

A. ZÄHRINGER.
 OPERATING MECHANISM FOR MAGNETO GENERATORS.
 APPLICATION FILED AUG. 25, 1910.

1,023,348.

Patented Apr. 16, 1912.
 2 SHEETS-SHEET 1.

Fig. 1.

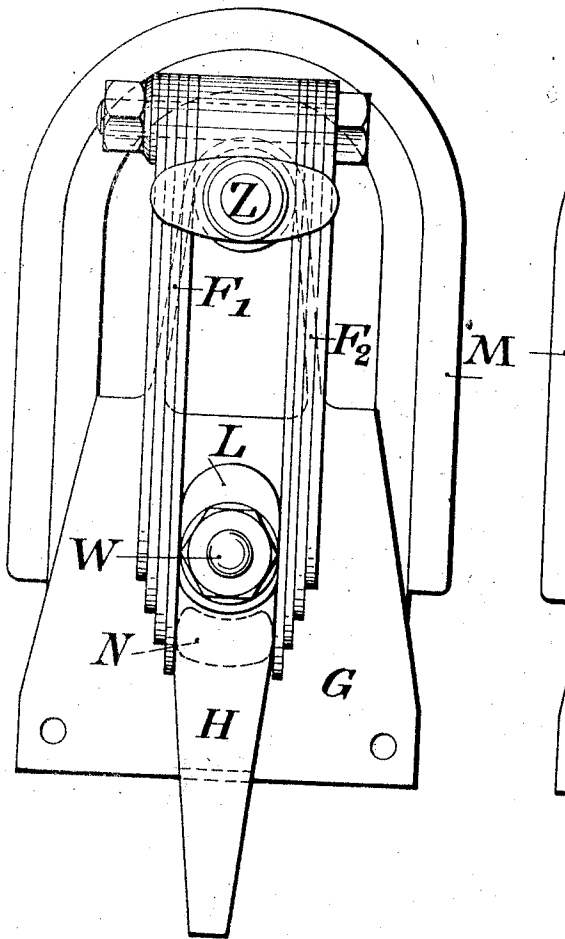
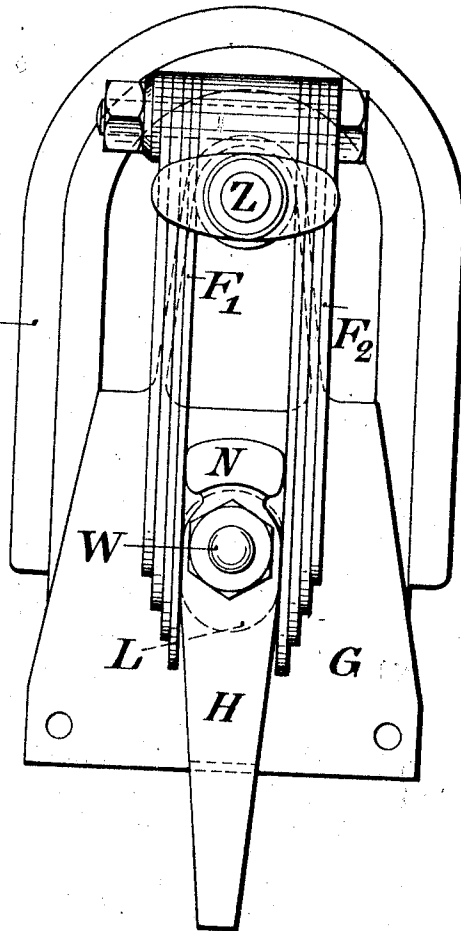


Fig. 2.



WITNESSES

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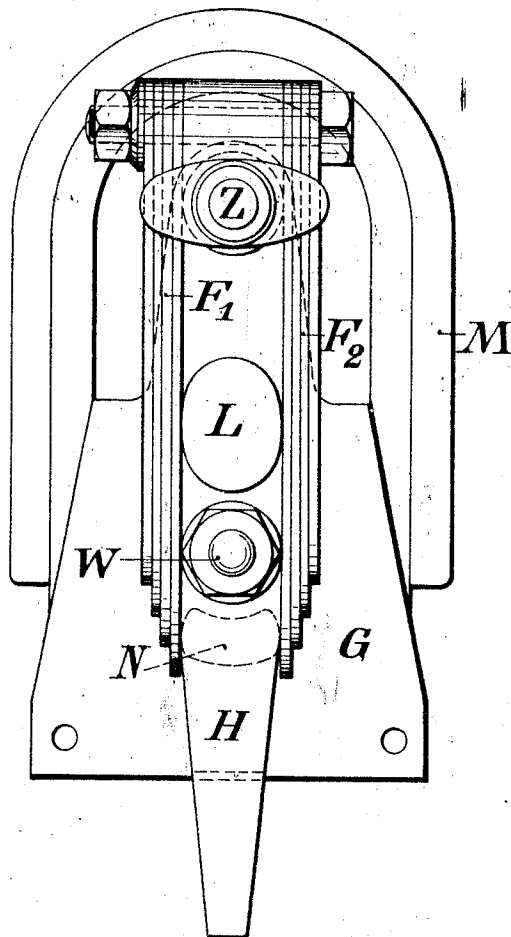
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Fig. 3.



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UNITED STATES PATENT OFFICE.

ARNOLD ZÄHRINGER, OF STUTTGART, GERMANY, ASSIGNOR TO THE FIRM OF ROBERT BOSCH, OF STUTTGART, GERMANY.

OPERATING MECHANISM FOR MAGNETO-GENERATORS.

1,023,348.

Specification of Letters Patent.

Patented Apr. 16, 1912.

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To all whom it may concern:

Be it known that I, ARNOLD ZÄHRINGER, a subject of the Emperor of Germany, residing at Stuttgart, Germany, have invented certain new and useful Improvements in Operating Mechanism for Magneto-Generators; 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.

This invention relates to an improved device for operating magneto-electric ignition machines for internal combustion engines, of the kind in which the armature is held between the poles of the magnet system by springs which compel it to return to normal position when it has been turned through an angle out of this position and has then been released.

In the known devices of this kind the armature is turned by a lever keyed to its shaft. This shaft also carries a symmetrical flattened cam against which bear two springs or sets of springs whereby the armature is kept in normal position. When the lever is turned out of this position the springs are put under tension by the cam and when the lever is released the springs acting on the cam force it and the armature back to its normal position; at the same time the springs exert a strong braking action on the tendency of the armature to swing beyond the normal position owing to its inertia.

According to the present invention the cam is placed to one side of the axis of the armature and is fixed to the lever; moreover, the springs bear not only against the cam, but also against a fixed projection or stop, or a pair of such projections or stops, capable of retaining one spring in its normal position while the other is deflected, this stop or the pair of stops being symmetrical with respect to the line joining the axis of the pivot of the spring system and the axis of the armature. By this arrangement, in whichever direction the armature is turned, both springs are always put in tension, instead of only that spring which rests against the cam during the turning of the armature; the force is thus distributed equally on both springs.

In the drawings three forms of construction according to the invention are shown in front elevation.

In each figure, G is the frame and M the system of magnets of a magneto-electric machine of ordinary construction.

W is the armature shaft and Z a fixed pin on which an arm carrying two sets of blade springs F_1 and F_2 is pivoted.

A lever H is keyed to the armature shaft W and carries a cam N situated to one side of the axis of the armature; both sets of springs bear against this cam and against a stop L fixed to the frame.

In Figs. 1 and 2 this stop L is the bearing of the armature shaft W and the two forms differ from each other only in that the cam N and the lever H are on the same side of the bearing in Fig. 1, and on opposite sides in Fig. 2.

In Fig. 3 the cam N is arranged in the same manner as in Fig. 1, but a separate stop L is provided on the frame, instead of using the bearing for the purpose. Obviously this single stop might be replaced by two pins or lugs, each of which is positioned to restrain one of the springs.

The operation of the device is the same in principle in all three cases.

If, in the construction shown in Figs. 1 and 3, the lever H is turned for example toward the right the cam N moves with it the set of springs F_2 while the set of springs F_1 is retained by the stop L. The springs are thus put under tension and when the lever is released it springs back to its normal position, which it can over-run only to a small extent, limited by the tension of the springs. The lever very quickly comes to rest and remains in the middle position until it is again deflected. The fact that it is possible for the armature to oscillate slightly beyond the position of equilibrium is very favorable for the formation of sparks, since this insures reversal of the lines of force, that is to say, a rapid break.

In the construction shown in Fig. 2, by turning the lever H to the right the spring F_1 is moved with it and the spring F_2 remains stationary. By this construction of the actuating device we attain, as opposed to the arrangement of the cam on the axis of the armature, the advantage that the arm-

ature can be adjusted at any time, which is not the case if the cam is mounted fast upon the axis.

What I claim is:--

- 5 1. Actuating mechanism for magneto-generators in electric ignition systems, comprising an actuating lever fastened to the armature shaft, a pivotal support, a pair of spring arms mounted on said support, with
10 their free ends embracing the armature shaft, a cam on the actuating lever at one side of the axis of the armature shaft and adapted to engage one or the other of the
15 spring arms as the lever is turned, and a stop adapted to restrain the spring arm which is not engaged by said cam, whereby both spring arms are put under tension by
20 the turning of the lever; substantially as described.
2. Actuating mechanism for magneto-generators in electric ignition systems, com-

prising an actuating lever fastened to the armature shaft, a pivotal support, a pair of spring arms mounted on said support with their free ends embracing the armature shaft, a cam on the actuating lever at one side of the axis of the armature shaft and adapted to engage one or the other of the spring arms as the lever is turned, and a stop symmetrically placed with respect to a line joining the center of the armature shaft and the center of the pivotal support, said stop being of such shape that it is closely embraced by the spring arms; substantially as described.

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

ARNOLD ZÄHRINGER.

Witnesses:

MAX ANSONETZ,
RICHARD KRUTINA.