

1,017,304.

FIG. 3.

FILE 3.

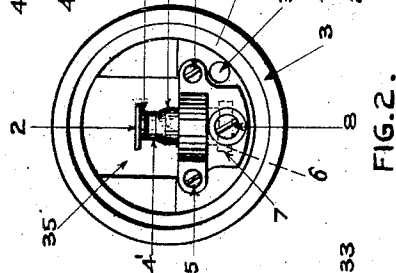
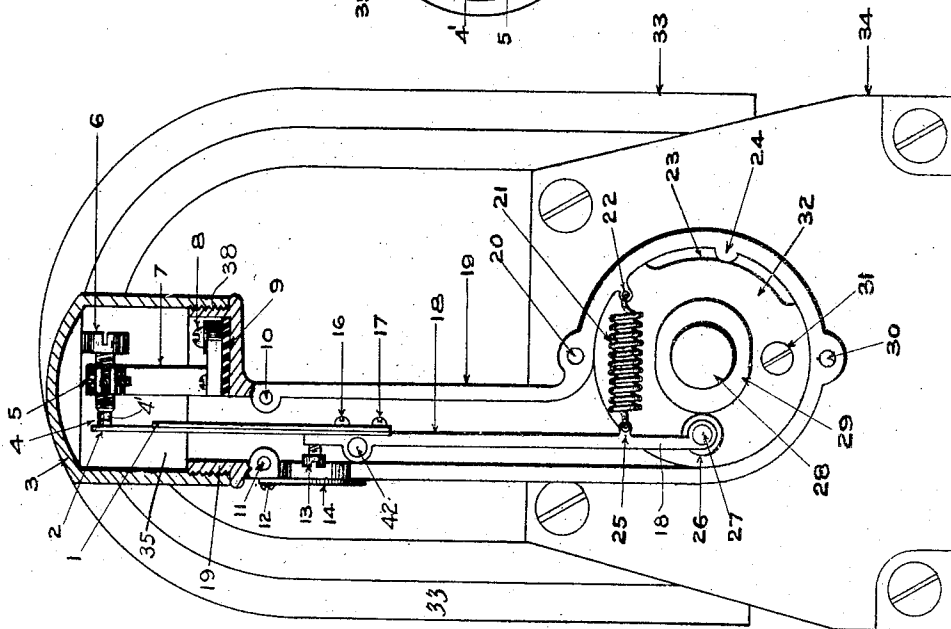


FIG. 2.



1917

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INTERRUPTER FOR IGNITION-DYNAMOS.

1,017,304.

Specification of Letters Patent.

Patented Feb. 13, 1912.

Application filed January 12, 1911. Serial No. 602,170.

To all whom it may concern:

Be it known that I, CHARLES THOMAS MASON, a citizen of the United States, residing at Sumter, in the county of Sumter and State of South Carolina, have invented certain new and useful Improvements in Interrupters for Ignition-Dynamos; and I do hereby 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; reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to an improved interrupter for dynamos used with ignition systems for internal combustion engines, and consists in a new arrangement of the contact mechanism and the casing therefor, resulting in a simplified durable structure in which the various parts may be examined while the dynamo is running; the contact points being so located that they are easily accessible and fully protected from the oil used in lubricating the moving parts of the device.

Many other advantages of the invention will become apparent as the same is more fully set forth.

In the accompanying drawings, which illustrate by way of example, an embodiment of this invention, Figure 1, is a view in elevation of an interrupter embodying the invention, shown mounted on a magneto. This view is shown partly in section, and with its cover portion removed in order to show the main working parts of the device. Fig. 2, is a plan view of the upper portion of the interrupter, and Fig. 3, is a side view of Fig. 1, with parts in section, and with the cap of the interrupter removed.

Similar reference characters refer to similar parts throughout the drawings.

I illustrate my device as being mounted on a magneto generator of the usual type, the permanent magnets of which are indicated at 33. As it is well known to those skilled in the art, the armature of such a magneto may have one or more windings, and the interrupter is usually bridged on, or otherwise suitably arranged, in relation to one of these windings.

The end plate 34 of the magneto is provided with a circular projecting hub 34' which may form a bearing for the armature

shaft 28 which projects therefrom. About this projecting portion is suitably positioned the casing 19, held in place by the plate 32, said plate being attached to the hub by the screws 31 and 43. The end portion of the armature shaft 28 carries a cam 29, against which bears the roller 26 suitably supported as shown at 27 on the contact member 18, this member being held in position against the cam by suitable means such as the spring 21 attached to the pins 22 and 25 which are mounted on the casing 19 and member 18, respectively. The member 18 is pivoted to the casing 19, and held thereto by means of a machine screw 42 and washer, and another thick washer 15 between the member and the casing serves to keep the former properly positioned.

Attached to the upper portion of the movable member 18 by means of the screws 16 and 17 is the contact spring 2 carrying the contact point 4 which is made of some suitable material such as platinum. In order to reinforce this spring an auxiliary spring 1 is placed in the front of it as shown. The screw 13 is provided for adjusting spring 2, an opening being provided in the casing 19 to permit this adjustment, and oiling of the bearing 15, this opening being normally closed by a cover 14 held in place by a screw 12.

The upper portion of the casing 19 is shaped to form a circular head as shown, in which is mounted the post 7 carrying the contact screw 6 equipped with a contact point 4'. This post is insulated from the casing by the insulation 9 and is provided with a terminal 8, and a clamping screw 5 for the contact screw. The upper portion of the casing is threaded as indicated at 38 for attaching the cap 3 which incloses the contacts. An opening 37 is made in the bottom of this portion of the casing through which a circuit wire may be brought for connection to terminal 8, thereby completely inclosing this connection and protecting same from dirt, moisture, or oil.

Casing 19 is provided with a front plate 41 which is attached at points 10, 11, 20, and 30, by means of screws indicated at 40 and 44 or in any other suitable manner. It is obvious that this plate can be removed to inspect the working parts without disturbing the top cap 3 as it ends below this cap as indicated at 39. This eliminates the necessity of removing cap 3, or exposing the con-

tacts when oiling or inspecting the other parts. The casing 19 is mounted on the hub of the magneto so as to frictionally engage therewith and in conjunction with the friction of the plate 32 thereon, to be kept in practically any position it is pleased.

In operation, when the armature of the dynamo is moved, the member 18 will follow the cam 29, and the contact points 4 and 4' will be alternately opened and closed, thereby producing changes in the electrical circuit connected therewith. Heretofore, these contact points and in fact the entire mechanism have been inclosed in a much smaller casing than mine, provided with a single cover or cap, and usually mounted on the end of the armature shaft, one side of this circuit being brought out through the cover, or terminating on a single terminal thereon. Therefore it was impossible to test the dynamo while running with the cap removed as this removal broke the circuit. By my improved construction the cap 3 may be removed thereby exposing the contact points without breaking the circuit, and by means of the screw 6 fine adjustments can be made while the interrupter is in motion, as this contact does not revolve or move as is the case with other devices. It will also be observed that the location of the contact points is always practically vertical, and the points being located at the highest point of the casing, it is impossible for the oil used for lubricating the bearing and roller in piece 18, to reach these contacts and cause a bad electrical connection. It is also obvious that these parts may be freely lubricated without removing the cap 3 by slightly shifting cover 41, and the bottom of the casing could be filled with oil, whereas, in other types, it is necessary to use the oil very sparingly as the contacts are in close proximity to the moving parts and soon become coated if excess oil is used, thereby causing sparking and trouble. There is always danger of accidentally squirting oil on the contacts in other types as they are located in the same compartment as the moving parts, and are not protected in any way.

As the contact adjusting mechanism projects freely upward, it is much more accessible than in other types, the ample space permitting the contact spring 2 to be drawn away, thereby separating the contact points 4 and 4' for cleaning without changing the screw adjustment. Heretofore, these parts have been very small and mounted in such a manner that the opening obtainable between them was only the normal opening caused by the cam and they could not be farther drawn apart for cleaning or examination, nor could they be cleaned while the machine was running which can be done with my invention. I consider the method of placing the contact points where they are

substantially on a line with the top or side of the dynamo, one of the important features of my invention, and it is obvious that the entire casing may be normally positioned with the contacts to the side of the dynamo instead of the top, without rendering them inaccessible or departing from my invention.

As the armature shaft carrying the cam rotates, it is evident that by varying the position of the roller 26 in relation to the cam 29 that the time of the opening and closing of the contact points may be varied. I accomplish this by rotating the casing and its contents in relation to the armature shaft by means of a wire or rod in the usual manner, and limit this motion by providing a slot 23 in the plate 32, said slot engaging a projection 24 on the casing, from which it is evident that the casing is at liberty to move only to the extent of the slot 23.

While I have shown only one shape of cam and have described my device as applied to a machine having a rotating armature, it is obvious that cams of other shapes may be used so as to produce more than two interruptions per revolution, and that the motion imparted to the armature may be oscillatory instead of rotary, and in magnetos using a distributor driven from the armature, the interrupter cam may be operated by the distributor shaft instead of the armature shaft or in any other suitable manner. There are many other modifications which may be made without departing from the spirit of my invention by those skilled in the art, so I do not limit myself to the precise construction and method of operation herein disclosed.

I claim,

1. In an interrupter for ignition dynamos, a casing, contact mechanism positioned therein, the contacts projecting vertically from said casing, and a cover for the casing.
2. In an interrupter for ignition dynamos, a casing having an open end and side, a cover for the side, a cap for the end, contacts inclosed by said cap, contact mechanism inclosed by the side and casing, and means for oiling the mechanism without removing the cap or cover.
3. In an interrupter for ignition dynamos, a casing, an opening in the side of the casing and a cover therefor, contact mechanism in said casing, contacts projecting from and opening in the casing and a cap for the opening.
4. An interrupter for ignition dynamos comprising a casing having a removable side, a spring controlled contact lever positioned in said casing, a contact connected to said lever, means for adjusting said contact, a fixed contact carried by said casing, insulation between one of the contacts and the casing, means for adjusting the fixed con-

tact in relation to the movable contact, and means inclosed by the cover of the casing for limiting the movement thereof.

5. An interrupter mechanism for ignition dynamos comprising a casing one end of which incloses a cam and the end of a lever, the other end supporting an insulated contact, a contact ~~on the lever~~ registering with the insulated contact, a bearing intermediate the two ends of the lever for supporting same, means inclosed in the casing for restraining the movement of the lever, a cover for the casing, and an independent cover for that portion of the casing inclosing the contacts.

6. In an interrupter mechanism for ignition dynamos, a casing the lower end of which surrounds a cam, a projecting portion of the casing containing a bearing, a movable contact lever mounted on said bearing and engaging the cam, means for keeping the lever in contact with the cam, a contact carried by the upper end of said contact lever, said contact projecting freely from

the open end of the projecting portion of the casing, an adjustable contact member carried by the casing but insulated therefrom, a cover for the side of the casing, and a cap for the open end of the projecting portion. 25 30

7. In an interrupter mechanism for ignition dynamos, the combination with a dynamo of an end plate having a circular groove therein, a casing, the edge of which is carried in said groove, contact mechanism 35 in said casing, means actuated by the dynamo for operating said contact mechanism, a cover for the side of said casing, contacts vertically positioned in said casing and projecting from the end thereof, means for ad- 40 justing said contacts and means for inclosing said contacts.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

CHARLES T. MASON.

Witnesses:

E. M. HALL,

H. R. VAN DEVENTER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."