Oct. 2, 1923. **1,469,243**

N. A. BACKSCHEIDER

IGNITION TIMER

Filed March 23, 1921 2 Sheets-Sheet 1

Fig. 1.

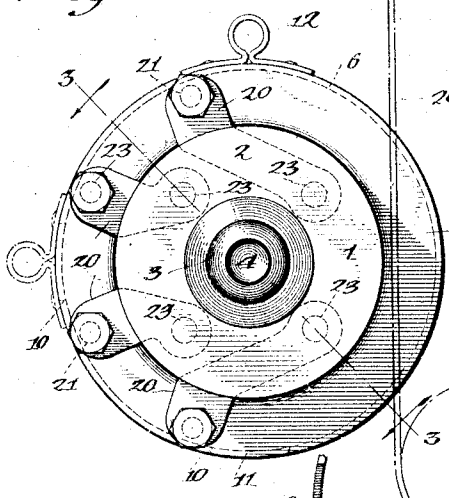


Fig. 2.

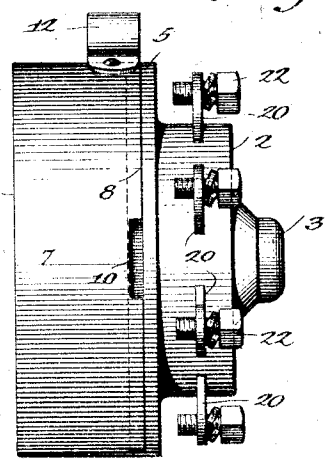


Fig. 7.

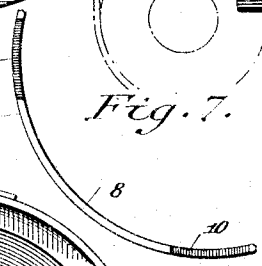


Fig. 4.

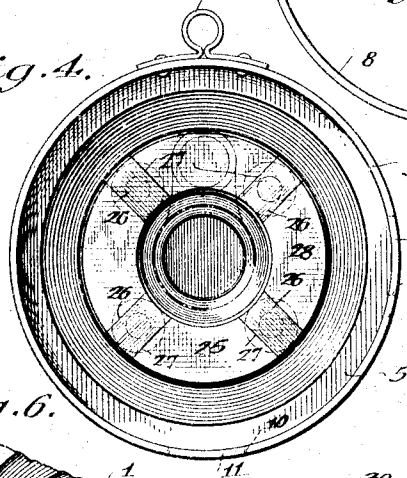


Fig. 3.

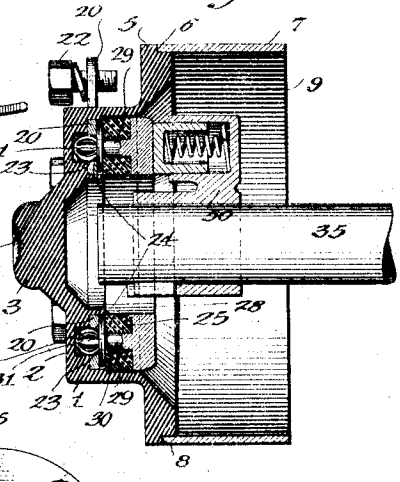
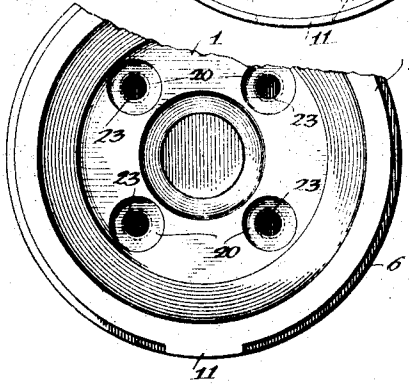


Fig. 6.



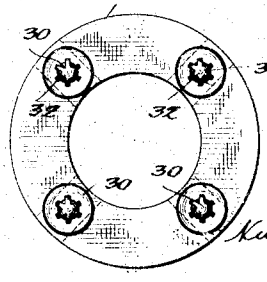


Fig. 5.

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N. A. BACKSCHEIDER

IGNITION TIMER

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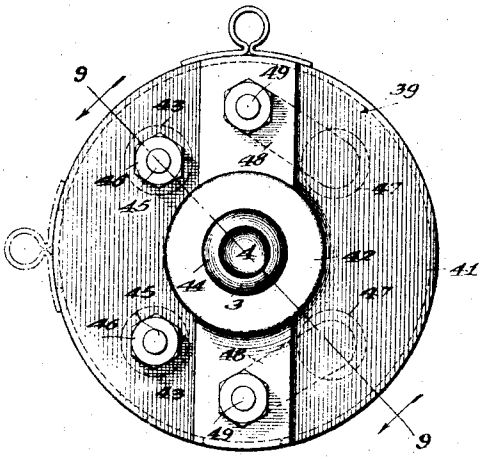


Fig. 8.

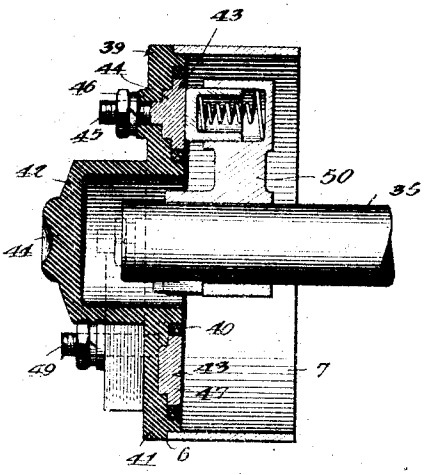


Fig. 9.

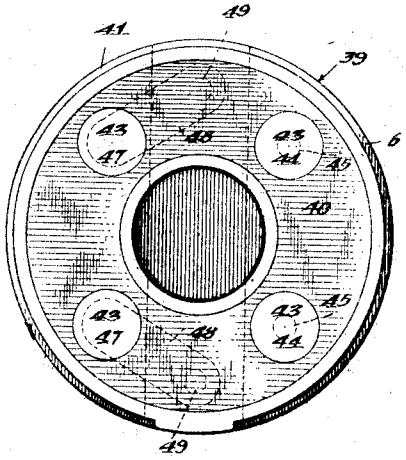


Fig. 10.

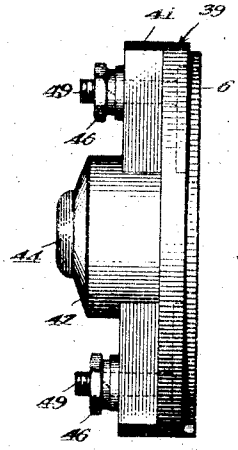


Fig. 11.

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Patented Oct. 2, 1923.

1,469,243

UNITED STATES PATENT OFFICE.

NICHOLAS A. BACKSCHEIDER, OF CLIFTON, KENTUCKY.

IGNITION TIMER.

Application filed March 23, 1921. Serial No. 456,729.

To all whom it may concern:

Be it known that I, NICHOLAS A. BACKSCHEIDER, a citizen of the United States, and residing at Clifton, in the county of Campbell and State of Kentucky, have invented a new and useful Improvement in Ignition Timers, of which the following specification is a full disclosure.

My invention relates to the construction of ignition timers, for use in the ignition systems of internal combustion engines.

An object of the invention is to prolong the life of the timer, by providing a renewable, detachable race-way of specially hardened insulating material, carrying the usual metallic brush contacts, said contacts being constructed for removable engagement with the wire terminal connections.

Another object is the provision of an inlay race-way of specially hardened insulating material carrying metallic brush contacts imbedded therein.

An additional object is to facilitate the connection of the engine wiring to the timer binding posts, and to so locate said binding posts that the wires connected thereto will in no way be interfered with by the fan belt.

Another object is to adapt the timer-ring for angular adjustment with relation to the timer casing, conformable to the requirements for timer-rod connection among the various types of engine installation.

Other objects and certain advantages will be set forth in the description of the drawings, forming a part of this specification, and reference is made to the drawings, in which:

Fig. 1 is a front face view of a preferred form of my invention.

Fig. 2 is an edge elevation of the same.

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

Fig. 4 is a rear face view.

Fig. 5 is a detached face view of my detachable race-way, of specially hardened insulating material.

Fig. 6 is a view similar to Fig. 4, the race-way and timer-ring being detached.

Fig. 7 is a fragmentary edge view of my timer ring, showing the adjustment notche therein.

Fig. 8 is a view similar to Fig. 1, showing a modified form of my timer.

Fig. 9 is a section on line 9—9 of Fig. 8.

Fig. 10 is a reverse view of Fig. 8.

Fig. 11 is an edge elevation of the form shown in Fig. 8.

My timer comprises a central hollow circular housing or body portion 1, from the front plane face 2 of which projects centrally an attaching boss 3, having a central circular depression 4 therewithin, for the reception of suitable connecting means (not shown) for pivotally attaching the housing or body to an engine casing, or other support. The housing or body portion 1 is further provided with a circumferential flange 5, having an outwardly facing circumferential notch 6 at its rear face, for rotative coaction with one periphery 8 of a metallic annulus 7, the opposite periphery 9 of which is adapted to rotatively coact with a corresponding groove, (not shown) in an engine casing or other support upon which the timer is mounted. The annulus 7 has formed along its periphery 8 a plurality of notches 10, adapted to be successively engaged with a lug 11 formed within the peripheral notch 6 of the flange 5, to permit of the angular adjustment of the timer-rod loop 12, rigidly mounted thereon conformably to the timer-rod connection requirements of the various makes of automobiles. Any one of the notches 10 may be made to engage the lug 11 of the casing to adjust the loop 12 to the desired angular relation.

Binding post strips are indicated at 20 and are in the form of sheet metal stampings, provided with outer terminal threaded openings 21, for the reception of the usual binding screws 22. These binding post strips project radially beyond the timer casing at one side only thereof, the said posts being thus arranged to avoid interference with the fan belt indicated in dot-and-dash lines at 20^a. The inner extremity of each strip 20 is provided with a circular opening 23 constricted as at 24 on its inner side.

The strips are placed, as here shown, so that their openings 23 are spaced apart at 90° intervals, and with their centers concentric to the axial center of the timer shaft 35. The strips are imbedded within the insulating material of the timer casing, which casing is moulded to shape, while the said material is in a plastic condition. A detachable insulating race-way annulus or commutator ring 25, of specially hardened insulating material, snugly fits within the hollow housing 4, and in this instance is provided with four metallic contact lugs 26, set within slots 27, the outer surfaces of said lugs being flush with the inner raceway surface 28 of said annulus 25. The lugs 25 are provided with outstanding metallic fastening shanks 29 traversing openings 30 in the race-way annulus, the said shanks being fastened to snap-fastener buttons 31, the heads 32 of which engage the constricted portions of the openings 23 of the strips 20, to securely hold the annulus in operative position.

A contact brush or commutator 50 is mounted upon the timer shaft 35 and operates in the usual manner.

In my improved construction, the race-way annulus can be removed for the purposes of repair or renewal and a corresponding substitute race-way can be conveniently inserted, thus increasing the life of the timer and reducing repair expense.

By constructing the race-way of specially hardened insulating material, and by making the same detachable, a distinct and important advantage is attained; the life of the wearing surface of the race-way is lengthened and when the race-way is worn, a new one can be conveniently substituted without disconnecting the timer casing, or without duplicating the same, at additional cost to the user. My removable race-way is formed of a suitably proportionate mixture of insulating substance, the proportion of said mixture being varied to suit the requirements.

In Figs. 8 to 11 inclusive, I have illustrated a modified form of my invention in which the race-way 40, of specially hardened insulating material, is made a rigid part of the timer body, the same being introduced therein as an integral, circular, disk-like inlay. The timer body 39 comprises a disk portion 41, having formed thereon a hollow cylindrical forwardly projecting housing 42, provided at its central outer side with a boss 44, similar in structure and function to the boss of the first form of my invention. As in the first form, the binding posts are grouped at one side of the timer body, the metallic contacts 43 being of circular form and being imbedded within the specially hardened insulating material of the race-way 40. The contacts are spaced and placed substantially as in the first form of my invention, two of the same 44, having central threaded studs 45 projecting forwardly therefrom through the disk portion 41 and beyond the same for the reception of binding nuts 46. The remaining contact disks 47, are cast with flat arms 48 at the outer ends of which threaded studs 49 project at right angles, traversing the disk portion 41 and projecting thereabeyond for the reception of binding nuts 46. Into the interior of the hollow housing 42 projects the end of the timer shaft, having the usual spring contact brush 50 mounted thereon and disposed for successively contacting the disks 44 and 47.

This second form of my invention is provided with the notch 6 and adjustable notched annulus 7 as in the first form, the structure and function being identical therewith.

Having described my invention, I claim:

1. An ignition timer, a cylindrical casing, an insulated cap removably attached to said casing and providing a closure upon one end of the casing, electric circuit conductor terminals imbedded within said insulator cap, each having one end exposed to the exterior side of said cap, and a commutator ring removably secured within said cap having contact elements respectively connecting with said conductor terminals.

2. An ignition timer, a cylindrical casing, an insulator cap removably attached to said casing and providing a closure for one end of the casing, electric circuit conductors engaged through said cap, and a commutator ring having contacts inlaid within one side of said ring each contact having a connector element separably connecting with a respective conductor, for establishing a circuit connection between the contact and conductor and removably securing the commutator ring within the cap.

3. An ignition timer, a cylindrical casing, an insulator cap removably attached to said casing and providing a closure for one end of the casing, electric circuit conductors engaged through said cap, a commutator ring having contacts inlaid within one side of said ring each contact having a connector element separably connecting with a respective conductor, for establishing a circuit connection between the contact and conductor and removably securing the commutator ring within the cap, and a rotative contact carrier having a yielding contact plunger engaging said commutator ring for making electrical connection with said inlaid contacts.

4. In an ignition timer, an insulating timer casing, conductors traversing said casing and projecting beyond the same at one side only thereof, a race-way of specially hardened insulating material traversed by metallic contacts, said contacts having

tachable and detachable snap fastener connection with the openings in said conductors, and an annular timer ring adjustably mounted upon said casing, comprising an annulus having two peripheral notches therein at an angle of 90° to one another, each engageable with a lug on said timer casing.

In witness whereof, I hereunto subscribe my name, as attested by the two subscribing witnesses.

NICHOLAS A. BACKSCHEIDER.

Witnesses:

L. A. BECK,

FRANCIS E. OLDEN.