

**No. 707,774.**

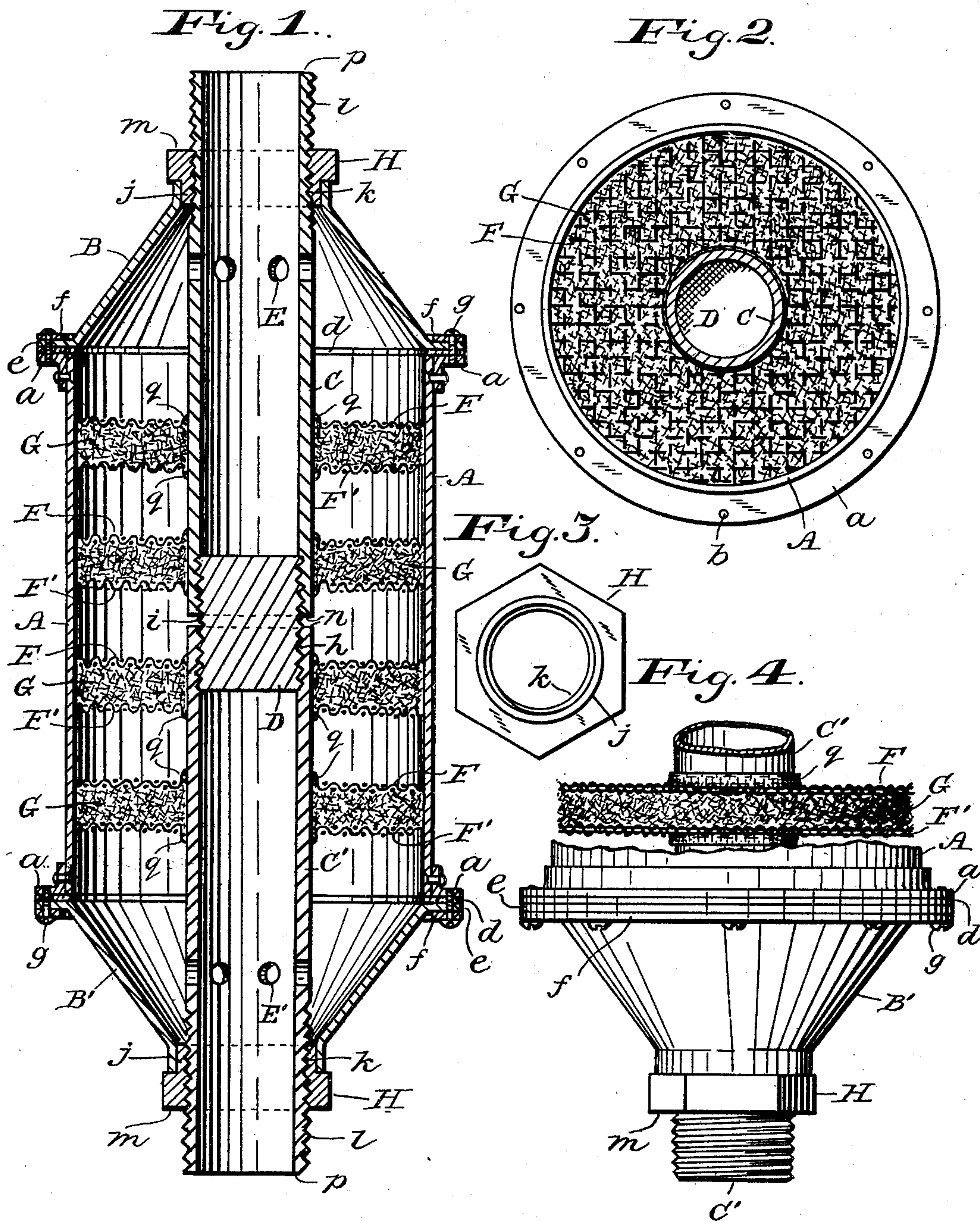
**Patented Aug. 26, 1902.**

**B. W. HARRIS.**

**GAS FILTER.**

(Application filed May 3, 1902.)

(No Model.)



*WITNESSES:*

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# UNITED STATES PATENT OFFICE.

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## GAS-FILTER.

SPECIFICATION forming part of Letters Patent No. 707,774, dated August 26, 1902.

Application filed May 3, 1902, Serial No. 105,724. (No model.)

*To all whom it may concern:*

Be it known that I, BARNETT W. HARRIS, a citizen of the United States, residing at Waveland, in the county of Montgomery and State of Indiana, have invented new and useful Improvements in Gas-Filters; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to gas filters or strainers, and has particular reference to the type of filters that are adapted to be connected to the distributing-pipes for the fluids as well as to the generators, the objects of the invention being to provide an efficient independent filter that may be adapted for universal application, which may be cheaply produced, that may be inexpensively renewed or repaired, and that may be durable and economical in use.

With these objects in view the invention consists in the novel parts and in the combination and arrangement of parts, as hereinafter particularly described, and pointed out in the claims.

Referring to the drawings, Figure 1 represents a vertical or longitudinal central sectional view of the filter substantially as constructed, also showing the internal parts thereof; Fig. 2, an end plan view with the cap removed showing the inner pipe in cross-section; Fig. 3, a plan view of the inner end of a connecting-nut preferably employed in construction, and Fig. 4 a fragmentary elevation view showing the exterior and internal forms of construction.

Similar reference characters in the various figures of the drawings indicate like parts.

In construction I employ a metallic outer tube A, having smooth internal surfaces, the bore being of uniform diameter throughout, and the tube is provided with suitably-attached centrally-apertured caps B B'. Through the caps and the outer tube an inner tube or a pair of inner tubes C C' extend, the inner ends of the inner tubes being closed and connected together by a plug D, or if a single tube be used it will be partitioned within the outer tube A. The inner tube or tubes have perforations E E', situated either

within the tube A or within the caps B B', preferably within the confines of the latter parts. Wire frames F F', of circular or disk form, are attached in pairs to the inner tube or tubes and are adapted to fit closely into the outer tube A, the frames being either perforated or formed of wire-netting. Strainers G are inserted between each pair of frames F F' and are composed of suitable substance, such as cotton. The frames and strainers are disposed at suitable distances apart in the tube A and fit closely therein, but are not attached thereto. The caps B B' are closely connected to the inner tube or tubes by suitable means, as a nut H.

As a preferred form of construction the tube A when of large diameter has external flanges *a* at the ends thereof, and when small in diameter screw-threads may be cut at the ends of the tube. The flanges have bolt-holes *b*, preferably threaded. A packing-washer *d* is placed against the joint faces of the flanges. The caps B B' have flanges *e*, corresponding to the flanges *a*, and usually a reinforcing-ring *f* is placed against the outer side of each flange *e*, whereby the same may be forced evenly against the joint-washer *d* by means of suitable screw-bolts *g*, or the caps obviously may be screwed to the tube A. The inner tubes C and C' are of about equal length, meeting at about the longitudinal center of the tube A, the inner ends *n* having internal screw-threads *h*, engaged by external threads *i* on the plug D, which enters both tubes and seals them, while at the same time coupling the two tubes so as to be structurally continuous. The outer ends *p* of the tubes C C' project slightly beyond the caps B B' and have screw-threads *l* thereon, whereby the tubes may be connected in the usual manner to distributing or other fluid-conducting pipes, as may be desired. The caps B B' are preferably conical shape and are attached tightly to nuts H, which have each a flange *j*, to which the caps are directly attached, the nuts having threads *k*, corresponding to and engaging the threads *l*. The outer faces *m* of the nuts may be employed against which to place packing, if desired, to be pressed by such coupling device as may be applied to the ends *p* of the inner tubes. The frames F F' preferably have flanges *q*



turned up against the inner tubes C C' and soldered thereto. The frames and the strainers connected therewith and supported thereby extend from the inner tube to the  
5 outer tube.

In practical use, the inner tubes having been connected to a pipe, the gas may enter either inner tube—for instance, the tube C'—and being arrested by the plug D will pass  
10 through the perforations E' and thence between the inner and outer tubes through the strainers successively, and thence through the perforations E into the tube C and to the continuing pipe, with which it may be con-  
15 nected, the impurities in the gas being retained by the strainers, which may be readily cleaned or renewed. In dismantling the filter it is to be first disconnected from the line-  
20 pipe, the caps then removed, and then the inner tubes and the frames and strainers withdrawn together from the outer tube, when the straining substance may be withdrawn from the frames.

Having thus described my invention, what  
25 I claim as new is—

1. A gas-filter comprising an outer tube, an inner tube having perforations therein near the ends of the outer tube, a partition in the inner tube, frames attached to the inner tube,  
30 strainers supported by the frames, and caps detachably secured to the outer tube and also to the inner tube.

2. A gas-filter adapted to be connected to a pipe-line and comprising a tube having a  
35 partition therein and also perforations at either side of the partition, elongated screw-threads at the ends of the tube, strainer-frames secured to the exterior of the tube between the perforations, an outer tube ex-  
40 tending over the strainer-frames, strainers supported by the strainer-frames, and caps

having screw-threads engaging the elongated screw-threads and adapted to operate thereon and detachably secured to the ends of the  
outer tube, substantially as set forth. 45

3. In a gas-filter, the combination of the inner tubes abutting together in alinement and having the screw-threads at their ends, the plug attached to the inner ends of the tubes, the tubes having the perforations at either  
50 side of the plug, the strainer-frames secured to the exterior of the tubes between the perforations, the strainers supported by the strainer-frames, the caps attached to the outer threaded ends of said tubes, and the  
55 outer tube or casing extending about and beyond said strainers and detachably connected to said caps, substantially as set forth.

4. In a gas-filter, the combination of the outer tube having the perforated flanges at  
60 the ends thereof, the perforated inner tubes extending together through said outer tube and having the screw-threads at the ends thereof, the threads at the outer ends being elongated, the threaded plug attached to the  
65 threads at the inner ends of said inner tubes, the strainer-frames secured to said inner tubes, the strainers supported by said frames, the caps having the perforated flanges coacting with the flanges of said outer tube, the  
70 bolts securing said flanges together, the packing-washers between said flanges, and the threaded nuts secured to said caps and engaging said elongated threads on said inner  
75 tubes, substantially as set forth.

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

BARNETT W. HARRIS.

Witnesses:

FOUNTAIN N. JOHNSON,  
CHARLES H. JOHNSON.