May 18, 1965 A. L. GIBBENS 3,184,589

FLASHLIGHT ATTACHMENT

Filed April 8, 1963

Fig. 1.

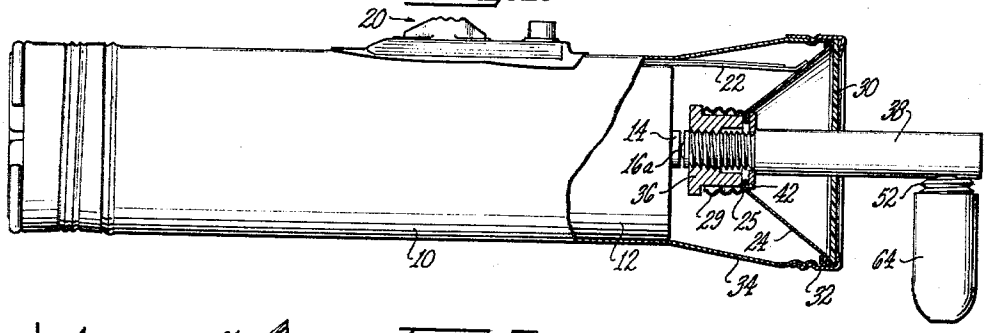


Fig. 2.

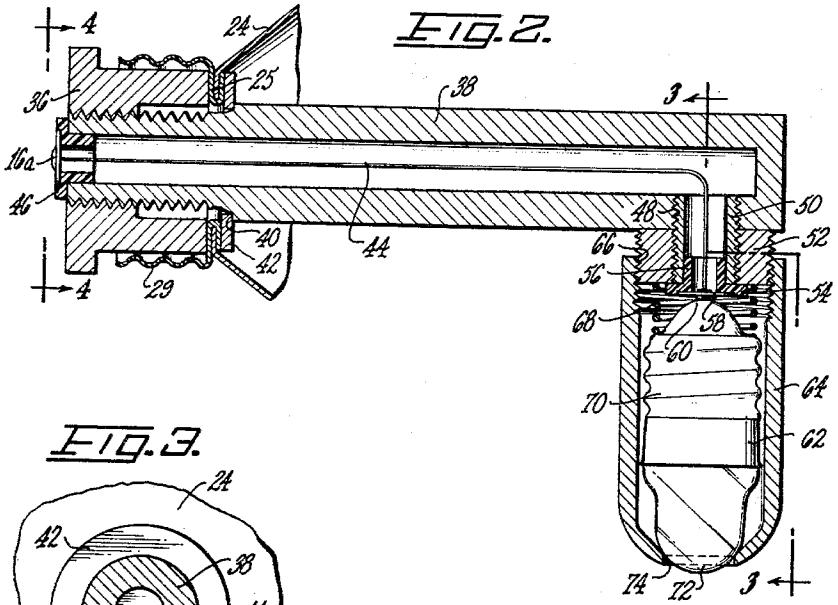


Fig. 3.

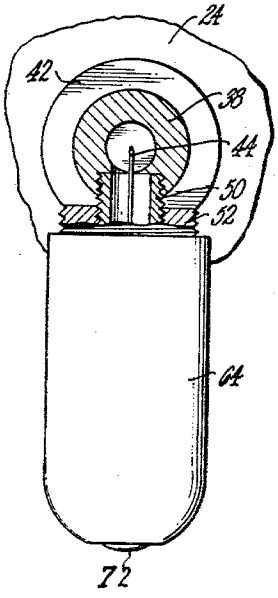


Fig. 4.

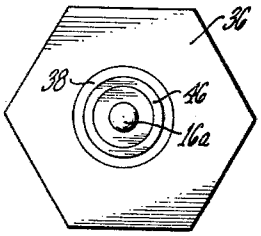
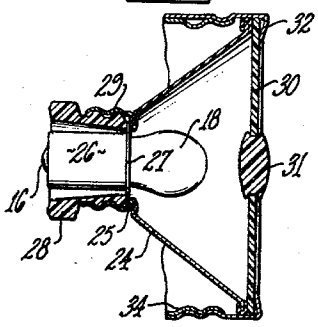


Fig. 5.



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FLASHLIGHT ATTACHMENT

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This invention relates to battery operated, hand-size or portable flashlights and provides an adapter unit which may be substituted at will for the ordinary light bulb or lamp, so as to dispose a (usually smaller) lamp outside the case with its light directed generally transverse to that of the original bulb. In other words, it provides an adapter elbow with which the ordinary cylindrical flashlight (such as carries two or more dry cells in a single row) may be hung or stood on end and its light focusses at right angles so as to illuminate a particular spot or cavity of a workpiece or the like. This is particularly valuable to machinists who may need to have the light thus directed at the same time that both hands are required to manipulate tools or workpiece. In addition, since the present light beam is narrowly focussed and without a wide reflector, the operator can place his eye to peer closely parallel to the light beam so as to look into a narrow crevice or the like from the same angle. Also, a smaller bulb can (and usually is) used in the adapter, and such bulb may advantageously draw current from the longer-lasting power pack supplied with the larger, wide-beam lamp. However, if desired, the initial flashlight bulb may also be used in such adapter.

In a preferred embodiment, the funnel-shaped reflector which commonly provides both an electrical contact and a socket for the light bulb, can alternately be used to anchor the adapter unit in the casing head and provide connection to the battery as before. The ordinary, transparent, facing panel or window may simply be temporarily removed from the flashlight when replacing the bulb with the adapter; or alternately, a two-piece panel may be provided, having a central aperture for supportingly embracing the adapter mounted therethrough, and in the absence of the adapter for transmitting the light of the original lamp in a more narrowly restricted beam. In the latter case, either a focussing lens or a clear pane may be pressed into the aperture for use during the time when the flashlight is employed without the adapter; or the original wide window can be put back.

Other objects and advantages will become apparent as the description proceeds, having particular reference to the accompanying drawings illustrating a preferred construction embodying the invention wherein

FIGURE 1 is a side elevational view of a flashlight assembly with the right end and the base of the mounted adapter shown in longitudinal section;

FIGURE 2 is an enlarged, longitudinal axial sectional view of the adapter unit with the terminal lamp shown in elevation;

FIGURE 3 is an end elevational view of the adapter unit taken along the line 3—3 of FIGURE 2, partly in section;

FIGURE 4 is an elevational view of the adapter from the opposite end as viewed along the line 4—4 of FIGURE 2; and

FIGURE 5 is a fragmental longitudinal sectional view through the lamp end of the flashlight with the adapter of FIGURE 1 removed and replaced with the conventional bulb and socket elements.

The adapter unit of the invention is here illustrated in conjunction with a hand flashlight having a tubular, generally cylindrical case 10 carrying one or more dry cells 12 disposed in series, with the central electrode 14 in normal contact with the end terminal 16 of a light bulb or lamp 18 (FIGURE 5). A hand operated switch 20, by

closing a circuit through the contact bridge 22 and reflector 24, connects the outer electrodes or metal containers of the successive cells 12 to light the lamp in the well known manner. The sides of the lower end of the bulb 18 are enclosed in a metal sleeve 26 having a peripheral lip 27 which abuts the inturned shoulder 25 of the neck of the reflector 24. An externally threaded nut 28 within which the bulb sleeve 26 is slidingly received, threadedly engages the threaded neck or socket 29 of the reflector 24. The bulb 18 is thus held in the reflector-support 24 by the lip 27 clamped between the shoulder 25 and the inner end of the nut 28 which is formed of insulating material.

A transparent cover or window 30 overlies the outer edge of the funnel-shaped reflector 24, both being held in place by an inwardly-flanged band or collar 32 which is threadedly mounted on the peripherally enlarged end 34 of the case 10. Upon unscrewing the collar 32, the window 30 and reflector 24 with its mounted bulb 18 can be removed from the case 10. The nut 28 is then unscrewed and, together with the bulb and sleeve 26, withdrawn from the reflector 24.

Two new elements are then coupled together within the funnel neck or socket area 29; a proximately flanged, internally threaded nut 36 slidingly inserted from the bottom of the funnel, and a terminally threaded tube 38 inserted from the top of the socket area 29 until an annular shoulder 40 thereon abuts a washer 42 which is supported on the shoulder 25 adjacent the neck or base of the reflector 24. An insulated wire 44 traverses the interior of the tube, starting from a contact terminal 16*a* which is anchored or sunk in an insulator button 46.

The outer or distal end of the tube 38 is laterally tap drilled at 48, and a short, externally threaded, hollow stem 50 is partially inserted therein, with its outwardly projecting portion carrying a nut 52. The outer end of the stem 50 is overlaid by the flanged head 54 of another insulator button, the tubular neck 56 of which is frictionally received within the stem. An electrical contact 58 is press fit into the center of the flange portion 54 and inwardly connected to the wire 44, so as to electrically connect the central pole 14 of the dry cell 12 with the central terminal 60 of a lamp 62. A shield 64 or tubular lamp holder formed of conducting material (i.e. metal) has its inner end 66 threadingly secured to the nut 52. Internally, a compression spring 68 disposed outwardly concentric to the insulator disk 54, serves as an electrical conductor to connect the nut 52 and the lateral terminal 70 of the lamp; it also maintains the tip 72 of the lamp in frictional registration and alignment with the annular opening 74 of the shield. Thus it will be observed that when shield 64 is unscrewed or axially extended a small amount from its tight engagement against the aligned bulb and spring, expansion of the spring 68 thereupon disengages the axial contacts 58, 60 and thereby extinguishes the light in the lamp 62. In fact, the bulb 62 may be so adjusted that slight pressure against its tip 72 (e.g. by holding it against the edge of a workpiece) will effect electrical contact and cause the bulb to light. Since such "wheat size" lamps are usually not lit for long continued periods, such finger tip pressure control of the switch means may be quite desirable.

In place of the single transparent disk or pane which occupies the window area of an ordinary flashlight, the two-piece panel 30 may have its outer circle either light-transmitting or not, with the central aperture either left open (upon removal of the adapter shaft 38) or else occupied by a transparent member or lens 31 which can be lodged in the opening simply by finger pressure (and similarly removed) by reason of a limited flexibility or resilience of the surrounding annulus 30.

It will be obvious to those skilled in the art that various

changes of construction and operation may be made within the spirit and scope of the invention, and therefore this disclosure is not to be limited by the precise details shown in the drawings or particularly described in the specification by way of example, but due regard should be given to the possible substitution of known equivalents.

I claim:

1. An attachment head for functionally connecting to a portable tubular case containing a battery therein, individual lamps at alternate positions respectively within and without the case, and comprising in combination: a generally funnel-shaped support having an outer edge removably lodged within one end of said case posterior to an overlying window area, said funnel having a central, dependent neck containing socket means adapted to detachably retain a lamp in electrical contact with said battery; a generally annular attachment collar encircling and restrainingly overlying the outer edge of said support when the collar is secured to said case; a centrally apertured disk removably occupying said window area by means of said attachment collar, the aperture of which disk is disposed to transmit light from a lamp in said socket and alternately to supportingly embrace said longitudinal shaft when the latter is mounted in the socket and projecting outward through the aperture; a lens removably mounted in the aperture of said disk; and a longitudinal shaft having means for retention in said neck alternate to said lamp, in a position projecting outward beyond the end of said case and functionally carrying a generally terminal lamp at its outer end in electrical contact with said battery.

2. An attachment head for functionally connecting to a portable, tubular case containing a battery therein, individual lamps at alternate positions respectively within and without the case, and comprising in combination: a generally funnel-shaped support having an outer edge removably lodged within one end of said case posterior to an overlying window area, said funnel having a central, dependent neck containing socket means adapted to detachably retain a lamp in electrical contact with said battery; a generally annular attachment collar, encircling and restrainingly overlying the outer edge of said support when the collar is secured to said case; and a longitudinal

shaft having means for retention in said neck alternate to said lamp, in a position projecting outward beyond the end of said case and functionally carrying a generally terminal lamp at its outer end in electrical contact with said battery, said shaft being tubular and externally threaded at its inner end and provided with abutment means adjacent said threaded portion for registration with the neck of said funnel, and said socket means includes a flanged nut slidably insertable into said neck and threadedly engageable with said shaft, whereby the shaft may be anchored in the funnel neck against displacement in either direction while remaining rotatable relative to said funnel.

3. The attachment head of the preceding claim 2 wherein said terminal lamp is disposed in a shield transversely projecting from said shaft.

4. The attachment head of the preceding claim 2 wherein said shaft is a tubular, electrical conductor carrying an insulated electrical conduit within itself, and said terminal lamp is disposed in a shield transversely projecting from said shaft and having an outer window for projection of light therethrough from said lamp, the lamp having a tip which extends through said outer window, said conduit being connected to one electrical contact of said lamp and another contact of the lamp being connected to said shaft by an axially disposed coil spring, said shield being axially adjustable whereby electrical circuit may be made and interrupted through the lamp by slight axial displacement of the tip of the lamp pressed against a workpiece.

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