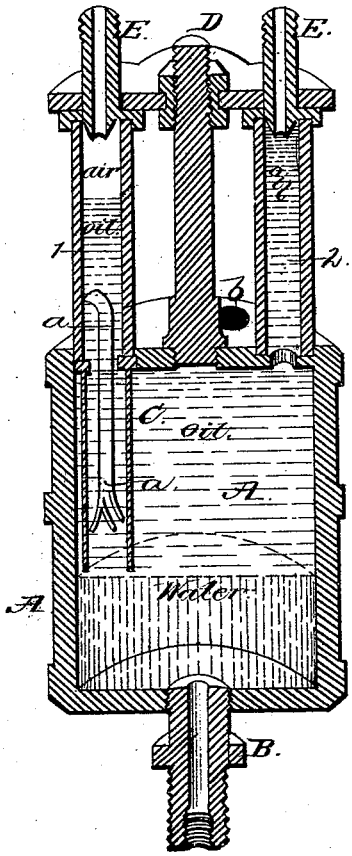
W. P. STEPHENSON.

Lubricator.

No. 169,124. Patented Oct. 26, 1875.



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UNITED STATES PATENT OFFICE.

WILLIAM P. STEPHENSON, OF WAVERLY, IOWA.

IMPROVEMENT IN LUBRICATORS.

Specification forming part of Letters Patent No. **169,124**, dated October 26, 1875; application filed February 1, 1875.

To all whom it may concern:

Be it known that I, WILLIAM P. STEPHENSON, of Waverly, in the county of Bremer and State of Iowa, have invented a Lubricant-Feeder for Machinery, of which the following is a specification:

The object of my invention is to provide a simple and practical means of continuously and automatically feeding or injecting at pleasure a lubricant to steam-cylinders and other machinery in such a manner that the operation will be at all times visible and subject to control and regulation. It consists in forming and combining transparent tubes or conduits with two combined oil and water reservoirs, in the manner hereinafter fully set forth.

My drawing is a perspective view of a vertical half-section of my lubricating apparatus, and illustrates the manner of constructing, applying, and operating the same.

A A represent an oil and water reservoir. It may vary in form and dimensions, as desired. B is a tubular attachment at the bottom of the reservoir A, to form a connection with a suitable bracket fixed to retain the lubricating apparatus in its desired position relative to the steam-engine, cylinder, or other machinery to be oiled. By attaching a stop-cock it can also be advantageously used to drain and empty the reservoir. C is a tubular auxiliary reservoir secured in the side of the roof of the reservoir A, and extends downward to a point below the middle of the reservoir A. D is a T-form frame rigidly secured in the center of the top of the reservoir A, to support and retain transparent tubular conduits and chambers.

Nos. 1 and 2 are glass tubes fitted with steam-tight joints into the roof of the reservoir A at their lower ends, and to metal tubes held in the T-form frame D at their top ends. No. 1 is connected with and forms a continuation of the auxiliary reservoir C extending into the reservoir A.

E E are the metal tubes rigidly fixed in the T-form frame D, and connected with the top ends of the glass tubes Nos. 1 and 2. These tubes E are designed to be connected with the cylinder of an engine or other machinery to be lubricated in such a manner that the steam, water, air, or other fluid used as a motor may enter one of them and press oil from the reservoir A through the other to the point where it is to be applied. Suitable stop-cocks or valves in the tubes E will afford a means of controlling and regulating the pressure and flow of oil, and that pressure and flow will at all times be visible in the glass tube. My apparatus is therefore well adapted for injecting oil at the will of the operator, as well as for feeding continuously and automatically.

a a is a strip of sheet metal secured in the tube C, and allowed to extend into the No. 1 glass tube. Its top is bent to partly close one side of the tube, and to direct the pressure of the oil and air upon the opposite side. Its bottom end is split into sections, or perforated and bent to form a grate or filter to break globules or bubbles composed of water and air and dropped down, and thereby prevent air from passing into and through the auxiliary reservoir C to the reservoir A and the No. 2 distributing-tube. A steam-condensing chamber or water-chamber is designed to be connected with and over the No. 1 tube to drop water, as required.

In the practical operation of my automatic lubricator, the reservoir A is filled with oil through its top opening *b*. Water may be then introduced through the receiving-tube E and the No. 1 glass tube in sufficient quantity to cause the oil to rise to the top of the No. 2 distributing-tube. A quantity of air admitted into the top of the No. 1 tube will constantly press upon the oil therein and the water and oil in the reservoir A, and retain oil elevated in the top of the tube No. 2, and in position to escape, as required. As drops of water are successively allowed to pass through No. 1 tube from a condenser or water-chamber connected with the tube E above, each drop passes through the auxiliary reservoir C, augments the quantity of water in the bottom of the reservoir A, and displaces a drop of oil, and expels a corresponding drop from the top of the distributing-tube No. 2 to pass to the bearings requiring the lubricant. When the water rises in the reservoir A and reaches the auxiliary reservoir C it will retain the oil in reservoir C. Drops of water continuing to pass through the reservoir C will eventually fill reservoir A and expel and feed

all the oil therefrom, while the auxiliary reservoir C remains filled with oil and air to maintain the uniform and constant pressure required to retain the accumulated water in the reservoir A, and therewith expel and feed the oil from reservoir A, and through the distributing-tube B, continuously and automatically. When the oil is exhausted from reservoir A the water which displaced it can be withdrawn through the draining-tube B, and the reservoir again filled, as before stated.

I am aware that a transparent tube and a reservoir have been combined and connected with machinery for lubricating purposes; but I claim that my manner of forming an apparatus adapted for injecting a lubricant or for feeding it continuously and automatically, and visibly, as described, is new and greatly advantageous.

I claim as my invention—

1. The auxiliary reservoir C, in combination with the reservoir A, substantially as and for the purposes shown and described.

2. The plate *a a*, in combination with the reservoir C, substantially as and for the purposes shown and described.

3. The reservoir A, having drain-tube B and frame D, the auxiliary reservoir C, having plate *a a*, the transparent tubes Nos. 1 and 2, and the receiving and distributing tubes E E, when combined to form a lubricating apparatus, substantially as shown and described.

WILLIAM P. STEPHENSON.

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