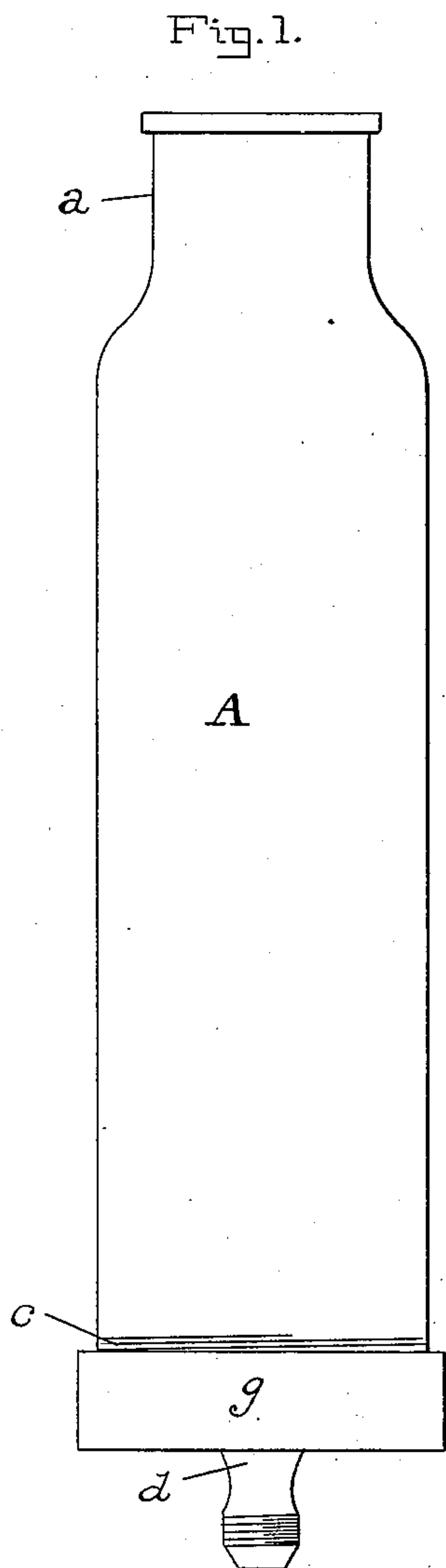
No. 633,368.

Patented Sept. 19, 1899.

J. H. RIDDICK, JR.
FILTER.

(Application filed June 30, 1899.)

(No Model.)



Witnesses:—

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UNITED STATES PATENT OFFICE.

JOSEPH HENRY RIDDICK, JR., OF LYNCHBURG, VIRGINIA.

FILTER.

SPECIFICATION forming part of Letters Patent No. 633,368, dated September 19, 1899.

Application filed June 30, 1899. Serial No. 722,369. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH HENRY RIDDICK, Jr., a citizen of the United States, residing at Lynchburg, in the county of Campbell and State of Virginia, have invented certain new and useful Improvements in Filters, of which the following is a specification.

This invention relates to filters, and is designed more particularly for filtering water, although it is applicable for filtering other liquids.

The object of the present invention is to produce a filter which shall be quick in its operation, easily cleaned and kept in order, and maintained at a very slight cost.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the improved filter. Fig. 2 is a vertical longitudinal section through the outer cylinder and shows the inner perforated cylinder partly in side view and partly in section. Fig. 3 is an inverted plan view of the filter.

Referring to the drawings, A designates a cylinder, preferably of metal, having at the top a contracted neck *a*, which latter on the inside circumference is provided with screw-threads *b*, by which the cylinder may be secured to a supply pipe or faucet. The cylinder is open at the lower end and on the exterior is provided with screw-threads *c*, and a nozzle-section *d* is employed to close said lower end. This nozzle-section has a circular rim-flange *e*, which seats on the bottom rim edge of the cylinder A. A gasket *f* is interposed between the rim-flange *e* and the bottom rim edge of the cylinder A, which insures a tight joint. A flanged ring *g* takes over the nozzle-section *d* and screws onto the lower end of the cylinder A and serves to clamp the nozzle-section against the end of the said cylinder. The nozzle-section is also provided on its upper side with an upward-projecting ring-flange *h*, which surrounds the discharge-opening *i* through the said nozzle. A perforated tube J, preferably of sheet metal, is inclosed within the cylinder A, leaving an annular space *k* between the said two cylinders. This perforated tube J has at its upper end a head *l* to close it, and the lower end of said tube takes around and is made fast by solder *h'* to the upward-projecting ring-flange *h* of

the nozzle-section and rests on the rim-flange *e* of said section. Thus it will be seen that the perforated tube J and the nozzle-section *d* are rigidly secured together. The perforated tube J has its vertical walls inclosed by filter-paper *m* in sheet form, which is wound tightly around said tube, and a metal cap *n*, having a down-flange, takes over the upper end of said tube, and the down-flange surrounds the top edges of the filtering-paper and binds it against the tube, and the cap part receives the flow or stream of water coming in at the neck *a* and prevents the water from entering between the paper and the tube, and also prevents the paper from being torn by the force of the water. By experiments I have obtained good results by using a chemical filter-paper coated on one side with substances insoluble in water and capable of reduction to fine powder, such as a combination of charcoal, wood or bone, and magnesium carbonate. This paper is represented in the drawings and will bear a strong pressure. In order that the middle and lower end of the paper will be secured around the perforated tube, I provide one or more clips or bands *o*, which take around the paper and clamp the same closely against the tube.

The operation is simple and as follows: Supposing the parts to be disconnected and separated, the filtering fabric *m* is first wound around the perforated tube J, the cap *n* is then placed over the upper end of the cylinder and incloses the top edges of the filtering fabric, and the bands *o* are placed around the filtering fabric at the middle and lower end to secure same to the cylinder. The tube J and filtering fabric are then inserted in the outer cylinder A until the rim-flange *e* seats on the bottom edge of said outer cylinder. The flanged ring *g* is then secured onto the lower end of the cylinder A and clamps the rim-flange *e* and nozzle-section to said outer cylinder. It will thus be seen that the perforated tube J is secured in a central upright position in the cylinder A. It only remains to screw the cylinder onto a supply-pipe by means of the screw-threads *b* and admit the water. The water is admitted through the contracted neck *a* above the cap *n*. It then flows over the edges of the cap and fills the annular space *k*. As there is no

discharge-opening from the annular space except through the filtering fabric *m* and the perforation into tube *J*, the water seeps through the said fabric and also through the perforations into the tube and flows out of the nozzle *d*.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

- 10 1. A filter comprising a cylinder having at one end a contracted screw-threaded neck, *a*, and at the other end exterior screw-threads; a perforated filter-tube, *J*, closed at one end and at the other provided with an outward rim-flange, *e*, and a discharge-nozzle, *d*, said rim-flange being seated against the screw-threaded end of said cylinder; and a flanged screw-threaded ring, *g*, clamping the said outward rim-flange to the end of the cylinder,
20 as shown and described.

2. In a filter the combination of a cylinder, *A*, having a screw-threaded neck at its upper end; a perforated tube within the cylinder and having a discharge-nozzle at its lower end; filter-paper wound tightly around the wall of the perforated tube the outside of paper being coated with a substance insoluble in water and capable of reduction to a fine powder; and a metal cap, *n*, having a down-flange and covering the top of the tube and said down-flange surrounding the top edges of the filter-paper, as shown and described.

In testimony whereof I affix my signature in the presence of two witnesses.

JOSEPH HENRY RIDDICK, JR.

Witnesses:

JOHN S. GLASS,

R. H. T. ADAMS, Jr.