March 22, 1932. W. F. BROWN 1,850,863

INDICATING MACHINE

Filed Jan. 24, 1930

Fig 1

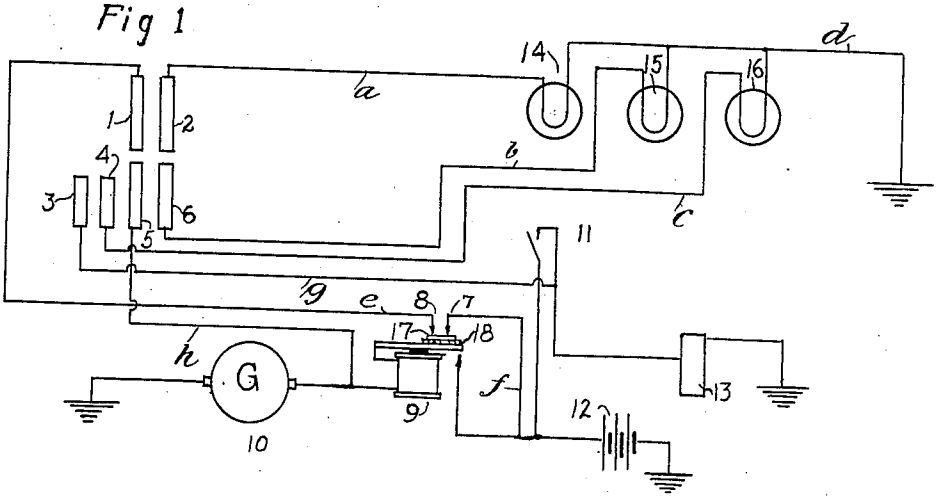
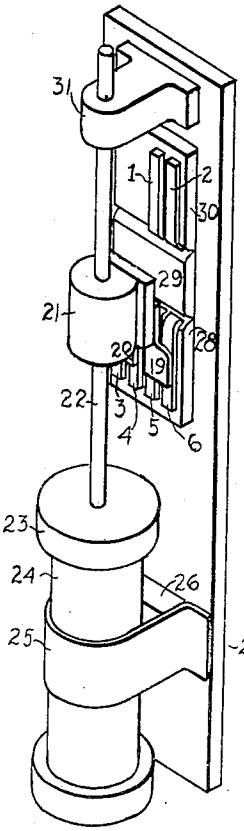


Fig. 2



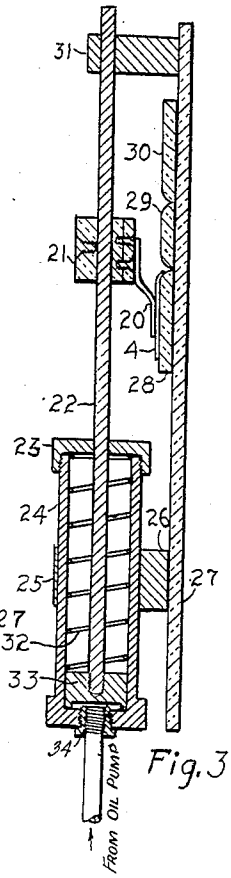
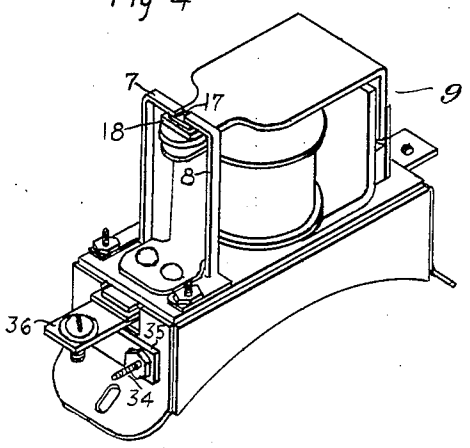


Fig. 3

Fig 4



W. F. Brown

Inventor

Patented Mar. 22, 1932

1,850,863

UNITED STATES PATENT OFFICE

WILLIAM F. BROWN, OF FRANKLIN, TENNESSEE

INDICATING MACHINE

Application filed January 24, 1930. Serial No. 423,232.

This invention relates to an indicating system for motor vehicles, aeroplanes and the like, the general object of the invention being to provide lamps and circuits therefor for indicating when the ignition switch is left closed with the motor inoperative, when the oil pump fails to work and when the generator fails to work.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a diagrammatic view of the invention.

Figure 2 is a perspective view showing the base with the oil cylinder and contacts thereon.

Figure 3 is a vertical sectional view through Figure 2.

Figure 4 is a view of the generator cut-out, with the additional contacts thereon.

In this drawing, the numeral 27 indicates a base to which the cylinder 24 is attached by a strap 25, a block 26 holding the cylinder spaced from the base. This cylinder has a nipple 34 in its bottom to which a pipe leading from the oil pump is connected and a piston 33 is located in the cylinder, with its rod 22 passing through the cap 23 which is connected with the top of the cylinder. A spring 32 holds the piston in its lowest position. The upper end of the rod 22 is guided by the bracket 31 on the base and a member 21 of insulating material is attached to the rod intermediate its ends. This member carries the spring contacts 19 and 20. Blocks 28, 29 and 30 of insulating material are fastened to the base, the block 28 carrying the pairs of contacts 3, 4, 5 and 6. The block 30 carries a pair of contacts 1 and 2. The contacts are so arranged that the spring contact 19 will bridge the contacts 5 and 6 when the piston is in the lower part of the cylinder; and said contact 19 will engage the contacts 1 and 2 when the piston is in raised position. The spring contact 20 will bridge the contacts 3 and 4 when the piston is in the lower part of the cylinder, it being understood that the piston is raised when the oil pump is working.

A green lamp 14 is connected by a conductor *a* with the contact 2, a red lamp 15 is connected by a conductor *b* with the contact 6 and a yellow lamp 16 is connected by the conductor *c* with the contact 4. All these lamps are connected to the ground conductor *d*.

The generator cut-out is indicated at 9 and the generator at 10, the numeral 12 indicating the battery or other source of supply and the numeral 13 indicates the ignition coil and 11 the ignition switch. A block 18 of insulating material is carried by the armature of the cut-out and supports a contact 17. Contacts 7 and 8 are supported from the cut-out and insulated therefrom and these contacts 7 and 8 will be engaged by the contacts 17 when the armature is in raised position. The contact 8 is connected with the terminal 36 and a conductor *e* connects this terminal with the contact 1. The contact 7 is connected with the terminal 34 and this terminal is connected by a conductor *f* with the battery. A conductor *g* connects the contact 3 with the line between the coil and switch and a conductor *h* connects the contact 5 with the generator side of the cut-out.

Thus it will be seen that when the ignition switch is left closed and the motor is idle or inoperative, the piston 33 will be at the bottom of the cylinder, due to the fact that the oil pump is not operating. Thus the contacts 3 and 4 will be bridged by the contact 20, so that current will pass to the yellow lamp 16 to indicate to the operator that he has left on the ignition switch. No current will pass to the red lamp 15 as the contact 5 is connected with the generator side of the cut-out and thus no current will pass through the conductor *h* when the motor is inoperative. When the motor is started, the oil pressure, acting on the piston 33, will raise the piston and thus cause the contacts 19 and 20 to pass off the contacts 3, 4, 5 and 6, and as the contact 20 leaves the contacts 3 and 4, the cir-

cuit to the yellow lamp 16 will be broken. If the oil pump should fail to function when the motor is started, the contact 19 would bridge the contacts 5 and 6, so that current would pass over the conductor *h* through the contacts 5, 6 and 19, conductor *b* to the red lamp 15, thus indicating that the oil pump is not operating. If the generator is not charging and the oil pump is working, the movement of the piston 33 by the oil pressure will raise the contact 19 into engagement with the contacts 1 and 2 and then current would pass from the battery through the contacts 7, 8 and 17, conductor *e*, contacts 1, 19 and 2, through conductor *a* to the green lamp 14, to indicate that the generator is not charging.

From the foregoing it will be seen that when the yellow lamp is lighted, the operator will know that he has left his ignition switch on, when the red lamp is lighted, the operator will know that the oil pump is not working, and when the green lamp is lighted, he will know that the generator has failed.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What I claim is:—

1. In combination with an internal combustion motor, an ignition device having a switch and coil, an oiling mechanism, and a generator cut-out having an armature, of a switch closed by the armature of the generator cut-out when the generator is inactive, three lamps of different colors, a pair of contacts, a conductor connecting one of the contacts with one of the lamps, a conductor connecting the other contact with the switch, a conductor connecting the switch with a battery, a second pair of contacts, a conductor connecting one of these contacts with the second lamp, a conductor connecting the other one of these contacts with the generator side of the cut-out, a third pair of contacts, a conductor connecting one of these contacts with the third lamp, a conductor connecting the other one of these contacts to that part of the ignition device between its switch and coil, a pair of movable spring contacts, one of which is adapted to engage the second pair of before mentioned contacts when in lowered position and the first pair of contacts when in raised position, the other spring contact engaging the third pair of contacts when in lowered position, a cylinder connected with the oiling mechanism, a piston therein raised by the pressure in the mechanism and a rod carried by the piston and to which the spring contacts are connected.

2. In combination with a motor vehicle, an ignition device having a switch and coil, an oiling mechanism and a generator cut-out having an armature, of three lamps of different colors, a pair of contacts arranged in the circuit of each lamp, a pressure responsive device connected with the oiling mechanism including a movable wall actuated by the pressure in the oiling mechanism, a contact, means for moving the contact by movement of said wall and engaging one pair of contacts when the wall is in the no pressure position and engaging another pair of contacts when the wall is actuated by the oil pressure, a second contact operated by said means for engaging the third pair of contacts when the wall is in the no pressure position, a contact of one pair being connected with the ignition switch, a contact of another pair being connected with the generator side of the generator cut-out and a switch closed by the cut-out armature when the generator is inactive, said switch being connected with a battery and with a contact of the third pair of contacts.

In testimony whereof I affix my signature.

WILLIAM F. BROWN.