

(No Model.)

W. WOODWARD.
SIGHT FEED LUBRICATOR.

No. 402,640.

Patented May 7, 1889.

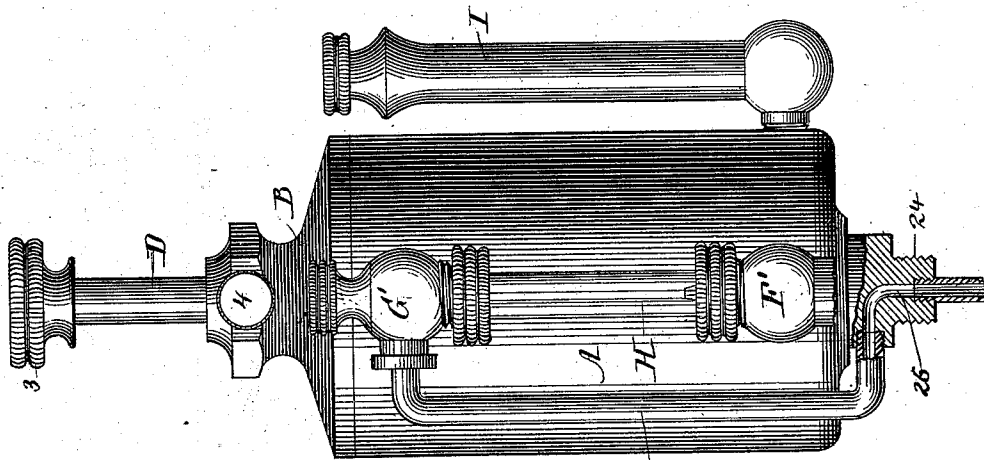


Fig. 2.

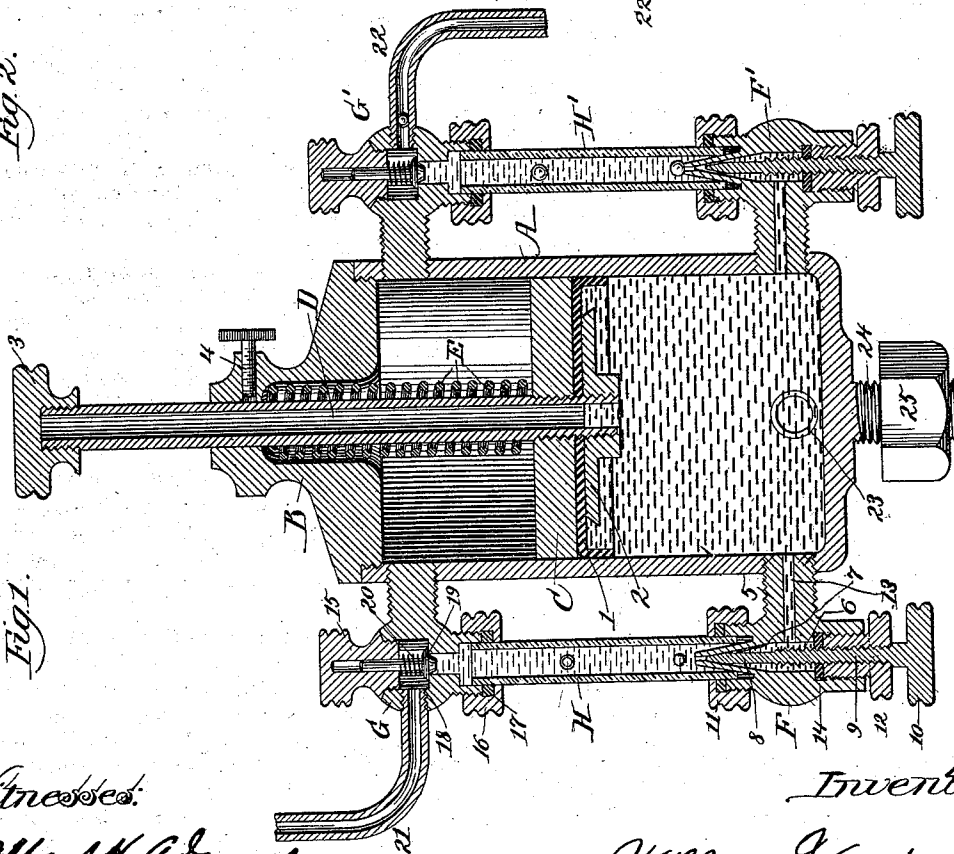


Fig. 1.

Witnesses:

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SIGHT-FEED LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 402,640, dated May 7, 1889.

Application filed January 24, 1889. Serial-No. 297,414. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM WOODWARD, residing at Chicago, in the county of Cook and State of Illinois, and a subject of the Queen of Great Britain, have invented a new and useful Improvement in Sight-Feed Lubricators, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical longitudinal section. Fig. 2 is a side view looking from the right-hand side of the devices as shown in Fig. 1. This figure also shows a modification.

The leading objects of my invention are to provide an oil cup or reservoir from which oil can be forced automatically through a column of water to a tube leading to the part which is to be lubricated, the column of water being in sight, so that the flow of oil can be seen; to provide devices for mechanically forcing the oil from the reservoir; to provide devices by means of which the flow of oil may be readily adjusted, and to provide other minor improvements relating to the device, all of which I accomplish as illustrated in the drawings and hereinafter described.

That which I claim as new will be pointed out in the claims.

In the drawings, A represents the body of an oil cup or reservoir.

B is the top thereof, which is secured in place, as shown, by a screw-thread, the oil-reservoir being practically air-tight.

C is a piston-head.

1 is a leather packing.

2 is a washer beneath the packing.

D is a hollow piston-rod, upon which the piston-head is secured by a screw-thread, as shown. The upper end of the piston-rod is provided with a cap, 3.

E is a coil-spring arranged to act upon the upper side of the piston-head and force it down.

4 is a set-screw to hold the piston-rod in an elevated position while filling the reservoir.

F is a casting somewhat globular in form, which is provided with a stem, 5, which is screw-threaded and enters a screw-threaded opening in the wall of the reservoir A.

6 is a valve-chamber, from which there is a small passage, 7.

8 is a needle-valve connected with a screw, 9, which is operated by a thumb-piece, 10.

11 is a cap at the upper end of F, and 12 is a screw-plug at the lower end.

13 is a passage from the oil-cup A to the valve-chamber 6.

14 is a packing.

G is another globular casting, provided with a stem, which is secured in an opening in the cup A.

15 is a screw-plug.

16 is a cap or gland.

17 is a packing.

18 is a chamber in G.

19 is a check-valve in such chamber.

20 is a light coil-spring acting on the valve 19.

H is a glass tube, the lower end of which is located in the casting F and its upper end in the casting G, which tube is to be filled with water.

F' is a casting which is in all respects a duplicate of F, and is provided with a valve and other parts, the same as those described for F.

G' is a casting the same in all respects as G.

H' is another glass tube, the same as H.

21 is a tube, the inner end of which communicates with the chamber 18. The other end of this tube is to be located at any desired point where oil is to be delivered. 22 is a similar tube leading to some other point which is to be oiled.

I is a tube, the lower end of which communicates with the oil-reservoir A near the bottom thereof, through which oil can be introduced to the oil-chamber, the inlet being seen at 23 in Fig. 1. This tube I is provided with a cap.

24 is a screw connected with the lower end of the oil-cup.

25 is a nut by means of which the cup can be secured to a bracket, if desired, which bracket may be located wherever it may be convenient. The bracket is not shown.

As shown in Fig. 2, the oil-cup is designed to be connected by the screw 24 to any desired part, and the screw is provided with a passage, 26, with which one end of a tube similar to 22 is connected.

In use the reservoir can be filled by raising the piston-rod with the piston as far as possi-

ble, which will compress the spring E, and the piston-rod can be temporarily held in its elevated position by the set-screw 4. Cap 3 must then be removed from the piston-rod. 5 Then the oil cup or reservoir can be filled by pouring oil into the tube I, and the air in the oil-chamber will pass out through the hollow piston-rod. When the chamber has been filled, the cap 3 is to be replaced and the screw 4 to be released. 10 Then the action of the spring E will press the piston-head C upon the surface of the oil and the packing 1 will prevent the oil from flowing to the upper side of the piston-head. Now, if the needle-point 8 be adjusted so that the outlet 7 from the chamber 6 will be partially open, oil will be forced from the oil-cup through the passage 13 to the chamber 6, from which it will escape through the opening 7, and will pass up drop 20 by drop through the water in the glass tube H, and will lift the valve 19, pass into the valve-chamber 18, and from such chamber through the tube 21 to the point where the oil is to be delivered for lubrication.

25 The rapidity of the flow of the oil can be very accurately regulated by means of the valve or needle-point 8.

After the operation has commenced there will constantly be oil both below and above 30 the water in the tube H, so that the water cannot escape, and the quantity in the tube will remain without any perceptible variation for a long time. If necessary, additional water may be introduced by removing the plug 35 15. The needle-point is to be so constructed that it may be made to entirely close the outlet 7 and entirely cut off the flow of oil. If from any cause the flow of oil ceases, it can be immediately observed. The operation of 40 the devices on the opposite side of the machine—that is, through F' H' G'—is the same as that just described.

I have shown in Fig. 1 two outlets, two glass tubes, and two tubes, 21 22, leading to 45 different points to be lubricated; but other similar devices may be connected with the same cup, A, the number being only limited by the size of the cup, so that from a single cup oil can be conducted to a great number 50 of points at the same time.

The pressure of the spring upon the oil in

the chamber is sufficient to force it up a considerable distance above its level in the chamber, and I have shown the tube 21 carried up 55 instead of down. The operator can tell from the position of the piston-rod when the oil is nearly exhausted from the chamber, and then it must be refilled. It is probable that sufficient air will pass into the chamber around the piston-rod to prevent the forming of any 60 vacuum in the oil-chamber, and, if not, a small opening may be provided for that purpose.

Oil can be carried from the reservoir either to the top, to the side, or to the under side of 65 the part to be lubricated. The operation of the device when constructed as shown in Fig. 2 is precisely the same as before described. In the latter case the oil is delivered through the screw 24, by which the cup is attached to 70 some part of the machine. Other tubes may lead from the same cup to other points, as before described.

What I claim as new, and desire to secure by Letters Patent, is as follows: 75

1. In a sight-feed lubricator, the combination of an oil-cup provided in the lower part with an oil-inlet and an oil-outlet, a water-filled glass tube, a needle-valve for controlling the passage of oil from the oil-cup outlet to 80 said glass tube, a tube, as 21, communicating with the glass tube and leading to the place to be lubricated, and a spring-actuated piston located in the oil-cup, substantially as described. 85

2. In a sight-feed lubricator, the combination of an oil-cup provided in its lower part with an oil-inlet and an oil-outlet, a glass tube, a valve for controlling the passage of oil from the oil-cup outlet to said glass tube, a tube, as 90 21, communicating with the glass tube and leading to the place to be lubricated, a spring-seated valve intermediate said tubes, a piston located in the oil-cup and having a hollow piston-rod provided with a cap at its upper end, 95 and a spring acting on the piston-head to force it down, substantially as described.

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Witnesses:

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