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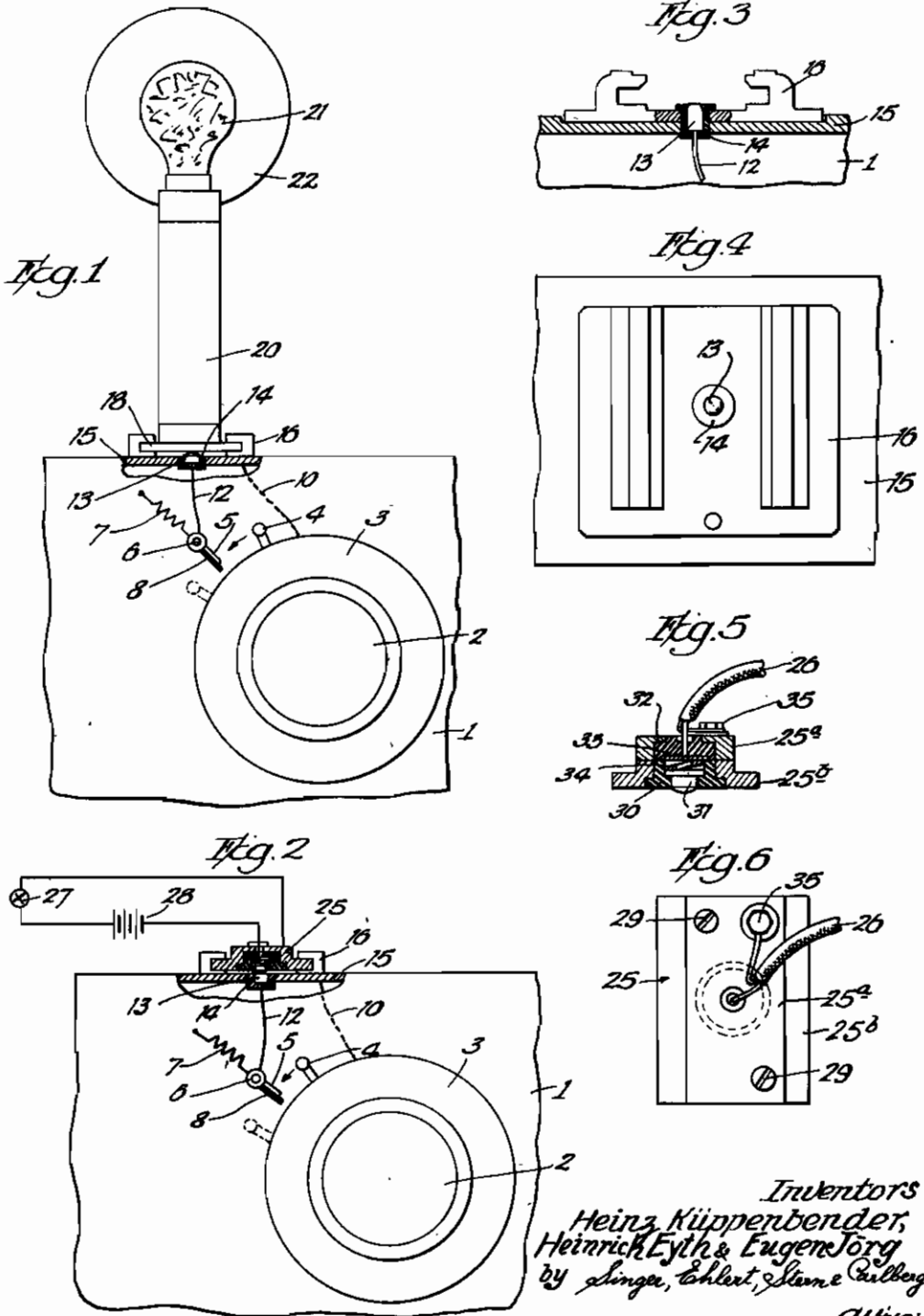
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PHOTOGRAPHIC CAMERAS

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PHOTOGRAPHIC CAMERAS

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The invention relates to improvements in photographic cameras, and particularly is directed to cameras provided with a shutter which, during its release, is adapted to close an electric circuit in which a flash bulb is arranged.

The principal object of the invention is to provide the camera with an insulated contact member which is conductively connected with one member of a shutter controlled synchronizing switch and is accessible from the outside to be readily connected with a flash lamp which forms a separate and detachable accessory of the camera. The other member of the shutter controlled synchronizing switch is conductively connected with the metallic body of the camera casing, or, in case the camera body is not electrically conductive, is conductively connected with a second contact member mounted adjacent said first mentioned contact member.

Another object of the invention is to mount the insulated contact member on the conventional finder shoe which normally is mounted on the top wall of the camera casing and to employ this shoe for connecting the flash lamp with the circuit connections within the camera. A slide, which is provided with an insulated contact member, brings the latter automatically in conductive engagement with the insulated contact member on the camera when the slide is inserted in the finder shoe. The slide may either form an integral part of the flash lamp, so that the latter will be supported in its operative position on the camera, or the slide may have a two conductor electric cord attached thereto which leads to a remotely arranged flash lamp, which is not necessarily attachable to the camera casing. One of the conductor wires of the cord is, of course, conductively connected to the insulated contact member on the slide, and the other conductor wire is conductively connected with the body of the slide, which latter, when inserted in the finder shoe of the camera, establishes a conductive connection with the body of the camera.

With these and other objects in view as may appear hereinafter, the invention resides in certain improvements, the novel features and advantages of which will be more fully described with reference to the accompanying drawing, in which:

Fig. 1 is a partial front elevation view of a photographic camera having a flash lamp detachably mounted of the top wall of the camera casing, which top wall is illustrated partly in section to show the insulated contact member therein.

Fig. 2 illustrates in a view similar to Fig. 1, the connection of the synchronizing switch of the camera with a remotely arranged flash lamp by means of a contact carrying slide inserted in the finder shoe of the camera.

Fig. 3 illustrates in an enlarged detail view the mounting of the finder shoe on the top wall of the camera casing and the insulated contact member in the same.

Fig. 4 is a top plan view of the finder shoe and the parts illustrated in Fig. 3.

Fig. 5 is an enlarged sectional view of a slide adapted to be inserted in the finder shoe of the camera to conductively connect the synchronizing switch with a remotely arranged flash lamp, and

Fig. 6 is a top plan view of the slide of Fig. 5.

Referring to the Figs. 1 and 2, the camera casing 1 is provided with a photographic objective 2, which has associated therewith a conventional shutter mounted in the shutter casing 3. As far as the present invention is concerned, it suffices to state that the shutter is of the type which has to be tensioned by a manually operable member before it can be released and that during the release of the shutter an exposure of the film in the focal plane of the camera takes place. In the present instance, the shutter is provided with a manually operable tensioning lever 4, which in the tensioned position of the shutter occupies the position illustrated in full lines in the Figs. 1 and 2, and upon a release of the shutter moves anti-clockwise, as indicated by the arrow, and comes to rest in its normal initial position indicated in the dotted lines.

The shutter tensioning lever 4, in the present instance, forms one member of a synchronizing switch, which is adapted to close the electric circuit of a flash lamp connected with the camera, so as to fire the flash bulb during the time the shutter is open, i. e. during the time the shutter tensioning lever 4 returns to its normal initial position. The other member of the synchronizing switch is formed by a contact member 5 pivotally mounted about an axis 6 and subjected to the tension of a spring 7, so that normally the contact member 5 extends into the path of the other switch member i. e. the shutter tensioning lever 4. It is apparent, that upon a release of the shutter the shutter tensioning lever 4 during its return movement will strike the pivotally mounted contact member 5 so as to close the switch momentarily and to fire the flash bulb in the electric circuit. In order to prevent a closing of the synchronizing switch 4, 5 during the time

the shutter is tensioned, that side of the contact member 5 which faces the shutter tensioning lever 4 in its normal initial position, is provided with a layer of insulating material 8, which prevents a conductive contact between the contact member 5 and the lever 4 when the latter is moved from its initial position, shown in dotted lines to the tensioned position, illustrated in full lines.

The shutter tensioning lever 4 is conductively connected by the various metallic parts of the shutter mechanism with the metallic body of the camera casing 1, which conductive connection is diagrammatically indicated by the dotted line 10. The pivotally mounted contact member 5 is, however, electrically insulated from the body of the camera casing or any other metallic portion of the camera.

In accordance with the present invention the electrically insulated switch contact 5 is connected by a properly insulated conductor 12 with a contact element 13 mounted electrically insulated in a wall of the camera casing, so as to be readily accessible from the outside for a connection with a flash lamp. In the present instance the contact element 13 is mounted in an insulating bushing 14 which extends through the top wall 15 of the camera casing 1 and also through the base of the customary metallic finder shoe 16 attached to the top wall (Figs. 3 and 4).

A camera provided with a synchronizing switch and a contact element, as described above, is ready at an instant to take flash light pictures. As shown in Fig. 1, it is merely necessary to provide a flash lamp 20 with a suitable base 18 adapted to fit slidably in the finder shoe 16 of the camera and to provide this base 18 with a preferably yielding mounted, center contact which engages the fixedly mounted contact element 13 in the camera when the base 18 is inserted in the shoe 16. Fig. 1 illustrates, by way of example, a flash lamp 20 having a tubular handle containing a number of dry cell batteries. The base 18 is mounted on the lower end of the handle, and a socket for the flash bulb 21 and a reflector 22 are mounted on the upper end of the handle.

In case it is desired to fire a flash bulb or simultaneously a plurality of flash bulbs arranged at a remote place from the camera, it is possible according to the present invention, to control the circuit of the bulb or bulbs by the shutter-

operated synchronizing switch, owing to the novel provision and arrangement of the contact element 13. As illustrated in Fig. 2, it is merely necessary to insert a slide 25 in the shoe 16, which slide 25 has attached thereto a two-conductor cord 28 (Figs. 5 and 6), which in any desired manner may be connected in a circuit with a flash bulb shown at 27 and with a separate source of current 26, if the latter does not form an integral part of the flash lamp. The slide 25, according to Fig. 5 consists of two parts 25^a and 25^b held together by screws 26 (Fig. 6). The lower part 25^b has mounted therein an insulating bushing 30 for supporting a contact button 31, which projects slightly from the bottom face of the slide 25. The upper part 25^a is recessed so as to accommodate a recessed insulating plate 32 provided with a metallic disk 33 on which one of the conductors of the cord 28 is fixedly secured. A spring 34 is placed between the disc 33 and the upper flanged end of the contact button 31 to yieldingly support the latter in the slide 25. The other conductor of the cord 28 is conductively attached to the conductive body of the slide 25 by a clamping screw 35 or the like. When this slide 25 is inserted in the finder shoe 16 of the camera, as shown in Fig. 2, the two conductors of the electric cord 28 are automatically connected conductively with the two members 4 and 5 of the synchronizing switch, the contact button 31 being yieldingly pressed into engagement with the insulated contact member 13, and the body of the metallic slide 25 being in engagement with the finder shoe 16 of the camera. When the shutter is released, the shutter tensioning lever 4, upon engaging the switch contact 5, closes the circuit of the flash lamp and the flash bulb 27 is fired. Obviously, there may be arranged in the circuit a number of flash bulbs, all of which are fired simultaneously when the synchronizing switch 4, 5 is closed.

It thus can be seen that the present invention provides a very simple and convenient means for detachably attaching instantly a flash lamp or flash lamp circuit with a photographic camera, by merely bringing a suitable adapter in conductive engagement with an insulated contact member on the camera.

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