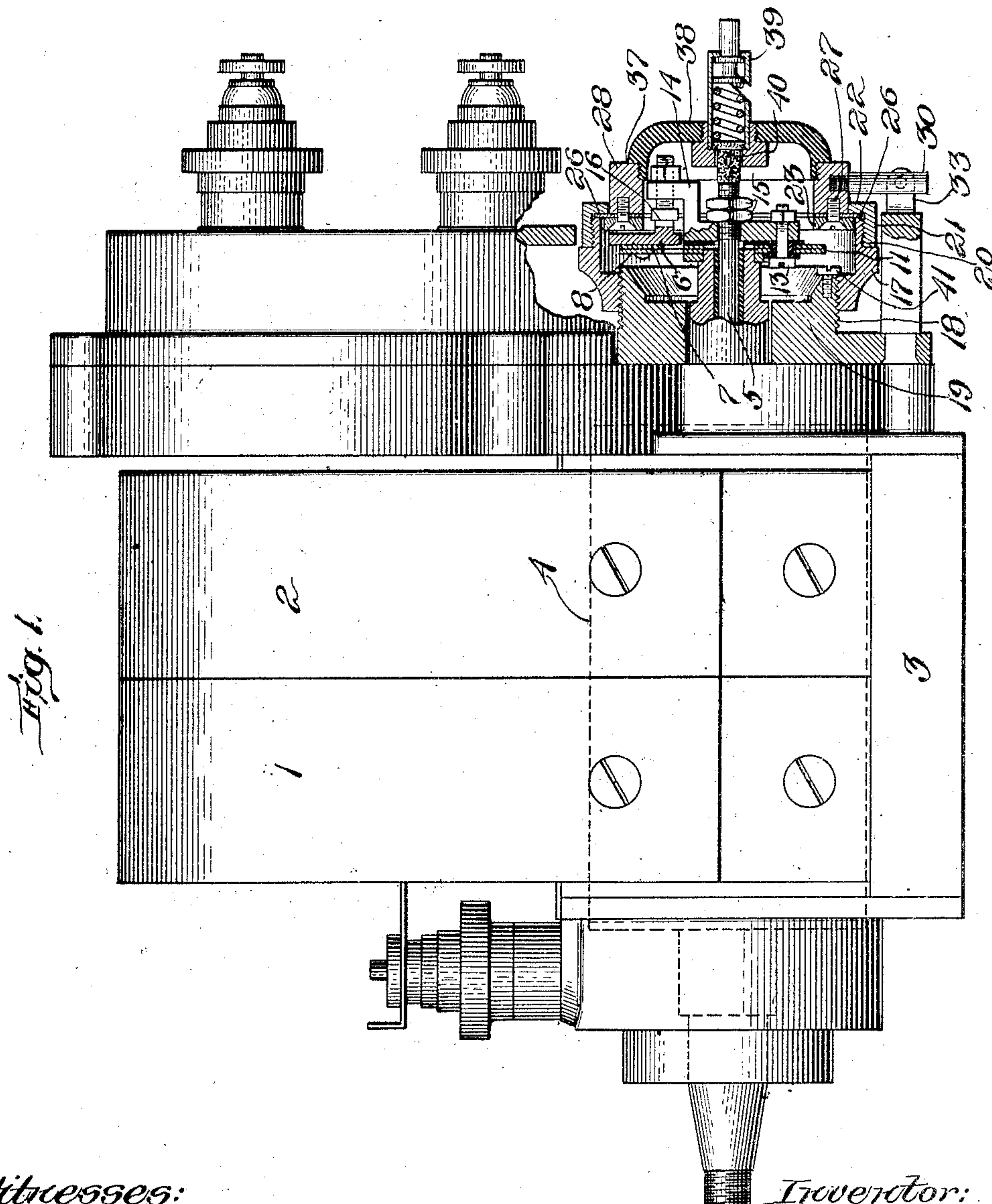


W. E. DOW.
MAGNETO INTERRUPTER.
APPLICATION FILED JUNE 16, 1908.

975,842.

Patented Nov. 15, 1910.

2 SHEETS—SHEET 1.



Witnesses:
Edward Maxwell.
Louis Brown

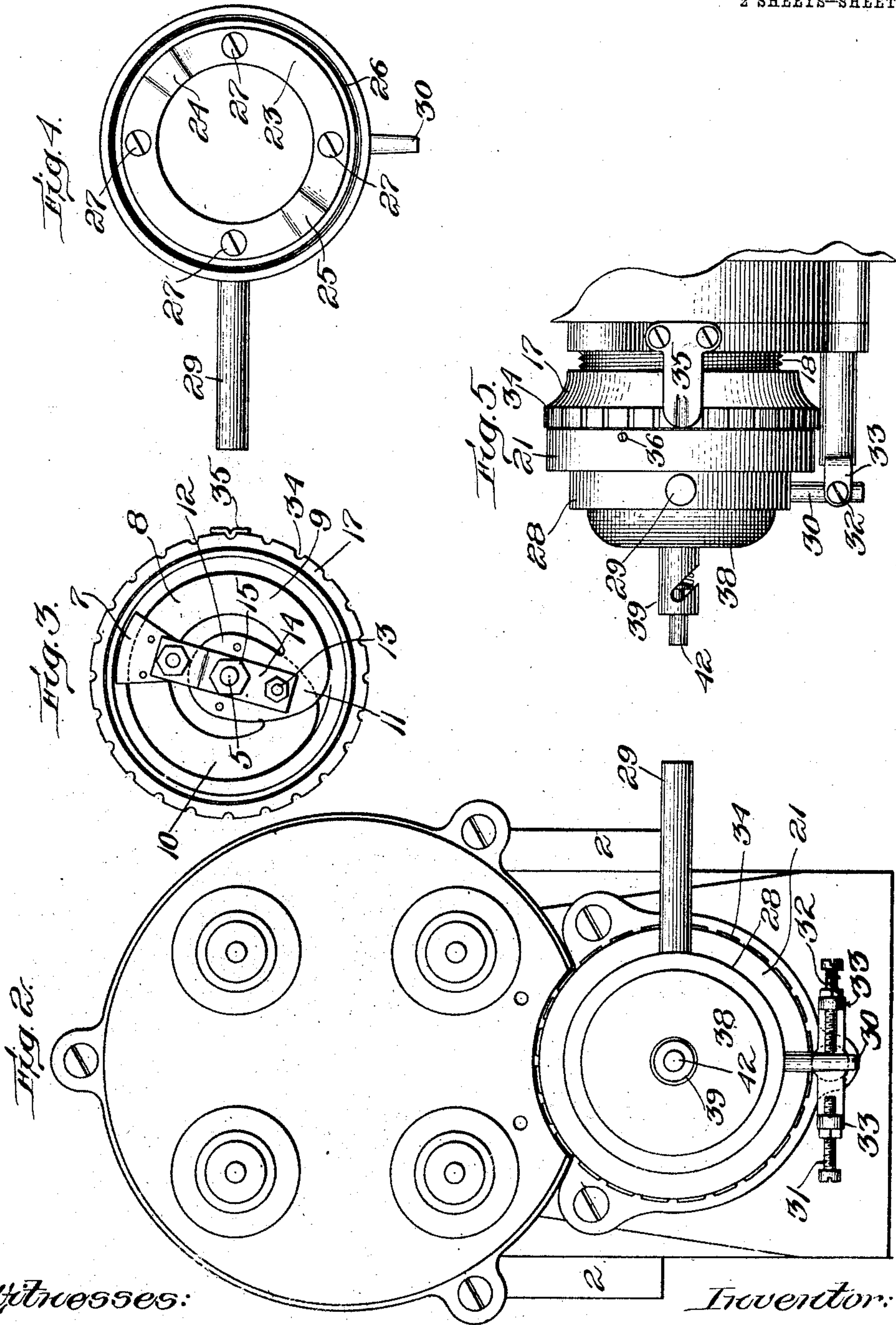
Inventor:
Willard E. Dow,
by Geo. S. Maxwell,
Atty.

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UNITED STATES PATENT OFFICE.

WILLARD E. DOW, OF BRAINTREE, MASSACHUSETTS.

MAGNETO-INTERRUPTER.

975,842.

Specification of Letters Patent.

Patented Nov. 15, 1910.

Application filed June 16, 1908. Serial No. 438,758.

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 Magneto-Interrupters, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention has for its object the provision of means for adjusting the interrupter while the engine is going, and leaving the terminals of the interrupter axially undisturbed with relation to each other.

My invention also includes means for giving extremely accurate, smooth adjusting movement, besides various minor improvements, all of which will be pointed out more at length in the course of the following description, reference being had to the accompanying drawings, in which I have shown a preferred embodiment of the invention.

In the drawings, Figure 1 represents in side elevation a magneto provided with my invention, the constructional details of the latter being shown in vertical longitudinal section; Fig. 2 is an end elevation, looking at the right, Fig. 1; Fig. 3 is an end elevation of the interrupter and chamber with the cap and adjusting device removed; Fig. 4 is a view in elevation, looking at the inside, of the adjusting ring and cap; and Fig. 5 shows the assembled parts in side elevation.

The magneto itself may be of any construction desired, comprising as herein shown fixed magnets 1, 2 mounted on a base 3 and containing an armature 4 rotating between usual pole pieces (not shown) secured to said magnets, etc. The interrupter is mounted, as usual, at the right hand end and preferably rotates with the armature, to which it is secured by an axial insulated rod 5. The movable member 6 of the interrupter is carried by a block 7 mounted on a spring 8 in the form of a double helix, see Fig. 3, *i. e.* it continues from the block 7 around the box or inclosing chamber in opposite directions, the two members 9 and 10 of said spring meeting at 11, whence an extension 12, preferably in the same plane as the parts 9 and 10, extends toward the center of the chamber and is secured by a bolt 13 preferably to the inner side of an angular arm 14 held fast by nuts 15 to the

rod 5 to turn therewith. The arm 14 extends angularly at its free end, see Fig. 1, and carries the stationary terminal 16 of the interrupter to coöperate with the movable terminal 6. By having the spring 8 permanently secured to the arm 14 so that the entire mechanism carrying the interrupter becomes practically one part, it becomes very easy to take out the interrupter for examination. All that is necessary is to remove the nuts 15 and slide out the entire interrupter mechanism as one piece, instead of taking each portion thereof out separately as heretofore.

The main object of my invention is to provide means for adjusting the interrupter while the engine is going. Having the spring 8 extend around similarly at the opposite sides of the block 7 is one feature which facilitates this object, as thereby the operation of the interrupter or the separation of its terminals is much more steady. The main adjusting means, in the embodiment of my invention herein shown, consists of an externally operable rotary adjusting device, herein shown as a ring 17 having threaded engagement at 18 with a stationary boss 19, and having at its outer end a threaded flange 20 on which is mounted a clamping ring 21 whose flange 22 clamps in accurate position the cam ring 23 whose opposite projecting cam surfaces 24, 25, Fig. 4, operate the interrupter by their engagement with the tripping block 7 which actuates the movable terminal 6 of the interrupter terminals. The means by which the ring 23 is held accurately in position is also, in and of itself, an important feature of invention. Said means consists of a thin projecting steel plate or ring 26 held by screws 27 immovably clamped between the ring 23 and an annular wall or carrying member 28 which constitutes also the wall of the interrupter chamber or box which contains the operative devices thus far explained. The member 28 is provided with a handle 29 whereby it may be rocked, and has a projecting finger or lug 30 to engage opposite screw stops 31, 32 adjustably mounted in arms 33 in the path of movement of said lug 30. The edge of the adjusting ring 17 is notched at 34 to facilitate turning it, and also to engage a spring detent 35 for holding it in accurate adjustment into whatever position it may be moved. Thus by turning the adjusting ring

17 on the threads 18 the cam ring 23 may be moved out or in with the utmost delicacy, thereby correspondingly adjusting the interrupter by moving the movable terminal 5 6 inwardly or outwardly as the case may be, and this adjustment can be made at any time, irrespective of whether the machine is running or not. Likewise by turning the handle 29, the point of interruption may be 10 advanced or retarded while the machine is running. By having the thin, stiff plate or flange 26 held against the edge of the ring 17, the movement of the cam ring is controlled so that it is absolutely accurate in 15 one and the same plane perpendicular to the axis 5, and by having said flange 26 not only thin and stiff but preferably made of steel, the adjusting movement thereof is smooth. It will be understood that the 20 clamping ring 28 is brought into delicate clamping engagement with said flange 26 just sufficient to hold it against lateral play and yet permit it to turn circumferentially, said clamping ring being fastened immovably by the ring 21 and a set screw 36, Fig. 5, when properly adjusted. The wall member 28 is threaded at 37 to receive a cap 38 25 of insulating material, such as hard rubber, in which is centrally mounted a binding post 39 (Patent No. 821,029, May 22, 1906) whose carbon terminal 40 bears against the end of the rod 5 for receiving a conductor wire to constitute the ground terminal of the magneto. By providing this insulator cap 38 30 for the ground terminal, I eliminate all the elaborate insulation of posts, etc., of the aforesaid patent, and moreover provide a very convenient removable cover construction. To prevent the inadvertent removal 40 of the adjusting ring 17 when removing the clamping ring for inspecting the interior of the mechanism, I provide a stop of any suitable form, herein shown as a screw 41 whose head overhangs the threaded edge of the 45 ring 17, see Fig. 1. This stop also prevents injury of the interrupter springs 9, 10, by screwing out the adjusting ring too far.

From the above description it will be seen that the terminals 6 and 16 are adjusted 50 toward each other without any relative rotation, and hence they are maintained in the same relative operative condition at all times. By this I mean that such irregularities as form on the adjacent surfaces, and 55 which commonly nest into each other after the device is used awhile, are not disarranged relatively to each other as is the case when either terminal is rotated, but, by my invention, they are left always in the same 60 with relation to each other, and the terminals are simply adjusted to come toward each other longitudinally as they wear away. It will readily be understood also that this adjustment is readily accomplished while 65 the magneto is running, simply by rotating

the adjusting ring 17 outwardly. Likewise the timing of the magneto is similarly varied while the magneto is running simply by moving the timing lever 29, and furthermore by adjusting the stop screws 31, 32 70 the timing lever may be permitted to have a maximum throw or a minimum throw as desired.

Without elaborating upon the invention more at length, it will be sufficient to point 75 out that I consider it as broadly new in many respects, as will be more apparent from the appended claims, and accordingly I wish it understood that I am not limited to the details of construction herein set forth 80 as the preferred embodiment, inasmuch as many variations in form, arrangement and combination of parts may be resorted to without departing from the spirit and scope of my invention. 85

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a magneto, a rotary part, a current interrupter, having its terminals rotated by 90 said part, and means for adjusting said terminals toward and from each other while they are being rotated.

2. In a magneto, an interrupter having cooperating make-and-break terminals, 95 means including a rotary part for operating said terminals, an operating cam having the double function of determining the separating distance of said terminals and of regulating the timing of the interruptions, 100 an externally operable adjusting ring threaded onto an adjacent part for moving said cam in one direction to regulate the separation of said terminals, and externally operable rotary means for moving said cam 105 in another direction for regulating the timing.

3. In a magneto, an interrupter, comprising a fixed contact and a movable contact, yielding means supporting the movable con- 110 tact, a cam projection for operating said movable contact, said cam projection being movable with relation to said contacts in two directions, one for varying the timing and the other for varying the separating 115 distances of the contacts, means for relatively rotating said contacts and said cam projection to operate the interrupter, external means for changing the operating position of said cam projection with relation 120 to said contacts without relatively moving said contacts for varying the timing of the magneto, said external means being adjustable while the magneto is running, adjustable stops for said timing means, to permit 125 or a maximum throw of the latter, or a minimum throw, as desired, and means for relatively moving said cam and said contacts to regulate the separating distance of the contacts. 130

4. In a magneto, an interrupter, comprising a fixed contact and a cooperating movable contact, spring means yieldingly supporting said movable contact, having two
 5 oppositely extending curved portions fixedly supported at their ends opposite the contacts, whereby the movable contact is rendered capable of moving longitudinally toward and from the fixed contact, and is
 10 held at all times in unchanging axial alignment with said fixed contact, and cooperating adjusting means for adjusting the normal position of said movable contact toward or from said fixed contact.

15 5. In a magneto, an interrupter, having a fixed contact, a movable contact, a yielding supporting means for the latter, a tripping-cam ring for operating said movable contact, means for relatively rotating said contacts
 20 and said ring, guiding means for guiding said ring in an unvarying path of adjustment, said guiding means including a stiff, thin flange riding in an annular groove, and timing means adjusting said ring to change
 25 the timing of the magneto.

6. In a magneto, a central rotary member, an interrupter and fixed and movable con-

tacts carried thereby, a tripping-cam ring, an annular timing member provided with a thin, stiff, peripheral flange, secured to the
 30 ring and means providing an annular groove for said flange to travel in for guiding said ring in an unvarying path with relation to the path of rotation of said interrupter.

35 7. In a magneto, a central rotary member, an interrupter and fixed and movable contacts carried thereby, a tripping-cam ring, an annular timing member provided with a
 40 thin, stiff, peripheral flange, secured to the ring and means including an adjustable clamping ring and cooperating member providing between them an annular groove for
 45 said peripheral flange to travel in for guiding said ring in an unvarying path with relation to the path of rotation of said interrupter.

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

WILLARD E. DOW.

Witnesses:

M. J. SPALDING,
 EDWARD MAXWELL.