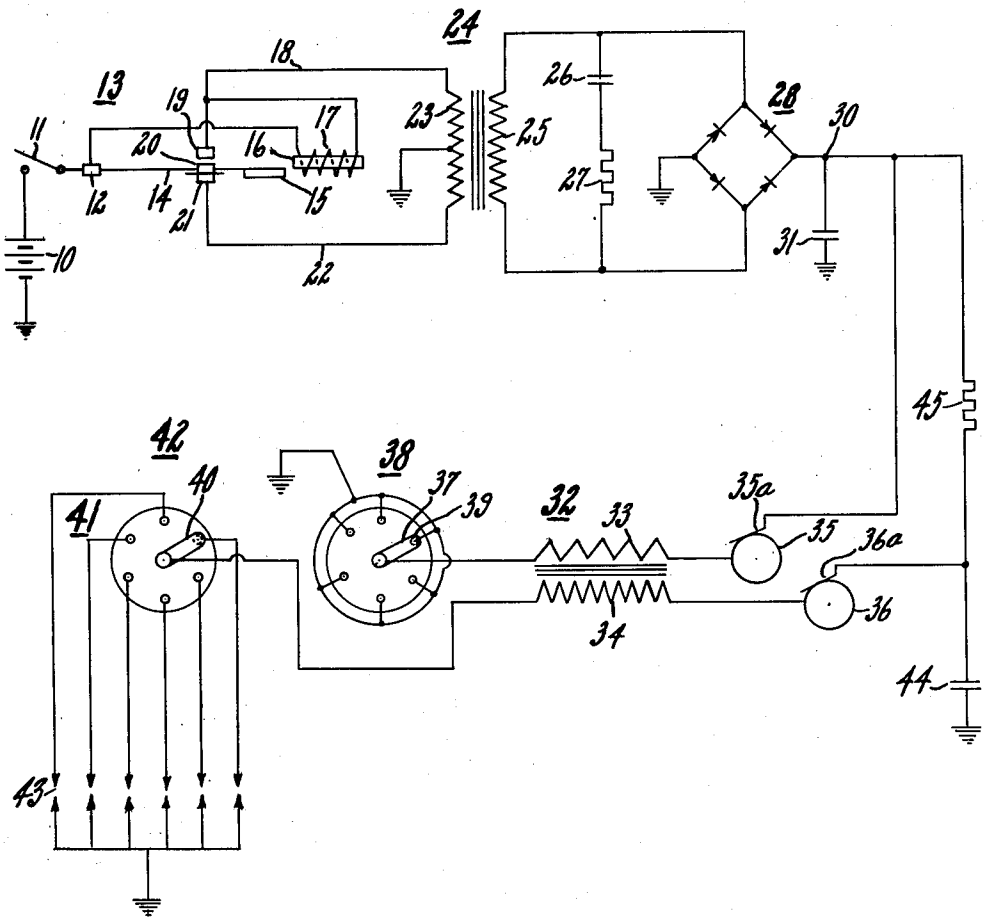
Oct. 28, 1952 B. H. SHORT 2,616,065

IGNITION SYSTEM

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IGNITION SYSTEM

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1 Claim. (Cl. 315—221)

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This invention relates to ignition apparatus for automotive vehicle engines and its object is to increase the heat of spark by increasing the duration of sparking initiated by the discharge of a condenser which is charged between the firing intervals and is caused to discharge by an engine driven timing apparatus.

To accomplish this object, the disclosed embodiment of the present invention includes a source of relatively high voltage, a main condenser charged thereby, an ignition coil having a primary winding connected at one end with one terminal of the main condenser, a periodic circuit closer driven by the engine for connecting the other end of the primary winding with the other terminal of the main condenser, a secondary winding provided by the ignition coil, a sparking impulse distributor having a rotor contact driven by the engine connected with one end of the secondary winding, and having posts past which the rotor contact moves in succession in synchronism with primary circuit closing by the periodic circuit closer, an engine spark plug connected with each post, and an auxiliary condenser charged by the source and connected with the other end of the secondary winding and the spark plugs, the auxiliary condenser discharging across the spark plug gaps in succession when they fire.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawing wherein a preferred embodiment of the present invention is clearly shown.

In the drawing:

The drawing is a wiring diagram of an ignition system embodying the present invention.

Referring to the drawing, a battery 10 is connected with a switch 11 with a terminal 12 of a vibrator 13 which includes a vibratory reed 14 carrying an armature 15 movable in proximity to a magnet core 16 surrounded by coil 17, one end of which is connected with terminal 12 and the other with a wire 18 connected with a contact 19 normally separated from a reed supported contact 20 normally engaging a contact 21 connected with a wire 22. Wires 18 and 22 are connected with the ends of the primary winding 23 of a transformer 24, the center tap of the primary winding being grounded. Transformer 24 has a secondary winding 25, the ends of which are connected with a buffer circuit comprising a condenser 26 and a resistance 27 and with a rectifier 28 which puts out relatively high D. C. potential to a terminal 30 which is connected with a main condenser 31 which is charged during the intervals between the firing of spark plugs.

The engine rotates a unitary structure which comprises an ignition coil 32 having a primary

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winding 33 and a secondary winding 34, slip rings 35 and 36, the rotating contact 37 of a periodic circuit closer 38 and the rotating contact 40 of an ignition distributor 41 which includes distributor posts 42 past which the contact 40 moves successively in close proximity therewith. Each post 42 is connected with a grounded spark plug 43. The circuit closer 38 includes grounded posts 39 past which the contact 37 moves successively into engagement or into close proximity therewith. Contact 37 is synchronized with contact 40.

At the instant required for ignition, the main condenser 31 discharges through a circuit which includes a brush 35a engaging the slip ring 35, primary winding 33, contact 37 and a post 39. This discharge induces a voltage in secondary winding 34 sufficient to cause spark at a spark plug which the distributor rotor 40 connects with the secondary winding. An auxiliary condenser 44, which had been charged through a charge rate controlling resistance 45 connected with terminal 30, is caused to discharge whenever sparking occurs at a spark plug. The discharge of condenser 44 substantially prolongs the duration of sparking at a spark plug gap, thereby increasing the heat of spark.

While the embodiment of the present invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted.

What is claimed is as follows:

In an ignition system, a source of current; an ignition coil having a primary winding and a secondary winding, one side of each of said windings being connected in parallel with said source; a resistor in series with the source and secondary winding; a main condenser adapted to be intermittently charged and in parallel with said windings; an auxiliary condenser in circuit with said secondary winding; means connected in series with the other side of said primary winding for periodically causing charging and discharging of said main condenser; and a spark plug in series with the other side of said secondary, said plug being capable of periodic sparking and controlled by said means, said auxiliary condenser prolonging the duration and increasing the intensity of the spark.

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