

No. 738,046.

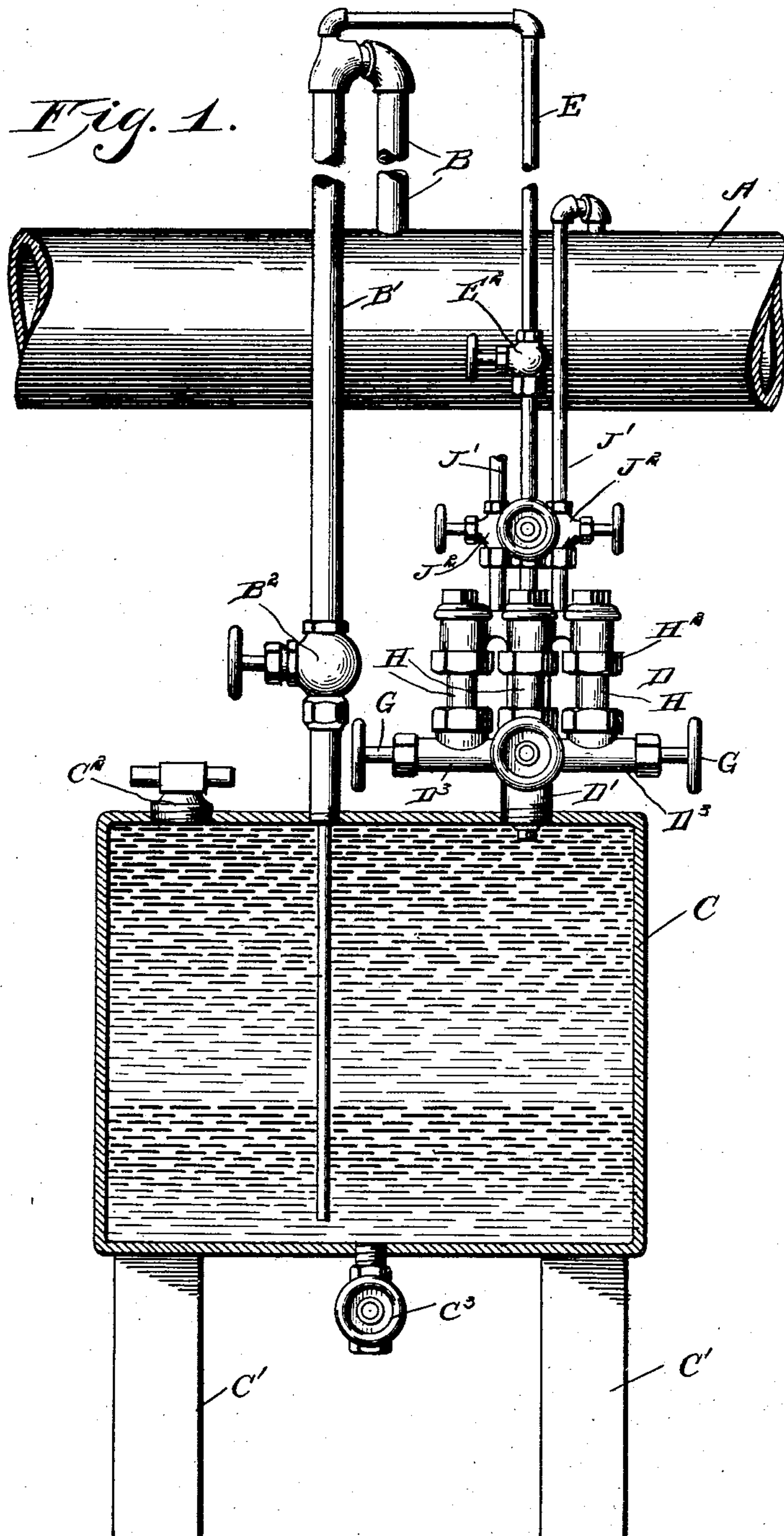
PATENTED SEPT. 1, 1903.

J. F. LEWIS.
LUBRICATOR.

APPLICATION FILED MAY 6, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
Louis D. Heinrichs
L. H. Morrison

Inventor
John F. Lewis
By his Attorney
W. Preston Williamson

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2 SHEETS—SHEET 2.

Fig. 3.

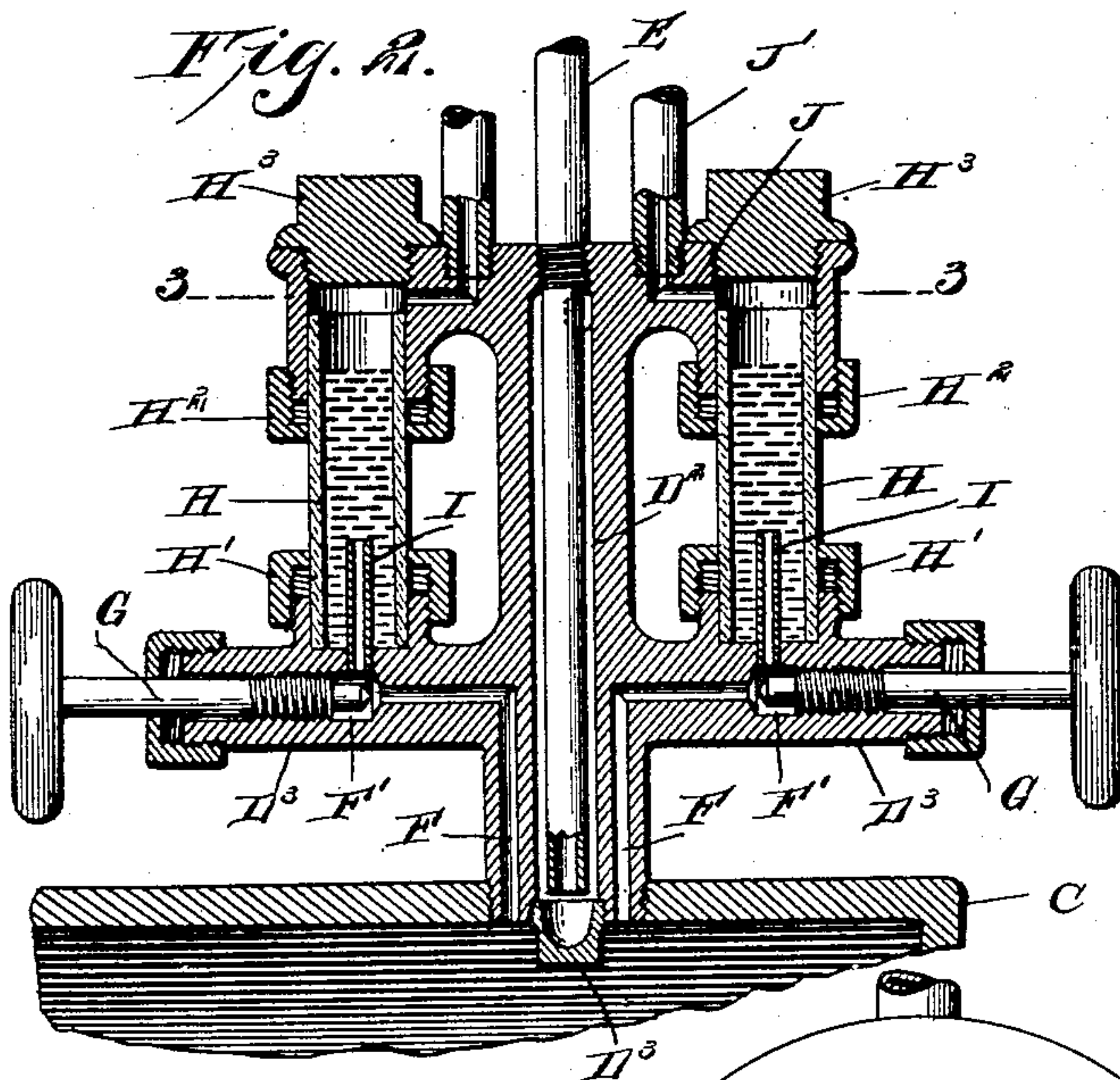
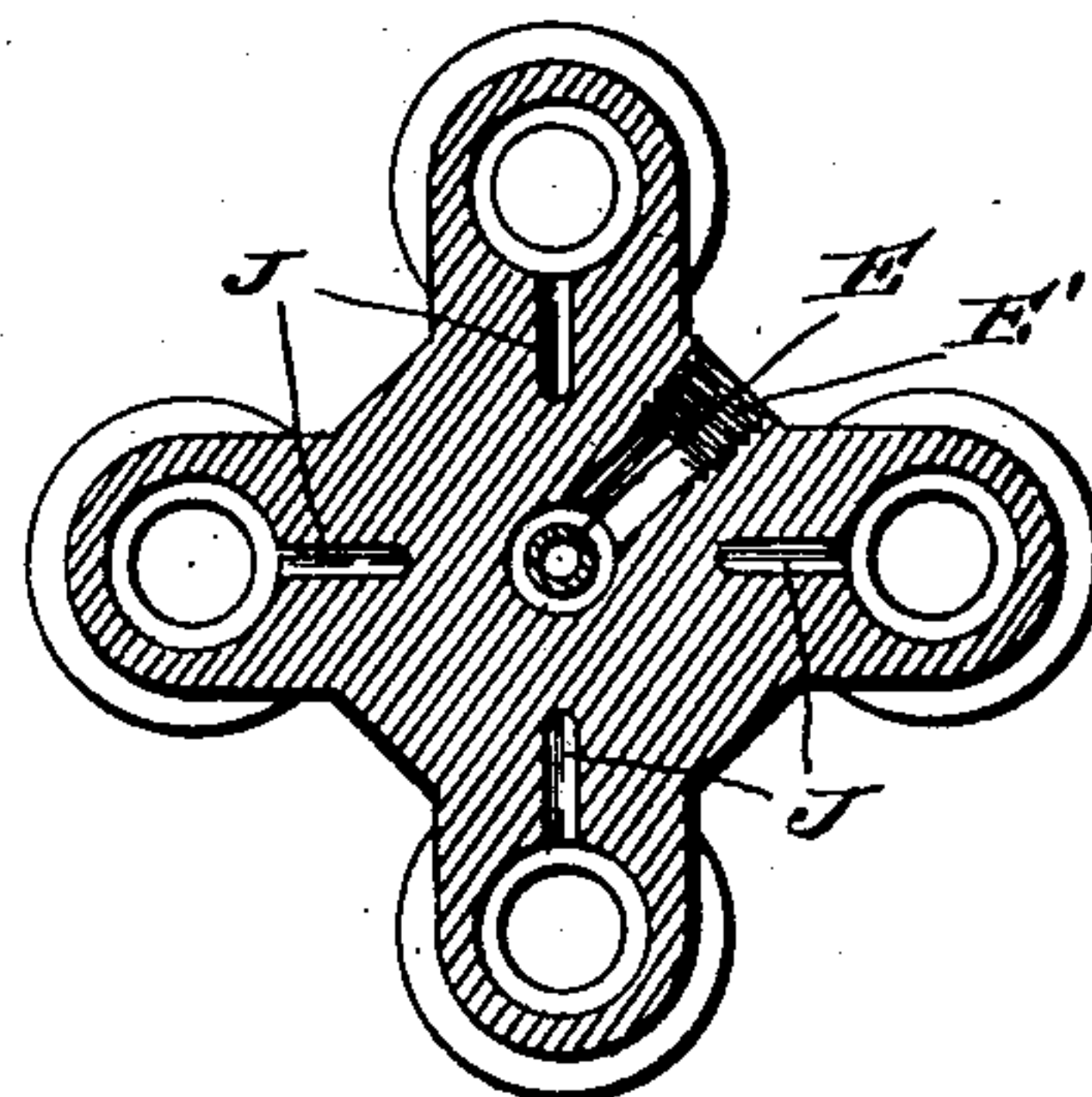
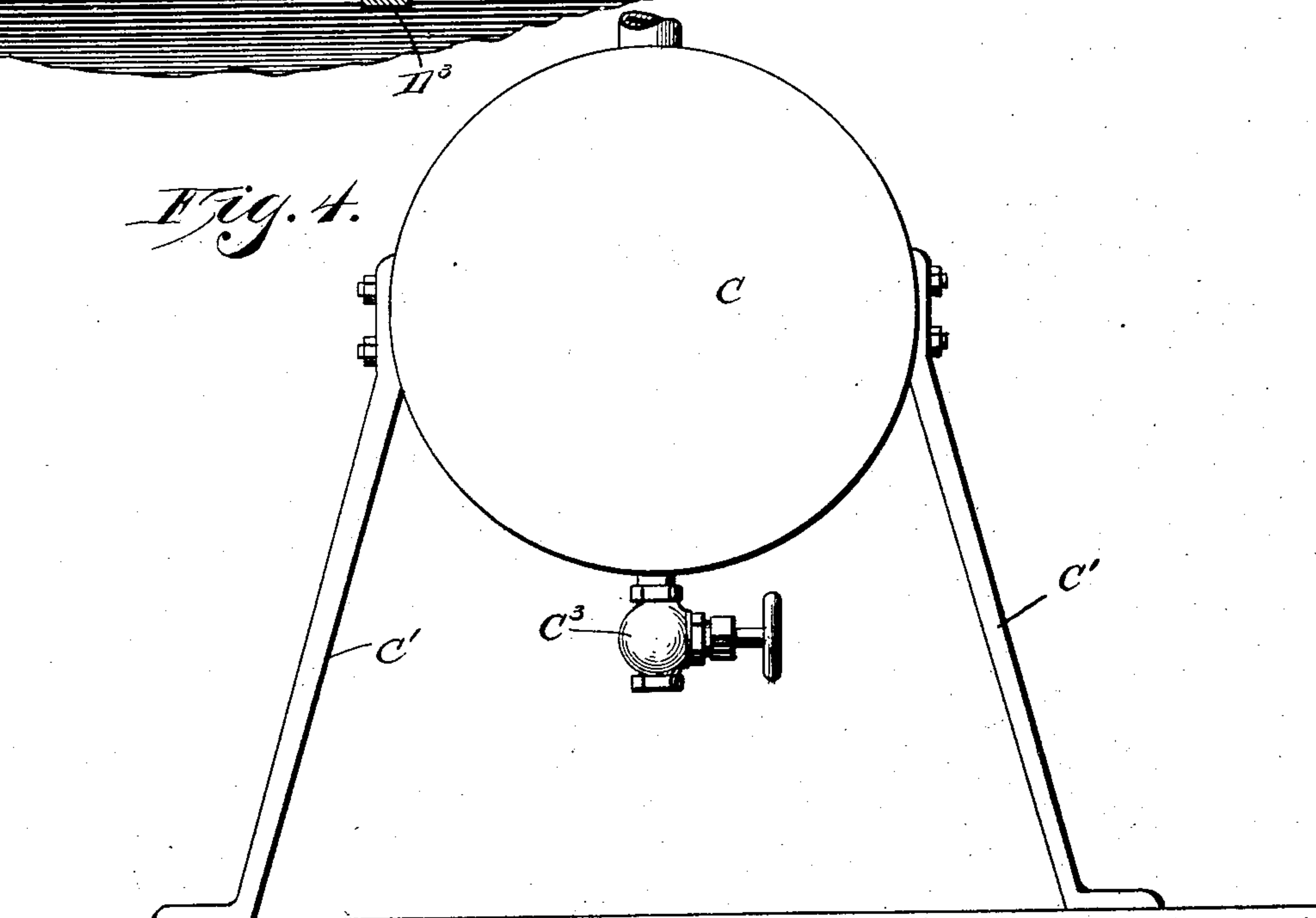


Fig. 4.



Witnesses

Louis D. Heinrichs
L. H. Morrison

Inventor

John F. Lewis

By his Attorney

W. Preston Williamson

UNITED STATES PATENT OFFICE.

JOHN F. LEWIS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO JULIUS ROTH, OF PHILADELPHIA, PENNSYLVANIA, AND CATHERINE MURPHY, OF SCRANTON, PENNSYLVANIA.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 738,046, dated September 1, 1903.

Application filed May 6, 1902. Serial No. 106,223. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. LEWIS, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a certain new and useful Improvement in Lubricators, of which the following is a specification.

My invention relates to a new and useful improvement in lubricators, and relates to that class of lubricators in which a constant flow of the lubricant to the parts to be lubricated is maintained by the constant displacement of such lubricant by the pressure of the body of water in the form of a constant hydrostatic column that is supplied by the condensation of steam at a point above the apparatus; and my invention has for its object, first, to provide means for communicating to the lubricant heat to a sufficient degree to liquefy the lubricant and to impart fluidity to the same, so that it will flow readily through the discharge-pipes of the lubricator; second, to provide means for regulating the degree of heat to which the lubricant is exposed, also to regulate and control the feed of the lubricant and the water-discharge; third, to so construct the apparatus that the oil-feeds will be arranged in groups surrounding the heating-compartment, so that one steam-pipe will supply the heat for a number of sight-feeds, as also will one hydrostatic column and oil-reservoir supply the oil to the same.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of my apparatus, the oil-reservoir being shown in section; Fig. 2, a vertical section through the sight-feeds and heating-chamber; Fig. 3, a section on the line 3 3 of Fig. 2; Fig. 4, an end elevation of the oil-reservoir.

A represents the steam-pipe, which leads to the steam-cylinder of the engine. B is a pipe branching out from the main steam-pipe extending upward and then turning downward to form the pipe B', which leads downward to the oil-reservoir C. By extending the pipe B upward and then joining the same with the pipe B', which extends downward, a condensing-chamber is formed in the upper end of pipe B' and the condensed steam will flow down the pipe B' and form a hydrostatic column. This oil-reservoir is preferably made in the form of a cylinder supported by legs C' and is provided at the upper end with an opening through which the reservoir may be filled with oil, and this opening is normally closed by the screw-plug C². The pipe B' extends into the oil-reservoir and terminates at a point near the bottom thereof.

D represents the sight-feed and heating apparatus, which is threaded into the upper end of the reservoir by means of the plug D'. Through the center of this apparatus is formed a chamber D², which is closed at the lower end by means of a plug D³, and through the upper end of the apparatus is threaded a small steam-pipe E, which extends downward into the chamber D² and terminates within a slight distance of the plug D³.

The steam-pipe E extends upward and is connected to the pipe B at its highest point and preferably to the elbow by which the pipe B is connected to the pipe B'. Thus live steam always passes into the pipe E, and as the chamber D² is larger than the pipe E the steam will pass out of the lower end of the pipe and upward in the chamber D², surrounding the pipe, and out through the exhaust-passage E'. Thus the part of the apparatus immediately surrounding the chamber D² is kept at a desired degree of heat, the steam being controlled by a valve E², located in the pipe E. It is well understood in the art that for the proper condensation of steam the condensing-chamber should have a slight vent. Therefore by attaching the pipe E to the uppermost point of the condensing-chamber I provide a vent and at the same time utilize the vented steam for the purpose of heating the oil.

Extending upward from the reservoir C,

through the plug D' and surrounding the chamber D^2 , are the oil-passages F , which after passing up parallel with the chamber D^2 a distance then turn at right angles and enter the chambers F' , formed in the horizontal portions D^3 of the apparatus, and the entrance of the oil from the passages F to the chambers F' is controlled by valves G , extending outward through suitable stuffing-boxes arranged upon the end of the horizontal portions D^3 . Extending upward from each of the horizontal portions D^3 are the sight-feed glasses H , which are secured to the horizontal portions by means of suitable stuffing-boxes H' and also secured in the upper end of the apparatus by means of stuffing-boxes H^2 , and extending upward into the sight-feed glasses H are the nipples I , which connect with the chambers F' the horizontal portions D^3 of the apparatus. J represents passages leading from above the sight-feeds, and these passages are connected with pipes J' , which conduct the lubricant to the desired points. The sight-feed glasses are adapted to be filled with water considerably above the upper end of the nipples I . This is done by removing the screw-plugs H^3 at the upper end.

The operation of the device is as follows: The reservoir C being entirely filled with oil, by allowing the steam to enter through the pipe B the condensation of the steam will accumulate in the pipe B' , and thereby form a hydrostatic column, which always tends to displace the oil within the reservoir and force the oil upward through the passages F , through the nipple I , through the water contained in the feed-glasses H , and then upward through the pipes J' . The water-feed is adapted to be controlled by the valve B^2 , arranged within the pipe B' . Thus each drop of condensed steam will displace an equal amount of oil from out of the cylinder C , and this oil will displace an equal amount within the pipes J' , and so a continuous lubrication is maintained. At the same time the live steam entering the pipe E will keep the apparatus at a desired degree of heat, so that the oil passing upward through the passages F will be liquefied to the desired point, so as to flow easily through the different parts of the apparatus, and, if desired, the pipes J' and the central steam-pipe E may be all wound together with an asbestos covering, so that the steam-pipe E will keep the oil-pipes J' always warm.

C^3 is a valve arranged at the lower end of the reservoir C for drawing the water therefrom. J^2 represents valves arranged within the oil-pipes J' for regulating the supply of oil.

While I have shown the apparatus consisting of a group of four sight-feeds and four oil-pipes all fed from one reservoir and grouped about one heating-compartment, it is obvious that the lubricator could be used with only one sight-feed or with any number of sight-feeds from one up, the only limit be-

ing the number which could be grouped about the central heating-chamber.

Of course I do not wish to be limited to the exact construction here shown, as slight modifications could be made without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful is—

1. In a lubricator, an oil-reservoir, a steam-condensing chamber arranged above the point from which steam is taken, a pipe leading downward from the condensing-chamber into the oil-supply reservoir to a point near the bottom thereof, a sight-feed adapted to be partially filled with water, a duct leading from the reservoir to a nipple within the sight-feed, a duct leading from the upper part of the interior of the sight-feed to the parts to be lubricated, a heating-chamber arranged in juxtaposition to the duct which conveys the oil from the reservoir to the sight-feed, said heating-chamber extending upward from the oil-reservoir parallel with said duct so as to only heat the oil after said oil has left the reservoir, a pipe leading from the uppermost portion of the condensing-chamber, the other end of the pipe extending into the heating-chamber from above and terminating within a short distance of the bottom of the same, said heating-chamber being larger in diameter than the pipe and provided with an opening near its upper end for the exhaust of the steam, as specified.

2. In a lubricating apparatus, an oil-reservoir, a steam-pipe leading upward from the main steam-pipe of an engine, a horizontal pipe connected therewith at the top, a pipe leading downward from the horizontal pipe and extending into the oil-reservoir to a point near the bottom, an oil-heating apparatus secured on the upper part of the oil-reservoir, a heating-chamber arranged in the center of said apparatus, said heating-chamber being closed at the bottom, a steam-pipe entering the heating-chamber from above and extending to a point near the bottom of said chamber, said chamber being larger in diameter than the steam-pipe, an exhaust-port leading out of the chamber at its upper end, a plurality of sight-feeds arranged in the apparatus, an oil-duct leading from the oil-reservoir to each sight-feed, said ducts being arranged in juxtaposition to the heating-chamber, a duct leading from the upper end of each of the sight-feeds and adapted to extend to the parts to be lubricated, and valves for controlling the water, steam and oil supply, as and for the purpose specified.

3. In a lubricating apparatus in which the oil is adapted to be forced upward through sight-feeds by means of a hydrostatic column formed by a condensation of steam, an oil-reservoir, a sight-feed, and heating apparatus, said heating apparatus and sight-feed consisting of a central portion which is threaded into the upper end of the oil-reservoir, a steam-

pipe extending downward into the central portion, said steam-pipe extending upward to a point where it is adapted to always receive live steam, a chamber formed around said
5 steam-pipe upon the interior of said central portion, said chamber being closed at the top by the steam-pipe, a plug for closing the lower end of the chamber, said steam-pipe terminating within a short distance of the plug,
10 an exhaust-port leading out of the upper end of the chamber, oil-ducts leading upward from the reservoir through said central portion, horizontal portions extending outward from said central portion through which the oil-
15 ducts also extend, chambers formed in said horizontal portions with which the oil-ducts connect, valves for controlling the supply of oil from the ducts to the chambers, a nipple

extending upward from each of the chambers in said horizontal portions, a sight-feed glass 20 arranged around each nipple and secured at the top and bottom by suitable stuffing-boxes, said sight-feed glasses being filled with water to a point above the nipple, a duct leading from above each sight-feed glass and extend- 25 ing to the parts to be lubricated, and valves arranged within the steam-pipe and the oil-supply pipes for regulating the flow, as and for the purpose specified.

In testimony whereof I have hereunto af- 30 fixed my signature in the presence of two subscribing witnesses.

JOHN F. LEWIS.

Witnesses:

H. B. HALLOCK,
L. W. MORRISON.