

Nov. 5, 1935.

J. EHRETS

2,019,956

AUTOMATIC LIGHT SIGNAL

Filed July 28, 1932

2 Sheets-Sheet 1

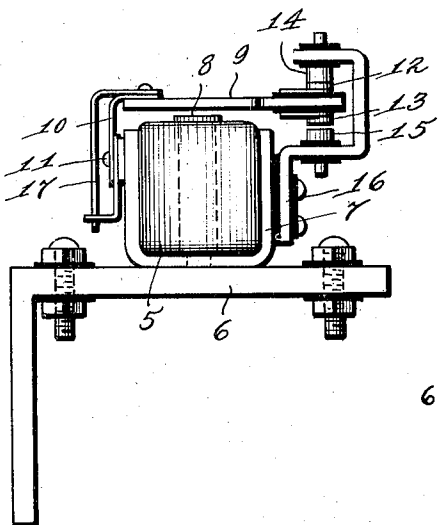


Fig. 1.

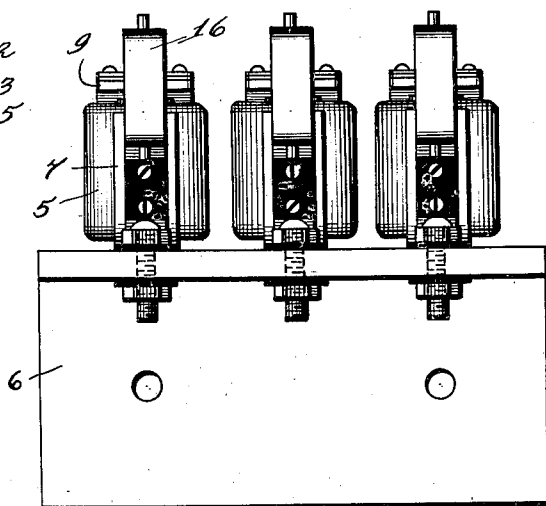


Fig. 2.

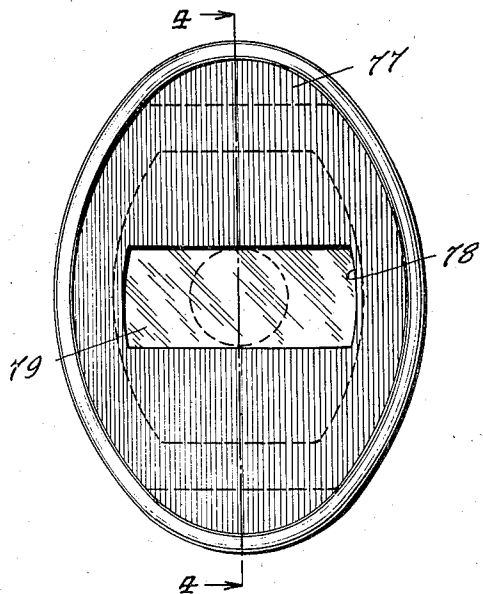


Fig. 3.

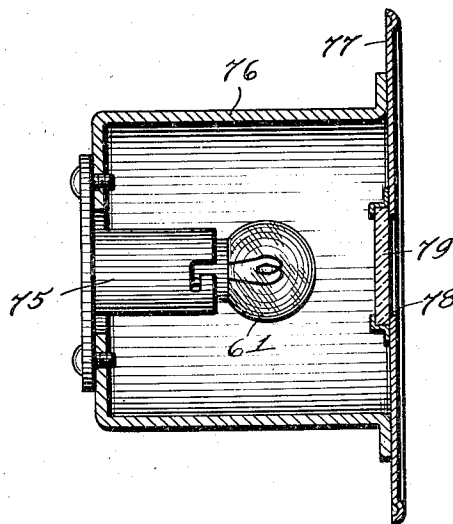


Fig. 4.

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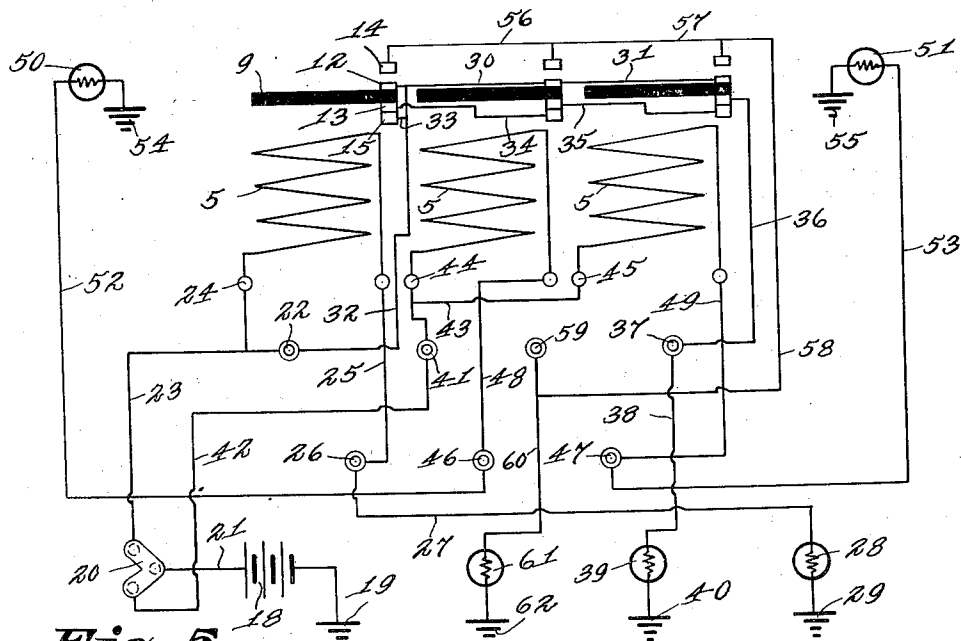


Fig. 5.

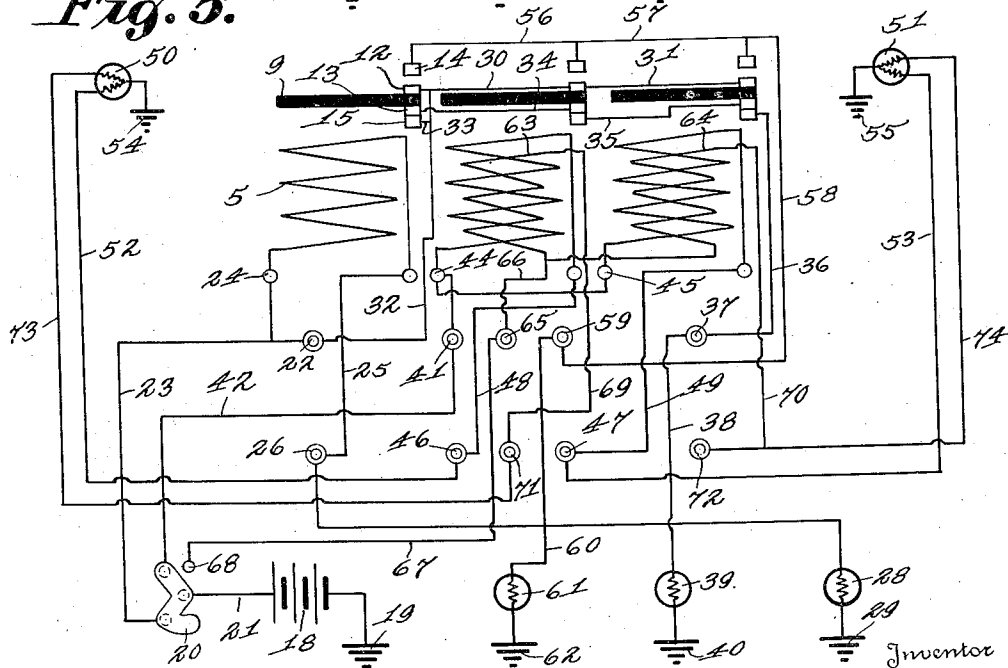


Fig. 6.

Joseph Ehrets

UNITED STATES PATENT OFFICE

2,019,956

AUTOMATIC LIGHT SIGNAL

Joseph Ehrets, Coplay, Pa.

Application July 28, 1932, Serial No. 625,510

1 Claim. (Cl. 177—311)

My invention relates to a system for indicating defective lights in the lighting systems of automobiles and the like.

The primary object of the invention is to provide an automatic system for indicating to the driver of an automobile when one or more of the lights of the lighting system become defective.

A further object of the invention is to provide a system of the above-mentioned character which is simple and durable in construction, reliable and efficient in operation and inexpensive to manufacture.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this specification and in which like numerals are employed to designate like parts throughout the same,

Fig. 1 is a side elevation view of one of the circuit breakers, employed in the system,

Fig. 2 is a front elevation view of the circuit breakers,

Fig. 3 is a front view of the signal light,

Fig. 4 is a vertical sectional view taken on lines 4—4 of Fig. 3,

Fig. 5 is a diagram of the electric circuit for lamps having single filaments, and,

Fig. 6 is a diagram of the electric circuit for lamps having double filaments.

In the drawings, wherein for the purpose of illustration, I have shown a preferred embodiment of my invention, the numeral 5 denotes a series of electro-magnets mounted on a supporting plate 6 and each of the magnets includes a U-shaped frame 7, a central core 8 attached to the frame, an armature 9 extending across the top of the magnet, supported at one end by the flexible hinge plate 10 attached to the side of the frame 7, as at 11, and the free end of the armature is provided on opposite sides with contacts 12 and 13, adapted to alternately engage the stationary contacts 14 and 15, supported by the bracket 16 attached to the side of the frame 7. A leaf spring 17 attached to the plate 10 and armature 9, normally holds the contact 12 of the armature in engagement with the stationary contact 14.

Referring to Fig. 5, the circuit for a lighting system having single filament lamps consists of a battery 18 which is grounded at 19 and has connection with the conventional switch 20, through the wire 21. One contact of the switch has connection with the terminal 22 by the wire 23 and the wire 23 has connection with the coil

of one of the magnets, as at 24. The opposite end of the coil, through the wire 25 has connection with the terminal 26, which through the wire 27 has connection with the tail-light 28, which is grounded at 29. The contacts 12 of each armature are connected in series by the wires 30 and 31, which in turn are connected to the terminal 22, through the wire 32. The wire 32 has connection with the stationary contact 15, of one magnet, through the wire 33, and the contacts 13 of all the magnets are connected in series by wires 34 and 35 and through wire 36 have connection with the terminal 37, which through wire 38 has connection with the instrument board light 39, grounded as at 40. The other contact of the switch 20 is connected to the terminal 41, through the wire 42 and the terminal 41, through wire 43 has connection with the magnet coils, as at 44 and 45 respectively. The opposite ends of the coils have connection with the terminals 46 and 47, through wires 48 and 49, and the terminals are respectively connected to the headlights 50 and 51, through wires 52 and 53, the headlights each being grounded, as at 54 and 55. The stationary contacts 14 of the magnets are connected in series by wires 56 and 57 and through wire 58 have connection with terminal 59, which through wire 60 has connection with the signal light 61, grounded, as at 62.

In Fig. 6, a circuit is shown for lighting systems using double filament lamps and this circuit is the same as the other circuit, except that the electro-magnets in circuit with the headlights 50 and 51 are provided with second windings 63 and 64, which have one of their ends connected to the terminal 65, through the wire 66 and the terminal through wire 67 has connection with the contact 68 of the switch 20. The other ends of the second windings of the coils, through wires 69 and 70, have connection with terminals 71 and 72, and these terminals have connection with the second filament of the lamps 50 and 51, through wires 73 and 74.

As more clearly shown in Figs. 3 and 4, the signal light 61 is mounted in a socket 75 disposed within a box-like casing 76 and mounted over the end of the casing is a cover plate 77 having a window 78 in the center thereof which is covered by a glass pane 79. The casing 76 is adapted to be mounted in the dash-board of the automobile, where it may be readily seen by the driver.

In operation, upon closing the switch 20, the current flows through the magnets 5 and circuits leading to the head-lights 50, 51, tail-light 28

and instrument light 39. Should any of these lights become defective, one of the magnets will be de-energized, thereby breaking the circuit, and the armature 9 of the magnet de-energized, under the action of the spring 17, will cause the contact 12 to engage the contact 14, thereby completing the circuit to the signal light 61, which will indicate to the driver of the automobile that one of the lights has gone out. If for any reason the signal light was also burned out, the driver would know of the defect in the other lights, by reason of the instrument board light 39, going out each time there is a defect in any of the other lights. When the defective light has been replaced with a good light the circuit will be completed and the magnets again energized, which attract the armatures and break the circuit leading to the signal light.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same and that certain changes in the shape, size and arrangement of the parts may be made without departing from the spirit of the invention or the scope of the subjoined claim.

Having thus described my invention, I claim:—

A warning signal system for defective headlights comprising in combination with separate head and tail lights arranged in independent circuits, an electro-magnet interposed in each of the circuits of said lights, armatures for each of said magnets, a signal having an independent circuit, a plurality of circuit closers interposed in said signal circuit, each including a stationary contact and a movable contact carried on the back side of said armatures, said stationary and movable contacts being connected in parallel, whereby said signal circuit is closed upon de-energizing of any of said magnets, a light having an independent circuit, a plurality of circuit breakers interposed in said light circuit, each including a stationary contact and a movable contact carried by the front side of said armatures, said stationary and movable contacts of said circuit breakers being connected in series, whereby said circuit is opened when any of said magnets are de-energized and a common source of current for said circuits.

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