No. 653,371. Patented July 10, 1900.

F. E. ALLEN & A. F. FINCH.

FILLER FOR SIGHT FEED LUBRICATORS.

(Application filed Jan. 11, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

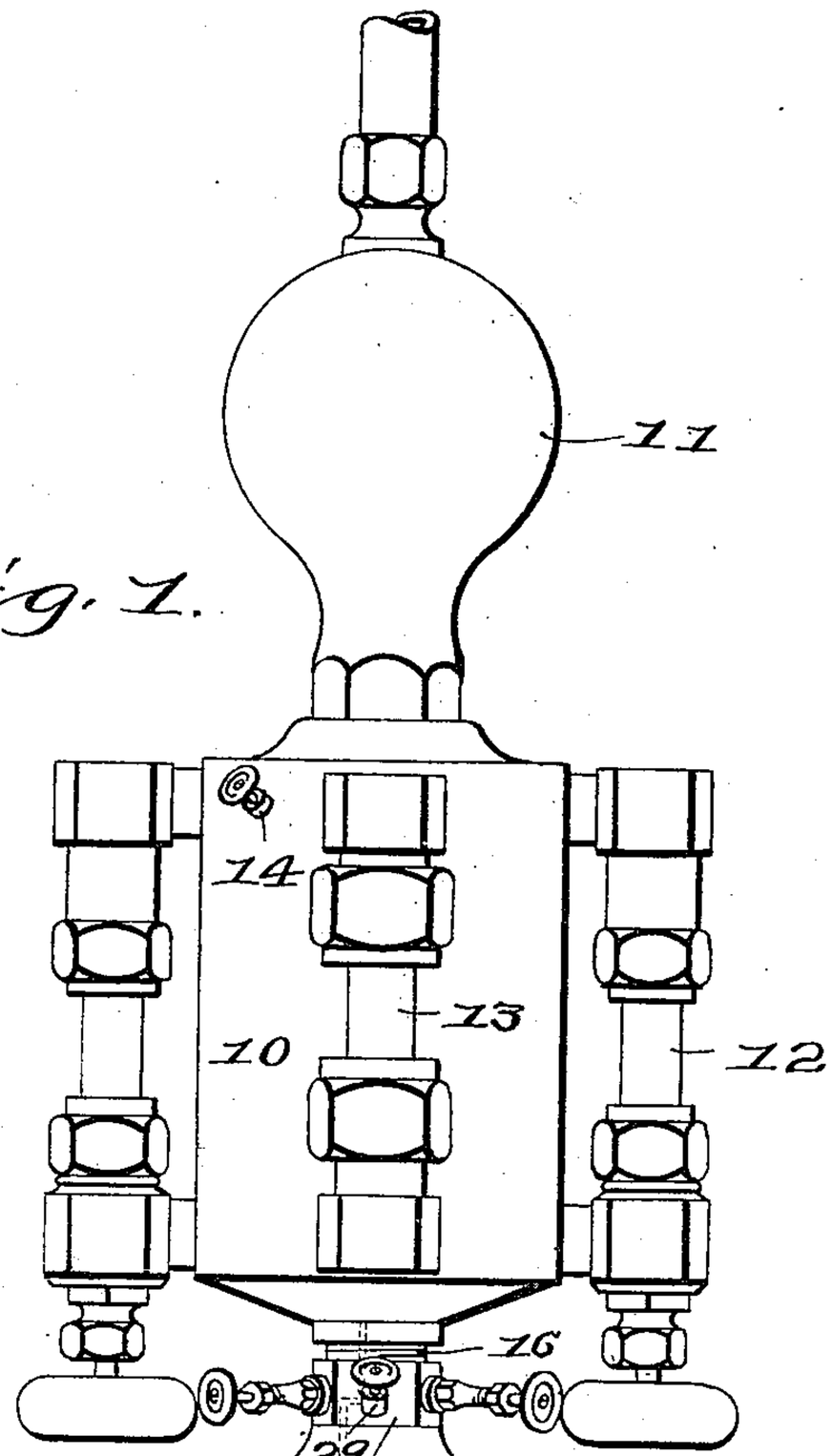
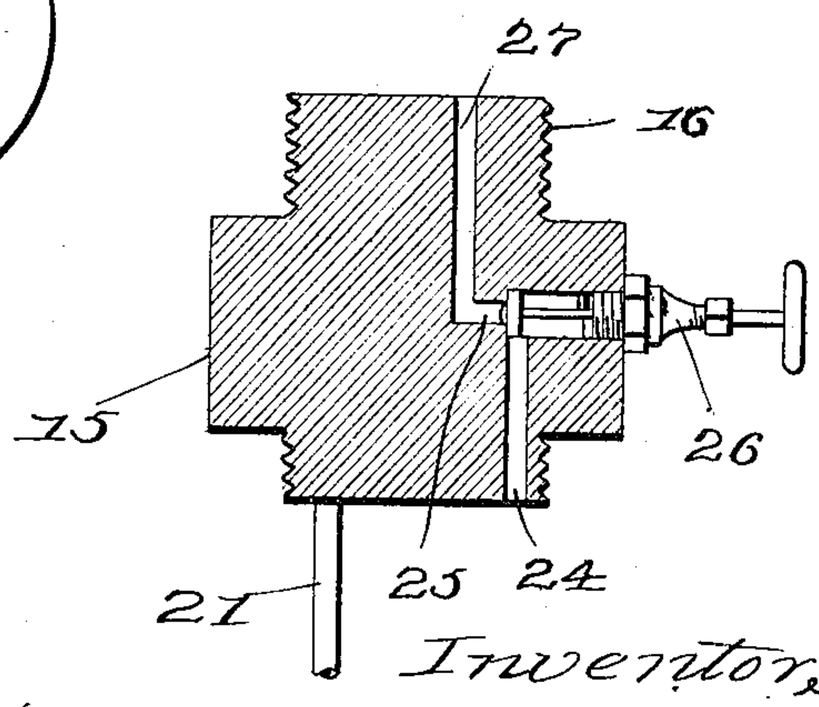


Fig. 2.



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F. C. Stuart.

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Fig. 3.

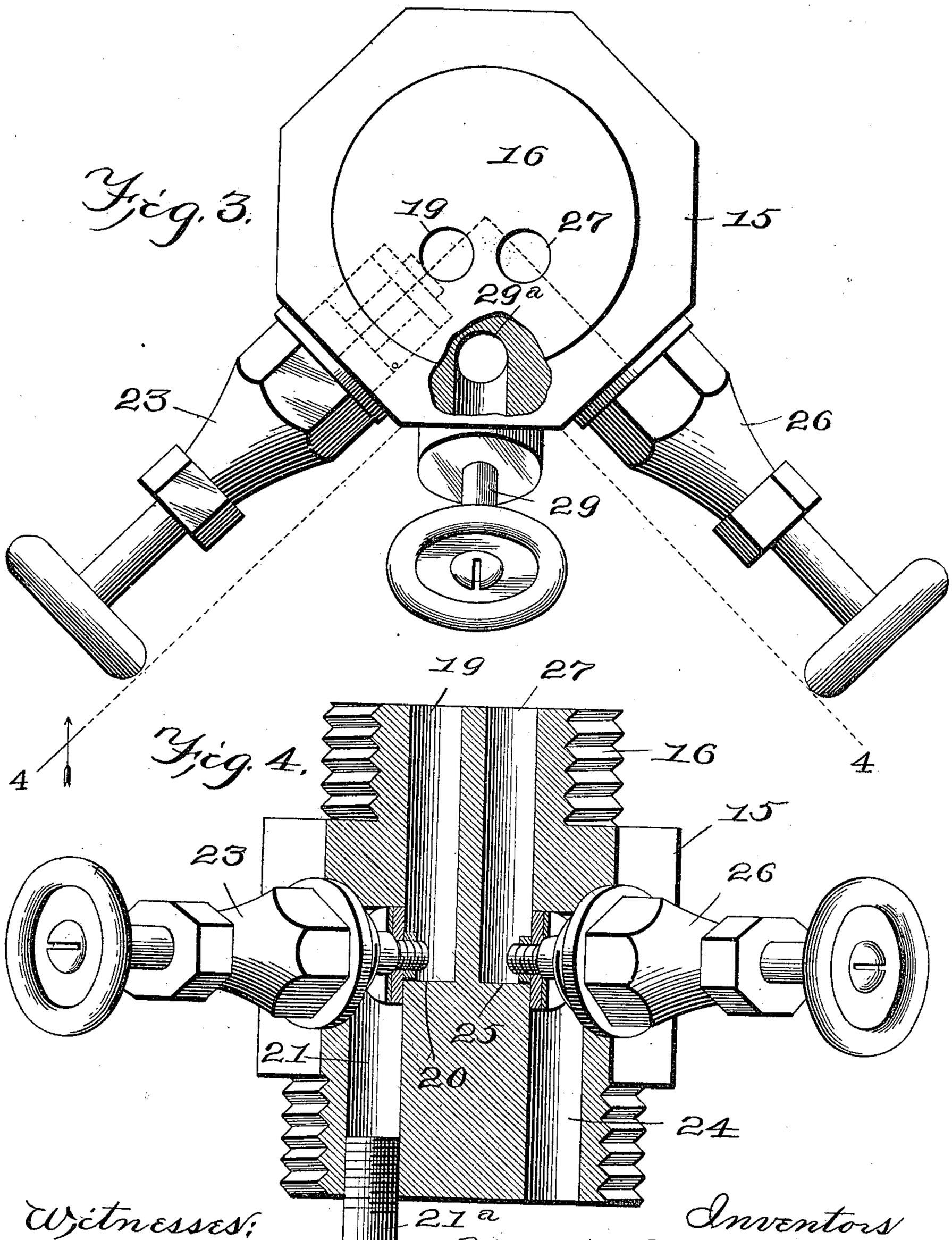

Fig. 4.

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UNITED STATES PATENT OFFICE.

FRANK E. ALLEN AND ABRAM F. FINCH, OF BOONE, IOWA.

FILLER FOR SIGHT-FEED LUBRICATORS.

SPECIFICATION forming part of Letters Patent No. 653,371, dated July 10, 1900.

Application filed January 11, 1900. Serial No. 1,080. (No model.)

To all whom it may concern:

Be it known that we, FRANK E. ALLEN and ABRAM F. FINCH, citizens of the United States, residing at Boone, in the county of Boone and State of Iowa, have invented certain new and useful Improvements in Fillers for Sight-Feed Lubricators, of which the following is a specification.

Our object in this invention is to provide a device of simple, strong, durable, and inexpensive construction in the nature of an attachment that may be permanently connected with any of the ordinary sight-feed lubricators and by the use of which the water of condensation may be removed and the chamber supplied with oil without interfering in any manner with the operation of the sight-feed lubricator, even under considerable steam-pressure.

Our invention consists in certain details in the construction of the attachment and in the arrangement and combination thereof with an ordinary sight-feed lubricator, as hereinafter more fully set forth, pointed out in our claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows in elevation a sight-feed lubricator having our attachment applied thereto as in practical use. Fig. 2 shows a vertical sectional view of the attachment with the oil-chamber removed. Fig. 3 shows a plan view of the block with a portion broken away to show the filling-hole. Fig. 4 shows a vertical sectional view through the line 4 4 of Fig. 3.

Referring to the accompanying drawings, we have used the reference-numeral 10 to indicate the oil-chamber of the sight-feed lubricator. On top of the oil-chamber is the usual condenser 11, and at the sides of the oil-chamber are the sight-feed glasses 12, and in front of the oil-chamber is the gage 13. Near the top of the oil-chamber is a feed-opening, into which the plug 14 is screwed. All of these parts are of the ordinary construction and operate in the ordinary way. Hence a detailed description thereof is considered unnecessary.

It is customary to place at the bottom of the oil-chamber 10 a petcock, through which the water of condensation may be drawn off. In our device we omit the petcock and place in lieu thereof a block, (indicated by the reference-numeral 15.) This block is provided with a screw-threaded projection 16, designed to enter the oil-chamber in lieu of the petcock above referred to. On the lower end of this block is a similar projection 16, which projection is designed to support an auxiliary oil-chamber 17, which is screwed to said lower projection 16, and in the bottom of this oil-chamber 17 is a petcock 18. Extended vertically through one side of the block 15 from its top surface to a point near its central portion is a short passage-way 19. This passage-way 19 connects with a horizontal passage-way 20, and a passage-way 21 extends downwardly through the block 15, and in the passage-way 20 we have placed a cut-off valve 23. A pipe 21^a connects with the lower end of the passage-way 21 and projects downwardly to a point near the bottom of the chamber 17.

Near the opposite side of the block 15 a passage-way 24 is provided to extend from the bottom of the block upwardly to a point near the central portion of the block to intersect a horizontal passage-way 25, in which the cut-off valve 26 is mounted. A passage-way 27 intersects with the inner end of the passage-way 25 and extends upwardly through the block 15 to communicate with the oil-chamber 10. A filling-hole 29^a is provided in the block 15 to extend from its side to the bottom of the block, and a plug 29 is inserted in this filling-opening.

In practical use and assuming that our attachment is applied to a sight-feed lubricator and assuming, further, that it is desirable to replenish the supply of oil in the tank 10 while the engine is still working and the tank 10 is under steam-pressure and the valves 23 and 26 are closed, it is only necessary to remove the plug 29 from the feed-opening in the block 15 and fill the chamber 17 with oil. Obviously there is no pressure on this chamber 17. Hence the filling may be easily accomplished. After the chamber is filled the plug 29 is placed in position and both of the cut-off valves 23 and 26 are opened. We preferably place these valves 23 and 26 in such position that they may be easily grasped by an operator without interfering with the valves on the bottom of the sight-feed glasses and the gage—that is, they enter

the block 15 in a diagonal direction. Obviously when these two valves are opened the water of condensation in the chamber 10 will by force of gravity pass downwardly through the passage-way 19 into the passage-way 20, from thence to the passage-way 21, and to the bottom of the tank 17 through the tube 22. At the same time the oil in the tank 17, being of less specific gravity, will be forced by the downward-flowing current of water to pass upwardly through the passage-ways 24, 25, and 27 to the tank 10. When it is seen, through the gage 13, that the chamber is filled with oil and the water is drawn off, the valves 23 and 26 are again closed, and when they are thus closed the water in the chamber 17 may be drawn off through the petcock 18. It is to be noted, further, in this connection that when the valves 23 and 26 are opened the steam-pressure within the chamber 10 will be equal in all directions, so that the force of gravity may operate to transfer the water from the upper chamber to the lower one and the oil from the lower chamber to the upper one without reference to the amount of pressure in the chamber 10.

The lubricator belongs to the condensation-displacement class, and hence its contents are when in use under great pressure from the steam. When it is desired to furnish a new supply of oil to the auxiliary chamber, it is necessary first to cut off the flow of steam and then relieve the steam-pressure from the interior of the auxiliary chamber. This is done by opening the petcock at the bottom and permitting a small quantity of water to blow off. Obviously if this opening were made at the top oil would be lost instead of water. Furthermore, the closable filling means at the top of the auxiliary chamber is greatly advantageous in that the chamber may be filled without moving or detaching it. Therefore it may be permanently supported, and where used on locomotive-engines this feature is very advantageous. Where devices of this class must be filled by detaching them from the lubricator-chamber and filling through the open upper end the said chamber could not be permanently supported.

Our invention relates only to a filling attachment for sight-feed lubricators, and after the oil has been placed in the lubricator-chamber and an equivalent amount of water has been deposited in the auxiliary oil-chamber below it the lubricator proper operates in the ordinary manner. It is to be understood in this connection that the auxiliary oil-chamber is normally full either of oil or water, and as long as it is full of either the passage-ways whereby it communicates with the lubricator-chamber may be left open to permit this communication without in any way interfering with the operation of the lubricator. Furthermore, in the event that it is desirable to place only a small amount of oil in the lubricator teh valves controlling communication between the lubricator-chamber and the auxiliary oil-chamber are closed. Then a small quantity of water is permitted to escape through the petcock and the oil is placed in the auxiliary chamber through the filling-hole until the auxiliary oil-chamber is completely full. Then the plug 29 is screwed into place and the valves controlling communication between the lubricator-chamber and the auxiliary oil-chamber are opened, and obviously this oil will ultimately pass to the lubricator-chamber and from thence may be fed to an engine in the ordinary manner.

Having thus described our invention, what we claim, and desire to secure by Letters Patent of the United States therefor, is—

1. The combination with a sight-feed lubricator of the class in which the oil is displaced by steam condensation, of an auxiliary chamber supported beneath the lubricator-chamber, means for providing communication between the bottom of the lubricator-chamber and the top of the auxiliary chamber, means for cutting off said communication, closable means at the top of the auxiliary chamber for filling it and closable means at the bottom of the auxiliary chamber for effecting drainage.

2. The combination with a sight-feed lubricator of the class in which the oil is displaced by steam condensation, of a block permanently secured beneath the lubricator-chamber and having passage-ways extended through it from its top to its bottom, means for closing said passage-ways, an auxiliary chamber permanently connected with said block, closable means at the top thereof for filling purposes, and a petcock at its bottom, substantially as and for the purposes stated.

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