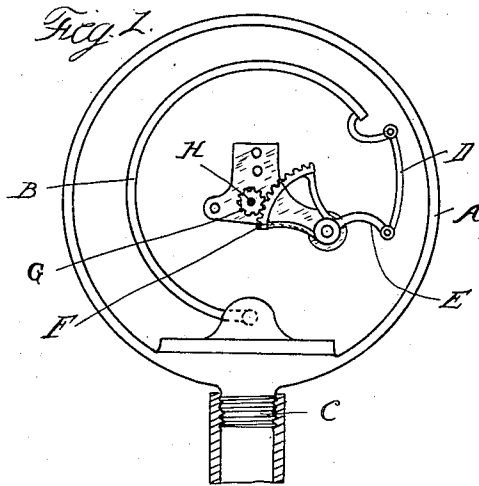
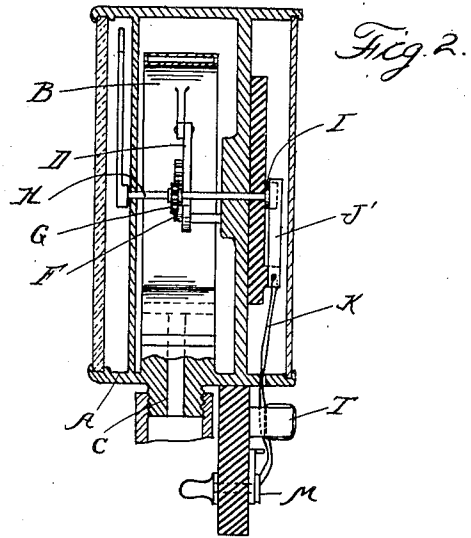
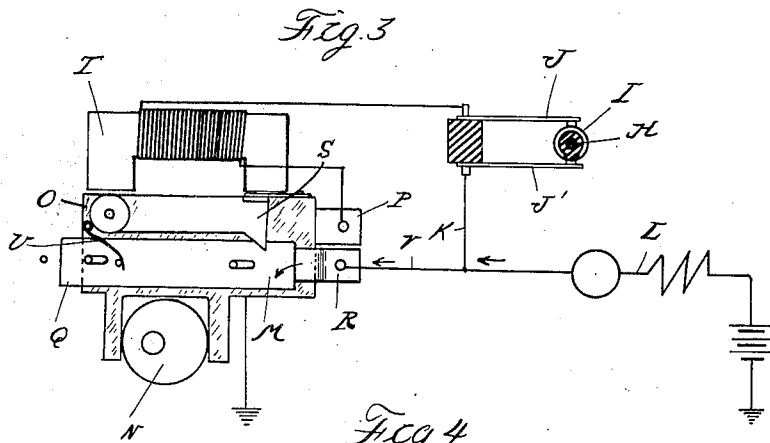
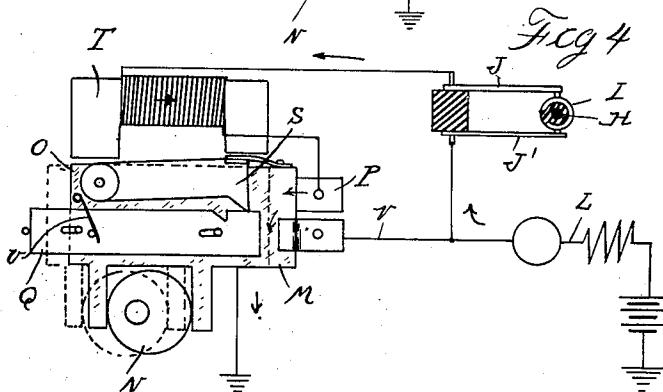


E. A. WERNER.
 COMBINED IGNITION CONTROL AND OIL GAGE FOR ENGINES.
 APPLICATION FILED OCT. 10, 1919.

1,364,908.

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UNITED STATES PATENT OFFICE.

EDWARD A. WERNER, OF ST. CLAIR, MICHIGAN.

COMBINED IGNITION CONTROL AND OIL-GAGE FOR ENGINES.

1,364,908.

Specification of Letters Patent.

Patented Jan. 11, 1921.

Application filed October 10, 1919. Serial No. 329,701.

To all whom it may concern:

Be it known that I, EDWARD A. WERNER, a citizen of the United States of America, residing at St. Clair, in the county of St. Clair and State of Michigan, have invented certain new and useful Improvements in Combined Ignition Control and Oil-Gages for Engines, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to engines having electrical ignition and pressure lubricating systems. It is the object of the invention to obtain; first, a combined oil gage or indicator and ignition controlling switch; second, to automatically control the ignition by the pressure of the oil, so that failure of lubricant will cause the stopping of the engine; third, to dispense with the necessity of several separate instruments, such as the starting switch, a gage and automatic control and to perform all of these functions by a single instrument.

In the drawings:

Figure 1 is a cross-section through the instrument showing the indicator mechanism for the oil gage;

Fig. 2 is a section in the plane at right angles to Fig. 1;

Fig. 3 is an elevation of the electric switch showing diagrammatically the electric circuits;

Fig. 4 is a similar view with the parts in a different position of adjustment.

On motor vehicles and in other places where engines are used, it is customary to provide an oil gage or indicator which is so located as to be in view of the operator. It has been found, however, that it is unsafe to rely upon the observation of the operator and is safer to provide automatic means for stopping the engine when there is a failure of lubricant. There is also usually provided a manually operable switch for controlling the ignition circuit, which is separate and distinct from the other instruments on a car. With my improved construction these three instruments are associated as follows:

A is the casing of an indicator which as shown comprises the spiral tube B at one end thereof connected by the nipple C with a supply of oil under pressure, while the opposite end is coupled by a link D with a lever E carrying a gear segment F in mesh with a pinion G on the indicator spindle H.

This mechanism is the usual construction of a pressure indicator and in operation the pressure of the oil will be registered thereby.

The automatic switch for controlling the ignition circuit is located in the same housing A and preferably in rear of the gage mechanism. As shown, this switch comprises a movable contact member I which is mounted on a rearward extension of the shaft H and is arranged to bridge between cooperating contact members J and J' whenever the gage indicates pressure. The contacts J and J' are in a branch K of the ignition circuit L, which circuit also includes a manually operable starting switch M by which it may be first closed. When, however, the contact I is in a position to bridge between the contacts J and J', the ignition circuit L will be completed through the branch K and the direct connection between the circuit L and the switch M will be broken. This is accomplished through a switch construction, which as specifically shown is constructed as follows:

N is a manually operable switch actuating member shown as an eccentric. O is a contact member moved by the rotation of the eccentric N to close with a cooperating contact P. Q is a contact member slidably mounted upon the member O and movable therewith into contact with a cooperating contact member R. S is a dog on the member O engaging a notch in the member Q and forming the actuating means with the latter when the member O is operated. T is an electro-magnet for withdrawing the dog S to permit the member Q to move independently of the member O. U is a spring for actuating the member Q when released by the dog S.

The switch just described is connected into the ignition circuit by placing the electro-magnet T in series with the contacts J, J' and I in the branch K and also connecting the contact P with said branch. The contact R is connected in a shunt V around the contacts J, J' and I and magnet T, so that when the switch M is first closed, the ignition circuit will be established through the shunt V. This will start the engine and after pressure is developed on the lubricant, the operation of the gage will cause a rotation of the shaft H so that the contact I will close the branch circuit K. This will energize the magnet T which releases the dog S from the member Q and breaks elec-

trical connection between said member and the contact R. The ignition circuit is, however, still closed by way of the branch K and will remain closed until the switch M is manually operative to retract the member O. This will break connection between the member O and contact P, opening the branch circuit K and stopping the engine.

From the operation as above described it is evident that my improved switch performs a three-fold function:—First, it takes the place of the ordinary manually operable ignition switch which closes the ignition circuit to start the engine; second, it constitutes an automatic stopping device for opening the ignition circuit whenever there is a failure in lubricant; third, it may be operated manually to open the ignition circuit when the engine is to be stopped. Furthermore, as the switch is associated with the indicating gage and is preferably mounted in the same housing, this single instrument will take the place of several which are commonly employed.

What I claim as my invention is:

1. The combination with a gage for indicating pressure of a lubricant circulating system, of an electric switch associated with said gage controlling an ignition circuit, said switch being normally in open position when there is no pressure on the gage, an auxiliary switch for initially closing the circuit, and means actuated by the pressure indicating mechanism of said gage for closing the main switch and releasing said auxiliary switch.

2. The combination with a gage for indicating pressure of a lubricant circulating system, of an electric switch for controlling an ignition circuit associated with said gage, said switch being normally open when the gage indicates no pressure, a manually operable auxiliary switch for closing said ignition circuit, means for temporarily holding said auxiliary switch closed after the operation thereof, means automatically operating

upon registration of pressure by said gage for closing the main switch and for releasing the auxiliary switch.

3. The combination with a gage for indicating pressure of a lubricant circulating system, of an electric switch for automatically controlling an ignition system, and a manually operable auxiliary switch for said system, all of said devices being associated in a single instrument.

4. The combination with a gage for indicating pressure of a lubricant-circulating system, of a manually operable switch for closing and opening the ignition circuit, an automatic switch for opening the ignition circuit on failure of pressure of the lubricant, and means whereby said automatic switch is only rendered operable after the lubricant pressure is first established.

5. In a lubricant circulating system, the combination with an ignition circuit, of a rotatable shaft, means secured to said shaft for indicating the pressure of the lubricant, a spiral tube actuated by the pressure of the lubricant, and operatively connected to said shaft to rotate the same, and means upon said shaft for closing said ignition circuit upon rotation of said shaft.

6. The combination with a gage for indicating the pressure of a lubricant circulating system, of a switch controlling an ignition circuit associated with said gage in a single instrument, and automatic means for opening said switch by the indicator mechanism upon failure of pressure of the lubricant.

7. The combination with a gage for indicating the pressure of a lubricant circulating system, of a switch controlled by the pressure of the lubricant and controlling an ignition circuit associated with said gage, and automatic means for opening said switch by the indicator mechanism upon failure of pressure of the lubricant.

In testimony whereof I affix my signature.

EDWARD A. WERNER.