R. M. HARNE.

OIL CONTROL.

APPLICATION FILED MAR. 6, 1922.

1,433,613.

Patented Oct. 31, 1922.

2 SHEETS—SHEET 1.

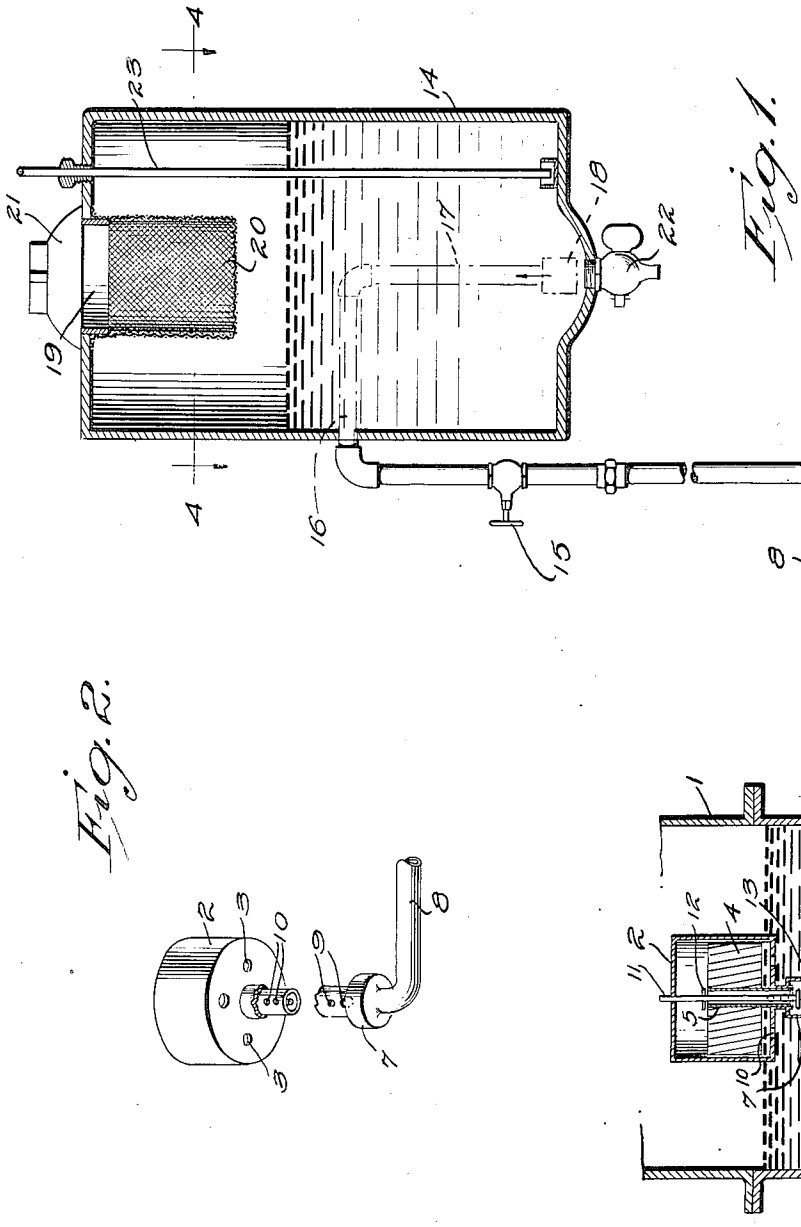


Fig. 1.

Fig. 2.

Inventor

R. M. HARNE

By

C. L. Parkin Attorney

R. M. HARNE.

OIL CONTROL.

APPLICATION FILED MAR. 6, 1922.

1,433,613. Patented Oct. 31, 1922.

2 SHEETS—SHEET 2.

Fig. 3.

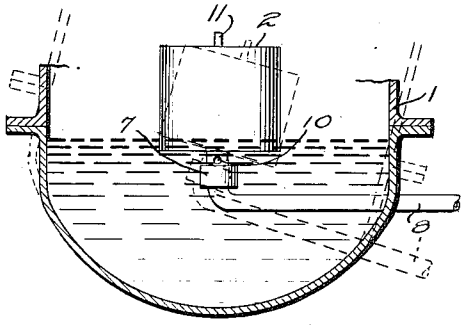


Fig. 4.

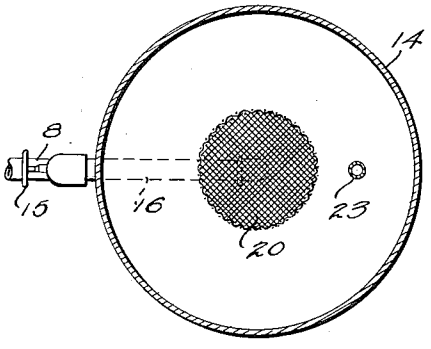
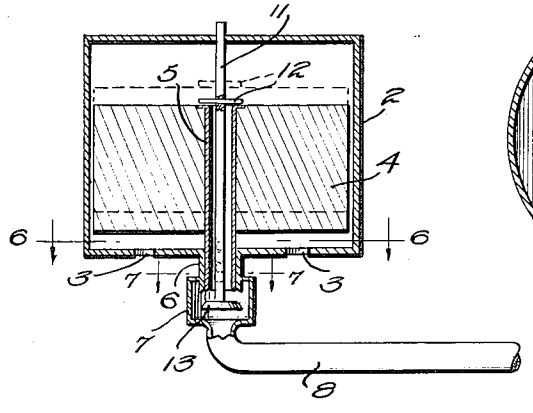


Fig. 5.



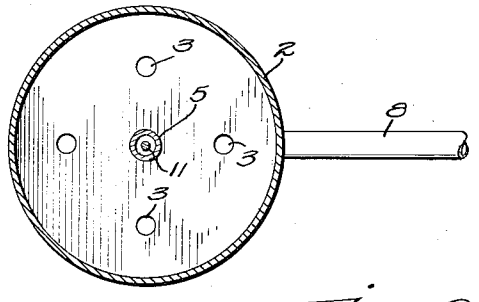


Fig. 6.

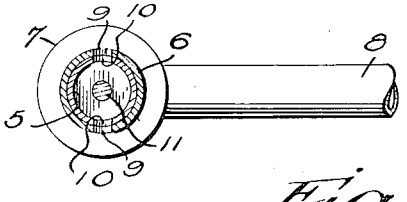


Fig. 7.

Inventor
R. M. HARNE

By

Attorney

Patented Oct. 31, 1922. 1,433,613

UNITED STATES PATENT OFFICE.

ROY M. HARNE, OF CRESTON, IOWA.

OIL CONTROL.

Application filed March 6, 1922. Serial No. 541,621.

To all whom it may concern:

Be it known that I, ROY M. HARNE, a citizen of the United States, residing at Creston, in the county of Union and State of Iowa, have invented certain new and useful Improvements in Oil Controls, of which the following is a specification.

This invention relates to oil controls for internal combustion engines, and it comprises a reservoir, a float chamber, adapted to be arranged in the crank case of an engine, a float arranged in said float chamber, and a cut-off valve controlled by said float whereby a definite level of oil in the crank case may be maintained at all times.

In lubricating internal combustion engines, it is the usual practice to supply oil to the crank case and then feed the oil, by force feed systems or splash system to the bearings to be lubricated. It is necessary to maintain the oil level above a certain low limit to prevent burnt out bearings and similar trouble, and in order to obtain this result, it is customary to supply more oil than is needed when the oil is replenished in order that sufficient oil may be present at all times until the oil is again replenished. This tends to provide an excess of oil at times which is detrimental to the running of the engine as it causes fouling of the plugs, deposition of carbon, and similar troubles.

In the present invention, I provide means for automatically feeding the oil from a reservoir arranged outside of the crank case whereby a definite oil level may be maintained at all times.

The flow of oil is controlled by a float arranged in a float chamber and this float chamber is disposed substantially centrally of the engine base to provide a proper level at all times regardless of the inclination of the surface on which the vehicle is traveling.

In the present invention, I further provide a valve mechanism controlled by the float consisting of a double cut-off valve whereby the flow of oil is effectually stopped when sufficient oil has flowed into the crank case.

In the accompanying drawings, I have shown one embodiment of the invention. In this showing:

Figure 1 is a transverse vertical sectional view showing the invention applied.

Figure 2 is a detail view of the float chamber and valve mechanism,

Figure 3 is a transverse sectional view of the crank case,

Figure 4 is a horizontal sectional view on line 4—4 of Figure 1,

Figure 5 is a detail vertical sectional view of the float chamber,

Figure 6 is a horizontal sectional view on line 6—6 of Figure 5, and,

Figure 7 is a similar view on line 7—7 of Figure 5.

Referring to the drawings, the reference numeral 1 designates generally the crank case of an internal combustion engine. A float chamber 2 is arranged in the crank case substantially centrally thereof. The bottom of the float chamber is provided with openings 3 communicating with the interior of the crank case to maintain a level of oil in the float chamber equal to the level in the crank case. A float 4 is arranged in the float chamber and this float is attached to a tubular valve member 5. The bottom of the float chamber is provided with an opening having a pipe 6 surrounding it, forming a neck or guide for the tubular member 5. The lower end of the pipe 6 communicates with a valve chamber 7 formed by an enlargement on the end of a delivery pipe 8. The pipe 6 is provided with a pair of openings 9, which are adapted to register with similar openings 10 in the sleeve valve to permit flow of oil from the pipe 8 to the interior of the crank case (see Figures 2 and 7). A valve stem 11 is arranged within the tubular valve member 5 and this stem is provided with a pin 12 which is adapted to engage the upper end of the tubular valve member to move the valve stem when the float raises and lowers. The lower end of this stem is provided with a valve 13, adapted to engage the lower end of pipe 6, to cut off the flow of oil.

The pipe 8 is connected to a reservoir 14, arranged at any suitable point on the vehicle and preferably disposed at a higher level than the level of the crank case. As shown, a cut off valve 15 may be arranged in the pipe 8. The pipe extends into the reservoir at a point above the bottom, being provided with a horizontal portion 16 and depending vertical portion 17, which terminates near the bottom of the reservoir. The lower end of the vertical portion 17 may

be provided with a suitable screen or filter 18. The reservoir is provided with a filling opening 19, having a suitable screen or filler 20, arranged therein. This opening is normally closed by cap 21. The lower end of the reservoir is provided with a drain opening 22. The pressure tube 23 may be arranged in the reservoir and this tube may extend to the instrumental board or other convenient location on the vehicle and be connected to a suitable gage to determine the level of oil therein.

In operation, the reservoir 14 is filled, or partially filled, with oil. When the level of oil in the crank case is below the desired limit, the float is in the full line position shown in Figure 5 of the drawings, with the valve 13 open and the openings 9 and 10 registering with each other. At this time, oil will flow into the crank case. As the oil level rises, the float is raised to the dotted line position, bringing the openings 9 and 10 out of alinement and thus cutting off the flow of oil to the crank case. As the float continues to rise, the valve stem 11 is lifted through the medium of pin 12, closing the valve 13.

By arranging the float chamber in the center of the crank case, transversely of the engine, the device functions properly, regardless of the position of the vehicle. Where the float chamber is arranged at one side of the crank case, if the vehicle is on uneven ground, the oil level at the side is either raised or lowered out of proportion to the proper level of oil in the crank case and either too much oil is obtained or the flow cut off at a time when more oil is needed.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. An oil feeding device comprising a reservoir, a float chamber adapted to be arranged in the crank case of an internal combustion engine, a float arranged in said float chamber, a feed pipe connecting said reservoir and float chamber, said pipe being provided with openings adjacent said float chamber communicating with the crank case of the engine, a sleeve valve connected to said float, extending into said pipe and normally covering said opening, and an auxiliary valve arranged in said pipe and controlled by said float.

2. An oil feeding device comprising a reservoir, a float chamber adapted to be arranged in the crank case of an internal combustion engine, a feed pipe connecting said reservoir and said float chamber, said feed pipe being provided with openings adjacent said float chamber communicating with the crank case of the engine, a float arranged in said float chamber, a sleeve valve connected to said float and extending into said feed pipe, said sleeve valve being provided with openings adapted to be moved into and out of registration with the openings in said pipe by the movement of said float, a cut-off valve arranged in said pipe, and a valve stem secured to said cut-off valve and extending through said sleeve valve.

3. An oil feeding device comprising a reservoir, a float chamber adapted to be arranged in the crank case of an internal combustion engine, a float arranged in said float chamber, a feed pipe connected with said reservoir, said pipe being provided with an enlargement within the crank case of the engine and adjacent said float chamber, a neck connecting said enlargement with said chamber, said neck being provided with an opening communicating with the interior of the crank case, a sleeve valve connected with said float and slidable in said neck to control the passage of fluid through the opening therein, a valve arranged in said enlargement, and means connected between said valve and said float for seating the valve against the lower end of said neck when the float rises a predetermined distance.

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

ROY M. HARNE.

Witnesses:
W. A. HENDERSON,
L. E. HARRELL.