June 7, 1932. R. NEWSCHAFFER 1,861,545

TIMING MECHANISM FOR INTERNAL COMBUSTION ENGINES

Filed March 21, 1931

Fig. 1.

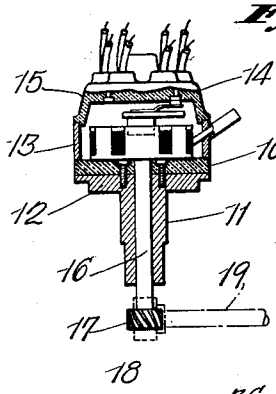


Fig. 2.

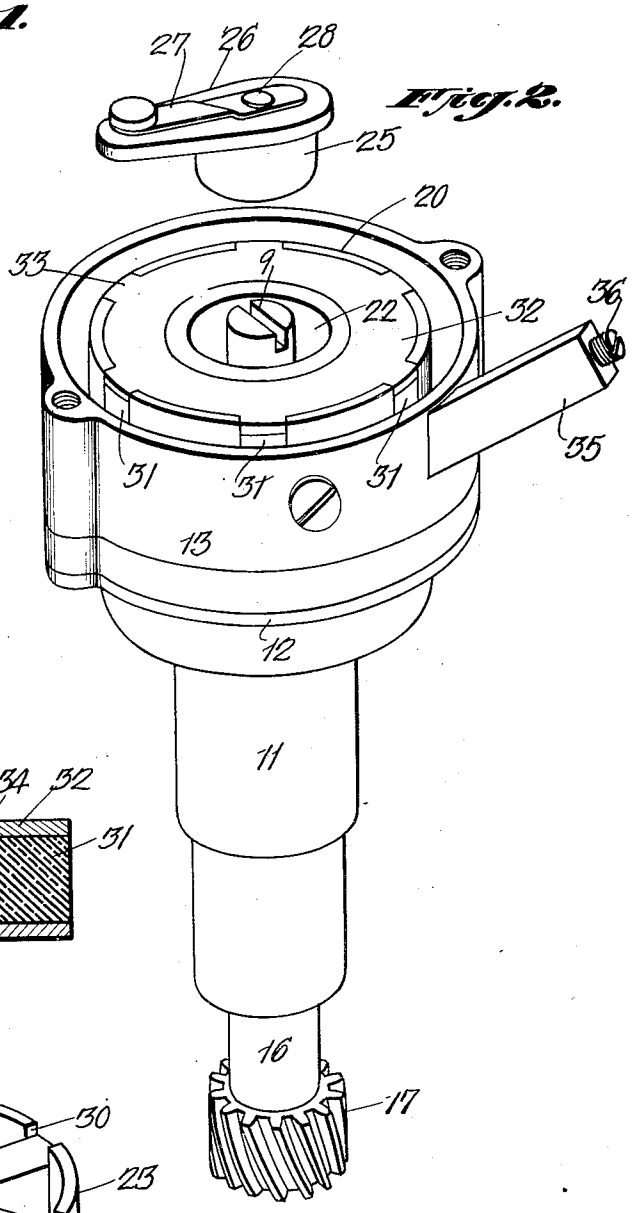


Fig. 3.

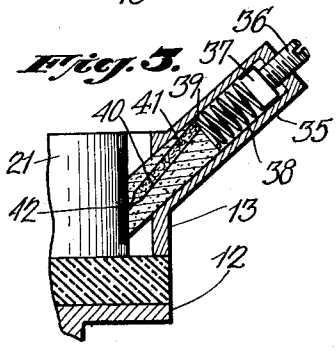


Fig. 4.

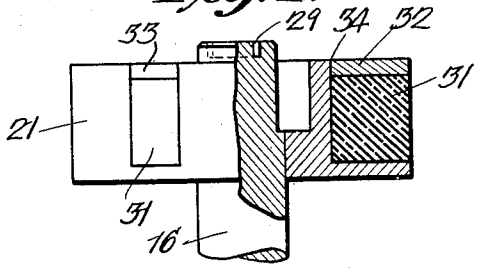
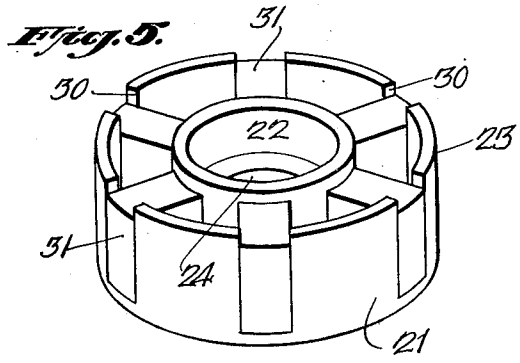


Fig. 5.



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UNITED STATES PATENT OFFICE

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TIMING MECHANISM FOR INTERNAL COMBUSTION ENGINES

Application filed March 21, 1931. Serial No. 524,352.

This invention relates to improvements in timing mechanisms for internal combustion engines, and has particular reference to a distributor construction and magneto construction.

Another object is the provision of a distributor having a self oiling contact brush to insure lubrication at all times between the brush and the coacting rotor.

A further object is to provide a distributor which is simple of construction, inexpensive of manufacture, and positive in operation.

With these and other objects in view, the invention resides in the certain novel construction, combination and arrangements of parts, the essential features of which are hereinafter fully described, are particularly pointed out in the appended claims, and are illustrated in the accompanying drawing, in which:

Figure 1 is a sectional elevational view of my improved distributor,

Figure 2 is a perspective view of the same with the cover section removed and showing the contactor elements disconnected from the distributor shaft,

Figure 3 is an enlarged vertical detail sectional view of the self oiling contact brush,

Figure 4 is a sectional elevational view of the rotor,

Figure 5 is a perspective view of the rotor with the cover plate removed.

Referring to the drawing by reference characters, the numeral 10 designates my improved distributor in its entirety which includes a bearing member 11 provided with a table or platform 12 which fixedly supports a shell or housing 13 of annular configuration, the bottom wall of which may be of insulating material, while the annular side wall is of metal, and which walls may be fixedly secured together in any desired manner. A cap or cover section 14 fits onto the open top of the shell 13 and which cap is secured in position by bolts or like removable elements to permit of the removal of the cap when desired. The top of the cap is provided with equidistantly spaced contacts 15, the number of which is dependent upon the number of cylinders of the motor.

Extending through the bearing 11 is a distributor shaft 16, the lower end of which is provided with a gear 17 meshing with a worm 18 carried by a driven shaft 19 which latter shaft is of course driven by the engine. The upper end of the distributor shaft 16 extends into the distributor housing and fixedly connected thereto is a rotor 20.

The rotor 20 comprises a cup shaped body 21 of annular configuration and which is provided with an inner peripheral wall 22 and an outer spaced peripheral wall 23. The peripheral wall 22 is larger in diameter than the bore 24 through which the distributor shaft passes so that the top end of the distributor shaft is displaced in spaced relation with respect to the annular wall or flange 22. The space between the top end of the distributor shaft and the annular flange 22 permits for the accommodation of the boss or bearing portion 25 of a contact member 26. The member 26 is of insulating material and supports on its top a resilient contact spring 27 which is electrically connected to the distributor shaft 16 by a pin 28. The upper end of the distributor shaft 16 is provided with a kerf or slot 29 for receiving a key portion provided in the bearing portion 25 of the contact member and which rib may be metal and electrically connected to the pin 28 in order to establish an electrical connection between the shaft 16 and the resilient contact spring 27.

The outer periphery of the cup shaped member 21 is provided with equi-distantly spaced slots 31 which open through the top edge of the outer wall and which slots correspond in number with the number of cylinders of the motor with which the distributor is to be used. Fitting into the respective slots 30 are interrupter blocks of insulating material 31 and which blocks are of a height less than the length of the slots so that the top of the blocks are disposed below the top edge of the peripheral wall 23. The inner faces of the block fit against the inner peripheral wall 22 and which inner face as well as the outer face may be curved on an arc struck from the axial center of the cup shaped member. The outer faces of the block 31 are disposed flush with the outer face of the pe-

ripheral wall 23 and by reference to Figure 5 of the drawing, it will be noted that the blocks 31 extend in a radial arrangement from the wall 22 to the outer wall 23.

Fitting over the open top of the cup shaped member 21 is a flat cover plate 32 having equi-distantly spaced lugs or fingers 33 which are received in the respective slots 30. The plate 32 is provided with a central opening 34 through which the inner annular wall 22 extends whereby the top surface of the cover plate 32 is flush with the top of the inner and outer walls 22 and 23 respectively. The plate 32 may be secured upon the cup shaped member by forming a tight fit between the fingers or lugs 33 and the walls of the slots 30 in which the lugs are received.

Extending outwardly and upwardly at an angle from the side wall 13 of the distributor housing is a casing 35, the inside of which opens into the interior of the housing. A screw 36 is threaded in the outer closed end of the casing 35 and is provided with an inner head 37 against which one end of an expansion spring 38 engages, while the opposite end of the spring seats against a contact brush 39 constructed of conducting material. The inner end of the contact brush 39 is cut at an angle and engages the peripheral wall of the rotor for making and breaking the circuit. The contact brush 39 is formed with a bore 40 running lengthwise of the same, but disposed at an angle with respect to the axis of the brush. A wick 41 saturated with oil is disposed within the bore 30 for feeding oil through a restricted passage 42 opening onto the inner angular face of the contact brush. This wick will supply oil at all times to the periphery of the rotor to insure positive lubrication and efficient working of the parts.

From the foregoing description, it will be seen that I have provided a distributor which is of a simple and inexpensive construction, and which may be readily disassembled for the cleaning or replacement of any of the parts when worn. The operation of the timing device it will of course be understood that the insulating block 31 tends to interrupt the ignition circuit while the circuit is closed when the brush 39 is engaging the metal cup shaped member 21 of the rotor as the current will pass from the rotor through the shaft 16 and resilient contact elements 27 to the respective contact points 15 during rotation of the distributor shaft 16.

While I have shown and described what I deem to be the most desirable embodiment of my invention, I wish it to be understood that various changes in construction may be resorted to if desired, and I do not limit myself to the precise structural details herein set forth, nor to anything less than the whole of my invention limited only by the appended claims.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a distributor, an annular cup shaped metal body having equi-distantly spaced slots in the outer peripheral wall thereof, blocks of insulating material carried by said body and extending through said slots and terminating flush with the outer peripheral wall of said body, and a cover plate overlying said blocks and closing the open top of said body.

2. In a distributor, an annular cup shaped metal body having slots in the outer peripheral wall thereof, said slots opening at the upper edge of said peripheral wall, blocks of non-conducting material seated in said slots but being of a height less than the length of said slots to be disposed below the top edge of the said peripheral wall, and a cover plate fitting into and closing the open top of said body and having fingers extending into the respective slots, said plate being fixedly connected to said cup shaped body.

3. In a distributor, a metal cup shaped member having spaced inner and outer annular walls, the outer annular wall having equi-distantly spaced slots therein, blocks of insulating material extending radially from said inner annular wall and into the respective slots, the outer faces of said blocks terminating flush with the outer face of said outer annular wall, and a cover plate attached to said cup shaped member and closing the open top thereof between said inner and outer annular walls.

In testimony whereof I affix my signature.

RUDOLPH NEWSCHAFFER.