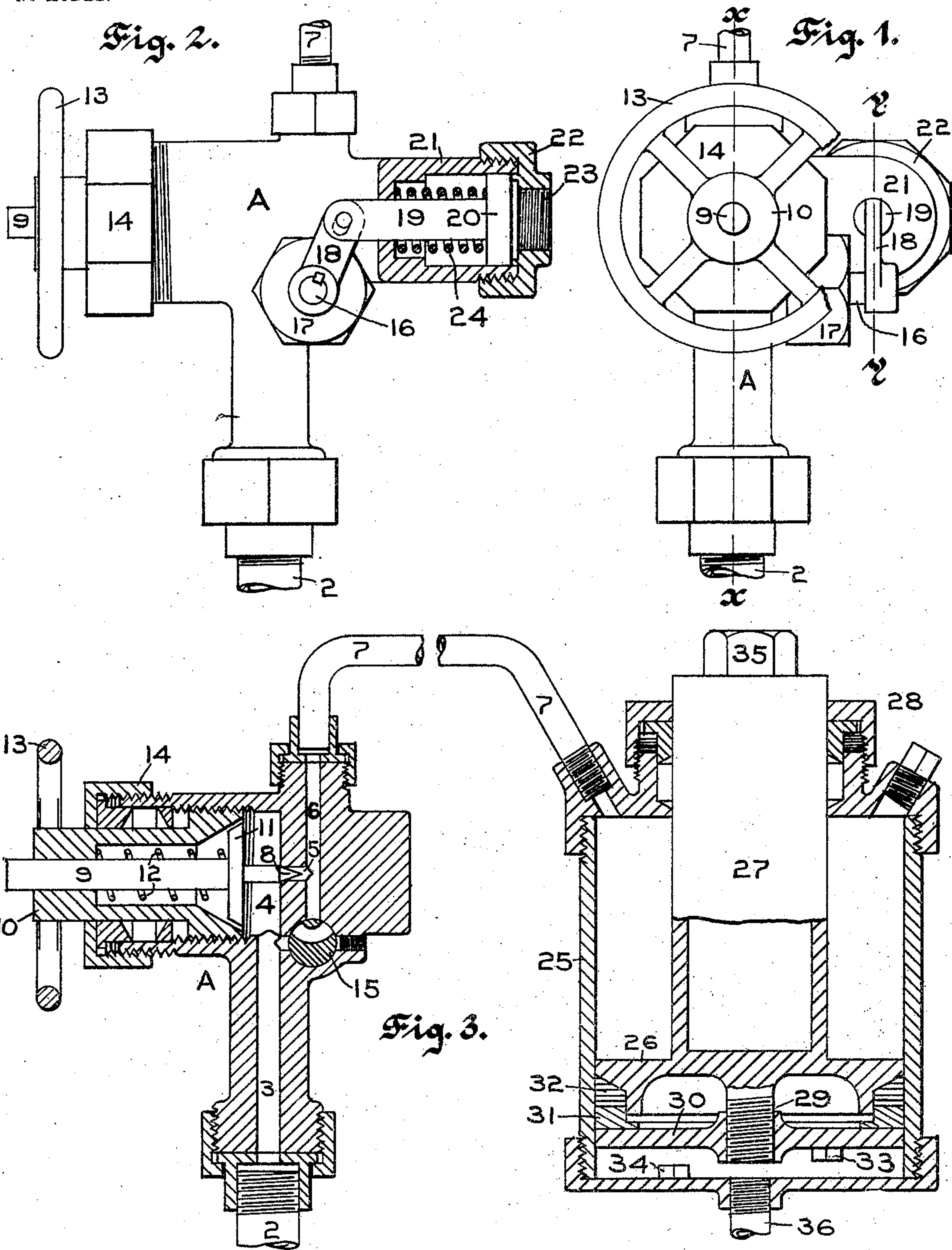


No. 775,673.

PATENTED NOV. 22, 1904.

J. FARLEY.
AUTOMATIC LUBRICATOR.
APPLICATION FILED APR. 6, 1904.

NO MODEL.



Witnesses,
W. H. Palmer,
Emily F. Otis

Inventor,
James Farley.
by L. H. Johnson
his Attorneys.

UNITED STATES PATENT OFFICE.

JAMES FARLEY, OF WAUKESHA, WISCONSIN.

AUTOMATIC LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 775,673, dated November 22, 1904.

Application filed April 6, 1904. Serial No. 201,791. (No model.)

To all whom it may concern:

Be it known that I, JAMES FARLEY, a citizen of the United States, residing at Waukesha, in the county of Waukesha and State of Wisconsin, have invented certain new and useful Improvements in Automatic Lubricators, of which the following is a specification.

My invention relates to improvements in automatic lubricators, and particularly in lubricators designed for use in connection with locomotive-engines arranged to be operated by the steam in the valve-chest to feed oil to the chest, although it may be used in connection with other types of engines, air-compressors, &c.

To this end my invention consists in the features of construction and combination hereinafter particularly described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 is a front elevation of my improved invention. Fig. 2 is a side elevation of the same, partly in section, on line *y y* of Fig. 1; and Fig. 3 is a vertical section on line *x x* of Fig. 1.

In the drawings, A represents the casing of the lubricator adapted to be connected with the valve-chest or corresponding part (not shown) by a pipe 2. Leading through the bottom of the casing is an outlet-conduit 3, connecting the pipe 2 with the valve-chamber 4. The valve-chamber 4 connects by a port 5 with a passage 6, connected by pipe 7 with the pressure device hereinafter described. The port 5 is closed by a valve 8, carried by a valve-stem 9, which extends through a bushing 10, said bushing having thread-support in the casing. The valve-stem carries a disk 11, which seats against the inner end of the bushing which constitutes an adjustable valve-seat, and which is normally forced forward by a coiled spring 12, surrounding the valve-stem. The bushing is provided with a suitable wheel 13, by means of which its position may be regulated, and is surrounded by a stuffing-box 14, fitting over the adjacent portion of the lubricator-casing.

In order to lubricate the engine-cylinder when the locomotive is running downgrade and not using steam, I provide a by-pass valve 15, connecting the conduit 6 below the valve

8 with the passage 3. The by-pass valve 15 is provided with a stem 16, extending through a stuffing-box 17 and provided on its outer end with an arm 18, connected to the rod 19 of the piston 20. The piston 20 is arranged in a cylinder 21, formed outside the body of the lubricator. The cylinder is provided with a cylinder-head 22, having a central opening 23, and the piston 20 is provided with a suitable actuating-spring 24. Compressed air being taken through the opening 23 to the cylinder forces the piston forward against the tension of its spring 24, opening the valve 15 and admitting oil to the steam-chest.

The pipe 7 connects the lubricator with an oil-reservoir 25. Within the oil-reservoir is arranged a differential piston 26, the space surrounding the piston-stem 27 constituting the oil-chamber. The piston-stem 27 passes through a suitable stuffing-box 28 at the end of the oil-reservoir. Having threaded connection 29 with the inner end of the piston is a follower-head 30. Arranged between the follower-head 30 and the adjacent head of the piston is a gland 31 and a packing-ring 32. In order to tighten the piston and follower upon the gland and packing-ring, I provide a lug 33, projecting downwardly from the follower, and a lug 34, projecting upwardly from the bottom of the reservoir-casing. By turning the piston through the medium of a suitable tool applied to the nut 35 upon the outer end of the piston-stem the lugs 33 and 34 may be brought into contact, preventing further turning of the follower-head and drawing the follower-head and piston closer together upon the intermediate packing-ring and gland. The oil-reservoir is adapted to be connected at its lower end with the boiler (not shown) by means of a pipe 36.

Operation: It will be understood that the fluid-pressure within the valve-chest is practically the same as that in the boiler of the locomotive, so that the greater effective area of the steam side of the piston-head over the oil-chamber side will keep the oil in the chamber under greater than boiler-pressure. With the engine running so that there is steam-pressure in the valve-chest steam from the valve-chest passing into the lubricator will exert

pressure against the disk 11 and open the valve 8, allowing oil to pass from the oil-reservoir through the lubricator to the valve - chest. When the pressure of steam in the valve-chest ceases, as by closing the throttle in the engine, the valve 8 will be carried into closing position by the spring 12, shutting off the flow of oil to the lubricator. When there is no pressure in the valve-chest, oil can be fed by means of the by-pass valve 15, as hereinbefore described.

While I have shown my invention arranged for connection with a valve-chest of a locomotive-engine, it may be evident that lubricators embodying my features of construction may be used in connection with stationary engines, air-compressors, &c.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an apparatus of the class described, a lubricator-casing provided with inlet and outlet ports, a valve arranged in the inlet-port, and a movable part arranged in connection with the outlet-port in position to be actuated by fluid-pressure therein to open the inlet-valve.

2. In an apparatus of the class described, the combination, with a lubricator-casing provided with an inlet-port connected with an oil-reservoir, and an outlet-port adapted to be connected with a part to be lubricated, of a valve seated in the inlet-port, a connected disk arranged in position to be actuated by fluid-pressure in the outlet-port to carry the inlet-port valve from its seat, and means for regulating the movement of said inlet-port valve.

3. In an apparatus of the class described, the combination, with a lubricator-casing provided with an inlet-port connected with an oil-reservoir, and an outlet-port adapted to be connected with a part to be lubricated, of a valve seated in the inlet-port, means actuated

by fluid-pressure in said outlet-port to carry said valve from its seat, and a by-pass valve connecting said inlet and outlet ports at one side of said valve.

4. In an apparatus of the class described, the combination, with a lubricator-casing provided with an inlet-port connected with an oil-reservoir, and an outlet-port adapted to be connected with a part to be lubricated, of a valve seated in the inlet-port, a stem carried by said valve, a disk carried by said stem, an adjustable seat for said disk, and a spring bearing against said disk to hold said valve closed, said disk being actuated by a fluid-pressure in said outlet-port to open said valve.

5. In an apparatus of the class described, the combination, with a lubricator-casing provided with an inlet-port connected with an oil-reservoir, and an outlet-port adapted to be connected with a part to be lubricated, of a valve seated in the inlet-port, a by-pass valve connecting said inlet and outlet ports at one side of said inlet-port valve, and a fluid-actuated piston operatively connected with said by-pass valve, for the purpose set forth.

6. In an apparatus of the class described, the combination, with a lubricator-casing provided with an inlet-port connected with an oil-reservoir, and an outlet-port adapted to be connected with a part to be lubricated, of a valve normally closing the inlet-port, a by-pass valve connecting said inlet and outlet ports at one side of said inlet-port valve, a spring-controlled fluid-actuated piston, and a connection between said piston and by-pass valve, as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES FARLEY.

Witnesses:

H. S. JOHNSON,
EMILY F. OTIS.