

UNITED STATES PATENT OFFICE.

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INTERRUPTER FOR USE IN ELECTRIC IGNITION SYSTEMS OF INTERNAL-COMBUSTION ENGINES.

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To all whom it may concern:

Be it known that I, JOSEPH HIGGINSON, a subject of the King of Great Britain and Ireland, and resident of Sovereign Works, Stockport, in the county of Chester, England, have invented certain new and useful Improvements in Interrupters for Use in Electric Ignition Systems of Internal-Combustion Engines, of which the following is a specification.

This invention relates to electric ignition systems and more particularly to the make-and-break device employed with battery systems.

The object of the invention is to provide in a convenient and simple manner for a sudden break of the electric circuit (when the ignition spark is produced) whatever be the speed of the cam or equivalent part operating the make-and-break device.

My invention comprises the improved make and break device or interrupter hereinafter described and claimed.

The accompanying sheet of explanatory drawings shows in diagram form an interrupter constructed and arranged in one convenient form in accordance with my invention, the three figures showing three positions of the parts. In Figure 1, the cam *g* is shown clear of the contact arm *d* and the contact arm *c* rests on the lower stop *e*. In Figure 2 the cam *g* has just closed the contact *b* against *a* and in Figure 3 the magnet *h* has raised the contact *a* clear of *b*.

In the illustrated application of the invention, the two contacts *a, b* are carried by two blade spring-like elements *c, d* each having stop or like devices *e, f* for limiting the amount of movement of its free end. The one spring *d* has a cam or like actuating device *g*, whilst the other element has

an electro-magnet *h* associated therewith. The circuit through the electro-magnet contains the two contacts *a, b*, and when the said circuit is closed, the magnet attracts one spring element *c* and draws it and the contact *a* thereon from the other spring element *d* with its contact *b*.

With the arrangement before referred to, there is a sudden and definite break of the ignition circuit by the operation of the electro-magnet *h* immediately the contacts *a, b* are brought into engagement and independently of the cam or like actuating device. This is of great advantage when the cam is rotating at slow speeds and ensures a sharp and very efficient ignition spark. At high speeds, the mechanical means, i. e., the cam *g* for making and breaking the electric circuit give satisfactory results. My arrangement also prevents the contacts being left in permanent engagement if the engine comes to rest with the ignition circuit closed.

I may vary the details of the arrangement to suit any particular requirements.

I claim:—

In interrupters for use in ignition systems of internal combustion engines, in combination, an electro-magnet, a contact arm attracted by said magnet, a stop limiting the movement of said contact arm away from said magnet, a second contact arm, a stop limiting the movement of the said second contact arm towards the first contact arm, a cam moving said second contact arm against its stop and in contact with the first contact arm and an electric circuit including the electro-magnet and the contacting points of said two contact arms.

In testimony whereof I have signed my name to this specification.

JOSEPH HIGGINSON.