Nov. 23, 1926. 1,607,831

G. A. KROHN

IGNITION TIMER

Filed July 21, 1922

FIG. 1.

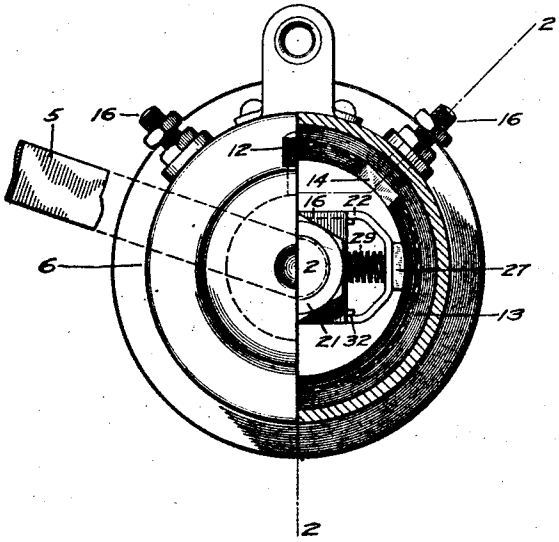


FIG. 3.

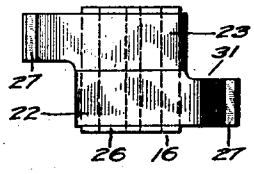


FIG. 4.

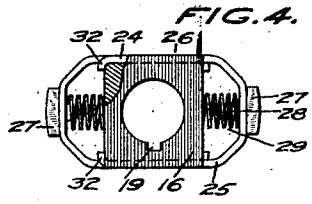
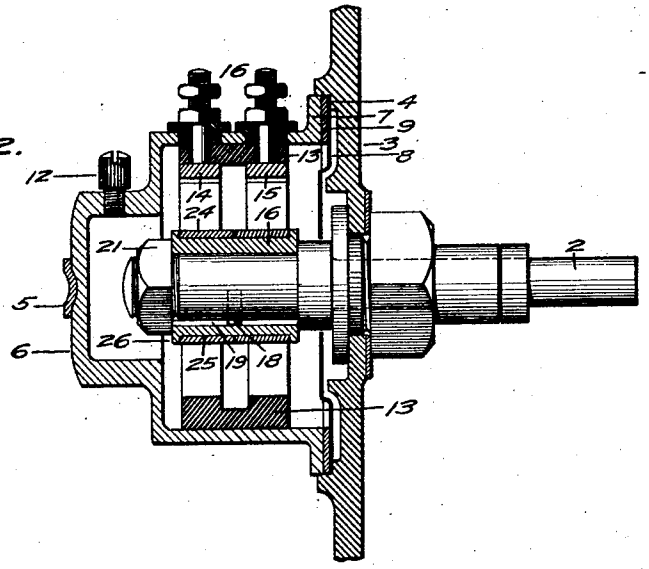


FIG. 2.



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Patented Nov. 23, 1926. 1,607,831

UNITED STATES PATENT OFFICE.

GUSTAVE A. KROHN, OF COARSEGOLD, CALIFORNIA.

IGNITION TIMER.

Application filed July 21, 1922. Serial No. 576,452.

The invention relates to ignition timers for internal combustion engines.

An object of the invention is to provide an ignition timer in which the distributor head operates in a bath of oil.

Another object of the invention is to provide an improved form of distributor head.

A further object of the invention is to provide a timer which may be used to replace the standard timers on Ford automobiles and tractors, without any mechanical operations.

The invention possesses other advantageous features, some of which, with the foregoing, will be set forth at length in the following description, where I shall outline in full, that form of the invention which I have selected for illustration in the drawings accompanying and forming part of the present specification. In said drawings I have shown one embodiment of my invention, but it is to be understood that I do not limit myself to such form, since the invention, as set forth in the claims, may be embodied in a plurality of forms.

Referring to said drawings:—

Figure 1 is a half front elevation, half vertical section of the timer.

Fig. 2 is a section of the timer taken on the line 2—2, Fig. 1.

Fig. 3 is a side elevation of the distributor head.

Fig. 4 is an end elevation of the distributor head.

The present invention relates particularly to ignition timers such as shown in my copending application Serial No. 539,358 filed February 27, 1922, but is also applicable to other types of timers.

In Ford automobiles the timer is arranged in a cup or shell surrounding the timer shaft 2 which extends through the front plate 3 of the crank case. The timer cup seats within a circular shoulder 4, on the plate 3, and is held in position by a spring arm 5. The timer of my invention is constructed so that it may be substituted for the standard Ford timer, in a few minutes. My timer comprises a metallic cup or shell 6 having a flanged rear end 7 adapted to seat in the shoulder 4 and be held in place by the spring arm 5. Surrounding the shaft 2 and seating within the shoulder 4 is a thin sheet metal washer or partition 8. The aperture in the washer is only slightly larger than the shaft, so that the washer forms the back wall of the timer chamber. Interposed between the washer and the flange 7 is a circular gasket 9, which seals the joint between the cup 6 and the washer, thus forming an oil-tight reservoir in the bottom of the cup. Oil is introduced into the cup through the aperture normally closed by the plug 12, so that a bath of oil is continuously provided, through which the distributor arms pass.

The distributor contacts are arranged within and insulated from the shell. In the present instance, the contacts are carried by a ring 13 of insulating material seated in the shell and instead of being spaced apart equally circumferentially, the contacts are arranged in two pairs, the contacts 14—15 in each pair being arranged side-by-side. Both pairs of contacts are arranged above the horizontal center line through the timer, so that no dirt or other foreign material may fall by gravity onto the contacts. Each contact is provided with a binding post 16, suitably insulated from the shell, and, due to the position of the contacts, the binding posts are disposed above the center of the timer, so that they and the connected wires, will not become fouled with oil.

The distributor head is secured to the timing shaft 2 and comprises a rectangular metallic block 16, having a bore therein to receive the timing shaft. The shaft is provided with a shoulder 17 against which the block 16 seats and with a radially projecting pin 18, which extends into a key-way 19 in the block, to cause the block to rotate with the shaft. The block is held against the shoulder 17 by the nut 21.

Mounted on the block, in side-by-side relation, are the contact arms 22 and 23, one arm being adapted to complete the circuit through the front contacts 14 of each pair and the other arm being adapted to complete the circuit through the rear contacts of each pair. Due to the arrangement of the contacts, the contact arms are diametrically opposed.

Each arm comprises a U-shaped slide, the two legs 24—25 of which contact with opposite faces of the block. Shoulders 26 on the sides of the block hold the slides from transverse displacement. Suitably secured to the outer portion of each slide, is a contact brush 27, which may be held in place by a screw 28 or which may be spot welded. The slides are normally pressed outward radially by

springs 29, interposed between the block and the slides, so that the brushes make good contact with the contact segments. At their outer ends, the adjacent side edges of the slides are cut away, as at 31, to space the contact brushes apart transversely in accordance with the spacing of the contact segments of each pair. This prevents a slight offset of a slide from causing contact with both segments of a pair. Outward movement of each slide is limited by a toe 32, turned down at the rear edge of the slide and adapted to contact with the block when the slide is fully extended.

I claim:

1. In an ignition timer, a distributor head comprising a block having a pair of oppositely disposed parallel outer sides, contact slides carried by said block and slidably engaging said sides, means for urging said slides outwardly and means for limiting the outward sliding movement of the slides.

2. In an ignition timer, a distributor head comprising a block, contact slides fitting over said block, shoulders on said block for guiding said slides, spring for urging said slides outwardly and contact brushes secured to said slides.

3. In an ignition timer, a distributor head comprising a block, U-shaped contact slides fitting over and slidably engaging said block, means for urging said slides outwardly and means for guiding said slides on said block.

4. In an ignition timer, a distributor head comprising a block, two opposed contact slides arranged in side-by-side relation longitudinally of the axis of rotation of the head and slidably fitting over outwardly disposed faces of said block, and springs for urging said slides outwardly.

5. In an ignition timer, a distributor head comprising a block, two opposed U-shaped contact slides fitting over said block in side by side relation longitudinally of the axis of rotation of the block, springs pressing said slides outwardly in opposite directions and means on each slide for limiting its outward movement.

6. In an ignition timer, a rotatable distributor head comprising a block, opposed contact slides fitting over said block and arranged in side by side relation longitudinally of the axis of rotation of the head, a relatively fixed timer shell inclosing said block, and two pairs of longitudinally aligned insulated contact segments arranged in said shell, the contact segment of each pair being arranged to be engaged by a different contact slide upon rotation of the head.

7. In an ignition timer, a rotatable distributor head comprising a block, contact slides fitting over said block and arranged in side by side relation longitudinally of the axis of rotation of the head, a relatively fixed timer head inclosing said block, and sets of longitudinally aligned contact members carried by said shell, the contact members of each set being arranged to be engaged by a different contact slide upon rotation of the head.

In testimony whereof, I have hereunto set my hand.

GUSTAVE A. KROHN.