

No. 825,573.

PATENTED JULY 10, 1906.

W. J. BALDWIN.
GREASE SEPARATOR.
APPLICATION FILED MAY 22, 1902.

Fig. 2

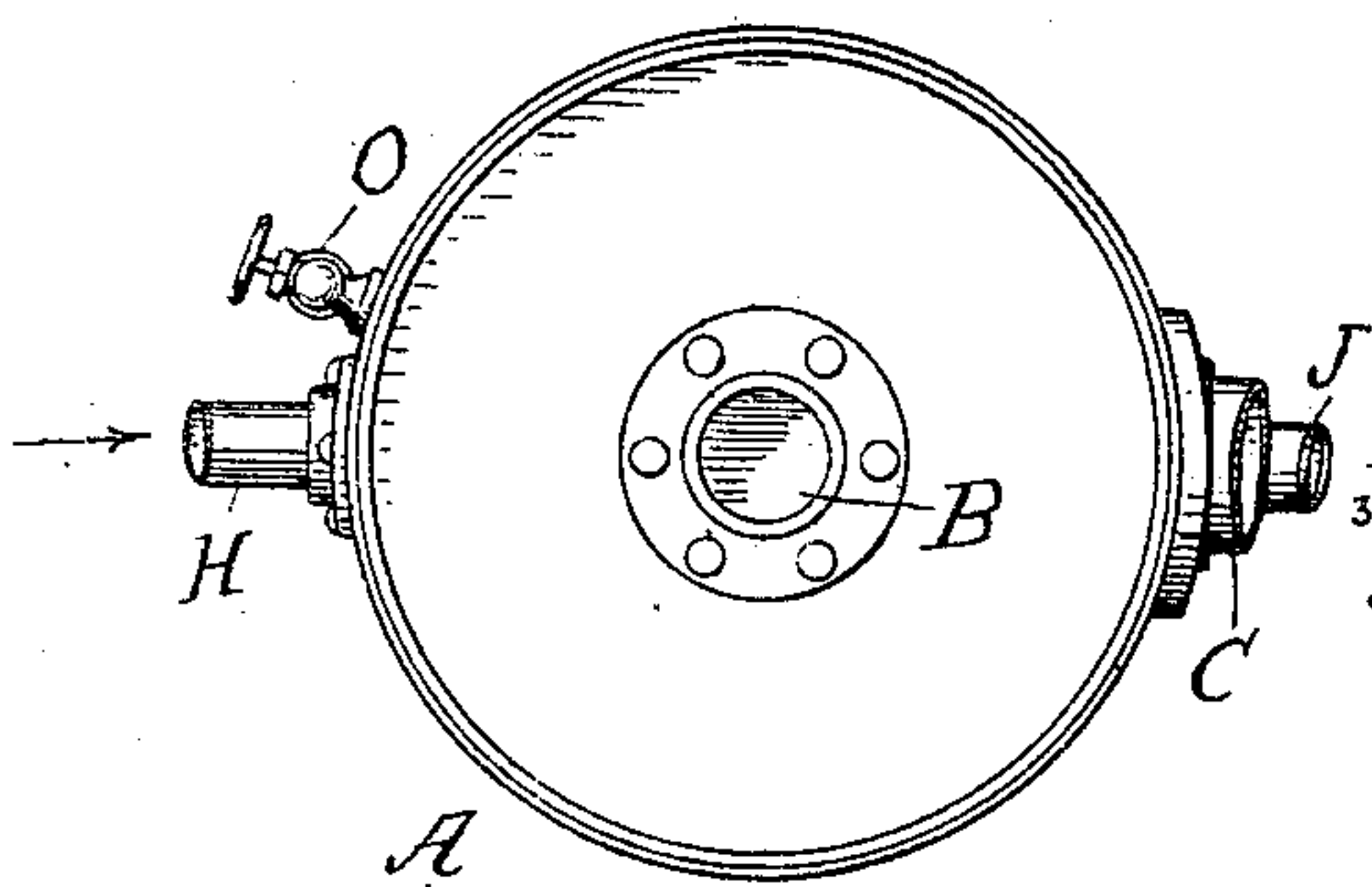


Fig. 4.

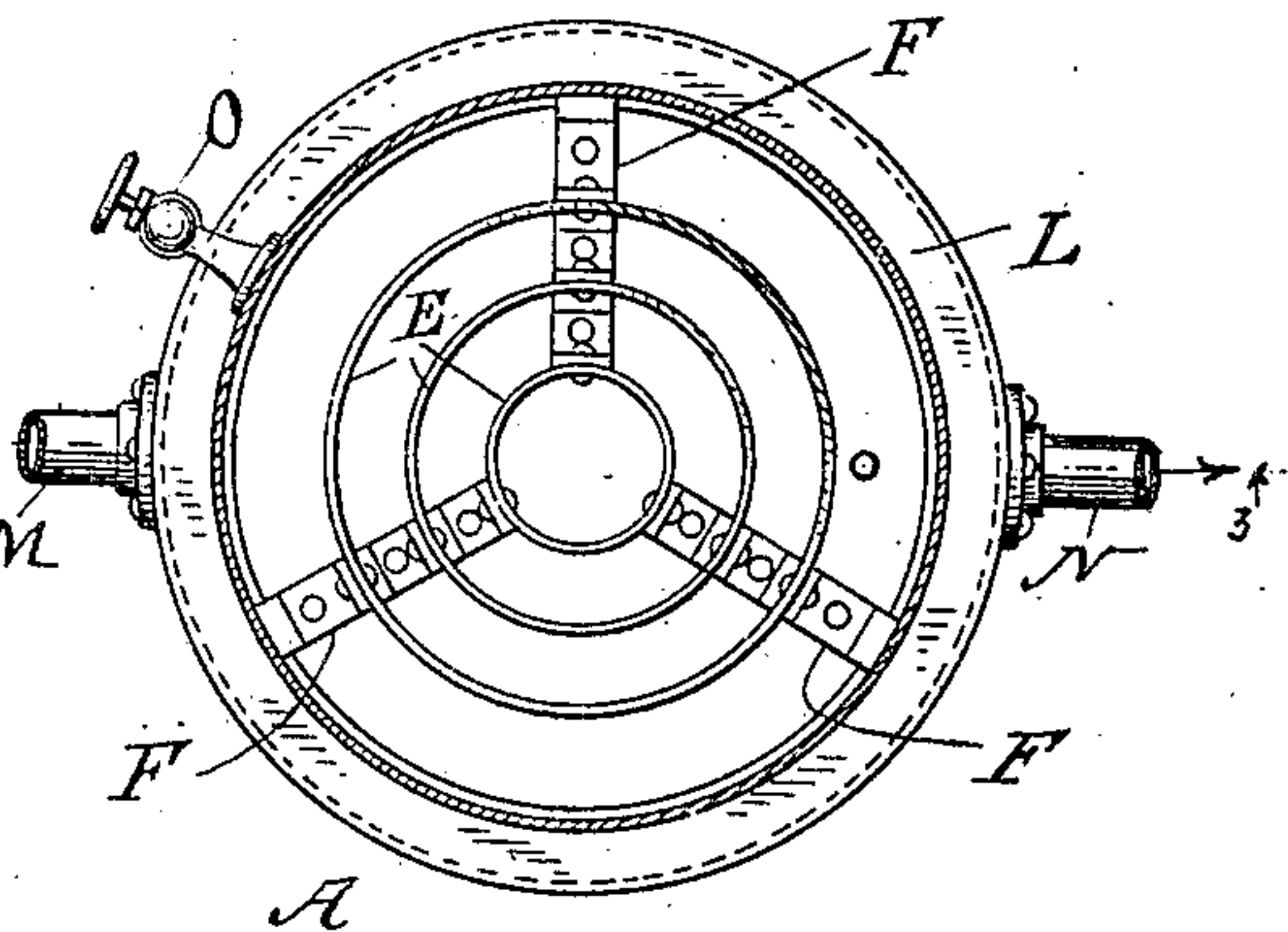


Fig. 1.

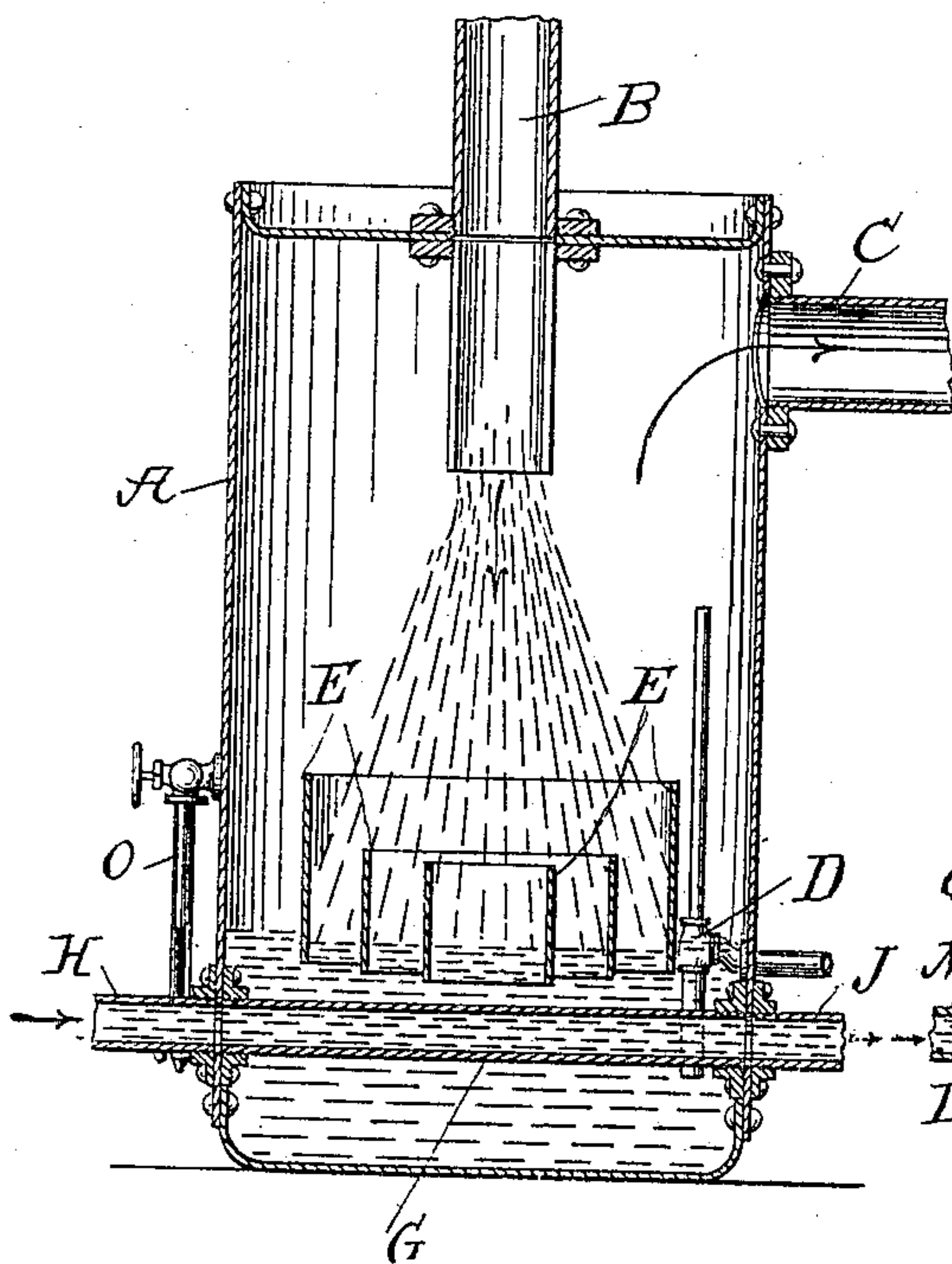
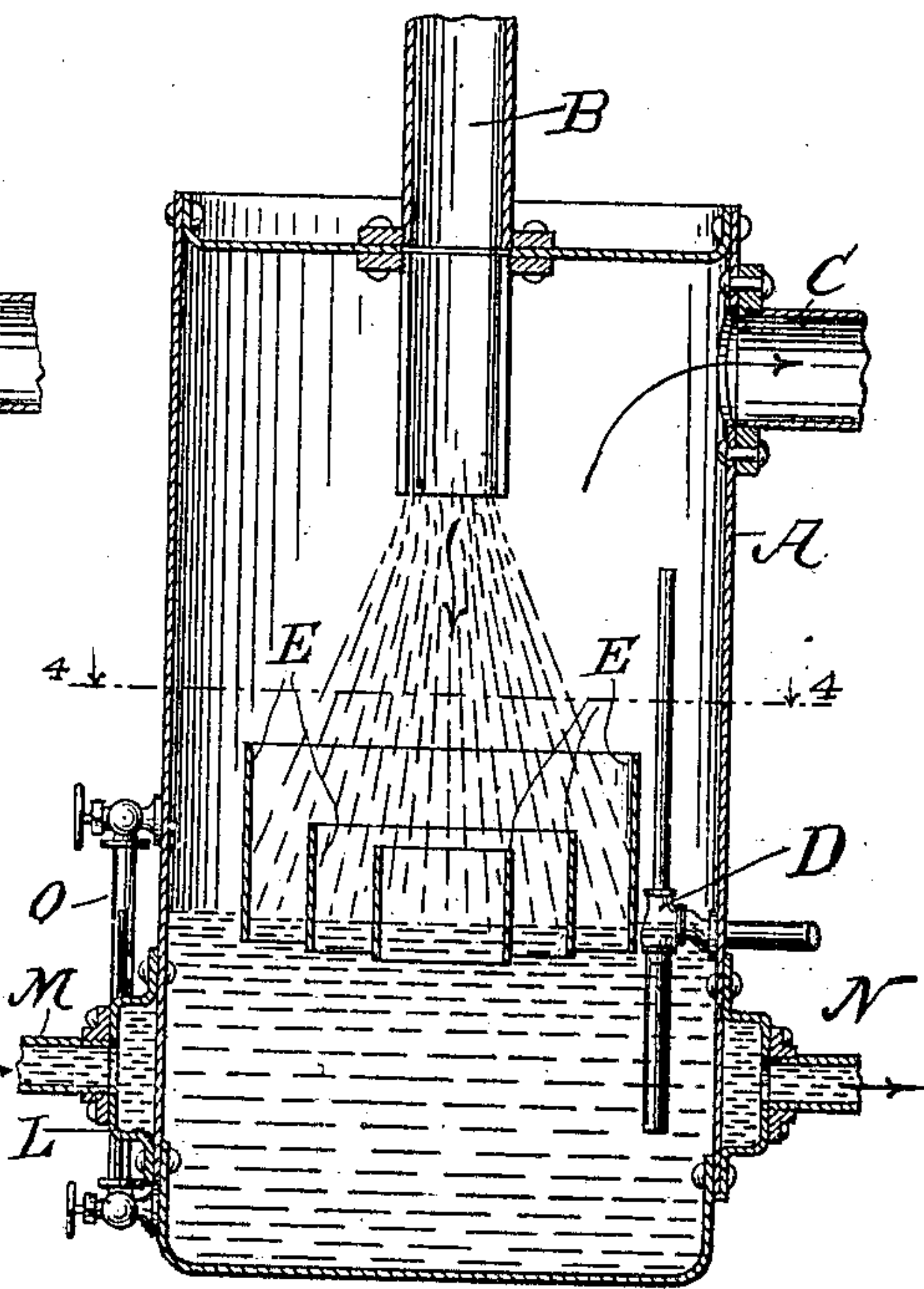


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM J. BALDWIN, OF BROOKLYN, NEW YORK.

GREASE-SEPARATOR.

No. 825,573.

Specification of Letters Patent.

Patented July 10, 1906.

Application filed May 22, 1902. Serial No. 108,480.

To all whom it may concern:

Be it known that I, WILLIAM J. BALDWIN, a citizen of the United States of America, and a resident of the borough of Brooklyn, in the city of New York and State of New York, have invented certain new and useful Improvements in Grease-Separators, of which the following is a specification.

This invention relates to improvements in grease-separators.

The invention is intended especially for such grease-separators as are to be used in low-pressure-condensing steam-engines and other apparatus in which low-pressure condensers are employed; and it is particularly the purpose of my invention to provide a grease-separator which can be connected with the condenser, so that the condenser shall draw the steam from which the grease has been separated from the condenser without causing such an ebullition in the grease-separator as prevents the proper separation of the grease and carries the grease over into the condenser.

For a practicable combination of a grease-separator with a low-pressure condenser it is indispensable that the water in the grease-separator, on the surface of which the grease collects, shall not boil violently at the low pressures which the condenser induces in the grease-separator. The suction of the partial vacuum of the condenser on the grease-separator necessarily produces in the latter a lowered air or vapor pressure, which may be considerably below normal atmospheric pressure, and it is well known that under such circumstances the water in the grease-separator will boil with such violence as to cause the grease to pass over with the outgoing steam from the grease-separator to the condenser, if the water in the separator is at the temperature produced by the incoming steam. This difficulty has been heretofore insuperable and has prevented the use of grease-separators with low-pressure-condensing apparatus, it being at present the wasteful practice to discharge the steam and condensed water into sewers or drains rather than send them back to the feed-water heaters.

My invention overcomes the difficulty by providing the separator with a chamber or conduit through which a cooling liquid is passed, which cools the water in the separator sufficiently to prevent its boiling at the low pressures which are induced in the grease-separator and yet without materially increas-

ing the condensation of the steam which enters the separator and also without admitting the cooling liquid into the separating-chamber of the separator.

Referring to the drawings which accompany the specification to aid the description, Figure 1 is a vertical section, and Fig. 2 a plan, of one form of my invention. Fig. 3 is a vertical section, and Fig. 4 a cross-section on the line 4 4 of Fig. 3, of another form of my invention.

Referring to Figs. 1 and 2, A is the shell of the grease-separator; B, the inlet for exhaust-steam; C, the outlet for the steam from which grease has separated; D, the overflow to carry off any excess of water which may collect in the lower part of the separator, and E E gratings which facilitate the separation and collection of the grease. Said gratings E E are carried by frames F F, which are secured in the shell A, said frames F F being shown in Fig. 4. Said overflow and gratings require no further description, not being any part of my present invention and having been fully described in United States Letters Patents heretofore obtained by me and respectively numbered and dated as follows: No. 533,424, dated February 5, 1895, and No. 578,708, dated March 16, 1897.

Assuming that water will collect in the grease-separator up to about the level shown in Fig. 1, I carry a conduit G across the separator below the water-level and arrange an inlet H and an outlet J in communication with said conduit G. Said inlet H is connected with any source of supply of a cooling liquid, as with a water-pump, and said outlet J is connected by suitable pipes with the point of discharge, as with a condenser. A circulation of the cooling liquid is then maintained through conduit G, whereby the temperature of the water in the separator is cooled sufficiently to prevent said water from boiling at the low pressures which may be induced in the separator when the steam-outlet C is connected with a condenser or other like apparatus.

Referring to Figs. 3 and 4, the shell A, inlet B, steam-discharge C, overflow D, gratings E E, and frames F F are the same as hereinbefore described. The conduit for cooling liquid L is now, however, an annular chamber arranged around and preferably outside of the shell A. Said chamber L is provided with the inlet M and outlet N, and

circulation of a cooling liquid, as water, is maintained through said chamber L by a pump or any other suitable means, the water in the separator being thereby cooled, so that
5 it will not boil even at the low pressures induced in the separator.

A water-gage O may be provided to show the level of the water in the separator, and, if required, a safety-valve may be placed on
10 the shell A to relieve dangerous pressures.

Now, having described my improvements, I claim as my invention—

1. The combination in a grease-separator of a vessel provided with a steam-space and
15 a chamber adapted to contain a body of liquid upon which the grease collects and having an inlet positioned to project the grease upon the surface of the liquid, and a conduit for a cooling fluid arranged below the level of
20 said liquid and separated by said liquid from said steam-space, substantially as described.

2. The combination in a grease-separator of a shell having a steam-space and a chamber adapted to contain a body of liquid upon

which the grease collects and said shell being provided with an outlet and with an inlet B positioned to project the grease upon the surface of the liquid, and a conduit for cooling fluid arranged below the level of the said liquid and separated thereby from said steam-space, substantially as described. 25 30

3. The combination in a grease-separator of a vessel provided with a steam-space and a chamber adapted to contain a body of liquid upon which the grease collects, an inlet-pipe positioned to project the grease upon the surface of said liquid, a grating adjacent to the surface of the liquid adapted to collect and separate the grease, and a conduit for a cooling fluid arranged below the level of said liquid and separated from said steam-space by said liquid, substantially as described. 35 40

Signed at New York city this 21st day of May, 1902.

WILLIAM J. BALDWIN.

Witnesses:

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