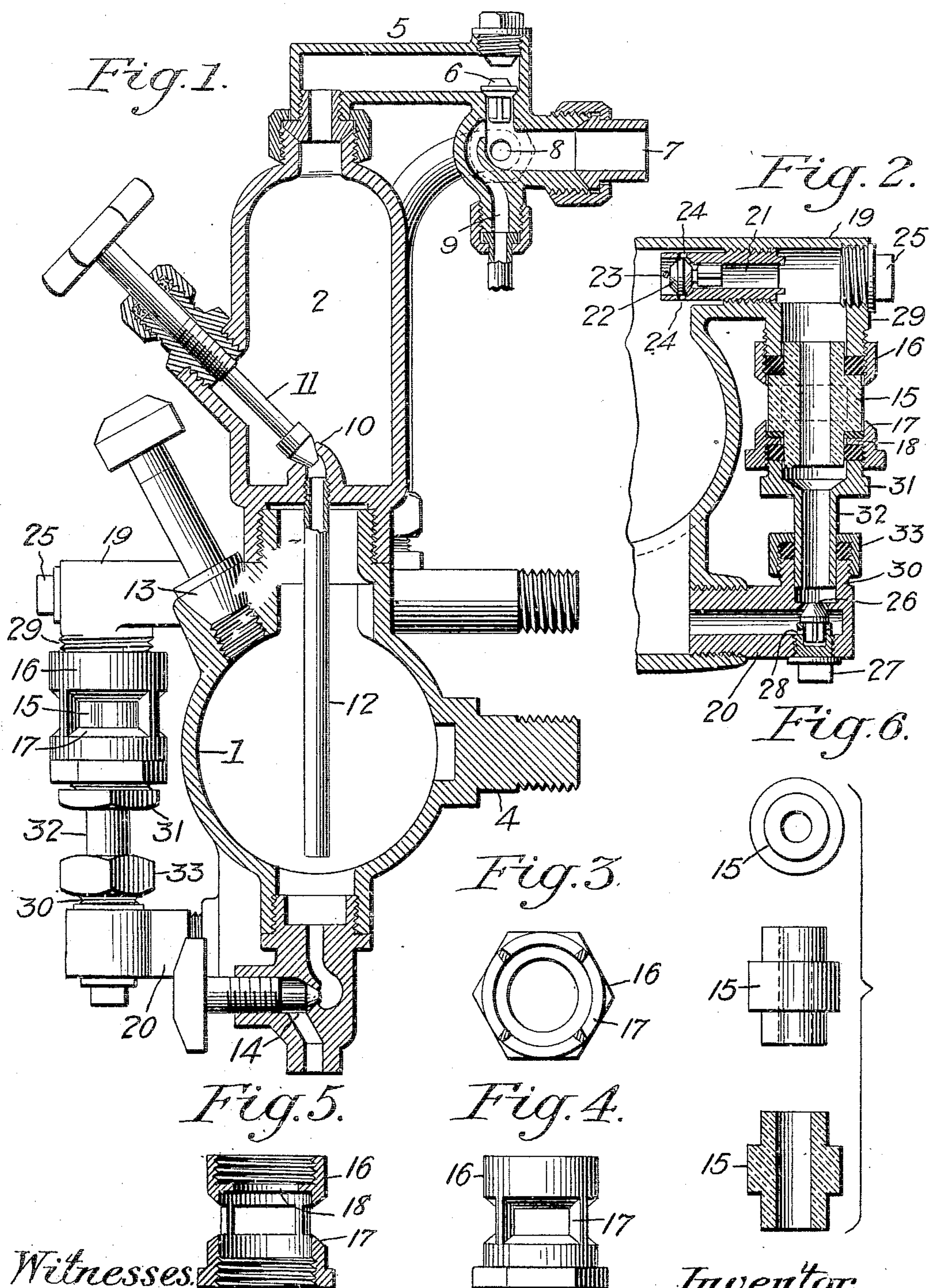


F. W. EDWARDS.
INDEX GLASS FOR LUBRICATORS.
APPLICATION FILED JAN. 20, 1909.

953,675.

Patented Mar. 29, 1910.



Witnesses:
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E. A. Pinckel

Inventor:
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by W. H. Finckel Atty.

UNITED STATES PATENT OFFICE.

FRANK W. EDWARDS, OF LOGANSFORT, INDIANA, ASSIGNOR TO THE CHICAGO LUBRICATOR COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

INDEX-GLASS FOR LUBRICATORS.

953,675.

Specification of Letters Patent.

Patented Mar. 29, 1910.

Original application filed August 24, 1908, Serial No. 450,096. Divided and this application filed January 20, 1909. Serial No. 473,390.

To all whom it may concern:

Be it known that I, FRANK W. EDWARDS, a citizen of the United States, residing at Logansport, in the county of Cass and State of Indiana, have invented a certain new and useful Improvement in Index-Glasses for Lubricators, of which the following is a full, clear, and exact description.

This invention relates to that class of machinery lubricators, commonly known as sight-feed condensation displacement lubricators, and the object of the invention is to provide means for readily ascertaining the height of the oil or other lubricant in the oil-bowl.

In carrying out the invention, I utilize, with more or less modification, the novel construction of tubular reinforced sight-feed glass and its mountings which form the subject of my application for patent for sight-feed condensation displacement lubricators, filed August 24, 1908, Serial No. 450,096, and the companion cases Serial Nos. 450,093 and 450,094, and this present case is a division of my aforesaid application Serial No. 450,096, upon requirement of the Patent Office.

The invention consists of an index-glass for lubricators, in which the glass has a through-bore and a thick-walled or reinforced center, with ends constructed to receive packing-rings or gaskets, combined with a packing-case containing the glass and arranged between arms projecting from the top and bottom of the oil-bowl and communicating with the interior of the oil-bowl, there being check-valves arranged in the arms so as to automatically close communication between the oil-bowl and index-glass in the event of the derangement of the glass or its appurtenances.

In the accompanying drawings, illustrating the invention, in the several figures of which like parts are similarly designated, Figure 1 is a vertical transverse section of the preferred construction of sight-feed condensation displacement lubricator, having the index-glass of the present application arranged at the front. Fig. 2 is a vertical section taken substantially through the cen-

ter of the index glass and its appurtenances and showing the details of the construction thereof. Figs. 3, 4 and 5 are respectively a cross-section, elevation and a longitudinal section of a packing-case for the glass. Fig. 6 shows in end view, side elevation and longitudinal section one of the preferred forms of the tubular observation-glass.

For illustration, and without thereby limiting the invention, I have shown a horizontally arranged cylindrical oil-bowl 1, upon which is arranged a condenser 2, which may be combined with the oil-bowl in any suitable way, or by a screw-threaded nipple 3. The oil-bowl is provided with an attaching lug 4 which may be cast integral therewith. The condenser is provided with a casting containing a check-valve 6, a boiler connection 7 and outlets to steam distributing pipes 8 and 9 which communicate with passages from the upper feed-arms leading, for example, to the two engines and to the air-brake pump. The condenser is provided with a valve-opening 10 controlled by the valve 11, and entering the pipe 12 which extends to the bottom of the oil-bowl or the lowest available point therein to supply the necessary water of condensation. The oil-bowl is provided with a filler-valve 13 and a drain-valve 14.

All of the parts hereinabove described are of preferred construction, but may be varied within the scope of the invention.

The observation-glass 15 is of two diameters, the larger diameter being midway of its length. This observation-glass may be made in a great variety of forms, and combined with various mounting means, and forms of packing. The glass, of whatever form, is provided with shoulders, grooves, flanges or other means whereby there is such coöperation of the glass and packing-rings as to make it possible to provide for the mounting of the glass in a fluid-tight manner.

The packing-case 16 for the glass as shown in Figs. 3, 4 and 5, has four more or less sight openings 17 arranged in it, so as to be in line with the thicker portion of the glass, and these sight openings are as large as

possible consistent with leaving enough metal between them to make the case strong enough to aid the glass in resisting internal pressure and protect the glass from external violence. If desired, the packing-case may be provided, and is herein shown as provided, with the internal flange 18 for coöperation with gaskets hereinafter described, and by means of which the glass is adapted to be arranged fluid-tight in its casing and in connection with the supporting-arms projecting from the oil-bowl. There is an upper arm 19 and a lower supporting arm 20 arranged respectively in communication with the top and bottom of the oil-bowl. The lower arm 20 opens directly into the oil-bowl. In the upper arm 19 is a check-valve case 21 and a check-valve 22 seated in the inner reamed-out end thereof, with a detaining pin 23. The case 21 is provided with the holes or ports 24 adjacent to the valve seat, which admit pressure to the check-valve 22 and cause the pressure to equalize when the oil-bowl is full of oil or full of oil and water. This upper arm 19 is also provided with a screw-cap 25 to close it. The lower arm 20 is provided with a check-valve 26 arranged in the vertically-disposed combination cap-plug, guide and pocket 27 having clearance ports 28. These clearance ports enable the oil and water to circulate around the bottom of the check-valve, and such circulation permits the valve to equalize when the oil-bowl is full of oil and also admits pressure under the valve to seat it in case of the blowing out of a gasket on the index glass. The hub 29 depending from the upper arm 19 may be made integral therewith and the hub 30 on the lower supporting-arm 20 may also be made integral therewith. In connection with the packing-case, there is a packing-nut 31 having a tubular extension 32 adapted to enter the hub 30 on the lower supporting-arm, and connected therewith by any suitable steam-tight joint or packed joint 33. This packing-nut has a screwthreaded connection with the packing-case.

By the construction of observation-glass shown and described, the strength of the old bull's-eye form of glass is obtained in the exposed portion of greater diameter, and the shouldering of the glass affords lodging places for packing, whereby the tightness of the packed joint is most efficiently secured. There are thus embodied in this form of glass all the advantages of the old tubular glass, in so far as facilities for watching the circulation are concerned, and all of the strength of the bull's-eye for resistance to external violence, and at the same time, the glass has strength superior to the tubular glass for resistance of internal pressure, and it is lighted up from as many as four different points, so as to insure visibility of its

contents. Moreover, the arrangement is such that while tight joints are effected, yet there is permitted the inevitable expansion and contraction due to variations in temperature, without endangering the glass.

The relation of the tubular portion of the packing-nut to its adjacent hub is such as to permit of the packing-nut being unscrewed from the packing-case and moved into the adjacent hub sufficiently far to clear the packing-case, and to permit it to be unscrewed from the other hub, so that the glass may be lifted out, and it or another put into place.

The packing-rings or gaskets form cushions between the glass and the metal and thus serve to protect the glass from being chipped or crushed when the metal expands, and yet they are of sufficient elasticity to yield under contraction and maintain tight joints.

The check-valves 24 and 26 at top and bottom are in fact safety check-valves, which automatically seat in the case of a gasket being blown out, and thus preserve the integrity of the lubricator. The lower check-valve 26 is shown in a vertical position, so that in case of the draining of the oil-bowl, said valve will drop from its seat and permit the contents of the index-glass to drain out at the oil-bowl drain, and then when refilling the oil-bowl, the valve is so arranged in this vertical position that the mere flow of the oil will not raise the valve to its seat and thus prevent the oil from filling into the index-glass at the same time that it fills into the oil-bowl. In other words, the fact that the valve remains away from its seat during this filling operation insures the flowing of the oil into the index-glass at the same time that it flows into the oil-bowl. The other check-valve 24 is arranged in a horizontal position so that the equalizing pressure coming up through the sight-feed glass does not have the weight of the valve against it, but merely has to equalize against the check-valve as it is floated from its seat under the pressure within the bowl, and the index-glass and its connections, thus making a perfect balance at all times between the two check-valves and also affording an arrangement whereby the pressures will act directly against the check-valves to seat them in case of an escape of pressure within the index-glass packing or any part of the connections.

The various movable and removable parts are shown as provided with hexagonal or other angular portions by which they may be engaged by a wrench.

What I claim is:—

In a lubricator, an oil-bowl, an arm projecting from the upper portion of the oil-bowl, an arm extending from the lower por-

tion of the oil-bowl, an interposed index-
glass, a horizontally arranged automatic
check-valve and its detachable ported case
arranged in said upper arm, and a verti-
5 cally arranged automatic check-valve in the
lower arm and its ported supporting and
guiding cap-plug.

In testimony whereof I have hereunto set
my hand this eighteenth day of January
A. D. 1909.

FRANK W. EDWARDS.

Witnesses:

GEORGE M. DICKSON,
DAVID A. ECKERMAN.

It is hereby certified that in Letters Patent No. 953,675, granted March 29, 1910, upon the application of Frank W. Edwards, of Logansport, Indiana, for an improvement in "Index-Glasses for Lubricators," errors appear in the printed specification requiring correction as follows: Page 1, line 64, the word "or" should read *as*; page 2, line 8, after the word "described" the period should be stricken out and a comma inserted instead; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 12th day of April, A. D., 1910.

[SEAL.]

C. C. BILLINGS,
Acting Commissioner of Patents.