

(No Model.)

G. W. GALLAWAY.

OIL FILTER.

No. 388,550.

Patented Aug. 28, 1888.

Fig. 1.

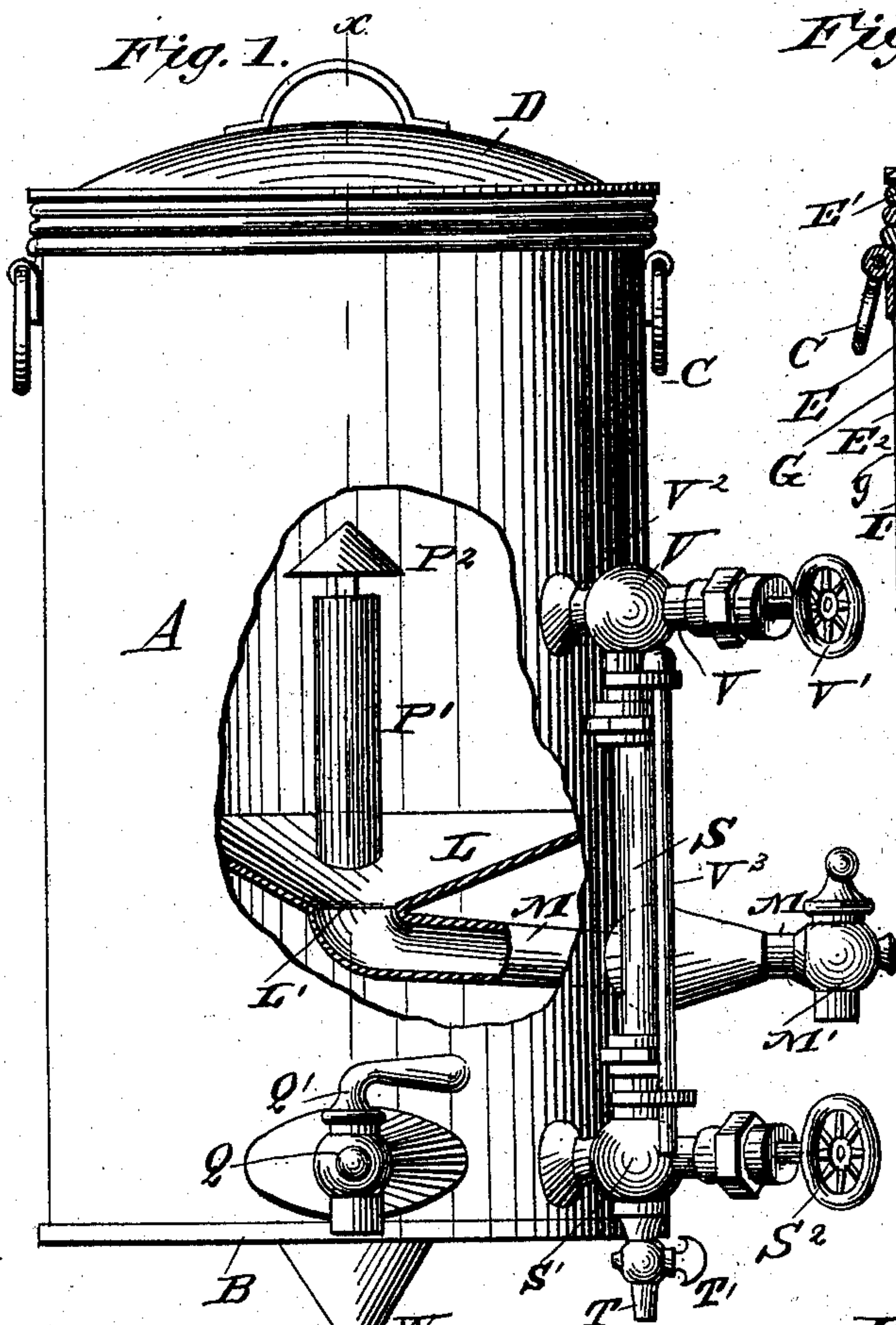


Fig. 2.

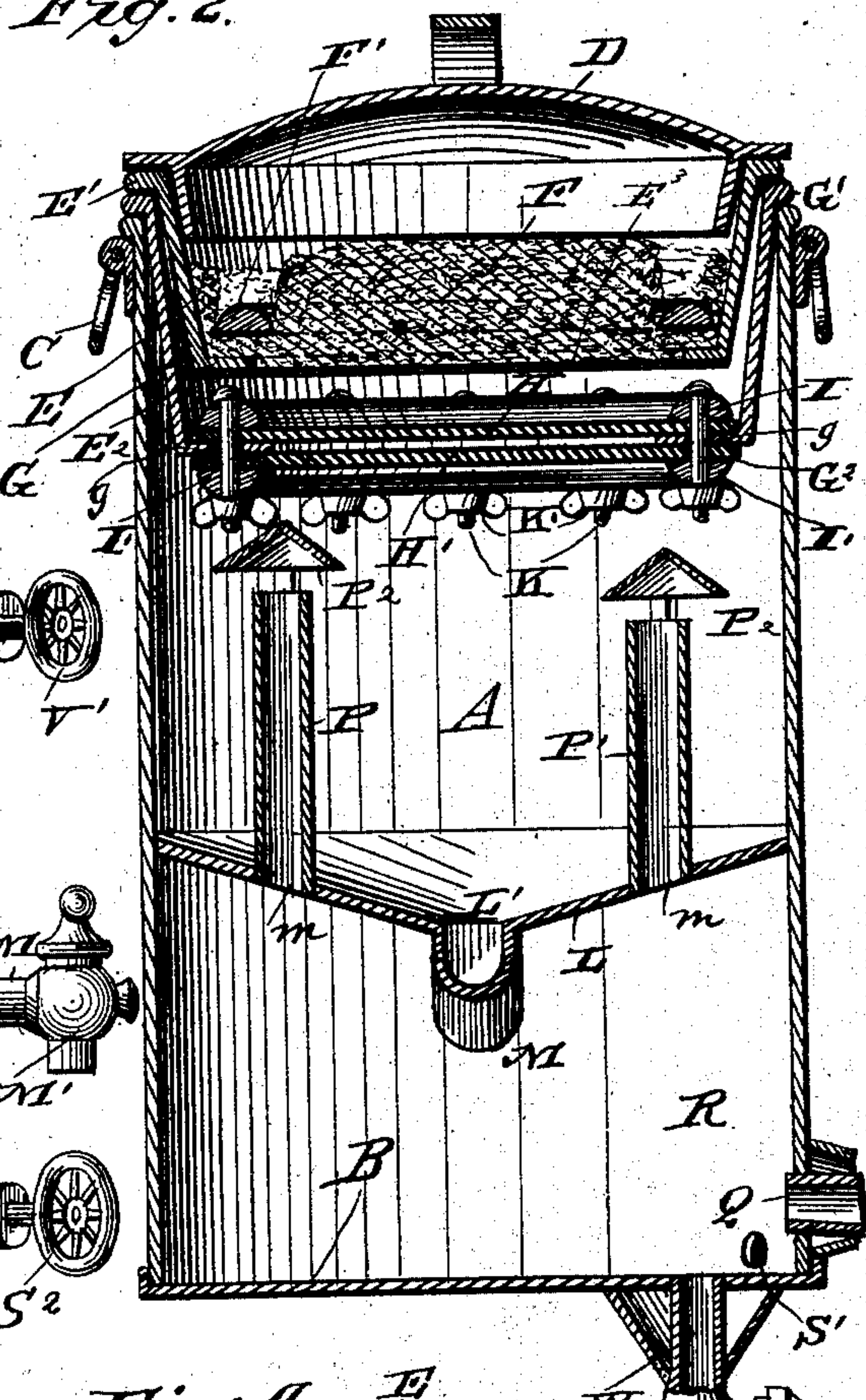


Fig. 3.

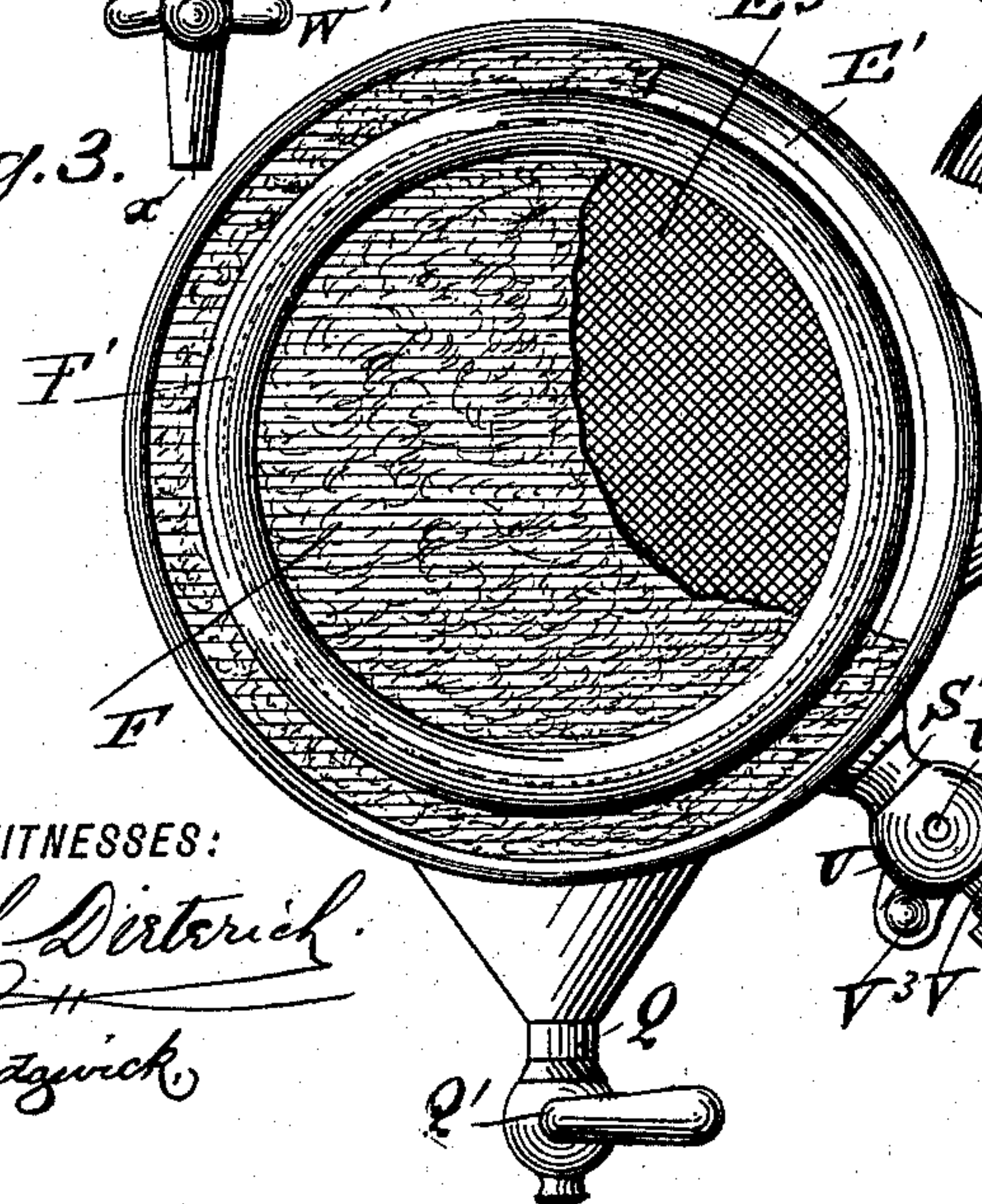


Fig. 4.

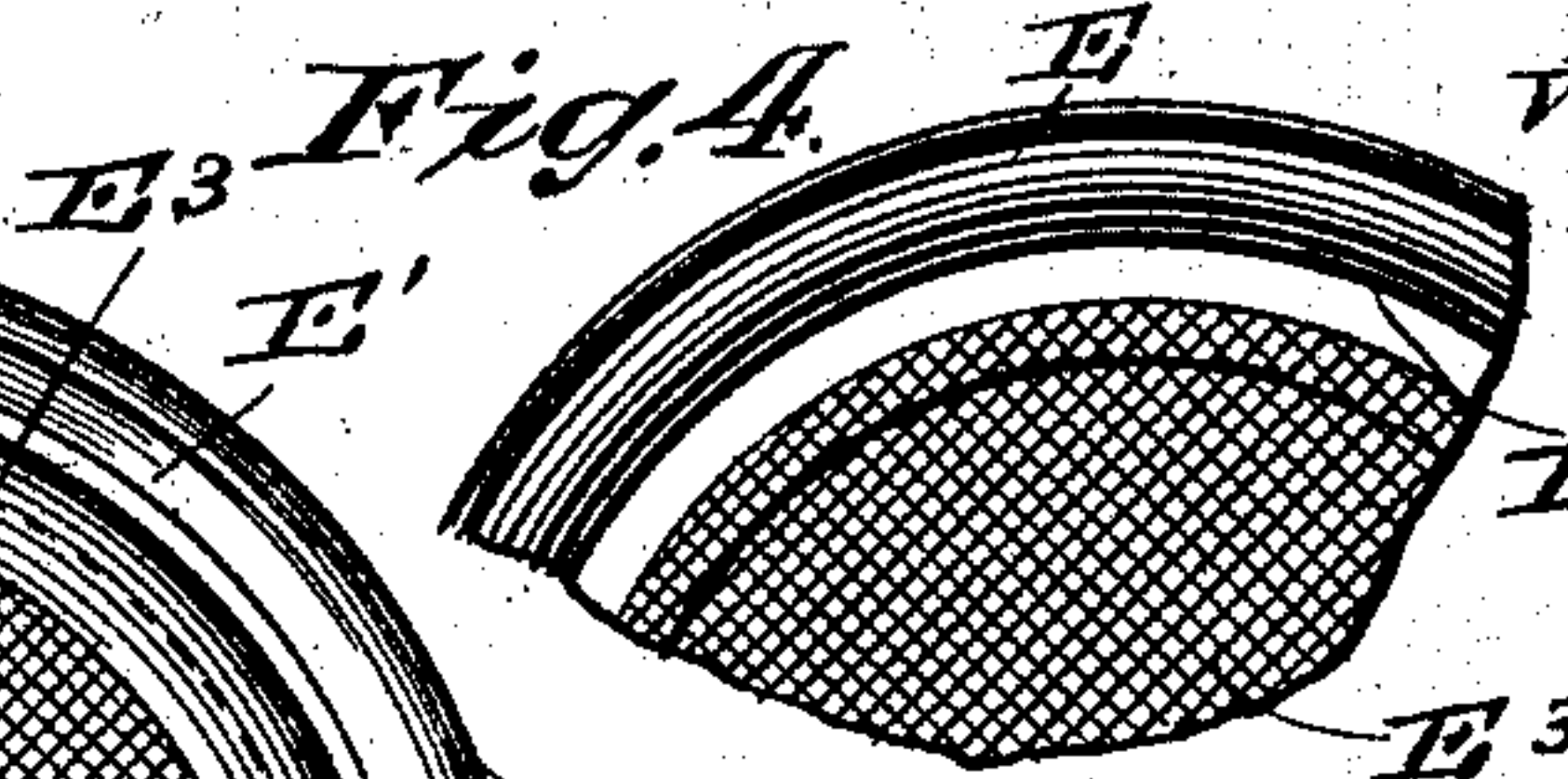
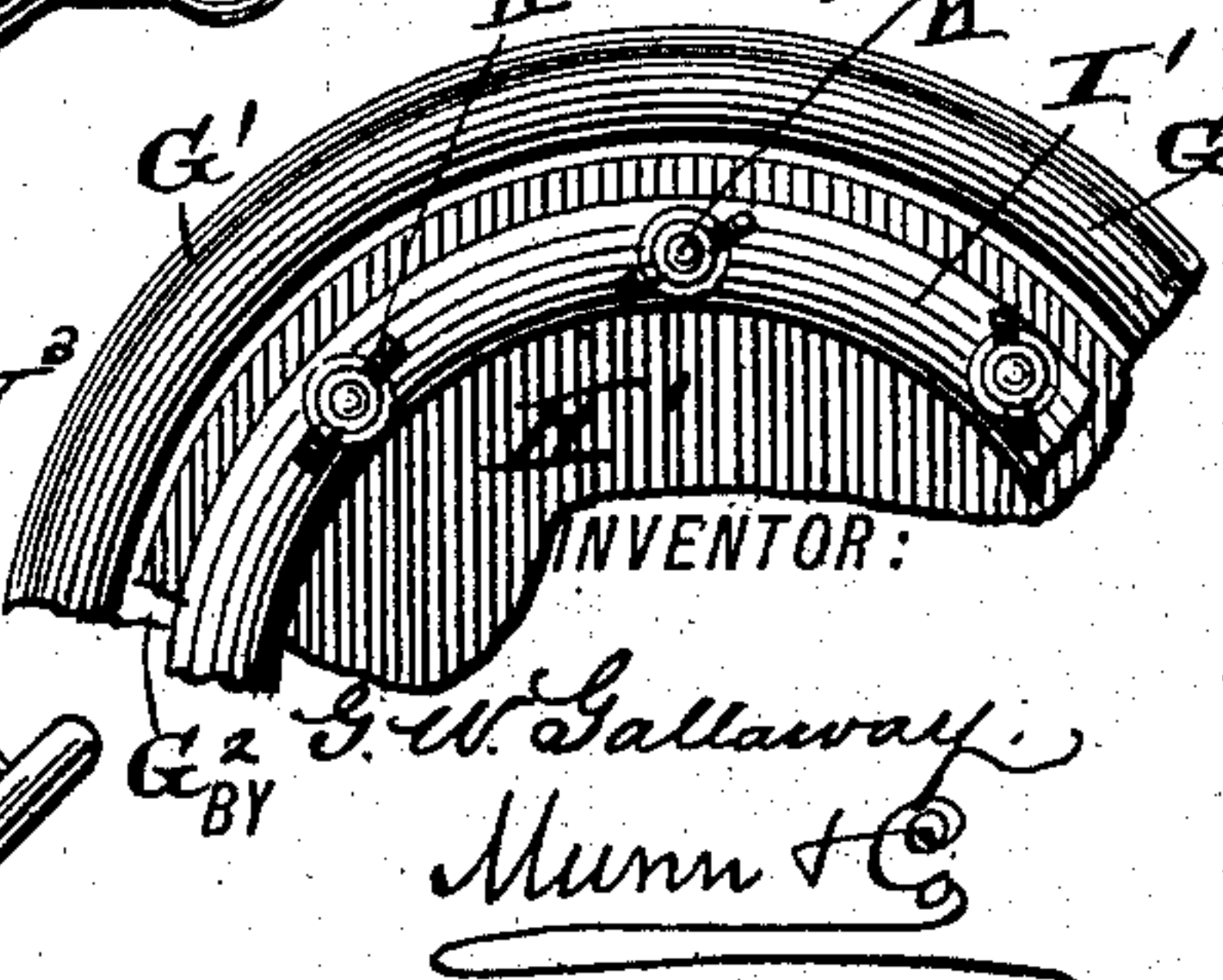


Fig. 5.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

GEORGE W. GALLAWAY, OF RYE, NEW YORK.

## OIL-FILTER.

SPECIFICATION forming part of Letters Patent No. 388,550, dated August 28, 1888.

Application filed June 6, 1888. Serial No. 276,183. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. GALLAWAY, of Rye, in Westchester county, State of New York, have invented a new and Improved Oil-Filter, of which the following is a full, clear, and exact description.

The object of my invention is to produce a filter capable of removing the feculent matter from waste oil. By "waste oil" I mean that class of oil which drips from bearings and is caught in cans, or, in fact, any oil in which there is a foreign substance, such as iron filings, sawdust, dirt, &c.

The invention consists in the parts, which will be hereinafter described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is an elevation with part of the side broken away. Fig. 2 is a central vertical sectional view. Fig. 3 is a top plan view of the filter with the lid removed, interior parts being also removed to more clearly illustrate the construction. Fig. 4 is a detail of one of the filtering-pans and its netting or reticulated bottom, and Fig. 5 is a detail of a filtering-pan and its felt bottom.

The body of the can A is provided with a bottom, B, and handles C, in the usual manner.

D indicates the lid of the can.

There are two filtering-pans within the can A, both removable, the upper one, E, being provided with a laterally-extending circumferential flange, E', and inwardly-extending bottom flange E<sup>2</sup>.

E<sup>3</sup> is a netting or reticulated bottom for the pan E. This netting is firmly secured to the flange E<sup>2</sup>.

F indicates cotton completely covering the bottom of said pan, and F' is a metallic ring for holding the cotton in position. The lower filtering-pan, G, is provided with a laterally-extending circumferential flange, G', and an inwardly-extending bottom flange, G<sup>2</sup>. The bottom flange G<sup>2</sup> is provided with a series of openings, g, at equidistant points.

H H' indicate two parallel layers of felt, and I I' two rings. The upper layer of felt

rests on the upper side of the flange G<sup>2</sup>, and the ring I rests on said upper layer. The felt H' lies under the flange G<sup>2</sup> and the ring I lies under said felt. Both rings I I' and both pieces of felt are provided with openings, which register with the openings in the flange G<sup>2</sup>. A series of bolts, K, are engaged in said openings, and a series of thumb nuts, K', are engaged on the lower threaded ends of said bolts. When the parts are engaged in the manner shown in Fig. 2, the felt is firmly secured, so as to produce a tight joint.

A partition, L, separates the upper part of the can from the bottom. The edge of this partition is secured to the inner walls of the can. Said partition is tapered or sloping from the sides inward, the center being the lowest point. There is a central opening, L', in the partition, which communicates with the inner end of a pipe, M, said pipe extending outward through an opening in the can and terminating in a cock, M'. The partition is also provided with two openings, m m, which communicate with the respective lower ends of two stand-pipes, P P'. The upper open ends of these pipes are each provided with a hood, P<sup>2</sup>. The pipe P' is shorter than its companion pipe P.

Q is a pipe provided with a cock, Q'. The inner end of this pipe is engaged in an opening in the lower side of the can and communicates with the lower compartment, R.

S is a glass gage on the outer side of the can. The lower end of this gage communicates with the lower part of the compartment R by the gage-cock S', provided with a screw-valve, S<sup>2</sup>.

T is a short pipe communicating with the cock S', provided with a cock, T'.

The upper end of the glass S communicates with the upper part of the can at V<sup>2</sup>, slightly below the level of the upper end of the pipe P, by a gage-cock, V, having a valve, V', and also with the outer air by an opening at U' on the upper side of the cock V. Two rods, V<sup>3</sup>, lie close to and parallel with the gage for protecting the glass.

The under side of the can is provided with an opening, in which is engaged a pipe, W, having a cock, W'.

The operation is as follows: Oil to be fil-



tered is poured into the upper filtering-pan onto the cotton. The oil passes through the cotton and through the netting, the larger foreign particles of matter being retained in the cotton. The oil thence passes into the lower filtering-pan onto the first or upper layer of felt, and thence through both layers of felt onto the partition L. The oil in its passage through the felt is relieved of the remaining foreign particles of matter excepting water. Should there be any water in the oil after its passage through the felt, such water may be drawn off through the pipe and cock M M'. As the process of filtration continues the oil accumulates on the partition L and rises to the upper open end of the short pipe P', when it overflows into said pipe and passes downward into the compartment R. Should the capacity of said pipe be inadequate to convey the oil, or should it become choked, the oil will rise and overflow through the higher pipe, P. The oil that passes into said compartment R will be pure. If, however, there should remain any water in the oil in said compartment, it may be drawn off through the bottom pipe and cock, W W'. The pure oil is drawn off through the side pipe and cock, Q Q'.

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

1. In a filter, a can provided with a partition having one or more overflow-pipes, as specified, in combination with one or more filtering-pans mounted above said partition, substantially as described.

2. In a filter, the combination of a can with a pan, G, said pan being provided with an inner lower flange having openings, a ring and felt having openings adapted to register with the openings aforesaid, and bolts and nuts for engaging the parts, substantially as described.

3. In a filter, the combination of a can with

a pan, G, said pan being provided with an inner lower flange having openings, rings I I', and felt or fabric H H', said rings and felt being provided with openings adapted to register with the openings aforesaid, and bolts and nuts for engaging the parts, substantially as described.

4. In a filter, a can provided with a sloping partition, L, having one or more overflow-pipes, and a pipe, M, having a cock, M', and a pipe and cock, Q Q', located below the partition, in combination with an upper and a lower filtering-pan, both mounted above the partition, the upper pan being provided with a reticulated bottom, the lower pan having a felt or fabric bottom, substantially as described.

5. In a filter, a can provided with a sloping partition, L, having one or more overflow-pipes, a pipe, M, located below the partition and connected therewith, as specified, side pipe, Q, and bottom pipe, W, both communicating with the can below the partition, the pipes M Q W being provided with cocks, as specified, in combination with one or more filtering-pans mounted above said partition, substantially as described.

6. In a filter, a can provided with a sloping partition, L, having one or more overflow-pipes, a pipe, M, located below the partition and connected therewith, as specified, side pipe, Q, and bottom pipe, W, the said pipes M Q communicating with the can below the partition aforesaid, each of said pipes being provided with a cock, a glass gage, S, connected at its lower end near the base of the lower compartment of the can and at its upper end with the upper compartment, in combination with a series of filtering-pans mounted above the partition, substantially as described.

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Witnesses:

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JOSEPH H. GOLDING.