(No Model.)

2 Sheets—Sheet 1.

C. O. YALE.

AUTOMATIC LUBRICATOR.

No. 260,344. Patented June 27, 1882.

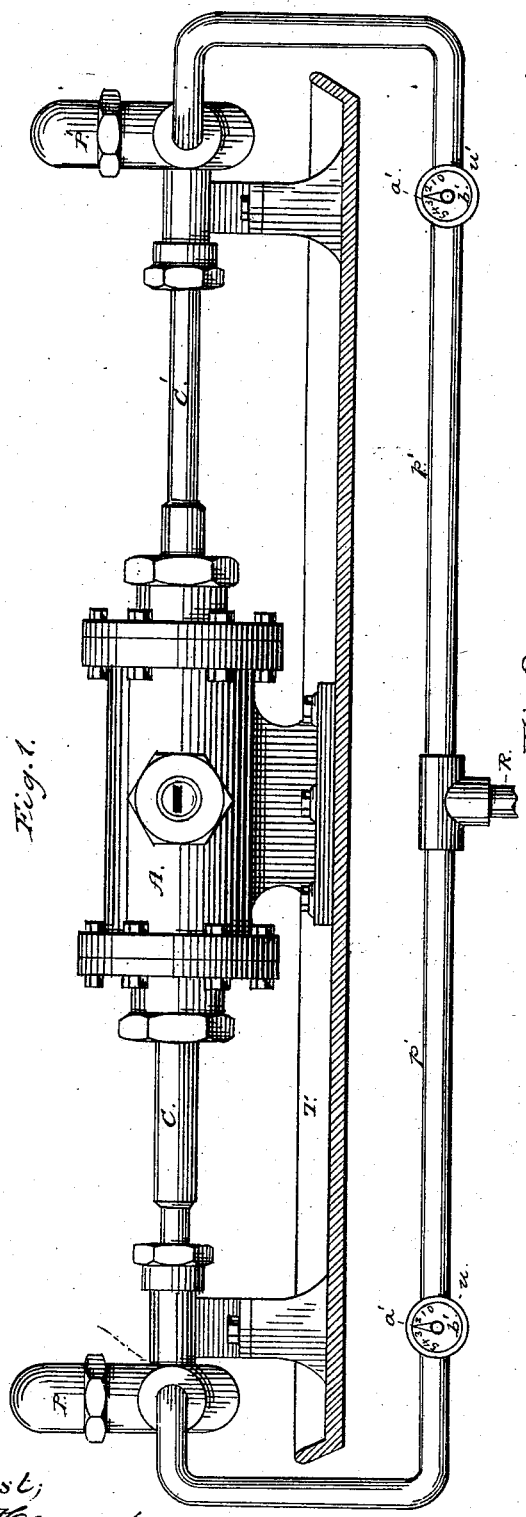

Fig. 1.

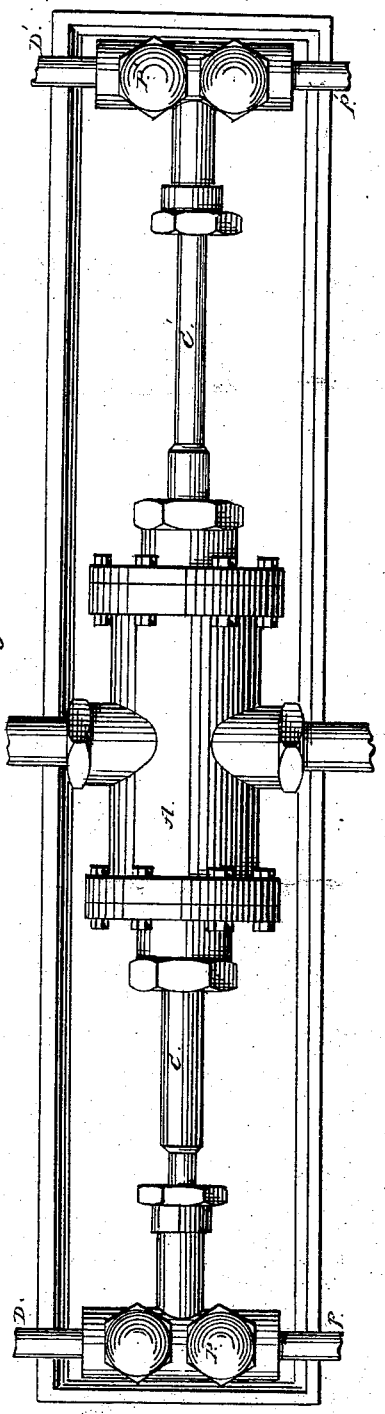

Fig. 2.

Attest;
F. W. Howard
J. W. Reynolds Jr.

Inventor;
Charles O. Yale per
Z. F. Wilber
atty

(No Model.) 2 Sheets—Sheet 2.

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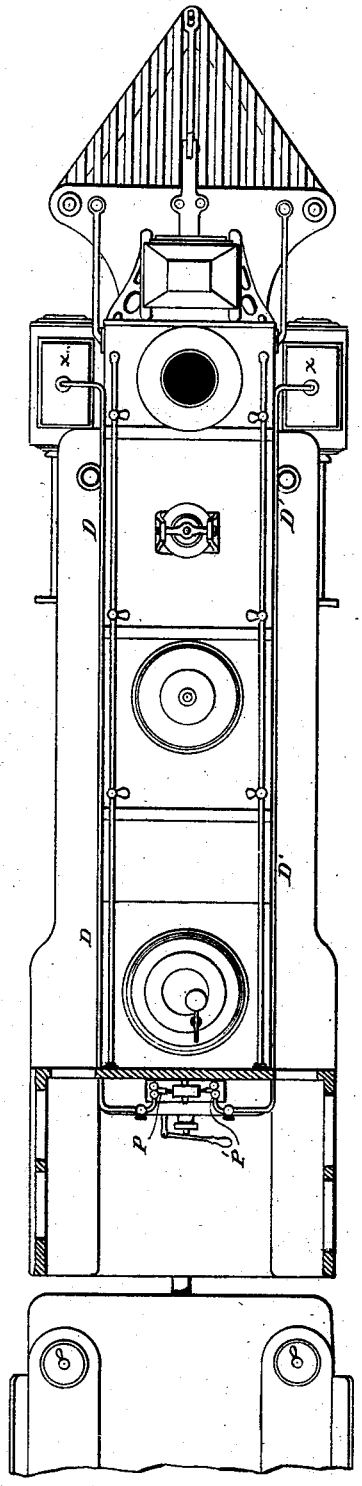

Fig. 3.

Attest:
F. W. Howard
J. W. Reynolds Jr

Inventor:
Charles O. Yale
per
Z. F. Wilder
Atty

UNITED STATES PATENT OFFICE.

CHARLES O. YALE, OF NEW YORK, N. Y.

AUTOMATIC LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 260,344, dated June 27, 1882.

Application filed March 11, 1882. (No model.)

To all whom it may concern:

Be it known that I, CHARLES O. YALE, of New York, in the county of New York and State of New York, have invented a new and useful Improvement in Automatic Lubricators; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object of my invention primarily is to furnish a system or combination of devices whereby any of the stationary bearings or surfaces in a steam-engine may be lubricated at will, and with any determined or desired quantity of lubricant, at the will of the engineer or person in charge of the engine, and from the point or post usually occupied by such person, and independently of the movement of any part of the engine whose bearings or parts are to be lubricated.

To this end the invention consists in the arrangement of a reservoir of lubricant at any desired point, supply pipe or pipes leading thence to a pump or pumps of a definite capacity connected to a small separate or independent engine for imparting motion thereto, the pump or pumps and engine being located at or contiguous to the engineer's post, and pipes leading from the pump or pumps to the points to be lubricated, the various pipes being provided with suitable valves and cocks. Suitable arrangements for accomplishing this are more particularly hereinafter described, and are shown in the drawings, in which—

Figure 1 is a side and Fig. 2 a top or plan view of the devices necessary therefor, while Fig. 3 shows the system applied to a locomotive-engine.

In these drawings, A is a small engine of any suitable construction, the details of which are not here shown, as they form no part of this invention, but for which, constituting an engine especially applicable to this system, separate application will be made. Preferably this engine should be, as shown, a "double-ender"—that is, a piston-rod should pass through both cylinder-heads, so that it may operate a pump at each end. C C′ designate these piston-rods, which are connected at their outer ends to pumps P P′. As here shown, these ends are reduced so as to themselves form the flanges of the pumps. From the pumps pipes p' p' lead directly to a reservoir or to pipe R, which leads to such reservoir, which may be placed in any convenient location.

To the pumps are connected pipes D D′, which lead to the points to be lubricated. As here shown, (see Fig. 3,) they lead to the steam-chests x x of a locomotive to lubricate the chest and cylinders, the engine and pumps being placed in any position in the cab convenient for the engineer's inspection, manipulation, and control, while in any or all the pipes stop-cocks may be placed in a manner and for purposes too well known to need description.

Graduated leak-cocks should be used between the reservoir and the pumps, in order that the supply to the pumps may be controlled at will. p p' are the pipes. u u' are such cocks. In these cocks the fingers a' are connected to the valve in the cocks, and the fingers sweep over graduated plates b', having index-marks 0 1 2 3, &c., marked thereon, indicating the number of units, drops, gills, or fractions, or whatever is taken as the unit of measurement, which the degree of opening will allow to pass through in any fixed unit of time.

In the pipes D D′, at or near their junction with the parts to be lubricated, valves are placed, of such resistance that they will overcome any flow of oil due to its gravity or any flow due to exhaustive action in the chests or parts to be lubricated, being arranged to withstand any flow except when the pumps themselves are in action.

While, as here shown, this system or combination is shown as applied to a locomotive-engine, and the pipes as leading to the steam-chests only, it is evident that it may be applied to any form of engine, and that similar pipes may lead to any or all of the stationary bearings or parts thereof. The capacity of the pumps being known, it is within the power of the engineer to cause any part so connected to be lubricated at any time with a definite, known, and desired quantity of lubricant, or to keep up a continuous and uniform lubrication irrespective of any conditions of the part to be lubricated.

I am aware that devices have been used con-

nected to a moving part of the engine whose bearings or cylinders are to be lubricated, for the lubrication of those parts. In such devices the amount of lubrication depends of course upon the rate of movement of the parts. When, therefore, the load or strain is the greatest, and there is the greatest need of lubrication, the movement of the parts is slowed down and the lubrication reduced below the amount given when the load or strain is less and the need of lubrication less. The objection thereto also exists that when the engine is at rest the lubrication necessary prior to starting up must be done by hand.

The system I have shown and described obviates these difficulties, allowing lubrication to be effected independently and in direct proportion as need therefor arises.

What I claim is—

1. A system of lubrication for engines, consisting of the combination of an independent or separate engine, one or more pumps, pipes leading thereto from a reservoir or source of supply of a lubricating material, and a pipe or pipes leading from the pumps to the points to be lubricated, arranged substantially as and for the purpose set forth.

2. The combination, in a system of lubrication, of an independent or separate engine, one or more pumps, a pipe or pipes leading thereto from a reservoir or source of supply of a lubricating material, and provided with graduated leak-cocks, and pipes leading from the pump or pumps to the points to be lubricated, arranged substantially as and for the purposes set forth.

This specification signed and witnessed this 15th day of February, 1882.

CHARLES O. YALE.

Witnesses:

JONATHAN MARSHALL,

JAMES M. TULLY.