To all whom it may concern:

Be it known that I, ERNEST ANSLEY WATSON, a subject of the King of Great Britain and Ireland, residing at 2 St. Andrew's road, Earlsdon, Coventry, in the county of Warwick, England, have invented certain new and useful Improvements Relating to Magneto-Electric Machines, of which the following is a specification.

This invention has for its object to provide magneto electric machines of improved constructions for generating either high tension current only, of both high and low tension current, for use on motor vehicles and for like purposes.

The invention comprises the combination of a rotary armature which may be wound for the generation of current, straight bar magnets arranged to form a pair of parallel sides of a frame or body, a single pole piece joining one pair of ends of the magnets, and a pair of pole pieces connected to the opposite ends of the magnets and joined by a cross piece on which are carried the windings of an induction coil.

In the accompanying sheet of explanatory drawings:

Figure 1 is a cross section, Fig. 2 a longitudinal section and Fig. 3 an end view with cover removed of a high and low tension current generator constructed in accordance with this invention for ignition and lighting purposes on a motor vehicle.

In carrying the invention into effect as shown, a pair of straight bar magnets a are arranged to form the parallel vertical sides of a magnetic frame. At its lower end the frame is closed by a horizontal pole piece b, and at its upper end by a magnetic end piece c.

A pair of pole pieces d forming pole pieces, these parts being joined by a cross piece e forming the core on which are carried primary and secondary windings / g for the generation of high tension current. The lower ends of the bar magnets connected by the pole piece b are of like polarity as are also the upper ends which are connected by the pole pieces c, d and the cross piece e.

Between the pole pieces is arranged a rotary armature h which intermittently magnetically connects the parts c d to the pole piece b. It will be apparent to those skilled in the art that during each rotation of the armature the flux through the part e is intermittently reversed, and four high tension impulses are obtained in each revolution. A primary current interrupter is employed as in ordinary inductor machines. The interrupter in the form illustrated consists of a fixed contact f and movable contact k, the latter being carried by a spring lever l which is intermittently actuated through a rod m from a laterally projecting face cam n on the rotary armature. The usual condenser across the interrupter contacts is arranged as indicated at o. It will be understood that this interrupter is in the circuit of the primary winding on the shunt c. High tension current is taken to the spark plug of a single cylinder engine from a cable terminal p. When used with a multi-cylinder engine a distributor is provided.

With no winding on the rotary armature the machine operates in the manner of an inductor type magneto for the production of high tension current for ignition purposes. By the provision of a low resistance winding q on the armature the machine can also generate low tension current for charging a battery or providing current to lamps or other electrical apparatus. The metal segments r connected to the ends of the generator winding are carried in the collecting ring s, and connection is made with the external circuit by collecting brushes t. If desired I may arrange for current to be diverted intermittently from the rotating generator winding to the primary of the high tension system to supplement the current in the latter.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In magneto electric machines, the combination of a pair of straight bar magnets forming a pair of parallel sides of the machine, a single pole piece connecting one pair of ends of the magnets, a pair of pole pieces connected to the opposite ends of the magnets, a cross piece joining the said pair of pole pieces, a rotary armature, a laterally projecting cam on the rotary armature, an interrupter on a stationary part of the machine including a contact supporting spring lever, and a slidable rod maintained in engagement with the cam by the spring lever and operated by the cam to actuate the interrupter, substantially as described.
2. In magneto electric machines, the combination of a pair of straight bar magnets forming a pair of parallel sides of the machine, a single pole piece connecting one pair of ends of the magnets, a pair of pole pieces connected to the opposite ends of the magnets, a cross piece joining the said pair of pole pieces, a rotary armature, a winding on the rotary armature, a pair of segments attached to the armature and connected to the ends of the winding on the armature, and collecting brushes coacting with the said segments, substantially as described. In testimony whereof I have signed my name to this specification.

ERNEST ANSLEY WATSON.