C. R. HOLMES.

TIMER FOR INTERNAL COMBUSTION ENGINES.

APPLICATION FILED FEB. 17, 1916.

1,205,136.

Patented Nov. 14, 1916.

2 SHEETS—SHEET 1.

FIG. 1.

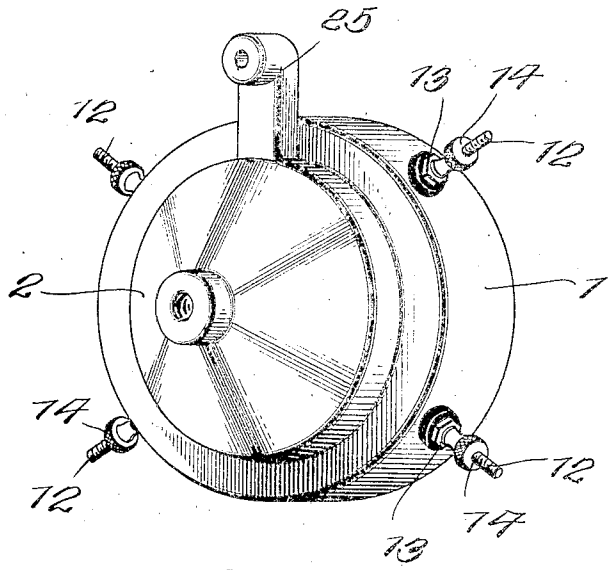


FIG. 2.

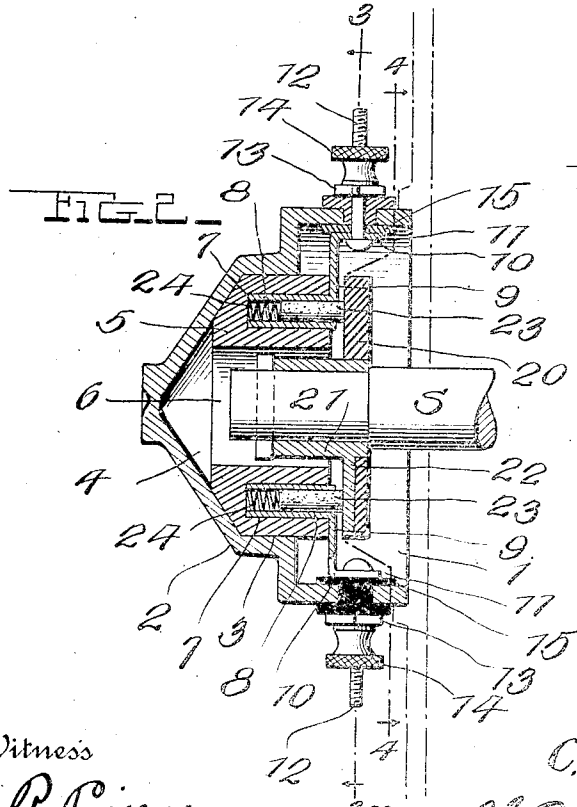
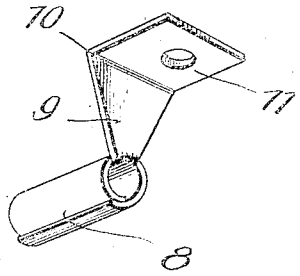


FIG. 3.



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2 SHEETS—SHEET 2.

FIG. 3

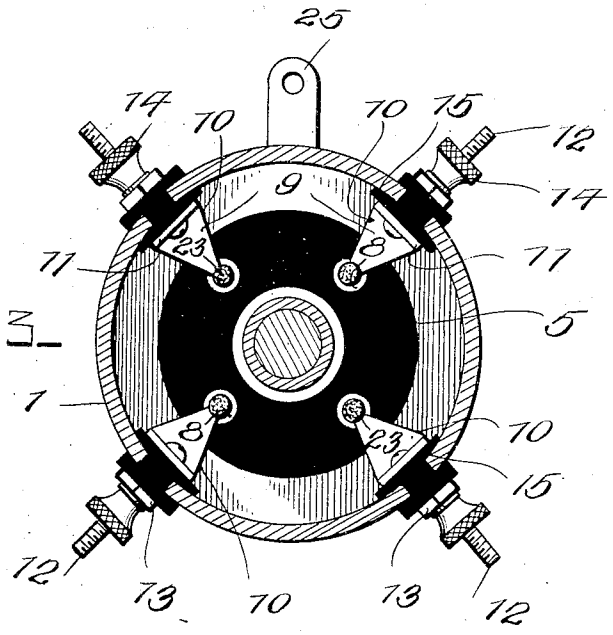
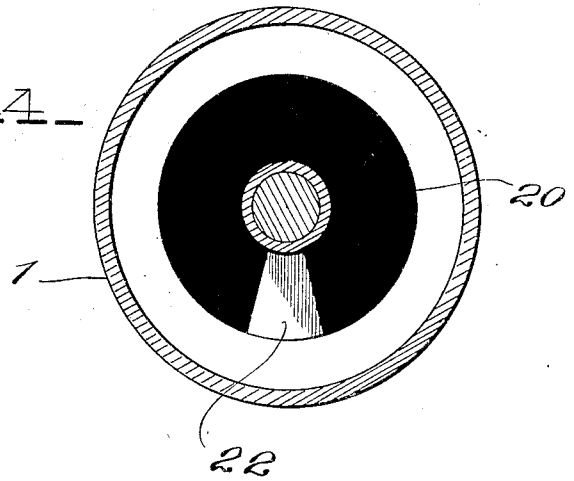


FIG. 4



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TIMER FOR INTERNAL-COMBUSTION ENGINES.

1,205,136. Specification of Letters Patent. Patented Nov. 14, 1916.

Application filed February 17, 1916. Serial No. 78,339.

To all whom it may concern:

Be it known that I, CLIFTON R. HOLMES, a citizen of the United States, residing at California, in the county of Branch and State of Michigan, have invented certain new and useful Improvements in Timers for Internal-Combustion Engines; and I do 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 is an improved timer for use on internal combustion engines, the object of the invention being to provide a simply constructed and inexpensive device of this class which will operate to advantage without the necessity of packing the casing thereof with a lubricant.

With this general object in view, the invention resides in certain novel features of construction, and in unique combinations of parts to be hereinafter fully described and claimed, the descriptive matter being supplemented by the accompanying drawings which constitute a part of this application, and in which—

Figure 1 is a perspective view of the device; Fig. 2 is a longitudinal sectional view thereof; Figs. 3 and 4 are vertical transverse sectional views taken respectively on the planes of the lines 3—3 and 4—4 of Fig. 2; and Fig. 5 is a perspective view of one of the brackets which establish electrical connection between the spring pressed brushes of the device and the binding posts thereof.

In specifically describing the construction shown in the drawings above briefly described, similar characters will be placed on corresponding parts throughout the several views and reference will be made to the numerous elements by their respective indices. To this end, the numeral 1 designates a cylindrical metal casing having an end wall 2 so shaped as to form an internal circular cavity 3 disposed at its center, the inner end of this cavity being preferably cone-shaped as indicated at 4. Forced part way into the cavity 3, is a block 5 of wood fiber, hard rubber, or other preferred type of insulating material, said block being shown in the present embodiment of the invention as of circular form provided with a central circular aperture 6 which is disposed at the axis of the casing 1.

Formed in the block 5 and spaced circumferentially at predetermined intervals, is a plurality of sockets 7 which lie parallel to the axis of said block and which open through the exposed end of the latter. These sockets receive therein metal sleeves 8 formed integrally with one end or arm 9 of L-shaped brackets 10, the other arms or ends 11 of said brackets being disposed in close proximity to the curved wall of the casing 1. Said last named ends are formed with apertures through which radially extending binding posts 12 pass, said posts having heads on their inner ends and nuts 13 and 14 on their outer ends. The nuts 13 are threaded into tight contact with insulating sleeves which pass through radial openings in the curved wall of the casing 1 and through which the aforesaid binding posts pass. The arms 11 are also insulated from the casing, this being accomplished in the present form of the invention by interposing insulating washers 15 between said arms and casing as shown.

As shown most clearly in Fig. 5, each bracket 10 and its respective sleeve 8 are formed of a single piece of sheet metal of proper gage, said metal being cut out in such shape as to allow it to be bent to form the arms 9 and 11 and further bent and curled to provide the sleeves 8. This construction is preferably employed, since it constitutes a simple and inexpensive manner of obtaining the necessary results.

Positioned in the casing 1 is a disk 20 of any appropriate insulating material (preferably wood fiber), said disk having a metallic hub 21 adapted to be secured on the timer shaft 8 of an internal combustion engine, said hub being provided with a radially extending integral contact 22 which is embedded in the inner face of the disk 21 and which successively engages carbon brushes 23 slidably mounted in the sleeves 8 and projected beyond the same by coiled springs 24 bearing against the inner ends of the sockets and against said brushes.

The device is designed primarily for use on Ford automobiles, the engines of which are equipped with four cylinders and with the usual spark plugs. Thus, the four binding posts 12 coöperate with the wiring leading to these plugs in the well known manner, current being supplied to the contact 22 through the shaft 8 as is usual. It will be understood, however, that by making necessary alterations, the timer may well be employed on engines having any number

of cylinders, the alterations merely residing in changing the number of brushes and binding posts together with the parts coöperating therewith.

As is usual in devices of this class, a lug 25 projects laterally from the casing 1 for connection with an operating rod, whereby the entire casing which is suitably mounted for this purpose, may be moved around its axis at the will of the operator to advance or retard the spark as the case may be.

From the foregoing description, taken in connection with the accompanying drawings, the construction and manner of operation of the improved timer will be readily understood without requiring a more extended explanation. Furthermore, it will be evident that due to the structure of the device, very little friction exists and thus it is unnecessary to pack the timer casing with grease as is now commonly done.

In conclusion, I will state that although certain specific details have been shown and described for accomplishing probably the best results, numerous changes may be made within the scope of the invention as claimed without sacrificing the primary advantages thereof.

I claim:

1. A timer comprising a cylindrical metal casing, a block of insulating material positioned centrally therein and having a series of sockets opening toward one end of the casing and disposed parallel to the axis of the latter, a plurality of L-shaped metal brackets having on one end metal sleeves received snugly in said sockets, the other ends of said brackets being disposed contiguous to the curved side of said casing, binding posts passing through said side and securing said last named ends of the brackets thereto, said posts and brackets being insulated from said casing, a plurality of spring pressed brushes slidable in and extending beyond said sleeves, a rotary disk of insulating material against one side of which the brushes bear, and a metal contact embedded in said side of the disk for coöperation with said brushes.

2. A timer comprising a cylindrical metal casing having a closed end provided with a central internal circular socket, a circular block of insulating material forced into said socket and having a central circular aperture, said block also having a plurality of circumferentially spaced sockets opening through its outer end and lying parallel to its axis, a plurality of one-piece L-shaped metal brackets having metal sleeves formed integrally with one of their ends, said sleeves being received in the aforesaid sockets, insulating washers interposed between the other ends of the brackets and the curved side of the casing, the latter being formed with openings adjacent said brackets, insulating sleeves passing through said openings, binding posts passing through the last named ends of the brackets and through the aforesaid insulating sleeves, clamping nuts threaded on said binding posts in contact with the outer ends of said insulating sleeves, one-piece spring pressed brushes slidably mounted in and projecting beyond the first named sleeves, a disk of insulating material having a flat face against which said brushes bear, said disk having a metallic hub received rotatably in the aforesaid aperture in the insulating block, and a metallic contact extending radially from said hub and embedded in the aforesaid face of the disk for coöperation with the brushes.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CLIFTON R. HOLMES.

Witnesses:
R. M. CAIRNS,
EMM CAIRNS.