Nov. 11, 1924. 1,514,596

C. W. ADAMS

TIMER FOR GAS ENGINES

Filed Oct. 19, 1923

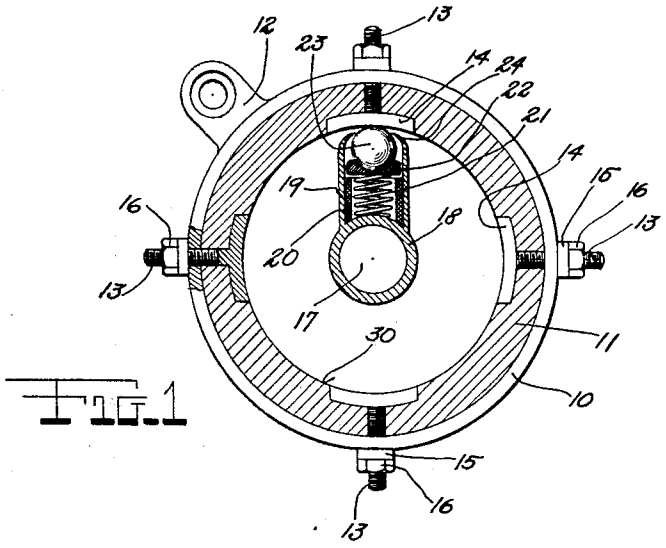


FIG. 1

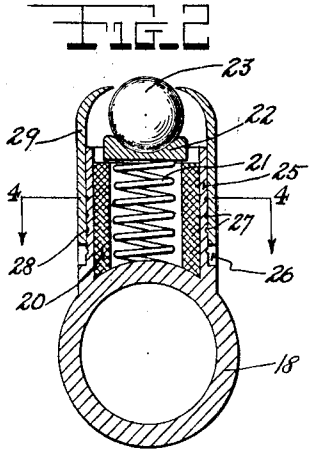


FIG. 2

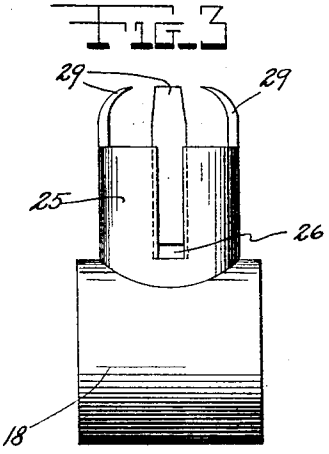


FIG. 3

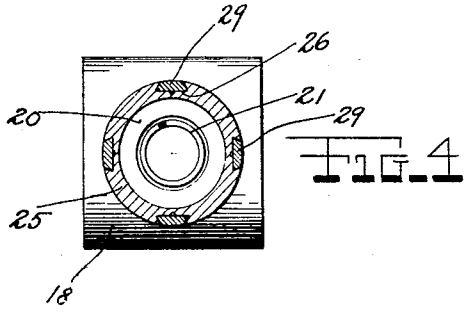


FIG. 4

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Patented Nov. 11, 1924. 1,514,596

UNITED STATES PATENT OFFICE.

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TIMER FOR GAS ENGINES.

Application filed October 19, 1923. Serial No. 669,458.

To all whom it may concern:

Be it known that I, CLYDE W. ADAMS, a citizen of the United States, residing at Elmhurst, in the county of Queens and State of New York, have invented certain new and useful Improvements in Timers for Gas Engines, of which the following is a specification.

The main object of this invention is to provide a circuit closer for an ignition system of a combustion engine and one which is particularly adaptable to a Ford distributor.

Another object is to provide a commutator arm for a circuit closer having means thereon for automatically and continually lubricating the contacting member of said arm.

Still another object is to provide a circuit closer device as mentioned and presented herewith as a modification, in which the contacting ball used with the device may be at all times readily removed.

These and other objects will become apparent in the description below, in which characters of reference refer to like-named parts of the drawing.

Referring briefly to the drawing, Figure 1 is a front elevational view of a distributor head showing the commutator arm and various other members in section to illustrate the construction of the device.

Figure 2 is an enlarged sectional elevational view of the modified type of commutator arm.

Figure 3 is a side elevational view of the modified commutator arm with the contact ball removed therefrom.

Figure 4 is a sectional plan view taken on line 4—4 of Figure 2.

Referring in detail to the drawing, the numeral 10 indicates an annular casing in which an insulator ring 11 is fixedly mounted. The casing is provided with an ear 12 projecting radially from its side from which a bolt or screw passes for securing said casing in place. A plurality of studs 13, which serve as contact terminals for the ignition system, pass thru the casing and the insulator ring 11. At the exterior ends of the studs, shoes 14 are formed, said shoes being an integral part of the studs. Each stud has a washer 15 thereon adjacent the casing wall, and a nut 16 threadably engaging each of said studs above the washer, the studs receiving lead wires from the spark plugs between each washer and nut. The numeral 17 indicates the cam shaft of a combustion engine which has a hub 18 fixedly mounted thereon, said hub having a sleeve 19 extending radially from its side. Within the sleeve 19, an annular felt pad 20 is inserted, and within this felt pad, a coil spring 21 is housed. The lower end of the coil spring rests upon the hub 18, and the upper end supports a flange 22 which has a spherical seat in which a ball 23 is seated, said ball being retained in place on the seat by the peened-over edges 24 of the sleeve 19. In the modified type of commutator arm, shown in Figures 2 to 4, inclusive, the hub, ball, seat, spring, and felt pad, are identical to that just described, and the same numerals are therefore used in indicating the mentioned parts. A sleeve 25 projects radially from the hub in the modified commutator arm and is provided with dove-tailed slots 26 which extend co-axially on the exterior surface of the sleeve. The face of the channels is provided with a plurality of spaced-apart detents 27 in which slightly perceptible bosses 28 are received. These bosses are formed upon a flat surface of arms 29 which are curved at their upper ends and are slidable in the dove-tailed channels 26, each arm being provided with a single boss near its lower end.

In operation, the commutator arm is first lubricated by inserting the spout of an oil can into an opening at the upper end of the sleeve 19, and permitting a quantity of oil to enter the sleeve and be absorbed by the felt pad 20. As the cam shaft 17 is rotated, the hub 18 fixed thereon will rotate the sleeve 19 and cause the ball 23 to successively contact the shoes 14, thereby closing the circuit of the ignition system in the conventional manner. The ball 23 is at all times retained in sliding contact on the track 30 by the insulator ring 11, and the felt pad, being saturated with oil, will at all times supply the ball seat flange 22 with a film of oil, thereby giving said ball continuous lubrication while rotating. The ball 23 has its surface lubricated by being rotated on the seat 22, said seat being supplied with an oil film by the principle of centrifugal motion.

In the commutator arm shown in Figure 1, the ball 23, the flange 22, spring 21, and felt pad 20, may not be removed as the upper edge of the sleeve 19 is peened-over, thereby preventing removal of the main parts. In

the modified type, however, the peened-over edge is not used, and in its stead, the arms 29 are provided. These arms have their upper ends curved and the lower ends are provided with bosses 28 which engage detents 27 and retain said arms rigidly in place. When it is desired to remove the ball, flange, spring or pad, in the modified device, the arms are slid upwardly in the dove-tailed channels 26 by urging the same with a screw driver or similar tool. After one or two arms have been removed, the entire contents of the sleeve 25 may be removed for any purpose desired, and when again assembling, the arms may be reinserted into their respective channels until the boss engages its detent 27.

I claim:—

1. A device of the class described comprising a hub having a sleeve extending radially, a ball in said sleeve, a flange having a spherical seat supporting said ball, means for lubricating said flange, and means for holding said flange and ball any place.

2. A device of the class described comprising a hub having a sleeve extending radially, a ball in said sleeve, a flange having a spherical seat supporting said ball, a felt pad in said sleeve, a spring in said sleeve normally urging the seat flange upwardly to expose the surface of the ball, and removable means for retaining said ball in place in the sleeve.

3. A device of the class described comprising a hub having a sleeve extending radially, said sleeve being provided with coaxial dove-tailed channels, said channels having spaced-apart detents, a ball, a seat for said ball, a spring supporting said seat, a felt pad in said sleeve, and means engaging the detents and channels for retaining the ball in the sleeve.

4. A device of the class described comprising a hub having a sleeve extending radially, said sleeve being provided with coaxial dove-tailed channels, said channels having spaced-apart detents, a ball, a seat for said ball, a spring supporting said seat, a felt pad in said sleeve, arms slidable in said channels, the upper ends of said arms being curved inwardly, said curved ends being adapted to retain the ball on the seat flange, and means for securing said arms in place.

5. A device of the class described comprising a hub having a sleeve extending radially, said sleeve being provided with coaxial dove-tailed channels, said channels having spaced-apart detents, a ball, a seat for said ball, a spring supporting said seat, a felt pad in said sleeve, arms slidable in said channels, the upper ends of said arms being curved inwardly, said curved ends being adapted to retain the ball on the seat flange, said arms having dove-tailed sides, bosses on said arms, the bosses being adapted to engage any of said detents to retain the arms in place.

In testimony whereof I affix my signature.

CLYDE W. ADAMS.