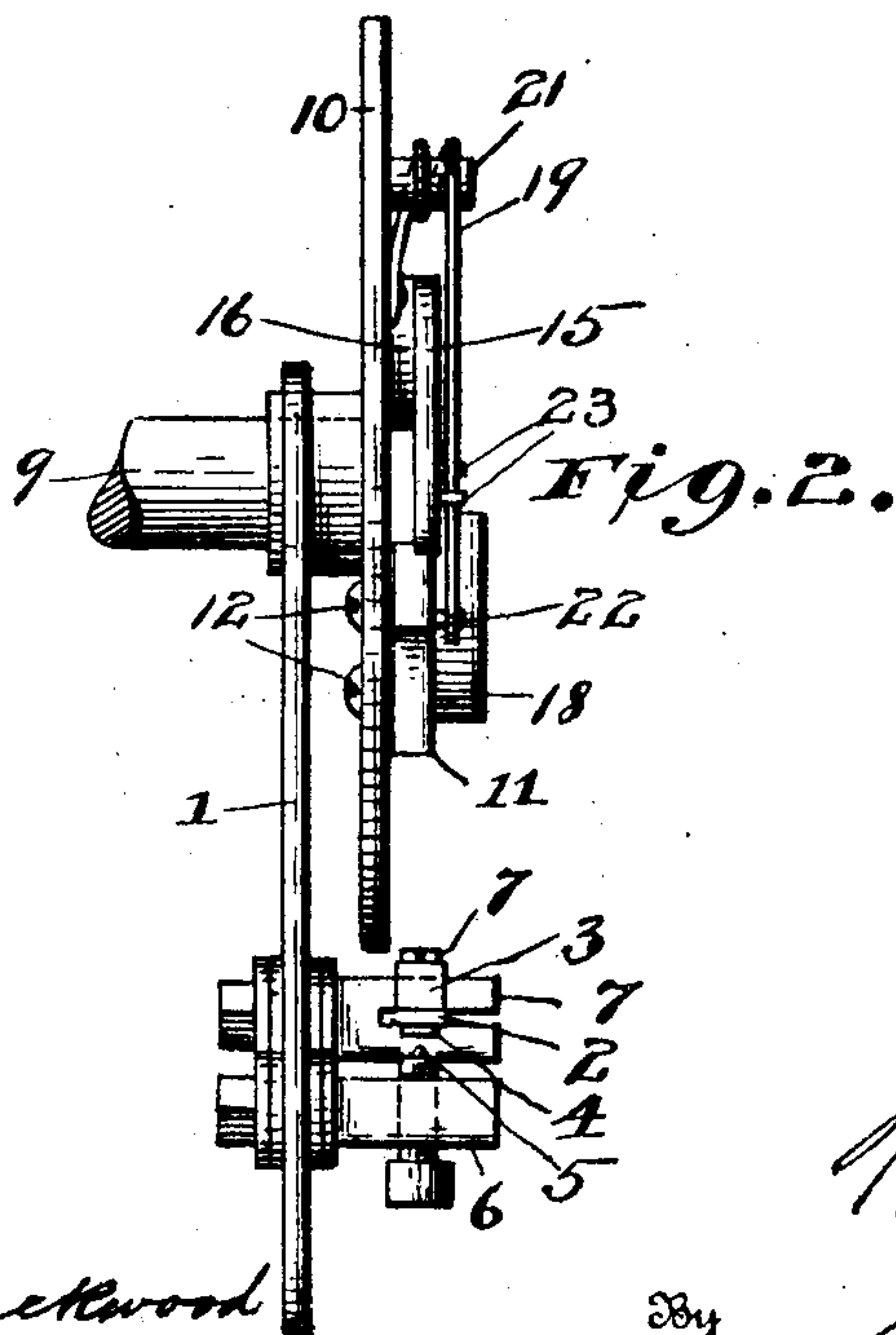
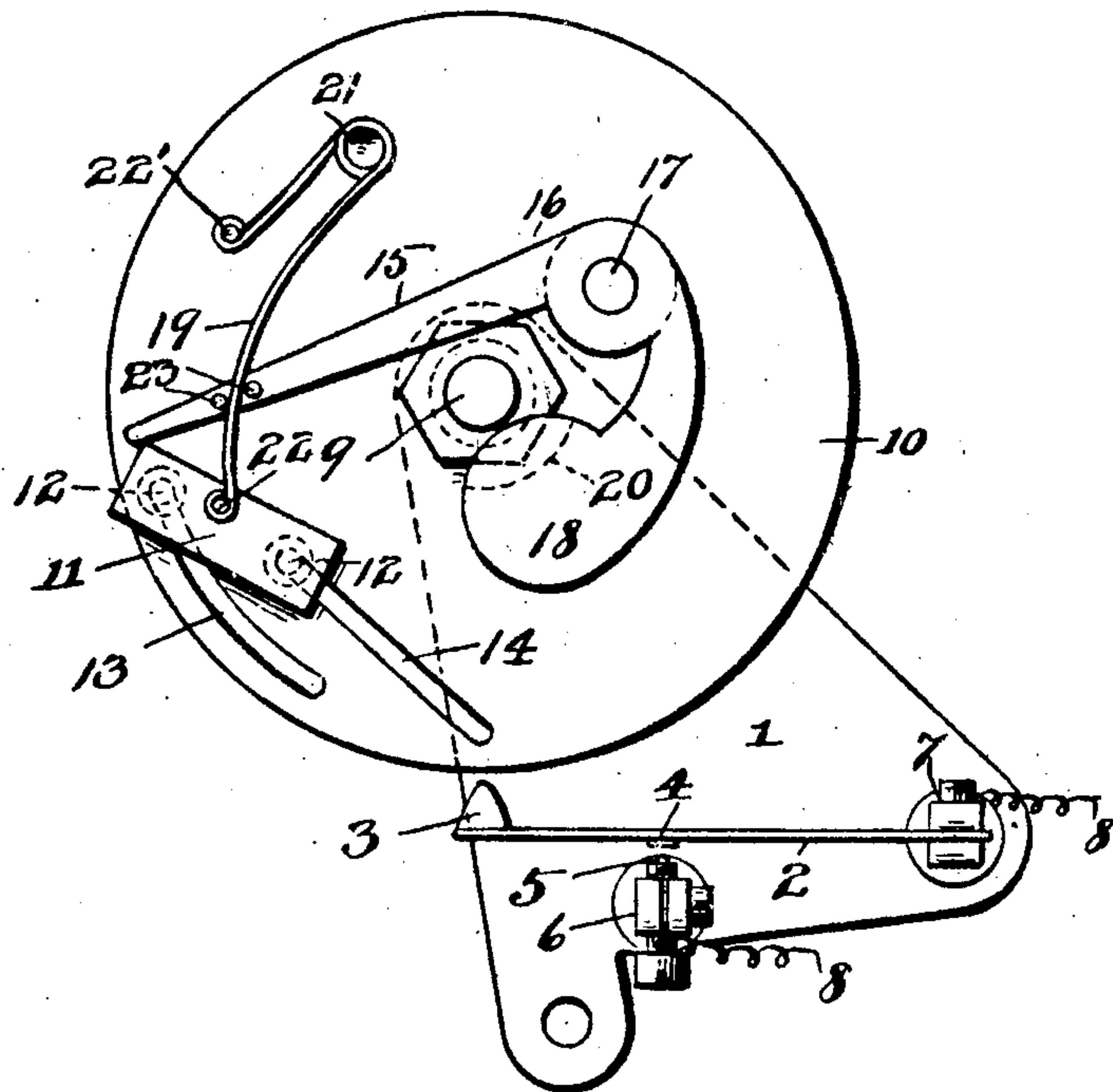


No. 798,992.

PATENTED SEPT. 5, 1905.

W. J. COCHRAN.  
CONTACT BREAKER FOR SPARKERS.  
APPLICATION FILED MAR. 1, 1904.

*Fig. 1.*



*Fig. 2.*

Witnesses

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By

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# UNITED STATES PATENT OFFICE.

WALTER J. COCHRAN, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO  
HERBERT C. HEARNE, OF CLEVELAND, OHIO.

## CONTACT-BREAKER FOR SPARKERS.

No. 798,992.

Specification of Letters Patent.

Patented Sept. 5, 1905.

Application filed March 1, 1904. Serial No. 196,042.

*To all whom it may concern:*

Be it known that I, WALTER J. COCHRAN, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Contact-Breakers for Sparkers; and I 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 pertains to make and use the same.

My invention relates to contact-breakers for explosive-engine sparkers; and its object is to provide means of a simple and effective character for automatically advancing or retarding the time of ignition of the explosive charge in accordance with and automatically governed by changes in the speed of the engine.

To this end my invention is embodied in its preferable form in the device hereinafter described, and illustrated in the drawings herewith.

In the accompanying drawings, Figure 1 is a front view in elevation of the device embodying my invention, and Fig. 2 is a side or edge view in elevation.

Referring to the drawings, 1 is a plate or bracket which may be secured to the frame of the motor or of the vehicle if the engine is applied to the latter. On this plate is mounted a spring contact-finger 2, carrying at its free end a toe-piece 3. A contact-piece 4 is carried by the finger between its ends and is adapted to make electrical contact with a pin or other contact member 5, carried by a binding-stud 6, which is mounted on the plate 1. The stud 6 and another binding stud or screw 7, the latter being adapted to receive the end of the spring contact member 2, are adapted to be connected by wires 8 to a suitable jump-spark device (not shown) in the engine-cylinder.

Fixed on a shaft 9, which may be the main shaft or another shaft connected thereto in the proper ratio of revolution according to the number of cycles of the engine, is a rotatable contact-maker carrier consisting, preferably, of a disk 10. On this disk is mounted a contact-maker consisting of a wiper-block 11, having a portion extending outside the periphery of the disk and adapted to wipe against the toe 3 of the spring contact-piece 2, which toe-piece is located in the line of travel of the projecting part of the block. The block is

slidably mounted, by means of screw-bolts 12, in guide-slots 13 14 in the disk. The slot 13 is a circumferential slot, and slot 14 extends on a secant to the circle of the disk, whereby as the block moves back and forth on the disk it will maintain the same extent of projection beyond the edge of the disk. Adapted to bear against the rear end of the block is a lever 15 of a centrifugal governor 16, pivoted on the disk at 17 and carrying a weight 18. The weight may be cut away or offset at 20 to pass over the nut on the end of the shaft 9. A coiled and bent spring 19 is connected at one end to the wiper-block 11, being twisted around a pin 22 on the block, and is coiled around a stud 21 and at the other end connected to a pin 22' on the disk. This spring serves to pull the block to the rear end of the slots 13 14 and to hold it normally retracted at the rear ends of such slots. Guide-pins 23 are mounted on the lever 15 on each side of the spring 19.

The operation of the device is as follows: Should the speed of the engine be increased, the speed of rotation of the shaft 9 will be correspondingly increased, and if the speed is sufficiently great the governor-weight 18 will be thrown outward away from the center of the disk, causing the governor to turn on its pivot, and in consequence of this movement the lever 15 will press the wiper-block 11 forward in its guide-slots in the direction of movement of the disk and move the block around on the disk, and thereby advance the time of contact and the time of ignition. The wiper-block in its travel will wipe against the projecting toe-piece 3 of the spring-contact 2 and press the contact-piece against the pin contact member 5, thereby establishing a circuit and exciting the sparker in the engine-cylinder. When the speed decreases, the governor will move inward and the block will be drawn back by the spring 19. When the block is advanced owing to the pivoting of the governor, it will yield somewhat when it strikes the toe-piece of the contact member and the block will drag slightly. Hence a proportionately longer period of contact will be obtained when the engine is running at higher speeds, thereby further insuring the certainty of the ignition. The diameter of the circle the contact-maker travels in being so great in proportion to the size of the contact-maker, the life of the batteries is lengthened over



that under the operation of the ordinary spark-er.

The number of contact-makers corresponds to the number of cylinders employed.

5 It is clear that changes may be made in the details of the device without departing from the principle of my invention.

Having thus described my invention, what I claim is—

10 1. A contact make and break device for engine-sparkers having circuit-closing contact-pieces, a rotatable carrier, a wiper-block mounted on said carrier and projecting into the line of one of said contacts, means to per-  
15 mit said wiper-block to slide circumferentially on the carrier and a centrifugal governor and a spring on said carrier for controlling the sliding of the block, substantially as described.

2. A make and break device for engine-sparkers having circuit-closing contact-pieces, 20 in combination with a rotatable disk driven from the engine, a contact-maker consisting of a wiper-block carried by said disk, one of said contact-pieces projecting into the line of travel of said block and meeting the same at 25 an angle, and means to permit said block to slide on said disk, substantially as described.

In testimony whereof I sign the foregoing specification, in the presence of two witnesses, this 26th day of February, 1904, at Cleveland, 30 Ohio.

WALTER J. COCHRAN.

Witnesses:

HENRY I. EMERSON,  
WALLACE I. KNIGHT.