

UNITED STATES PATENT OFFICE

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APPARATUS FOR LIGHTING LAMPS.

983,113.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ELMER BARBER, a citizen of the United States, residing in Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Apparatus for Lighting Lamps, of which the following is a specification.

The object of my invention is to provide a simple and efficient apparatus for lighting lamps by electricity, deprived from the same source as that from which the igniter of a gas engine or gasolene motor is operated.

My improvements are especially designed for use on automobiles operated by gas engines or gasolene motors and which are equipped with acetylene lamps.

In carrying out my invention I provide a novel switch, the movable contacts of which are normally held in engagement with stationary contacts connected with the gas engine igniter, and I provide other stationary contacts with which the movable contacts are adapted to engage and which stationary contacts are connected by suitable circuit wires with sparking contacts adjacent the lamp burners. The arrangement is such that by suitably operating the switch the current may be temporarily diverted to the lamps and cause them to be lighted: I may use any kind of generator of electricity such as a primary battery, secondary battery or magneto generator, in which latter case no induction coil is required, and I may include in the circuits such other apparatus or appliances as are generally used in this class of apparatus.

In the accompanying drawings:—Figure 1 is a perspective view of a switch, made in accordance with my invention. Fig. 2 shows a side elevation of the same. Fig. 3 shows a side elevation of the same looking in the direction of the arrow 2 Fig. 1. Fig. 4 is a diagram, showing the circuit connections between the acetylene lamps, the gas engine, the switch and the generator. In this diagram I have illustrated a magneto R as the primary source of electricity and have shown a transformer S and distributor T included in the circuit, such apparatus being employed in some types of automobiles now in use.

Preferably, the switch A is mounted over the gas engine or gasolene motor B, as indicated in Fig. 4. The motor is of the multi-cylinder type in which the cylinders are cast

in pairs as shown. The igniter plugs C, C' are of well known construction and they are made to support a cross-bar D of insulating material, such as vulcanized fiber. Stationary contacts E, E' are rigidly secured near opposite ends of the cross-bar D and they are electrically connected with the metal spindles of the plugs C, C'. Stationary contacts F, F' are carried by metallic arms G, G', attached to the cross-bar D intermediate its ends. These arms are connected with circuit wires g, g' leading to the lamps L, L', as shown in Fig. 4. On the arms G, G' are mounted posts or standards H, H' of insulating material, which at their upper ends are provided with bearings I for a shaft J carrying the movable contacts K, K'. These contacts are connected to the circuit wires h, h' leading to the distributor T. The shaft J is adapted to turn part of a revolution in the bearings I, and it may be provided with a handle M, or the shaft may be extended or connected to operating mechanism within convenient reach of and under the control of the attendant or chauffeur.

The shaft J has secured to it a downwardly extending arm N to which is connected one end of a spring O, the opposite end of which is attached to a bracket P, secured to the standards H, H'. This spring normally holds the movable contacts K, K' in engagement with the stationary contacts E, E' that are connected with the igniter, but by operating the handle M the shaft J may be turned so as to cause the contacts K, K' to engage the contacts F, F' connected with the lamps. When the handle is released the spring O automatically causes the contacts K, K' to again engage the contacts E, E'.

In Fig. 4 I have shown a magneto generator R connected in circuit with the primary of a transformer S, the secondary of which is connected in circuit with a distributor T which is connected with the movable contacts K, K'. The switch A is shown diagrammatically. The diagram shows how the contacts E, E' are connected with the igniter plugs C, C', and also how the lamps L, L' are connected with the contacts F, F' by the circuit wires g, g'. Any suitable sparking contacts l, l' may be employed.

It is difficult or practically impossible to operate a number of spark gaps in parallel unless the gaps are of identically the same length and construction and the conditions

are the same. In order to operate a number of gaps in series the voltage must be multiplied. In accordance with this invention, the gaps of lamps L, L' are successively and individually connected in circuit with the secondary of the transformer S by means of the distributor T so that only one gap will be in circuit at one time.

The operation is as follows: The handle M is moved so as to connect contacts K, K' with F, F' respectively and to connect the circuit g, g' with circuit k, k' of the distributor T. If now the engine is running the distributor will successively connect the gaps of lamps L, L' in circuit with the secondary of transformer S causing these lamps to be lighted. The movement of the handle M need only to be momentary, and the motor will not therefore be seriously interrupted by interrupting its ignition circuit, at any rate the fly wheel will take care of this. If the engine is not running then the lamps can be lighted by moving the switch A to the position to connect the spark gaps of lamps L, L' with the distributor circuit and the distributor can then be operated by the spark controlling lever or by cranking the engine.

It will thus be seen that this invention provides a very simple and effective apparatus for obtaining the results desired. The only apparatus auxiliary to the ordinary ignition apparatus of a hydrocarbon engine is a double throw switch to connect the distributor or source of high tension current with either the spark plug or spark gap contacts. The distributor will run very fast when the engine is running and thus when the switch A is closed to connect the gaps in circuit, each gap will be connected in circuit several times so that a series of sparks will pass across each gap thus insuring that all the lamps will be lighted.

It will be understood that while I have shown in the diagram a magneto, a transformer and a distributor my switch is adapted for use in connection with various kinds of electric generators adapted to produce sparks and if continuous currents are employed, well known forms of incandescent igniters may be substituted for the sparking contacts employed for lighting the lamps.

I claim as my invention:—

1. The combination with a pair of supporting posts, of a cross-bar supported there-

on, stationary contacts supported on said cross-bar and electrically connected with said posts, metallic arms supported by said cross-bar and provided with contact pieces, standards mounted on said arms, an oscillating shaft mounted in bearings on said standards, contact arms carried by said shaft, and a spring connected with the shaft and with the standards which normally holds the contacts on the shaft in engagement with the contacts connected with said posts.

2. In a device of the class specified, the combination with a cross bar provided at its ends with apertures to support the same and with a pair of stationary contacts adjacent thereto, of a pair of arms extending from said cross bar, a second pair of stationary contacts supported on said arms opposite said first pair, an oscillating shaft supported on said cross bar, and a pair of contacts on said shaft movable therewith to engage either pair of said stationary contacts.

3. In a device of the class described, the combination with a pair of supporting posts, of a cross bar supported thereon, a pair of stationary contacts on said cross bar electrically connected to said posts, a second pair of stationary contacts supported on said cross bar opposite said first pair, an oscillating shaft mounted on said cross bar, and a pair of contacts thereon movable therewith to engage either pair of said stationary contacts.

4. In a device of the class described, the combination with a pair of supporting posts, of a cross bar supported thereon, a pair of stationary contacts on said cross bar electrically connected to said posts, a second pair of stationary contacts supported on said cross bar opposite said first pair, an oscillating shaft mounted on said cross bar, a pair of contacts thereon movable therewith to engage either pair of said stationary contacts, and means to normally hold said movable contacts in engagement with said first pair of contacts.

In testimony whereof, I have hereunto subscribed my name.

ELMER BARBER.

Witnesses:

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EDWIN S. DIXON.