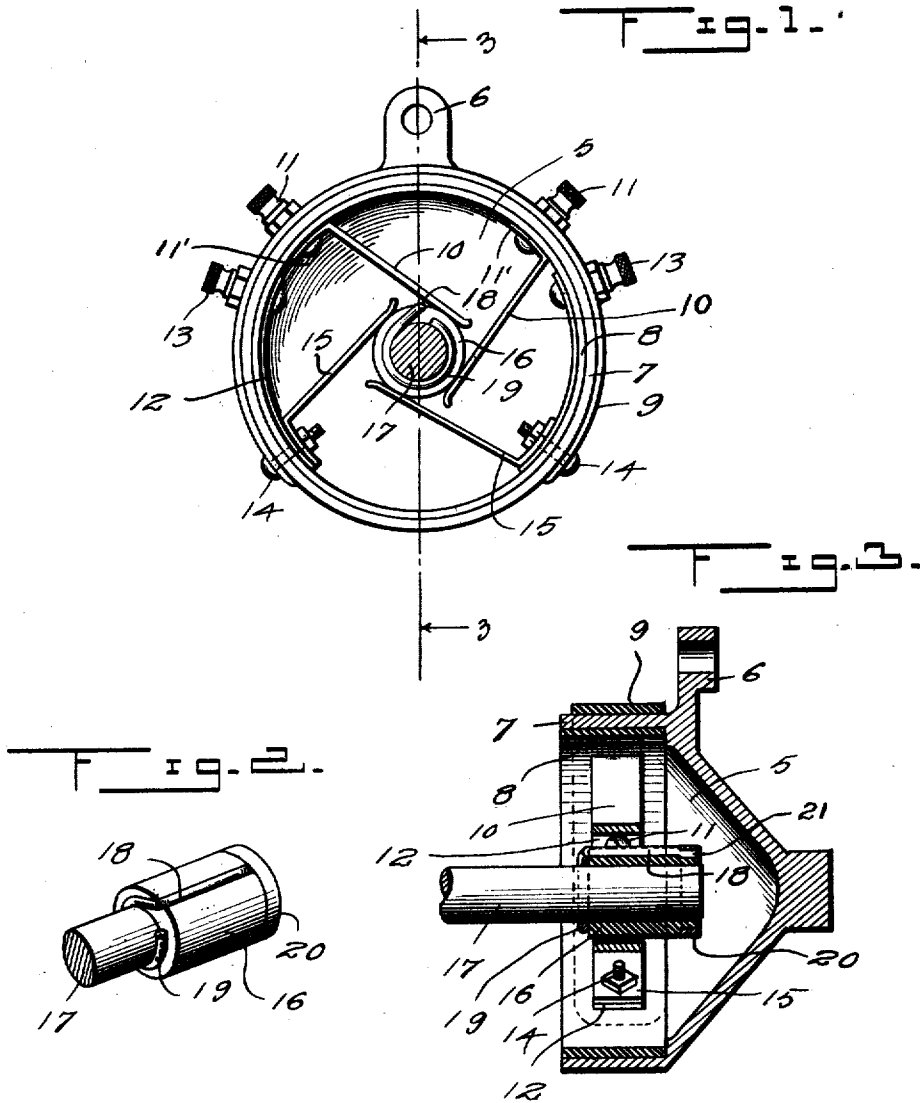


L. E. MIDDLEBROOK.
 TIMER FOR AUTOMOBILES.
 APPLICATION FILED APR. 19, 1919.

1,349,523.

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Inventor
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UNITED STATES PATENT OFFICE.

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TIMER FOR AUTOMOBILES.

1,349,523.

Specification of Letters Patent. Patented Aug. 10, 1920.

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To all whom it may concern:

Be it known that I, LESLIE E. MIDDLEBROOK, a citizen of the United States, residing at Hall, in the county of Ontario and State of New York, have invented certain new and useful Improvements in Timers for Automobiles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in timers for ignition systems and is especially adapted for use in connection with internal combustion engines.

An important object of this invention is to provide a timer having all of its binding posts disposed adjacent the upper portion of the casing whereby the lead wires and the binding posts will be spaced from the oil in the pan of the motor vehicle and will also be readily accessible.

A further object of this invention is to provide a timer having novel contact means whereby the use of oil and grease for lubricating the timer may be dispensed with.

A further object of this invention is to provide a timer, which is reliable, of highly simplified construction and desirable in use.

Other objects and advantages of this invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a front elevation of a timer embodied in my invention,

Fig. 2 is a fragmentary perspective of a cam shaft or other operating shaft having an insulating band and a contact element thereon, and

Fig. 3 is a vertical sectional view taken on line 3—3 of Fig. 1.

In the drawings wherein for the purpose of illustration is shown the preferred embodiment of my invention, the numeral 5 designates the usual casing of a timer. The same is provided with the usual apertured control lug 6 on its upper side. The casing 5 is provided with an annular collar 7 having an insulating band 8 on its inner side. An insulating element 9 extends about the greater portion of the outer side of the collar 7 and terminates at a point spaced from its lower side thereof. A pair of

spring contacts 10 are disposed within the casing 5 and are secured therein by binding posts 11. The rear end portions of the spring contact arms 10 are bent angularly as shown at 11'. A pair of conductor bars 12 are disposed within the casing and secured to the collar 7 by binding posts 13 and screw bolts 14. The screw bolts 14 also serve to position a pair of lower spring contact arms 15. The free end portions of the spring contact arms 10 and 15 are curved outwardly as clearly shown in Fig. 1 for presenting a relatively smooth contact surface to a fiber band 16. The fiber band 16 is of an insulating material and is mounted on a cam shaft or other operating shaft 17. The shaft 17 is timed to synchronize with the ignition system whereby the spark is supplied to the several cylinders in the proper order. As clearly shown in Fig. 2, the shaft 17 has one end portion of a contact bar or element 18 extending therearound as indicated at 19. The straight portion of the contact element 18 is disposed within a groove in the insulating element 16 and is retained in position by the looped portion 19 and a collar 20. The collar 20 is provided with a recess 21 receiving the outer end portion of the contact element 18.

In the use of my invention, the binding posts 11 and 13 are disposed above the horizontal plane of the shaft and are thereby more accessible and prevented from coming in contact with grease, etc.

The particular construction of the insulating band 16 and the contact element 18 renders the employment of oil for lubricating the timer unnecessary.

While I have shown and described the preferred embodiment of my invention, it is understood that I may make such minor changes in arrangement and construction of parts as will remain within the spirit of the invention and the scope of the appended claims.

Having thus described my invention, what I claim is:—

1. A timer comprising, a casing, a shaft extending within said casing, an annular insulator mounted on the shaft, a contact bar mounted upon the insulator and having one end portion looped about the shaft, a collar disposed about one end of the insulator and locking said contact bar in position, and a plurality of spring contacts adapted to engage said contact bar.

2. A timer comprising, a casing, a plurality of spring contacts disposed within the casing, a shaft extending within the casing, an insulating band mounted on the shaft and having a longitudinally extending groove therein, a contact bar disposed within said groove and having one end portion thereof looped about said shaft, and a collar extending over one end of said band and locking said contact bar in position.

3. A timer including a casing, an annular insulating band secured to the inner side of the casing, a set of binding posts extending through the upper portion of the casing and said insulator, an upper set of contacts secured to certain of the binding posts, a lower set of contacts, fastening devices ex-

tending through said casing and supporting the lower set of contacts, a rotary contact within the casing, conductor bars arranged on the inner side of the casing and connecting the lower contacts to certain of said binding posts, said conductor bars being supported by said fastening devices and certain of said binding posts, and an insulating strip extending about the casing and having its ends secured to said fastening devices.

In testimony whereof I affix my signature in presence of two witnesses.

LESLIE E. MIDDLEBROOK.

Witnesses:

D. W. EDIE,

T. E. HICKEY.