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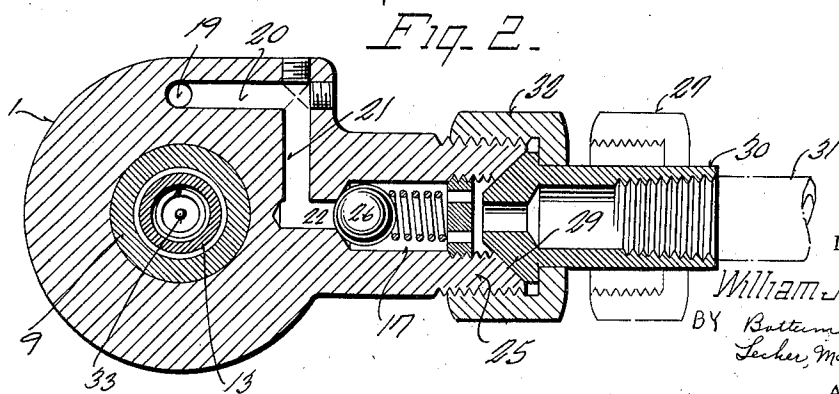
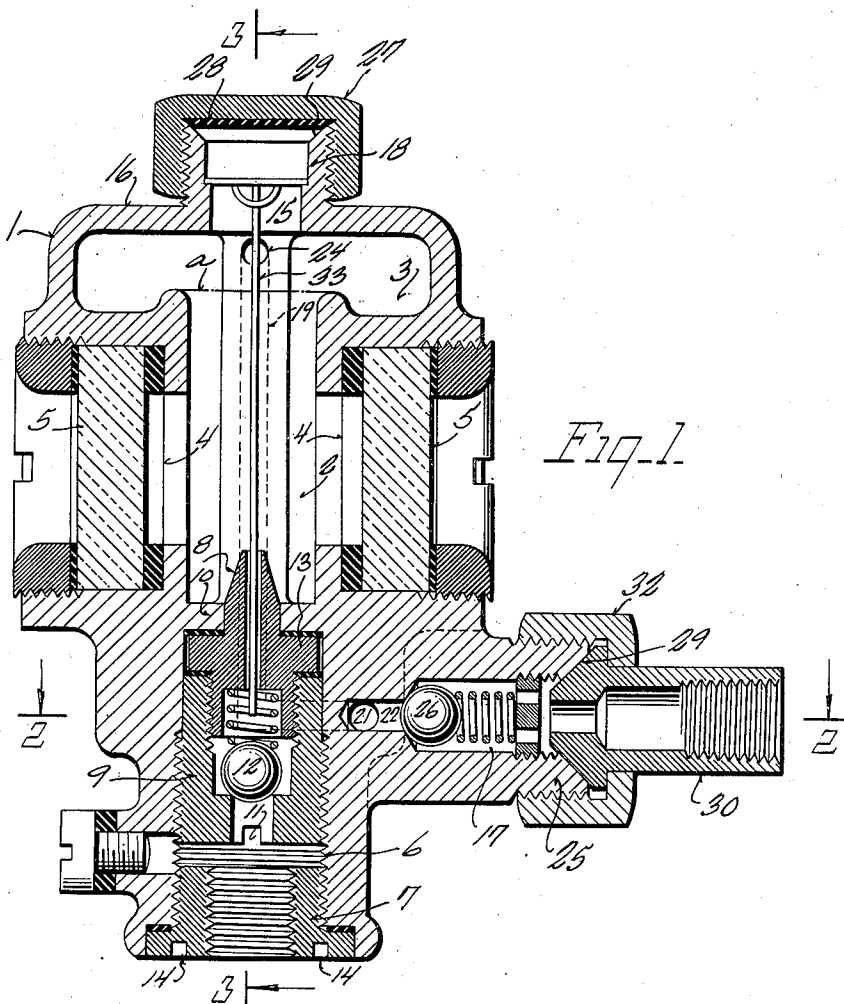
W. J. POWERS

2,103,733

SIGHT FEED DEVICE

Filed Oct. 27, 1933

2 Sheets-Sheet 1



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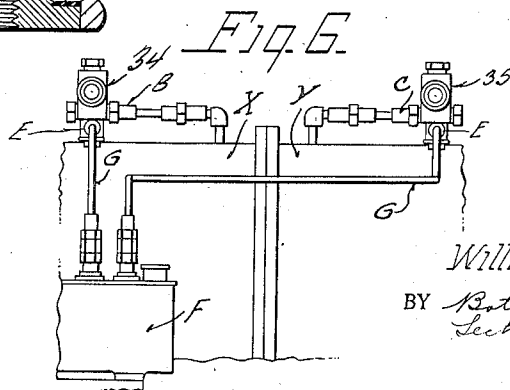
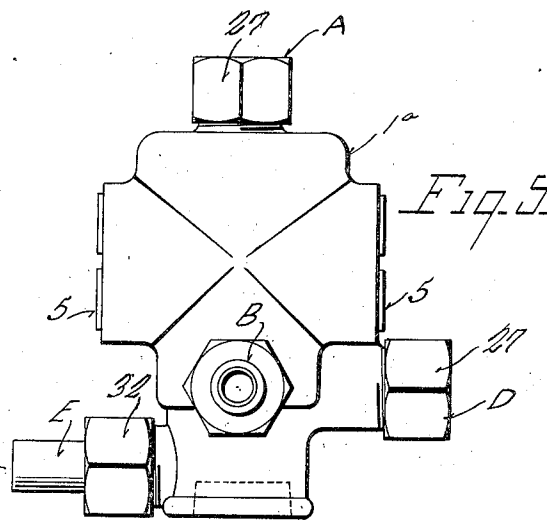
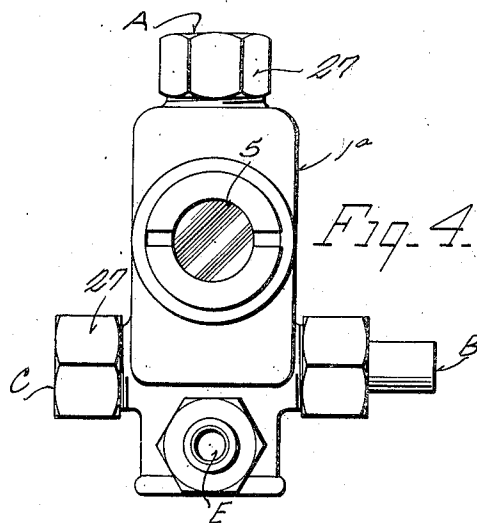
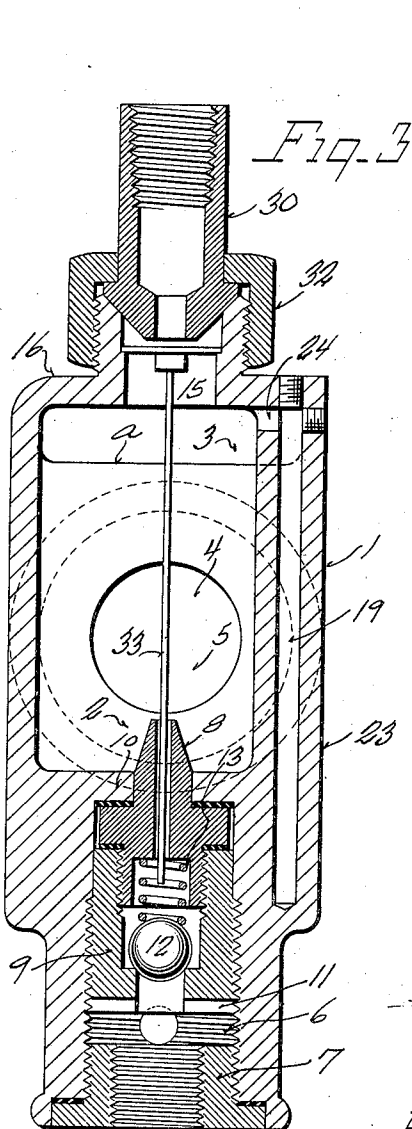
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2,103,733

SIGHT FEED DEVICE

Filed Oct. 27, 1933

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,103,733

SIGHT FEED DEVICE

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Application October 27, 1933, Serial No. 695,425

1 Claim. (Cl. 184—96)

This invention relates to sight feed devices for force feed lubricators.

The general object and purpose of my invention is to provide a sight feed device with a plurality of oil outlets, preferably arranged, one at the top of the device and another at a lower point on the device, as for example, at the side or the rear, whereby either outlet may be selected for the delivery of oil from the device for obtaining a more convenient and neater delivery tube arrangement than can be had by the use of a top outlet only as in sight feed devices heretofore employed.

Another object of my invention is to provide the outlets with means whereby either a delivery tube or a closure may be interchangeably connected with the outlets for closing one outlet when the other is selected for the delivery of oil from the device.

Another object of my invention is to provide both outlets with a tapered seat to accommodate the tapered nipple of the delivery tube connection provided for the outlets.

A further object of my invention is to so mount the nozzle and its check valve assembly for the sight feed chamber of the device that the nozzle and the valve assembly may be readily and easily inserted into and be removed from the device through the oil inlet passage for cleaning or repair without the use of special tools, the construction being such that an ordinary screw driver or similarly bladed tool may be employed for the purpose.

Other and further objects of my invention will appear from the following specification, taken in connection with the accompanying drawings, in which:—

Fig. 1 is a vertical sectional view of a sight feed device constructed in accordance with my invention;

Fig. 2 is a horizontal sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a vertical sectional view taken on line 3—3 of Fig. 1, the top outlet being used, the lower one closed instead of the reverse as in Fig. 1;

Figs. 4 and 5 are front and side views, respectively, of a sight feed device of my invention adapted for use in an oil delivery line and provided with more oil outlets than the device of the preceding figures; and

Fig. 6 illustrates the application of devices of Figs. 4 and 5 in two delivery lines from a force feed lubricator.

As shown in the drawings, the sight feed device

is of the bull's-eye type. It has an outer casing 1, preferably in the form of a casting having upper and lower connected chambers 2, 3. The lower chamber 2 has sight openings 4, 4 on its opposite sides and contains a body of colorless liquid through which oil passes to the upper chamber 3 in the operation of the device. This liquid may consist of water or glycerine or a solution of water and glycerine as commonly used in devices of this character. The level of the liquid in the chamber 2 is constantly maintained adjacent the top of the chamber to be above the sight openings 4 as indicated at *a* in Figs. 1 and 3. The sight openings 4 are closed by transparent glass covers 5, 5 secured in the casing as shown.

The casing 1 has an oil inlet for the lower chamber 2. Said inlet is in the form of a passage 6 in the lower portion of the casing below the chamber 2 and contains a bushing 7, nozzle 8, and a check valve assembly having a holder or cage 9. The passage 6 is threaded to receive the similarly threaded bushing 7 and the holder 9 as shown. The bushing 7 is screwed into the lower end of the passage 6 and provides means for connecting the sight feed device to the delivery side of a pump of a force feed lubricator. The nozzle 8 is at the upper end of the passage 6 and extends into the lower chamber 2 through an opening in the bottom wall 10 of said chamber. The nozzle 8 is carried by the holder 9 and is clamped thereby against the under side of the wall 10 on screwing the holder into the passage 6 before the application of the bushing 7 thereto.

The holder 9 has a slot or kerf 11 in its lower end, whereby a screw driver or similar bladed tool may be engaged with the holder for screwing it into or out of the passage 6. The nozzle comes out with the holder, the two having threaded connection for ready separation to reach the check valve 12 and its spring 13 within the holder. The bushing 7 has recesses 14 whereby a spanner wrench may be engaged with the bushing for screwing it into or out of the passage 6. The construction shown and described provides a removable mounting for the nozzle and its valve assembly in the casing 1. The nozzle and the valve assembly in connected relation are inserted into and removed from the casing 1 through the lower or outer end of the passage 6. This not only facilitates the assembly of these parts in the casing 1 when assembling the sight feed device, but also enables the nozzle and the valve assembly to be readily and easily removed for replacement in case of repair or

cleaning should any lint or dirt carried by the oil lodge in the holder to unseat the valve or clog or close the oil passage or orifice in the nozzle. Another advantage of the construction is that no special tools need be furnished with the sight feed device to remove or replace the nozzle and the valve assembly, a screw driver and a spanner wrench being the only tools required and these are universally available. The nozzle and the bushing, as shown, carry the required gaskets for joint sealing purposes.

The sight feed device of Figs. 1 to 3 is provided with a plurality of oil outlets for the upper chamber 3 into which the oil is discharged from the lower chamber 2. One oil outlet is at the top of the device, comprising an opening 15 in the top wall 16 of the casing 1 above the chamber 3 and opening directly into the same, preferably in line with the nozzle 8 as shown in Figs. 1 and 3. The other outlet 17 to be presently described, is at a lower point on the casing 1, preferably below the chamber 2 and opening outwardly on the rear side of the casing in the form of device shown in Figs. 1 to 3. The top outlet 15 is provided with an upwardly projecting surrounding flange 18 integral with the top wall of the casing 1 and providing means whereby a delivery tube or pipe or a closure cap may be connected with the top outlet as hereinafter referred to.

The lower outlet 17 is connected with the chamber 3 by passages 19, 20, 21 and 22 formed in the casing 1 and leading from the chamber 3 to the lower outlet. All of these passages, except the first one, are entirely disposed in the lower portion of the casing below the chamber 2 and are angularly arranged, as shown in Fig. 2, to connect the lower end of the first passage 19 with the outlet 17. The passage 19 is in the side wall 23 of the casing 1 between the sight openings 4 and extends above the lower chamber 2 where, by a port 24 it is connected with the upper chamber 3, as shown in Fig. 3. The outlet 17 is in a boss 25 projecting outwardly from the casing 1 on its rear side and threaded at its outer end for connection with a delivery tube or pipe or a closure cap to be presently described. The outlet 17 comprises a passage in the boss 25 and is equipped with a spring seated non-return check valve 26, as shown.

When one outlet is used, the other is closed. For this purpose, I provide a closure cap 27, shaped to fit over the boss 25 of the lower outlet 17 and over the flange 18 of the top outlet 15. The cap is threaded to fit the threads on the boss and the flange and is interchangeably usable therewith. The cap carries a gasket 28 to engage the outer ends of the boss and the flange when in closed position on the same. In Fig. 1, I show the cap 27 closing the top outlet 15, the lower outlet 17 being used for the delivery of oil from the sight feed device. In Fig. 3, the top outlet is used for oil delivery, the cap closing the lower outlet.

The flange 18 and the boss 25 are each provided at their outer ends with a similarly tapered seat 29 for the tapered end of a connecting nipple 30 of a delivery tube 31. The nipple carries a combined union and nut 32 which fits over and screws on the flange or the boss for attaching the nipple thereto. The nipple and its union, like the cap, are usable interchangeably with the two outlets, thereby requiring only one cap, and one nipple and union, for the several outlets of the sight feed device.

When the top outlet is used, the cap 27 is

removed and applied to the boss 25 to close the lower outlet 17 as indicated in dotted lines in Fig. 2. The delivery tube 31 is then connected with the flange 18 as shown in Fig. 3. When the top outlet is closed, the delivery tube is connected with the boss 25 and the cap with the flange as shown in Fig. 1.

When the sight feed device is in use, the pumping apparatus in the reservoir of the force feed lubricator forces the oil under pressure into the lower chamber 2 through the nozzle 8 after passing the check valve 12. The presence of colorless liquid in the chamber 2 causes the oil to take globular form as it flows past the sight openings 4. A wire 33 may be employed to guide the oil globules from the nozzle to the chamber 3. The oil fills this chamber and also the passages leading to the lower outlet 17. If the top outlet 15 is used, the lower outlet 17 is closed by the cap 27 and the oil is discharged from the device through the top outlet. If the lower outlet is used, the top outlet is closed by the cap and the oil is delivered from the device through the lower outlet.

The upper portion of the nozzle 8, where it extends into the chamber 2, is tapered on its outer side to give it conical shape, the apex being at the upper or discharge end of the nozzle and having the oil passage or orifice of the nozzle opening therethrough. This causes the oil discharged from the nozzle into the chamber 2 to assume globular form equivalent to a gravity drop. Thus, the globules passing the sight openings 4, are each equivalent to a gravity drop, which is the unit of measure on which oil supplying companies, engine builders and operators usually base their calculations for force feed lubricator performance.

Instead of two oil outlets, one at the top of the device and the other at a lower point, as previously described, I may provide a sight feed device with a top outlet and a number of lower outlets arranged in spaced relation about the device as shown in Figs. 4 and 5. As there illustrated, the casing 1a of the device is provided with bull's-eye 5, 5 as before, and a plurality of oil outlets A, B, C and D. The outlet A is at the top of the casing and provides the top outlet of the device. The other outlets are adjacent the lower end of the casing. These are arranged about the casing at the rear and on the opposite sides of the same, respectively. The side outlets are marked B and C, while the rear outlet is marked D. The oil inlet is marked E and this is at the front of the device. The top outlet A opens directly into the upper oil supplying chamber of the casing as before and the lower outlets are connected with that chamber through a suitable arrangement of passages similar to that shown in Fig. 2, except, of course, that the disposition of the various passages will be such as to accommodate the positions of the respective outlets about the lower portion of the casing.

A sight feed device of the construction shown in Figs. 4 and 5 is particularly adapted for use in an oil delivery line as illustrated in Fig. 6 and the device 34 at the left of the figure has its oil outlet B on the right side of the casing connected with the bearing x to be lubricated. The device 35 at the right of the figure has its left outlet C connected with the bearing Y. Both the devices are connected through their inlets E with the same reservoir box F by pipes G, the reservoir containing a supply of lubricating oil and also the pumping apparatus for forcing the oil

through the sight feed devices. The outlets of the two devices not in use are closed by caps, such as 27 previously described. Check valves may be used in the delivery lines adjacent the bearings to which the lines are connected.

5 In the use of the sight feed device of my invention having a top outlet and one or more lower outlets, the delivery connection may be made with the most conveniently located outlet for the particular installation in which the lubricator is employed. Sight feed devices as heretofore made have been provided with only one outlet which has been at the top of the device. In some installations, this is not convenient for the arrangement of the delivery pipe or tubes leading from the lubricator and does not in all cases make a very sightly appearance. Providing the sight feed devices with one or more lower outlets, in addition to the top outlet in accordance with my invention, the delivery pipes from the lubricator may be taken off at lower points and lead directly away from the lubricator. Thus, a neater and more convenient delivery pipe arrangement may be obtained, than when only top outlets are available as heretofore. With top and lower outlets available, a selection is possible, as best fitting the pipe arrangement desired. The chamber 2 is filled or replenished with its colorless liquid through the top outlet of the device.

30 This is a handy way of filling the chamber when

the lower outlet is used for oil delivery, as the delivery line need not be broken to fill the sight feed chamber.

The details of construction and arrangement of parts shown and described may be variously changed and modified without departing from the spirit and scope of my invention, except as pointed out in the appended claim.

I claim as my invention:

In a lubricator device, a sight feed chamber 10 having a bore in a wall thereof, a passage communicating with said bore and having a diameter greater than that of said bore whereby to form a shoulder, a unitary feed nozzle and check valve assembly comprising a valve seat member having 15 a threaded exterior for insertion in said passage, an aperture extending axially through said member, a shoulder in said aperture forming a valve seat, a feed nozzle fixed in said aperture and having an axial passageway therein, a check valve 20 seated on said second shoulder, a spring cooperating with said valve to maintain it in closed position, said feed nozzle having a shoulder thereon cooperating with said first named shoulder, and a projecting tip, said tip extending through said bore into said chamber and said shoulder forming a seal against said first named shoulder between said chamber and said passage.

WILLIAM JAMES POWERS. 30