

No. 896,797.

PATENTED AUG. 25, 1908.

A. BOWE.

OIL FILTER.

APPLICATION FILED DEC. 19, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

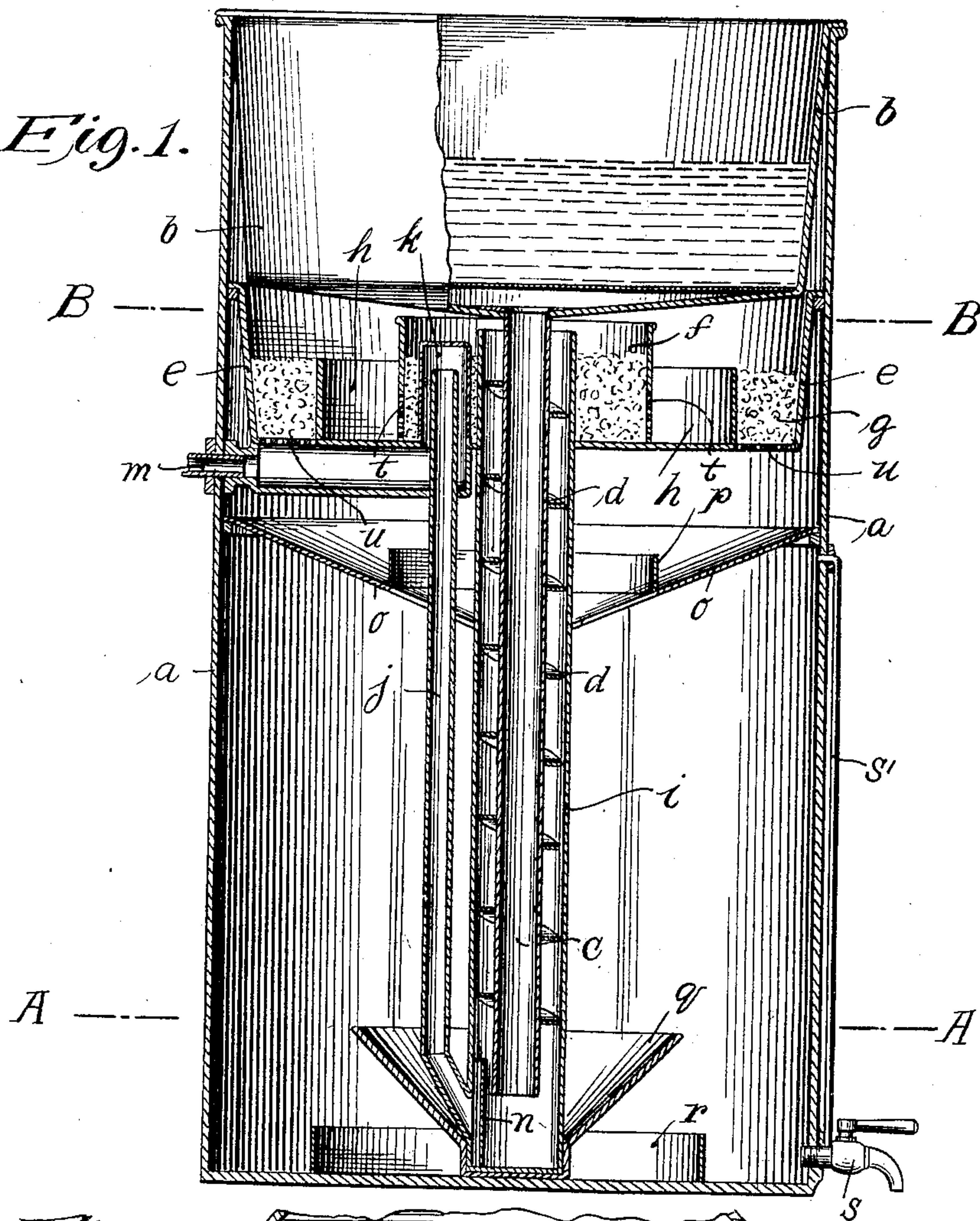
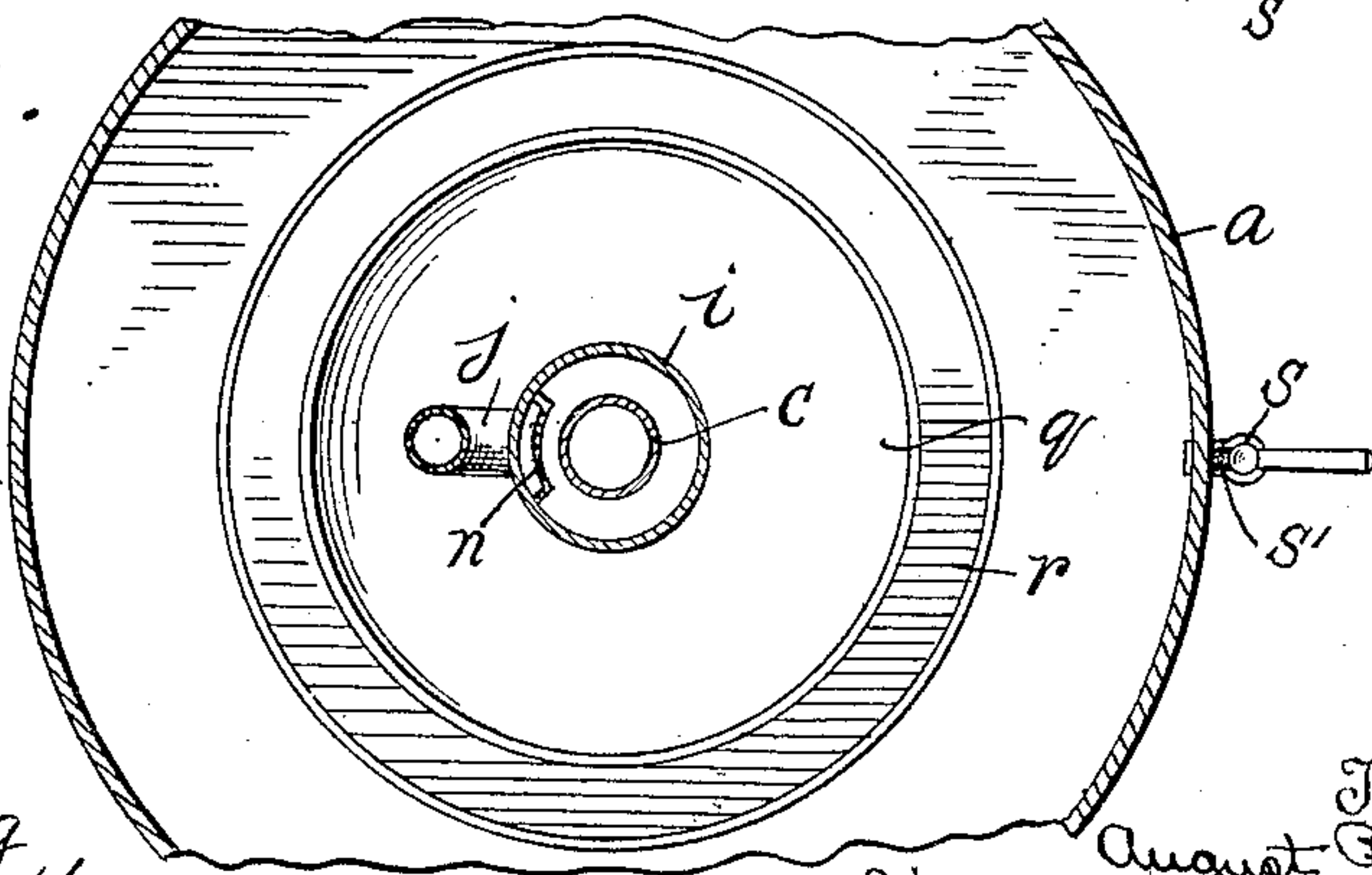


Fig. 2.



Witnesses:
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2 SHEETS—SHEET 2.

Fig. 3.

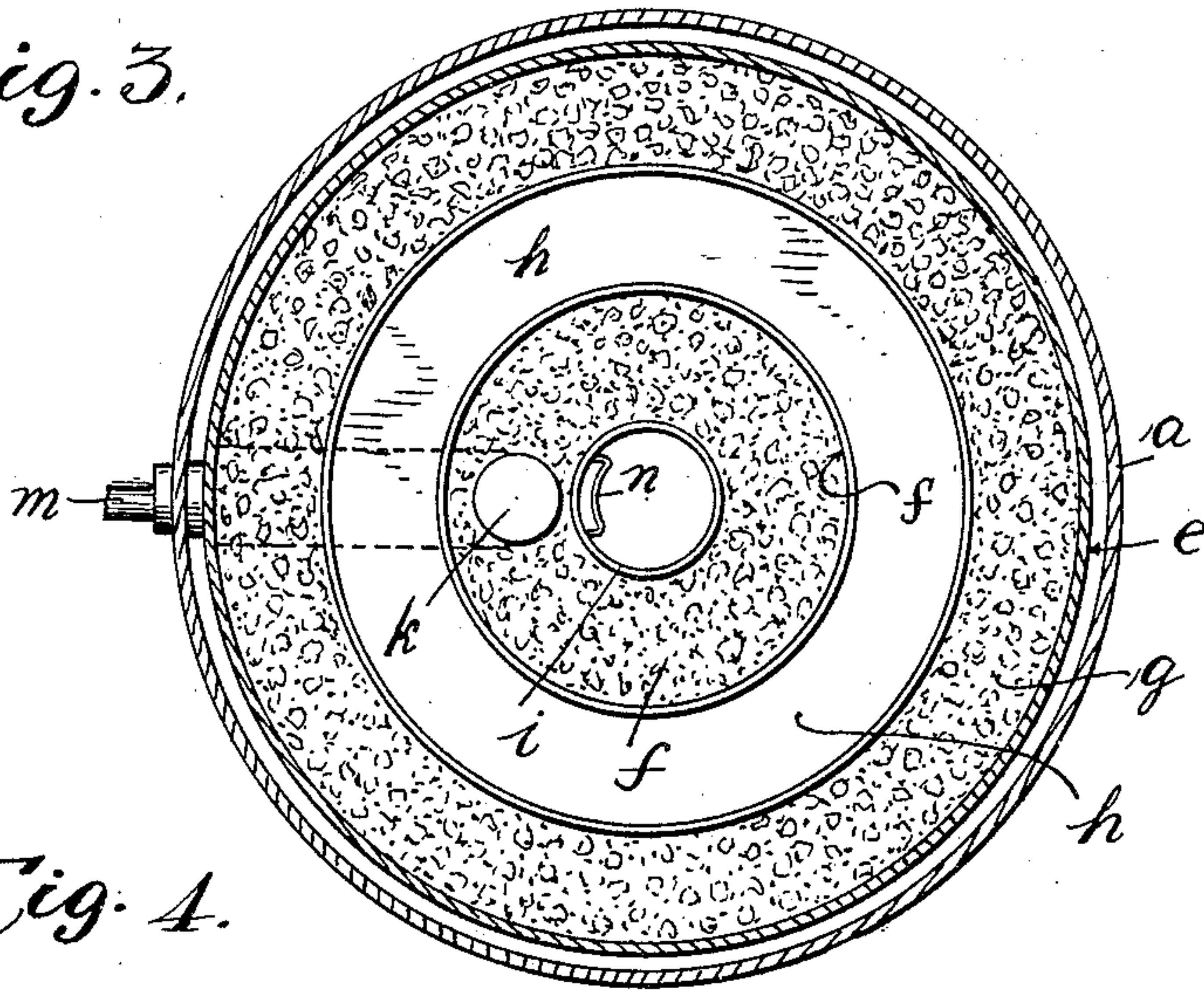


Fig. 4.

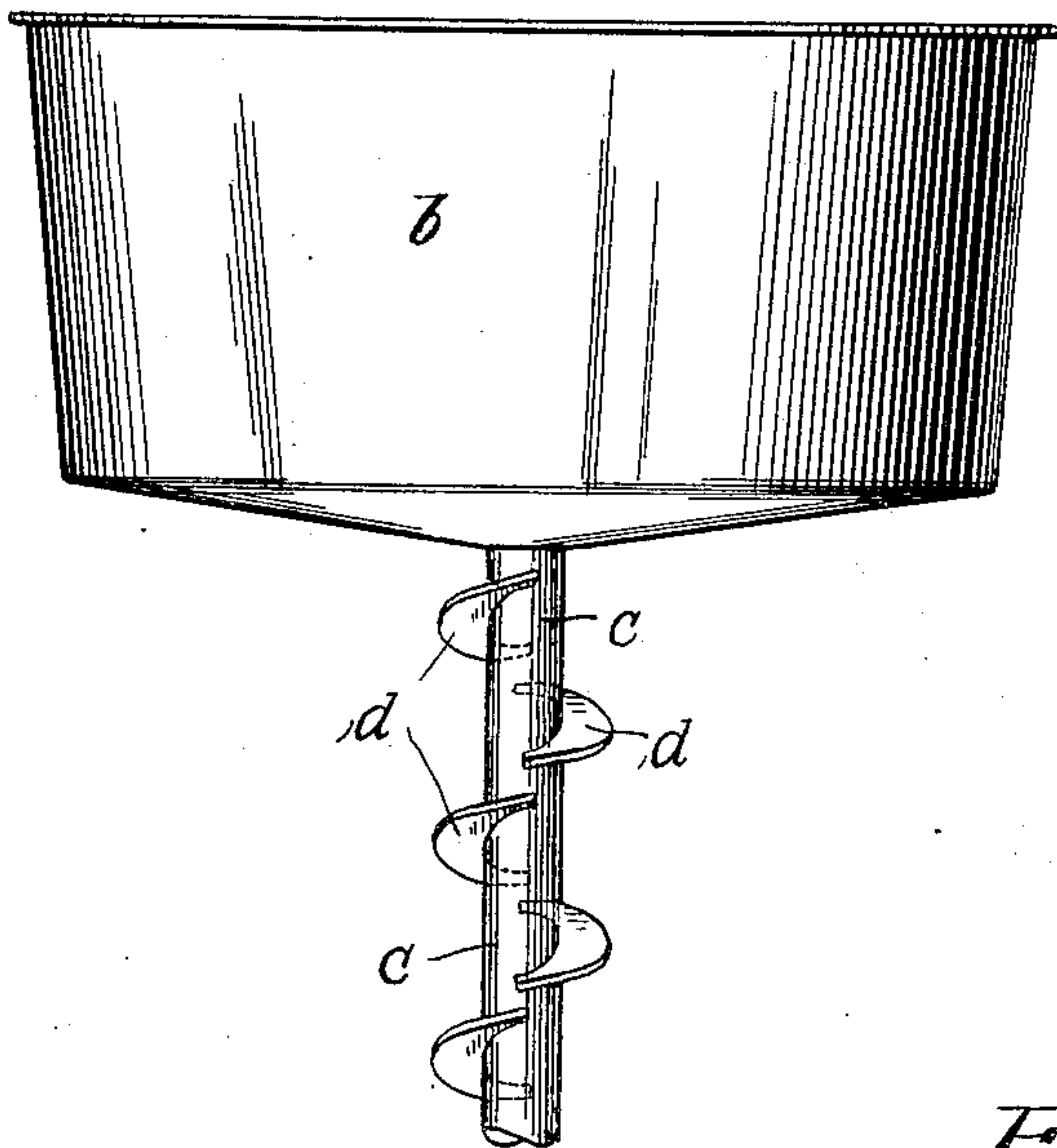
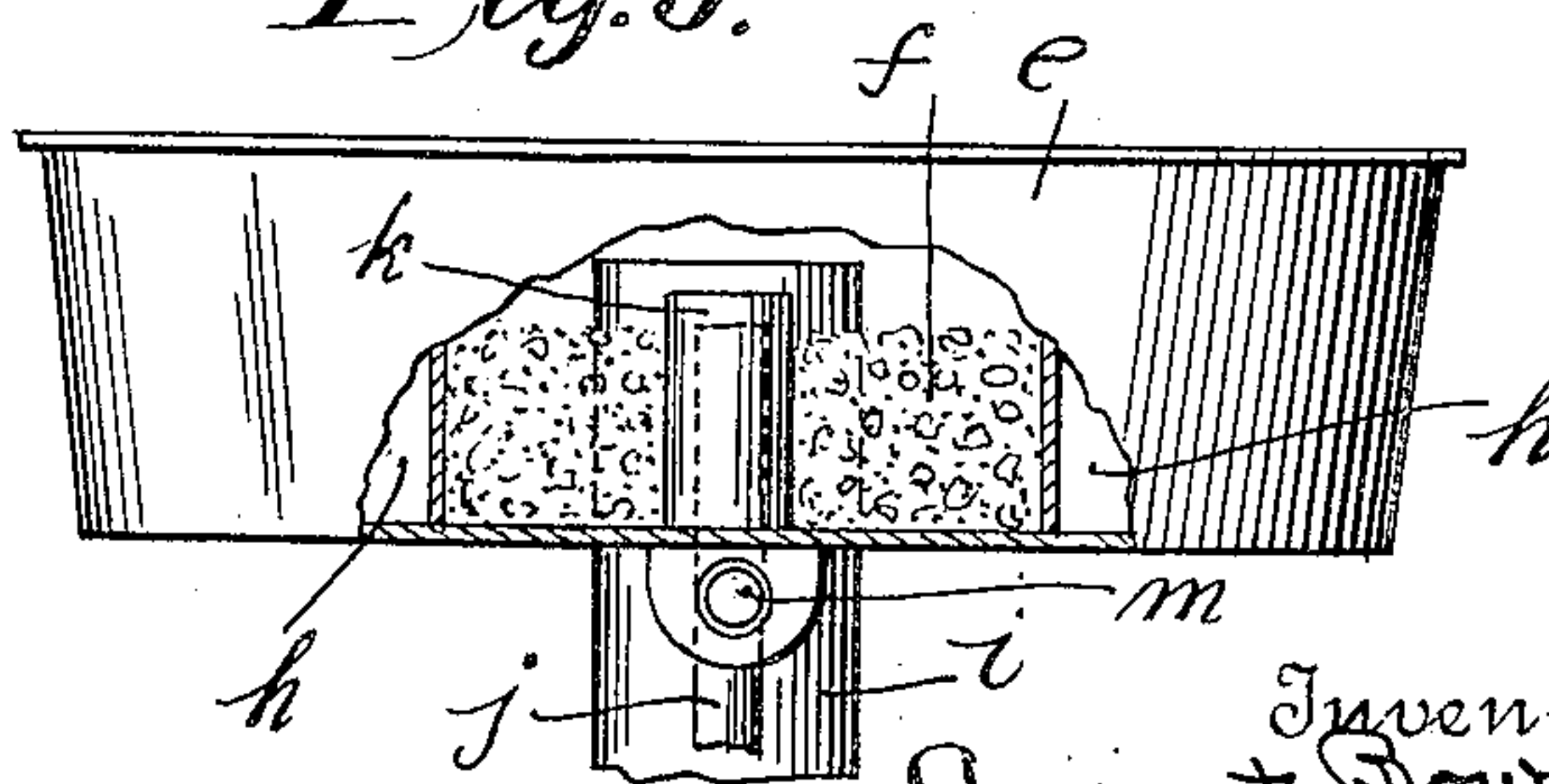


Fig. 5.



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UNITED STATES PATENT OFFICE.

AUGUST BOWE, OF PORTLAND, OREGON.

OIL-FILTER.

No. 896,797.

Specification of Letters Patent.

Patented Aug. 25, 1908.

Application filed December 19, 1907. Serial No. 407,157.

To all whom it may concern:

Be it known that I, AUGUST BOWE, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Oil-Filters, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to improvements in oil-filters; and an object of my invention is to provide an oil-filter which will be simple in construction, cheap in manufacture and efficient in operation and which will require practically no attention during use.

In the drawings illustrating the principle of my invention and the best mode now known to me of applying that principle, Figure 1 is a central vertical section; Fig. 2 is a section on line A—A of Fig. 1; Fig. 3 is a section on line B—B of Fig. 1; Fig. 4 is a detail of the oil-receiver; and Fig. 5 is a detail of the filter-pan.

The oil-tank *a* supports at its upper end the funnel-shaped oil-receiver *b* from which extends downwardly nearly to the bottom of the oil-tank a spout *c* upon the outside of which is formed a series of helical flanges *d* the distance between the upper end of each of which and the lower end of the flange next above is about three-fourths of an inch (Fig. 4). Below the oil-receiver is mounted in the oil-tank *a* a filter-pan *e* having an inner central compartment *f* and an outer annular compartment *g*, both of which compartments *f* and *g* are filled with granular material through which the oil filters. Between the compartments *f* and *g* is an annular settling chamber *h* in which the oil is allowed to settle in passing from the inner compartment *f* to the outer compartment *g* (Fig. 1). From the center of the filter-pan *e* extends downwardly a separator-cylinder *i* closed at its bottom and from near the bottom of which extends upwardly a riser-pipe *j* the upper end of which projects into the recess *k* formed in the bottom of the inner central compartment *f*. The recess *k* communicates with the outlet pipe *m*. At the bottom of the cylinder *i* is a separating plate *n* the upper edge of which extends between the lower end of the spout *c* and the wall of the cylinder *i* near the point of connection of the pipe *j* therewith (Fig. 1). Below the filter-pan *e* is mounted a settling-pan *o* at the center of which is provided an upwardly-extending ring-shaped flange or wall *p*. At the bottom of the oil tank are

provided the settling pans *q* and *r*, the former being within the latter. A suitable spigot *s* is fitted to the bottom of the oil-tank for drawing off the filtered oil.

The crude oil is poured into the oil-receiver or reservoir *b* and flows down the central spout or funnel *c* from which it pours out into the closed lower end of the separator-cylinder *i*. Here the water and the oil separate, the water flowing over the baffle-plate *n* and up through the riser-pipe *j* and outlet conduit *m*. The oil flows up the underside of the helical flanges *d* and then pours out of the upper end of the cylinder *i* into the inner strainer compartment *f* the lower portion of the wall of which is formed with holes *t* which allow the oil to trickle into the annular settling-chamber *h*. The oil overflows from this chamber into the outer strainer-compartment *g* and drips through the holes *u* in the bottom of that chamber down upon the settling pan *o*. Here the oil settles again and then overflows the wall *p* and falls into the settling-pan *q*. Here it settles for a third time and then overflows into the settling-pan *r*, from which it overflows into the main chamber of the oil-tank and out through the spigot *s*.

In starting the filter, water is first poured into the oil-receiver *b*, until it pours out through the outlet *m*, thereby insuring that the separator cylinder *i* will be full of water to within four or five inches of its top.

The filter is provided with a suitable gage glass *s'*.

I claim:

1. An oil-filter consisting of the combination with an oil-tank, of an oil-receiver mounted therein and provided with a downwardly-extending spout on the outside of which is formed a series of helical flanges; a cylinder closed at its bottom and open at its top, said cylinder surrounding said spout and flanges; a riser-pipe connected with the bottom of said cylinder for the discharge of the water; a filter-pan having three compartments one within the other, the top of said cylinder projecting into the innermost of said compartments; and a series of settling-pans mounted in said oil-tank below said filter-pan.

2. In an oil-filter, the combination with means for separating the water from the oil, of a filter-pan into which the separated oil flows, said filter pan being formed with a plurality of compartments the innermost and

outermost of which contain material for filtering the oil and the intermediate one of which communicates with the innermost one and serves as a settling chamber from which
5 the oil overflows into the outermost one.

3. Means for separating the oil from the water consisting of the combination of an oil-receiver provided with a spout formed on its outside with a series of helical flanges; a cylinder closed at its bottom for the reception of
10 the crude oil discharged by said spout, said cylinder surrounding said helical flanges; and a riser-pipe leading from near the closed bottom of said cylinder for the discharge of the
15 water.

4. Means for separating the oil from the water consisting of the combination of an oil-receiver provided with a spout formed on its outside with a series of helical flanges; a cylinder closed at its bottom for the reception of
20 the crude oil discharged by said spout, said cylinder surrounding said helical flanges; a riser-pipe leading from near the closed bottom of said cylinder for the discharge of the
25 water; and a separating plate which is arranged in said cylinder opposite the lower end of said riser-pipe and over which the water flows in passing from said cylinder into said riser-pipe.

5. The combination in an oil-filter with means for separating the oil from the water, of a filter-pan into which the separated oil is discharged; and a settling-pan mounted below said filter-pan and formed with an upwardly-extending wall over which the oil
35 flows in passing from the settling-pan.

6. Means for cleaning the oil consisting of the combination of a cylinder provided in its interior with a series of helically-disposed
40 plates; a filter-pan into which said cylinder

discharges at its upper end; and a settling pan which is formed with a hole for the passage of said cylinder and with an upwardly-extending wall surrounding said hole; the oil dripping from said filter-pan into said settling-pan. 45

7. Means for cleaning the oil consisting of the combination of a cylinder provided in its interior with a series of helically-disposed plates; a filter pan into which said cylinder
50 discharges at its upper end; and a settling-pan which is mounted below said filter-pan and into which the oil drips therefrom.

8. An oil-filter consisting of the combination with an oil-tank, of an oil-receiver
55 mounted therein and provided with a downwardly-extending spout; a separator-cylinder which surrounds said spout and into which the latter discharges the crude oil, said separator-cylinder having a closed bottom; a
60 series of helically-disposed plates arranged between the walls of said cylinder and spout; a riser-pipe for the discharge of the water separated, said riser-pipe communicating with the lower part of said cylinder; a filter-
65 pan into which said cylinder discharges at its open upper end; and a settling-pan formed with a hole through which extend said cylinder and riser-pipe, said settling-pan being
70 mounted in said oil-tank below said filter-pan and receiving the oil dripping from the latter.

In witness whereof I have hereunto set my hand at said Portland Oregon this fifth (5th) day of December, A. D. 1907, in the presence
75 of the two undersigned witnesses.

AUGUST BOWE.

Witnesses:

A. E. CLARK,
WM. R. MCGARRY.