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ELECTRIC LIGHTING SYSTEM

Filed July 12, 1946

Fig. 1.

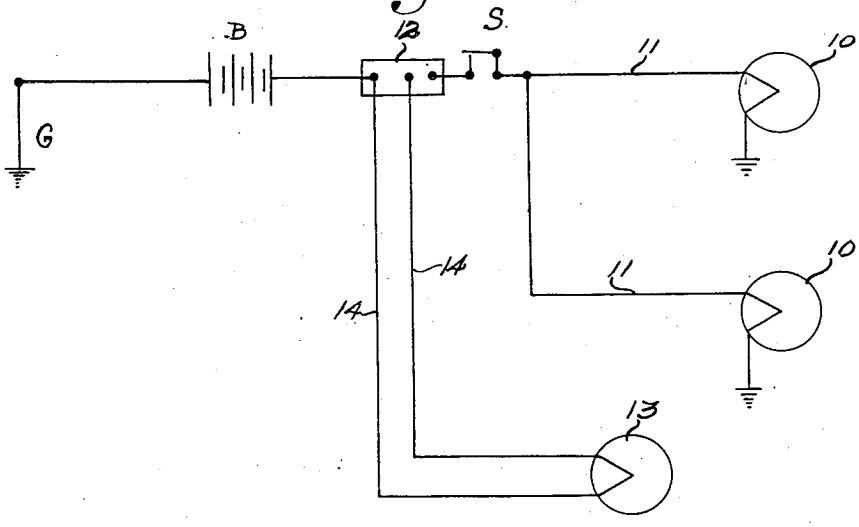
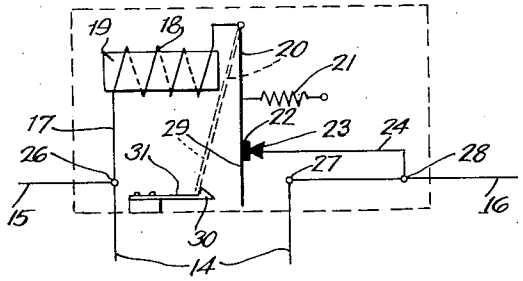


Fig. 2.



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ELECTRIC LIGHTING SYSTEM

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1 Claim. (Cl. 315—83)

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The present invention relates to electric lighting systems and is more particularly concerned with an auxiliary light circuit in association with the main circuit to operate in certain emergencies.

The primary object of the invention is to provide a system of circuits for lighting purposes wherein an auxiliary lighting circuit is associated with means in the main circuit to automatically shut off the current when a technical "short" in the main circuit puts out the regular lights and shunts the current to a reserve light in the auxiliary circuit.

Another object of the invention is to provide a simple and inexpensive adjunct of the character referred to which can be readily connected to the said automatic shut-off means and operates instantaneously when a technical "short" in the main light circuit puts out the lighting device or devices energized thereby.

With the foregoing and other objects and advantages in view the invention consists of the novel construction, arrangement and combinatio of parts hereinafter described and claimed.

In the accompanying drawing illustrating the invention, Figure 1 is a diagrammatic view showing the auxiliary light circuit in its relation to the main lighting circuit.

Figure 2 is an enlarged diagrammatic view of a detail of Figure 1.

Like reference characters, as used in the description and drawing, designate the same parts of construction.

All too frequently the driver of a motor vehicle is confronted with a short circuit affecting his headlights and the fog light also, if there is one on the car. If running at night a stop by the roadside to make repairs is necessitated. Such stops may be for long periods and not infrequently the car may not proceed because the short cannot be remedied. In such an event an emergency light would be very desirable, especially one which is already installed and automatically effective.

Such an auxiliary light is herein provided for and it may be installed on any motor vehicle ready for use and automatically operative when a technical "short" occurs and the headlights are thereby caused to go out. This device allows the driver to continue on his way, regardless of the failure of his main lights.

Referring now to the schematic view of the drawing, 10 designates two grounded headlights of the motor vehicle and 11 the circuit wiring to a battery B which is grounded, as at G. In said circuit is a conventional control switch S and a circuit-breaker 12.

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If the vehicle carries a fog lamp it will be wired in circuit with said headlights according to common practice. While one is not here included it will be understood that the present invention is applicable in either case.

The system of lighting herein provided for comprises an auxiliary lamp 13 preferably designed for use as a fog light, with circuit wires 14 having suitable terminals for attachment to a circuit-breaker or a fuse block whichever is available. The lamp 13 is preferably clamped on the front bumper of the vehicle the left side thereof being more useful and the two wires 14 are run through the grill and thence to the frame and over to the nre wall or kick board. To facilitate installation, a suitable aperture is drilled in the fire wall and the wires are passed through to the inside of the vehicle under the dash. When thus installed the wires of this auxiliary circuit are connected to two contacts of the circuit-breaker 12 as indicated in the drawing. If there is no circuit-breaker on the car undoubtedly there will be a fuse block and the wires 14 can be connected to the terminals of the fuse jack.

Figure 2 discloses a suitable form of circuit breaker which comprises a binding post 26 operatively connected to the lead 15 from the battery B. A lead 17 from the post 26 connects to the coil 18 of a magnet 19 having a movable armature 20. A spring 21 loads the armature for movement away from the core 19 of the magnet. A contact 22 on the end of the armature 20 normally contacts a stationary contact 23 on a lead 24 operatively connected to a second binding post 28. A lead 16 connects the binding post 28 to the switch S. A third binding post 27 is connected by a lead 25 to the binding post 28. The binding posts 26 and 27 are connected respectively to the leads 14 of the auxiliary light 13. In the operation of the circuit breaker of Figure 2, the resistance in the coil 18 is normally insufficient to overcome the resistance of the spring 21, whereby the armature 20, together with its contact 22, maintains a circuit through the stationary contact 23. However, upon the occurrence of an overload in the lead 16 or 11, the core 19 of the magnet is energized sufficiently to draw the armature 20 thereto, whereby to break the circuit to the lead 16. When this occurs, a free end 29 of the armature 20 is engaged over the dog 30 of any suitable lockout device 31, whereby the armature is maintained with its contact 22 out of engagement with the stationary contact 23. However, current from the battery B now flows through the lead 15, the left-hand lead 14, the light 13, the right-hand lead

14, lead 25 to the main lead 16 and grounds at the point where the ground fault has occurred.

It will be understood that said auxiliary circuit is not designed to function on an open circuit. It only functions in case of a technical "short" in the main circuit, as contradistinguished from a mere blow out of a lamp because of a burnt filament. Headlights are usually grounded and when a lamp burns out the "ground" is not necessarily lost.

With occurrence of a short circuit, as commonly referred to in the art and usually the result of a "short" in the control switch, a break in one of the circuit wires or worn insulation, current to the lamps fails to pass the point of the "short." In such an event, with this auxiliary lamp wired to the circuit-breaker or fuse block, as hereinbefore explained, the latter automatically shunts the current in the main circuit to the auxiliary circuit and the lamp therein instantaneously comes on, the "short" in the main circuit providing the necessary "ground" for same.

The components required for the herein described installation are few and simple and can be manufactured at a low cost. They can be readily attached to any motor vehicle or can be compactly packaged for carriage in the vehicle as a safeguard against accidents due to driving without headlights in operation at night. The aforesaid installation may also be employed for lighting circuits where used for other than automobile lamps.

As different embodiments may be made of this inventive concept and modifications may be made in the embodiment hereinbefore shown and described, it will be understood that the matter herein is to be interpreted as illustrative merely, and not in a limiting sense.

What we claim is:

In a grounded electric circuit, a circuit breaker, a main energy-consuming device in series therewith and connected to ground, said circuit breaker being adapted to break said circuit upon the occurrence of a ground fault between said device and said circuit breaker, an ungrounded auxiliary energy-consuming device, means connecting said second device and said circuit breaker in parallel, and said second device being adapted to be grounded upon the occurrence of the ground fault between said circuit breaker and said first device.

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