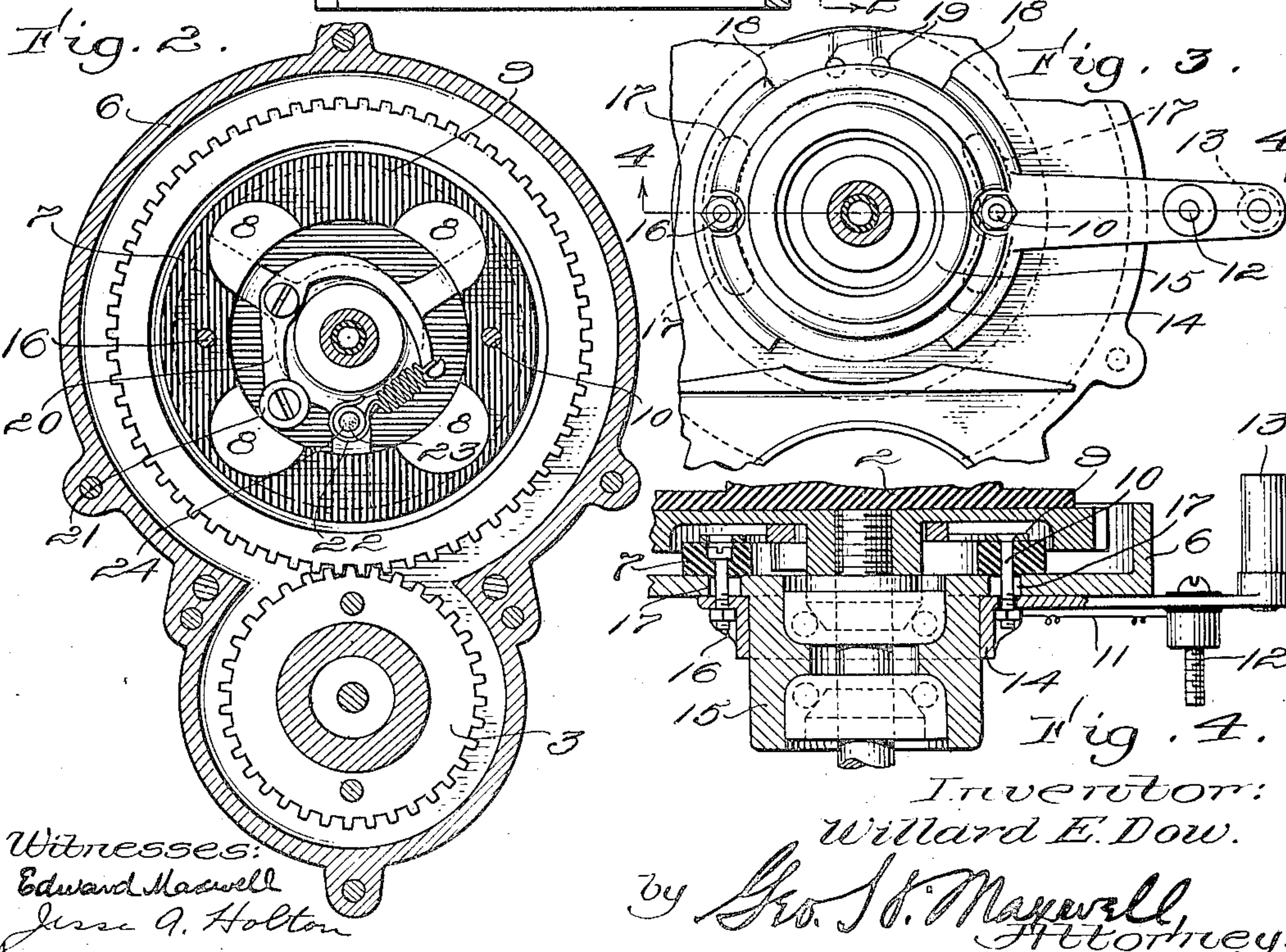
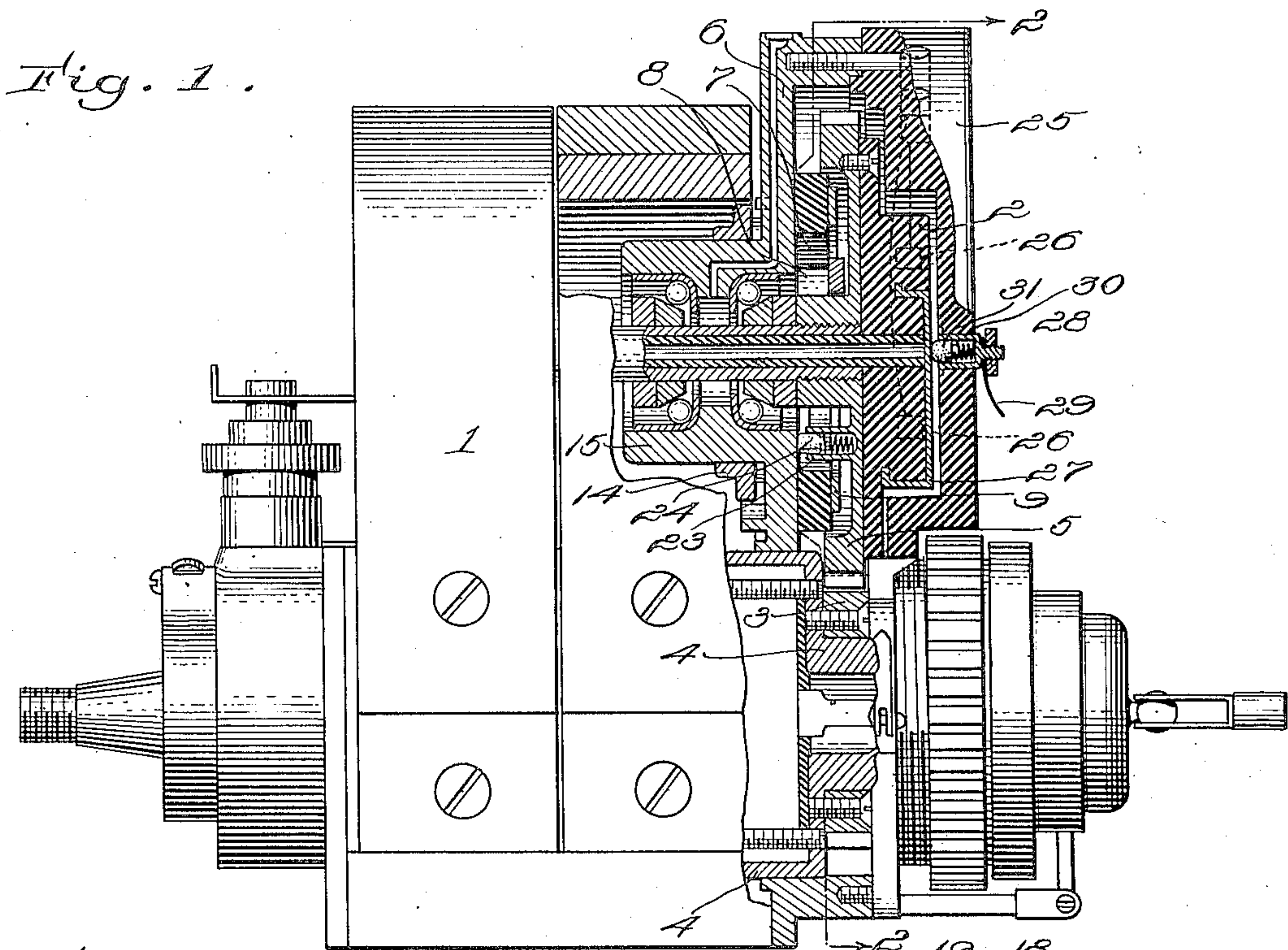


W. E. DOW.
COMBINED TIMER AND DISTRIBUTER MAGNETO.
APPLICATION FILED OCT. 18, 1909.

991,490.

Patented May 9, 1911.



UNITED STATES PATENT OFFICE.

WILLARD E. DOW, OF BRAINTREE, MASSACHUSETTS.

COMBINED TIMER AND DISTRIBUTER-MAGNETO.

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Specification of Letters Patent.

Patented May 9, 1911.

Application filed October 18, 1909. Serial No. 523,136.

To all whom it may concern:

Be it known that I, WILLARD E. DOW, a citizen of the United States, and resident of Braintree, in the county of Norfolk and State of Massachusetts, have invented an Improvement in Combined Timers and Distributer-Magnets, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The objects of my invention are to facilitate the accuracy and render more compact, simple and durable the governing portion of the mechanism which operates the spark plugs of a gas engine.

My invention consists in combining with the magneto and its distributor, a timer and interrupter for the battery circuit, said timer and interrupter being geared directly to the magneto so that they are necessarily operated in perfect unison therewith, the same magneto distributor acting also as the distributor for the battery system. I combine the said timer with the magneto and magneto distributor.

My invention will be more fully apprehended from the following description taken in connection with the accompanying drawings, in which I have shown a preferred embodiment of the invention.

In the drawings, Figure 1 is a view thereof in side elevation, parts broken away to show the internal construction; Fig. 2 is a sectional view on the line 2—2 Fig. 1; Fig. 3 is a rear view of the adjusting portion of the timer removed from the magneto; and Fig. 4 is a horizontal sectional view taken on the line 4—4 Fig. 3.

The magneto 1 may be of any usual or preferred high tension kind, and hence needs no description, and the same remark applies to the distributor member 2, which is herein shown as driven by a pinion 3 on the end of the armature frame 4 meshing with a gear 5 fast on the back side of the distributor member 2. In front of said pinion 3 the magneto is provided with an interrupter and timer for its service, which being the same as usual are not herein shown or described in detail.

My invention resides in combining with the aforesaid parts the timer (which is ordinarily understood to include the interrupter) of the battery system or other source of energy which is used to operate the spark plug of the engine in connection with the

magneto. In carrying out the invention, as herein shown, I provide a space or chamber back of the magneto distributor member 2 and its gear in which I mount said timer and interrupter, the rotary portions of which are secured directly to said distributor member 2 so as to be operated by its gear and in necessary synchronism with said distributor member, which accordingly serves as the distributor member not only for the magneto service but also for the battery service. Held movably on the front of the back plate or casting 6 is a timing ring 7 of insulation, in which are embedded conductor blocks or contacts 8, four thereof being herein shown (as required for use with a four-cylinder engine), said blocks being connected by a conductor ring 9 which connects by a post 10 with a conductor 11 to a binding post 12 on the handle 13. The conductor 11 in practice is concealed in the handle, but for convenience of illustration I have shown it otherwise in Fig. 4. The handle is carried by a collar 14 mounted on a hub 15 extending rearwardly from the casting 6, said collar being connected rigidly to the insulation ring 7 to rock the latter, by said post 10 at one side and by a similar post or bolt 16 at the other side, operating in slots 17 in the casting 6, as shown in Figs. 3 and 4, and limited in movement by the engagement of projections 18 on the rim of the collar with stop pins 19 on the casting 6. By moving the handle 13 the timing of the spark may be varied, as is well understood.

A contact arm 20 coöperates with the timing ring 7 above described as an interrupter, being pivotally mounted upon the gear 5 and provided with a contact roll 21 adapted to revolve in engagement with the inner edge of said timing ring to close the primary circuit of the battery system each time that it engages a contact 8. The opposite end of the arm 20 is held inwardly by a coiled spring 22 secured thereto at one end and engaging a socket 23 or other fixed part of the gear at its other end. A carbon plunger contact or brush 24 is mounted in this socket and held by a spring yieldingly forward against the adjacent front face of the casting 6 to ground that end of said primary circuit.

In the cover 25 which incloses the distributor member 2 and is secured to the casting 6, are usual contacts or terminals which lead to the respective spark plugs of the engine with which the magneto operates,

a four-cylinder engine being herein supposed, the distributor 2 having a usual conductor plate or sector 27 to cooperate with said contacts 26 in distributing the current as the distributor member 2 is rotated by its gear 5, the circuit being completed in any usual or preferred manner, a binding post 28 being herein shown as mounted in said cover 25 for receiving a connection 29, and having in its socket 30 a carbon contact or brush 31 held by a spring in contact with the face of the plate 27. The connection 29 is a usual connection, rendered (by a switch not shown) common to the high tension service of a magneto and to the secondary circuit of the spark coil of the battery service, depending upon the throw of the switch, all as commonly understood and practiced. One end of the primary winding of the spark coil of the battery circuit is connected to the binding post 12 in the handle 13, the other end of the coil being connected to the battery, whose opposite end is grounded, all in well known manner. The current from the battery through said primary coil passes from the post 12 through the conductor 11 to the post 10 and conductor ring 9 to which the blocks or contacts 8 are connected, and when one of these is engaged by the revolving roll 21, the current passes through said roll 21 of the interrupter arm 20, gear 5 and brush 24 to ground. This takes place at each contact block 8 as the roll 21 is carried rapidly around by the gear 5, and at each said make and break of said primary circuit, the induced current in the secondary circuit is transmitted by the distributor member 2 to the spark plugs through the binding post 28, brush 31, plate 27 and contact 26. If on the other hand it is desired to operate the spark plugs of the engine by the magneto service, the conductor 29 is switched to the magneto circuit and thereafter the distributor member 2 distributes the

high tension current of the magneto to the spark plugs instead of the high tension current of the battery system.

From the above description, it will be understood that the timer and interrupter 7-14 for the battery service is driven directly by the armature or armature shaft of the magneto and hence necessarily in proper timed relation to all the movements of the moving parts connected with the magneto, such as the timer, interrupter and distributor member of the magneto, and is operated in direct connection with said distributor member and when in use has its current distributed by the same distributor member. This simplifies the wiring, reduces the expense and complexity of construction, maintenance and operation, brings all these parts into direct operative relation with the same moving part of the magneto, and eliminates a separate distributor member for each of the two systems (the battery system and magneto system), besides various other advantages.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is,

The combination with a magneto and its armature shaft, provided with a driving pinion, of a gear wheel meshing with said pinion, a distributor member fast on one side of said gear wheel, a spring-held contact lever pivoted on the opposite side of said gear wheel, a timing ring and its contacts mounted on the magneto to cooperate with said contact lever, and external means for shifting said timing ring.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WILLARD E. DOW.

Witnesses:

CLARENCE W. DOW,
CARLOTTA NIX.