July 26, 1932. A. E. LIPP 1,869,158

PHOTOGRAPHER'S FLASH LIGHT APPARATUS

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Fig. 2.

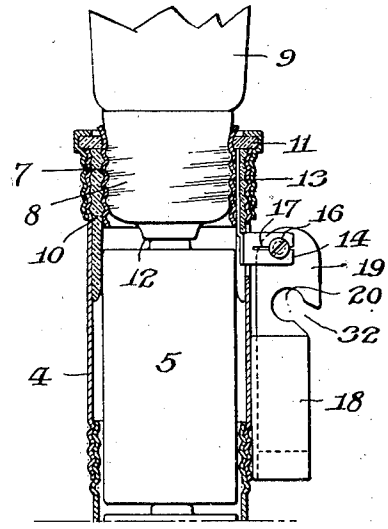


Fig. 1.

Fig. 3.

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PHOTOGRAPHER'S FLASH LIGHT APPARATUS

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This invention relates to photographers' flash light apparatus and an object thereof is to provide a novel, inexpensive and advantageous apparatus in which a hand operated part may be caused to operate a camera shutter, and, at the same time to close a normally open electric circuit for an electrical flash lamp to energize or explode the contents, the lamp synchronously with the operation of the shutter. Another object is to provide for the utilization in the apparatus of the well known camera shutter operating device which comprises a tubular guide, a shutter operating member movable longitudinally therein and a spring yieldingly opposing the movement of the member; and a further object is to make provision for the adjustment of a part whereby the timing of the operation of the shutter with relation to the closing of the circuit may be nicely regulated.

The invention resides in the elements and the combinations of them hereinafter described and claimed.

In the accompanying drawing, illustrating the invention,

Figure 1 is a side view of an apparatus, showing one form of embodiment of the invention.

Figure 2 is a section through a part of the apparatus, on line 2—2 of Fig. 1.

Figure 3 is a section through a part of the apparatus, on line 3—3 of Fig. 1.

Referring to the drawing, 4 designates a frame or casing which may be of any desired construction for its intended purpose. As herein illustrated, the frame or casing is formed of metal and it comprises two cylindrical sections which are joined at their meeting ends by threaded portions which permit the separation thereof for access to the interior of the casing. This casing 4 is adapted to contain one or more electric batteries or dry cells 5 in the manner of the casings of the well known flash lamps in common use. In the drawing, two dry cells are shown in series, one resting upon the other and the lower one resting upon a contact spring 6 in the lower end portion of the lower casing section.

The upper end portion of the casing 4 is provided with a metallic contact socket 7 for the reception of the plug 8 of an electrical flash lamp 9. The socket 7 is electrically insulated from the casing 4 by a sleeve 10 and collar 11 formed of suitable non-conducting material and surrounding the socket 7 between the same and the casing 4.

When the lamp plug 8 is screwed into the socket 7, as shown in Fig. 2, one of the lamp terminals, formed by the outer wall of the plug is in electrical contact with the socket 7, and the other, centrally arranged or remote lamp terminal 12 is in electrical contact with one terminal of the dry cell or cells 5, and the other terminal of the cell or cells 5 is in electrical contact with the spring 6 which, in turn, is in electrical contact with the casing 4. Thus an electric circuit, normally open between the socket 7 and casing 4, is provided for supplying current to the lamp 9.

Extending between the lamp socket 7 and the insulating sleeve 10 is a metal arm 13 which is insulated from the casing 4 by the sleeve 10 and which is in electrical contact with the socket 7 and secured thereto by solder or other suitable means. The lower end portion of the arm 13 has a metal block 14 secured thereto and projecting outwardly therefrom through an opening 15 in the casing 4 in spaced relation to the wall of the opening to avoid contact with the casing. The outer end portion of the block 14 is provided with a transversely extending screw 16 which is screwed into and through the block. The block 14 is split, at 17, so that the walls thereof above and below the screw 16 may yield and exert sufficient pressure upon the screw to prevent accidental displacement thereof from set positions of adjustment, and yet permit the screw to be

turned to different positions of adjustment.

Projecting fixedly from one side of the casing 4 below the block 14 is a metal bracket 18 carrying a resilient metal contact arm 19. The lower end of the arm 19 is secured to the bracket 18 and electrically connected to the casing 4 through the same. The upper or free end portion of the arm 19 is arranged outwardly of one end of the contact screw 16. The arm 19 rests normally in the position shown in Fig. 1, with its free end in spaced relation to the screw 16; and it will now be understood that the electric circuit for the lamp 9 is normally open between the screw 16 and arm 19 and that the circuit may be closed by moving the arm 19 into contact with the screw 16 against the spring pressure of the arm tending to return it to its normal position.

The free end portion of the arm 19 is provided with an opening 20 which extends therethrough for the reception of the tubular guide 21 of a camera shutter operating device 22. One end of the tubular guide 21 is provided with a head 23 having a threaded nipple 24 adapted to be screwed into a camera in the usual manner; and the other end of the guide 21 is provided with a head 25 which is adapted to engage the contact arm 19 and move it into contact with the screw 16 when pressure is applied to the head 25 in the direction of the arrow in Fig. 1.

Extending longitudinally through the tubular member 21 is a camera shutter operating member 26 having a small head 27 on the inner end portion thereof adapted to engage the shutter mechanism for tripping or operating the same to open and close the shutter when the member 26 is moved in the direction of the arrows in Figs. 1 and 3. The other end portion of the member 26 extends outwardly from the head 25 and carries a head 28 by means of which the member 26 may be moved by hand in the direction of the arrows.

The member 26 is provided with a collar 29 within the tubular guide 21 adjacent to the head 25, and encircling the member 26 and extending between the collar 29 and a shoulder 30 formed in the guide 21 is a helical spring 31. This spring 31 holds the collar 29 normally against the head 25 and holds the head 28 on the member 26 normally in the outer position shown in Figs. 1 and 3. Thus the spring 31 forms a yielding means against which the member 26 may be moved in the direction of the arrows for the operation of the shutter. After the member 26 has been thus moved and released, the spring 31 returns it to its normal position.

The major portions of the tubular guide 21 and member 26 therein are made flexible, as usual, and the construction and operation of the shutter operating device 22 in operating the camera shutter are well known in this art.

The arm 19 is provided with a passage 32 which extends laterally from the opening 20 and through which the tubular guide 21 of the shutter operating device may be moved into or removed from the opening, and the parts of the main body of the guide 21, a little distance from the head 25, are small enough in diameter to permit them to be passed through the passage 32 into and from within the opening 20 while the parts of guide 21 close to or forming part of the head 25 and located within the opening 20, when the apparatus is ready for use, are larger in diameter than the space between the opposing walls of the passage 32 so that such walls retain the guide 21 within the opening 20. When the guide 21 is inserted into or removed from the opening 20 it is necessary to move it longitudinally with respect to the arm 19 until a part of the guide whose diameter is sufficiently small to permit it to be passed through the passage 32.

The casing 4 serves as a handle which may be grasped in the hand of the photographer or person using the device while the thumb of the hand holding the casing may be used to act against the head 28 to move the shutter operating member 26 in the direction of the arrows. When the member 26 is thus moved, the pressure of the spring 31 against the tubular guide 21 moves it in the direction of the arrows and causes the head 25 thereon to move the arm 19 into contact with the contact screw 16 for the closing of the electric circuit at the time the camera shutter is opened.

The spring 31 is initially of less strength than the arm 19 in resisting or opposing the movement of the member 26 so that the member 26 will be permitted to be moved to some extent for the operation of the camera shutter before the arm 19 is moved into contact with the screw 16 in order that the circuit will be closed for firing or exploding the contents of the bulb of the lamp 9 for the production of the flash light when the shutter is open, and the timing of the opening of the shutter with relation to the closing of the circuit may be nicely regulated by adjusting the screw 16 toward or from the contact arm 19. By this adjustment the flash of light from the lamp 9 may be caused to occur at any desired time with relation to position of the shutter, either before or at or after the time that the shutter is in the full open position, so that the power of the light permitted to enter the camera may be regulated and adjusted to a lamp of a given light power.

The lamp 9 used in the apparatus is the well known "photo flash lamp" now in common use and in which the contents of the glass bulb thereof are ignited and burned or exploded by the electric current when the circuit is closed.

I claim as my invention:

1. In a photographer's flash light apparatus, the combination of a support, an electrical contact part carried thereby, a resilient electrical contact part having an opening extending therethrough and movably mounted on the support and electrically insulated from and normally out of contact with the first named part, a tubular guide extending through said opening and having a head thereon adapted to engage the second named part and move it into contact with the first named part, a camera shutter operating member longitudinally movable within said guide and having an end portion projecting from the head thereon and provided with an operating head, a spring acting between a part of said guide and a part of said member and opposing movement of the last named head toward the first named head, an electric flash lamp, and an electric circuit including said parts and said lamp and normally open between said parts.

2. In a photographer's flash light apparatus, the combination of a support, an electrical contact part carried thereby, a spring contact arm electrically insulated from said part and having one end portion thereof fixedly related to the support and the other end portion thereof movable into contact with said part and provided with an opening extending therethrough, a tubular guide extending through said opening and having a head thereon adapted to engage the second named part and move it into contact with the first named part, a camera shutter operating member longitudinally movable within said guide and having an end portion projecting from the head thereon and provided with an operating head, a spring acting between a part of said guide and a part of said member and opposing movement of the last named head toward the first named head, an electric flash lamp, and an electric circuit including said parts and said lamp and normally open between said parts.

3. In a photographer's flash light apparatus, the combination of a support, an electrical contact part carried thereby, a resilient electrical contact part having an opening extending therethrough and movably mounted on the support and electrically insulated from and normally out of contact with the first named part, a tubular guide extending through said opening and having a head thereon adapted to engage the second named part and move it into contact with the first named part, a camera shutter operating member longitudinally movable within said guide and having an end portion projecting from the head thereon and provided with an operating head, a spring acting between a part of said guide and a part of said member and opposing movement of the last named head toward the first named head, the second named contact part having a laterally extending passage through which said member is movable into and from said opening, an electric flash lamp, and an electric circuit including said parts and said lamp and normally open between said parts.

4. In a photographer's flash light apparatus, the combination of a support, an electrical contact part carried thereby, a spring contact arm electrically insulated from said part and having one end portion thereof fixedly related to the support and the other end portion thereof movable into contact with said part and provided with an opening extending therethrough, a tubular guide extending through said opening and having a head thereon adapted to engage the second named part and move it into contact with the first named part, a camera shutter operating member longitudinally movable within said guide and having an end portion projecting from the head thereon and provided with an operating head, a spring acting between a part of said guide and a part of said member and opposing movement of the last named head toward the first named head, said arm having a laterally extending passage through which said member is movable into and from said opening, an electric flash lamp, and an electric circuit including said parts and said lamp and normally open between said parts.

5. In a photographer's flash light apparatus, the combination of a support, an electrical contact part carried by the support an electrical contact part movably mounted on the support and electrically insulated from and normally out of contact with the first named part, the second named part being movable from its normal position into contact with the first named part and being provided with spring means opposing such movement, a camera-shutter operating member movably associated with the second named part and adapted when moved from a normal position to move the same into contact with the first named part, and spring means opposing movement of said member from its normal position and being initially of less resisting strength than the first named spring means, an electrical flash lamp, and an electric circuit including said parts and said lamp and normally open between said parts.

6. In a photographer's flash light apparatus, the combination of a handle having a contact socket therein for the reception of an electrical flash lamp in contact with one of its terminals, a contact part electrically connected to said socket, and resilient contact part mounted on the handle and electrically insulated from the first named part and adapted to be moved into contact therewith and having an opening extending therethrough for the reception of a camera shutter

operating device, said handle being adapted to receive an electric battery having one terminal for contact with the terminal of the lamp remote from said socket, and means for electrically connecting the second named part to the other terminal of said battery.

7. In a photographer's flashlight apparatus, the combination of a handle having a contact socket therein for the reception of an electrical flash lamp in contact with one of its terminals, a contact part electrically connected to said socket, and a spring contact arm electrically insulated from said part and having one end portion thereof fixedly related to the handle and the other end portion thereof movable into contact with said part and provided with an opening extending therethrough for the reception of a camera shutter operating device, said handle being adapted to receive an electric battery having one terminal for contact with the terminal of the lamp remote from said socket, and means for electrically connecting said arm to the other terminal of said battery.

8. In a photographer's flash light apparatus, the combination of a handle having a contact socket therein for the reception of an electrical flash lamp in contact with one of its terminals, a contact part electrically connected to said socket, and a spring contact arm electrically insulated from said part and having one end portion thereof fixedly related to the handle and the other end portion thereof movable into contact with said part and provided with an opening extending therethrough for the reception of a camera shutter operating device, said arm having a laterally extending passage through which said device may be moved into and from said opening, said handle being adapted to receive an electric battery having one terminal for contact with the terminal of the lamp remote from said socket, and means for electrically connecting said arm to the other terminal of said battery.

9. In a photographer's flash light apparatus, the combination of a handle having a contact socket therein for the reception of an electrical flash lamp in contact with one of its terminals, a part electrically connected to said socket, an adjustable contact screw carried by said part, and a resilient contact part mounted on the handle and electrically insulated from the first named part and adapted to be moved into contact with said screw and being provided with means for receiving and supporting a camera shutter operating device, said handle being adapted to receive an electric battery having one terminal for contact with the terminal of the lamp remote from said socket, and means for electrically connecting the second named part to the other terminal of said battery.

10. In a photographer's flash light apparatus, the combination of a handle having a contact socket therein for the reception of an electrical flash lamp in contact with one of its terminals, a contact part electrically connected to said socket, and a resilient contact part mounted on the handle and electrically insulated from the first named part and adapted to be moved into contact therewith and being provided with means for receiving and supporting a camera shutter operating device, said handle being adapted to receive an electric battery having one terminal for contact with the terminal of the lamp remote from said socket, and means for electrically connecting the second named part to the other terminal of said battery.

In testimony whereof I affix my signature.

ALBERT E. LIPP.