

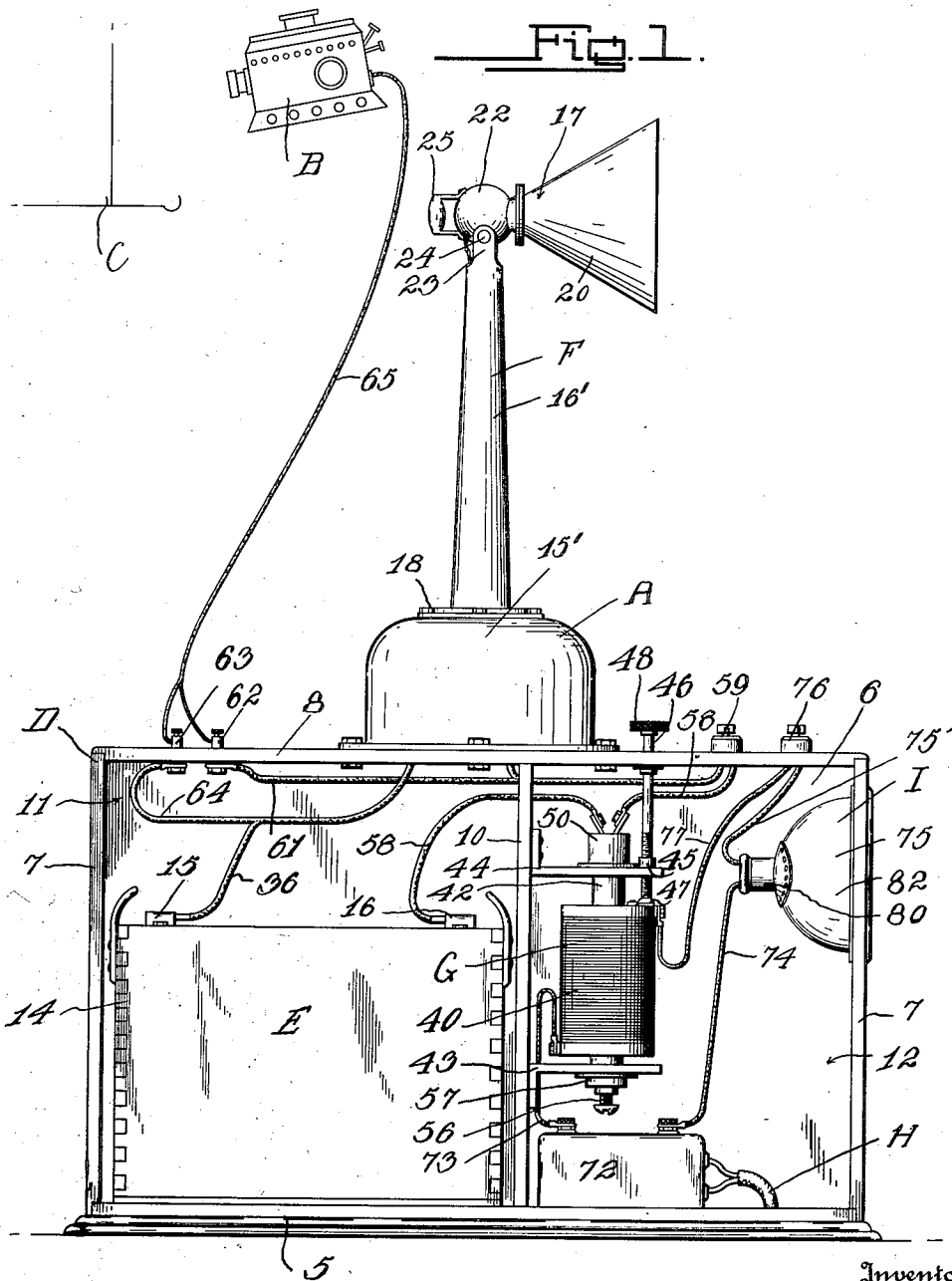
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1,511,097

O. W. ALTHOFF ET AL
EMERGENCY LIGHTING SYSTEM

Filed June 28, 1921

3 Sheets-Sheet 1



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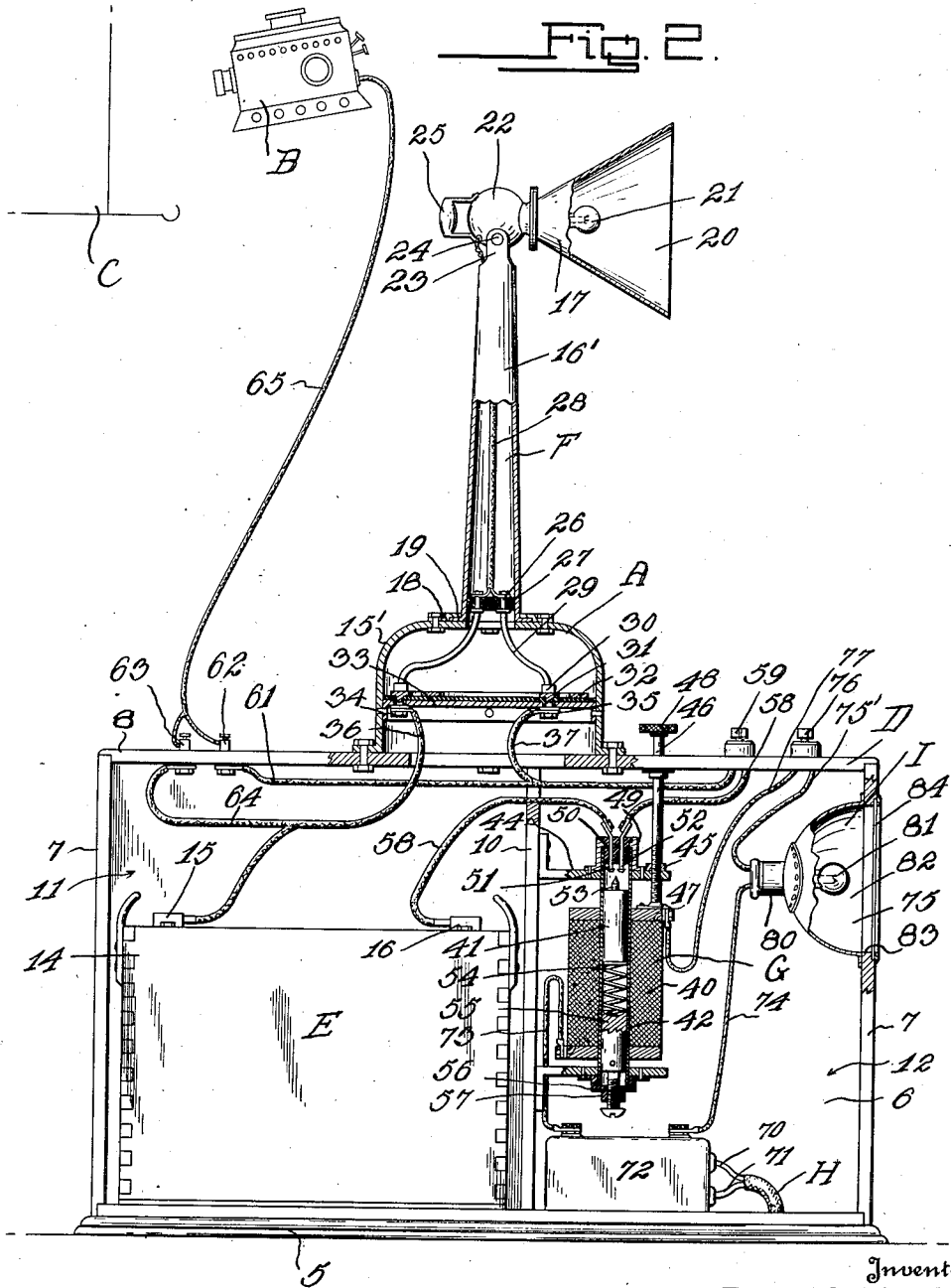
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Fig. 3.

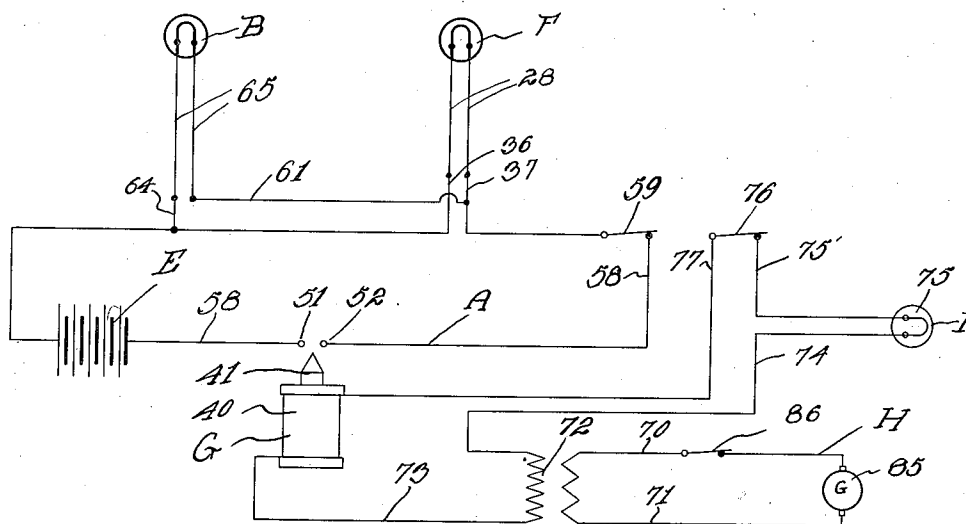
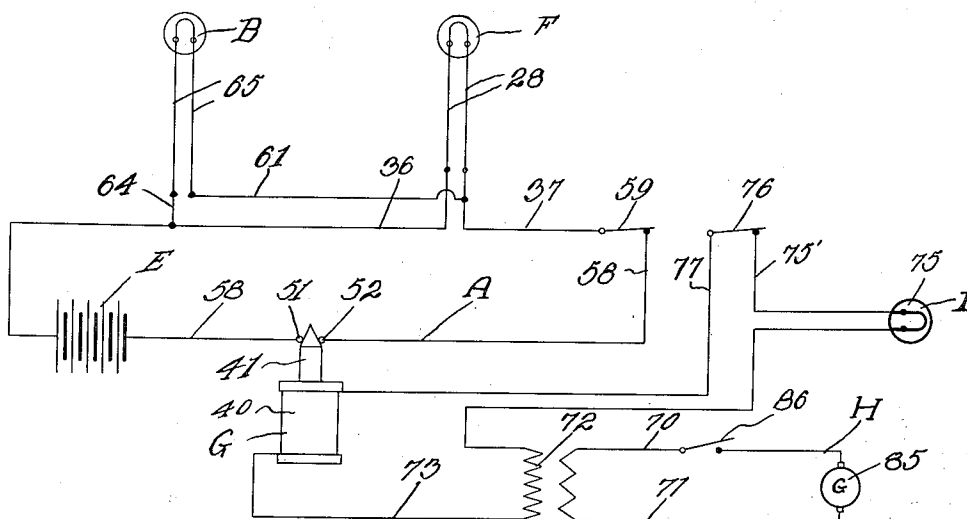


Fig. 4.



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UNITED STATES PATENT OFFICE.

OSCAR W. ALTHOFF AND LEONARD S. BALUTA, OF BERWICK, PENNSYLVANIA.

EMERGENCY LIGHTING SYSTEM.

Application filed June 28, 1921. Serial No. 481,080.

To all whom it may concern:

Be it known that we, OSCAR W. ALTHOFF and LEONARD S. BALUTA, citizens of the United States, residing at Berwick, in the county of Columbia and State of Pennsylvania, have invented certain new and useful Improvements in Emergency Lighting Systems, of which the following is a specification.

This invention relates to lighting systems, and the primary object of the invention is to provide an improved emergency lighting system for use in connection with the ordinary light systems of theaters, churches, hospitals, street cars and the like, or any place or building, where crowds are wont to congregate at night, and who would be liable to become uneasy if the lights suddenly fail, the emergency light system being so arranged as to permit the same to be switched on when the ordinary light system fails.

A further object of the invention is to provide a portable self contained auxiliary light system, which is adapted to be automatically brought into use when the ordinary light system of a building or other establishment should fail to function. through any cause whatsoever, the auxiliary light system being constructed as to be capable of use for numerous different purposes, and which embodies a main lamp, whose rays can be trained at any desired point, and which lighting system can have incorporated in the circuit thereof, any suitable type of picture projecting machine, so that any desirable matter, capable of quieting a multitude of people can be flashed upon a screen, which can be located at an advantageous place.

A further object of the invention is to provide a portable self contained subsidiary lighting system, which is adapted to be connected with the ordinary lighting system, and which includes a small signal or pilot lamp, which is normally in circuit and illuminated when the ordinary lighting circuit is functioning properly, in order to indicate that the auxiliary lighting system is properly connected, the auxiliary light system embodying a novel form of automatic switch, which is adapted to close the circuit of the auxiliary light system, when the ordinary circuit becomes inoperative through any cause.

A further object of the invention is to

provide a novel means for adjusting the novel switch structure, so that the circuit can be closed thereby, when the circuit of the ordinary light system falls to a predetermined low voltage.

A still further object of the invention is to provide an improved self-contained emergency light system of the above character, which will be durable, efficient, and positive in use, one that will be simple and easy to manufacture, one which can be placed upon the market at a reasonable cost, and which can be readily incorporated with any type of ordinary lighting system.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described, claimed and illustrated, in the accompanying drawings, forming a part of this specification, and in which drawings,

Figure 1 is a side elevation of the improved auxiliary lighting systems, showing one of the side walls of the casing removed.

Figure 2 is a similar view, showing parts of the device in section.

Figure 3 is a diagrammatic view of the wiring circuit of the improved auxiliary lighting system in connection with the ordinary wiring circuit, showing the arrangement and operation of the various parts of the device, when the ordinary lighting system is functioning properly.

Figure 4 is a similar view showing the position of the various parts, and the operation thereof when the ordinary lighting circuit is not functioning properly, or when the main circuit is open.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter A indicates the improved auxiliary lighting device; B, a stereopticon or other picture projecting machine; and C, a screen on which the matter from the machine B is adapted to be projected.

The improved auxiliary lighting device A includes a casing D; a source of electrical energy E; a lighting device F; a novel automatic circuit closing device G; for connecting the lighting device F with the source of electrical energy E, when the ordinary light circuit designated by the letter H is not functioning properly. The improved auxiliary lighting device A also includes the pilot or signal light I for indicating that

the improved lighting device A is functioning properly in connection with the main lighting circuit H.

The casing D can be constructed in any preferred manner, and of any preferred material, and as shown includes the lower wall 5, which also constitutes a base plate. The lower wall or base plate 5 has secured thereto in any preferred manner, the longitudinally extending side walls 6, the transverse end walls 7. The upper ends of the side walls 6 and the end walls 7 are closed by a top wall 8, which can be in the nature of a removable closure, if so desired, so that parts of the device can be readily exposed, or if so desired, one of the side walls 6 may be formed removable, as shown in Figures 1 and 2 of the drawings.

If so desired, the casing D may have arranged therein a transverse partition 10, which divides the casing into a compartment 11, and a compartment 12. The compartment 11 is adapted to receive and contain the source of electrical energy E, while the compartment 12 is adapted to contain the operating parts of the device.

The source of electrical energy E may be of any preferred type, best suited for the character of the work to be performed by the auxiliary device, and by way of illustration, the source of electrical energy has been shown to be a storage battery 14. This battery 14 can be of any preferred size or make, and includes the usual terminal or binding posts 15 and 16. The upper wall 8 of the casing D supports the main light F. This light F may be arranged at any preferred point on the casing, and by way of illustration has been shown at the central point thereof and includes a housing 15', a supporting standard or post 16', and the lamp proper 17. The case 15' is of a hollow shape, and forms means for housing the various parts of the electrical connections for the lamp. The upper end of the casing or base 15' is provided with a guide ring 18, which rotatably receives the outwardly extending right angular flange 19 formed on the lower end of the standard or post 16', which is also of hollow formation, and which receives the electric wires, which will be hereinafter more fully described. By this construction, it can be seen that the post or standard 16' can be rotated in any desired direction so as to permit the rays of light from the lamp 17 to be trained at the desired place. The lamp 17 proper, includes the usual reflector 20, for the reception of an incandescent bulb 21. The inner end of the reflector 20 has attached thereto a ball base 22, which is adapted to receive on its opposite sides the ears 23 formed on the upper terminal of the post or standard 16'. The ball base 22 is connected to the

ears 23 by a suitable pivot pin 24, which permits the lamp to be moved up or down so as to facilitate the training of the rays of light from the lamp at the desired point. If so desired this ball base 22 may be provided with a suitable handle 25 in order to facilitate the manipulation thereof. The lower end of the post or standard 16' has secured thereto an insulating plate 26, which supports a pair of binding posts 27. These binding posts 27 have secured thereto the electric wires 28, which are extended through the post 16' and are connected to the terminals of the socket for the incandescent bulb 21. The binding posts 27 have connected thereto the depending arms 29, which carry suitable contact points 30, which are adapted to engage respectively, inner and outer concentric contact rings 31 and 32. These rings 31 and 32 are connected to an insulating plate 33, which is in turn connected to the inner surface of the hollow base or casing 15' of the lamp F. These rings 31 and 32 are also provided with depending binding posts 34 and 35, which have connected thereto electric wires 36 and 37.

The improved automatic switch G for closing the circuit through the lamp F when the main circuit H is rendered inoperative through any cause, includes an electro-magnet 40. This electro-magnet 40 is provided with a sliding core or armature 41, and as shown the magnet is mounted for sliding movement upon a shell 42, which is carried by a lower bracket 43. This bracket may be secured to the transverse partition 10. A second bracket 44 is arranged above the electro-magnet 40, and carries a nut 45, in which is threaded a rod 46. This rod 46 has its lower end swivelly mounted in a suitable head 47 carried by the upper end of the magnet. This rod 46 is extended through the top wall 8 of the casing D and is provided with a suitable head 48 to facilitate the turning thereof. By turning the rod 46, it can be seen that the same will be threaded through the nut 45, thus raising and lowering the electro-magnet on the guide shell 42. The upper bracket 44 carries a suitable sleeve 49, which has secured therein an insulating block 50. This insulating block 50 is provided with a pair of spaced contact points 51 and 52. These points are extended into the guide shell 42. The core or armature 41 of the electro magnet is provided with a bridge piece 53, which is adapted to bridge the gap between the two contacts 51 and 52, when the armature or core is in its raised position.

The core or armature 41 is normally urged upwardly in the guide shell 42 toward the spaced contacts 51 and 52 by means of an expansion spring 54. The lower end of this spring 54 engages a sliding block 55. The

lower end of this block 55 bears against an adjustable screw 56, which is threaded into a cap 57 carried by the lower bracket 43. It can be seen that by adjusting the screw 56, the block 55 can be raised or lowered in order to tension the spring 54. The storage battery 14 has its terminal 15 connected by means of the electric wire 36, to the binding post 34, and has its other terminal 16 electrically connected by means of a wire 58 with the contact 51. The other contact 52 has electrically connected thereto a wire 58'. This wire 58' leads to one terminal of a switch 59, which is disposed exteriorly of the casing, and carried by the top wall 8. The other terminal of the switch 59 has electrically connected thereto the wire 37, which is connected to the binding post 35. It thus can be seen that when the circuit is broken through the electro-magnet 40, the armature or core 41 will be projected upwardly by means of the spring 54, which will bridge the gap between the contacts 51 and 52, and thus close the circuit through the incandescent bulb 21. The wire 37 has electrically connected thereto a wire 61, which is electrically connected with a binding post 62, which is carried by the upper wall 8 of the casing D. The upper wall 8 of the casing D adjacent to the binding post 52 is provided with a binding post 63, and this binding post 63 has connected thereto an electric wire 64, which is electrically connected with the wire 36. The binding posts 62 and 63 have in turn electrically connected thereto suitable electric wires 65, which are extended to the stereopticon or other picture projecting machine B.

Thus, it also can be seen that when the circuit is closed by the electro-magnet, that the stereopticon or picture projecting machine B will also be brought into operation. This picture machine B can be of any preferred type or make, and if so desired can be the ordinary motion picture machine, when the improved device is used in motion picture theatres. The machine B is so trained so as to throw its rays of light on the screen C, which can be of any preferred character, and it is desirable that a suitable sign be flashed on the screen by the machine, in order to allay any fear that the audience may have when the theatre lights go out. The sign flashed on the screen may read "Keep your seats, lights temporarily disconnected," or some other suitable slogan. The wires 70 and 71 of the main circuit H, are extended into the casing D, as clearly shown in Figures 1 and 2 of the drawings, and these wires may be extended into a suitable transformer 72, if the alternating current is utilized. The transformer as shown has its terminals connected respectively by wire 73 to one terminal of the electro magnet 40, and by a wire 74 to one

terminal of the lamp 75 proper of the pilot or other signal lamp I. The terminal of the lamp proper 75 has electrically connected thereto a wire 75', which is extended to one terminal of a second switch 76, which is arranged exteriorly of the casing D adjacent to the switch 59. The other terminal of the switch 76 has electrically connected thereto a wire 77, which is in turn electrically connected to the other terminal of the electro-magnet 40. By arranging the signal or pilot lamp I in the main circuit, it can be readily determined when the auxiliary lighting device is properly connected with the main circuit, and whether the same is functioning properly. The pilot or signal lamp proper includes the ordinary socket 80, in which is positioned an incandescent lamp 81. This incandescent lamp is arranged in a suitable reflector 82. The reflector aligns with an opening 83 formed in one end wall 7 of the casing, and this opening may be covered by suitable glass 84, which may be of any color, such as red. This glass may also have painted thereon any suitable indicia for indicating the character of the improved device.

In operation of the improved device, it can be seen that when the main lighting circuit H is functioning properly, the current will flow through the electromagnet 40 and thus energize the same, and attract the core or armature 41 thereof to its lowermost position against the tension of the coil spring 54. The current will also flow through the signal or pilot light I, to indicate that the device is functioning properly. Should the main lighting circuit be rendered inoperative for any cause, the circuit through the magnet 40 will be at once broken, which would permit the spring 54 to force the armature or core 41 upwardly and move the bridge member 53 into engagement with the contacts 51 and 52. This would of course, close the circuit through the incandescent lamp 21, and through the stereopticon or other picture projecting machine B. The operator would then move the lamp F around the base 15' to various points of the house, and move the same up or down on its pivot pin 24, which would permit the rays of light to be projected where they would be most needed. The wires 70 and 71 are of course adapted to be extended to any suitable source of electrical energy, which has been shown by way of example in the diagrammatic view to be a generator 85. This circuit has also been shown with a switch 86 therein. If direct current is to be used instead of alternating current, transformer 72 can be dispensed with, when a suitable resistance coil is used in its place.

In the diagrammatic view shown in Figure 3 of the drawings, the switch 86 is shown in its closed position, which permits

the normal functioning of the electro-magnet 40 and the pilot light I, and thus the pilot light will be lit and the armature 41 disposed in its lowermost position. Thus the lamp F and the lamps of the picture projecting machine B would be darkened, as shown in Figure 3.

In the diagrammatic view of Figure 4, the switch 86 has been shown open, by way of example, which would of course, break the circuit through the electro-magnet 40, thus permitting the raising of the armature 41 and the closing of the circuit through the lamp F and the stereopticon machine. This will of course light the lamp of the stereopticon machine and the lamp F, while the pilot or signal lamp I will be dark or out as indicated in this view.

From the foregoing description, it can be seen that an exceptionally simple and self contained device has been provided, for permitting a light to be had and a warning to be given, when the ordinary light circuit of a building goes out or is rendered inoperative in any way whatsoever. While we have shown one form, and one particular use of our device, it is to be understood that the same can be used for numerous other purposes, such as burglar or other alarms.

Changes in details may be made without departing from the spirit or scope of this invention; but,

We claim:

1. In an auxiliary lighting system for theatres and the like, the combination with a normally closed main circuit, a normally open auxiliary circuit, an automatic electromagnetic circuit closing device arranged in the normally closed main circuit for closing the auxiliary circuit when the main circuit is opened through any cause, and a picture projecting machine arranged in said auxiliary circuit and functioning when the auxiliary circuit is closed.

2. An auxiliary lighting system comprising a portable self contained device, including a casing, a battery arranged in said casing, a dirigible light carried by said casing, a normally opened circuit including the battery and said dirigible light, a pair of spaced contacts in said circuit, an electromagnetic circuit closing device arranged in said cas-

ing, and means for operatively connecting said electromagnetic circuit closing device with the line wires of a main circuit.

3. An auxiliary lighting system comprising a portable self contained device including a casing, a battery arranged in said casing, a dirigible light carried by said casing, a normally opened circuit including the battery and said dirigible light, a pair of spaced contacts in said circuit, an electromagnetic circuit closing device arranged in said casing, and means for operatively connecting said electromagnetic circuit closing device with the line wires of a main circuit, and a stereopticon machine connected with said normally open circuit.

4. An auxiliary lighting device for theaters and the like comprising a casing, a partition in said casing, a battery arranged in the casing on one side of said partition, a signal lamp arranged in the casing on the other side of the partition, a normally open circuit including the battery, a pair of spaced contacts in said circuit, an electromagnetic circuit closing device positioned in the casing on the opposite sides of the partition from said battery and arranged to close the circuit between said contacts, means for electrically connecting the electromagnet and the signal lamp with the line wires of a main electric circuit, and a dirigible headlight carried by the upper wall of said casing and connected in said main circuit.

5. A portable self contained auxiliary lighting system for theaters and the like comprising a casing, a storage battery arranged in the casing, a circuit including the storage battery, a pair of spaced contacts arranged in said circuit, an electromagnetic circuit closing device disposed in the casing and arranged to close the circuit between said contacts, means electrically connecting the electromagnetic circuit closing device to the line wires of a main circuit, a signal lamp carried by the casing and arranged in said main circuit, a picture projecting machine connected to said auxiliary circuit, and manually operated switches in said normally opened circuit and said main circuit.

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