Sept. 1, 1953 R. N. ZIMMERMAN 2,650,969

ENGINE LOW OIL INDICATOR

Filed Feb. 24, 1950

Fig. 1.

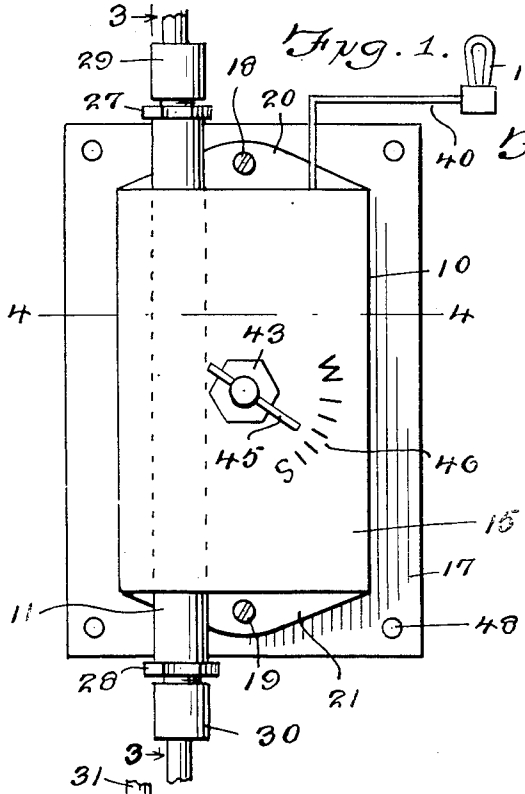


Fig. 2.

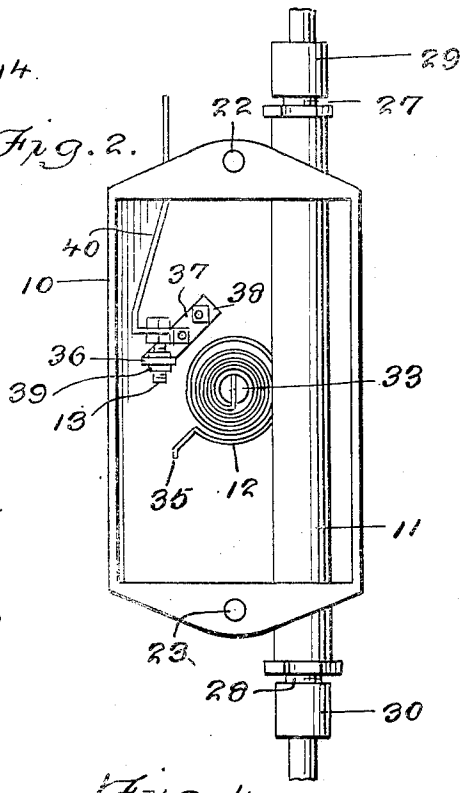


Fig. 3.

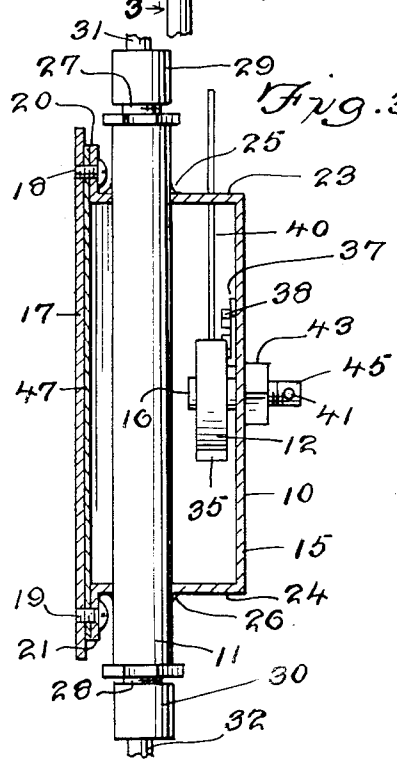


Fig. 4.

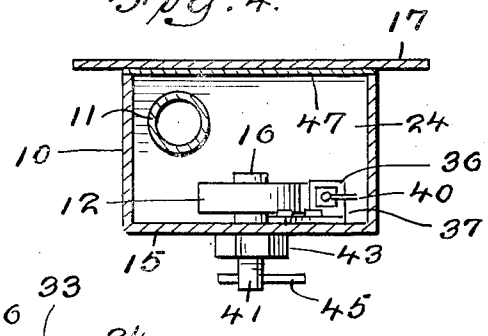
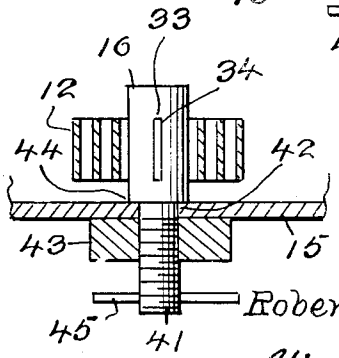


Fig. 5.



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ENGINE LOW OIL INDICATOR

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2 Claims. (Cl. 200—139)

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This invention relates to devices for indicating the oil level of internal combustion and other engines, and in particular the device relates to an engine oil protector or safety device including a small casing mounted in combination with an engine and having a thermostatic element in combination with a tube through which oil of the engine passes wherein with contact points for closing a circuit to a warning light at a remote point positioned to be actuated by the thermostatic element the thermostatic element is actuated by heated oil passing through the tube to close the contacts to light the warning light or provide a signal.

The purpose of this invention is to provide a device for providing a warning light when the oil of an engine is low to prevent burning out bearings and the like.

Numerous engines are operated when the oil is dangerously low because means is not provided that operate automatically to warn the operator of the engine that the oil is substantially exhausted. With this thought in mind this invention contemplates a comparatively small unit mounted on or in combination with an engine in which a thermostatic element in the unit is influenced by heated oil passing through a tube extended through the unit and the thermostatic element closes a circuit to light a warning signal lamp or actuate a warning device when the temperature of the oil passing through the unit reaches a predetermined degree.

The object of this invention is, therefore, to provide means for forming a small unit that may be mounted in combination with an engine and that is actuated to provide a safety or warning signal when the oil of an engine is too low for safe or efficient operation of the engine.

Another object of the invention is to provide a low oil warning device that may be mounted in combination with engines now in use without changing the engine or parts thereof.

A further object of the invention is to provide a low oil warning device for engines of the internal combustion and other types which is of a simple and economical construction.

With these and other features and advantages in view the invention embodies a casing having a tube extended therethrough with a thermostatic element and a contact point mounted therein whereby with the contact point connected to a signal the thermostatic element completes a circuit to actuate the signal when the temperature of fluid passing through the tube reaches a predetermined degree.

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Other features and advantages of the invention will appear from the following description taken in connection with the drawing wherein:

Figure 1 is a front elevation of the engine oil protector.

Figure 2 is a rear elevational view of the casing of the protector with the mounting plate omitted.

Figure 3 is a vertical section through the device taken on line 3—3 of Figure 1.

Figure 4 is a cross section through the device taken on line 4—4 of Figure 1.

Figure 5 is a detail illustrating the mounting of the thermostatic element in the casing through which the position of the element is adjustable to regulate the temperature at which the device operates.

Referring now to the drawing wherein like reference characters denote corresponding parts the engine low oil detector of this invention includes a casing 10, a tube 11 extended through the casing, a thermostatic element 12, a contact 13, and a signal light 14.

In the design shown, the casing 10 is rectangular shaped having an outer or front wall 15 in which the thermostatic element is mounted by a stud 16, and the casing is attached to a mounting plate 17 by screws 18 and 19 that extend through flanges 20 and 21, respectively. The flanges are provided with bolt holes 22 and 23, respectively, through which the screws extend.

The casing 10 is provided with an upper wall 23 and a lower wall 24 and the tube 11 extends through the walls 23 and 24 and is secured in position by welding as indicated at the points 25 and 26. The ends of the tube 11 are provided with threaded nipples 27 and 28 on which coupling members 29 and 30, respectively, are threaded, and, the coupling members connect oil tubes 31 and 32 to the ends of the tube 11.

In the design shown the thermostatic element 12 is in the form of a spiral with a straight inner end 33 extended through a slot 34 in the stud 16 and the outer coil of the element is provided with an end 35 that is positioned to engage the contact 13, as shown in Figure 2. The contact 13 is mounted in a flange 36 of a clamp 37 that is adjustably mounted on the inner surface of the outer wall 15 of the casing by a bolt 38. The contact 13 is insulated from the flange 36 by a bushing 39 and with the thermostatic element 12 grounded through the casing a circuit may be completed from a suitable source of current supply from the point 13 through the end 35 with the end in engagement with the contact and through the wire 40 to the light 14. The thermo-

static element is influenced by the heat to expand until the end 35 engages a contact 13.

The stud 16 is provided with a threaded stem 41 that extends through an opening 42 in the front wall 15 of the casing and a nut 43 on the stem 41 clamps a shoulder 44 against the inner surface of a wall 15. The outer end of the stem 41 is provided with a winding or turning key or pin 45, by which the stud may be rotated to adjust the position of the end 35 on the inside of the casing. The outer face of the casing may be provided with a scale 46 for indicating the position of the end 35 of the thermostatic element in relation to the contact 13.

A gasket 47 is provided between the inner face of the casing 10 and the flanges thereof and the mounting plate 17. The mounting plate 17 is provided with bolt holes 48 by which the casing may be mounted on or in combination with an engine housing.

It will be understood that modifications may be made in the design and arrangement of the parts without departing from the spirit of the invention.

What is claimed is:

1. An engine low oil indicator for the oil circulation system of an engine comprising a tube connected in the oil circulating system of the engine, a stud mounted adjacent said tube, means on said stud for adjusting said stud, a thermostatic bimetallic element connected at one end to said

stud and having a contact on the opposite end thereof positioned to be influenced by heat of the tube, a second contact adapted to be engaged by the end of the contact at the opposite end of the thermostatic element, and means for adjusting the position of the said second contact in relation to the contact on the thermostatic element.

2. In an engine low oil indicator, the combination which comprises a rectangular shaped casing, a tube extending longitudinally through said casing, a spiral bimetallic thermostatic element having a stud on one end which is adjustably mounted in the casing and having an opposite extended end, a contact adjustably mounted in the casing and adapted to be engaged by the extended end of the thermostatic element, and means mounted on the stud for indicating the position of the extended end of the thermostatic element from the exterior of the casing.

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