

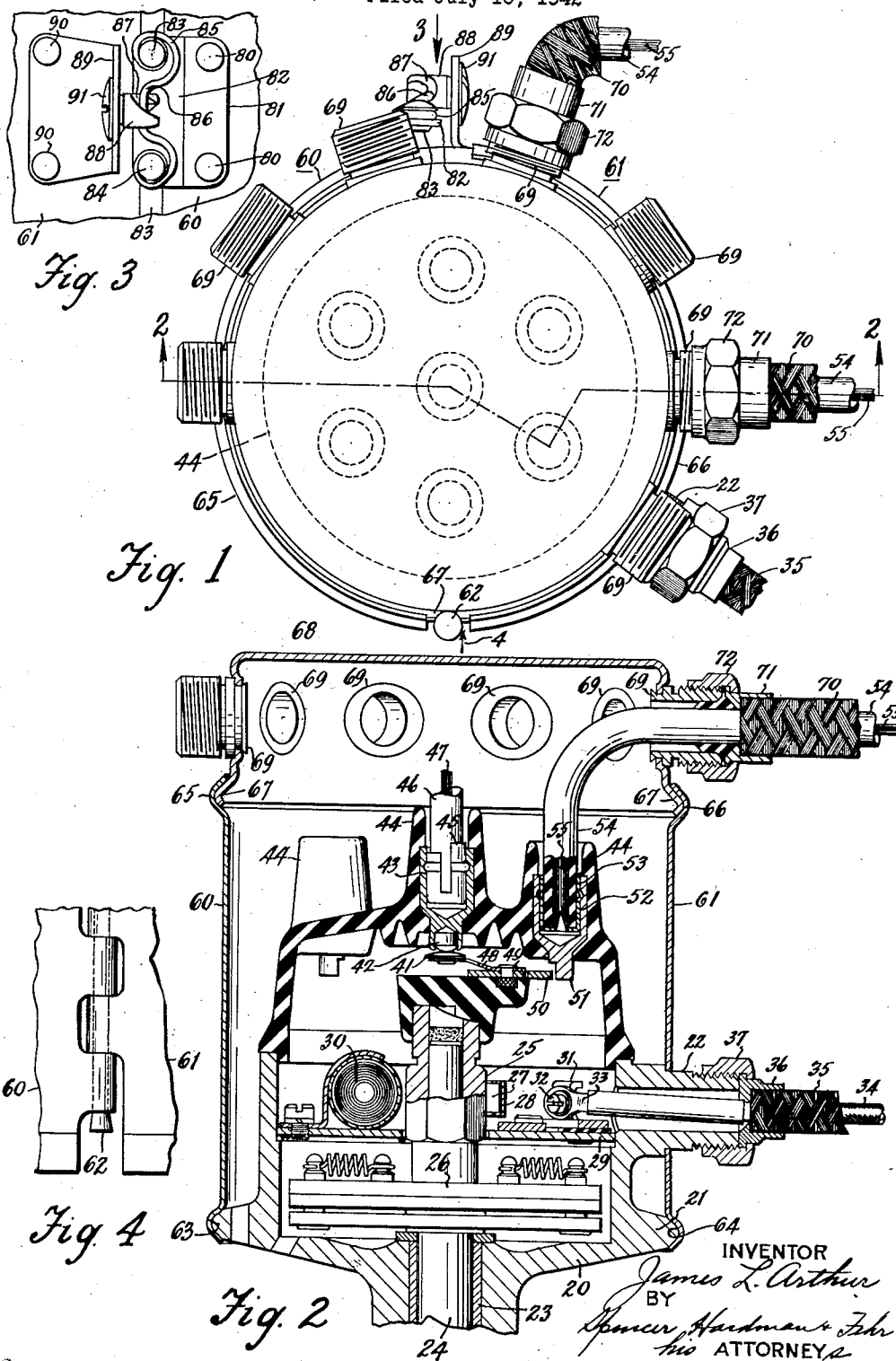
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IGNITION APPARATUS

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IGNITION APPARATUS

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1 Claim. (Cl. 200—19)

This invention relates to ignition apparatus comprising a timer and distributor for supplying sparking impulses to the sparkplugs and internal combustion engines. It is an object of the invention to convert an ignition apparatus of a conventional type to one which is shielded, with the minimum of change to the apparatus. I accomplish this object by the provision of two semi-cylindrical members which are hinged together along adjacent straight edges and which are provided adjacent their arcuate edges with arcuate grooves which are adapted to receive annular flanges one provided by the ignition timer housing and the other by a metal cap located above the conventional distributor cap and provided with openings through which extend cables leading to the high tension winding of an ignition coil and to the engine sparkplugs. One of the semi-cylindrical members is provided with an opening through which extends a tubular boss integral with the ignition timer housing and through which there extends a wire which connects the ignition coil primary winding with a terminal of the ignition timer.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawing wherein a preferred embodiment of the present invention is clearly shown.

In the drawing:

Fig. 1 is a plan view of ignition apparatus embodying the present invention.

Fig. 2 is a sectional view on line 2—2 of Fig. 1.

Figs. 3 and 4 are fragmentary views taken in the direction of arrows 3 and 4 respectively of Fig. 1.

To adapt a conventional form of ignition apparatus for shielding in accordance with the present invention, one new part is required for the ignition timer namely the ignition timer housing 20 which differs from the conventional housing in that it is provided with an annular flange 21 and a tubular boss 22. Housing 20 provides a bearing 23 for a shaft 24 which is connected with the ignition timer cam 25 by a speed responsive mechanism 26 which varies the angular relation between shaft 24 and the cam 25 in order to vary the timing of ignition. The cam 25 cooperates with a rubbing block 27 carried by a circuit breaker lever 28 pivotally supported in any suitable manner by a circuit breaker plate 29 and controlling the opening and closing of timer contacts one of which is grounded and the other of which is carried in any suitable manner (not shown) with a ter-

5 minial 31 insulatingly supported by the breaker plate 29 connected by screw 32 with a clip 33 attached to a wire 34 which is connected with the primary circuit of the ignition coil, not shown. Wire 34 is enclosed by flexible metal tube 35 attached to a ferrule 36 which is secured against the tubular boss 22 by a nut 37.

The cam 25 drives a distributor rotor block 40 carrying a center contact 41 for engaging a carbon block 42 carried by a metal socket 43 provided at the center of the conventional distributor cap 44. Socket 43 receives a metal sleeve 45 attached to the insulation of a wire 47 which is electrically connected with the sleeve 45. Button 41 is mounted on the end of the resilient blade 48 attached by rivet 49 to a distributor segment 50, said rivet having a head molded in the block 40. The segment 50 moves adjacent distributor posts 51 integral with sockets 52 which are molded in the distributor head 44 and which each receive a sleeve 53 attached to the insulation 54 of a sparkplug wire 55 electrically connected with the socket 53. The number of posts 51 and wires 55 connected therewith are in accordance with the number of engine sparkplugs.

The ignition timer and distributor are of a conventional type except for the housing 20 which is provided with the annular flange 21. The shielding of this apparatus is accomplished by the provision of two semi-cylindrical half-shell members 60 and 61 which are hinged together by pin 62 and which are provided at their lower ends as viewed in Fig. 2 with arcuate grooves 63 and 64 which receive the annular flange 61. Adjacent their upper ends the half-shell members 60 and 61 are provided with annular grooves 65 and 66 which receive an annular flange 67 of a cover 68, the side wall of which is provided with a number of apertures each of which receive a bushing 69 which is swedged over on the inside of the cover 68. The ignition coil wire 47 and each of the spark plug wires 55, pass through a bushing 69 and through a flexible metal tube or armor 70 which is attached to a ferrule 71 and which is secured to a bushing 69 by nut 72 having threaded engagement therewith. A washer 73 made out of rubber or other suitable material seals the joint between the ferrule 71 and the bushing 69.

The half-shell members 60 and 61 are retained in assembly with the housing 20 and the cover 68 by the fastening member shown in Fig. 3 and at the top of Fig. 1. Rivets 80 secure to the member 60 a bracket 81 having a flange 82 which

overlies the overlapping edges 83 of the members 60 and 61 as viewed in Fig. 3. Rivets 84 secure to the flange 82 the ends of a resilient wire member 85 having a centrally disposed yoke or bale portion 86 adapted to be received by bayonet slots 87 provided by the tubular shaft 88 extending through a bracket 89 secured by rivets 90 to the half-shell member 61 and provided with a slotted head 91 to receive a screw-driver.

The shield members are assembled with the ignition apparatus in the following manner. With the fastening members 80 and 86 uncoupled, the half-shell member 61 is assembled with the housing 20. The wires 47 and 55 are assembled with the cover 68 and are connected with their respective sockets 43 and 52 of the distributor cap 44. The cover 68 is assembled with the half-shell member 61. Then the half-shell member 60 is swung upon the hinge pin 62 so that the annular grooves 65 and 66 thereof will embrace the flange 21 of the housing 20 and the flange 67 of the cover 68. The shaft 88 is rotated in such direction so that the yoke or bale 86 of the wire 85 will enter the bayonet slots 87 when the extending edges of the half-shell members 60 and 61 are brought together as indicated at 83 in Fig. 3. Then the shaft 88 is turned by applying a screw-driver to its slotted head 91 so that the bale 86 will be held between surfaces of the bayonet slot which the bale is being cammed toward the left in Fig. 3, thus placing the wire 85 under stress which causes the half-shell members 60 and 61 firmly to grip the flanges 21 and 67 of the housing 20 and cover 68 respectively.

While the embodiments of the present invention as herein disclosed, constitutes preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claim which follows.

What is claimed is as follows:

A shielded ignition timer-distributor unit for

internal combustion engines comprising the combination of a cup-shaped metal timer housing providing a shaft bearing axially of the cup and a laterally extending annular flange coaxial with the shaft bearing and a side opening provided by a tubular member extending from the side of the cup, a timer circuit-breaker located within the housing and having a terminal, a non-conducting distributor cap supported by and closing the housing and provided with terminals for connection, respectively, with an ignition coil and with spark plugs, a shaft journaled in the housing bearing, a cam driven by the shaft for operating the circuit breaker, a distributor rotor driven by the cam and operative to distribute sparking impulses from the coil terminal of the distributor cap to the spark plug terminals thereof, two semicylindrical metal shell-members having arcuate grooved portions at the lower edges for embracing the annular flange of the housing, at least one of them providing for the reception of the tubular member extending from the timer housing, said shell members having, at their upper edges, arcuate grooved portions, a metal cover having a cylindrical side wall, the lower edge of which is provided with a laterally extending annular flange embraced by the arcuate grooved portions located at the upper edges of the shell members tubular members extending laterally from the side wall of the cover and providing side openings in the cover, wires extending through said tubular parts and connected respectively with the distributor cap terminals, a wire extending through the tubular extension of the timer-housing and connected with the timer terminal tubular metal shield enclosing the wires and connected, respectively, with the tubular extensions through which the wires pass, and means for tying the shell members together with the flanges of the cover and housing clamped between them.

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