

Feb. 5, 1957

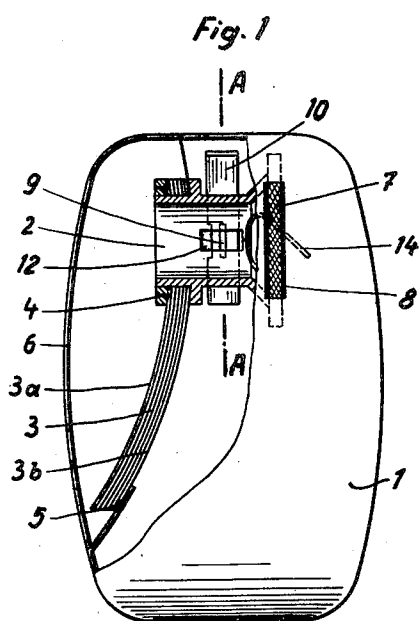
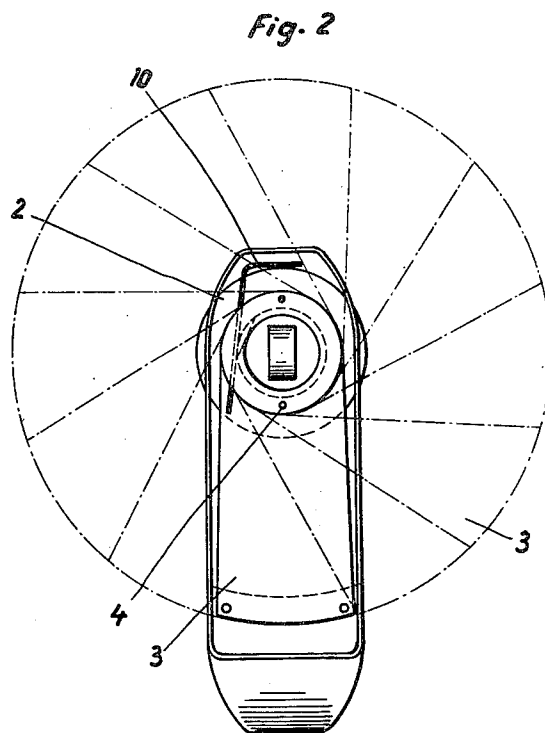
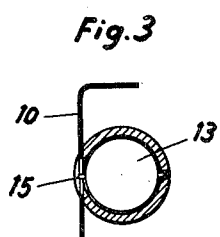
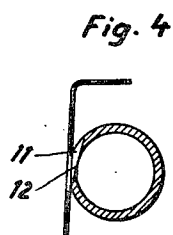
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2,780,720

FLASH LAMPS

Filed April 28, 1954

2 Sheets-Sheet 1



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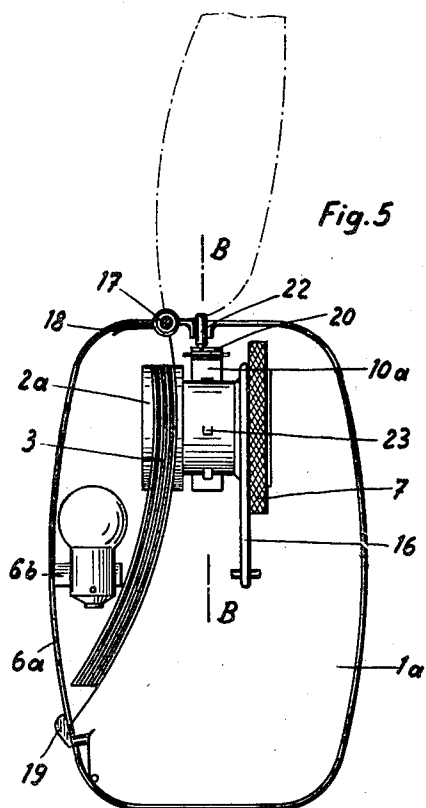
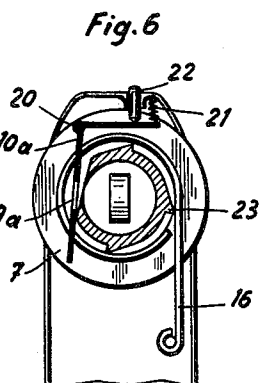
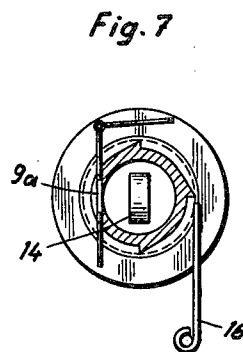
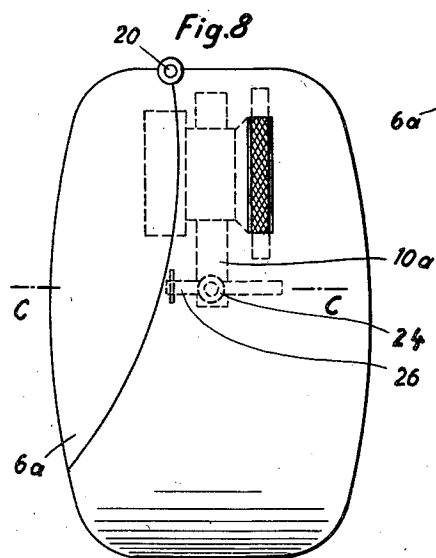
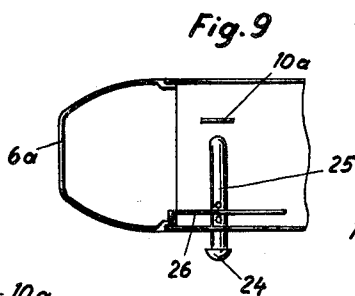
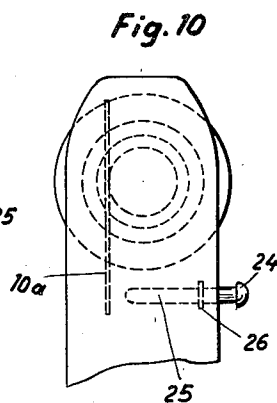
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FLASH LAMPS

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6 Claims. (Cl. 240—1.3)

This invention relates to a flash lamp having a reflector which can be opened and closed in fan-like fashion for the artificial illumination of photographic exposures. Flash lamps with reflectors consisting of sector-shaped parts which can be folded together and opened are known. In the known constructions the individual sectors can be swung about a common pivot into the position of use in which they are spread out fan-wise and form a complete circle and, after use, can be swung back so that they are disposed one above another. The individual sectors are connected in such a manner that they hold together when they are opened and closed.

As distinguished therefrom, according to the present invention, a reflector which can be opened and closed in fan-like fashion is arranged on a lamp mount which is rotatable in the casing of the flash lamp and is used to open and close the individual reflector sectors, the casing having a cover, the shape of which conforms to that of the casing whereby the reflector sectors, when closed, are enclosed.

The uppermost of the reflector sectors is connected to the lamp mount and the lowermost, which acts at the same time as a cover for the battery chamber, is connected to the casing of the flash lamp, whereas the remaining sectors of the reflector are coupled together in known manner.

The lamp mount is rotated by a disc having a milled edge which passes through oppositely situated slots in the casing and, therefore, can easily be gripped from the outside. The lamp mount is in the form of a hollow cylinder having a flat side portion which penetrates and forms an opening in the wall of the mount and which, when the reflector is opened, is in flat engagement with a leaf-spring provided with a longitudinal slot, whereby the lamp mount is secured against rotation and a pin of the lamp bulb enters the slot through the opening in the wall of the mount so as to secure the lamp bulb against ejection by an ejecting spring.

According to a further embodiment of the invention, the removal of the closure cap or cover and the opening of the reflector sectors take place automatically in that, for example, the cap, which is hinged to the casing, and also the lamp mount, are subject to spring action. This enables the opening of the closure cap to be combined with the opening of the reflector sectors. For this purpose the arrangement may be such that the closure cap, on opening, depresses a button whereby the leaf-spring, which is formed as an angle lever is moved away from the lamp mount, so that the mount is rotated under spring action and the reflector sectors are opened. Since the lamp mount can be turned back against the action of its spring only intermittently or in steps when the milled edge of the disc is grasped, the lamp mount is provided at its periphery with ratchet teeth which engage in the longitudinal slot in the leaf-spring.

Further, the locking of the cover and of the lamp mount can be effected by a common pin which is provided with a hand-operated button and arranged laterally on the casing. The pressure pin acts on the spring which locks

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the lamp bulb in the lamp mount and also co-operates with a locking spring for the cover. The arrangement is such that, on actuating the hand-operated button, the cover is first released for opening and the leaf-spring is then moved away from the lamp mount, so that the reflector is opened.

Various embodiments of the invention are illustrated by way of example in the drawings in which:

Figure 1 is a part section through a flash lamp having a rotatable lamp mount and a reflector which can be opened and closed in fan fashion;

Figure 2 is a side elevation of Fig. 1 with the closure cap removed, showing the reflector in closed condition in solid lines and in open condition in dotted lines;

Figure 3 is a section on the line A—A of Fig. 1 through the leaf-spring and lamp mount, with the reflector in open position;

Figure 4 is a similar section to Fig. 3, with the reflector in closed position;

Figure 5 is a section through a flash lamp having a rotatable lamp mount and a reflector which can be opened and closed in fan fashion, the lamp mount and the hinge connecting the cover and the lamp casing being acted upon by springs;

Figure 6 is a section on the line B—B of Fig. 5, with the reflector in closed position, and

Figure 7 is a section similar to Fig. 6, with the reflector in open position;

Figure 8 is a side elevation of a flash lamp in which the closure cap and lamp mount are actuated by a pin and locking spring;

Figure 9 is a detail view of part of Fig. 8, and

Figure 10 is a plan of part of Fig. 8.

Referring to the drawings, the lamp mount is rotatably mounted in the casing 1 and reflector sectors are arranged concentrically on the mount 2. The uppermost sector 3a is fixed by pins 4 to the lamp mount and the lowermost sector 3b is fixed by pins 5 to the casing. The reflector, therefore, serves as a cover for a battery chamber. The closed reflector is covered by a cover 6 which may contain, for example, a holder 6b (see Fig. 5) for flash and testing lamps, the synchronising cable and so forth. The rotary movement of the lamp mount is effected by means of a disc 7 having a milled edge which protrudes through opposite slots 8 in the casing and can be easily grasped by the hand. A leaf-spring 10 provided with a longitudinal slot 9 acts as a brake and for fixing the lamp mount in position. The spring 10 bears tangentially against the lamp mount. At the place where it is in contact with the leaf-spring the lamp mount has a flat 11, forming an opening 12 in the mount at this place. When the reflector is opened the leaf-spring lies flush with the flat 11 (Fig. 3) and the longitudinal slot 9 and opening 12 coincide. Only in this position can the lamp be introduced into the mount against the action of the ejecting spring 14 and fixed by engaging the pin 15 on the base of the lamp in the longitudinal slot 9. On rotating the lamp mount back again, or on closing the reflector, the leaf-spring is pressed away by the lower edge of the flat and the pin 15 is disengaged from the slot 9 in the leaf-spring. The lamp is now under the action of the ejecting spring 14 and is ejected by it. The leaf-spring assumes the same position also when the reflector is closed (Fig. 4), and this is an advantage because a flash bulb or testing bulb can never remain in the closed apparatus and, therefore, the battery and condenser cannot be unintentionally discharged.

According to Figures 5–7, the lamp mount 2a is under the action of a torsion spring 16 and the hinge 17 connecting the casing and the cover 6a is under the action of the torsion spring 18. The cover is held in the closed position against the action of the spring 18 by a catch 19. The leaf-spring 10a is formed as an angle lever which

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is pivoted at 20 and is under the action of a tension spring 21 and a press-button 22. The lamp mount has ratchet teeth 23 which engage in the longitudinal slot 9a of the leaf-spring. The method of operation of the above-mentioned device is as follows.

After opening the catch 19 the cover 6a springs into the position illustrated in dotted lines (Fig. 5) and momentarily overcomes the pressure of the spring 21 under the action of the opening shock on the press button 22. The lever 10a is turned about its pivot and frees the lamp mount 2a so that the reflector is opened, after which the angle lever takes up the position illustrated in Fig. 7, under the action of the spring 21 which acts in opposition to the push button and the cover. The lamp bulb can then be introduced and fixed in the manner shown in Fig. 3. The ejection of the lamp takes place in the same way as in the construction shown in Figs. 1-4 by turning back the lamp mount, the backward rotation being facilitated by the intermittent engagement of the ratchet teeth 23 in the longitudinal slot 9a.

In the modification of Figs. 8-10, a pin 25 actuated by a button or knob 24 is used for operating the leaf-spring 10a, and a locking spring 26 is used for locking the cover 6a. The pin 25 is acted upon by the locking spring 26. Both springs are so arranged and dimensioned that, on pressing the knob 24, the cover 6a is first unlocked and, when this is opened, the leaf-spring 10a is actuated. Since the leaf-spring also acts as a holding member for the lamp socket, the ejection of the bulb can also take place by operating the pin 25.

I claim:

1. A flash lamp comprising a casing, a cover for said casing, a mount for a lamp bulb rotatable in said casing, said mount presenting a flat side having an aperture, a leaf-spring bearing against said flat side and presenting a slot, a disc secured to said mount having an outer periphery projecting through slots in said casing, a plurality of reflector sectors nested in fanlike fashion in said casing and pivoted on said bulb mount, said sectors being operable into unfolded and into folded positions in response to rotation of said disc and said bulb mount and said leaf-spring being in flat engagement with said flat side, and said slot and opening being coincident for the unfolded position of said sectors.

2. A flash lamp comprising a casing, a cover hinged to said casing, spring means urging said cover into an open position and means for retaining said cover closed against the action of said spring, a mount for a lamp bulb rotatable in said casing, spring means biased to rotate said mount and means restraining said lamp mount against rotation by said spring, a plurality of reflector sectors nested in fanlike fashion in said casing and pivoted on said bulb mount, said reflector sectors being operable into unfolded and folded positions in response to rotation of said mount, and means including a spring and a lever arm whereby said restraining means is automatically released in response to release of said cover retaining means to operate said cover urging spring means.

3. A flash lamp comprising a casing, a cover hinged to said casing, a spring urging said cover into open position and means for holding said cover closed against the action of said spring, a mount for a lamp bulb rotatable in said casing, a spring biased in said housing and disposed around said bulb mount operable to rotate said mount, a plurality of reflector sectors nested in fanlike

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fashion in said casing and pivoted on said bulb mount, said bulb mount being of generally cylindrical shape and presenting a flat side defining an opening, a leaf-spring bearing on said flat side, a slot in said leaf-spring, a disc secured to said mount having an edge projecting through slots in said casing, said leaf-spring having flat sided engagement with said flat side, and said slot and opening being coincident for the operative position of said bulb mount thereby providing an aperture to receive a pin projecting from the flash bulb.

4. A flash lamp comprising a casing, a mount for a lamp bulb rotatable in said casing, a plurality of reflector sectors nested in fanlike fashion in said casing and pivoted on said bulb mount, said reflector sectors being operable into unfolded and folded positions in response to rotation of said bulb mount, locking means adapted to retain a lamp bulb in said mount for the unfolded position of said reflector sectors and an ejector spring disposed adjacent said mount and biased against said lamp bulb, operative upon rotation of said sectors by said bulb mount to folded position and release of said locking means to eject said lamp bulb automatically.

5. A flash lamp comprising a casing, a mount for a lamp bulb rotatable in said casing, a plurality of reflector sectors nested in fanlike fashion in said casing and pivoted on said bulb mount, said reflector sectors being operable into unfolded and folded positions in response to rotation of said bulb mount, locking means adapted to retain a lamp bulb in said mount for the unfolded position of said reflector sectors and an ejector spring disposed adjacent said mount and biased against said lamp bulb, operative upon rotation of said sectors by said bulb mount to folded position and release of said locking means to eject said lamp bulb automatically, said lamp mount being of generally cylindrical shape and said retaining means comprising a flat side on said mount, an opening in said flat side, a leaf-spring bearing against said mount, and a slot in said leaf-spring, said opening and slot being in registry for the unfolded position of said reflector sectors thereby providing an aperture to receive a pin projecting from the flash bulb.

6. A flash lamp comprising a casing, a cover hinged to said casing, spring means urging said cover into an open position and means for retaining said cover closed against the action of said spring, a mount for a lamp bulb rotatable in said casing, spring means biased to rotate said mount and means restraining said lamp mount against rotation by said spring, a plurality of reflector sectors nested in fanlike fashion in said casing and pivoted on said bulb mount, said reflector sectors being operable into unfolded and folded positions in response to rotation of said mount, and means including a spring and a lever arm whereby said restraining means is automatically released in response to release of said cover retaining means to operate said cover urging spring means, and a manually-operable pin having operative engagement with said restraining means for said mount and said cover retaining means.

References Cited in the file of this patent

UNITED STATES PATENTS

1,813,102	Vogel	July 7, 1931
2,513,961	Ostrom	July 4, 1950
2,586,583	Wagner	Feb. 19, 1952
2,688,071	Wright	Aug. 31, 1954