Nov. 8, 1960 WING G. CHENG 2,959,667

PORTABLE ELECTRIC LANTERNS OR TORCHES

Filed Feb. 9, 1959 3 Sheets-Sheet 1

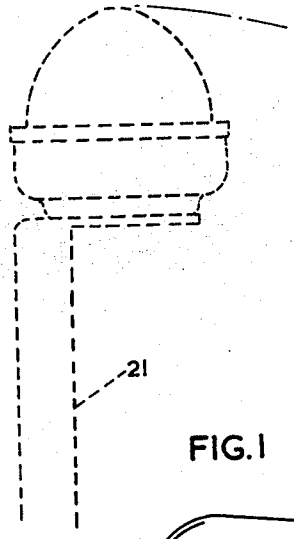


FIG.1

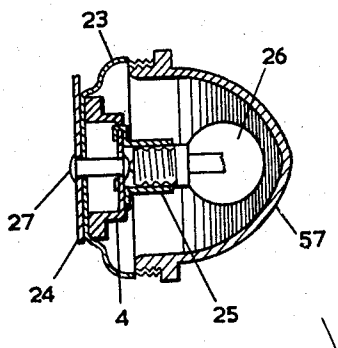
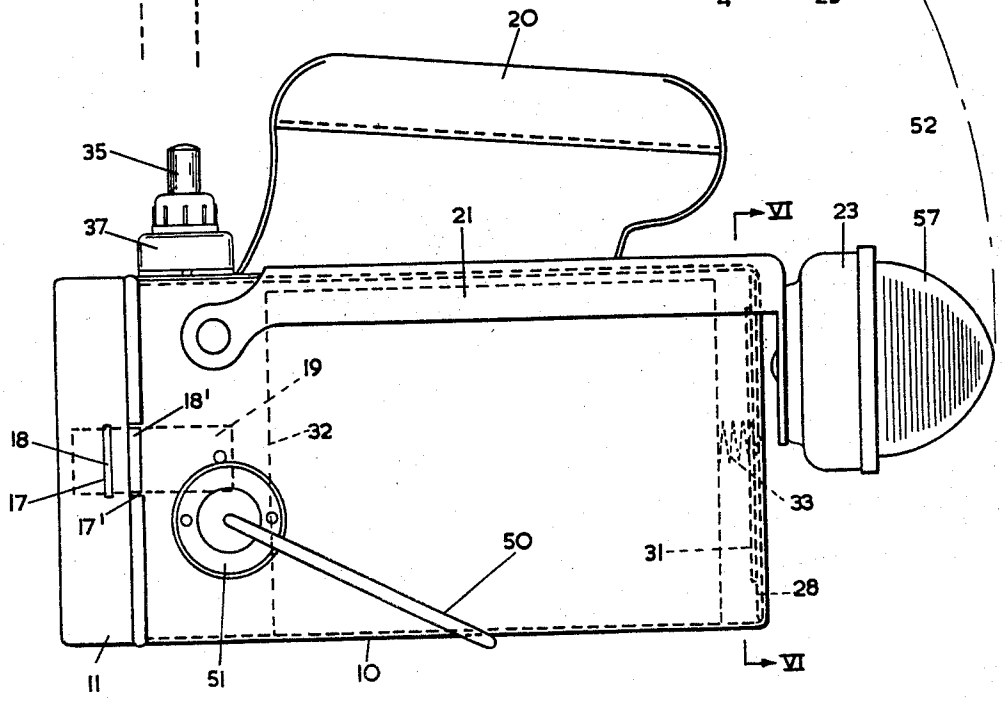


FIG.5



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PORTABLE ELECTRIC LANTERNS OR TORCHES

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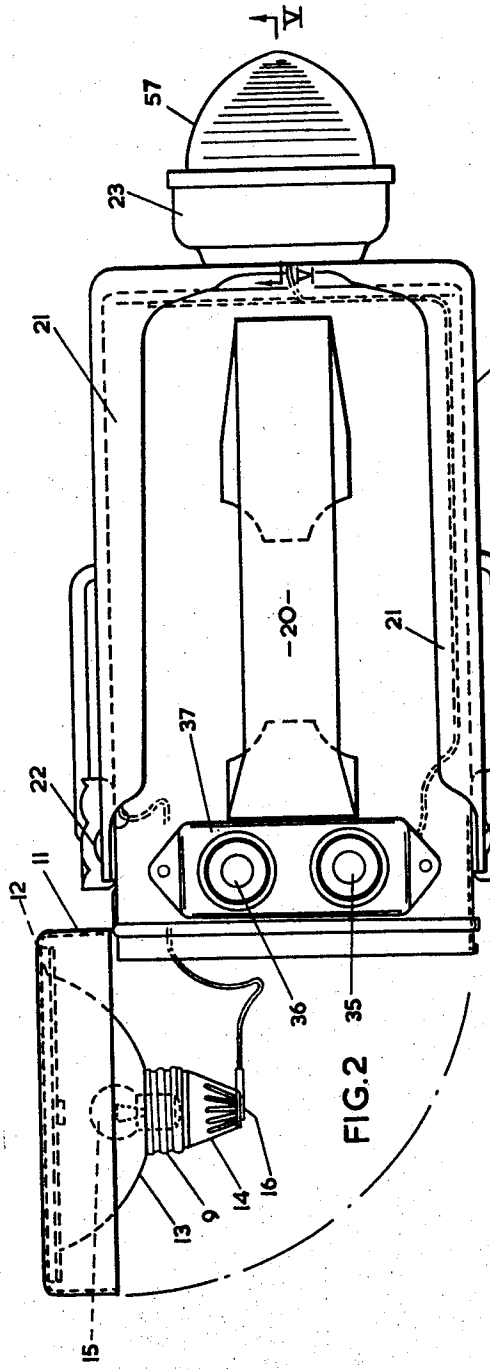


FIG. 2

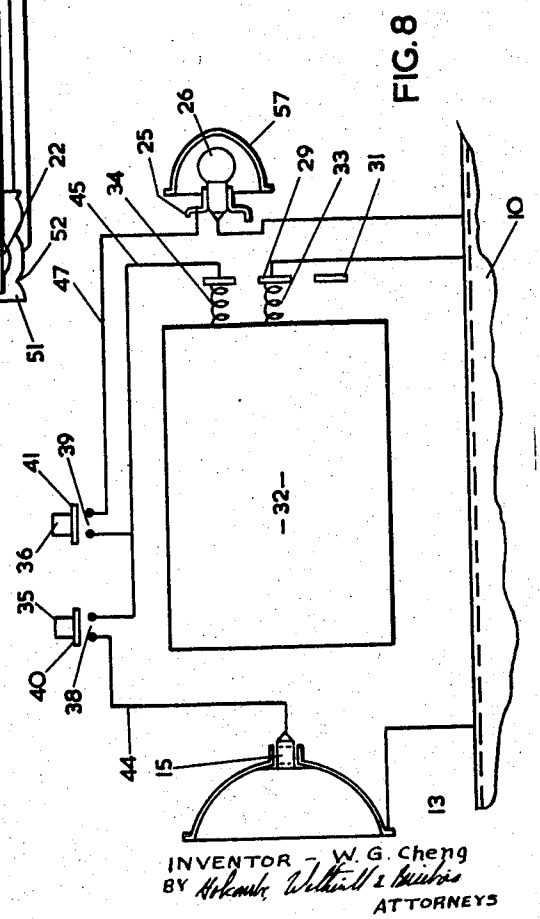


FIG. 8

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PORTABLE ELECTRIC LANTERNS OR TORCHES

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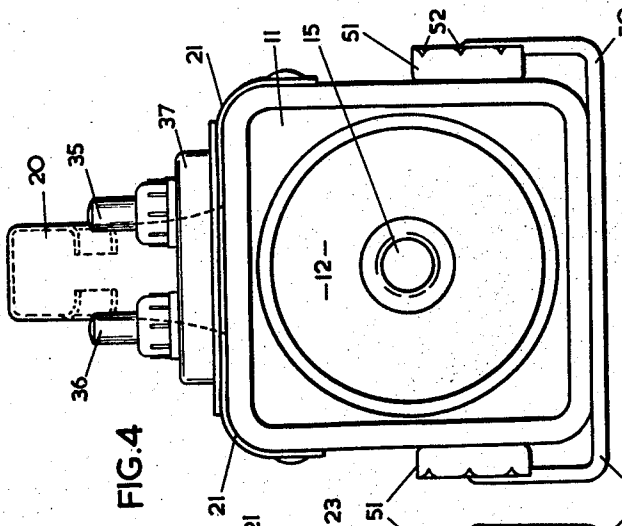


FIG.4

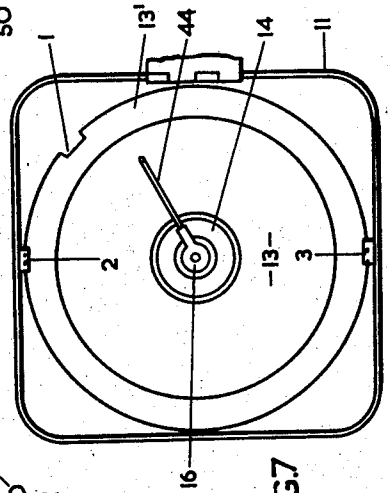


FIG.7

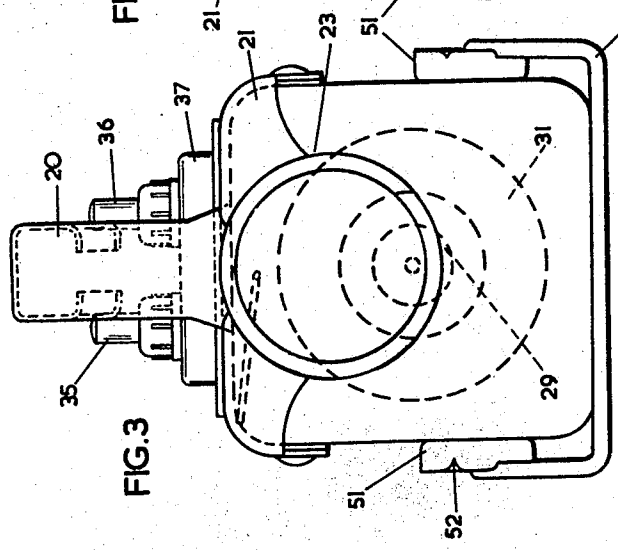


FIG.3

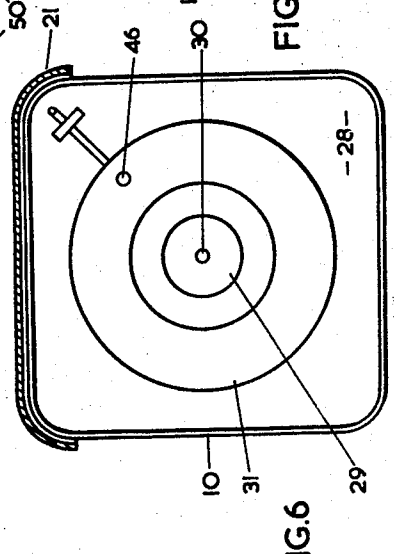


FIG.6

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2,959,667

PORTABLE ELECTRIC LANTERNS OR TORCHES

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Filed Feb. 9, 1959, Ser. No. 792,015

Claims priority, application Great Britain Oct. 13, 1958

5 Claims. (Cl. 240—10.63)

This invention relates to portable electric lanterns or torches comprising a casing in which the electric supply battery is accommodated, two lamp bulbs supplied from the battery, a carrying handle fixed to and extending along the top of the casing, and switch means for controlling the circuits of the two lamp bulbs.

The object of the invention is to provide a portable electric lantern or torch of the above kind in which the relative angular positions of the two lamp bulbs is adjustable.

With the foregoing object in view a portable electric lantern or torch made in accordance with the invention comprises a casing to accommodate an electric supply battery, said casing having at least one open end, a carrying handle fixed to and extending along the top of the casing, an end cover hingeably connected to the battery casing, and adapted to close said open end of said casing, a main lamp bulb mounted in said end cover, an arm or frame pivotally mounted at one end on said battery casing and extending along the said casing with its free end projecting beyond one end of said casing, an auxiliary lamp bulb mounted on said projecting free end of said pivotally mounted arm or frame so as to be swingable with said arm or frame around the pivotal mounting thereof, means for electrically connecting said two lamp bulbs to said supply battery, said means including switch means for separately controlling the circuits of two said lamp bulbs, said switch means comprising two independently operated press buttons, one of which controls the circuit of said main lamp bulb while the other controls the circuit of said auxiliary lamp bulb.

The carrying handle may be of inverted U-shape fixed to and extending centrally along the top of the battery casing and the pivotally mounted frame carrying the auxiliary lamp bulb may be of U-shape, the side arms of which extend along the top of the casing on opposite sides respectively of the carrying handle and are turned down at the free ends, which are adjacent to the hinged end cover of the casing, these turned down ends being pivotally mounted on pins fixed to the sides of the casing.

The closed end of the pivotally mounted frame may be turned down so as, in the closed position, to be close to and parallel with the end of the casing opposite to the end fitted with the hinged cover, the mounting for the auxiliary lamp bulb being carried on this downwardly turned closed end of the frame.

A second carrying handle comprising a stiff wire substantially of U-shape and having its free ends turned inwardly may be provided, the inwardly turned ends being rotatably mounted and retained in bearing apertures formed in cups secured to opposite sides of the casing. The edges of the cups may be serrated and serve to retain the wire handle in a desired angular position relatively to the casing. This wire handle when provided would normally be disposed on the bottom of the casing and can also be turned into a position in which it provides a supporting leg for the lantern when the latter is placed on a table or on the ground or on another support.

In the accompanying drawings which illustrate one lantern construction made in accordance with the present invention:

Fig. 1 is a side elevation,

Fig. 2 is a plan view showing an end cover in the open position,

Figs. 3 and 4 are outside end views of opposite ends of the lantern, respectively;

Fig. 5 is a section on line V—V, Fig. 2,

Fig. 6 is a cross section taken on line VI—VI, Fig. 1,

Fig. 7 is a view of the inside of the end cover, and

Fig. 8 is a circuit diagram.

Referring to the drawings, the battery casing **10** is a rectangular metal tube deep drawn from aluminum sheet so as to have an integral closure at one end, the other end being open and having hinged to one side thereof a flanged and apertured end cover **11** also made of aluminum. This end cover contains a cover glass or lens **12** and a metal reflector **13** having an axial screwed socket **9** to receive a screwed plastic lamp bulb holder **14** in which the main lamp bulb **15** is fitted. The cover glass is loosely mounted on the end cover between the reflector **13** and the front of the end cover. The reflector is formed with a peripheral flange **13'** (see Fig. 7) having a notch **1** and two opposite side flanges of the end cover are indented to provide projections **2, 3** on the inner surfaces of these side flanges. To fit the reflector in the end cover, after the cover glass **12** has been inserted in the latter, the notch **1** is placed above one or other of the projections **2, 3** and the reflector is tilted to engage its flange under the other projection, whereupon the notch **1** is slid over the projection with which it is aligned, and the reflector is then turned into a position such as shown in Fig. 7 in which the notch is not aligned with either projection. The two projections **2, 3** then retain the reflector and cover glass in position in the end cover. In order to remove the reflector and/or cover glass it is only necessary to reverse the operation. The shell of the lamp bulb **15** is in electrical contact with the metal reflector **13** and the centre terminal of the lamp bulb is in contact with a metal rivet **16** or terminal in the plastic lamp holder **14**. The flanged side of the end cover **11** opposite the hinged side thereof is formed with a slot **17** and the cover is retained in the closed position by a projection **18** which enters the slot **17** in the closed position of the cover, this projection being carried on a flat spring **19** secured to the side of the battery casing **10**. The spring is formed with a second projection **18'** which engages in a second slot **17'** in the battery casing and which provides a release bar which is depressed in order to release the projection **18** from the slot **17**. A carrying handle **20** of inverted U-shape is fixed so as to extend centrally along the top of the casing.

A U-shaped frame **21** made of aluminum is pivotally mounted at its free ends on pivot pins **22** on opposite sides of the battery casing **10**, the side arms of this frame extending along the top of the casing on opposite sides respectively of the handle **20**. An auxiliary lamp bulb **26** is mounted in a metal cup **23** secured to a plate **24** depending from the closed end of the pivotally mounted frame **21**. The metal cup **23** has secured therein a plastic cup-shaped member **4** to which is secured a screwed metal socket **25** for the shell of the auxiliary lamp bulb **26**, the centre terminal of which makes contact with a metal rivet **27** fixed centrally in the plastic cup **4**. The metal socket **25** is secured to the plastic cup **4** by tags formed integral with the socket and passing through slits in the plastic cup, and bent over on to the inner surface thereof. The auxiliary lamp bulb **26** is enclosed in a red-coloured translucent shade **57** screwed into the metal cup **23**.

The frame **21** can be swung around its pivotal con-

nections through an angle of approximately 90° as indicated by the dotted lines in Fig. 1.

A fibre partition 28 is fixed inside and adjacent to the permanently closed end of the battery casing and carries on its exposed side two fixed metal contacts. One of these contacts, referred to hereafter as the "positive fixed contact," is in the form of a disc 29 fixed centrally to the partition by a metal rivet 30, which also serves to fix the partition to the end wall of the casing 10 and thereby to connect electrically the positive fixed contact 29 to the battery casing. The other fixed contact (referred to hereafter as the "negative fixed contact") is in the form of a ring 31 coaxial with and surrounding the positive fixed contact. The supply battery 32 is a single unit battery and a metal spring 33 is disposed between the battery and contact 29 so as when the battery is in the casing to connect the positive pole of the battery to the positive fixed contact 29 and thereby, through the rivet 30, to the battery casing 10, and a second metal spring 34 is disposed between the battery and contact 29 so as to connect the negative pole of the battery to the negative fixed contact 31.

The switch means for controlling the two lamp circuits comprises two independent press button switches 35, 36 mounted on a common metal switch casing 37 fixed to and across the top of the battery casing 10, between the hinged end cover 11 and the adjacent end of the handle 20. Each switch comprises (see Fig. 8) a pair of fixed contacts 38 or 39 arranged to be bridged respectively by a movable switch member 40 or 41 fixed respectively to the press buttons 35, 36. One of the fixed contacts 38 of the switch 35 controlling the main lamp bulb is connected by a flexible conductor 44 to the rivet terminal 16 in the plastic holder 14 for this lamp bulb and the other fixed contact of the switch 35 is connected by a flexible conductor 45 to a terminal comprising a hollow rivet 46 fixed on the negative fixed contact ring 31 carried on the fibre partition 28. One of the fixed contacts of the switch 36 controlling the auxiliary lamp bulb is connected to the flexible conductor 45 and thereby to the said hollow rivet terminal 46 on the negative fixed contact ring 31 and the other fixed contact of the switch 36 is connected by a flexible conductor 47 to the metal shell 25 of the auxiliary lamp 26. The metal rivet 27 fixed centrally in the plastic cup 4 connects the centre terminal of the lamp bulb to the plate 24 and consequently via the metal battery casing, with the positive terminal of the battery.

On depressing the press button 35 of the switch controlling the main lamp bulb the circuit of this lamp is as follows:

Positive pole of the battery—metal spring 33—positive contact disc 29—battery casing 10—reflector 13 of main lamp bulb—shell and filament of main lamp 15—flexible conductor 44—fixed and movable members of the switch 35—flexible conductor 45—negative contact ring 31—spring 34—negative pole of the battery.

On depressing the press button 36 of the switch controlling the auxiliary lamp bulb 26 the circuit of the lamp bulb is as follows:

Positive pole of the battery—metal spring 33—positive contact disc 29—battery casing 10—pivotally mounted frame 21—centre terminal of the lamp 26—shell of auxiliary bulb 26—metal socket 25—flexible conductor 47—switch 36—flexible conductor 45—negative contact ring 31—spring 34—negative pole of the battery.

A second carrying handle 50, or foot on which the lamp can be supported in an inclined position on the ground or other surface is pivotally mounted on the battery casing. This handle 50 is made of stiff wire bent into U-shape with its free ends turned inwardly and pivotally mounted in bearing apertures formed in cups 51 secured to opposite sides of the casing 10. The edges of the cups are serrated as clearly shown at 52 in Figs. 2–4, the serrations serving to retain the handle 50 in a desired angular position relatively to the casing. The handle 50 is normally closed on the bottom of the battery casing as shown in the drawings, but in use it is turned into a required angular position for holding, or to provide a supporting leg for the lantern when the latter is placed on a table or on the ground or other supporting surface.

What I claim and desire to secure by Letters Patent is:

1. A portable electric lantern or torch comprising a casing having an electric supply battery, said casing having at least one open end, a carrying handle fixed to and extending along the top of the casing, an end cover hingeably connected to the battery casing and adapted to close said open end of said casing, a main lamp bulb mounted in said end cover, an arm or frame pivotally mounted at one end on said battery casing and extending along the said casing with its free end projecting beyond one end of said casing, an auxiliary lamp bulb mounted on said projecting free end of said pivotally mounted arm or frame so as to be swingable with said arm or frame around the pivotal mounting thereof, means for electrically connecting said two lamp bulbs to said supply battery, said means including switch means for separately controlling the circuits of said two lamp bulbs, said switch means comprising two independently operated press buttons, one of which controls the circuit of said main lamp bulb while the other controls the circuit of said auxiliary lamp bulb.

2. A portable electric lantern or torch according to claim 1 further comprising flanged sides on said hingeably connected end cover, at least one of said flanged sides being formed on its inner surface with a projection, a metal reflector in which said main lamp bulb is mounted, and means for detachably securing said reflector in said end cover, said means comprising a peripheral flange on said reflector, said flange being formed with a notch which can be aligned with and slid over said projection on said flanged side of said cover, whereupon by turning said reflector so that said notch is no longer in alignment with said projection the latter co-operates with the peripheral flange of said reflector to secure said reflector in said end cover.

3. A portable electric lantern or torch according to claim 1 in which the sides of said hingeably connected end cover are flanged to engage the sides of the battery casing, and further comprising means for locking said end cover in the closed position, said means comprising a resilient strip secured to the side of the battery casing and having a projection arranged when the cover is closed to engage a slot in the flange of the end cover.

4. A portable electric lantern or torch according to claim 1 further comprising a stiff substantially U-shaped wire pivotally connected at its ends to the sides of the battery casing so as to form a rigid structure embracing the lower part of said battery casing, the position of said wire being adjustable to provide a second carrying handle, or a supporting leg when said lantern or torch is placed on the ground or other surface.

5. A portable electric lantern or torch according to claim 1 further comprising two cups fixed respectively by their closed ends to opposite sides of said battery casing, said cups having serrated rims and centrally located apertures in their closed ends, and a stiff substantially U-shaped wire, the ends of which are rotatably secured in said centrally located apertures, said U-shaped wire forming a rigid structure embracing the lower part of said battery casing and the sides of said wire engaging the serrated rims of said cups, so that said wire is retained in an adjusted position by the resilient engagement of said sides in serrations in said serrated rims.

References Cited in the file of this patent

UNITED STATES PATENTS

D. 127,597	Wyatt	June 3, 1941
2,742,607	Ryan	Apr. 17, 1956