

R. H. WHISLER.
DISTRIBUTER UNIT FOR IGNITION SYSTEMS.
APPLICATION FILED MAY 31, 1919.

1,370,077.

Patented Mar. 1, 1921.

2 SHEETS—SHEET 1.

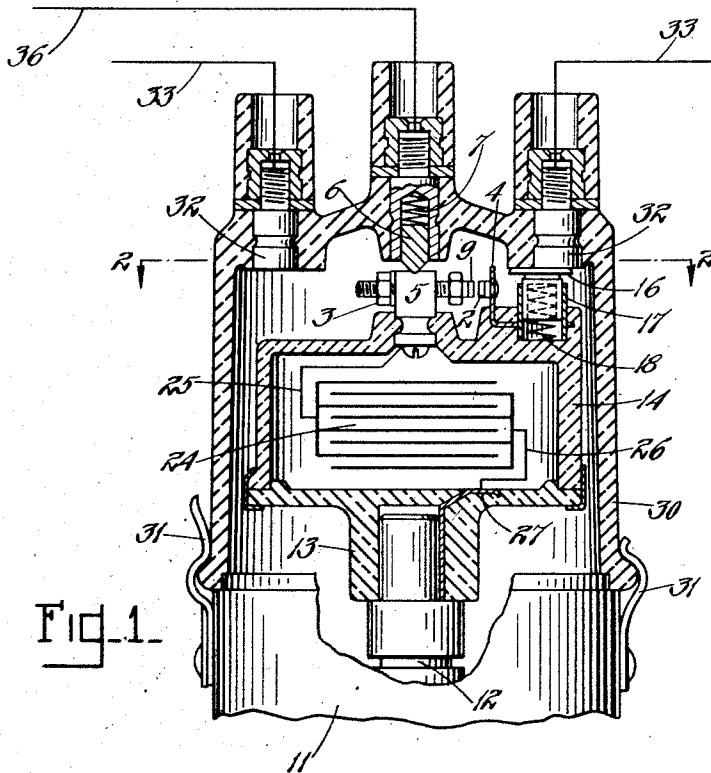


Fig. 1.

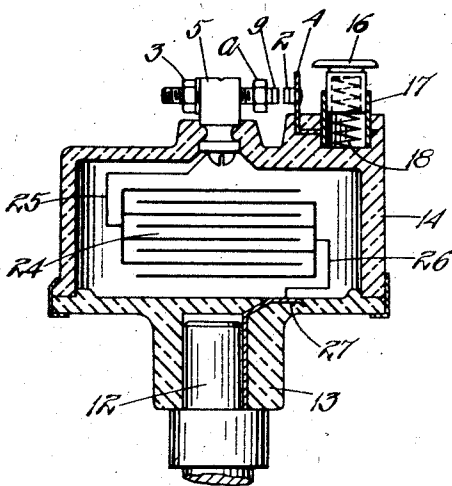


Fig. 3.

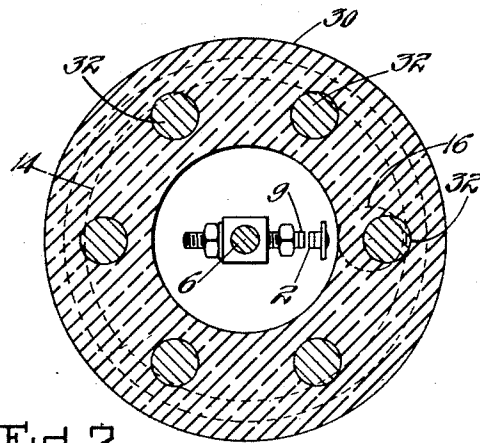


Fig. 2.

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Fig-4-

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DISTRIBUTER UNIT FOR IGNITION SYSTEMS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, RALPH H. WHISLER, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Distributer Units for Ignition Systems, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to ignition apparatus of a type which may be conveniently termed a high tension, high frequency ignition. Such a system comprises three circuits, in one of which is spark timing means there being in the first circuit an electromotive source, and the primary winding of an induction coil. In the second circuit, there is the secondary winding of the induction coil, a condenser charged thereby, a fixed discharge gap and the primary winding of a disruptive discharge coil. The third circuit includes the secondary winding of the discharge coil and the electrodes of the spark plug which is located in the combustion space of the engine with which the system is used. My present invention consists in the combination of the condenser and the fixed discharge gap which form a part of the second circuit with the moving member of a distributor so that the whole forms a distributor unit. This unit is intended for use in connection with another unit containing both the primary and secondary windings of the disruptive discharge coil, and this last mentioned unit is adapted to be placed on the top of a spark plug.

Practical experience with the operation of ignition systems of the type mentioned above has shown that serious difficulty may arise because moisture sometimes accumulates between the points of the fixed spark gap and short-circuits the system. The device shown and described in my present application does away with this trouble.

The invention will be fully understood from the following description when taken in connection with the accompanying drawings, and the novel features thereof will be pointed out and clearly defined in the claims at the close of this specification.

In the drawings, Figure 1 is a vertical section of the distributor unit embodying my invention.

Fig. 2 is a section on line 2—2 of Fig. 1. Fig. 3 is a detail of the rotor.

Fig. 4 is a wiring plan showing the relation of my distributor unit to the remainder of an ignition system with which it is to be used.

Referring first to Fig. 4, there is shown at A, B and C the three circuits of an ignition system in which the distributor unit embodying my invention may be used. Circuit A contains a battery D, or other source of electromotive force, a circuit controller E which is operated by a cam F in time with the engine, a condenser G connected across the terminals of the circuit controller, and the primary winding H of an induction coil. The second circuit B which is here shown as grounded contains the secondary winding I of the induction coil, a condenser 24, a fixed discharge gap K, a distributor L, and the primary winding M of a disruptive discharge coil. In the third circuit C, is the secondary winding N of the disruptive discharge coil and a spark plug P.

The distributor unit shown in Fig. 1 contains in addition to the usual rotor and contact points, the condenser 24, and fixed discharge gap K. This distributor unit will now be described.

At 11 is shown a standard or base within which is mounted a vertical shaft 12 rotated in time with the engine. It will also be understood that this shaft being practically a part of the engine is electrically grounded. Mounted on the upper end of the shaft 12 is a flanged member 13. Secured to this flange member 13 is a casing 14 of suitable molded insulating material such for instance as mica and shellac compound or bakelite. This casing is provided with a central contact member 5 in line axially with the shaft 12, and a spring-actuated button 16 slidably mounted in a thimble 17 situated near the periphery of the casing 14. A spring 18 pushes the button 16 upward. Secured to the central contact member 5 is one member 9 of the fixed spark gap, the other member 2 being supported on an upwardly projecting strip 4 which is molded into the insulating material of the casing 14. This strip is electrically connected with the thimble 17. The fixed spark point 9 is screw-threaded and passes through the central contact member 5 being provided on its outer end with a check nut 3. It is provided at a with a hexagonal portion for the reception of a wrench. By

turning the spark point 9 in or out of the central contact member, the gap may be varied and the adjustment corrected or changed.

5 The flange 13 and casing 14 which together constitute the rotor of the distributor contain the condenser 24 one set of plates of which are connected by the wire 25 to the central contact member 5 while the other
10 set of plates are connected to a wire 26 and then to the spring contact 27 which is embedded in the flange 13 and is in electrical contact with the distributor shaft 12. When in place in the casing, the condenser rests
15 on the spring contact so that the condenser is grounded on one side and on the other is connected to the central contact member 5.

The rotor of the distributor is incased by a cover 30 secured to the base 11 in any suitable manner as by spring snaps 31. This
20 cover is of molded insulating material and is provided with contact points 32 embedded in the insulating material, these contact points being in number equal to the number
25 of cylinders which are to be fired by the ignition system. Wires leading to two of the spark plug coil units are shown at 33, 33 in Fig. 1. The cover 30 is also provided with a conical-pointed central contact member 6
30 which rests on the central contact member 5 of the rotor when the cover 30 is in place. This contact member is held down by a spring 7 and is connected by a wire 36 with a transformer coil I.

35 From the foregoing, it will be seen that the condenser and fixed spark gap are located in a self-contained unit forming part of the rotor of the distributor. The condenser is completely incased by the casing
40 of the rotor and, therefore, fully protected from moisture. The spark gap is easily adjusted by removing the distributor cover 30, and is also well protected from moisture by said cover. Furthermore, being located on
45 the rotor itself, it moves rapidly through the air whenever the engine is turning over, and this tends to keep the points dry.

What I claim is,

1. The distributor for an ignition system
50 comprising in combination a casing having contact members therein, a rotor having a button for contact with said contact members, and a condenser and a spark gap carried by the said rotor and so connected that
55 the condenser will discharge across the spark gap to the said button.

2. The distributor for an ignition system comprising a fixed cover having a centrally disposed contact point therein and a series
60 of peripheral contact points and a rotor having a central contact member to cooperate with the contact member of the cover, a contact member to make contact with said contact points, a spark gap carried by said rotor

and a condenser contained within said rotor 65 and so connected that the condenser will discharge across the spark gap to the traveling contact on the rotor.

3. In combination a cover having a series of stationary contact points therein and a central contact member, a rotor having a centrally disposed contact member to cooperate with the contact member of the said cover, a traveling contact point, and a fixed spark
70 gap one member of which is secured to said central contact member of the said rotor and the other member of which is mounted on said rotor and is electrically connected to the said traveling contact member. 75

4. In combination, a cover having a series of stationary contact points therein and a central contact member, a rotor having a centrally disposed contact member to cooperate with the contact member of the said cover, a traveling contact point and a fixed
85 spark gap one member of which is secured to said central contact member of the said rotor and another member of which is mounted on said rotor and electrically connected to the said traveling contact member, a condenser electrically connected to the said central contact member and grounded to a metallic portion of the rotor. 90

5. In an ignition system, the combination with a standard, a shaft in said standard, a rotor mounted on said shaft and having a central contact member, a cover secured to said standard and covering said rotor, said cover being provided with a plurality of fixed contact points and a central contact
95 member, a traveling contact member on said rotor, and a condenser and a spark gap carried by said rotor and so connected that the condenser will discharge across the spark gap to the traveling contact on said rotor. 100

6. In a distributor for an ignition system, the rotor comprising a flange for attachment to a shaft, a casing secured to the said flange, said casing being of insulating material, two contact members mounted on the casing, a
105 condenser connected to one of the contact members and to the shaft, and a spark gap electrically connecting said contact members to each other. 110

7. In a distributor for an ignition system the rotor comprising a flange for attachment to a shaft, a casing secured to the said flange, said flange and casing being of insulating material, two contact members mounted on the casing, a condenser contained within the
120 said casing connected to one of the contact members and to the shaft, and a spark gap on the exterior of the said casing electrically connecting said contact members to each other. 125

In testimony whereof I affix my signature.

RALPH H. WHISLER.