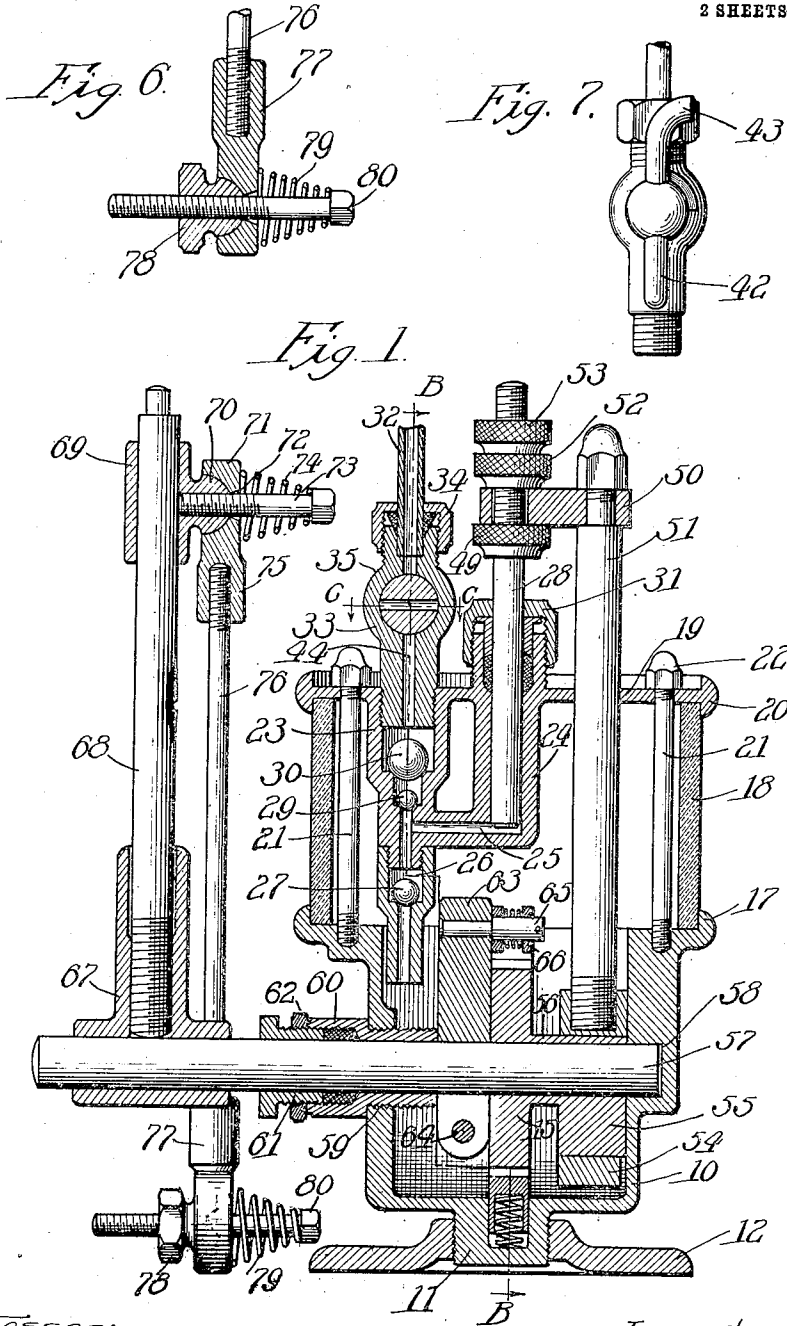


J. F. McCANNA.
FORCE FEED LUBRICATOR.
APPLICATION FILED APR. 20, 1912.

1,063,274.

Patented June 3, 1913.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 3.

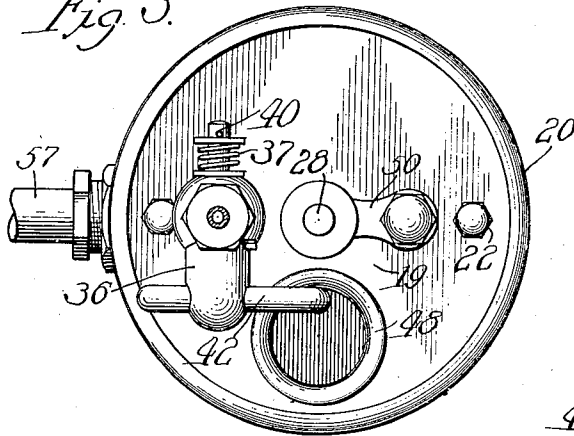


Fig. 5.

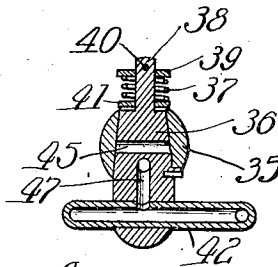


Fig. 4.

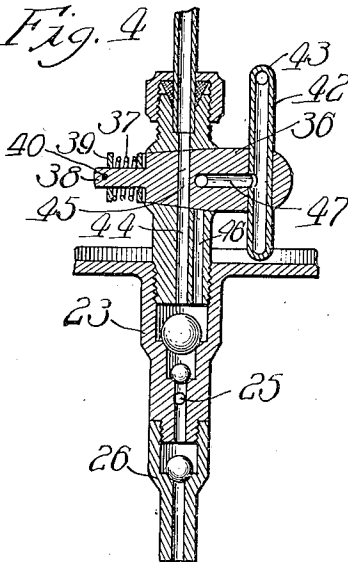
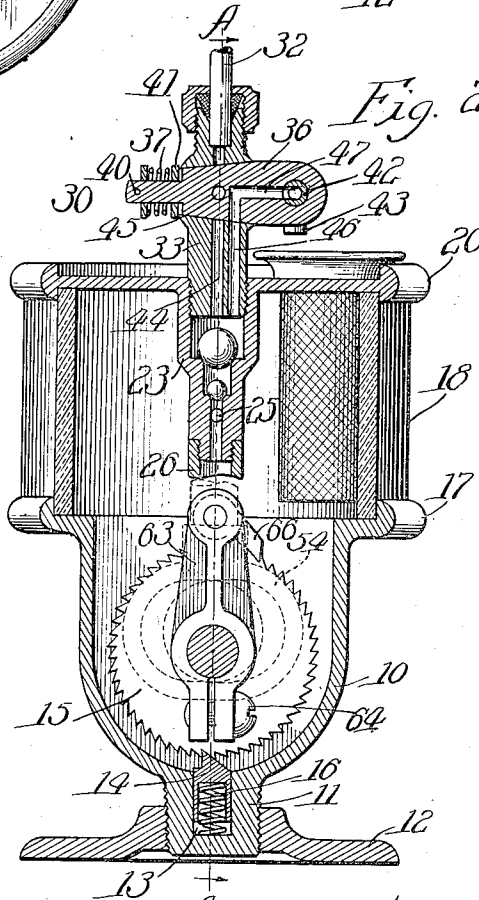


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN F. McCANNA, OF CHICAGO, ILLINOIS, ASSIGNOR TO IMPERIAL BRASS MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

FORCE-FEED LUBRICATOR.

1,063,274.

Specification of Letters Patent.

Patented June 3, 1913.

Application filed April 20, 1912. Serial No. 822,092.

To all whom it may concern:

Be it known that I, JOHN F. McCANNA, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Force-Feed Lubricators, of which the following is a full, clear, and exact specification.

My invention is concerned with force feed lubricators, and more especially with a novel "bleeder-test" device.

To illustrate my invention, I annex hereto two sheets of drawings, in which the same reference characters are used to designate identical parts in all the figures, of which—

Figure 1 is a central vertical section on the line A—A of Fig. 2; Fig. 2 is a vertical section in a plane at right-angles to the section of Fig. 1 and on the line B—B of said figure; Fig. 3 is a top plan view; Fig. 4 is a detail similar to the upper portion of Fig. 2, but showing the "bleeder-test" valve turned to inoperative position; Fig. 5 is a horizontal section through said valve on the line C—C of Fig. 1; Fig. 6 is a section through one of the ball and socket connections of the operating connections; and Fig. 7 is a side elevation of the "bleeder-test" valve in its inoperative position.

In carrying out my invention in its preferred form, I employ a bottom casting 10 which is generally U-shaped in cross section, as seen in Fig. 2, and has the externally threaded, reduced lower end 11 upon which the base disk 12 may be screwed in the manner clearly shown. I may provide a vertical recess 13 in this portion 11 and mount in said recess the hollow detent 14, the toothed upper end of which coöperates with the teeth of the ratchet disk 15, while the hollow lower portion receives the helically-coiled expanding-spring 16 interposed between said detent and the bottom of the recess 13 to hold the detent yieldingly in engagement with the teeth of the ratchet wheel. I preferably form on the upper portion of this base casting 10 the annular flange 17 within which is formed an annular seat for the lower edge of the glass cylinder 18 which preferably constitutes the body of the reservoir. The cover 19 is preferably a casting provided with an annular flange 20, within which on the under side of the cover is formed the annular seat for the top of the cylinder 18. To hold the bottom, cover and

body together, I preferably screw the connecting rods 21 into recesses formed in the top of the bottom piece 10. The threaded upper ends of these rods pass through apertures in the cover 19, and nuts 22 screwed on said threaded upper ends serve to bind the parts together.

The cover 19 preferably has formed on the under side thereof the valve cylinder 23 and the barrel cylinder 24, the lower ends of these cylinders being connected by the horizontal passage 25. An extension 26 of the valve cylinder is screwed on the reduced, threaded lower end thereof, and this extension 26 is provided with a valve seat for the check valve 27, which preferably takes the form of a steel ball adapted to close the passage through said extension 26 against the return of the oil when the piston 28 mounted to reciprocate in the barrel 24 descends. In the valve cylinder 23, I preferably form two valve seats of different sizes and adapted to coöperate with the two check valves 29 and 30, of corresponding sizes, and which also are preferably composed of steel balls. The upper portion of the barrel 24 extending above the body of the cover 19 is externally threaded to receive the customary packing gland 31 coöperating therewith, and through which the piston is reciprocated. With the construction herein shown, it will be obvious that as the piston 28 is raised, the valves 29 and 30 are closed, while the valve 27 is raised to permit the oil from the reservoir to enter the barrel 24 through the passage 25. When the piston descends, the check valve 27 is closed, while the valves 29 and 30 are raised by the upward movement of the oil forced out of the barrel by the descent of the piston. The valve cylinder 23 is connected with the discharge pipe 32, leading to the part to be lubricated by a connection 33, which preferably has the externally threaded upper end with which the packing gland 34 coöperates to make a liquid-tight joint between the pipe 32 and the top of the connection 33, the lower end of which is threaded into the upper end of the valve cylinder 23.

To furnish an indication of the rate at which the pump is operating, I employ the novel "bleeder-test" mechanism, which is constructed as follows: The connection 33 preferably has the valve casing 35, which has a flaring aperture adapted to receive the

truncated conical portion of the valve body 36, which is held securely in place by the helically-coiled expanding-spring 37 surrounding the reduced outer end 38 of the valve body and interposed between the washer 39 held in place by the pin 40 and the washer 41 held by the spring against the valve body. This valve body has passed through the other end, at right angles to the axis thereof, the hollow handle 42, one end of which is closed, while the other end is turned at right angles, as seen at 43. The lower portion of the connection 33 has the central passage 44 in line with the passage in the discharge pipe 32 and adapted to be connected with said pipe by the transverse aperture or passage 45 in the valve body 36, when the handle 42 is turned to the vertical position shown in Figs. 4 and 7. The connection 33 has also the parallel passage 46, which is adapted to be connected with the L-shaped passage 47 in the valve body when the handle 42 is turned to the horizontal position shown in Figs. 1, 2 and 3. When the parts are in this position, the oil pumped from the reservoir can not pass to the discharge pipe 32, and must be discharged, drop by drop, from the end 43 of the hollow handle 42, which end, when the handle is horizontal, extends over the open top of the strainer 48 located in the cover 19 and serving its customary purpose. The oil dripping from this "bleeder test" returns to the reservoir, and when the rate of feed has been ascertained, the valve is turned back to its normal position with the handle vertical, as shown in Figs. 4 and 7, when the oil is forced through the passage 45 to the discharge pipe 32. It will be apparent that this novel test-valve prevents the possibility of the valve being imperfectly closed after a test, as it must be turned from one extreme position to the other before and after making a test. The piston 28 is provided at its upper end with the fixed abutment 49, and a cross head 50 attached to the vertically reciprocating rod 51 has an aperture through which the threaded upper end of the piston 28 passes freely, the amount of lost motion and the consequent rate of discharge of the pump being controlled by the position in which the movable abutment or nut 52 is adjusted, said movable abutment being secured in any desired position of adjustment by the cooperating lock nut 53. The rod 51 reciprocates through an aperture in the cover 19, and its lower end is screwed into the yoke 54, which embraces an eccentric 55 formed on a sleeve 56 connecting said eccentric and the ratchet disk 15. A horizontally located rock-shaft 57 supports the combined eccentric and ratchet disk.

To produce a construction in which the various parts associated with the shaft 57 can be readily assembled, I construct the

shaft and its connections as follows: In one side of the bottom casting 10 is a bearing recess 58 for one end of the shaft 57, and opposite the recess 58 is an aperture 59 through which is screwed the reduced, threaded inner end of the bearing sleeve 60, the outer end of which is provided with a suitable stuffing box nut 61. A nut 62 threaded on the inner end of the stuffing box nut 61 serves to secure the latter rigidly in place. The ratchet arm 63 preferably has the split end shown in Fig. 2, through one arm of which the screw 64 is threaded so that the arm can be securely clamped on the shaft 57 after it has been shoved into place through the sleeves 56 and 60. A pin 65 projecting from the upper end of the arm 63 serves to hold the spring-pressed pawl 66 in position to engage the teeth of the ratchet disk 15. On the outer end of the rock shaft 57 I provide the T-shaped connection 67, and the operating rod 68 has its threaded lower end screwed through the internally threaded body portion of the sleeve 67 and against the shaft 57 to secure the operating rod 68 in place on the end of the shaft 57. As these pumps are usually operated by reciprocating connections from the engine or other apparatus which they lubricate, it is desirable to have some form of connections that will operate perfectly even if the lubricator is not exactly adjusted with reference to the reciprocating member, and for this purpose I employ the connections best shown in Figs. 1 and 6, where it will be seen that the upper end of the operating rod 68 carries a sleeve 69 having a semispherical ball member 70 projecting from one side thereof. Coöperating with this ball member is a socket member 71 which has a semispherical recess or socket to receive the ball, and at the bottom of the socket is an aperture 72 through which is passed the headed pin 73, the threaded end of which is screwed through the ball member 70 and against the operating rod 68 to secure the sleeve 69 rigidly in position on the rod. To hold the ball and socket members yieldingly, yet firmly, together, I interpose the helically and spirally coiled expanding spring 74 between the head of the pin 73 and the adjacent face of the socket member 71. This socket member 71 has the threaded recess 75, into which is screwed the connecting rod 76, the other end of which is screwed into a corresponding socket member 77 coöperating with a corresponding ball member 78, having a corresponding spring 79 and corresponding pin 80. In this case the socket member 77 has the pin 80 threaded entirely through it and adapted to be screwed into some reciprocating member by which the pump is to be driven. With the construction thus described, it will be evident that this last mentioned reciprocating member

might be considerably out of alinement with the pump and still the ball and socket connections at the two ends of the connecting rod 76 would permit of the apparatus operating perfectly.

While I have herein shown and described my novel link and lever connections for actuating the rock shaft, I do not herein claim the same, as they are described and claimed in my divisional application No. 704,729 filed June 20, 1912.

While I have shown and described my invention as embodied in the form which I at present consider best adapted to carry out its purposes, it will be understood that it is capable of modifications, and that I do not desire to be limited in the interpretation of the following claims except as may be necessitated by the state of the prior art.

What I claim as new, and desire to secure by Letters Patent of the United States, is:

1. In a force-feed lubricator, the combination with a reservoir, of a pump associated therewith, a pipe leading from said pump, a valve casing in said pipe, a valve body mounted to turn in the casing, a handle secured to the valve body and having a passage therein leading into the valve body, a discharge pipe leading from said valve to the element to be lubricated, said valve body having two passages therein, one passage being adapted to connect the pump with the discharge pipe in one position of the valve

body and the other passage being adapted to connect the pump with the hollow handle in the other position of the valve body, and means to operate the pump.

2. In a force-feed lubricator, the combination with a reservoir, of a pump associated therewith, a pipe leading from said pump, a valve casing in said pipe, a valve body mounted to turn in the casing, a handle secured to the valve body and having a passage therein leading into the valve body, a discharge pipe leading from said valve to the element to be lubricated, said valve body having two passages therein, one passage being adapted to connect the pump with the discharge pipe in one position of the valve body and the other passage being adapted to connect the pump with the hollow handle in the other position of the valve, means to operate the pump, and a strainer in the top of the reservoir into which the oil is discharged by the valve handle when the latter is turned to its testing position, said strainer being removable by lifting it vertically upward when the handle is turned up.

In witness whereof, I have hereunto set my hand and affixed my seal, this tenth day of April, A. D. 1912.

JOHN F. McCANNA. [L. s.]

Witnesses:

JOHN HOWARD McELROY,
MILDRED ELSNER.