A. H. FLEET.

CIRCUIT CONTROLLER.

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1,130,969.

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Fig. 1.

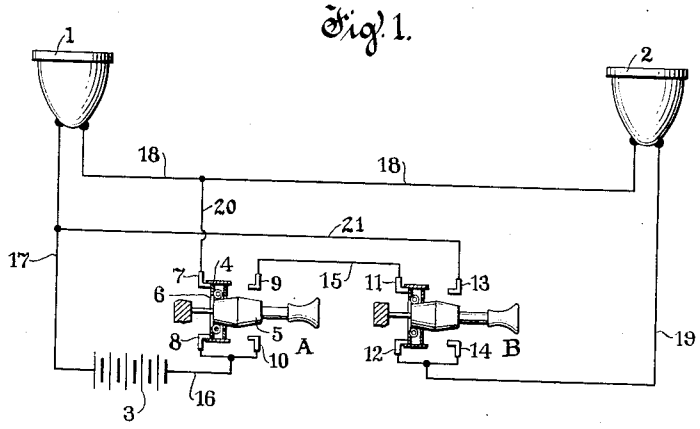
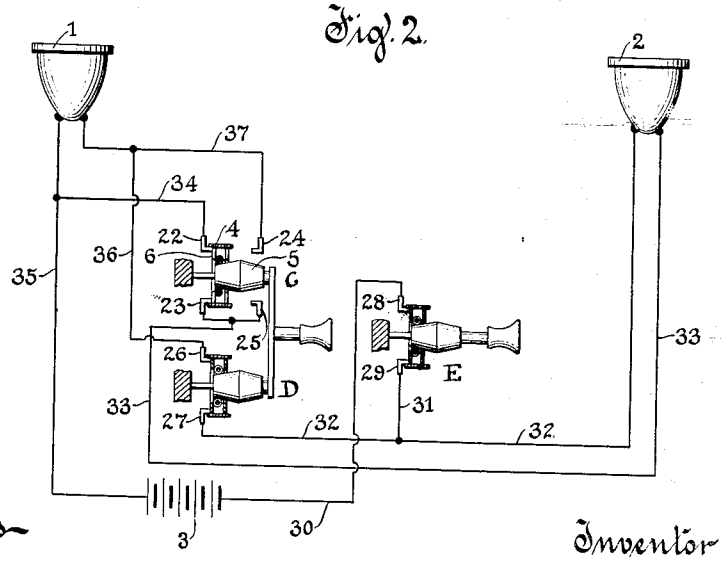


Fig. 2.



Witnesses—

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CIRCUIT-CONTROLLER.

1,130,969. Specification of Letters Patent. Patented Mar. 9, 1915.

Application filed November 20, 1913. Serial No. 802,135.

To all whom it may concern:

Be it known that I, ARTHUR H. FLEET, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Circuit-Controllers, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

This invention relates to electric circuit controllers and more particularly to such controllers especially adapted for use with automobile lighting systems.

One of the objects of the invention is to provide an improved controller capable of effecting circuit variations through a plurality of translating devices by circuit changes at a minimum number of contacts.

A further object is to provide an improved controller adapted to connect a plurality of translating devices either in series, parallel or "off" relation with a current source by a minimum number of controller positions.

Other objects will appear hereinafter.

In order that my invention may be more clearly understood, I have diagrammatically illustrated two embodiments thereof as applied to an automobile lighting system.

In the accompanying drawing, Figure 1 shows diagrammatically an automobile lighting system and circuit controller, the latter being shown schematically; and, Fig. 2 is a similar view of a modified form of controller and connections.

Two automobile head-lights 1 and 2 are arranged to receive current from a battery 3 or other suitable source. A circuit controller comprising a group of switches is connected in the lighting circuit to control the same. These switches are preferably of the type described and claimed in the patent of Charles J. Klein, No. 985,421 issued Feb. 28, 1911, each comprising a contactor 4 movable over a reciprocable cam 5 by means of a garter spring 6.

Referring to Fig. 1, the circuit controller includes two switches A and B located at any conveniently accessible position with respect to the automobile operator. Each of these switches is designed to bridge a pair of contacts in both of the extreme positions of the movable contactor 4. For this purpose switch A is provided with two pairs of stationary contacts 7, 8 and 9, 10 to be alternately connected by conductor 4 in its opposite extreme positions. Switch B similarly includes two pairs of contacts 11, 12 and 13, 14. One contact of both switches are electrically connected together. As shown, contact 9 of switch A is connected by conductor 15 with contact 11 of switch B. Contacts 8, 10, and contacts 12, 14 are also preferably intra-connected so that the switches A and B are of the two-way three-point type.

The wiring connections of the lighting system are as follows: One pole of battery 3 is connected by conductor 16 with contacts 8, 10 of switch A. The opposite pole of the battery leads by conductor 17 to the left hand head-light 1, thence by conductor 18 to the right hand head-light 2, along conductor 19 to contacts 12, 14 to switch B. Separate contact 7 of switch A is connected by conductor 20 to conductor 18 intermediate the lamps, while contact 13 of switch B is joined by conductor 21 to return wire 17 leading to the battery. The contacts 9 and 11 of the switches are connected by conductor 15, as described.

The circuit connections may be readily varied by operation of the switches A, B to connect the lamps in parallel for full lighting, in series for dim lighting, to light the left hand head-light only, or to cut out both lamps from circuit.

In Fig. 1 both switches are shown "pulled out." In this position the left hand head-light only is lighted. Current flows from the battery through conductor 16 across the contacts 8, 7 of switch A, through conductors 20 and 18 to lamp 1 and thence by return wire 17 to the other pole of the battery. If now switch B is operated to "in" position, lamp 2 is connected in parallel with lamp 1. The circuit connections of the latter remain as described, while the current divides at conductor 18 and one-half is supplied over the same through the right hand head-light, thence by conductor 19 through contacts 14, 13 of switch B and over conductor 21 to return wire 17 and battery 3. To connect the lamps in series, with an attendant dimming thereof for city driving, the positions of the switches are reversed; that is, switch A is moved to "in" position and switch B to "out" position. Circuit may then be traced from the battery through switch A, along conductor 15 through switch B, by conductors 19 and 18 through the

lamps to return wire 17 and the battery. Finally both lamps may be disconnected from circuit by pushing the two switches to their "in" position, circuit then being broken between contacts 7 and 8 of switch A and contacts 11 and 12 of switch B.

Fig. 2 shows an alternative circuit controller and wiring diagram adapted to effect three controls of the lamps, namely, both in series, both in parallel, and both off. In this form, the controller comprises three switches C, D and E. Switch C is of the two-way type, above described, and is provided with two pairs of contacts 22, 23 and 24, 25; contacts 23 and 25 being electrically connected. Switches D and E are each provided with a single pair of contacts 26, 27 and 28, 29 respectively, circuit being made and broken by the latter switches in alternate positions of their movable contactors. In practice, switches C and D are preferably designed to be simultaneously actuated, for example, by a single push-button, as shown. All of the switches are illustrated in their "out" positions. In this relation the lamps are connected in parallel, current proceeding from the battery along conductor 30 through switch E, along conductor 31 to conductor 32, where it divides. One half of the current then flows to the right hand head-light and from thence by conductor 33 through contacts 23, 22 of switch C, over conductor 34 to return wire 35 leading to the opposite pole of the battery. The other half of the current passes along conductor 32 in the opposite direction, through switch D, by conductor 36 to the left hand head-light, to return wire 35 and the battery. Operation of the switches C and D to "in" position connects the lamps in series. Circuit may then be traced from the battery by conductor 30 through switch E, by conductors 31 and 32 to the right hand head-light, thence by conductor 33 through contacts 25 and 24 of switch C and conductor 37 to the left-hand head-light and to the battery by return wire 35. Both lamps may be cut out of circuit by operation of the switch E to "in" position, irrespective of the position of the switches C and D. In either case, the complete circuit is broken between the contacts 28 and 29.

In automobile lighting it is very desirable to connect the lamps either in series or parallel with the current source. By my improved circuit controller I have accomplished this result, among others, in a very simple manner, requiring the use of a minimum number of switches, easily operated, and visually indicating by their positions the circuit connections established. Furthermore, the wiring connections are exceedingly simple, not likely to get out of order, and in case of disorder, easily traced.

What I claim as new and desire to secure by Letters Patent is:

1. In an automobile lighting system, the combination with lamps and a source of current, of a circuit controller therefor having two independently movable push-and-pull actuating members and contactors selectively operable thereby for establishing either series or parallel lamp connections and for controlling the continuity of circuit from said source to said lamps.

2. In combination, a source of current, a plurality of translating devices, and a circuit-controller therefor having four pairs of contacts and having means to electrically connect said contacts in different combinations, said means being operable by two independently movable operating members to establish either series or parallel circuit connections for said translating devices and also to disconnect the latter from circuit.

3. In combination, a battery, a pair of lamps, and two two-way switches having four make and break points and being operable in predetermined relations to connect said points in pairs only for establishing an independent circuit for one of said lamps, or either series or parallel circuit for both, and further to disconnect both of said lamps from circuit.

4. In an electric lighting system, in combination, a battery, a pair of lamps, and two independently operable switches, each having two pairs of contacts to be alternately connected in opposite extreme positions of such switch whereby four variations in the circuit connections may be effected in different combinations of positions of said switches, one contact of each switch being interconnected with another contact of said switch, a third contact of each of said switches being electrically connected together, and the fourth contacts of said switches being respectively connected to said lamps intermediate the same and to one pole of said battery, and said interconnected contacts of said switches being respectively connected to the other pole of said battery and one of said lamps, the other of said lamps being connected to said first-mentioned pole of said battery.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

ARTHUR H. FLEET.

Witnesses:
S. A. WATSON,
F. H. HUBBARD.