

T. HUBERT.
MAKE AND BREAK DEVICE.
APPLICATION FILED AUG. 5, 1909.

1,056,420.

Patented Mar. 18, 1913.

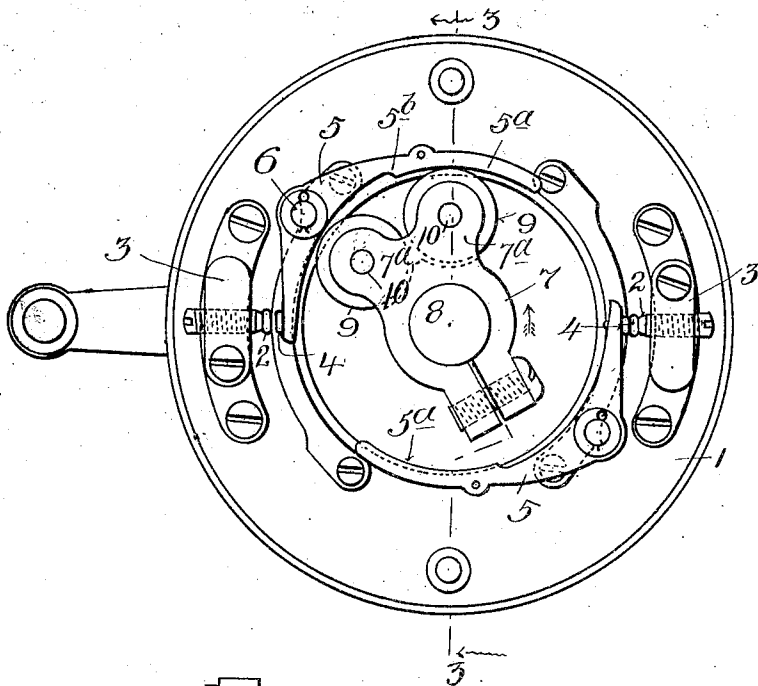


Fig. 1.

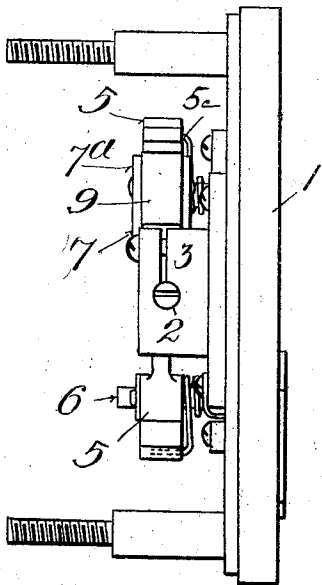


Fig. 2.

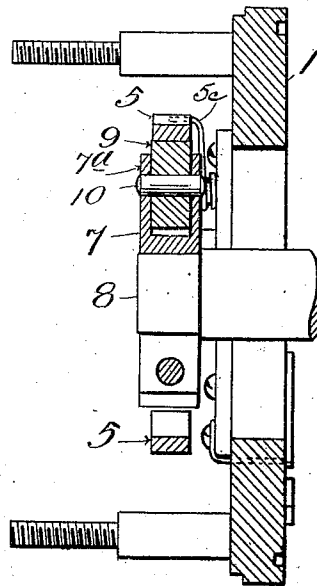


Fig. 3.

Witnesses:
J. A. Fischer

Inventor
Theodore Hubert.
By His Attorney
T. F. Bourne

UNITED STATES PATENT OFFICE.

THEODORE HUBERT, OF CRANFORD, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO AMERICAN CIRCULAR LOOM COMPANY, OF PORTLAND, MAINE, A CORPORATION OF MAINE.

MAKE-AND-BREAK DEVICES.

1,056,420.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, THEODORE HUBERT, a citizen of the United States, and resident of Cranford, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Make-and-Break Devices, of which the following is a specification.

In make and break devices for electric circuits, such as used with timing devices or magnetos in ignition systems for gas engines, where a rotary cam or the like is used for operating the movable contact, relatively long breaks in the circuit may be produced by using a relatively long lever or arm that carries the movable contact. The difficulty I find with such construction is that a relatively long lever or arm will not vibrate with sufficient freedom under high rotation of the cam to produce the breaks with sufficient rapidity owing to the weight of the lever and the leverage action, unless a spring of undue strength operates the lever, all of which entails rapid wear of such parts.

The object of my invention is to overcome the difficulties and objections set forth, and to provide a lever or arm that may be relatively short for operating the movable contact and at the same time to provide for holding the contacts separated for the desired period of time.

In carrying out my invention I provide a movable lever or arm adapted to operate a contact to make and break the circuit, and a rotary member provided with a plurality of surfaces spaced apart and adapted to engage said lever or arm, whereby the latter may first be engaged by one of said surfaces to initially operate the contact and the other such surface will remain in engagement with the lever or arm after the first named surface has moved out of co-action with the same to enable the contacts to be maintained separated for the desired period of time.

My invention also comprises novel details of improvement that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming part hereof, wherein—

Figure 1 is a face view of a make and break device embodying my invention; Fig.

2 is an edge view thereof, and Fig. 3 is a section on the line 3, 3 in Fig. 1.

In the accompanying drawings, in which similar numerals of reference indicate corresponding parts in the several views, 1 indicates a suitable base, preferably made of insulating material, upon which is mounted one or more contacts 2, which may be supported by post 3 in any suitable manner. At 4 is indicated the movable contact to co-act with contact 2, and contact 4 is shown carried by a suitably shaped lever or arm 5 pivotally supported upon base 1 as upon stud 6. A spring 5^a acting on lever 5 tends normally to keep contacts 2 and 4 in engagement. Lever or arm 5 is shown provided with a curved or concave portion or surface 5^a terminating at the edge 5^b and located on the side of stud 6 opposite contact 4.

At 7 is a rotative member or arm carried by a shaft 8, which may be the shaft operated by or with the armature of a magneto or any other proper driving shaft. Arm 7 is provided with a plurality of bearing surfaces spaced apart and shown in the drawings in the form of rollers 9 which are shown journaled upon studs 10 between forks 7^a of arm 7. The bearing surface 5^a is of such length that both rollers 9 may be in contact with said surface simultaneously. While I have shown two levers 5 and corresponding contacts on opposite sides of shaft 8, it will be understood that one or more of such levers and contacts may be used as desired according to the number of circuits to be controlled. The different parts will be properly insulated from each other and the contacts arranged in the circuits in any well known manner.

The relation of the rollers 9 to the bearing portion or surface 5^a of lever or arm 5 is such that when arm 7 rotates in the direction of the arrow in Fig. 1 roller 9 at the left in Fig. 1 will first engage the surface 5^a of the corresponding lever or arm and thereby operate contact 4 to break the circuit, and when said roller passes from edge 5^b the second roller 9 will be in contact with surface 5^a to maintain the lever or arm 5 in substantially the position into which it was placed by the action of the first roller 9 until such time as the second roller 9 passes from edge 5^b, whereupon lever 5 will move

to close the circuit at contacts 2 and 4. Thus, lever 5 may be relatively short and be provided with a bearing portion or surface 5^a of suitable relatively short length, and yet the plurality of operating surfaces or rollers 9 will hold contacts 2 and 4 separated for a period of time longer than would be the case with a single roller 9 acting on the same extent of lever surface. By using a plurality of rollers 9 spaced apart friction and wear is reduced upon lever or arm 5 as distinguished from a surface having sliding contact with such arm, as with a cam, and high speed of shaft 8 may be maintained because the relatively short arm 5 will vibrate more readily than a longer arm, and such relatively short arm may be made lighter and thus reduce wear from impact of the parts.

Having now described my invention what I claim is:

1. A make and break device provided with a movable arm having a bearing portion terminating in an edge, and a rotative member having a plurality of surface permanently spaced apart at a constant distance to successively operate said arm and to simultaneously bear on said bearing portion.

2. A make and break device comprising a movable arm having a bearing portion, and a rotative member having a plurality of rollers spaced apart to simultaneously engage said bearing portion.

3. A make and break device comprising a movable member provided with a bearing portion terminating in an edge, and a rota-

tive member provided with a plurality of bearing surfaces spaced apart and adapted to simultaneously engage said bearing portion, the bearing surfaces of said rotative member being arranged so that one will remain in contact with said bearing portion when the other has passed out of contact therewith.

4. A make and break device comprising a pivoted member having a contact on one side of its pivot and a bearing portion on the opposite side of its pivot, and a rotative member provided with a plurality of surfaces spaced apart arranged in such position that when one of such surfaces has passed from the bearing portion of the first named member, the other of such surfaces will remain in contact therewith.

5. A make and break device comprising a pivoted member provided with a contact on one side of its pivot and a concave bearing portion on the opposite side of its pivot, a rotary member provided with a plurality of arms spaced apart, and rollers journaled in said arms arranged to simultaneously bear upon said concave bearing portion of the first named member whereby one of said rollers will remain in contact with said concave portion after the other roller has passed therefrom.

Signed at New York city, in the county of New York, and State of New York, this 2nd day of August, A. D. 1909.

THEODORE HUBERT.

RALPH K. RAPHAEL,
T. F. BOURNE.