

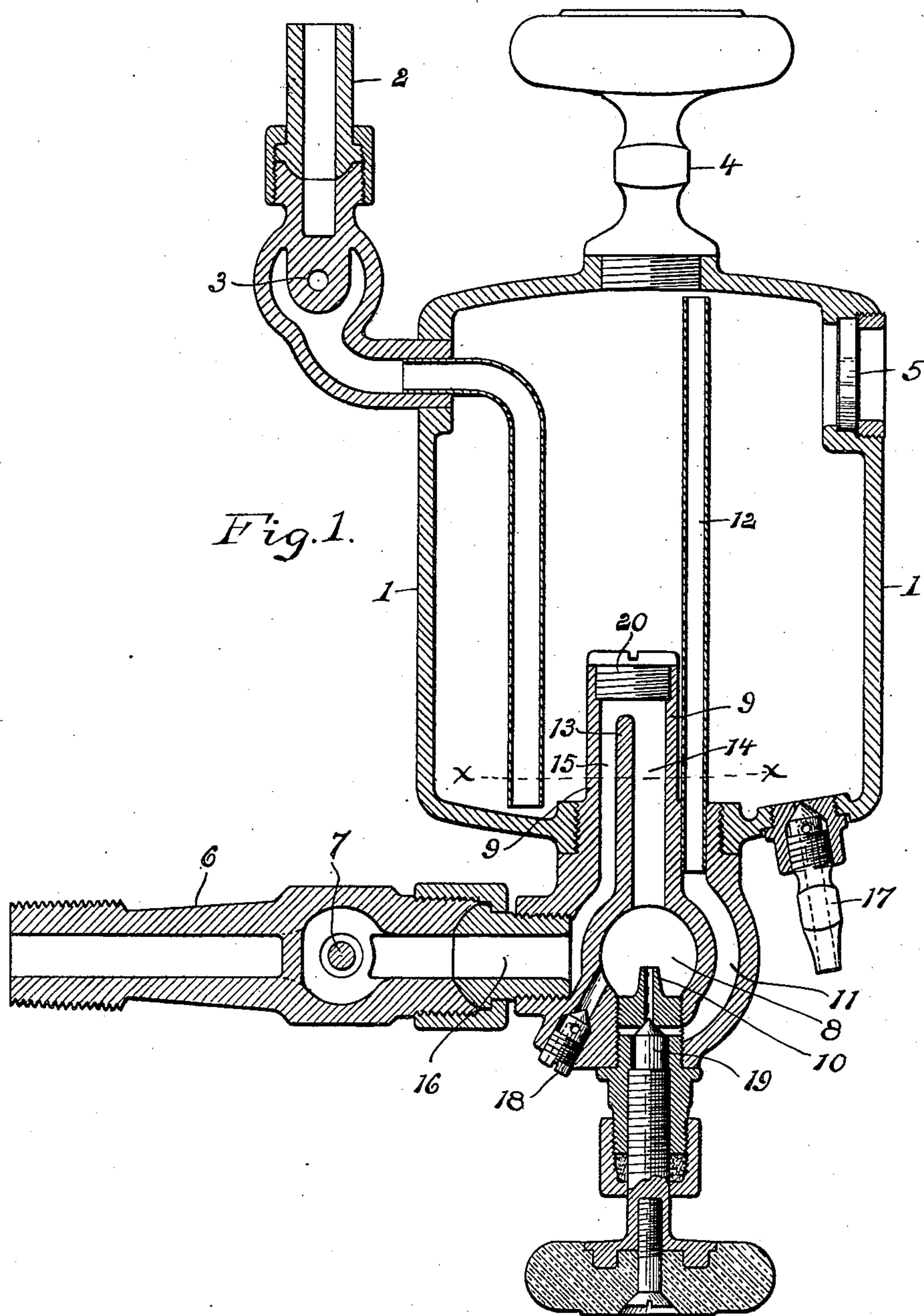
No. 890,787.

PATENTED JUNE 16, 1908.

E. McCOY.
LUBRICATOR.

APPLICATION FILED JULY 15, 1907.

2 SHEETS—SHEET 1.



WITNESSES:

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Anna M. Mayer

INVENTOR

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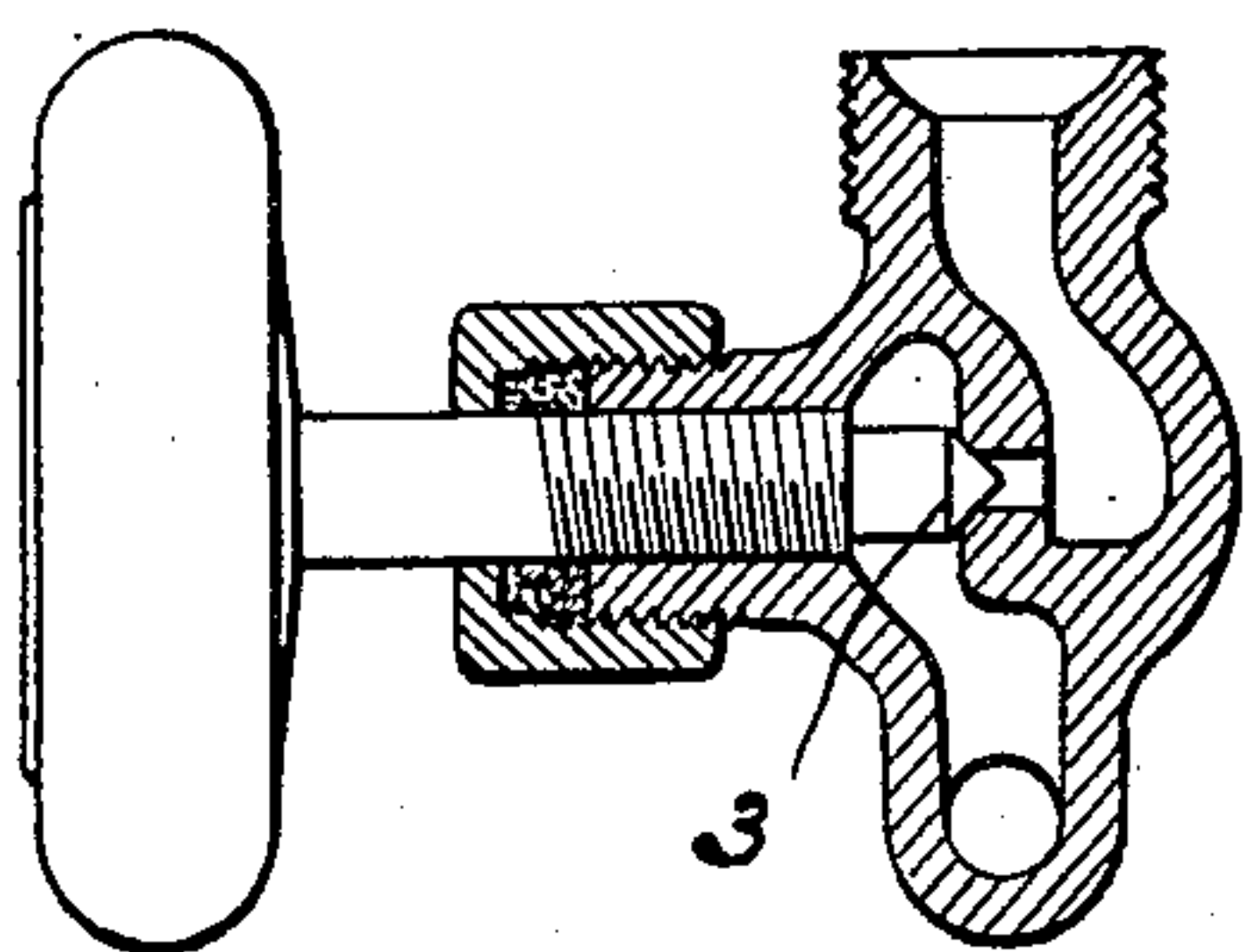


Fig. 3.

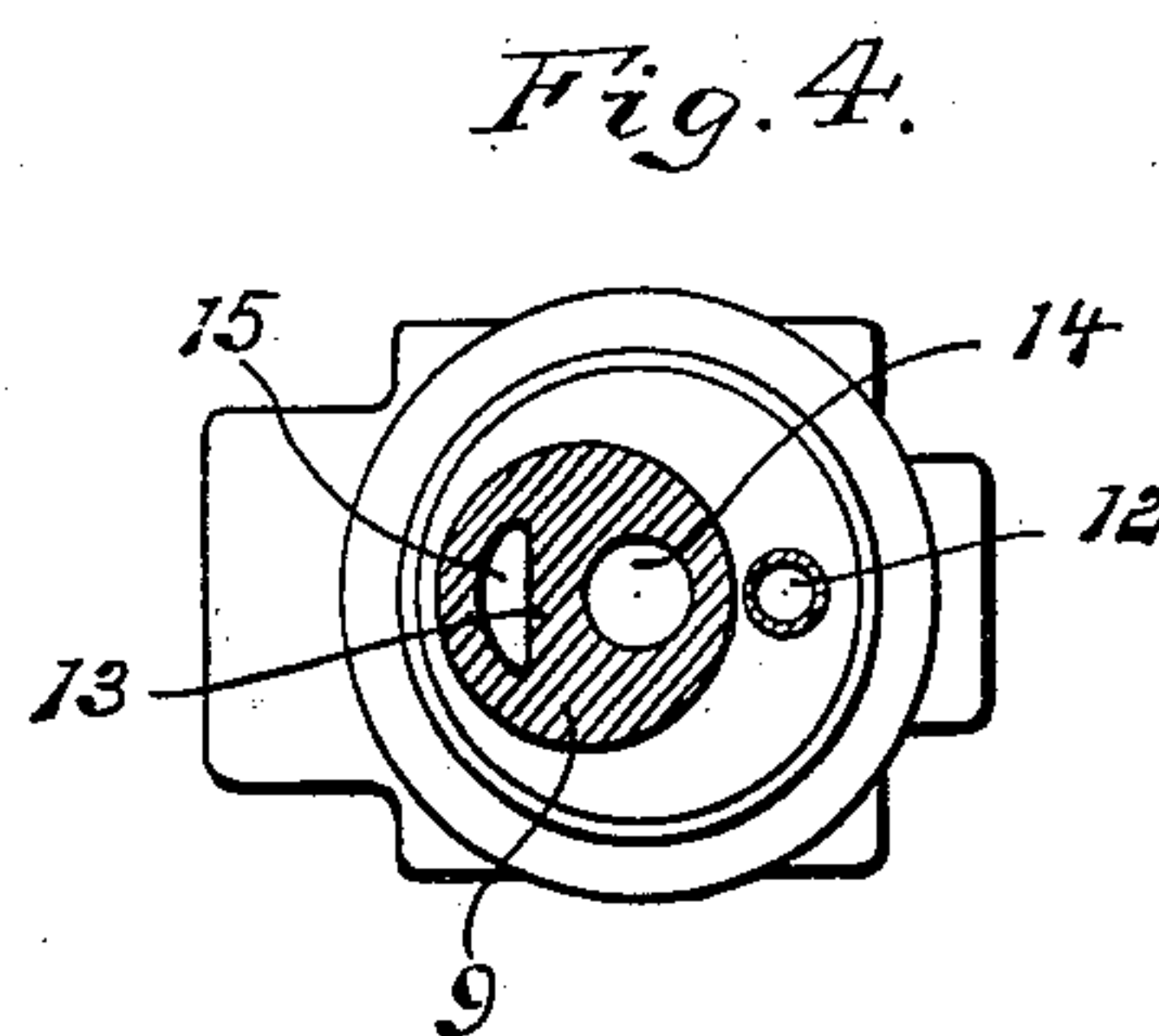


Fig. 4.

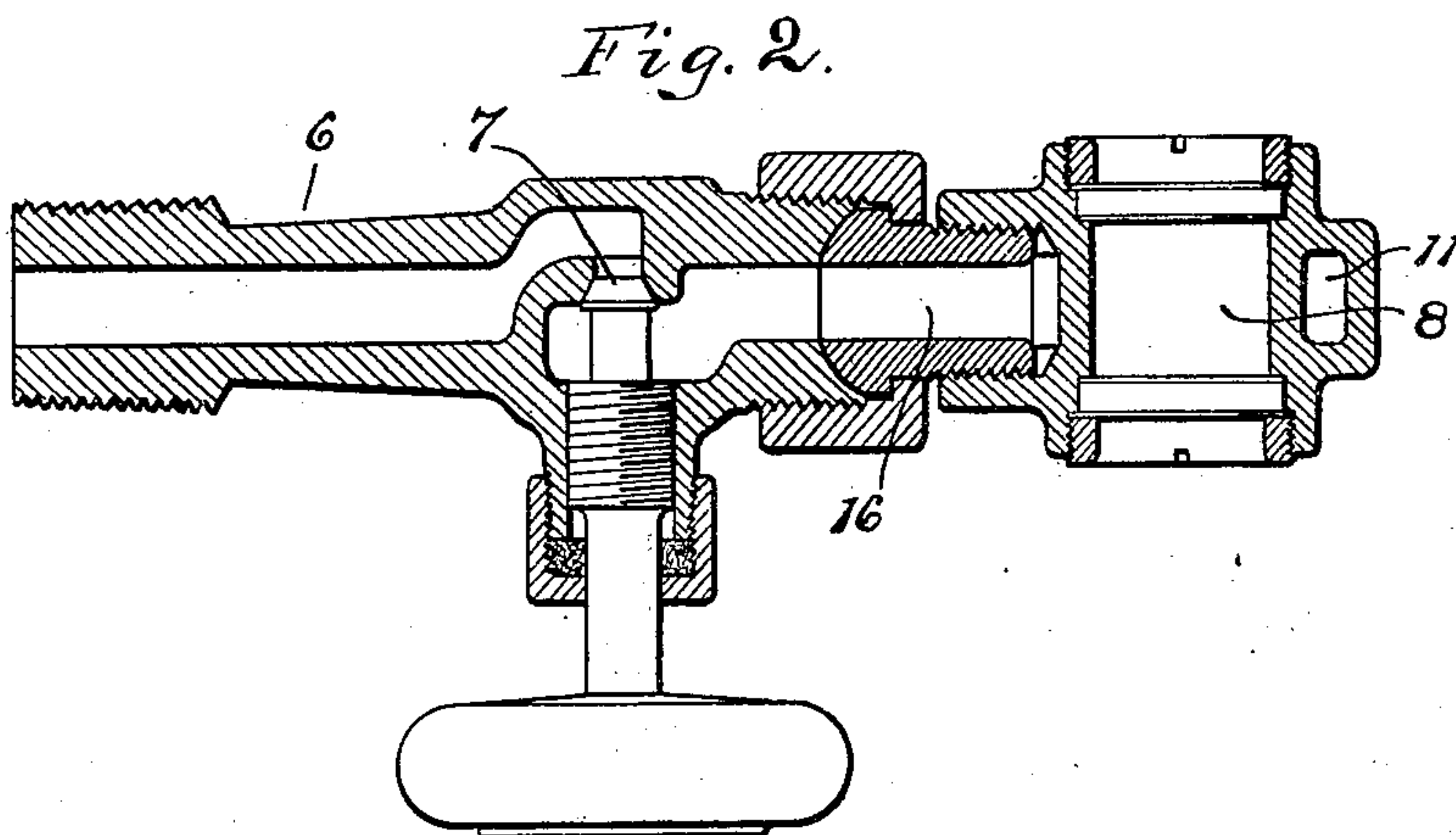


Fig. 2.

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ELIJAH McCOY, OF DETROIT, MICHIGAN.

LUBRICATOR.

No. 890,787.

Specification of Letters Patent.

Patented June 16, 1908.

Application filed July 15, 1907. Serial No. 383,756.

To all whom it may concern:

Be it known that I, ELIJAH McCOY, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Lubricators, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to a sight-feed condensation displacement lubricator and the primary object of the invention is to maintain the lubricant in a workable or liquid condition and permit the use of the heaviest and 15 thickest lubricants under all conditions of temperature.

In condensation displacement lubricators the temperature of the lubricant in the cup depends largely upon that of the water in the 20 cup and where the displacement is downward through the water in the cup it leaves the cup on its way to the sight feed at the temperature of the water. Where such lubricators have to be used in exposed position 25 it often happens in cool weather that the lubricant becomes chilled and various expedients have to be used to make the lubricant pass through the nipple into the sight tube. To overcome this trouble lubricators have 30 been devised in which the lubricant is heated by steam and displaced upwardly with the result that trouble often arises from the lubricant becoming overheated and when this occurs there appears instead of a well defined 35 drop a mass of blubber in the sight feed tube and this is usually the case with heavy lubricants.

My invention is designed to keep the lubricant warm without taking any chances of 40 overheating it and to this end I have designed a lubricator which embodies the underlying idea of heating the lubricant, *i. e.*, the water of condensation in the cup by means of hot water and in carrying out this idea I make 45 the condensing head of the sight feed the heating medium all as more fully hereinafter described and shown in the accompanying drawings, in which:—

50 Figure 1 is a vertical central section through my improved lubricator, Fig. 2 is a horizontal section through the discharge arm, Fig. 3 is a detached vertical section through the valve in the condenser pipe taken in a plane at right angles to Fig. 1. Fig. 4 is a 55 cross-section on line *x—x* Fig. 1.

In the drawing 1 is the reservoir, 2 is the

inlet arm adapted to connect the lubricator to the steam line for supplying the reservoir with water of condensation. 3 is the controlling valve in the inlet arm, 4 is the filler 60 plug, 5 is a sight opening in the reservoir, 6 is the discharge arm adapted to connect the lubricator to the steam line and 7 is the controlling valve in the discharge arm, all the parts being of usual construction and operation except as more fully hereinafter described and shown. 65

The discharge arm is provided at its inlet end with an enlargement forming a bull's-eye sight chamber 8 of the usual description and 70 with an upward extension 9 projecting into the lower part of the reservoir. This extension is screw-threaded at its base and is screwed into a screw-threaded aperture into the bottom of the reservoir. The sight 75 chamber is provided with the usual drop feed nipple 10 and a passage 11 is formed in the enlargement around the sight chamber connecting the space below the nipple with the vertical feed pipe 12 which extends up- 80 wardly in the reservoir to near the top thereof adjacent to the extension 9. This extension is hollow, closed on top by a removable plug 20 and divided by a partition or dam 13 into a water space 14 and a steam space 15 which 85 communicates with the steam passage 16 in the discharge arm, and forms the outlet for the lubricant.

The water space 14 communicates with the sight chamber and the extension 9 thus 90 forms a condensing head for the sight chamber.

The usual drainage plugs 17 and 18 for the reservoir and sight chamber are provided and the inlet to the nipple 10 is controlled by a 95 valve 19.

In practice, the inlet and discharge arms being connected with the steam line and the reservoir being filled with the lubricant, it will be seen that the lubricant is conducted 100 by downward displacement through the feed tube 12 into the passage 11 of the discharge arm and thence through the nipple 10 into the sight feed chamber which is filled with water of condensation from the steam 105 admitted through the discharge arm. The drop formed at the nipple will thus rise up to the top of the condensing head and flow over the wall or dam 13 into the steam space and down through it into the outlet end of the 110 discharge arm.

The novel feature consists in connecting

the discharge arm centrally into the bottom of the reservoir and providing it at its point of connection therewith with a sight feed chamber and with an extension into the bottom of the reservoir forming the condenser head of the sight feed chamber whereby the condenser head performs the function of a heater for the water of condensation and the lubricant respectively in the reservoir. As this condensing head is placed in the coldest part of the lubricator it parts with its heat very readily and keeps the lubricant in the reservoir and in the adjacent passage therefrom to the nipple in condition without subjecting it to any injurious degree of heat, since the steam space in the condensing head is relatively small and remote from the passages 11 and 12 with the water space interposed between and on account of the proximity and intimate metallic connection between the reservoir and the discharge arm, the heat derived from the steam in the discharge arm will be readily absorbed and equalized throughout the lubricator and its contents.

What I claim as my invention is:—

1. In a condensation displacement lubricator, the combination with the reservoir and its inlet arm, of a discharge arm at the bottom of the reservoir and an extension thereon projecting upwardly through the bottom into the space within the reservoir, and forming a condensing head adapted to be supplied with water of condensation from the steam admitted into the discharge arm.

2. In a condensation displacement lubricator, the combination with the reservoir and its inlet arm, of a discharge arm at the bottom of the reservoir and an extension thereon projecting upwardly through the bottom into the space within the reservoir, said extension provided with a steam space in communication with the steam in the discharge arm and with a water space in communication with the steam space and adapted to be supplied with water of condensation therefrom.

3. In a condensation displacement lubricator, the combination with the reservoir and its inlet arm, of a discharge arm at the bottom of the reservoir and an extension thereon projecting upwardly through the bottom into the space within the reservoir, said extension being hollow and divided by a vertical partition or dam into a steam space communicating with the steam space in the discharge arm and a water space communicating with the steam space at the top of the partition and adapted to be supplied with water of condensation from the steam space.

4. In a condensation displacement lubricator, the combination with the reservoir and its inlet arm, of a discharge arm at the bottom of the reservoir, an extension thereon projecting upwardly through the bottom

into the space within the reservoir and provided with a water space adapted to be supplied with the water of condensation from the steam admitted into the discharge arm and a sight feed chamber in the discharge arm at the bottom of said water space and communicating with the lubricant in the reservoir.

5. In a condensation displacement lubricator, the combination with the reservoir and its inlet arm, of a discharge arm provided with a condensing head projecting upwardly through the bottom of the reservoir into the space within the reservoir and adapted to be supplied with water of condensation from the steam in the discharge arm, a sight feed chamber in the discharge arm below said condensing head in communication with the lubricant in the reservoir and adapted to discharge the same through the condensing head into the discharge arm.

6. In a condensation displacement lubricator, the combination with the reservoir and its inlet arm, of a discharge arm connected to the bottom of the lubricator and extending laterally therefrom, an extension on said arm projecting upwardly through the bottom of the reservoir into the space within the same and provided with a water chamber and with a steam passage connecting the top of the water chamber with the steam space in the discharge arm for supplying it with water of condensation, a sight feed chamber in the discharge arm at the bottom of said water chamber and adapted to discharge the lubricant into said chamber, a downward displacement tube within the reservoir into the discharge arm and a passage in said discharge arm around the sight feed chamber connecting said tube with the sight feed nipple.

7. The combination with a reservoir and its inlet arm supplying the same with water of condensation for the displacement of the lubricant, of a sight feed chamber having its condensing head in heating contact with the water of displacement in the reservoir and a discharge arm for supplying the condensing head with the water of condensation from the steam admitted into the discharge arm.

8. The combination with a reservoir and its inlet arm supplying the same with water of condensation for the displacement of the lubricant, of a sight feed chamber having its condensing head arranged in proximity to the reservoir and a discharge arm for supplying the same with the water of condensation from the steam admitted into the discharge arm.

9. The combination with a reservoir and its inlet arm supplying the same with water of condensation, of a sight feed having a discharge arm supplying the sight feed with water of condensation, the condensing head of the sight feed being located within the reservoir.

10. The combination with a reservoir and its inlet arm supplying the same with water of condensation for the displacement of the lubricant, of a sight feed having a discharge arm supplying the sight feed with the water of condensation, the condensing head of the sight feed being located in heating contact with the water of displacement in the reservoir.

10 11. In a condensation displacement lubricator, the combination with the reservoir and its inlet arm, of a discharge arm at the bottom of the reservoir and an extension thereon projecting into the space within the reservoir, and forming a condensing head adapted to be supplied with water of condensation from the steam admitted into the discharge arm.

15 12. In a condensation displacement lubricator, the combination with the reservoir and its inlet arm, of a discharge arm connected to

the bottom of the lubricator and extending laterally therefrom, an extension on said arm provided with a water chamber and with a steam passage connecting the top of the water chamber with the steam space in the discharge arm for supplying it with water of condensation, a sight feed chamber in the discharge arm at the bottom of said water chamber and adapted to discharge the lubricant into said chamber, a downward displacement tube into the discharge arm and a passage in said discharge arm around the sight feed chamber connecting said tube with the sight feed nipple.

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

ELIJAH McCOY.

Witnesses:

C. R. STICKNEY,

OTTO F. BARTHEL.

It is hereby certified that Letters Patent No. 890,787, granted June 16, 1908, upon the application of Elijah McCoy, of Detroit, Michigan, for an improvement in "Lubricators," were erroneously issued to said "Elijah McCoy" as sole owner of said invention; whereas the said Letters Patent should have been issued to *Penberthy Injector Company, of Detroit, Michigan, a corporation of Michigan*, as owner of the entire interest in said invention, as shown by the assignments of record in this office; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 7th day of July, A. D., 1908.

[SEAL.]

E. B. MOORE,
Commissioner of Patents.