May 27, 1924. 1,495,397

G. M. BREWER

TIMER

Filed June 5, 1920

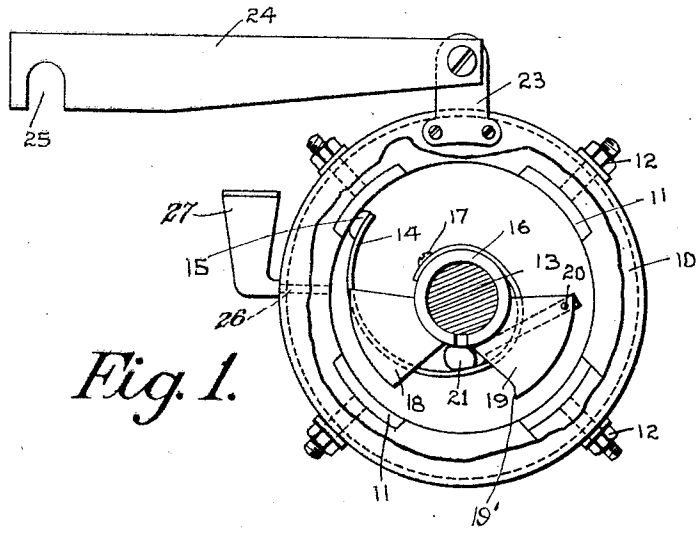


Fig. 1.

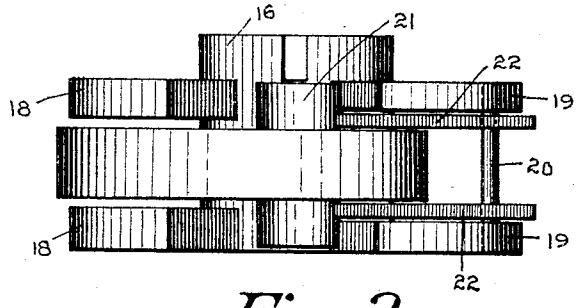


Fig. 2.

Witness

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UNITED STATES PATENT OFFICE.

GIPP M. BREWER, OF SYLVIA, KANSAS.

TIMER.

Application filed June 5, 1920. Serial No. 386,691.

To all whom it may concern:

Be it known that I, GIPP M. BREWER, a citizen of the United States, residing at Sylvia, in the county of Reno and State of Kansas, have invented a new and useful Timer, of which the following is a specification.

The present invention has reference to timers employed in the electric circuits of internal combustion engines, for distributing the sparks to the respective cylinders.

The primary object of the invention is to provide means forming a part of the timer for automatically advancing or retarding the spark simultaneously with the increasing or decreasing speed of the motor, thus insuring the true firing of the cylinders at all times regardless of the speed of the motor.

A further object of the invention is to provide means coacting with the usual movable brush member, to cause the same to vary its location with respect to the stationary contact points of the timer, thereby eliminating the necessity of moving the stationary contact points or casing of the commutator as in the timers now in common use.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

Referring to the drawing:—

Figure 1 illustrates a front elevational view of a timer showing a portion of the casing thereof broken away.

Figure 2 illustrates a side elevational view of the rotor forming a part of the timer.

Referring to the drawing in detail, the reference character 10 designates the timer casing which is of the usual construction, the same being provided with the stationary contact points 11 arranged within the casing, and secured thereto in suitable spaced relation with each other, the contact points 11 having the securing nuts 12 secured thereto, by means of which the circuit wires leading to the respective cylinders, may be secured to the timer.

The usual rotor shaft 13 extends into the casing of the timer and carries the movable contact member 14 which in the present invention includes a curved arm formed preferably of spring steel, so that the contact point indicated at 15, and carried on the free end thereof may be adjusted circumferentially, by movement of the contact member 14.

As shown, the inner extremity of the contact member 14 is secured to the sleeve 16 by means of the screw 17, which passes through a suitable opening provided in the contact member 14, the threaded portion thereof being positioned in a suitable threaded opening provided in the sleeve 16.

A pair of guide arms 18 extend laterally from the sleeve 16 and are disposed in spaced relation with each other, the space between the arms 18 being such as to permit of free movement of the contact member 14 to accomplish the purpose of the invention. Disposed on the opposite side of the sleeve 16, are a pair of arms 19 which arms are apertured to receive the ends of the shaft 20, the apertures forming bearings to permit the shaft 20 to move with relation to the arms 19.

Associated with the contact member 14 is a relatively long weight 21, which has one of its surfaces curved and contacting with the inner surface of the contact member 14, the weight being however supported by the shaft 20 through the medium of the spaced arms 22. In order that the timer may be secured against displacement, an apertured ear 23 is provided, which ear provides means for connecting the arm 24 thereto, the forward portion of the arm 24 being notched as at 25 to permit the same to be positioned over a suitable bolt provided on the engine casing.

Extending through one of the side walls of the casing, is an oil feed pipe 26, which has connection with the receptacle 27 that feeds oil to the interior of the casing to accomplish the lubrication of the inner face or race of the timer.

It might be further stated that the arms 19 are provided with abutments 19′ formed adjacent to the outer edge thereof, which abutments are constructed to engage the weight 21 to restrict movement thereof, and prevent the weight from moving beyond the side edges of the arms 19.

In the operation of the device, assuming that the engine to which the timer is ap-

plied, is moving at a predetermined speed, and gas is fed to the engine to cause the same to increase its speed, the shaft 13, necessarily rotates faster, the centrifugal force caused by such rotation tends to throw the weight 21 outwardly, to advance the point 15 and consequently cause the spark to be advanced in the cylinders of the engine.

What is claimed as new is:—

1. In a timer, a casing having a plurality of stationary contact members, a rotor within the casing, a contact member secured to the rotor and adapted to rub the stationary contact members, a pair of arms carried by the rotor and disposed adjacent to the secured end of the contact member carried by the rotor, a pair of arms supported by the rotor and disposed adjacent to the free end of the contact member, said arms adapted to guide the contact member, means for automatically adjusting the contact member carried by the rotor, and means for restricting axial movement of the last mentioned contact arm.

2. In a timer, a casing having a plurality of stationary contact members, a rotor operating within the casing, a contact member including a spring arm secured to the rotor, the free end of the contact member adapted to engage the stationary contact member to complete a circuit, pairs of spaced arms carried by the rotor and between which the spring arm moves, means pivotally connected adjacent to the outer edges of one pair of arms, and engaging the spring arm to automatically adjust the spring arm, and means for restricting movement of the spring arm.

3. In a timer, a casing including stationary contact members, a rotor operating within the casing, a curved spring arm secured to the rotor and having its outer extremity engaging the stationary contact member, pairs of guiding arms carried by the rotor and disposed laterally of the spring arm, an adjusting device including a pair of arms carrying a weight, said last mentioned arms having pivotal connection with one pair of guiding arms, the weight supported thereby operating under the spring arm to adjust the spring arm, and means cooperating with the weight to restrict movement of the weight and spring arm.

4. In a timer, a casing having a plurality of stationary contact members, a rotor within the casing, a spring arm carried by the rotor and carrying a contact member at its free end, guiding arms carried by the rotor and between which the spring arm moves, and means pivotally supported adjacent to the outer ends of the guiding arms and engaging the spring arm for automatically adjusting the spring arm.

5. In a timer, a casing having a plurality of contact members, a rotor within the casing, a spring arm having one end thereof secured to the rotor, means disposed laterally of the spring arm at a point adjacent to the secured end of the spring arm for guiding the spring arm, means disposed adjacent to the free end of the spring arm and lying on opposite sides of the spring arm to guide the spring arm at its end, and means for automatically adjusting the spring arm.

6. In a timer, a casing having a a plurality of contact members, a rotor within the casing, a pair of spaced arms carried by the rotor, a spring arm having one end thereof secured to the rotor and lying between the spaced arms, said spring arm having a contact member adapted to sweep the contact members to complete a circuit, shoulders formed on the spaced arms, means carried by the spaced arms and engaging under the spring arm for adjusting the spring arm, and said adjusting means adapted to engage the shoulders to restrict movement of the adjusting means.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

GIPP M. BREWER.

Witnesses:
IRVIN C. WILL,
HOMER MYERS.