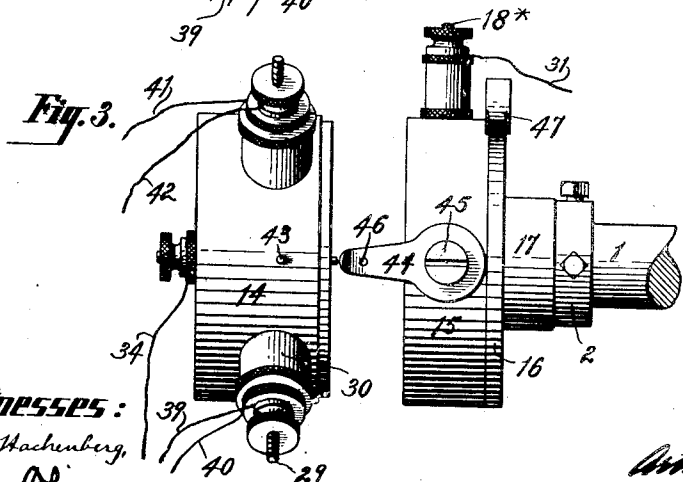
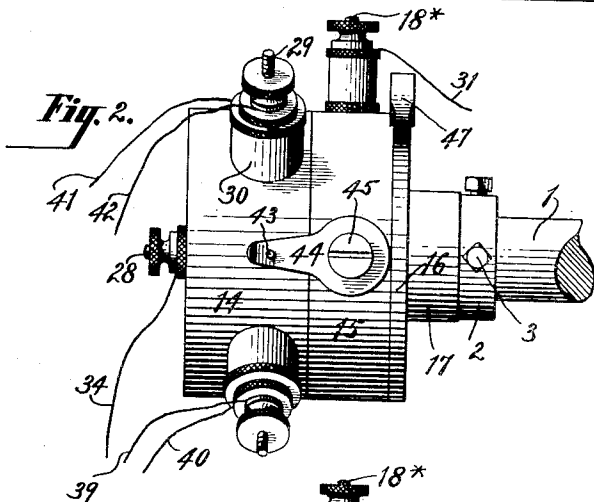
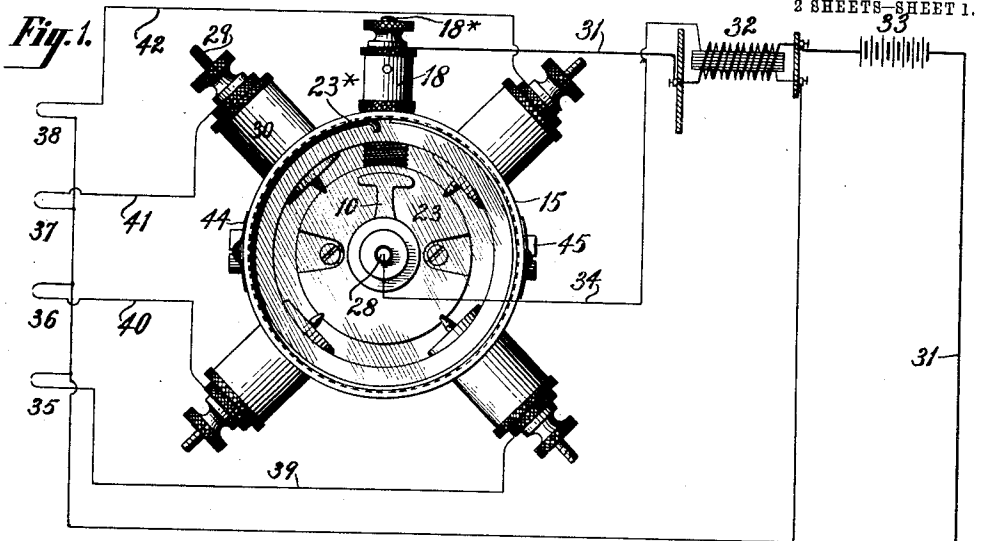


A. R. MOSLER.  
 CIRCUIT BREAKER FOR ELECTRIC IGNITION DEVICES.  
 APPLICATION FILED MAR. 28, 1905.

1,001,671.

Patented Aug. 29, 1911.

2 SHEETS—SHEET 1.



*Witnesses:*  
 F. S. Wachenberg,  
 Henry D. Lewis.

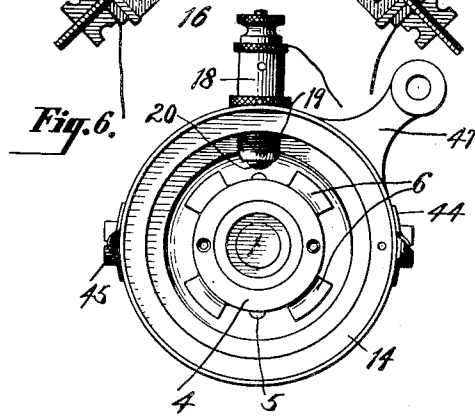
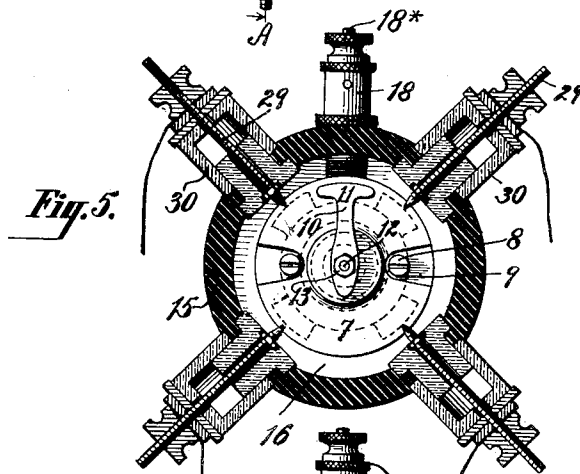
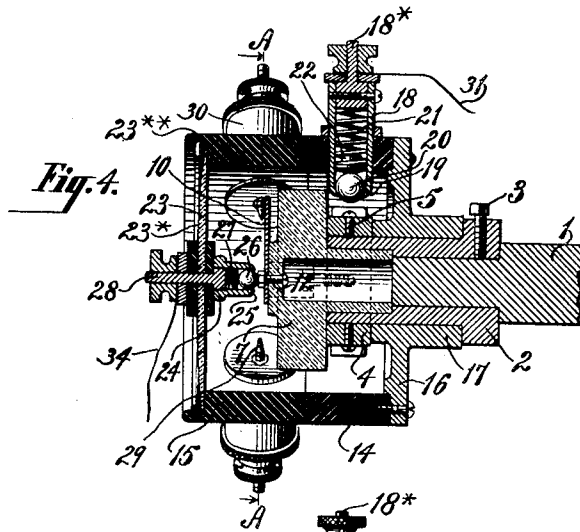
*Inventor:*  
 Arthur R. Mosler  
 by attorney,  
 Brown & Howard

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2 SHEETS—SHEET 2.



**Witnesses:**  
 F. S. Wachenberg.  
 Henry Thiel.

**Inventor:**  
 Arthur R. Mosler  
 by attorneys  
 Thront & Leland

# UNITED STATES PATENT OFFICE.

ARTHUR R. MOSLER, OF NEW YORK, N. Y., ASSIGNOR TO A. R. MOSLER & CO., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

CIRCUIT-BREAKER FOR ELECTRIC IGNITION DEVICES.

1,001,671.

Specification of Letters Patent. Patented Aug. 29, 1911.

Application filed March 28, 1905. Serial No. 252,553.

*To all whom it may concern:*

Be it known that I, ARTHUR R. MOSLER, a citizen of the United States, and resident of the borough of Manhattan, in the city and State of New York, have invented a new and useful Improvement in Circuit-Breakers for Electric Ignition Devices, of which the following is a specification.

The object of this present invention is to provide certain improvements in the construction, form and arrangement of the several parts of a circuit breaker for electric ignition devices whereby the efficiency of the same may be materially increased and in which access may be readily obtained to the interior of the circuit breaker without disconnecting the circuit wires.

A practical embodiment of this invention is represented in the accompanying drawings in which—

Figure 1 represents the circuit breaker in front elevation, the system of wiring being represented diagrammatically in connection with this figure and the parts being shown in the position which they assume when both the primary and secondary circuits are broken. Fig. 2 is a view in side elevation of the circuit breaker, Fig. 3 is a similar view with the two members of the casing separated, Fig. 4 is a longitudinal central section through the circuit breaker, Fig. 5 is a transverse section taken in the plane of the line A—A of Fig. 4, looking in the direction of the arrows, and Fig. 6 is a transverse view with one member of the casing and the insulated block which carries the rotary secondary terminal contact, removed.

The circuit breaker herein shown is of that type which is used with a single induction coil in connection with a multiple cylinder engine and is arranged to make and break both the primary and secondary circuits at the desired times to produce sparks within the several cylinders at predetermined intervals.

The rotary shaft is denoted by 1. This shaft has fixed thereto rotary contacts of the primary and the rotary distributor of the secondary circuits as follows: A sleeve 2 is

fixed to the end of the shaft 1 by means of a set screw 3. A collar 4 is fixed to the end of the sleeve 2 by one or more set screws 5. This collar 4 is provided with a plurality of primary contact blocks 6. The present circuit breaker is shown as adapted for use in connection with a four cylinder engine and therefore four of these contact blocks 6 are shown located at equal distances apart around the periphery of the sleeve 4.

An insulating block 7 is indirectly secured to the shaft 1 by screws 8 located in recesses 9 in the block, which screws enter the face of the sleeve 4. The face of this insulating block 7 is provided with a distributor provided with a shoe 11, which distributor is secured to the block by a centrally arranged screw bolt 12 and nut 13. By this means the distributor 10 may be accurately adjusted with respect to the contact blocks 6 of the primary circuit so as to co-act there-with.

A casing incloses the rotary primary contacts and secondary distributor, which casing comprises two separable members 14 and 15. The member 14 comprises an insulated ring portion and an end plate 16 having a hub 17 loosely mounted on the sleeve 2 of the shaft 1. This member 14 carries the stationary contact of the primary circuit, which contact is constructed and arranged as follows: A plug 18 is provided with a socket having a contracted mouth 19. A ball 20 is located in the socket within the plug 18 and normally a portion of the ball projects exterior to the mouth of the socket into position to be successively engaged by the blocks 6 of the rotary contact. A spring 21 is housed within the socket in the plug 18 for yieldingly holding the ball 19 at the limit of its movement toward the rotary contact blocks. To minimize friction, this spring 21 is interposed between the closed end of the plug and a follower 22 having a convex face engaged with the ball 20. The plug 18 is provided with the usual binding post 18\*.

The member 15 of the casing comprises an insulating ring portion and a transpar-

ent face plate 23. This face plate is removably held in position by means of a spring expanding ring 23\* located exterior to the face plate within an annular groove 23\*\* in the inner wall of the ring portion of the said member 15. A contact is established in the secondary circuit at the axis of the distributor 10, as follows: The transparent face plate has a hollow plug 24 arranged on its interior, which plug has a contracted mouth 25. A ball 26 is located within the hollow plug 24 and is yieldingly held against the end of the bolt 12 by means of a spring 27 located within the plug. This plug 24 is electrically connected to the exterior of the transparent plate 23 through the usual binding post 28. A plurality of stationary secondary terminals are secured to the insulating ring portion of the member 15. In the present instance, four of these terminals are provided and they are placed at equal distances apart. Each of these terminals comprises a conducting screw 29 which is mounted in a radial position in the plug 30 with the point of the screw located within the casing in position to be brought into electrical communication with the shoe 11 of the rotary distributor 10.

The wiring of the electrical ignition device herein illustrated is as follows: The wire 31 of the primary circuit leads from the binding post 18\* of the stationary contact through an induction coil 32 and a source of electrical energy, such for instance as a battery 33, and from thence to ground. The primary circuit is completed to the engine shaft whenever any one of the contact blocks 6 is brought into engagement with the ball 20 of the stationary contact. The wire 34 of the secondary circuit leads from the binding post 28 which is at all times in electrical communication through the ball 26 with the rotary distributor 10 through the induction coil 32; from thence, through the four sparking plugs represented diagrammatically at 35, 36, 37, 38, and from these sparking plugs by branch wires 39, 40, 41, 42, to the four stationary secondary terminals. It will be seen that this secondary circuit is successively completed as the shoe 11 of the rotary secondary distributor 10 is brought into electrical communication with the points of the conducting screws 29.

The means which I have shown for securing the separable members of the casing together, comprise pins 43 carried by one member and spring catches 44 secured by screws 45 to the other member, which catches are provided with holes 46 arranged to receive the pins 43 when the members are in assembled position. The casing may be provided with the usual lever arm 47 for adjusting the circuit breaker rotatably for

advancing or retarding the ignition at the spark plugs.

It will be seen that access to the parts within the casing may be readily obtained at any time without disconnecting the wires by simply unlocking the member 15 from the member 14 and separating the two members. The ball contact 26 in the secondary circuit permits this to be done with great facility.

By using the spring-actuated ball as a snap-off contact in the primary circuit, I am enabled to provide a device which will oppose the slightest amount of friction to the rotary contact blocks and at the same time permit the much desired snapping-off of the two contacts as they separate. Furthermore, the use of this ball materially reduces the wear at this point.

What I claim as my invention is:

1. The combination with a rotary shaft carrying a movable primary contact and a movable secondary distributor, of a casing made in two separable parts, each of said parts comprising a ring and a plate, said casing carrying a stationary primary contact and a secondary terminal.

2. The combination with a rotary shaft carrying a movable primary contact and a movable secondary distributor, of a casing made in two separable parts, each of said parts comprising a ring and a plate, one part carrying a stationary primary contact and the other carrying a stationary secondary terminal.

3. The combination with a rotary shaft carrying a movable primary contact and a movable secondary distributor, of a casing made in two separable parts, each of said parts comprising a ring and a plate, said casing carrying a stationary primary contact and a stationary secondary terminal, and a contact carried by the casing in alignment with the said shaft, said contact having a positive engagement with the movable secondary distributor.

4. The combination with a rotary shaft carrying a movable primary contact and a movable secondary distributor, of a casing made in two separable parts, each of said parts comprising a ring and a plate, said casing carrying a stationary primary contact and a stationary secondary terminal, and a contact carried by the casing in alignment with the said shaft, said contact having a yielding ball bearing engagement with the said movable secondary distributor.

5. The combination with a rotary shaft carrying a movable primary contact and a movable secondary distributor, of a casing made in two separable parts, each of said parts comprising a ring and a plate, said casing having a transparent front, a sta-

tionary primary contact and a stationary  
secondary terminal carried by the casing  
and a contact carried by the transparent  
front, said contact having a positive engage-  
5 ment with the said movable secondary dis-  
tributer.

In testimony, that I claim the foregoing

as my invention, I have signed my name  
in presence of two witnesses, this 20th day  
of March 1905.

ARTHUR R. MOSLER.

Witnesses:

FREDK. HAYNES,  
HENRY THIEME.