July 24, 1962 L. F. PERKINS Re. 25,208

OIL GAUGE

Original Filed July 25, 1957

FIG. 1

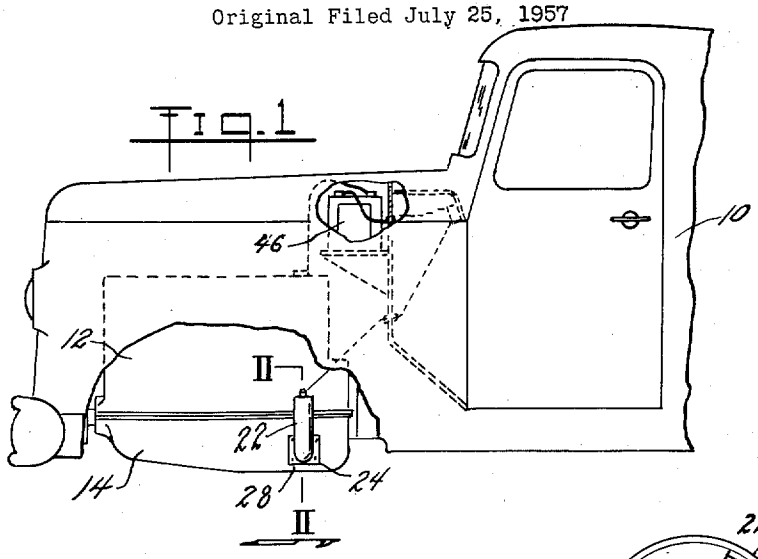


FIG. 2

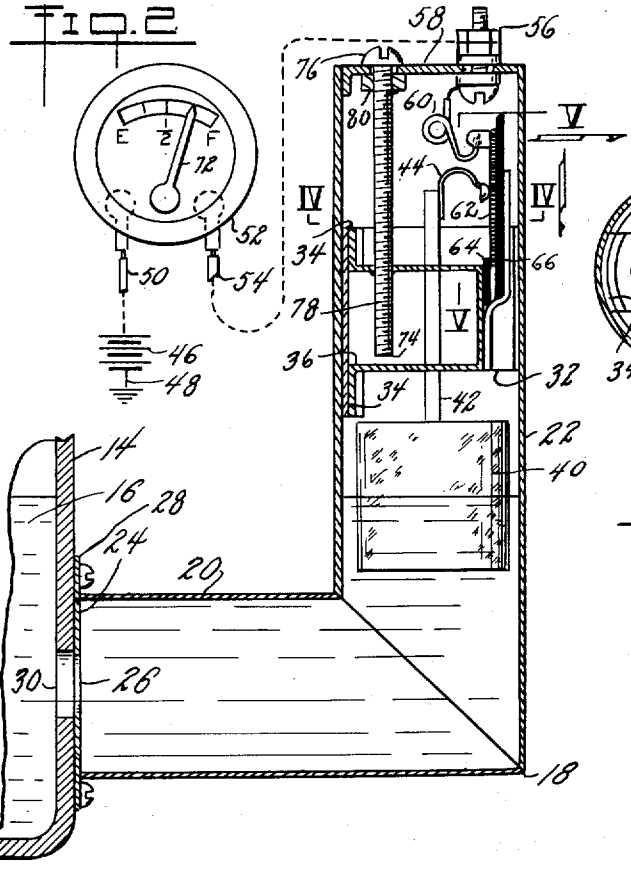


FIG. 3

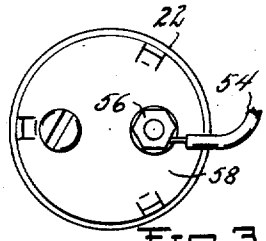


FIG. 4

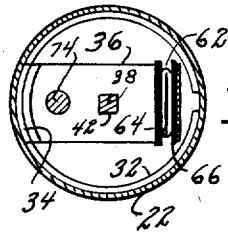
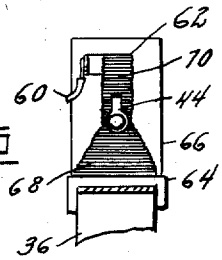


FIG. 5



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OIL GAUGE

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4 Claims. (Cl. 73—313)

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue.

This invention relates to gauges.

The commercial use of my former invention as disclosed in United States Leters Patent No. 2,738,674, issued March 20, 1956, indicated that the improvements herein provide a smoother, more stable operation, eliminating any fluctuations of the indicator, with a resultant more accurate and easier reading thereof, and furthermore incorporates additional desirable features.

An object of this invention is to provide a gauge which will accurately *indicate or* register the volume or level of oil in the oil pan of an internal combustion engine, compressor or the like.

Another object of this invention is to provide a sealed unitary construction readily attached to the oil pan of an internal combustion engine with a minimum of connections, and to provide an adjustable circuit for operating a visible *indicator or* gauge on the dashboard of a motor vehicle.

Another object of this invention is to provide a simple construction readily adjustable from the exterior thereof to accommodate and correct any variations in the *indicator or* gauge readings. Any disassembling of the device to make the corrective adjustments is eliminated.

And another object of this invention is to provide an oil gauge for an internal combustion engine which will steadily indicate the volume of oil in the oil pan, regardless of disturbances within the pan or movements of the vehicle driven by such engine.

Other objects and advantages of this invention relating to the arrangement, operation and functions of the related elements of the structure, to various details of construction, to combination of parts and to economies of manufacture, will be apparent to those skilled in the art upon consideration of the following description and appended claims, reference being had to the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

FIG. 1 is a partial side elevation of a motor vehicle having an internal combustion engine equipped with a gauge incorporating the improvements disclosed herein;

FIG. 2 is a view on the line II—II, FIG. 1;

FIG. 3 is a plan view of the gauge unit;

FIG. 4 is a view on the line IV—IV, FIG. 2; and

FIG. 5 is a view on the line V—V, FIG. 2.

The invention herein may readily be adapted to any machine which includes an oil pan, but is herein shown installed in a motor vehicle.

Motor vehicle **10** is powered by an internal combustion engine **12**, including an oil pan **14**. This pan contains oil supply **16**, a certain volume of which must be present to insure efficient operation of the engine **12**, and which volume requires periodic inspection for its maintenance. The gauge herein indicates the volume at all times during engine operation so that the effort incident to such inspection is reduced to a minimum.

The device includes a tubular L-shaped element **18** having a minor horizontal extension **20** in a connection with a vertical major chamber providing portion **22**. The minor extension **20** is attached as by welding to

mounting plate **24**, which plate is provided with an axial aperture **26** therethrough, and a flange **28** serving as means for attaching said unit **18** to the side of the oil pan, which pan is in turn provided with an aperture **30** therethrough in register with said aperture **26**.

It will be seen that oil from the pan will flow into the unit **18** until the level of oil in the vertical chamber or major tube **22** is coplanar with the oil in the pan, and due to the restricting apertures **26**, **30**, any turbulences or wave action within the oil in the chamber **22** is eliminated, regardless of disturbing features which may affect the oil in the pan.

It is apparent the gauging of the oil in the chamber **22** will accurately reflect the level of the oil in the pan **14**.

Frictionally held within the chamber **22**, intermediate its length, is a split ring support **32**, which is vertically adjustable within such chamber, as hereinafter described. This ring is provided with a pair of oppositely extending fingers **34**, which mount a horizontal extending U-shape bracket **36** therein. The substantially parallel legs of this U-shaped bracket are each provided with an aperture **38**, thereby providing a pair of aligned bearings.

A float **40** is disposed within the chamber **22** which rises and falls with the level of the oil therein. This float has polygonal stem **42** upwardly extending therefrom through the apertures **38**, which serve as bearings therefor and maintain the float in a non-rotary coaxial alignment within the chamber **22**. The end of the stem **42** remote from the float mounts spring finger **44**.

A source of electric energy is provided such as a battery **46** having one terminal connected by a line **48** to ground. The other terminal is connected by line **50** to one terminal of a gauge instrument **52** mounted on a convenient support such as the dash of the motor vehicle. The other terminal of the instrument is connected by line **54** to a terminal **56** mounted on cap **58** permanently fixed in the upper end of the chamber **22**, thus sealing the chamber to prevent any tampering with the mechanism within such chamber. The terminal **56** extends through the cap **58** and is insulated therefrom and has line **60** extending from its housed portion to a resistance *or other electrical contacting means* **62**. This resistance *or means* **62** is fixedly mounted on the bracket **[38]** *36* and insulated therefrom by plates **64**, **66**.

A preferred form of resistance is herein shown as having an upwardly tapered shaped base **68** continuing into a rectangular extension **70**. Any axial movement of the float **40** causes the finger **44** to slide along the face of the resistance, thereby varying the current flow in the lines **54**, **60** to ground. The variance is translated by the gauge **52** into positioning the pointer **72** in its indicating position. The shape of the resistance increases the nicety of readings particularly in the lower oil levels.

Adjustments or corrections may be made in the gauge circuit by raising or lowering the resistance element within the chamber **22**. To this end a screw **74** is carried by the cap **58** having its slotted head **76** exposed thereon and having its shank **78** extending downwardly within the chamber to threadedly engage the bracket **36**. Rotation of the screw causes the bracket **36** and the slit ring mounting **22** to be shifted vertically within the chamber **22**. Collar **80** about the shank **78** abutting the under side of the cap **58** maintains the screw against any axial shifting thereof.

To adjust the *electrical contacting means or* resistance, it is only necessary to rotate the screw head exterior of the device to thereby adjust the position of the *electrical contacting means or* resistance body in respect to the finger **44**. This eliminates any necessity of seeking access to the unit interior, which defeats any invitation to tamper with the mechanism and protects against possible contamination.

The mounting **32** has sufficient frictional contact with the housing **22** to prevent any looseness between the parts, yet allowing the adjustments from its exterior.

It is to be understood that the above description of the present invention is intended to disclose an embodiment thereof to those skilled in the art, but that the invention is not to be construed as limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawing, since the invention is capable of being practiced and carried out in various ways without departing from the spirit of the invention. The language used in the specification relating to the operation and function of the elements of the invention is employed for purposes of description and not of limitation, and it is not intended to limit the scope of the following claims beyond the requirements of the prior art.

What is claimed and desired to secure by United States Letters Patent:

1. An oil gauge for indicating the level of oil in an oil pan of an internal combustion engine, said oil pan including a bottom with sides upwardly extending therefrom and provided with an opening through one of said sides of a size to allow free flow of oil therethrough, an L-shaped tube of substantially constant diameter throughout its length greater than the diameter of said opening and including a minor horizontally disposed portion in communication with said opening and a major vertical portion as a continuation thereof whereby oil from the pan will maintain a body of oil in said major tube portion with a surface co-planar with the surface of oil in said pan, a split ring frictionally mounted within the major tube intermediate its length, a resistance thereon, a contact slidable along said resistance, a float on the oil in said major tube portion having an extension mounting said contact and controlling its position relative to the resistance and the surface of the oil in said tube, an electric circuit including a gauge remote from and including said resistance to operate said gauge in response to the position of said contact with the resistance, a cap for said tube fixed thereto, means mounted by said cap having an exposed element, and means extending from said element into the tube to engage said ring whereby manipulation of said element may adjust said ring vertically along the interior of said tube and consequently the position of said resistance relatively to the surface of the oil in said tube.

2. The structure set forth in claim 1 wherein the element and the means extending therefrom is a screw having its head exposed to the exterior of the cap and its shank extending into the tube to be threadedly engaged with the split ring structure.

3. The structure set forth in claim 1 wherein the resistance incorporates a body having a tapered base merging into a rectangular extension thereof.

4. An oil gauge for indicating the level of oil in an oil pan [of an internal combustion engine], said oil pan including a bottom with sides upwardly extending therefrom and provided with an opening through one of said sides of a size to allow free flow of oil therethrough, an L-shaped tube of substantially constant diameter throughout its length greater than the diameter of said opening and including a minor horizontally disposed portion in communication with said opening and a major vertical portion as a continuation thereof whereby oil from the pan will maintain a body of oil in said major tube portion with a surface co-planar with the surface of oil in said pan, said major vertical portion having its upper end closed by a fixed cap, a split ring frictionally mounted by the *major vertical tube* portion intermediate its length, a bracket mounted by said ring, [a resistance] *electrical contacting means* fixed on said bracket vertically extending therefrom, a contact slidable along said [resistance] *means,* a float on the oil in said major tube portion having an extension slidably mounted in said bracket and mounting said contact for controlling its position relative to the [resistance] *electrical contacting means,* and means for shifting said ring axially [with] *of* the tube including a screw mounted by said cap having its head exposed and a shank depending therefrom through the cap and into said tube to threadedly engage said bracket.

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