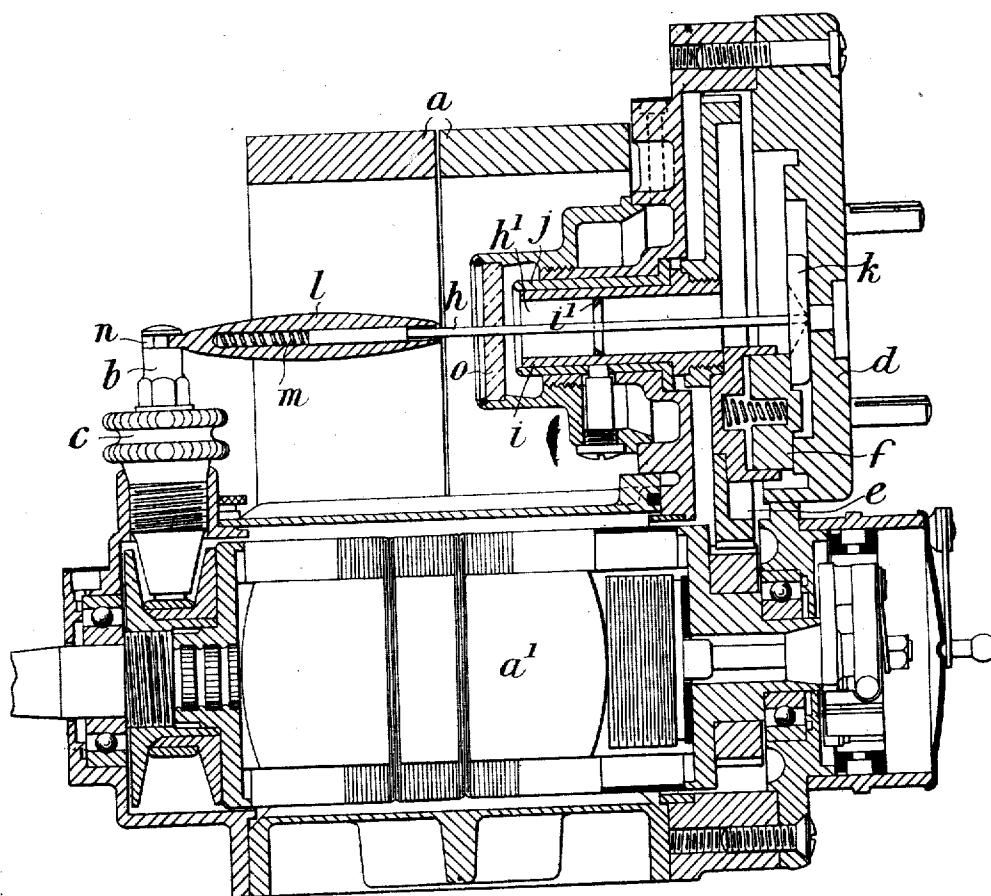


F. R. SIMMS.
HIGH TENSION MAGNETO ELECTRIC APPARATUS.
APPLICATION FILED JUNE 27, 1910.

1,017,474.

Patented Feb. 13, 1912.



Witnesses
Geo. Rea.
T. H. Gray.

Inventor.
F. R. Simms.

UNITED STATES PATENT OFFICE.

FREDERICK RICHARD SIMMS, OF KILBURN, LONDON, ENGLAND, ASSIGNOR TO THE
SIMMS MAGNETO COMPANY, A CORPORATION OF NEW YORK.

HIGH-TENSION MAGNETO-ELECTRIC APPARATUS.

1,017,474.

Specification of Letters Patent.

Patented Feb. 13, 1912.

Application filed June 27, 1910. Serial No. 569,200.

To all whom it may concern:

Be it known that I, FREDERICK RICHARD SIMMS, a subject of the King of Great Britain, residing at Welbeck Works, Kimberley Road, Willesden Lane, Kilburn, London, England, have invented new and useful Improvements Relating to High-Tension Magneto-Electric Apparatus, of which the following is a specification.

This invention relates to high-tension magneto-electric apparatus of the well-known Simms type used in connection with electric ignition gear for internal combustion engines and has for its object to provide an improved arrangement of safety spark-gap.

According to the invention I arrange the safety spark-gap between a part of the conductor which connects the high tension terminal of the collecting brush-holder to the distributor and a ring located within the hollow spindle of the gear-wheel for rotating the distributor brush and which incloses the said part of the conductor. In a suitable arrangement for carrying out the invention the said conductor part which is in the form of a rod is caused to bear by spring pressure at one end in an insulated bearing with which the brush of the distributor makes contact, the said pressure being obtained by a spring located within a sleeve which embraces the other end of the conductor rod and bears at one end against the terminal of the high tension collecting brush-holder. The bearing for the spindle is provided at one end with a window to render the spark in the spark-gap visible, the conductor rod passing through a hole in the said window.

To enable the invention to be fully understood I will describe the same by reference to the accompanying drawing, which represents a vertical section of a portion of a high-tension electro-magnetic apparatus of the well-known Simms type provided with my improvements.

a , a are the magnets, a^1 the armature and b is the high-tension terminal of the collecting brush-holder c .

d is the current distributor and e is the gear-wheel carrying the brush f of the distributor, h is the rod forming part of the conductor between the terminal b and the distributor d .

i is the hollow spindle of the wheel e car-

ried in the bearing j , and i^1 is the ring arranged within the said spindle through which spindle and ring the rod h passes thus providing the spark-gap h^1 between the outer surface of the rod h and the inner surface of the said ring i^1 the said inner surface of the ring is sharpened so as to reduce resistance to the passage of the spark. The rod h bears at one end against the block or bearing k with which the brush f of the distributor makes contact. l is the sleeve embracing the other end of the rod h and m is the spring located within the sleeve for causing the said rod and sleeve to make good contact with the bearing k and terminal b respectively, the sleeve being preferably forked as at n to embrace the said terminal.

o is the window of mica or glass for viewing the spark which will be formed between the rod and the interior surface of the rotating spindle h .

It will be understood that the spark-gap can be adjusted by using rings of different sizes and that the spark is localized, thereby preventing the fracture of the glass disk o . In order to readjust the spark gap it is only necessary to remove the ring i^1 which is held in the spindle i merely by frictional contact as shown, and substitute another having a greater or smaller inner diameter, thus varying the distance from the rod h to the ring and thus altering the spark gap. This adjustment of the spark gap may be made when the magneto is first assembled, or it may be made at any time to adapt a given magneto to different kinds of works, according to the tension desired in the high tension circuit. By means of this removable ring the adjustment of the spark gap can be readily and quickly accomplished without altering any other part of the magneto.

Claims:

1. In a high tension magneto, the combination with the high tension terminal thereof, of a conductor connected with the high tension terminal, a detachable ring surrounding a portion of the conductor, out of contact therewith and separated from the conductor only by an air gap, to form a spark gap between the inner face of the ring, and the portion of the conductor passing therethrough, said ring having a ground connection, and means for detachably supporting said ring, whereby the ring

may be removed and a ring of different internal diameter substituted therefor, to adjust the spark gap.

2. In a high tension magneto, the combination with the high tension terminal thereof, of a conductor connected with the high tension terminal, a cylindrical part surrounding said conductor, a ring detachably secured in said cylindrical part and having a ground connection, said ring surrounding a portion of the conductor, and being separated therefrom only by an air gap, the inner edge of the ring being sharpened all the way around, to facilitate sparking, whereby said ring may be removed and replaced by a similar ring of different internal diameter, to adjust the spark gap.

3. In a high tension magneto, the combi-

nation with the high tension terminal, of a distributor, a conductor extending from the said terminal to the distributor, a hollow cylindrical part surrounding a portion of the conductor, but out of contact therewith, and having a ground connection, and a transparent closure for one end of said cylindrical part, having an aperture for the passage of the conductor therethrough, a ring fitted in said cylindrical part at the desired distance from said closure to prevent injury to the same, said ring surrounding the conductor but out of contact therewith.

FREDERICK RICHARD SIMMS.

Witnesses:

GEO. REA,

B. L. GRAY.