

No. 847,537.

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G. A. ABBOTT.

FILTER.

APPLICATION FILED JULY 7, 1906.

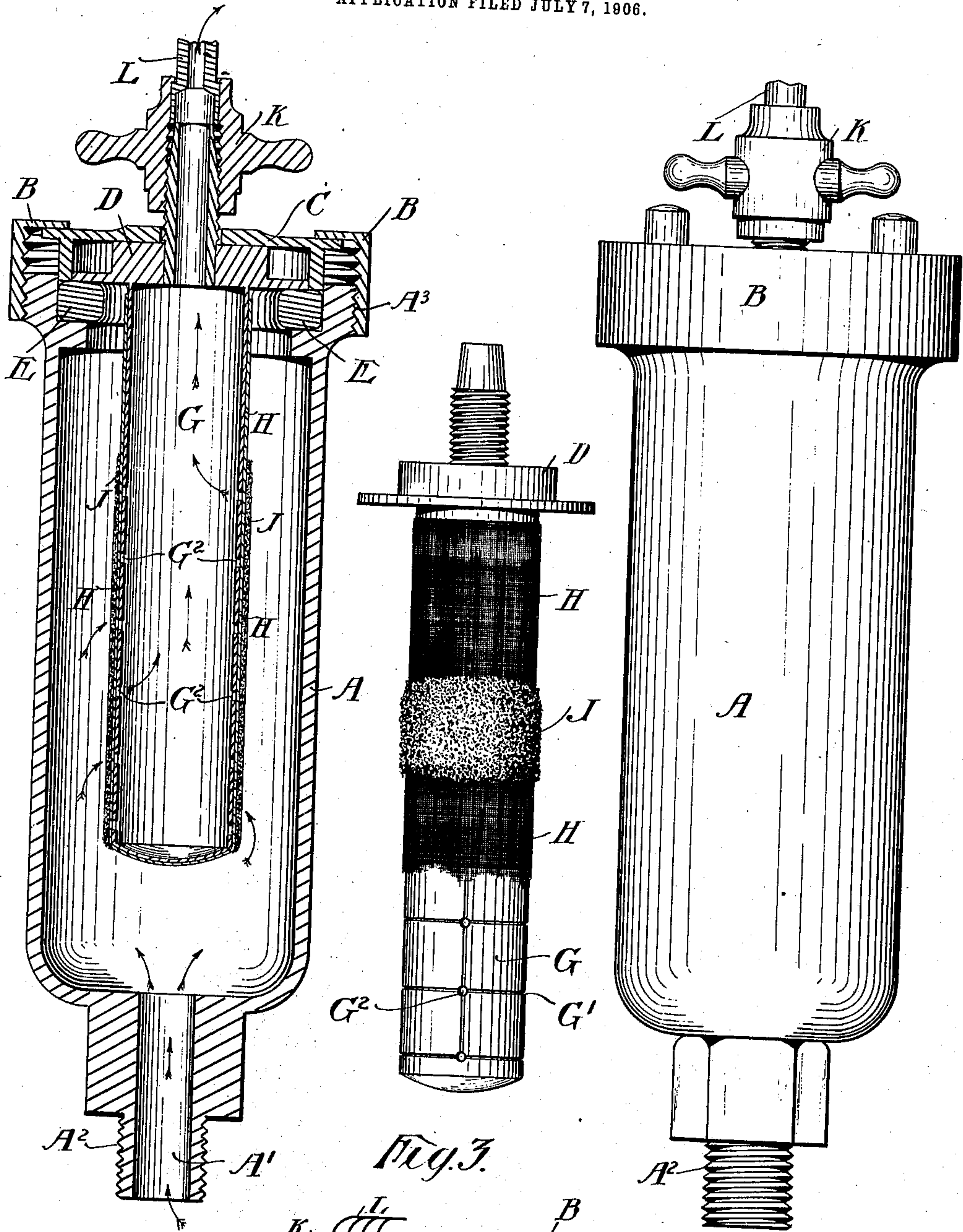


Fig. 3.

Fig. 2.

Fig. 1.

WITNESSES

W. P. Burke Fig. 4.

H. J. Newman.

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BY Richard

ATTY.



# UNITED STATES PATENT OFFICE.

GEORGE ALFRED ABBOTT, OF MELBOURNE, VICTORIA, AUSTRALIA.

## FILTER.

No. 847,537.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed July 7, 1906. Serial No. 325,088.

*To all whom it may concern:*

Be it known that I, GEORGE ALFRED ABBOTT, a subject of the King of Great Britain, residing at 82 William street, Melbourne, in the State of Victoria, Australia, have invented certain new and useful Improvements in Filters; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has been devised to provide improvements in or for filters for water and other liquids, and in order that my invention may be the more easily understood reference may be made to the accompanying drawings, in which—

Figure 1 is an exterior view of a filter embodying my improvements; Fig. 2, a vertical section of Fig. 1, showing all the internal parts in position when filtration is proceeding; Fig. 3, a detail view of the filtering-tube and its mountings; Fig. 4, an elevation, drawn to a small scale, of a multiple arrangement of the parts shown in Fig. 2, while Fig. 5 is a plan of Fig. 4.

In the drawings, A is a metal casing, preferably of brass and nickel-plated, terminating at its bottom in an inlet-tube A', having a screw-thread A<sup>2</sup> on its exterior and increasing in diameter at its top, where it is provided with a screw-thread A<sup>3</sup>. Around this thread a lugged circular nut B is screwed, so as to hold down a cap-piece C, the latter in its turn pressing upon a collar D, which is brazed on the tube G to form a seal upon a compressible ring E.

G is a metal tube having upon its outer face a number of circular grooves G', leading to perforations G<sup>2</sup>. Around the tube G is placed a sleeve H, of canvas, silk, or the like material, the said sleeve fitting sufficiently close upon G as not to require any additional binding. The sleeve H must be constructed of a finely-porous material, the degree of porosity being such that water under pressure would flow freely through it were it not for a coating J, of kieselguhr or infusorial earth. A coupling-piece K is provided at the top or reduced portion of the tube G, to which the lead-away escape-pipe L is secured, so that the filtered water may flow to a storage-receptacle.

In practice water under pressure enters by a pipe screwed onto the inlet-tube A' and

finds its way into the interior of the casing A. Here it meets a handful of the kieselguhr, (previously placed in casing A,) and a creamy mixture is instantly formed. Such creamy liquid then endeavors to escape through the canvas sleeve H, the result being that a little of the water in a more or less filtered condition escapes through the canvas H, thence along the grooves G', thence through the perforations G<sup>2</sup>, and away by the lead-away pipe L. At the outset of the filtering process the whole of the kieselguhr becomes coated in a firm deposit upon the exterior of the sleeve H up to a short distance above the top perforations G<sup>2</sup>. The first few pints of water escaping at L may be thrown away; but the subsequent water will find its way from the interior of the chamber A and gradually percolate or filter through the thick coating of kieselguhr J, the canvas H, and perforations G<sup>2</sup> and will be found to be sterile and bright. From time to time the tube G can be removed by unscrewing the circular nut B, and it will then be found that the exterior of the kieselguhr J is coated with a filthy covering. The tube should preferably be hung in the sunlight, and the dirty matter will then crumple up and may be brushed off in a dry condition with a light brush. The tube can be used upon the next occasion when its duplicate has been removed in a dirtied condition from the filter. Occasionally the whole of the kieselguhr coating may be removed from the sleeve H and a fresh handful employed in the manner first hereinbefore set forth.

Referring to Figs. 4 and 5 of the drawings, those illustrations roughly show how a nest or multiple arrangement of the parts C, D, G, H, J, K, and L may be employed with one large metal casing M, the latter alternatively corresponding with the smaller one A, hereinbefore referred to.

It is obvious that the size of casing M and the number of the filtering-tubes and fittings for same may be increased and amplified to suit domestic or trade requirements.

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

1. In filters: in combination—a porous tube upon or around which are channels or grooves a sleeve of canvas or other suitable porous material a coating of kieselguhr or infusorial earth an outer casing means for securing an inlet-pipe to said casing and means for secur-

ing the said porous tube to the casing and a lead-away pipe for the filtered water substantially as and for the purposes set forth.

2. In filters: in combination—a casing A  
5 the upper portion of which is increased in diameter and provided with a screw-thread a circular nut as B a cap-piece as C a compressible sealing-ring as E, a collar D located between said ring and cap-piece, a filter-tube as  
10 G having its upper end secured to the collar I and having thereon a sleeve as H and a coating on such sleeve as J of kieselguhr or infu-

sorial earth means for connecting the casing A with an inlet water-pipe and means for securing a lead-away pipe to the said tube G 15 substantially as and for the purposes set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE ALFRED ABBOTT.

Witnesses:

A. O. SACHSE,

A. HARKER.