H. A. FROOM.

RECTIFYING COMMUTATOR.

APPLICATION FILED NOV. 12, 1915.

1,294,894.

Patented Feb. 18, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

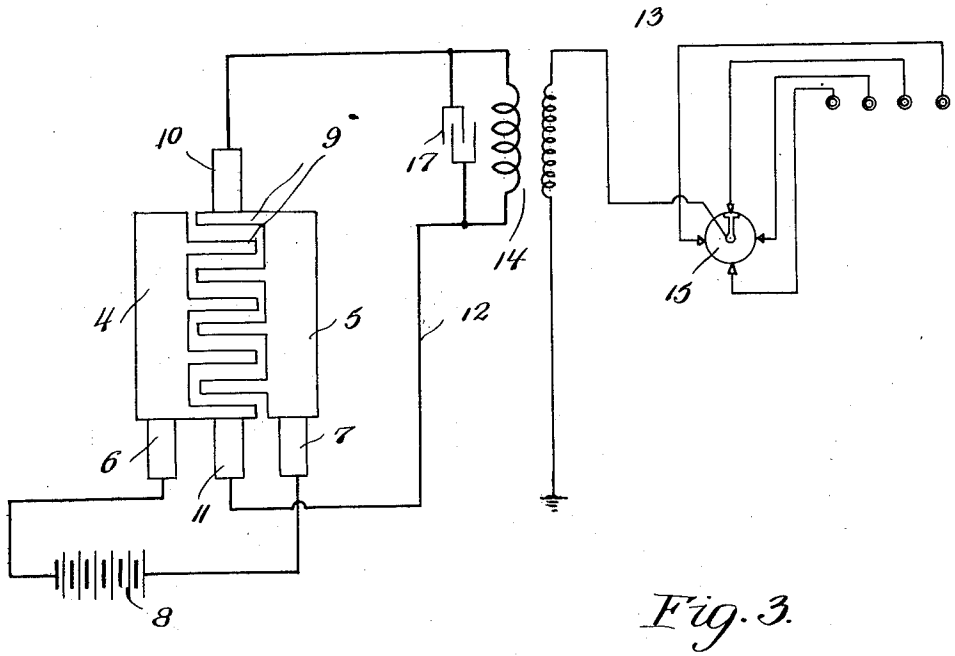


Fig. 3.

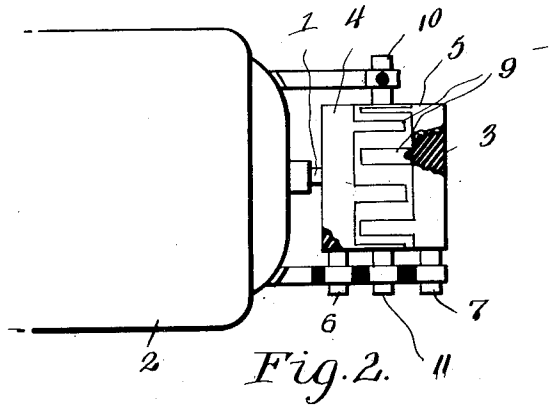
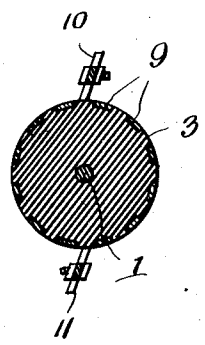


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 4.

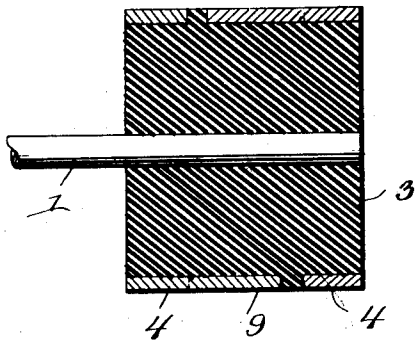


Fig. 5.

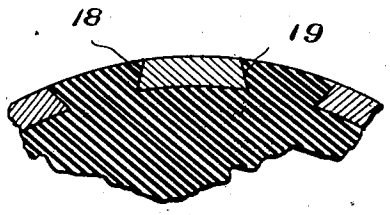
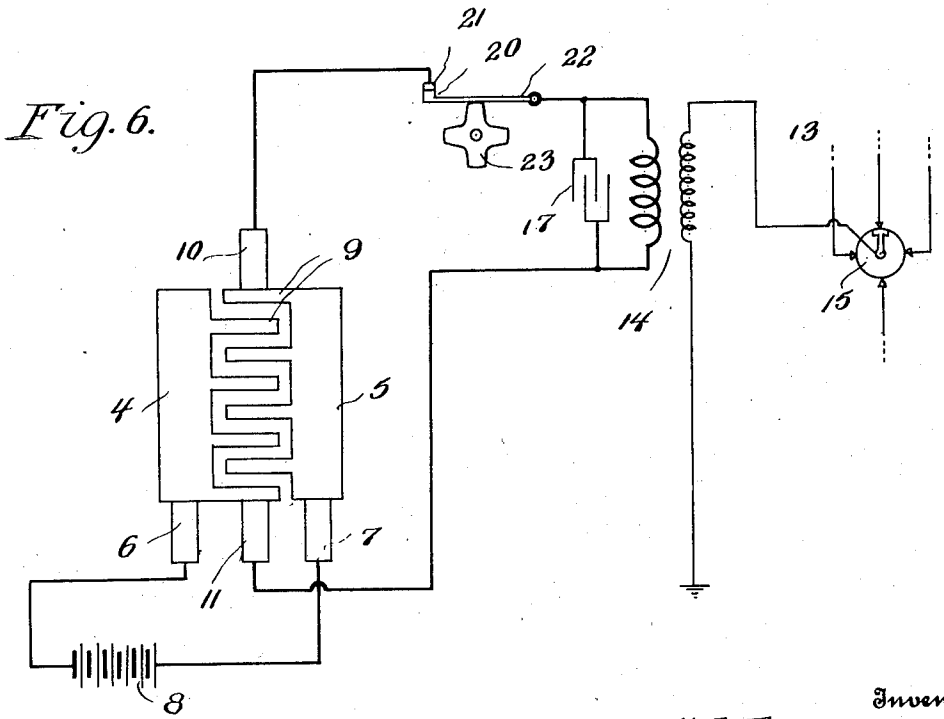


Fig. 6.



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UNITED STATES PATENT OFFICE.

HARRY A. FROOM, OF WORCESTER, MASSACHUSETTS.

RECTIFYING-COMMUTATOR.

1,294,894. Specification of Letters Patent. Patented Feb. 18, 1919.

Application filed November 12, 1915. Serial No. 61,120.

To all whom it may concern:

Be it known that I, HARRY A. FROOM, a citizen of the United States of America, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented new and useful Improvements in Rectifying-Commutators, of which the following is a specification.

This invention relates to current rectifying devices and more particularly to devices of this character for converting direct current into alternating current for the spark coil of an ignition system.

The primary object of the invention is to provide a simple device normally energized by the current from a common battery and with which coöperates means for taking off of said device, the alternating current and passing the same to the primary coil of an induction coil.

An object of the invention is to provide a constantly rotated device so arranged and constructed as to interrupt electrical connection between a battery circuit and the primary circuit of an ignition system.

Other objects of the invention will appear hereinafter in the novel combination of elements pointed out in the appended claim.

In the accompanying drawings:—

Figure 1 is a diagrammatical view of an ignition system showing my invention applied thereto.

Fig. 2 is a side elevation of a rectifying device shown in connection with a propelling device such as an electric motor.

Fig. 3 is a transverse sectional view through the insulated frame and illustrating the brushes of the primary circuit in contact therewith;

Fig. 4 is a sectional view of the frame taken at right angles to Fig. 3;

Fig. 5 is an enlarged detailed sectional view of a portion of the frame illustrating the manner of embedding the fingers therein; and

Fig. 6 is a diagrammatic view of a modified form of the invention, illustrating the use of the platinum point circuit breaker in connection therewith.

Referring to the drawings, the numeral 1 designates a shaft constantly driven when a vehicle is in operation by means of a motor 2 and the motor power of which may be gas or electricity. Rigidly secured to the shaft 1 is a drum of insulating material 3 in which is embedded the rings 4 and 5 upon which bears the brushes 6 and 7 that form the terminals for the battery circuit 8. Although I have shown a battery in this circuit 8, it is to be understood that any other suitable source of a direct current can be utilized, such as is generated by a mechanically operated generator. Each ring, as clearly shown, in a perspective view, is provided at one edge with a circumferentially extending series of fingers 9. The fingers of one ring have an interfitting relation with the fingers of the other ring but spaced a distance great enough apart to allow the insertion therebetween of insulating material which can be a separate piece of insulating material or a raised portion of the drum 3. Arranged to ride upon the fingers are the brushes 10 and 11 forming the terminals for the primary circuit 12 of an ignition system 13 that includes the usual spark coil 14, distributer 15 and spark plugs 16. Bridging across the primary circuit of the ignition system, is the condenser 17, the purpose of which is to prevent excessive sparking between the brushes 10 and 11 and the fingers of the rings in the well known manner. At this point, attention is directed to the fact that the width of insulation between the fingers is great enough to interrupt the metallic contact between the fingers of the rings and the brushes so that intermittently the current flow from the battery in the battery circuit to the primary circuit of the ignition is broken so as to induce from the primary coil of the induction coil to the secondary coil a current of high electromotive force.

In the operation of the device, the shaft 1 is rotated to give a rotary action to the drum 3. The rotary action of the drum 3 causes the fingers of the rings to intermittently contact with the brushes 10 and 11 with the result that current from the battery 8 passes through its circuit to the brushes 6 and 7 from whence it passes by means of the rings 4 and 5 to the fingers. From the fingers when the brushes 10 and 11 are in contact therewith, the current flows to the primary circuit of the ignition system.

In Fig. 6 there is shown a slight modification of the invention in which the platinum point circuit breaker is shown as included in the primary circuit. This circuit breaker includes the contact points 20, 21, one of which is carried by a switch 22, which is

operated by the rotatable starting wheel 23 to alternately make and break contact.

From the foregoing description, it will be seen that I provide a very simple device for rectifying or converting the current from a battery to the primary circuit of an ignition system.

Obviously, various changes could be made in certain parts of the apparatus by one skilled in the art without departing from the spirit and scope of the invention and for this reason I desire not to diminish the precise arrangement and construction of parts as disclosed.

What I claim and desire to have protected by Letters Patent in the United States is:

A rectifying commutator comprising a rotatable drum of insulating material, a pair of spaced insulated metallic rings surrounding said drum, said rings being formed with spaced transversely extending parallel fingers insulated from one another in interfitting relation and embedded in said drum, said rings extending circumferentially of the drum and said fingers being parallel with the axis of rotation of the drum, said fingers being wedge shaped in cross section with their inner faces of greater width than their outer faces whereby said rings will be securely anchored and accidental dislocation from engagement with the drum will be prevented.

In testimony whereof I affix my signature in presence of two witnesses.

HARRY A. FROOM.

Witnesses:
RALPH L. COREY,
HELEN G. ROGERS.