Jan. 30, 1934. J. KALIN 1,945,317

OIL LEVEL SWITCH

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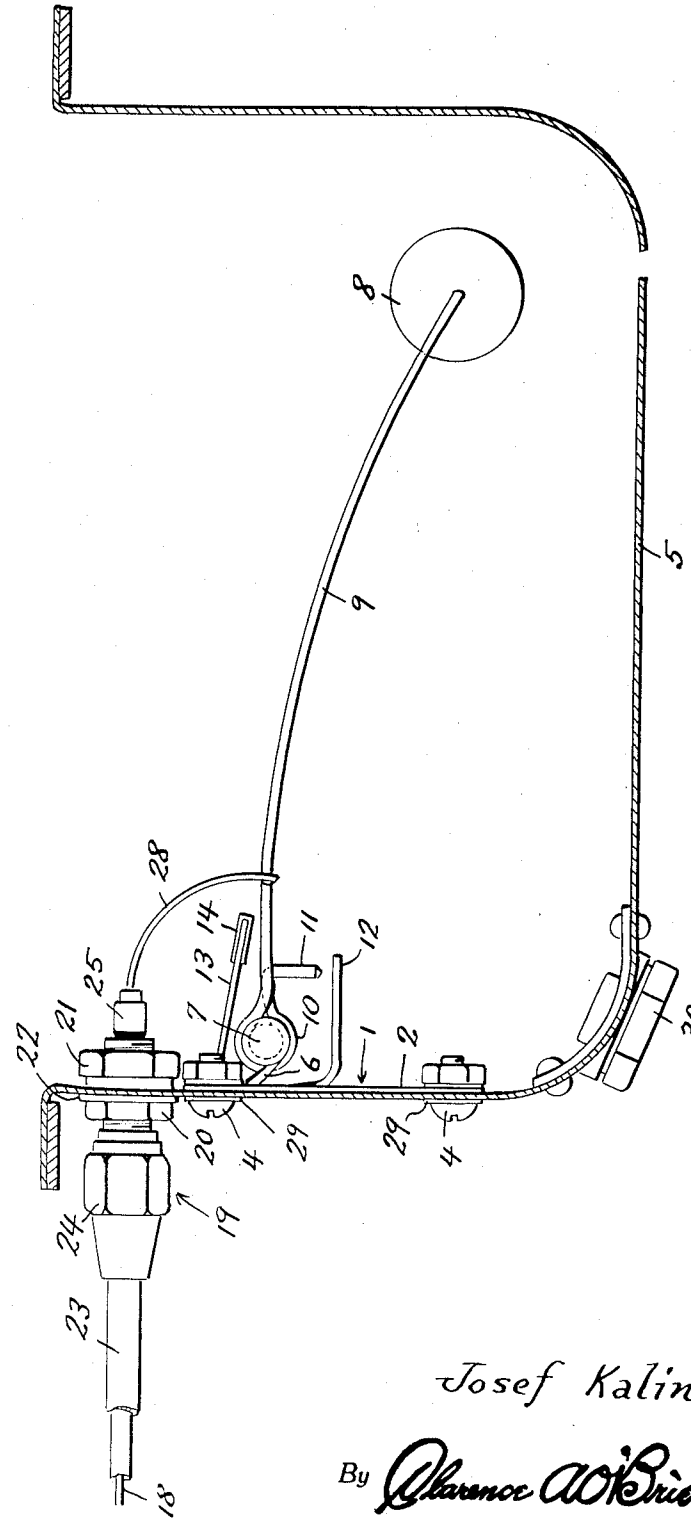

Fig. 1.

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Fig. 2.

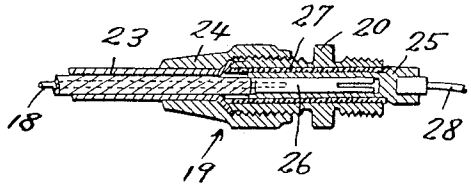


Fig. 3.

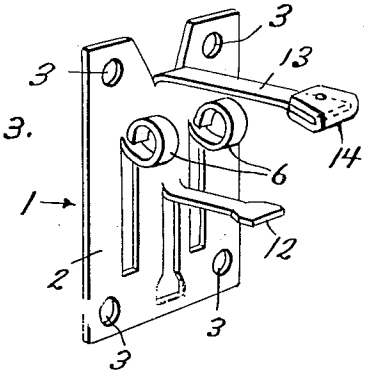
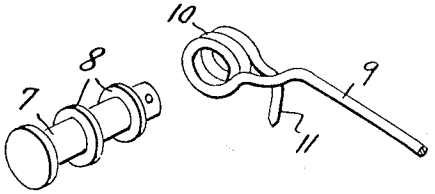


Fig. 4.



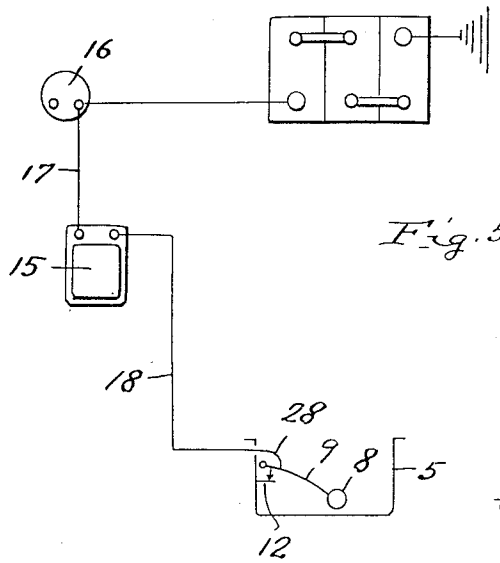


Fig. 5.

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UNITED STATES PATENT OFFICE

1,945,317

OIL LEVEL SWITCH

Josef Kalin, Lemoore, Calif.

Application June 20, 1933. Serial No. 676,747

2 Claims. (Cl. 200—84)

The present invention relates to signals in general, and more particularly to new and useful improvements in oil level signals for internal combustion engines, and has for its primary object to provide, in a manner as hereinafter set forth, a device of this character embodying a novel construction, combination and arrangement of parts, through the medium of which ample warning to the operator of an automobile will be automatically given should the oil in the pan of the engine fall below a predetermined level.

Other objects of the invention are to provide a signal of the aforementioned character which will be simple in construction, strong, durable, highly efficient and reliable in operation, compact and which may be manufactured and installed at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:—

Figure 1 is a view in vertical transverse section through an engine oil pan, showing, in side elevation, a signal in accordance with the present invention installed for operation.

Figure 2 is a detail view in vertical longitudinal section through the conductor wire coupling.

Figure 3 is a detail view in perspective of the bracket upon which the float is mounted.

Figure 4 is a detail view in perspective of the pivoted end portion of the float rod and the pin upon which said float rod is mounted, the parts being shown separated.

Figure 5 is a diagrammatic view of the electric circuit.

Referring now to the drawings in detail, it will be seen that the embodiment of the invention which has been illustrated comprises a bracket which is designated generally by the reference numeral 1, said bracket including a plate 2 having openings 3 therein for the accommodation of nut equipped securing bolts 4 through the medium of which the bracket is secured interiorly on one of the side walls of the engine oil pan 5.

Struck from the plate 2 are aligned eyes 6 in which a pin 7 of insulating material is mounted, said pin 7 including spaced flanges 8 between the eyes 6.

The reference numeral 8 designates a suitable float which is operable in the oil pan 5 on one end of a rod 9. The other end portion of the rod 9 is coiled, as at 10, around the pin 7 between the flanges 8 for swingingly mounting the float on the bracket 1. At its free end, the coil 10 terminates in a depending contact finger 11 which is engageable with a ground arm 12 which is struck from the plate 2. Upward swinging movement of the float rod 9 is limited by a stop 13 which projects from the plate 2, the free end portion of said stop 13 being insulated, as at 14.

The reference numeral 15 designates a suitable electric signal, preferably a buzzer, which is electrically connected with the positive side of the automobile ammeter 16, as at 17. A conductor wire 18 from the signal 15 is connected to the oil pan 5 by a coupling which is designated generally by the reference numeral 19. The coupling 19 includes a shell 20 having a polygonal head on an intermediate portion thereof for receiving a suitable tool, such as a wrench. The end portions of the shell 20 are externally threaded, the inner end portion of said shell extending through an opening provided therefor in the upper portion of the oil pan 5 above the bracket 1. A securing nut 21 is threaded on the shell 20 in the oil pan 5. The reference numeral 22 designates a suitable gasket or washer which is mounted on the shell 20 between the oil pan 5 and the polygonal head of said shell.

The outer end of the shell 20 is tapered to provide a seat for the flared end of a copper tube 23 which houses the conductor 18. The tubular conductor housing 23 is detachably secured to the shell 20 by a nut 24 which is threaded on said shell, the nut 24 including an internal, tapered shoulder engaged with the flared end portion of the housing 23.

Projecting into the shell 20 from the inner end thereof is a socket 25 which receives the terminal 26 on the end of the conductor 18. The socket 25 is insulated from the shell 20 by a sleeve 27. A conductor wire 28 has one end anchored to the socket 25 and its other end anchored to the float rod 9.

Briefly, the operation of the device is as follows:

When the oil in the pan 5 of the engine is at normal operating level, or substantially so, the contact finger 11 is out of engagement with the contact arm 12 and the electric circuit in which the buzzer is interposed is open, as will be apparent. However, should the oil in the pan 5 fall below a predetermined level, the contact finger 11 engages the arm 12, thereby grounding the electric circuit and energizing the buzzer 15. The flexibility of the conductor 28, of course, per-

mits the float to swing freely. As previously stated, the insulated stop 13 limits upward swinging movement of the float regardless of the quantity of oil in the pan 5. Washers 29 of suitable material, preferably soft copper, are mounted on the bolts 4 and engaged with the outer side of the pan 5. The reference numeral 30 designates the drain plug of the oil pan 5.

It is believed that the many advantages of a signal constructed in accordance with the present invention will be readily understood, and although the preferred embodiment of the invention is as illustrated and described, it is to be understood that changes in the details of construction and in the combination and arrangement of parts may be resorted to which will fall within the scope of the invention as claimed.

What is claimed is:—

1. An oil level warning device for internal combustion engines comprising, a bracket mounted in the oil pan of the engine, said bracket including a metallic plate electrically engaged with the oil pan, aligned eyes struck from the plate, a ground arm struck from the plate, a stop projecting from the plate, a pin of insulating material mounted in the eyes, a rod mounted for swinging movement on the pin, a float on said rod, said rod being constructed of electrical conducting material and including a contact finger engageable with the arm.

2. An oil level warning device, a circuit closer for internal combustion engines comprising a bracket mounted in the oil pan of the engine, a pivot member mounted on said bracket, a rod, a float on the rod operable in the oil of the pan, a coil on one end of the rod encircling the pivot member for mounting the rod for swinging movement on said pivot member, said coil terminating at one end in a contact finger, a contact arm electrically connected with the oil pan and engageable by said finger, said rod being constructed of electrical conducting material.

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