

Nov. 18, 1924.

1,516,417

B. L. TROMBLEY

IGNITION TIMER FOR INTERNAL COMBUSTION ENGINES

Filed March 19, 1923

2 Sheets-Sheet 1

FIG. 1.

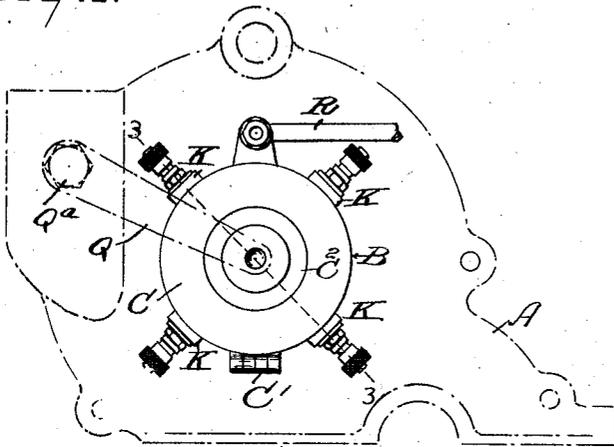
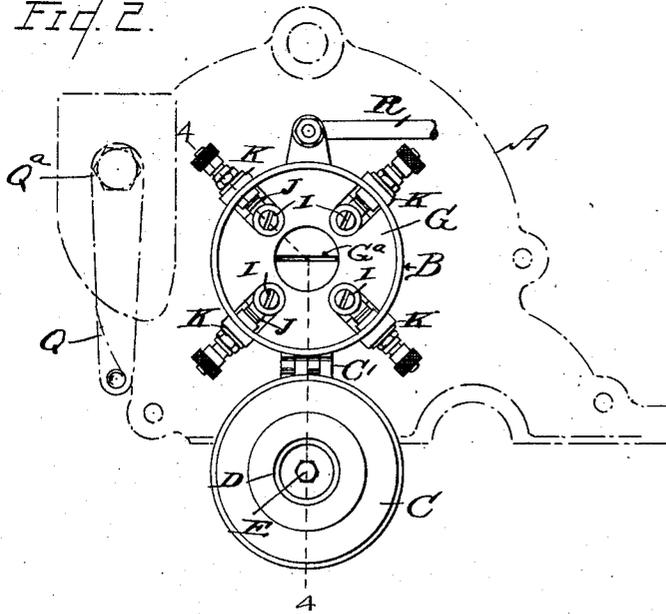


FIG. 2.



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2 Sheets-Sheet 2

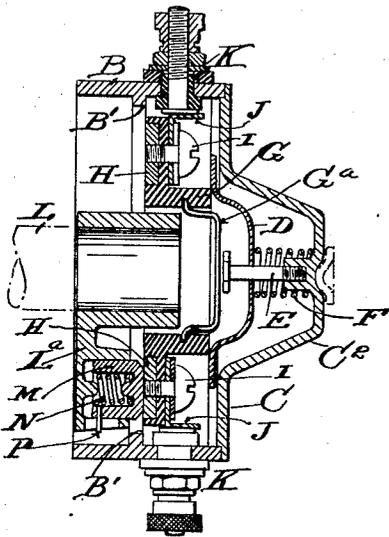


Fig. 3.

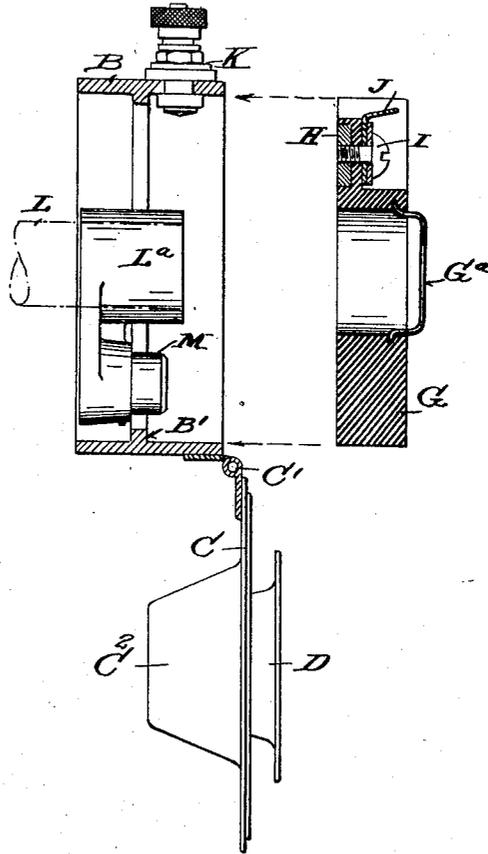


Fig. 4.

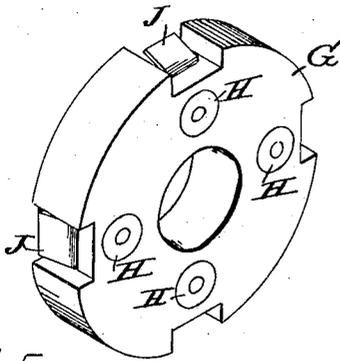


Fig. 5.

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UNITED STATES PATENT OFFICE.

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IGNITION TIMER FOR INTERNAL-COMBUSTION ENGINES.

Application filed March 19, 1923. Serial No. 625,966.

To all whom it may concern:

Be it known that I, BENJAMIN L. TROMBLEY, citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Ignition Timers for Internal-Combustion Engines, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an ignition timer for internal combustion engines and while it is specially designed for use in connection with the so-called "Ford" motor it may be employed upon any internal combustion engine for which it is adapted.

It is well known in devices of this character that the fibre ring in which the electric terminals are supported soon become worn or pitted by the rotatable brush of the timer through use, making it frequently necessary to remove the same for repairs or replacement.

To accomplish this result with the devices now in use it is first necessary to disconnect the wiring and in many cases the binding posts before the fibre or insulating ring with its terminals may be removed.

Furthermore these devices as they become worn through wear and frequent "dressing" soon become inoperative for the purpose intended and have to be discarded.

The primary object therefore of the present invention is to provide a device embodying a removable fibre ring in which are embedded electric terminals fitted with a yieldable connection adapted when installed in the enclosing case to couple the terminals with a plurality of binding posts carried by the case to which the electric circuits of the ignition system are connected. Thus as the fibre ring and terminals in the latter become worn due to the rotatable brush traversing its surface, the disk or ring may be quickly and easily removed for repairs or replacement without disconnecting the wires leading to the timer and without removing the binding posts or terminals.

Furthermore the fibre disk with its embedded terminals may be quickly resurfaced

upon removal by rubbing the same upon a sheet of emery paper or cloth until its normally smooth surface is restored whereupon it will be found as effective as before.

A further object of this invention is to provide means whereby the fibre ring as it becomes worn through frequent "dressing" will be maintained in proper relation to the "brush" and other co-acting elements, thus automatically providing for the proper operation of the ignition system as when first installed.

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

In the drawings accompanying this specification:

Figure 1 is a front elevation of the device as it would appear mounted upon the cover of a gear case shown in dotted lines.

Figure 2 is a similar view showing the hinged cover of the timer opened to expose the removable fibre ring housed within the case.

Figure 3 is an enlarged cross-sectional view through the device taken on or about line 3—3 of Figure 1, with the fibre ring in position.

Figure 4 is a sectional view taken on or about line 4—4 of Figure 2 with the fibre ring removed from the case.

Figure 5 is a perspective view of the removable fibre ring.

Referring now to the letters of reference placed upon the drawings:

A, denotes the cylinder front cover plate of a "Ford" motor. B indicates the enclosing case of the timer projecting from the usual recess (not shown) in the plate A to receive it.

C is a cover hinged at C¹ to the case provided with a central conical projection C² in which is housed a movable cup-shaped member D, supported upon a bolt E extending into the wall of the cover.

F is a spring sleeved upon the bolt be-

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tween the cover and cup-shaped member to force the latter into contact with a removable fibre ring G, that the latter may be held firmly against an annular rim or flange B¹ extending inwardly from the wall of the enclosing case.

H designates a plurality of terminals, embedded in the removable fibre ring and flush with its face, connected by screws I, with L-shaped spring contact members J lodged in counterbores on the opposite face of the fibre ring.

K denotes a plurality of binding posts supported in the wall of the enclosing case to receive the wires of the ignition system and with which the several spring contact members J are respectively coupled upon inserting the fibre ring in the enclosing case, (see Figures 2 and 3).

G^a denotes a wire bail secured to the fibre ring to facilitate its removal from the enclosing case.

L denotes the usual cam shaft shown in dotted line and L^a indicates a rotatable arm mounted upon the shaft, on which is sleeved a brush M adapted to traverse the face of the fibre ring and terminals embedded therein.

N indicates a spring housed within the brush and bearing against the rotatable arm to force the brush outwardly that it may be maintained in intimate contact with the terminals of the fibre disk as the brush is rotated.

P denotes a pin projecting from the wall of the brush into a slot formed in the rotatable arm to limit the outward thrust of the brush.

Q denotes the usual timer case spring pivoted at Q^a to the cylinder plate, its free end being adapted to bear upon the cover C of the timer case (see Figure 1) to keep the latter closed and to maintain the case against displacement from the recess provided in the cylinder plate.

R denotes a rod connected with a lug on the timer case for adjusting the latter.

Having now indicated the several parts by reference letters the construction and operation of the device will be readily understood.

As the fibre ring with its embedded terminals become worn or pitted by use, its face may be resurfaced without disturbing or moving any of the wires, binding posts or terminals.

To accomplish this the hinged cover is opened (as shown in Figure 2) the fibre ring is then withdrawn from the case and resurfaced by rubbing the same upon emery paper or cloth, the ring is then returned to the case and the cover closed, thereby forcing the fibre ring against the flange B¹ of the case by the action of the spring F.

The fibre ring is thus maintained in the

same relative position to the rotating brush regardless of the wear occasioned through resurfacing the face of the ring.

Having thus described my invention what I claim is:

1. In a device of the character described, an outer casing having an inwardly projecting annular flange, a plurality of binding posts secured to the outer wall of the casing with terminals extending to the inside of the latter, a removable insulating ring provided with terminals embedded therein in spaced relation to each other and flush with the face of the ring, resilient means connected with the several terminals of the ring adapted to connect the latter with the terminals of the respective binding posts when the ring is inserted in the outer casing, a cover hinged to said outer casing, means carried by the cover adapted to bear upon the insulating ring to secure the latter against displacement and against the annular flange of the outer casing, and means for securing said hinged cover in closed position.

2. In a device of the character described, an outer casing having an inwardly projecting annular flange, a plurality of binding posts secured to the outer wall of the casing with terminals extending to the inside of the latter, a removable fibre ring provided with terminals embedded therein in spaced relation to each other and flush with the face of the ring, resilient means respectively connected with the several terminals of the ring adapted to connect the latter with the terminals of the respective binding posts when the ring is installed in the outer casing, a cover hinged to said outer casing having a conical depression, a cup-shaped element housed in said depression and loosely mounted upon a bolt extending into the wall of the cover, a spring sleeved on said bolt adapted to bear upon the cover and against the cup-shaped element, whereby upon closing the cover the cup-shaped element is adapted to bear upon the fibre ring to secure the latter against displacement and against the annular flange of the outer casing, and means for securing said hinged cover in closed position.

3. In a device of the character described, an outer casing having an inwardly projecting annular flange, a plurality of binding posts secured to the outer wall of the casing with terminals extending to the inside of the latter, a removable fibre ring provided with terminals embedded therein in spaced relation to each other and flush with the face of the ring, resilient L-shaped spring members respectively connected with the several terminals of the ring adapted to connect the latter with the terminals of the respective binding posts when the ring is inserted in the outer casing, a bail secured

to said fibre ring to facilitate its removal from the casing, a cover hinged to said outer casing and resiliently supported means carried by the cover adapted to bear upon the fiber ring whereby the latter may be held against displacement and in abutting relation with the inwardly projecting flange of the outer casing.

4. In a device of the character described, an adjustable outer casing having an inwardly projecting annular flange, a plurality of binding posts secured to the outer wall of the casing with terminals extending to the inside of the latter, a removable fibre ring provided with terminals embedded in spaced relation to each other and flush with the face of the ring, L-shaped springs respectively connected by screws to the several terminals of the ring adapted to con-

nect the terminals of the latter with the terminals of the respective binding posts, a cover hinged to said outer casing, resiliently supported means carried by the cover adapted to bear upon the fibre ring, whereby it may be held against displacement and in abutting relation with the inwardly projecting flange of the outer casing, a rotatable arm mounted upon the shaft of the timer, a contact member carried by the arm adapted to traverse the face of the fibre ring and means whereby said outer casing may be adjusted upon its axis.

In testimony whereof, I sign this specification in the presence of two witnesses.

BENJAMIN L. TROMBLEY.

Witnesses:

S. E. THOMAS,
JOHN CONSIDINE.