May 6, 1958 R. WESTRA 2,833,876

FLASH LAMP SUPPORT

Filed July 11, 1956

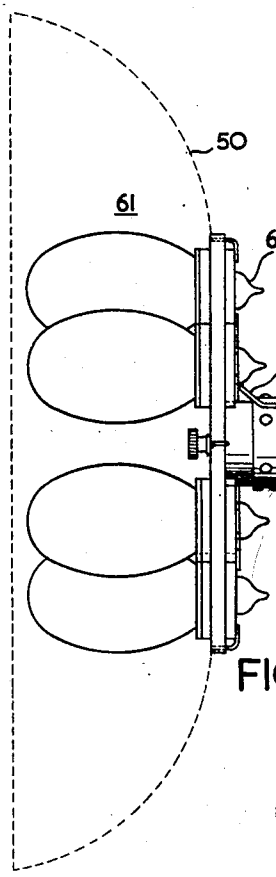


FIG.1

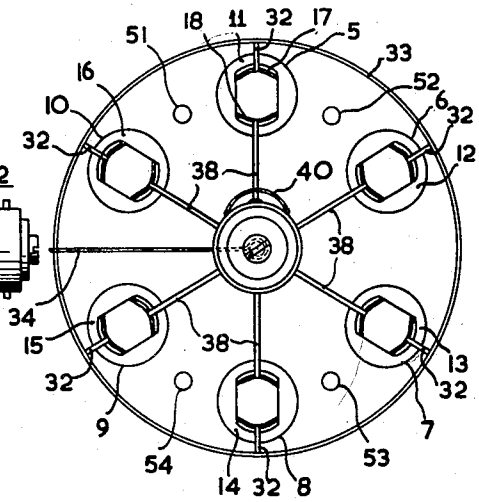


FIG.2

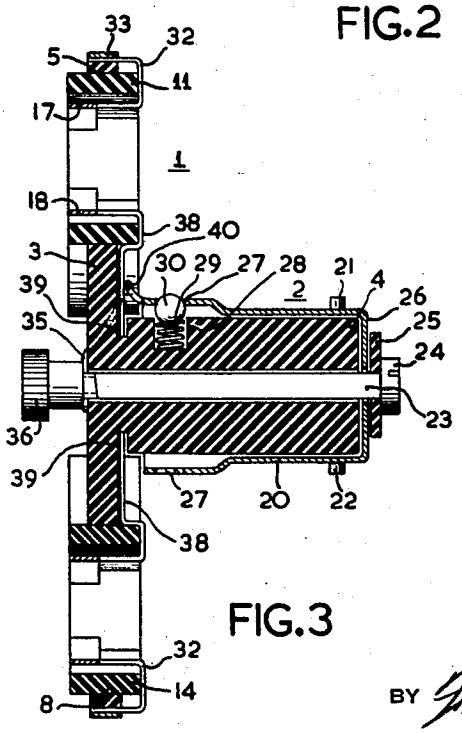


FIG.3

INVENTOR
REINDER WESTRA
BY
AGENT

United States Patent Office 2,833,876 Patented May 6, 1958

2,833,876

FLASH LAMP SUPPORT

Reinder Westra, Eindhoven, Netherlands, assignor, by mesne assignments, to North American Philips Company, Inc., New York, N. Y., a corporation of Delaware

Application July 11, 1956, Serial No. 597,218

Claims priority, application Netherlands July 19, 1955

6 Claims. (Cl. 200—51.03)

As is well known, a photographic flash lamp can be used only once and then has to be replaced by another one. This replacement, which is particularly inconvenient when a plurality of photographs must be made in succession, can be avoided by the use of so-called flash lamp supports. Such a support carries a number of lamps and is permanently secured to the associated battery and switch, hereinafter to be referred to as "current supply." In this known flash lamp support a number of lamps are inserted in the support for making a number of photographs. When a lamp has been used, the support is moved to a subsequent position, so that, in making another photograph, another lamp is used which is already provided in the support. This construction has a limitation in that, when all the lamps provided in the support have been used, the entire mechanism, inclusive of the current supply, must be rendered inoperative in order to enable new lamps to be inserted into the support. It is also known to use a flash lamp support comprising a single lampholder and a magazine provided with means by which a used flash lamp is removed from the lampholder and a new lamp is conveyed from the magazine to the lampholder. However, this construction is comparatively complicated and requires the use of flash lamps of an unusual type.

The flash lamp support in accordance with the present invention obviates these disadvantages. This flash lamp support is characterized in that it is provided with means by which it can be secured to an associated current supply so as to be immediately detachable mechanically and electrically. The support comprises a table provided with a number of flash lamp holders and, in addition, a switching mechanism such that, when the support is secured to the current supply, the flash lamps provided in the support can be ignited in a predetermined sequence.

Thus, a very simple flash lamp support is obtained. When all the flash lamps provided in the support have been used, the support together with the lamps provided in it can be removed from the current supply by a single manipulation and another support provided with new lamps can be mounted immediately. Consequently, a photographer who uses the flash lamp support in accordance with the invention, will lose hardly any time when exchanging supports. In addition, these supports can be constructed so as to be very simple, so that there is no objection to purchasing two or more supports.

If, according to a favourable embodiment of the invention, the means by which the support is secured to an associated current supply so as to be immediately detachable, are designed as a bayonet lamp holder, the advantage is obtained that the support in accordance with the invention can be used with all current supplies for use with flash lamps provided with a bayonet lamp-cap. Thus, a product is obtained which any photographer who has a flash lamp apparatus for use with the most usual flash lamps, can afford.

If, according to a further embodiment of the invention, the flash lamp support is designed so that the table forms

an integral structure with a reflector, a support is obtained which is very simple and is particularly suited to be substituted for the usual reflector which is rigidly secured to the flash lamp apparatus, for in some cases the available reflector may provide insufficient accommodation for the flash lamp support in accordance with the invention.

In order to enable the flash lamps provided in the support to be ignited in a predetermined sequence, according to a further embodiment of the invention, the said table may be made movable, more particularly rotatable, relatively to the means provided on the support for securing the latter to an associated current supply, the switching mechanism being operated by the movement of the table relative to the means of attachment.

If, according to a further embodiment of the invention, the flash lampholders provided in the table are meant to be used with flash lamps having side contacts, the used lamps can be removed from the support by exerting a simple pressure. This applies particularly to the case where the table is provided with apertures for receiving the lamp-caps, which apertures extend from its front-side to its rear-side. In this event the lamps can be pressed out from the table by hand. It is structurally simple to design the table as a flat plate.

The invention will now be described in detail with reference to the accompanying drawing. This drawing shows one embodiment of a flash-lamp holder in accordance with the invention.

Fig. 1 is a side-view of the holder.

Fig. 2 is a front-view thereof.

Fig. 3 is a longitudinal cross-section of the holder drawn to an enlarged scale.

The support substantially comprises a substantially vertical support **1** which is rotatable relatively to the means by which this holder is attached to a current supply (not shown) so as to be immediately detachable both mechanically and electrically. The current supply in most cases will be the usual flash lamp apparatus, i. e. a device which contains a current supply, a switch to be coupled to the camera shutter and a flash lamp holder. In the present case, these means consist of a projection **2** designed as a bayonet lamp-cap.

As will be seen particularly from Fig. 3 the support **1** has a flanged part **3** which is integral with a central projection **4**. These two parts are made of insulating material. The part **3** is provided with six apertures **5**, **6**, **7**, **8**, **9** and **10**, into which sleeves **11** to **16** made from insulating material also are pressed. As will be seen particularly from Fig. 2, the inner wall of these sleeves is not circular. In each sleeve, two curved contacts are secured which, in the sleeve **11**, are denoted by reference numerals **17** and **18**.

A metal cap **20** which is shaped in the form of a bayonet lamp-cap and is provided with bayonet pins **21** and **22**, is moved over the central projection **4** and secured thereto by means of a securing-bolt **23**, the head **24** of which engages the end-face **26** of the metal cap in the inner position of a washer **25** made of insulating material. The extreme rim of this cap **20** is provided with six apertures **27**. A ball **30** which is acted upon by a spring **29** is arranged in a recess **28** of the projection **4**. The manner in which the cap **20** is attached to the member **3—4** made of insulating material permits the latter to rotate relatively to the cap **20**; due to the co-operation of the spring-controlled ball **30** and the apertures **27** provided in the cap **20**, the member **3—4** can assume six preferred positions with respect to the cap **20**.

The curved contacts **17** are each connected through a contact strip **32** to a metal ring **33** secured to the outer periphery of the flanged part **3**, which ring in turn is connected through a metal conductor **34** to the securing

bolt 23, for the end 35 of this metal strip is pressed against the flanged part 3 by means of the nut 36 provided on the bolt 23.

In addition, the curved contacts 18 are electrically connected each to one of six metal strips 38 which are arranged on the surface of the flanged part 3 and are held to this table owing to the fact that their centrally directed ends are accommodated in recesses 39 provided in the projection 4. A metal wire strap 40 is secured to the outer surface of the cap by soldering and, on rotation of the table relative to the cap, is brought into contact with each of the metal strips 38 in succession and thus, when the lamp-holder concerned contains a lamp, completes a circuit the battery and the main switch of which are situated in the associated flash lamp apparatus (not shown).

Fig. 1 shows the manner in which a reflector 50, which is indicated by broken lines, can be secured to the support 1; adjacent its top this reflector is provided with apertures of passage for the sleeves 11 to 16 provided in the table. The reflector can be made integral with the table by means of bolts (not shown) which are passed through associated apertures 51, 52, 53 and 54 provided in the table 3.

When the assembly shown in Fig. 1 is used, the support 1 can be previously provided with six lamps and held in readiness. If, now, a number of flash lamps exposures have to be made, the assembly is inserted by means of the bayonet lamp-cap 2 in a flash lamp supply apparatus at the point at which normally a single flash lamp only is arranged. When the circuit in the supply apparatus is completed one of the lamps provided in the support 1 will be ignited according to the position of the contact strap 40. When the first photograph has been made, the support 1 must be rotated only through an angle of 60° to move the next lamp into the operating position, while the cap 2 remains inserted in the supply apparatus. This process of rotation can be repeated until the last lamp available in the support has been used; then the entire assembly shown in Fig. 1 is removed from the supply apparatus and replaced by another which may have been previously loaded. Even when a single device only is available, this does not mean a great loss of time. Owing to the fact that the lamps to be used are provided with side contacts, they can be removed from the holders by a simple movement in that pressure is exerted on their rear-sides. When use is made of lamps of the kind shown in Fig. 1, in which the lamp-cap comprises parts of the bulb neck and of the exhaust tube which have been fused together this removal is very simple; by exerting pressure on the sealed exhaust-tube part 60 of the lamp 61 in the direction of the arrow P shown in Fig. 1, this lamp is removed from the lampholder without any difficulty, since it is only held by the clamping force of the curved contacts 17 and 18. Inserting the lamps in the holders can also be performed very rapidly; the non-circular inner shape of the lampholders causes the cap of a lamp to be inserted, which cap also shows a non-circular cross-section and is provided with the current supply leads on the part having the largest outer diameter, to take up the correct position on insertion substantially automatically.

In the embodiment shown in Figures 1, 2 and 3, the means of attaching the flash-lamp supports to the supply apparatus are shaped in the form of a bayonet lamp-cap. Obviously, these means of attachment may have a different shape without departing from the scope of the invention; as an alternative, mention may be made of a plug-in construction using plugs and sockets.

What is claimed is:

1. A multiple flash bulb holder comprising a support both electrically and mechanically removable from said holder, means on said support for removably holding a plurality of flash bulbs, a switching arrangement operatively and selectively connected to each of said flash bulbs when said support is mounted in said holder whereby the flash bulbs are ignited in a predetermined sequence.

2. A multiple flash bulb holder as claimed in claim 1 wherein said support has a bayonet cap for removable insertion in said holder.

3. A multiple flash bulb holder as claimed in claim 1 further comprising a reflector, and said reflector being integral with said support.

4. A multiple flash bulb holder as claimed in claim 1 wherein said means include resilient contact members which engage the side of said flash bulb.

5. A multiple flash bulb holder as claimed in claim 4 wherein said means include apertures for receiving said flash bulbs, said apertures extending completely through said support.

6. A multiple flash bulb holder comprising a support both electrically and mechanically removable from said holder, means on said support for removably holding a plurality of flash bulbs, a switching arrangement operatively and selectively connected to each of said flash bulbs when said support is mounted in said holder whereby the flash bulbs are ignited in a predetermined sequence, said switching arrangement being fixed, said support being relatively flat and being rotatable relative to said switching arrangement whereby the rotation of said support causes each of said flash bulbs to be selectively connected to said switching arrangement, and said flash bulbs extending in a plane parallel to the central axis of said support.

References Cited in the file of this patent

UNITED STATES PATENTS

1,689,348	Kuhn	Oct. 30, 1928
2,244,114	Noir	June 3, 1941