D. F. LEONE.

ELECTRIC LIGHTING SYSTEM FOR AUTOMOBILES.

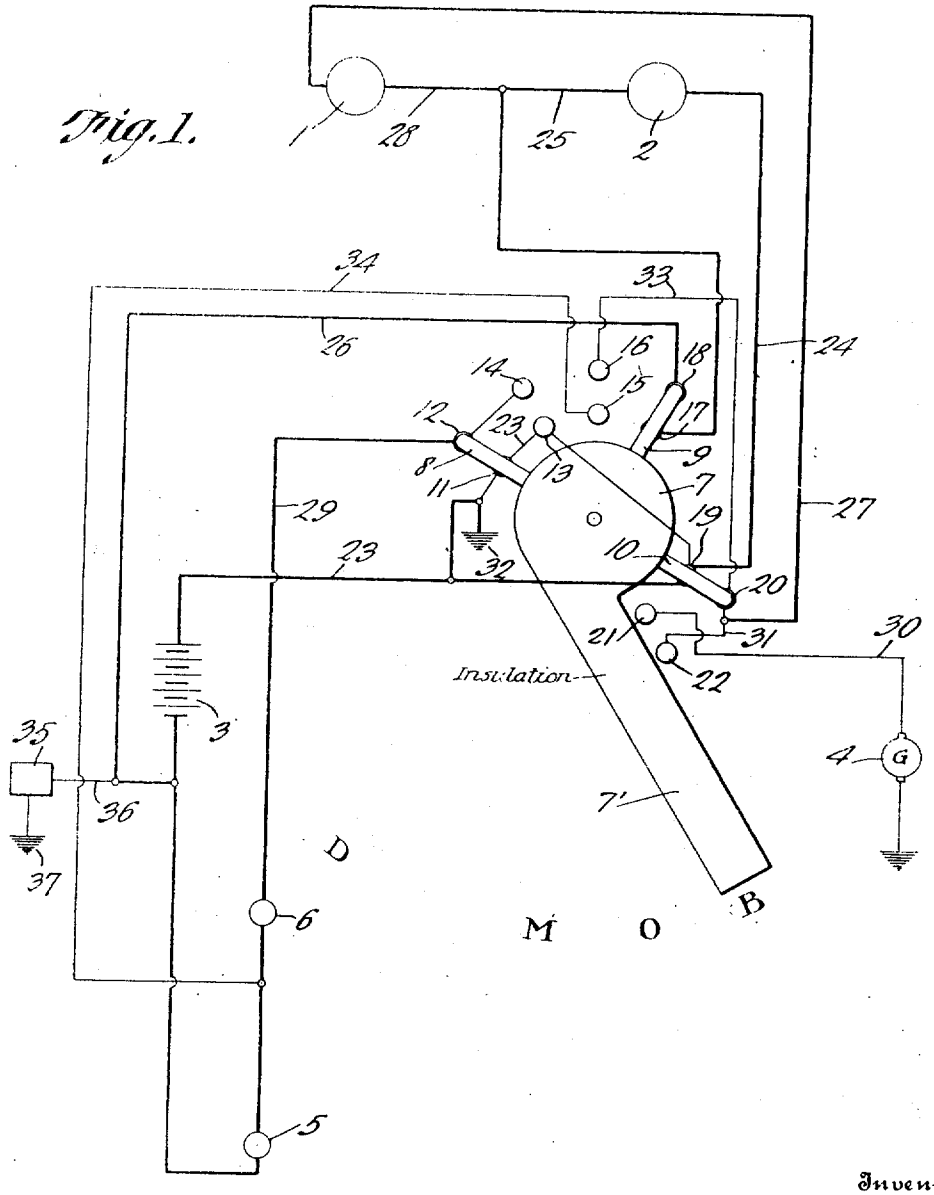
APPLICATION FILED MAY 17, 1917.

1,257,618.

Patented Feb. 26, 1918.

3 SHEETS—SHEET 1.

Fig. 1.



Witness

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3 SHEETS—SHEET 2.

Fig. 2.

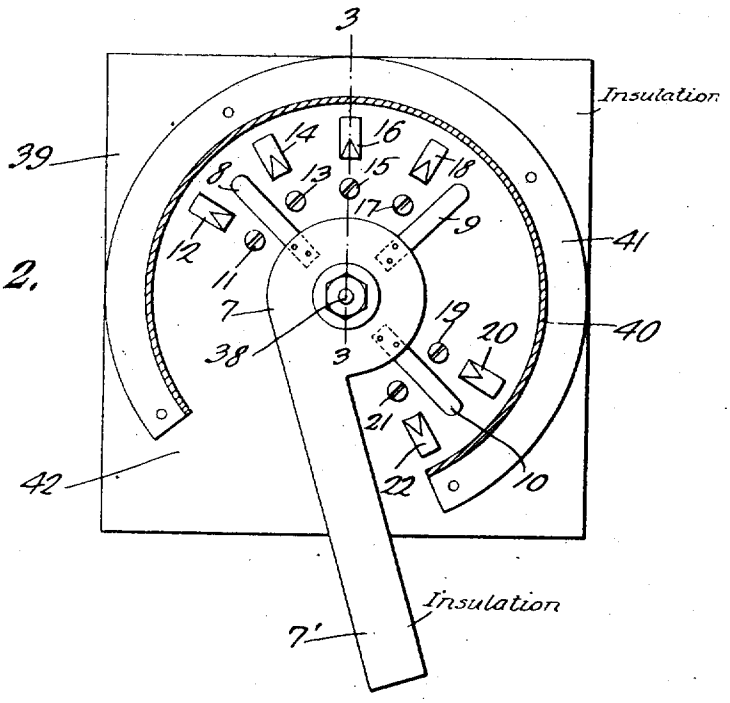


Fig. 3.

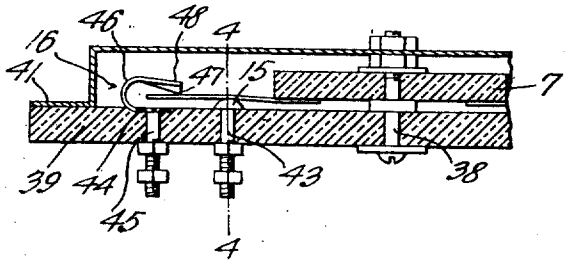
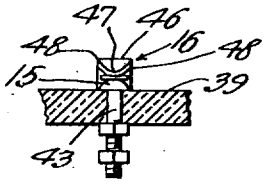


Fig. 4.



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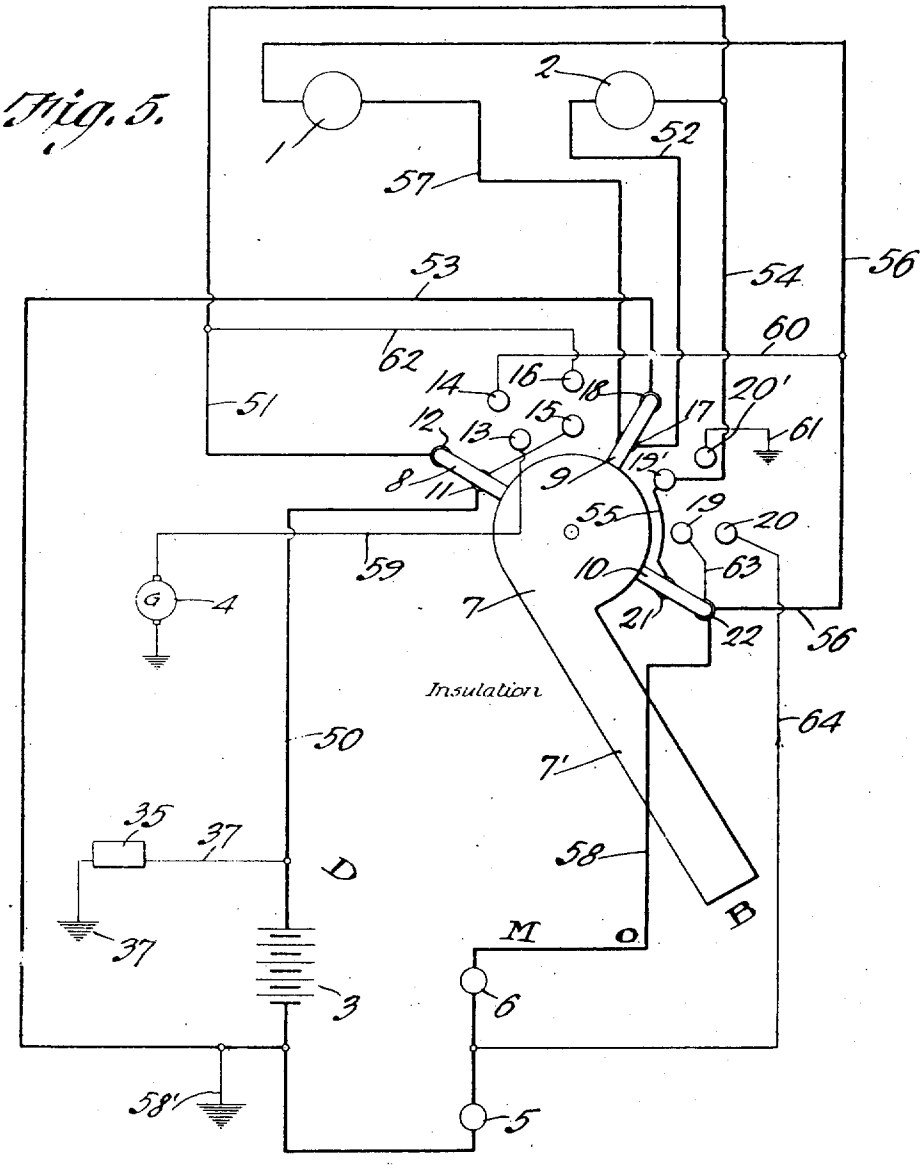
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3 SHEETS—SHEET 3.

Fig. 5.



Witness

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UNITED STATES PATENT OFFICE.

DOMNICK F. LEONE, OF SEATTLE, WASHINGTON.

ELECTRIC-LIGHTING SYSTEM FOR AUTOMOBILES.

1,257,618. Specification of Letters Patent. Patented Feb. 26, 1918.

Application filed May 17, 1917. Serial No. 169,313.

To all whom it may concern:

Be it known that I, DOMNICK F. LEONE, subject of the King of Italy, residing at Seattle, in the county of King and State of Washington, have invented a new and useful Electric-Lighting System for Automobiles, of which the following is a specification.

The present invention relates to an improved electric lighting system for automobiles, and aims to provide a novel and improved controller and electrical connections with the headlights or lamps, magneto or electric generator, battery and speedometer and tail lights or lamps, whereby the controller or switch in being moved to one position will result in the lamps being connected in multiple with the battery to be lighted by battery current, in being moved to another position connecting the headlights or front lamps in series with the magneto or generator, and in being moved to still another position connecting the lamps in series with the battery, whereby to dim the lights.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a diagrammatical view of the controller and electrical connections.

Fig. 2 is a plan view of the controller, the cover being shown in section.

Fig. 3 is a sectional detail on the line 3—3 of Fig. 2.

Fig. 4 is a sectional detail on the line 4—4 of Fig. 3.

Fig. 5 is a view similar to Fig. 1 showing certain modifications in the electrical connections.

Referring particularly to the system as shown in Fig. 1, the numerals 1 and 2 designate the headlights or lamps of the motor vehicle; 3, the battery; 4, the magneto or generator; 5, the tail light or lamp; and 6, the speedometer or dashlight or lamp.

The controller embodies an oscillatory switch 7 having the operating lever or handle 7′ movable to four different positions designated D, M, O, and B, representing the words, "dim," "magneto," "out," and "battery," respectively. The switch 7 has secured thereto three radially projecting leaf spring contacts 8, 9 and 10 for controlling the various circuits. The controller is provided around the switch with pairs of contacts 11—12, 13—14, 15—16, 17—18, 19—20 and 21—22 for the engagement of the leaf spring contacts or switch members 8, 9 and 10 as will hereinafter more fully appear. The contacts are so arranged that when the switch is moved to different positions, the switch members 8, 9 and 10 are properly engaged with the contacts, said switch members being out of engagement with the contacts when the switch handle 7′ is moved to position "O" as seen in Fig. 2. The wiring or electrical connections between the controller and the lamps, battery and magneto will be obvious from the diagram in Fig. 1, in connection with the following explanation of the circuits.

When the switch handle 7′ is moved to position "B" whereby the battery 3 supplies the current for the lamps, switch member 8 engages and bridges contacts 11 and 12, switch member 9 bridges contacts 17 and 18, and switch member 10 bridges contacts 19 and 20, thereby closing three circuits for connecting the lamps in parallel to distribute the current between them to brilliantly light the lamps in this position of the switch. One circuit includes the battery 3, conductor 23, contact 19, conductor 24, lamp 2, conductor 25, contact 17, switch member 9, contact 18, and conductor 26 to the other pole of the battery. Another circuit includes the battery 3, conductor 23, contact 19, switch 10, contact 20, conductor 27, lamp 1, conductor 28, contact 17, switch member 9, contact 18, and conductor 26. The other circuit includes the battery 3, conductor 23, contact 11, switch member 8, contact 12, and conductor 29 in which the lamps 5 and 6 are interposed. Lamps 1, 2 and 5—6 are therefore connected in parallel, the lamps 5 and 6 being in one shunt in series since they are of less resistance than the lamps 1 and 2. When the switch is returned to position "O" the circuits will be opened and the lamps extinguished.

To light the lamps from the magneto or generator 4, the switch handle 7′ is moved to position "M," in which event the switch member 8 bridges contacts 13 and 14, while

the switch member 10 bridges contacts 21 and 22, the switch member 9 being idle in this position of the switch. The magneto circuit includes said magneto 4, conductor 20, contact 21, switch member 10, contact 22, conductor 31, conductor 27, lamp 1, conductor 28, conductor 25, lamp 2, conductor 24, contact 19, conductor 23, which is grounded at 32, and the way of ground to the grounded terminal of the magneto. The lamps 1 and 2 are therefore connected in series with the magneto which is capable of supplying greater electrical motive force than the battery. The lamps 5 and 6 are still supplied with battery current in this position of the switch, the circuit including the battery 3, conductor 23, contact 13, switch member 8, contact 14, and conductor 29 including the lamps 5 and 6.

To dim the light, as when approaching or passing another vehicle, or pedestrians, the switch arm 7′ is moved to position "D" which brings the switch member 8 to engagement with contacts 15 and 16, while the other switch members 9 and 10 are free from the contacts. All of the lamps, with the exception of the speedometer or dash lamp 6, are now connected in series with the battery, whereby the resistance thus offered, reduces or dims the brilliancy of the lights. The circuit includes the battery 3, the conductor 23, contact 19, conductor 24, lamp 2, conductors 25 and 28, lamp 1, conductor 27, conductor 33, contact 17, switch member 8, contact 15, conductor 34 connected to conductor 29 between the lamps 5 and 6, and that portion of conductor 29 including the lamp 5 (the lamp 6 being cut out).

As shown in detail in Figs. 2, 3 and 4, the controller is of special construction, the switch 7 being of insulating material and having the handle 7′, while the metallic leaf springs or switch members 8, 9 and 10 are secured by rivets or other securing elements with the switch, preferably at the bottom thereof, and projecting radially. The switch 7 is pivoted by means of a bolt 38 or otherwise upon a slab or base 39 of insulating material, and is housed together with the contacts, by a cover or cap 40 having outturned flange 41 secured upon the base or slab. The cover 40 is provided at one side with an opening 42 through which the handle 7′ projects to be readily swung to the several positions above described. The contacts 11, 13, 15, 17, 19 and 21 are alike, and the others 12, 14, 16, 18, 20 and 22 are also alike, so that the description of the particular contacts 15 and 16 will apply to each pair. The contact 15, as seen in Figs. 3 and 4, comprises the rounded head of a bolt or binding post 43 engaged downwardly through the slab 39 for the attachment of the respective conductor, and the contact 16 embodies a strip 44 of resilient sheet metal having one terminal secured upon the slab by means of a bolt or binding post 45 engaging downwardly through the slab and preferably having a countersunk head engaging said strip. The strip is bent back upwardly, as at 46, and its free terminal 47 extends downwardly at an angle toward the contact 15 and switch, and the corners of the terminal 47 are bent upwardly, as at 48, to provide cams, said free terminal of the contact being of V-shape. Thus, when the resilient leaf spring or switch member 8 is moved over the rounded contact or button 15, the free end of the member 8 will be forced under the terminal 47 of the contact 16, thereby depressing the free end of the member 8, while the intermediate portion thereof is bowed upwardly by the contact 15, thus assuring of a good electrical connection between the contacts. The switch member 8 moves under the terminal 47 of the contact 16 over the lower or base terminal thereof. The contact 16 is thus of U-shape, with one terminal secured upon the slab, and its other terminal overhanging the same and bent into V-shape transversely thereof for the engagement of the switch member 8.

The spark coil 35 has one terminal connected, as at 36, to the conductors 26 and 29, and its other terminal is grounded, as at 37, whereby said spark coil is supplied with energy at any position of the controlling switch, to energize the spark plugs (not shown).

In the modification shown in Fig. 5, the lamps 5 and 6 are supplied with electrical energy from the magneto instead of the battery, when the switch is in position "M" which constitutes the chief difference. The controller has an additional pair of contacts 19′—20′ between contacts 17—18 and 19—20. When switch 7 is in position "B" the switch members 8, 9 and 10 will bridge the respective contacts 11—12, 17—18, and 21—22, thereby connecting the lamps in multiple with the battery. One circuit includes battery 3, conductor 50, contact 11, switch member 8, contact 12, conductor 51, lamp 2, conductor 52, contact 17, switch member 9, contact 18, and conductor 53. Another circuit includes battery 3, conductor 50, contact 11, switch member 8, contact 12, conductor 54, contact 19′, conductor 55, contact 21, switch member 10, contact 22, conductor 56, lamp 1, conductor 57, contact 17, switch member 9, contact 18, and conductor 53. A third circuit includes the same connections between the battery 33 and the contact 22, and from there includes a conductor 58 extending to battery 3 and having interposed therein the lamps 5 and 6.

When the switch is in position "M" switch members 8 and 9 bridge contacts 13—14, and 19′—20′, respectively, thus connecting the

magneto with the lamps in series. One circuit includes magneto 4, conductor 59, contact 13, switch member 8, contact 14, conductor 60, conductor 56, lamp 1, conductors 57 and 52, lamp 2, conductor 54, contact 19′, switch member 9, contact 20′ and by way of ground back to magneto 4. Another circuit includes the magneto 4, conductor 59, contact 13, switch member 8, contact 14, conductor 60, conductor 61, contact 22, and conductor 58 (including lamps 5 and 6), which conductor is grounded, as at 58′.

When the switch is moved to position "D", switch members 8 and 9 bridge contacts 15—16 and 19—20, respectively, connecting the battery in series with the lamps, for dimming the lights. The circuit includes the battery 3, conductor 50, contact 15, switch member 8, contact 16, conductor 62, conductor 51, lamp 2, conductors 52 and 57, lamp 1, conductor 56, contact 22, conductor 63, contact 19, switch member 9, contact 20, conductor 64, connected to conductor 58 between lamps 5 and 6, to cut out lamp 6, and portion of conductor 58 including lamp 5 to ground.

Having thus described the invention, what is claimed as new is:—

1. An electric lighting system for automobiles including in combination, a plurality of lamps, a battery, a magneto, a controller including a switch movable to "battery", "magneto", and "dimming" positions, and electrical connections between the controller and the lamps, magneto and battery, said connections being such that when the switch is moved to "battery" position the lamps are connected in multiple with the battery, when the switch is moved to "magneto" position, the lamps are connected in series with the magneto, and when the switch is moved to "dimming" position, the lamps are connected in series with the battery.

2. An electric lighting system for automobiles including in combination, a plurality of lamps, a magneto, a battery, a controller including a plurality of pairs of contacts and a switch having switch members for bridging said contacts at different positions of the switch, the switch being movable to "battery", "magneto", and "dimming" positions, and electrical connections between said contacts and the lamps, battery and magneto, said connections being such that when the switch is moved to "battery" position the lamps are connected in multiple with the battery, when the switch is moved to "magneto" position, the lamps are connected in series with the magneto, and when the switch is moved to "dimming" position, the lamps are connected in series with the battery.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

DOMNICK F. LEONE.

Witnesses:
B. W. PETTIT,
J. C. NORMAN.