

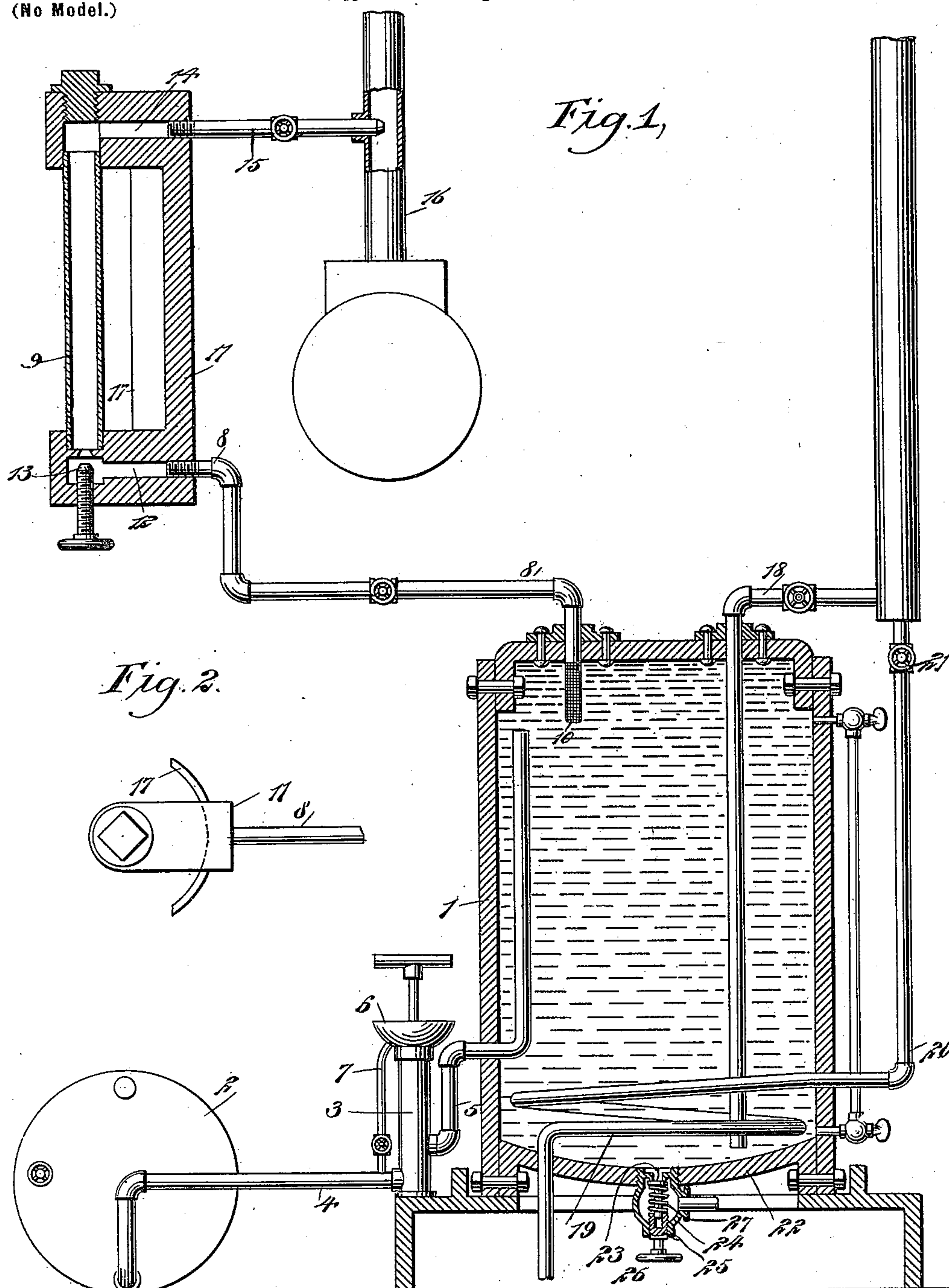
No. 646,450.

Patented Apr. 3, 1900.

J. W. McDONALD & R. C. HAWLEY.  
LUBRICATOR.

(Application filed Aug. 18, 1898.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JAMES WILLIAM McDONALD AND ROBERT C. HAWLEY, OF PUEBLO,  
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## LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 646,450, dated April 3, 1900.

Application filed August 18, 1898. Serial No. 688,885. (No model.)

*To all whom it may concern:*

Be it known that we, JAMES WILLIAM McDONALD and ROBERT C. HAWLEY, of Pueblo, in the county of Pueblo and State of Colorado, have invented a new and Improved Lubricator, of which the following is a full, clear, and exact description.

This invention relates to a lubricator of that class in which the lubricant is forced to the point to be lubricated by fluid-pressure, the lubricant being pumped into a tank in which such fluid-pressure is established and from which the oil is fed.

We will describe a lubricator embodying our invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both views.

Figure 1 is a sectional elevation of a lubricator embodying our invention, and Fig. 2 is a plan view of a sight-tube frame and reflector employed.

Referring to the drawings, 1 designates an oil-tank, which may be supplied with oil from a supply-tank 2 by means of a pump 3. This pump 3 has a pipe connection 4 with the supply-tank, and a discharge-pipe 5 leads from the pump through the wall of the oil-tank and extends nearly to the top thereof. To prevent any waste of oil that might by chance pass above the pump-piston, we provide a cup 6 on the upper end of said pump and from which a valved pipe 7 leads into the pipe 4.

A pipe 8 for supplying oil to the glass or sight tube 9 leads through the top of the tank 1 and extends downward a short distance into the same. A portion of the pipe 8 within the tank is perforated or formed of sieve material, as indicated at 10. This sieve material will allow the free passage of oil, but will prevent the carrying with it of any dirt or refuse that might be contained in the oil within the tank and which, if allowed to pass to the cylinder or steam-box of the engine, would interfere somewhat with the workings of the valves or piston.

The sight-tube 9 is mounted in the frame 11, and it communicates through a port 12 with

the pipe 8. The ordinary pin-valve 13 is employed for regulating the feed through the sight-tube. The upper end of the sight-tube communicates through a port 14 in the frame with a valve-controlled pipe 15, leading into the main steam-pipe 16. It will be seen that this pipe 15 extends through the wall of the pipe 16 and discharges at the center of said steam-supply pipe. By this construction the oil, which is discharged by drops into the steam-pipe, will not come in contact with the interior of the pipe, and thus be retarded or obstructed in its passage to the engine.

Rearward of the sight-tube 9 and supported in the frame 11 is a reflector 17. This reflector is transversely curved, and in it a person may observe from different points of view each drop of oil which passes through the sight-tube, thus making it unnecessary for a person to be near the sight-tube to see whether or not it is working properly.

A feed-pipe 18 leads through the top of the tank 1 and extends nearly to the bottom thereof. This pipe 18 is designed to admit steam to the tank, and this steam in its passage through the pipe will be condensed by the cold oil in the tank, and this condensation or water all being forced into the tank will displace an equal amount of oil, which will pass in drops into the main steam-pipe, and obviously the pressure of steam in the pipe 18 will cause a practically-continuous operation or feed of the oil.

To prevent changes of temperature from interfering with the operation of the lubricator, we have arranged a coil 19 in the bottom of the tank 1. This coil receives steam for heating purposes from the main pipe 16 or other source through a pipe 20, which is provided with a valve 21, by means of which the supply of steam may be regulated to give a uniform temperature of about sixty degrees to the body of oil and water contained in the tank.

The bottom 22 of the tank 1 is concave, as plainly shown in the drawings, and in the center of this bottom is a valve 23, operating in a valve-casing 24, from which a discharge-pipe leads. The stem of this valve 23 is movable in a screw-plug 25, having a handpiece



26. Surrounding the stem and engaging at one end with the screw-plug and at the other end with the valve is a spring 27. This valve is designed to draw off water and any sediment 5 that may accumulate in the tank, and by adjusting the plug 25 it is obvious that the spring may be adjusted, so that the valve may be opened at any desired pressure above the boiler - pressure—say five pounds, more 10 or less. The valve is designed to open and close with each stroke of the pump, forcing oil into the tank. By means of this valve a uniform pressure and continuous feed of oil are maintained, making the automatic action 15 perfect.

The pipes 8 and 18 being provided with cocks, as shown, these cocks may, if necessary, be closed during the operation of the pump, thus to insure the proper action of the 20 valve 23.

By the construction of this apparatus it will be seen that we feed cold oil directly into the center of the engine steam-pipe by passing it through a body of cold water contained in the 25 sight-tube 9, thereby oiling the steam before it enters the steam chest or cylinders, making said steam a perfect distributor of the oil, which thoroughly lubricates every part reached by the steam, thereby extending the 30 life of the packing, valves, and all the inside working parts of the engine, besides economizing fuel and reducing the consumption of oil. It will also be seen that the supply-pump, in connection with the valve 23, permits at 35 any time the filling of the lubricator-tank without interference with the regular feed of oil to the engine, and, further, that in our method of filling the tank 1 no air is admitted

inside said tank, and thus by the absence of air the sight-tube is at all times kept clean. 40

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A lubricator, comprising an oil-tank having a concave bottom, a steam-pipe leading 45 into and extended nearly to the bottom of the tank, a sight-tube having connection with the tank and also with a steam-pipe, a pump for supplying oil to the tank, and a spring-pressed valve in the center of the tank-bottom, the 50 said valve being adapted to open and close with each stroke of the pump, whereby a uniform pressure and continuous feed of oil are maintained, substantially as specified.

2. In a lubricating apparatus, the combination of a lubricant-tank, a pressure-fluid pipe 55 leading into the lower portion of the tank, a spring-sustained valve mounted in the lower portion of the tank and normally closed by the spring, an oil-pump discharging into the 60 tank and an oil-discharge pipe leading from the tank.

3. In a lubricating apparatus, the combination of a lubricant-tank, a pressure-fluid pipe 65 leading into the lower portion of the tank, a spring-sustained valve commanding an opening in the lower portion of the tank, the valve being normally closed, a lubricant-feed pump discharging into the upper portion of the tank and an oil-discharge pipe leading from 70 the tank.

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