

Dec. 6, 1960

W. ZIEGENBEIN

2,963,573

PORTABLE FLASHLIGHT CASING

Filed Dec. 29, 1958

2 Sheets-Sheet 1

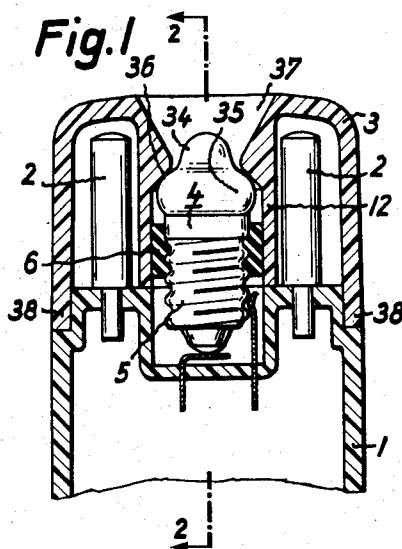
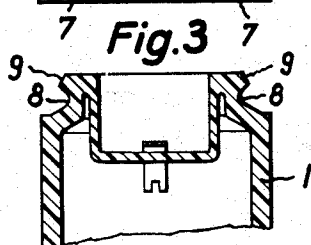
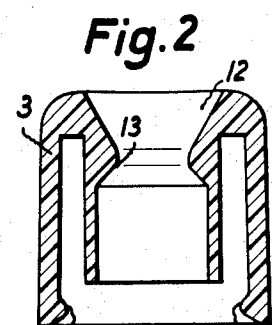


Fig. 5

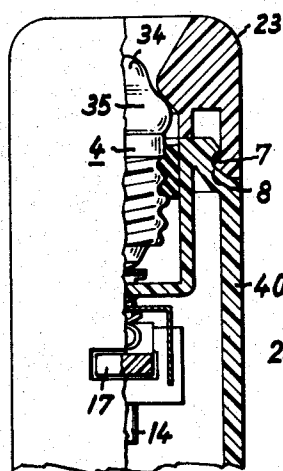
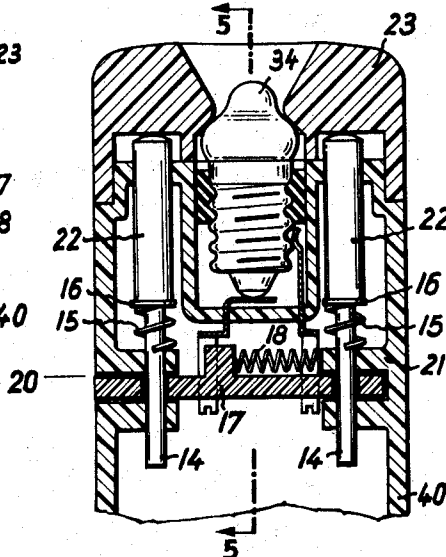


Fig. 4



Inventor:

Wilhelm Ziegenbein

By *Ernst R. Muehl*
Patent Agent

Dec. 6, 1960

W. ZIEGENBEIN

2,963,573

PORTABLE FLASHLIGHT CASING

Filed Dec. 29, 1958

2 Sheets-Sheet 2

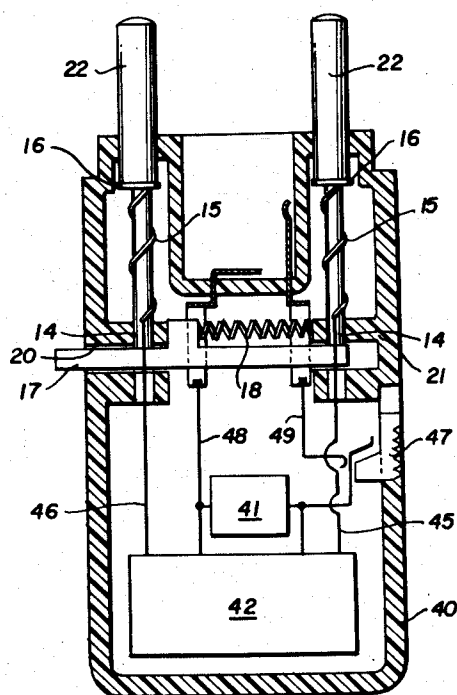


Fig. 6.

INVENTOR
Wilhelm Ziegenbein

BY

Georgel Jensen

ATTORNEY

1

2,963,573

PORTABLE FLASHLIGHT CASING

Wilhelm Ziegenbein, Hameln (Weser), Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Hamburg, Germany

Filed Dec. 29, 1958, Ser. No. 783,509

Claims priority, application Germany Dec. 27, 1957

4 Claims. (Cl. 240—10.65)

The present invention relates to portable or pocket flashlights of the type including both the batteries and a recharging unit therefor housed in the casing of the flashlight.

It has been known to provide the flashlight casing with prongs by means of which the recharging unit can be connected to outlet boxes of A.C. power-lines during the recharging operation. In some of the known flashlights of this type, the prongs are covered during normal use of the flashlight by a cap-like head containing the electric lamp bulb thereof. Such design has the advantage that the space between the projecting prongs is utilized for accommodating the bulb, so that the overall length of the flashlight is not increased by the provision of these prongs. In these cases, the head is directly held on the prongs with the aid of spring means engaging notches on these prongs so as to safely secure the head thereon. While this means for securing the flashlight head is simple and inexpensive, it is unsatisfactory, because, due to the securing of the head to the prongs, there is no assurance that the head will exactly seat on the casing of the flashlight. When the notches on the prongs are worn after extended use of these flashlights, a gap will appear between the casing and the head of the flashlight along the joining line therebetween and the looseness will impair the firm grip of the head on the flashlight casing.

It is an object of the present invention to provide a portable or pocket flashlight of this type and in which the foregoing disadvantages are avoided.

It is another object of the invention to provide the cap-like head of the flashlight with a rim having an interior bead adapted to yieldably seat on a complementary undercut periphery on the front end of the flashlight casing, whereby the head is firmly supported on this casing.

It is a further object of the invention to provide inter-engaging structures by which the head is located in exact alignment on the flashlight casing.

It is a still further object of the present invention to mount the prongs displaceably in such a manner, that they can be retracted into the flashlight casing when the head is placed on the front of the casing, whereby these retractable prongs are held under spring action tending to extend them outwardly. These prongs may be locked in the projected and/or retracted positions by means of a locking mechanism. The head may be substantially shorter if the prongs are retractable. This has the advantage that the moment of rotation, acting on the joint between the casing and the head when assembling the same on the casing and removing it therefrom, is relatively small.

Still further objects and the entire scope of applicability of the present invention will become apparent from the detailed description given hereinafter; it should be understood, however, that the detailed description and specific examples, while indicating preferred embodiments of the invention, are given by way of illustration only,

2

since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art from this detailed description.

In the drawings:

5 Figure 1 shows a longitudinal section through the front end of a flashlight casing with the head assembled thereon, according to the present invention;

Figure 2 shows a section through the head alone, taken along the lines 2—2 of Figure 1;

10 Figure 3 illustrates a section through the front end of the flashlight housing alone, taken along the lines 2—2 of Figure 1, with this housing operatively aligned with the head shown in Figure 2;

Figure 4 shows a modified embodiment of the invention, illustrating in longitudinal section the front end of a flashlight housing with the head assembled thereon.

Figure 5 illustrates a section through the modified embodiment of Figure 4, taken along the lines 5—5 of said figure, parts of the flashlight housing being shown in side view.

Figure 6 is a section similar to Figure 4 but shows the position of the parts with the head assembly removed; Figure 6 also shows the battery and recharging circuit in schematic form.

25 In Figure 1, an elongated, box-shaped flashlight casing 1, for example, of plastic material, is provided in which batteries and their recharging unit are built in, in a manner known per se. These batteries, their recharging unit and circuit do not form part of the present invention and are omitted from Figure 1 to avoid crowding thereof. The front end of the casing 1 is provided with fixed prongs 2 extending therefrom in the direction of the axis of the casing and being adapted and arranged to be introduced in conventional outlet boxes of A.C. power lines in a manner known per se. When the flashlight is in operative condition, the prongs are covered by a box-shaped head 3, suitably made of a single piece, for example, of plastic material, and having an opening in its center surrounded by a socket 12 in which a lens-type electric bulb 4 is held. This lens-type bulb differs from an ordinary incandescent lamp in that a lens 34 is fused into the front end of its glass envelope, so that no separate lens is necessary. The threaded base 5 of this lamp 4 is surrounded by a resilient sleeve 6, made of rubber or other resilient or elastic synthetic material, by means of which the lamp 4 is frictionally held in the socket 12 of the head 3. A bulging portion 35 of the glass envelope of the bulb 4 engages a constriction 36 in the socket 12 which ends at the front of the head 3 in a flared recess 37 widening towards the front end of the head.

The cross sections of the flashlight casing 1 and of the head 3 are substantially rectangular, as can be visualized from the different sections illustrated in Figures 1 to 3. The rim of the lamp head 3 can be seated on the front end of the flashlight casing 1 and is held securely thereon, whereby the prongs 2 are covered by this lamp head 3.

When the batteries in the flashlight housing are to be recharged, the head 3 can be readily removed from the casing, whereupon the prongs 2 can be inserted in an outlet box of an A.C. power line of suitable voltage. After completion of the charging operation, the head 3 with the lamp 4 can be placed again over the prongs 2 and the head assembled on the flashlight casing 1.

As shown in Figures 2 and 3, the rim of the head 3 is provided on two opposite sides with bead-like enlargements or skirts 7, extending inwardly, while the front end of the flashlight casing 1 is undercut on respective sides, whereby the undercut recesses or rims 8 of these sides are complementary to the beads 7. A beveled edge 9 at the outer rim of the front end facilitates the assembly

3

of the head 3 on the flashlight casing 1, whereby, by application of a slight pressure on the head 3 and the casing 1, the side walls of the head 3 will be somewhat deformed, due to the resiliency of the plastic material of these walls. In the assembled position, the beads 7 of the head 3 engage the recesses 8 on the flashlight casing 1, whereby the interengaging parts of the head 3 and of the casing 1 act as detent means, preventing the head 3 from being accidentally removed from the casing 1. In order to remove the head 3 from the housing 1, the head 3 is pulled from the casing 1, whereby the slanting faces of the beads 7 and of the recesses 8 facilitate the disengagement. The outer dimensions of the side wall of the head 3 and of the casing 1 conform with one another, so that, when this head 3 is assembled on the flashlight casing 1, a flush fit of these parts is obtained without gaps. The bead-like enlargements 7 and their respectively cooperating complementary undercut recess 8 on the front end of the casing 1 are provided only on two opposite sides, as shown in Figures 2 and 3, while the two remaining side edges of the head 3 and the casing 1 are flat or straight, whereby the straight edges 38 of the head 3 form a skirt which seats on a complementary recessed portion of the front end of the casing 1, as illustrated in Figure 1.

In the embodiment shown in Figure 4, prongs 22 are retractably mounted in a flashlight casing 40, so that a lamp head 23 can be made shorter as only a short length of the prongs 22 has to be received therein. The respectively engaging detent parts of the head 23 and the flashlight casing 40, i.e., the bead and the complementary recess are substantially the same as in the embodiment of Figures 2 and 3.

In contrast to Figures 2 and 3, the prongs 22 in Figure 4 are provided with elongated portions 14, extending in the direction of the axis of these prongs 22 and are slidably mounted in transverse flange portions 21 inside the casing 40. Helical springs 15, mounted on the extensions 14 and seating between the flange portions 21 and shoulders 16 at each joint between the extensions 14 and the prongs 22, tend to move these prongs 22 outwardly. When the head 23 is assembled on the flashlight casing 1, as shown in Figure 4, the force of the springs 15 is overcome, because the upper or free ends of the prongs 22 are engaged and the prongs are pushed back by the inner wall of this head 23, whereby the head is safely retained on the flashlight casing 1 under the tension of the detent means 7 and 8.

When the head 23 is removed from the flashlight housing 40, the prongs 22 are displaced outwardly under the action of the helical springs 15 and the final positions of the prongs 22 are limited by the shoulders 16 engaging the inner surface of the front wall of the flashlight casing 40. When the prongs 22 have arrived at their most forward positions, as shown in Figure 6, a locking plate 17 is released, which is acted upon by a helical spring 18 tending to move it to the left and, thereby, lock these prongs 22 with the plate 17 then underlying them. The prongs 22 can now be inserted without sliding inwardly in an outlet box of an A.C. powerline of suitable voltage for recharging of the batteries 41 inside the flashlight casing 40. As a result, the recharging circuit, shown schematically at 42, is connected across the A.C. source by way of the contact strips 45 and 46 which engage the springs 15.

4

After completion of the recharging operation and removing of the flashlight from the outlet box, the plate 17 which, in locking position, extends outwardly from the side of the flashlight casing 40 at 20, through an opening therein, can be manually depressed to overcome the force of the spring 18, thereby returning the locking plate 17 to the position shown in Figure 4. While the locking plate 17 is in depressed position, the head 23 is placed on the front end of the flashlight housing 1 pushing back the prongs 22, i.e., returning them to the position shown in Figure 4. After the beads on the head have been snapped into the recesses of the flashlight casing, the head 23 is firmly retained thereon. The prongs 22 are kept in their depressed position by the head 23.

After the head 23 (Figures 4 and 5) has been placed back on the casing 40, the light bulb can, by closing the switch 47, be energized by the battery 41 by way of the leads 48 and 49.

I claim:

1. A portable flashlight unit comprising a casing member and a head member, said casing member housing batteries and a recharging unit therefor and having prongs connected to said recharging unit for insertion in an outlet box of a power line during recharging, said head member being formed with a socket housing a bulb and being removably attached to said casing member in a position wherein said bulb is electrically connected to said batteries and wherein said head member covers said prongs and forms together with said casing member a complete flashlight unit, the removable attachment being constituted exclusively by one of said members having an undercut rim and the other of said members having a skirt of a shape complementary to that of said rim, said skirt being resilient and having inwardly extending bead means which are received by said undercut rim for removably securing said head member to said casing member, whereby the mechanical connection between said head member and said casing member is effected exclusively by the interaction of said skirt and rim.

2. A portable flashlight unit as set forth in claim 1 wherein said one member is said casing member and said other member is said head member.

3. A portable flashlight as set forth in claim 1, further comprising means for retractably mounting said prongs in said casing member, said last-mentioned means comprising an elongated portion on each prong reciprocally engaged in an associated bore in the casing member; spring means between each prong and the casing member and urging the prongs outwardly; the prongs being retained in retracted position when the head is on the casing member.

4. A portable flashlight unit as set forth in claim 3, further comprising locking means in the casing member and underlying the prongs to prevent retracting thereof, said locking means having releasing means permitting manual releasing of said locking means.

References Cited in the file of this patent

UNITED STATES PATENTS

2,642,520	Coolidge et al. _____	June 16, 1953
2,880,306	Witte _____	Mar. 31, 1959

FOREIGN PATENTS

525,457	Great Britain _____	Aug. 28, 1940
---------	---------------------	---------------