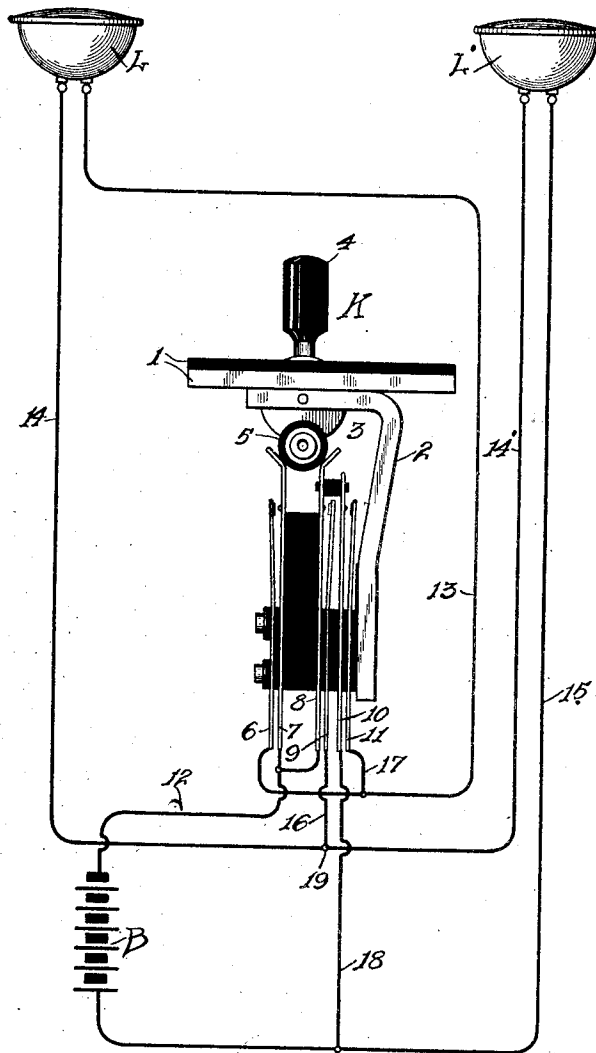


W. REID.
LAMP CONTROLLED CIRCUITS.
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UNITED STATES PATENT OFFICE.

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LAMP-CONTROLLED CIRCUITS.

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To all whom it may concern:

Be it known that I, WILLIAM REID, a citizen of the United States, residing in the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Lamp-Controlled Circuits, of which the following is a specification.

My invention relates to lamp control circuits and more particularly to the control of the lamps in an automobile lighting circuit and has for its object the provision of means, which when operated to one of its positions allow the lights to burn to their full incandescence or when the means is moved to its other position the lights are dimmed.

It is commonly known that in most cities glaring head lights are not permitted for city driving and different appliances have been used to overcome the necessity of completely effacing the head lights. Extraneous devices such as shields which are placed over the head lights have been used to deaden the glaring rays of light therefrom, and external resistances have also been used, adapted to be cut in and out of the lighting circuit. All such devices are objectionable because extraneous devices are required, and the external resistance makes the lighting inefficient because the current consumed by it is not all used for lighting purposes, but is largely dissipated in heat.

I accomplish this object of dimming the glare from the lights when driving in cities without the use of any external mechanical devices or without external resistances in the circuit. By arranging the lamps and the switch by which they are controlled in a novel circuit, I am enabled to connect the lamps themselves in different battery relations so that in one position of the switch the lamps burn brightly as head lights, and in the other position of the switch they burn dimly and serve the function of what is commonly known as side lights. Due to the regulations against glaring lights in cities, it is the present practice to employ two separate sets of lamps, one of high candle power for driving in the country and the other of comparatively low candle power to serve only as a warning signal when driving in the city. With my invention I am able to dispose of one set of these lamps and by merely connecting the

other set in different battery relations, I utilize the same set of lamps for both purposes. There is therefore a saving in external apparatus for dimming the head lights, and a saving in the number of lamps required to meet all conditions of travel.

In the present embodiment of my invention I provide a novel circuit arrangement operated by a single key or switch. Two sets of springs are preferably provided one set being operated when the key is moved in one of its positions to place the head lights in series, thereby dimming them, and this dim burning of the head lights being used where the full incandescence of the head lights is prohibited, or to take the place on the machine of the usual side lights. When the key is moved to its other position the lamps burn in multiple thereby burning to their full incandescence, this multiple lighting being used where the full incandescence of the head lights is needed. Cars not provided with dimming arrangements are forced to efface the headlights, but as some means of lighting must be had the side lights are left burning. As stated, an object of my invention is to provide a circuit which places the head lights in series by the operation of the key or switch, reducing the incandescence so as to permit one to keep the head lights burning, so that in using my circuit arrangement side lights can be dispensed with.

Another object of my invention is to provide a simple circuit arrangement without extraneous resistance or current consuming apparatus, and operating in connection with any suitable switch or key, the said circuit being simple in construction and most efficient in operation.

The accompanying drawing diagrammatically shows one embodiment of the circuit arrangement of my invention.

Referring now more in detail to my invention as illustrated in the accompanying drawing, a key or switch K is provided which operates two sets of spring contacts, one of the sets of springs controlling the series lighting and the other set the multiple lighting of the head lights L and L¹. The key K can be of any suitable type but I have illustrated this particular key as I have found that it operates successfully in conjunction with my commercial lamp control circuit. This key is of the common cam

key type and comprises an escutcheon plate 1 and a frame 2, the frame being fastened to the escutcheon plate 1 in any suitable manner. A cam 3 is pivoted to the frame 2 and a handle 4 and a roller 5 of insulation are fastened to the cam. I have shown the handle 4 in its normal position, and by movement to the right or left it operates the two sets of contacts, one set comprising the spring contacts 6 and 7 and the other comprising the contact springs 8, 9, 10, 11. The handle 4 when thrown to the right causes the cam to move about its pivot, the roller 5 to ride upon the angular extension of the spring 7, and force the springs 6 and 7 to their alternate position, which closes a series circuit for the head lights L and L' including the battery B. The angular extension at the free end of the spring 7 operates to hold the key lever 4 and its cam 5 in its actuated position until manually restored. Thus when the lever is thrown to the right, contact springs 6 and 7 are maintained in engagement by said angular extension at the top of spring 7. Also spring 8 is provided with a small angular extension which maintains the key lever in its actuated position when thrown to the left to operate the alternate group of springs.

Having referred in general to the circuit arrangement the operation of the circuit will now be described.

Assuming that the key is in its normal position and that the operator wished to light the lights L and L' to serve as side lights for city driving, that is, not wanting them to burn to their full incandescence, the handle of the key is thrown to the right. The roller 5 would then close the contacts 6 and 7, providing a series circuit for the lights L and L' traced from battery B, conductor 12, the closed contacts 7 and 6 of the key K, conductor 13 through the light L, conductors 14 and 14', light L', conductor 15 back to the other side of battery B. This closed circuit causes current to flow through the lights L and L' in series, reducing the candle power of the lights to that degree of incandescence suitable for side lights. The lights are adapted to burn brightly as head lights at 6 volts, which is commonly used for automobile lighting, and by placing the lamps in series approximately three volts is placed across each terminal of the lamps and the lamps are thus dimmed to about the right incandescence for side lights, or for driving in places where bright head lights are prohibited. The key K remains in this position until the operator wishes to efface the lights or throw the handle to the left to allow the lights to burn to their full incandescence.

Assuming that the operator wishes to place the lights L and L' in multiple circuit, so as to burn as head lights to their full incandescence, the handle of the key K is

thrown to the left, and the roller 5 closes the contacts 8, 9, 10 and 11. This closes a multiple circuit for the lights L and L', the circuit of lamp L being traced from battery B, conductor 12, closed contacts 8 and 9, conductor 16 to the point 19, dividing at this point and continuing over conductor 14 through the lamp L, conductor 13, conductor 17, closed contacts 11 and 10, conductor 18 to the other side of the battery B. The circuit of the lamp L' is traced from battery B, conductor 12, closed contacts 8 and 9, conductor 16, to point 19, dividing at this point and continuing over conductor 14' through the lamp L', conductor 15 to the other side of the battery B. These two closed circuits cause current to flow through the lights L and L' in multiple and the lights each receive the full voltage of the battery which causes them to burn to their full incandescence as head lights. This bright burning of the head lights can be used outside of the prohibited districts or for country driving, and the lights can be conveniently switched off and on by the movement of the key.

Assuming the head lights are burning brightly and the operator wishes to reduce their incandescence to side light capacity while passing another car, this can be accomplished by merely shifting the switch lever to its alternate position. Also if it is desired to temporarily bring the lights up to head light capacity in passing a bad strip of road, or where street lighting is dim, this can also be done by a single operation of the switch.

While I have shown a particular form of key and circuit, I do not wish to be limited to the details of same, but to cover all such changes and modifications therein that come within the spirit and scope of the appended claims.

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

1. The combination with two electrical devices, a conductor connecting them in series, a battery, a multiposition switch device provided with movable and relatively stationary contacts, a conductor extending from said first conductor to a stationary one of said switch contacts, a conductor extending from one of said electrical devices to a pair of said stationary contacts, a conductor extending from the other of said electrical devices to a movable one of said contacts and to one pole of said battery, a conductor extending from the other pole of said battery to a pair of said movable contacts, means for operating said switch device in one direction to cause a movable and a stationary one of said contacts to contact thereby closing a series circuit through said electrical devices, and means for moving the said switch device in another direction to cause

a pair of said movable contacts to contact with a pair of stationary contacts thereby closing a multiple energizing circuit through said electrical devices.

5 2. The combination with a pair of electrical devices, of a battery, a two position switch device provided with movable and relatively stationary springs, a conductor connected to a terminal of each of said electrical devices and connected to a stationary one of said springs, a conductor extending from one of said devices to one of said movable springs and to one pole of said battery, a third conductor extending from the other 5 of said electrical devices to a pair of said stationary springs, a fourth conductor extending from the other pole of said battery to a pair of movable ones of said springs, means for moving said switch device in one 20 direction thereby operating certain of said switch springs to close a series circuit for said devices, and means for moving said switch device in another direction for operating other of said springs thereby closing a multiple circuit for said devices.

3. In an electrical installation the combination with a pair of electrical devices, a two pole battery, a switch device provided with two operating positions, movable and 30 relatively stationary springs controllable by said switch device, an electrical conductor extending from one pole of said battery to a pair of said movable springs, a second conductor extending from a terminal of each 35 of said electrical devices to a stationary one of said springs, a third conductor extending from the other terminal of one of said electrical devices to a pair of stationary ones of said springs, a fourth electrical conductor 40 extending from a terminal of the other of said electrical devices to a movable one of said springs and to the other pole of said battery, means for moving said switch device to one of its operating positions to close 45 contact between a movable and stationary one of said springs thereby closing a series

circuit for said electrical devices, and means for moving said switch device to the other of its said operating positions for moving a pair of said movable springs into contact 50 with a pair of said stationary springs thereby closing a multiple energizing circuit for said electrical devices.

4. The combination with two electrical devices, of a conductor connecting said devices in series, movable and stationary switch contacts, connecting means connecting one end of said conductor to a stationary one of said switch contacts, connecting means connecting another terminal of one 60 of said electrical devices to a terminal of said battery and to a movable one of said switch contacts, connecting means connecting a terminal of the other of said electrical devices to a pair of said stationary contacts, connecting means connecting the other 65 terminal of said battery to a pair of said movable contacts, and means for operating said contacts to close either a series or multiple circuit for said electrical devices. 70

5. The combination of a pair of electrical devices, of a conductor connecting them in series, a battery, circuit connections connecting said conductor with a stationary switch contact, circuit connections for connecting a terminal of one of said devices to a terminal of said battery and to a movable switch contact, circuit connections for connecting a terminal of the other of said devices to a pair of stationary contacts, circuit 80 connections for connecting the other terminal of said battery to a pair of movable contacts, and means for moving said contacts to close either a series or a multiple circuit for said devices. 85

Signed by me at Chicago, county of Cook, and State of Illinois, in the presence of two witnesses.

WILLIAM REID.

Witnesses:

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M. R. ROCHFORD.