

W. DIETZ.
LUBRICATOR.

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1,011,330.

Patented Dec. 12, 1911.

2 SHEETS-SHEET 1.

Fig. 1.

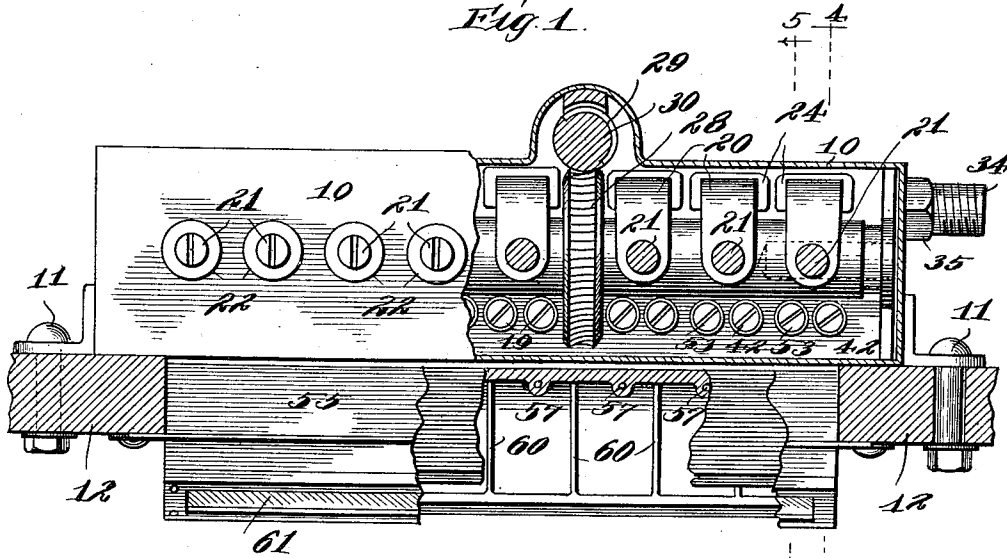
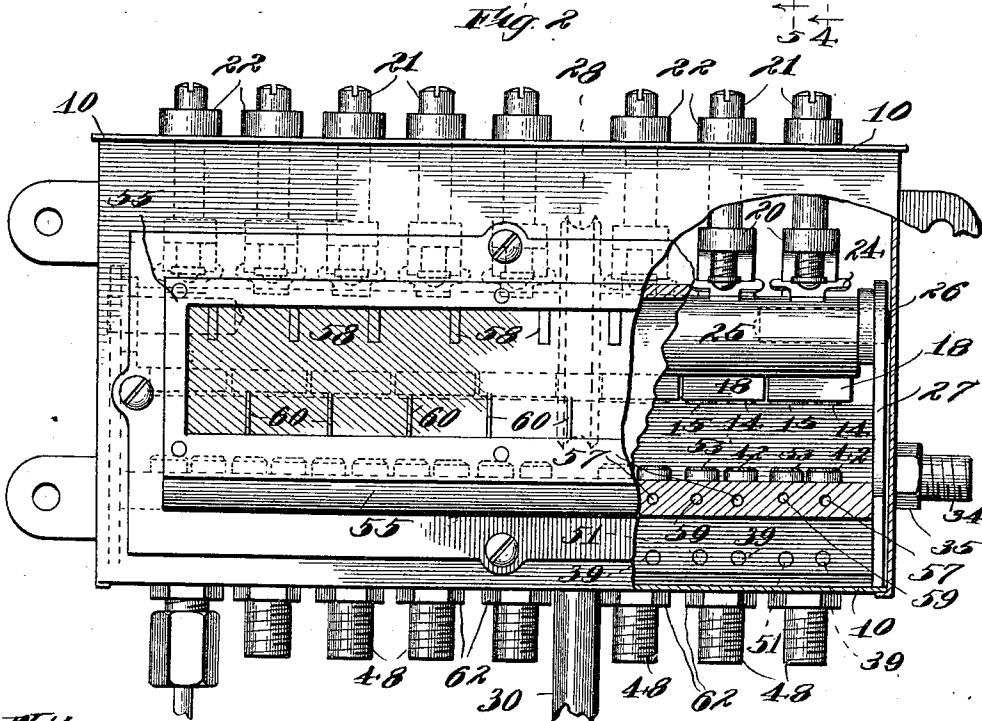


Fig. 2.



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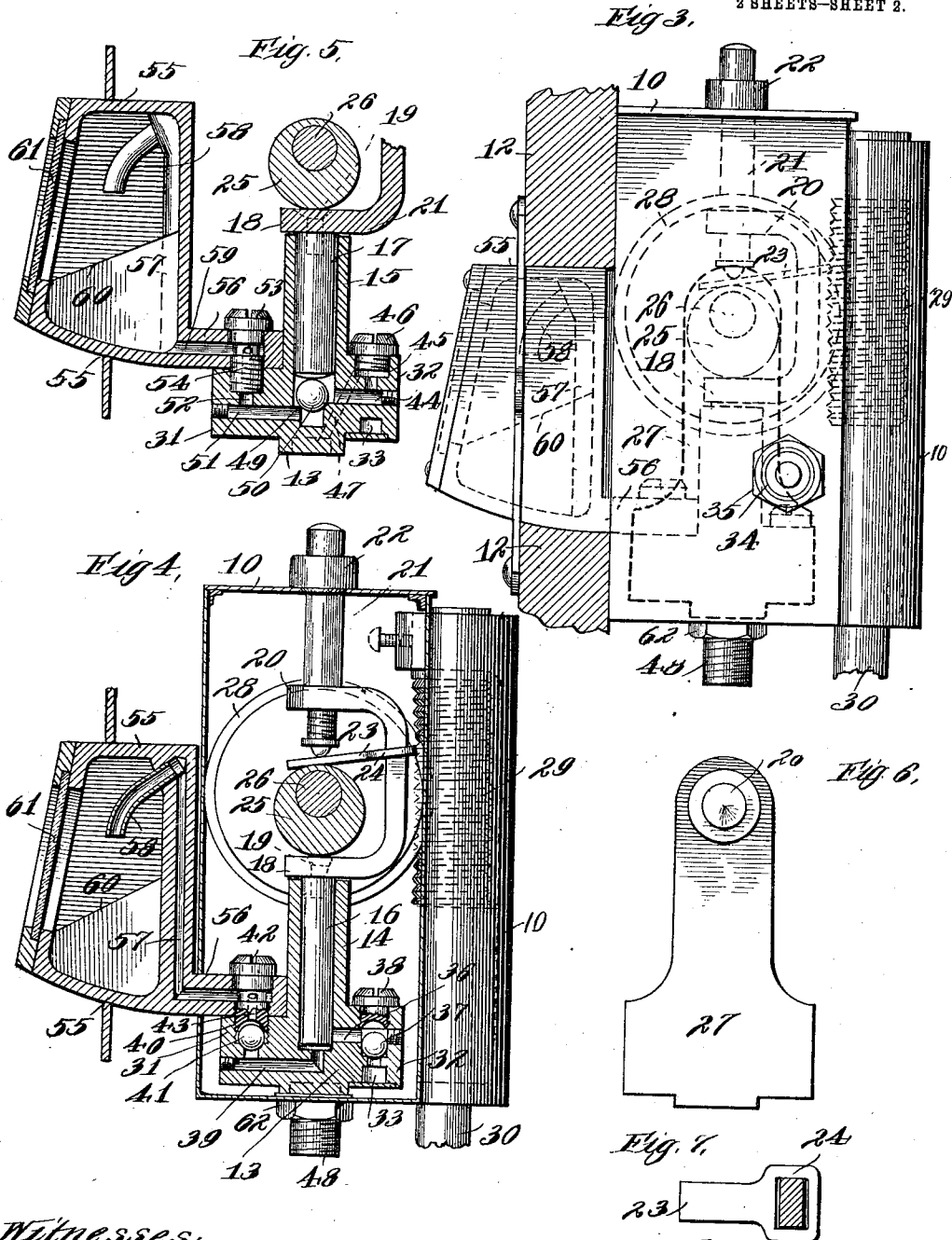
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

WILLIAM DIETZ, OF CHICAGO, ILLINOIS, ASSIGNOR TO McCORD & COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF NEW JERSEY.

LUBRICATOR.

1,011,330.

Specification of Letters Patent.

Patented Dec. 12, 1911.

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To all whom it may concern:

Be it known that I, WILLIAM DIETZ, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Lubricators, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to lubricators, and especially to that class or type employing pumps arranged in pairs and with a sight-feed device intermediate the primary and secondary pump of each pair.

In that class of lubricators as heretofore constructed the pumps are located in the oil reservoir from which they obtain or draw their supply of oil, and as the reservoir is necessarily mounted in position to expose the sight-feeds to the view of the operator, as upon the dash-board of an automobile, it takes up space and is in the way of the operator, this objection being of course increased as the size of the reservoir is increased to accommodate a bank or row of pumps, as is necessary for automobiles, and being further increased where the pumps are arranged in pairs with intermediate sight-feeds as such arrangement obviously increases the area of, and therefore the space occupied by, the reservoir. The reservoir being the source of supply for the pumps must of course be of sufficient size to furnish an adequate supply without frequent refilling, and therefore must be of even greater area than is required merely to inclose the pumps, so that they occupy a considerable portion of the space between the dash-board and the seat.

The primary object of the present invention is to provide a lubricator of this class which will economize this space; other objects will be apparent from the construction disclosed.

The invention consists in the organizations and arrangements of the parts hereinafter particularly described and then pointed out in the appended claims.

In the accompanying drawings in which the same reference numerals indicate identical parts in the several figures, Figure 1 is a plan view of one embodiment of my invention showing the casing partly broken away and parts in section; Fig. 2 is a view of the same in front elevation with the cas-

ing partly broken away and showing the pumps and associated parts in full and dotted lines. Fig. 3 is a view of the same in side elevation showing the pumps and associated parts with the supporting member in section; Fig. 4 is a vertical cross-sectional view on the line 4—4 of Fig. 1; Fig. 5 is a similar view on the line 5—5 of Fig. 1 with parts broken away; Fig. 6 is a view in front elevation of the shaft-bracket; and Fig. 7 is a plan view of the buffer plate with its associated yoke in section.

In the drawings 10 indicates a casing inclosing the working parts of the pumps, and which may be of any preferred size and shape and is adapted to be secured in any suitable manner, as by the screw bolts 11, to the rear side of a dash-board 12 of an automobile or to any suitable part where it will place the sight-feeds within the view of the operator of the machine with which it may be desired to use the lubricator. A horizontal casting 13 is secured in the bottom of the casing in any suitable manner, being substantially inverted T-shape in cross-section, and provides the barrels or cylinders 14 and 15 for the primary and secondary pumps respectively, it being understood that the pumps are vertically disposed and arranged in pairs longitudinally of the casing and parallel to each other, the pumps of each pair being side by side, and preferably the secondary or delivery pumps 15 are of a larger size than the primary pumps 14 for a reason to be hereinafter made plain.

The plungers 16 and 17 of all the pumps 14 and 15 are reciprocated by a common actuating mechanism and those of each pair are connected to the lower arm 18 of a yoke; in practice I prefer to connect one or both of the plungers of each pair to the yoke in a loose or yielding manner as for example by screws 19 passing through the said arm and entering openings in the upper ends of the plungers, the openings being threaded to receive the threaded ends of the cap-screws which are countersunk in the arm of the yoke to lie flush therewith, all as clearly illustrated in Figs. 4 and 5. By this construction I provide means whereby the plungers automatically adjust themselves to prevent binding. It is to be understood that the plungers of each pair of pumps are reciprocated by the same yoke, each yoke be-

ing substantially U-shaped and having an upper arm 20 extending parallel to the arm 18 and adapted to receive the threaded extension of an adjusting rod or stem 21 which passes freely through the top of the casing and receives an adjusting button 22, it being understood that the stem and associated parts employed to vary the stroke of the pumps from outside the casing may be substantially the same in construction as similar parts shown and described in United States Letters Patent No. 822,900, granted to John F. McCanna the 5th day of June, 1906. By the present arrangement the adjustment of both pumps of a pair is simultaneously effected by a single adjuster. The inner end of the stem bears upon a buffer plate 23 having a body 24 which is substantially in the form of a collar having an opening adapted to receive the vertical or body portion of the yoke. A plate is interposed between each stem and the eccentric 25 of the drive shaft 26 which is journaled in supports or brackets 27 secured in the casing at each end in any suitable manner, and is designed to prevent the eccentric as it is rotated from moving the stem to change the throw or stroke of the pumps.

The eccentric shaft may be rotated in any preferred way but in the present instance it has fixed thereto a worm-gear 28 which receives motion from a worm 29 on a power-shaft 30, which is vertically journaled in the rear of the casing and may be driven in any suitable manner.

While the stem of the casting 13 provides the pump-barrels, the head or body of the casting provides the necessary passages and valve-chambers, having front and rear wings or flanges 31 and 32 respectively for this purpose. The flange 32 has a longitudinal channel 33 running its entire length and to which oil is supplied by the feed-pipe 34 passing through the end of the casing and being threaded into the casting, a nut 35 threading on the pipe and clamping the casing against the casting in the usual manner. A series of angular passages 36 place the channel 33 in communication with the barrels 14 of the primary pumps near their lower ends, being provided with enlargements for suitable ball-valves 37. The vertical portion of each inlet port or passage is extended through the flange and threaded to receive a screw 38 which serves to close the upper end of the passage and which when removed provides a ready means to remove and replace the valves and to take out foreign matter which may clog the passages. A horizontally and forwardly extending outlet port or passage 39 in the flange 31 opens at its inner end into the lower end of each cylinder 14, and near its outer end communicates with an enlarged vertical opening 40, the communication be-

tween the passage and the opening being controlled by a suitable ball-valve 41. The opening 40 is threaded to receive a screw 42 which is provided with a suitable passage 43 for a purpose hereafter explained. The rear flange 32 is also provided with a series of horizontal passages 44, each opening at its inner end into the side of a pump cylinder 15 at its lower end and communicating with a vertical passage 45 which is threaded to receive a screw 46. The passages 45 also communicate with an angular discharge port 47, shown in dotted lines in Fig. 5, which leads forwardly to near the center of the casting where it communicates with a delivery pipe 48 through which the oil is forced to the parts to be lubricated. The lower end of the cylinder of the pump 15 is reduced as at 49 to make a seat for a valve 50, and at this point a horizontally and forwardly extending inlet port or passage 51 in the flange 31 communicates with the delivery pump 15, the communication being controlled by the ball-valve which when seated is adapted to close the passage 51 but allows communication between the cylinder 15 and the outlet port or passage 44 to remain open for a purpose to be made plain. A vertical passage 52 in the flange 31 opens into the passage 51 near its outer end and is threaded to receive a screw 53 having a suitable passage 54 opening into the passage 52.

A second casting 55 provides a series of sight-feeds, one for each pair of pumps, and this casting extends longitudinally of the casing 10 on its front side being of substantially the length of the casting 13 to which it is secured. This second casting is substantially rectangular in cross-section and is hollow to provide a chamber, being provided with a rearwardly extending longitudinal flange or bracket 56 adapted to pass through the casing and to be secured to the front flange 31 of the casting 13 by the screws 42 and 53. The rear wall of the casting 55 is provided with an L-shape passage 57 which at its lower end communicates with the angular passage 43 of the screws 42 and at its other end with a downwardly directed nozzle or spout 58. A second horizontal passage 59 in the bracket leads from the chamber into the angular passage 54 in the screw 53. The chamber is provided with a plurality of compartments made by partitions 60 between the openings of the passages 59 into the casing in order that each such passage may draw oil from its associated compartment. The front of the chamber is cut away and is closed by a glass 61 through which the flow of the pumps may be readily observed.

Oil being supplied to the passage or conduit 33 by the pipe 34 leading from any suitable source of supply, and motion being given to the worm-gear from the drive-shaft

it rotates the eccentric to raise the yokes which in turn raise the plungers 16 and 17. Assuming that the pumps are empty, as the plunger 16 is raised oil is drawn through the passages 36 past the valve 37 into the pump 14, and on the down-stroke of plunger 16 this passage is closed by its valve and the oil forced through the passage 39 into the passage 40 and unseating the valve 41 passes through the angular passage 43 in the screw 42 to the passage 57 and is ejected through the spout 58 into one of the compartments of the sight-feed chamber between two of the partitions, to indicate the rate of operation. The oil thus fed to the sight-feed discharge is drawn from its compartment by the respective associated secondary pump of the pair; on the second stroke of the yoke the upstroke of the plunger 17 draws the oil from the sight-feed chamber through the passages 59, 54 and 51 and past the valve 50 into the cylinder 15 of the secondary or delivery pump, from whence it is discharged through passage 44 to the exit pipe 48, the relation of the valve 50 and exit port 44 being such that the latter is open when the valve is seated, as shown in Fig. 5. At each succeeding stroke of the plungers, the operation is repeated, the oil being drawn from the channel 33 and delivered to the sight-feed discharge to indicate the rate of operation of the device by the primary pump, and drawn or pumped away from the receptacle of the sight-feed by the secondary pump, each pair having an intermediate sight-feed which preferably is individual to the pair, and the secondary pumps preferably being of greater capacity than the primary pumps to prevent danger of overflow of the sight-feed receptacle or chamber. The casting 13 is clamped in the casing by nuts 62 on the outside of the casing in threaded engagement with the discharge pipes 48 which pass through the casing and are threaded into the casting. As the casting 55 is in turn rigidly mounted on the casting 13, all the parts are connected together and to the support when the casing is secured in place thereon, so that the pumps are on one side of the support (as the rear side of a dash-board) and the sight-feed devices indicate the operation at the opening or at the front of the dash in full view of the operator. By the construction described the casting 55 providing the sight-feed devices may rest in an opening in the dash-board 12 with the glass 61 flush with, or more or less projecting in front of, the dash in order to expose the sight-feed discharges to the operator to indicate to him the rate of operation of the oil supply, while the pump-mechanism is located on the rear of the dash, out of the way of the operator, and where it does not take up the space between the seat and dash. The oil being sup-

plied from a suitable source by pipe 34 to the channel 33 may be drawn into one or more or all of the primary pumps, as occasion may require, so that the supply is ample for the varying number of pumps utilized under varying conditions, and as the oil tank (not shown) may be carried at any suitable point it may be of considerable size without encroaching on the space in front of the dash. The castings are preferably of extruded metal, which being destitute of porosity obviates danger of leakage under high pump-pressure and enables me to bore the cylinders very close together with relatively thin intervening walls to economize space in the size of the casting.

Having described my invention what I claim is:

1. In a device of the class described, a support having an opening, a casing containing a plurality of pumps and mounted on one side of said support at said opening, and a sight-feed device in the opening in extension of the casing and communicating with the pumps to indicate the operation thereof at the other side of the opening.
2. In a device of the class described, a support having an opening, a casing containing a plurality of pairs of pumps and mounted on one side of said support at said opening, and a sight feed device in the opening in extension of the casing and communicating with each pair of pumps to indicate the operation thereof at the other side of the opening.
3. In a device of the class described, a support having an opening, a casing containing a plurality of pumps arranged in pairs and mounted on one side of said support at said opening, and a multiple sight-feed device in the opening in extension of the casing and whose units communicate respectively with the pairs of pumps to indicate the operation thereof at the other side of the opening.
4. In a device of the class described, a support having an opening, a casing containing a plurality of pumps and mounted on one side of said support, and a sight-feed device communicating with the pumps and located in the opening to indicate the operation.
5. In a device of the class described, a support having an opening, a casing containing a plurality of pairs of pumps and mounted on one side of said support, and a sight-feed device communicating with said pumps and located in the opening to indicate the operation.
6. In a device of the class described, a support having an opening, a casing containing a plurality of pumps arranged in pairs and mounted on one side of said support, and a multiple sight-feed device located in the opening and whose units com-

municate respectively with the pairs of pumps and indicate the operation thereof.

7. In a device of the class described, a support having a rectangular opening, a casing containing a plurality of pumps and mounted on one side of said support, and a rectangular sight-feed receptacle in the opening and communicating with the pumps.

8. In a device of the class described, a casting providing a plurality of pairs of pump-cylinders having inlet and outlet ports, pistons in said cylinders, means to operate the pistons, and a second casting connected to said first casting and providing sight-feed chambers and having an inlet and outlet for each chamber communicating with a pair of pumps.

9. In a device of the class described, a casting providing a plurality of pump-cylinders having inlet and outlet ports, the pumps being arranged in pairs, pistons in the cylinders, means to operate the pistons, and a second casting connected to the first casting and providing a sight-feed chamber intermediate the pumps of each pair and having an inlet and outlet for each chamber communicating with its pumps.

10. In a device of the class described, a casting providing a plurality of pairs of pump-cylinders having inlet and outlet ports, an oil supply channel in the casting communicating with the inlet ports of one set of cylinders, pistons in the cylinders, means to operate the pistons, a second casting connected to the first casting and providing sight-feed chambers, the outlets of one set of cylinders and the inlets of another set of cylinders communicating with said sight-feed chamber.

11. In a device of the class described, a T-shaped casting whose stem is provided with pump-cylinders and whose head is provided with inlet and outlet ports communicating with said cylinders, pistons in the cylinders, means to operate the pistons, a rectangular casting connected to the pump casting providing a sight-feed chamber having inlets and outlets, the chamber-inlets connecting with certain of the pump-outlets and the chamber-outlets connecting with certain of the pump-inlets, and means to supply oil to the other pump-inlets.

12. In a device of the class described, a casting having a plurality of pairs of pumps, means to operate the pumps of each pair in unison, a second casting connected by an offset to the front of said first casting and having sight-feeds, and an oil-supply channel in the first casting, the primary pump of each pair adapted to take oil from said channel and discharge it into said sight-feed, and the secondary pump of each pair adapted to pump the oil away from said sight-feed.

13. In a lubricator, a casting providing a pair of pump cylinders having inlets and outlets, pistons in said cylinders, means to operate the pistons, a second casting having a flange connected to the pump-casting and provided with passages communicating respectively with the outlet of one pump and the inlet of the other, and a sight-feed between the passages.

14. In a lubricator, a casting providing a plurality of pairs of primary and secondary pump cylinders having inlets and outlets, pistons in said cylinders, means to operate the pistons, a second casting having a flange connected to the pump-casting and provided with passages communicating with the outlets of the primary pumps and inlets of the secondary pumps, and a sight-feed device intermediate the passages for each pair of pumps.

15. In a lubricator, a T-shaped casting whose stem is provided with pump-cylinders and whose head is provided with inlet and outlet ports communicating with said cylinders, pistons in the cylinders, means to operate the pistons, a second casting mounted on the head and having passages communicating with the outlet ports of certain pumps and with the inlet ports of the other pumps, and a sight-feed between each such pair of passages.

16. In a lubricator, a pump discharging oil into a sight-feed receptacle, a second pump adapted to pump the oil away from the sight-feed discharge, the moving elements of said pumps being connected, a casing for said pumps, means extending from the outside into said casing to adjust the stroke of both pumps, means to operate the pumps, and a bumper interposed between the operating means and pumps.

17. In a device of the class described, a support having an opening, a casing containing a plurality of pumps and mounted on one side of said support at said opening, a sight-feed device in the opening and having an extension in the casing supported by and communicating with the pumps to indicate the operation thereof at the other side of the opening.

18. In a device of the class described, a support having an opening, a casing containing a plurality of pairs of pumps and mounted on one side of said support at said opening, and a sight-feed device in the opening and having an extension in the casing supported by and communicating with each pair of pumps to indicate the operation thereof at the other side of the opening.

19. In a device of the class described, a support having an opening, a casing containing a plurality of pumps arranged in pairs and mounted on one side of said support at said opening, and a multiple sight-feed device in the opening in extension of

the casing and whose units communicate respectively with the pairs of pumps to indicate the operation thereof at the other side of the opening.

5 20. In a device of the class described, a casting providing a plurality of pairs of pump cylinders having inlet and outlet ports, pistons in said cylinders, means to operate the pistons, a reservoir-casing inclosing said parts, and a second casting having a
10 flange extending into said casing and connected to said first casting, and providing sight-feed chambers and having an inlet and an outlet for each chamber communi-
15 cating with a pair of pumps.

21. In a device of the class described, a casting providing a plurality of pump-cylinders having inlet and outlet ports, the pumps being arranged in pairs, pistons in
20 the cylinders, means to operate the pistons, a reservoir-casing inclosing said parts, and a second casting having a longitudinal

flange extending into the casing and supported upon the first casting, and providing sight-feed chambers intermediate the pumps
25 of each pair and having an inlet and an outlet for each chamber communicating with the outlet and inlet of a pair of pumps.

22. In a lubricator, a reservoir, a casting therein providing a pair of pumps having
30 inlets and outlets, means to operate the pumps, a second casting having a flange extending into the reservoir and supported upon the pump-casting and provided with passages communicating respectively with
35 the outlet of one pump and the inlet of the other, and a sight-feed between the passages.

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

WILLIAM DIETZ.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."