

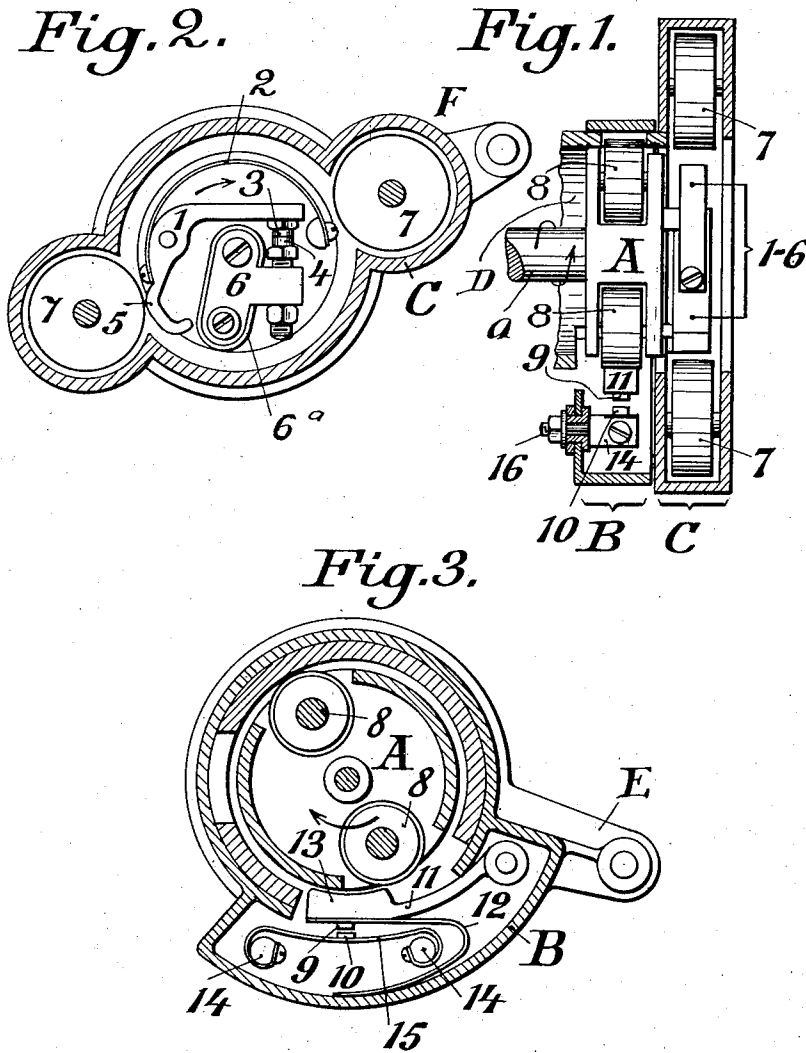
G. HONOLD.

CONTACT BREAKER FOR ELECTRICAL IGNITION IN INTERNAL COMBUSTION ENGINES.

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1,061,613.

Patented May 13, 1913.



WITNESSES

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UNITED STATES PATENT OFFICE.

GOTTLOB HONOLD, OF STUTTGART, GERMANY.

CONTACT-BREAKER FOR ELECTRICAL IGNITION IN INTERNAL-COMBUSTION ENGINES.

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Specification of Letters Patent.

Patented May 13, 1913.

Application filed November 11, 1907. Serial No. 401,665.

To all whom it may concern:

Be it known that I, GOTTLOB HONOLD, engineer, a subject of the German Emperor, residing at 11 Hoppenlaustrasse, Stuttgart, Germany, have invented certain new and useful Improvements in Contact-Breakers for Electrical Ignition in Internal-Combustion Engines; 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 interrupters or contact-breakers for that class of internal combustion engines in which current is supplied from both a battery and a magneto generator to produce a spark in the igniter and the object of the invention is to provide a simple and compact device in which the contact-breakers for both circuits will be carried by the armature shaft of the magneto generator and positively operated during each revolution thereof.

The invention consists in certain novel features of the device illustrated in the accompanying drawings as will be hereinafter first fully described and then particularly pointed out in the appended claims.

The accompanying drawings illustrate the invention, Figure 1 being an axial section, Fig. 2 a section at right angles to the axis through the part marked C and Fig. 3 a like section through the part marked B.

The apparatus consists of a box A mounted on the shaft *a* of the magneto within a casing B which is situated beside a third casing C. Casings B and C are supported frictionally on a tubular flange D projecting from the magneto frame coaxially with and surrounding the armature shaft. These casings B and C are normally stationary but are adapted to be turned upon the flange D for the purpose of timing the ignition by means of arms E and F. Casing B carries the parts included in the battery circuit while C contains the parts in the magneto circuit.

The magneto-interrupter carried by the box A is operated by collision of its contact lever with rollers, in the known manner, as the box A rotates. Fig. 2 clearly shows this interrupter the construction of which is well known; the contact lever 1 is held by spring 2 in the position for closing the cir-

cuit at contacts 3 and 4. When, however, the tail 5 of the lever collides with one of the rollers 7 there is a break between 3 and 4. The contact carrier 6 is insulated from the engine by the plate 6^a one end being connected with one end of the armature winding, the other end of the winding being electrically connected with the said engine. There is thus obtained the advantage of a direct connection without intervention of sliding contacts. The box A also carries rollers 8 for actuating the battery interrupter. Fig. 3 shows this interrupter clearly. The lever 11 carrying the contact 9 is pressed inward away from the contact 10 by the spring 12 so that the circuit is normally open, but it is closed when one of the rollers 8 passes over the surface 13 of the lever and thus presses it outward. The second contact 10 is carried by a spring, such as the spring 15 fixed to bolts 14. One of these bolts, insulated from the casing is formed outside the latter as a terminal 16 (Fig. 1) and serves for connecting one end of the battery circuit, the other end being connected with the engine. Here also there is the advantage of a direct connection without intermediate sliding contacts. Unless it is desired that the two systems should be separately adjustable, as shown, the casings B and C can be merged into one in which the parts 7 and 9 to 16 are suitably arranged. Besides the aforesaid advantage of a direct connection of this combined interrupter with the circuit, there is the further advantage as compared with two separate interrupters that the manufacture is greatly simplified, the interrupter is more easily put in place and manipulated, and is more certain in action than is the case with the separate interrupters hitherto used.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. The combination with the frame of a magneto having a tubular projection on its side, and an armature shaft projecting through the frame within said tubular projection, a plurality of casings frictionally held on said projection, one of said casings containing a stationary interrupter, means carried by the armature shaft for operating said interrupter, a rotary interrupter on the end of the armature shaft within the other

of said casings, and stationary means within said second casing for operating said rotary interrupter.

2. In electric igniting apparatus for internal combustion engines provided with magneto and battery igniting circuits, the combination, with the armature shaft, of an interrupter for the magneto mounted on and rotating with said shaft and provided with stationary actuating means angularly adjustable with relation to the axis of said armature shaft, and a stationary interrupter for the battery having actuating means mounted on and rotating with the said armature shaft, said stationary interrupter being angularly adjustable with relation to the axis of said armature shaft and independently of the rotary interrupter.

3. In electric igniting apparatus for internal combustion engines provided with magneto and battery igniting circuits, the

combination with the armature shaft, of an interrupter mounted on and rotating with said armature shaft, cams adapted to actuate said rotating interrupter, a stationary housing angularly adjustable with relation to the axis of the said armature shaft and containing the cams, an interrupter for said battery, a stationary housing angularly adjustable with relation to the axis of said armature shaft and containing the battery-interrupter, and cams adapted to actuate said stationary interrupter mounted on and rotating with said armature shaft.

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

GOTTLOB HONOLD.

Witnesses:

ROBERT BOTCH,
ERNEST EATLEMANN.