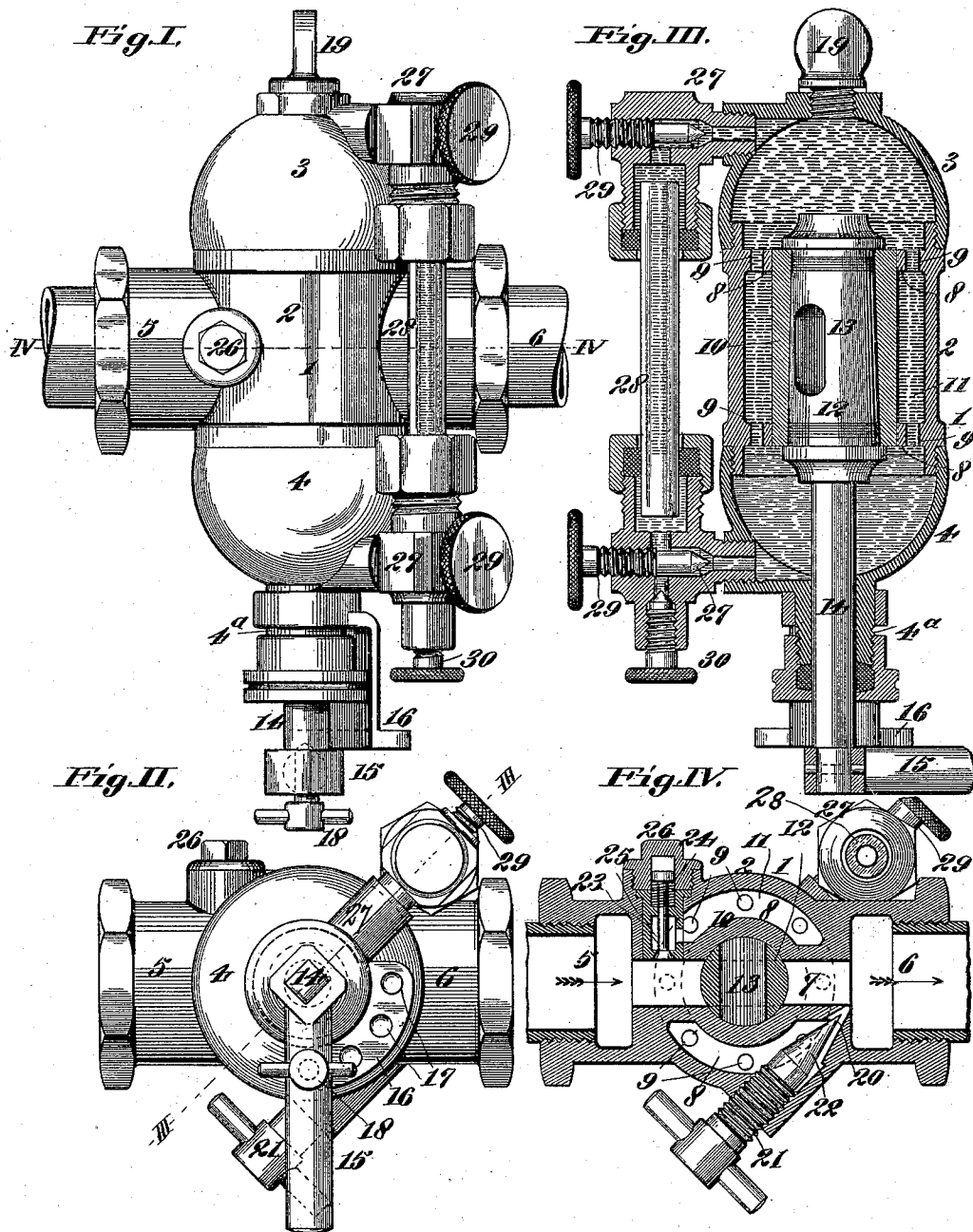


(No Model.)

J. H. SMITH.
LUBRICATOR.

No. 537,368.

Patented Apr. 9, 1895.



Attest:
E. Knight
H. Linley

Inventor:
James H. Smith
E. Knight *Pro.*
Atty's

UNITED STATES PATENT OFFICE.

JAMES H. SMITH, OF BELLEVILLE, ILLINOIS.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 537,368, dated April 9, 1895.

Application filed October 1, 1894. Serial No. 524,573. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. SMITH, of Belleville, St. Clair county, Illinois, have invented a certain new and useful Improvement in Lubricators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that class of lubricators employed to supply oil to steam pipes for the purpose of lubricating steam engine cylinders, &c., and my invention consists in features of novelty hereinafter fully described and pointed out in the claims.

Figure I is a side elevation. Fig. II is an end view. Fig. III is a vertical section taken on line III—III, Fig. II. Fig. IV is a horizontal section taken on line IV—IV, Fig. I.

Referring to the drawings: 1 represents the oil vessel, composed of a central cylinder 2 and end shells 3 and 4. At two sides of the cylinder 2 is an inlet steam pipe 5 and an outlet steam pipe 6, from and to which steam is carried through the lubricator.

7 are ports leading through the cylinder to form communication between the inlet and the outlet steam pipes.

In the interior of the cylinder 2 are two annular flanges 8 provided with openings 9 and fitting inside of said flanges is a bushing 10, between which bushing and cylinder an annular space 11 is formed. In the bushing 10 is a plug valve 12 in which is an opening 13 arranged to register with the ports 7 in the cylinder 2 to allow the passage of steam from the inlet steam pipe to the outlet steam pipe. The valve 12 is provided with a stem 14 that extends to the exterior of the lubricator at one end, and is provided with a handle 15 by which the valve may be turned to open or close the steam passage through the lubricator.

Secured to the nipple 4^a on the end shell 4 is a quadrant 16 provided with a number of depressions 17, and in the handle 15 is a set screw 18 whose point is adapted to fit in any one of said depressions to retain the handle in a fixed position, either with the valve 12 turned to entirely close off the passage of steam through the ports 7 or turned so that the passageway is completely or partially open, according to the amount of steam desired to pass through.

In the end shell 3 is an oil hole that is closed by a screw plug 19.

Leading from one side of the interior of the cylinder 2 into the outlet steam pipe 6 is a conical valve opening 20, and 21 is an independent screw valve located in the same plane as the steam-passage, arranged tangentially thereto and provided with a conical point 22 adapted to seat in the valve opening 20.

In the operation of the lubricator the oil vessel is filled with oil, and steam is permitted to pass from the inlet pipe 5 to the outlet pipe 6, on turning the valve 12 so that the opening 13 registers with the ports 7. The valve 21 is then opened and the steam in passing into the outlet pipe draws the oil, by suction, from the annular space 11 in the interior of the cylinder 2 and is carried with the steam to the engine cylinder or other part to be lubricated. To overcome the vacuum that would otherwise result in the annular space 11 and prevent the flow of the oil through the valve opening 20, I provide a check-valve 23 at the side of the port 7 next to the inlet steam pipe, which check-valve is drawn open by the force of the steam in moving past it, and the steam is permitted to enter through the opening into the annular space 11, and such admitted steam condenses to water and falls to the lower end of the lubricator vessel and acts to elevate the oil. The check-valve 23 is provided with a spring 24 that closes the valve when the steam draft is not exerted to hold it open. The valve 23 is seated in a bushing 25, and said bushing is inclosed by a screw cap 26. Secured to the end shells 3 and 4 are common valve nipples 27, between which is located the sight tube 28, the passages from the shells to the sight tube being controlled by the cone point valves 29.

30 is a valve, which in the position in which the lubricator is shown in Figs. I and III, is employed in draining the oil vessel of the water accumulated therein from the condensing of the admitted steam. The lubricator is, however, capable of use with either end uppermost, and when the position is reversed from that shown in Figs. I and III the valve 30 is employed in filling the vessel 1 and the oil hole 19 is employed as a draining valve.

I claim as my invention—

1. The combination of an oil vessel, a steam

passage through said vessel, a valve controlling said passage, and an independent valve arranged tangentially to the steam-passage and in the same plane as the latter and forming communication between the interior of said oil vessel and said steam passage; said independent valve permitting a constant suction and passage of vapor and an independent regulation of the flow of the oil, substantially as described.

2. In a lubricator, the combination of an oil vessel, a steam passage through said vessel, a valve controlling said passage, a valve forming communication between the interior of said oil vessel and said steam passage, and a check valve opening from said steam passage into the interior of said oil vessel, said check valve permitting of a flow of pressure to said oil vessel for the purpose of avoiding vacuum therein substantially as described.

3. In a lubricator, the combination of an oil vessel, a steam passage through said vessel, perforated flanges 8 on the interior of said vessel, a bushing seated within said flanges, a valve in said bushing arranged to register with said steam passage, and a valve forming communication between the interior of said

oil vessel and said steam passage, substantially as described.

4. In a lubricator, the combination of an oil vessel, a steam passage through said vessel, perforated flanges 8 on the interior of said vessel, a bushing seated within said flanges, a valve in said bushing arranged to register with said steam passage, a valve forming communication between the interior of said oil vessel and said steam passage, and a check valve opening from said steam passage into the interior of said oil vessel, substantially as described.

5. In a lubricator, the combination of an oil vessel, a steam passage-way through said vessel, a valve arranged to control said passage-way; said valve being provided with an opening capable of registration with said passage-way, an independent valve arranged to control an opening from said oil vessel into said passage-way, whereby a constant flow of oil is induced to flow from said oil vessel into said steam passageway; substantially as set forth.

JAMES H. SMITH.

In presence of—

GEO. C. REBHAN,
E. W. MERZ.