

C. A. PFANSTIEHL.
 COMBINED CIRCUIT BREAKER AND DISTRIBUTER.
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1,036,700.

Patented Aug. 27, 1912.

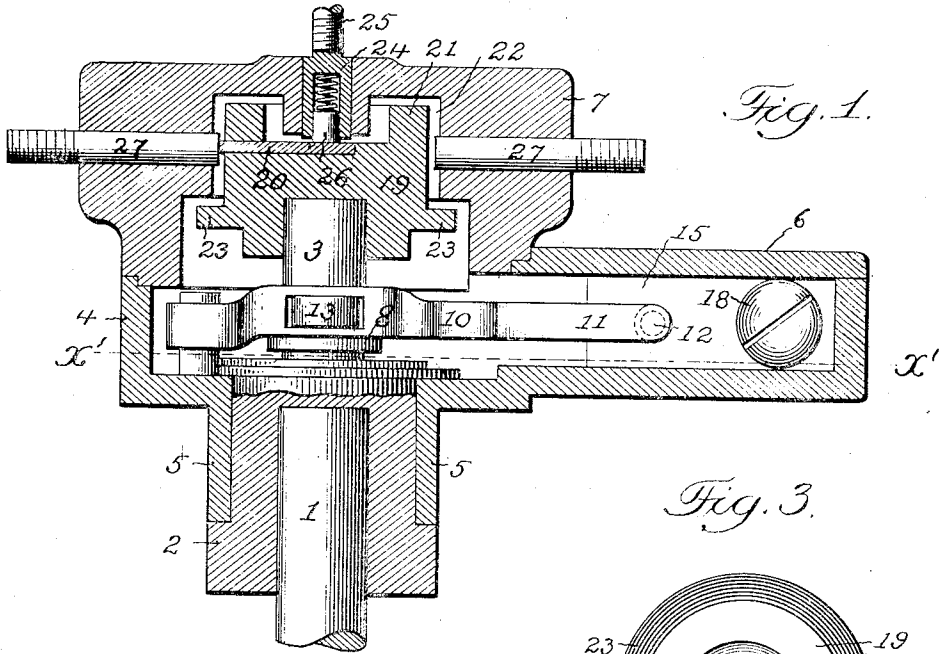
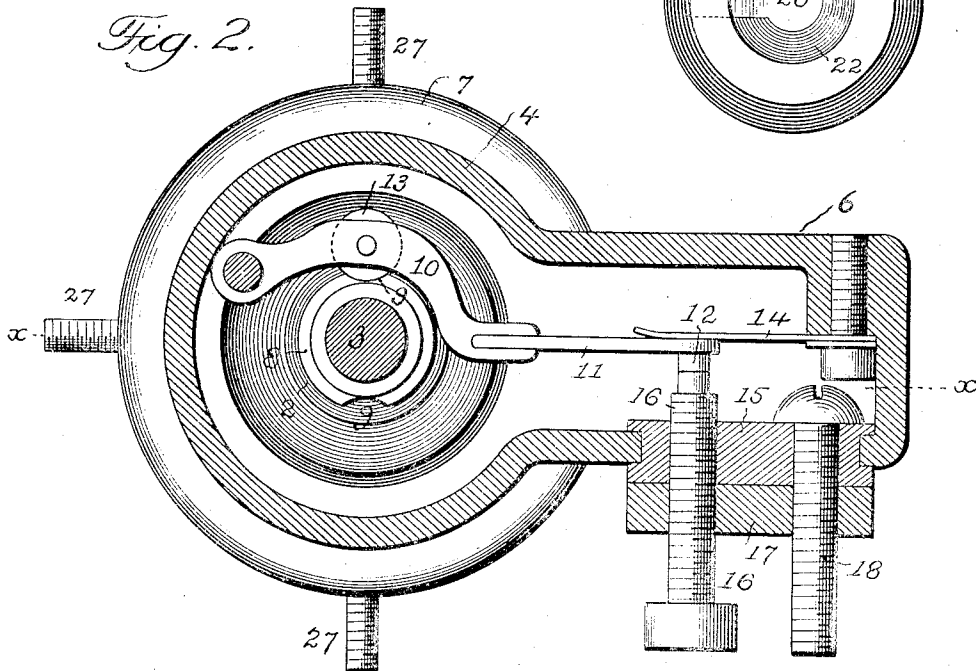
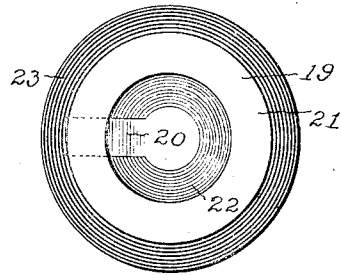


Fig. 3.



Attest:
 John Enders
 Henry W. W.

Inventor:
 Carl A. Pfanstiehl,
 by Robert H. Burns
 Attorney

UNITED STATES PATENT OFFICE.

CARL A. PFANSTIEHL, OF HIGHLAND PARK, ILLINOIS.

COMBINED CIRCUIT BREAKER AND DISTRIBUTER.

1,036,700.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CARL A. PFANSTIEHL, a citizen of the United States of America, and a resident of Highland Park, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in Combined Circuit Breakers and Distributers, of which the following is a specification.

This invention relates to a combined circuit breaking and distributing mechanism for the high tension electric current employed in electric ignition systems of internal combustion engines of motor cycles and the like. And the present improvement has for its object to provide a simple and efficient construction of parts adapted to afford an effective breaking of the electric circuit at the proper periods in the cycle of the engine in the passage of the current to the induction coil and condenser, and the subsequent distribution of the high tension current from said induction coil and condenser to the sparking terminals of engine and at the proper intervals and without liability to short circuit through the metal or grounded parts of the apparatus, all as will hereinafter more fully appear.

In the accompanying drawings:—Figure 1, is a longitudinal sectional elevation on line $x-x$, Fig. 2. Fig. 2, is a transverse sectional elevation on line $x'-x'$, Fig. 1. Fig. 3, is a detail end elevation of the revoluble member of the distributor.

Similar reference numerals indicate like parts in the different views.

Referring to the drawings, 1 represents one end of a driving shaft rotating in unison with the shaft of an internal combustion engine, through any ordinary connection therewith.

2 is an axially orificed hub, preferably formed of an insulating material, and fitting upon the end of the shaft 1 as shown so as to turn therewith. Said hub at its free end carries an axial shank or extension 3, for carrying the operating cam disk of the circuit breaking mechanism and the revoluble member of the current distributing mechanism, hereinafter described in detail.

4 is a shell or casing formed with a sleeve 5, in which the hub 2, aforesaid fits and turns, and with a lateral extension or pocket 6, which in conjunction with the cavity of the main portion of the casing provides an elongated chamber for containing the circuit

breaking mechanism of the present improvement.

7 is a secondary shell or casing open at its back and fitting an opening in the front of the shell or casing 4, above described, so as to be carried thereby. Said casing 7 is formed of suitable insulating material and is adapted to inclose the revoluble member of the high tension circuit distributing mechanism.

8 is the cam disk before referred to as carried by the shank 3; said cam disk will usually have two opposed peripheral depressions 9 for alternately moving the vibrating member of the circuit breaker.

10, is the vibrating member or arm above referred to, and which is pivoted at one end in an eccentric position in the casing 4 aforesaid, while at its other end it carries a resilient tongue or reed 11, and contact button or head 12, as shown.

13 is a roller carried by the vibrating arm 10 intermediate its length and adapted to have bearing contact with the periphery of the cam disk 8, and operative engagement with the cam depression 9 of the same.

14 is a leaf spring tending to hold the roller 13 in contact with the cam disk 8, and the tongue 11 in electrical contact with the adjustable contact member or screw hereinafter described.

15 is an elongated plug of insulating material let into an opening in a side wall of the extension pocket 6 aforesaid, to provide an insulated support for the stationary member of the contact breaking mechanism now to be described.

16 is an adjustable screw bolt constituting the stationary contact member above referred to, and having a screw-threaded bearing in the plug 15 aforesaid, as well as in a conducting plate 17 carried in an insulated manner on said plug.

18 is a screw bolt securing the conducting plate 17 in place on said plug and constituting a terminal attachment for the described circuit breaking mechanism and the stationary contact 16 thereof. The companion terminal, in electrical connection with the contact tongue 11, will usually be made on the exterior of the casing 4, the current passing through the spring 14 to said tongue 11.

19 is a hub of insulating material fitted upon the end of the axial shank 3 of the hub 2, before described, and turning therewith. Said hub constitutes the revoluble member

of the current distributor and to such end is provided with a radially extending contact plate or segment 20, which passes outwardly through an annular rim 21 on the forward end of the hub 19, as shown. Said rim 21 provides a protecting shield adapted to retard the accumulation of extraneous conducting matter on the surface of the hub 19, intermediate of the hereinafter described contact members of the high tension current distributor. In addition said rib provides a central cavity in which the central portion of the contact segment 20 is exposed for conducting contact with the spring plug herein-
after described.

In the preferred form of the present invention, the main portion of the hub 19 moves in a reduced bore 22 in the forward portion of the aforesaid distributor casing 7, while at its rear portion it carries a peripheral collar 23, moving in an enlarged bore at the rear of the casing 7, and in connection with the shoulder formed by the intersection of the two bores provides a circuitous or baffle gap to effectively prevent a short circuit between the contact members of the distributor and the adjacent metal parts of the mechanism.

24 is an axially arranged bushing in the forward head of the distributor casing 7 and having at its outer end a terminal post 25 for attachment of a line conductor from a secondary coil and condenser, while its inner tubular end constitutes a guide for the spring actuated plug 26 which has bearing against the inner portion of the contact segment 20 before described.

27 are a series of radial contact bars secured in and passing through the wall of the reduced bore 22 of the distributor casing 7, with their inner ends in the path of, and adapted for serial contact with the contact segment 20 aforesaid. The outer ends of said bars are connected in any usual manner with lines extending to the sparking terminals of an internal combustion engine.

Having thus fully described my said in-

vention what I claim as new and desire to secure by Letters Patent, is:—

1. In a combined circuit breaker and distributor for internal combustion engines, the combination of a shaft adapted for rotation in unison with the engine, a casing arranged at one end of said shaft, a circuit breaking mechanism arranged in said casing and having an operating cam connected to said shaft, a secondary casing secured to the casing aforesaid, and a distributor mechanism arranged in said secondary casing with its revoluble member connected to said shaft, said revoluble member having a continuous annular rim at its forward end, and a radial contact member passing out through said rim a distance from the front end of the same, the annular rim being adapted to afford a protecting shield between the contact members of the high tension current distributor, substantially as set forth.

2. In a combined circuit breaker and distributor for internal combustion engines, the combination of a shaft adapted for rotation in unison with the engine, a casing arranged at one end of said shaft, a circuit breaking mechanism arranged in said casing and having an operating cam connected to said shaft, a secondary casing secured to the casing aforesaid and formed with a reduced outer bore and an enlarged rear bore communicating with the containing chamber of the circuit breaking mechanism, and a distributor mechanism arranged in said secondary casing with its revoluble member connected to said shaft, the said revoluble member having a peripheral collar arranged adjacent to the intersection of the two bores of the secondary casing, substantially as set forth.

Signed at Highland Park, Ills., this 5th day of April 1910.

CARL A. PFANSTIEHL.

Witnesses:

NELLIE FITZGERALD,
HERBERT MOON.