Aug. 19, 1941. E. E. SEISS 2,252,950

DRY BATTERY LAMP

Filed Sept. 8, 1939 2 Sheets-Sheet 1

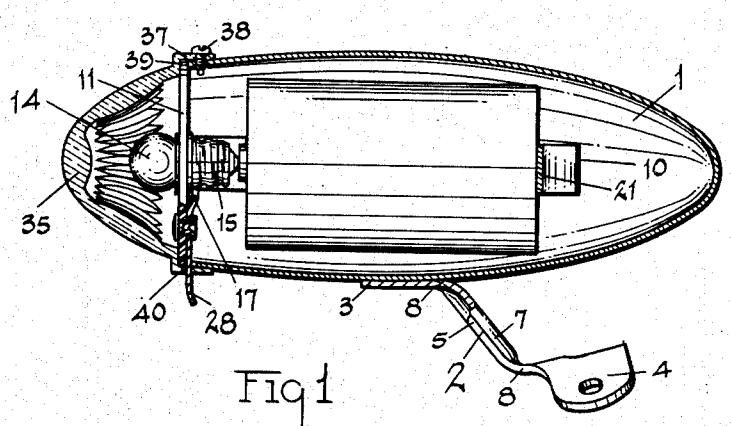


Fig 1

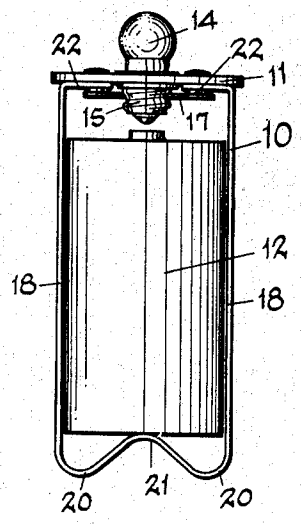


Fig 2

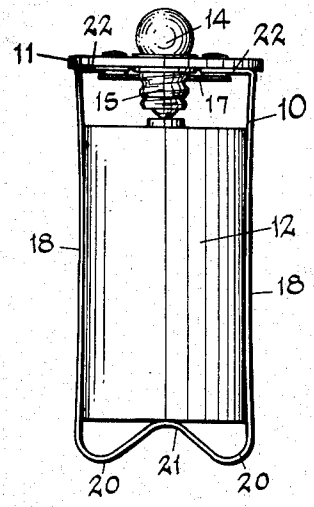


Fig 3

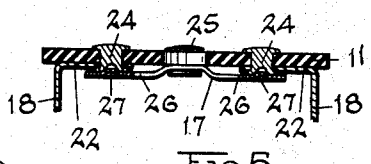


Fig 5

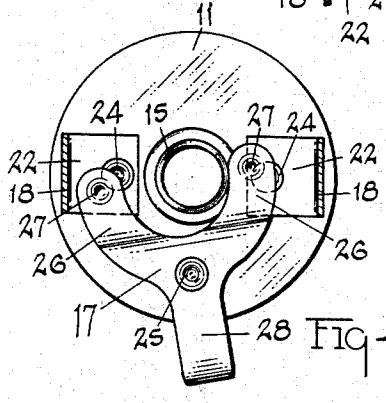


Fig 4

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DRY BATTERY LAMP

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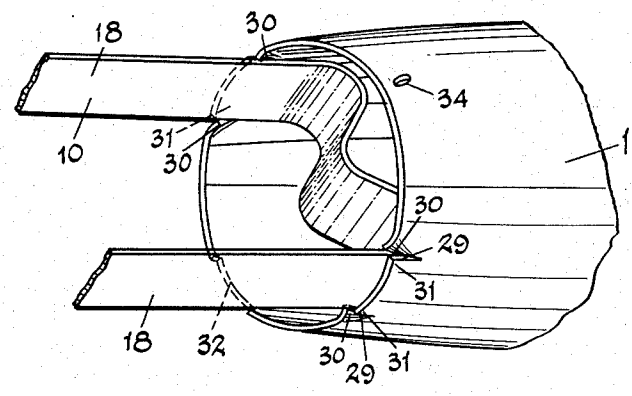


Fig 6

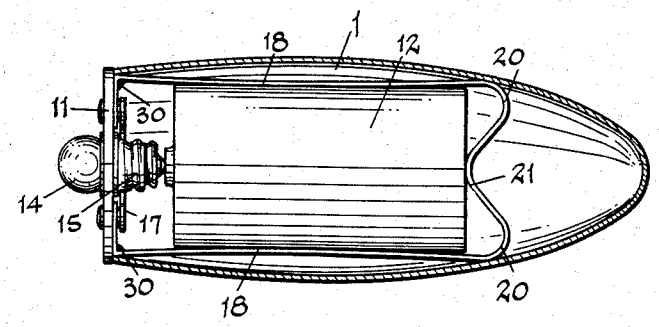


Fig 7

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UNITED STATES PATENT OFFICE

2,252,950

DRY BATTERY LAMP

Ernest E. Seiss, Toledo, Ohio

Application September 8, 1939, Serial No. 293,992

3 Claims. (Cl. 240—7.55)

My invention has for its object to provide an efficient battery lamp that may be readily formed at a low cost of production.

The invention consists in providing a supporting means for readily securing a dry battery and a light bulb in relative positions by the rotation of the light bulb in a bulb socket.

The invention, also, consists in providing a means, removably insertable in a lamp shell, for supporting a light bulb and a dry battery having terminals secured in electric contact with each other. Also, the invention provides a means for securing the battery in the supporting means by insertion of the light bulb in position to electrically contact with the battery.

The invention, also, consists in means for supporting a switch, contactable with the socket of a light bulb, for electrically connecting and disconnecting the light bulb with the battery.

The invention, also, provides an efficient means for elastically supporting the battery in position within the lamp shell.

The invention, also, provides an efficient bracket means shapable to produce the desired angularity of location of the lamp shell with respect to a lamp-supporting part, such as a part of a bicycle.

The invention, also, consists in other features which will appear from the following description and upon examination of the drawings. The invention may partake of different forms and still embody the invention. To illustrate a practical application of the invention, I have selected a dry battery lamp as an example of the various structures and details thereof that contain the invention and shall describe the selected structure hereinafter, it being understood that variations may be made without departing from the spirit of the invention, as presented in the claims hereinafter appended. The particular structure selected is shown in the accompanying drawings and described hereinafter.

Fig. 1 of the drawings illustrates a longitudinal section of the battery lamp selected as an example of structures containing my invention. Fig. 2 illustrates a light bulb and a battery in disconnected relation to each other. In Fig. 3 is shown the battery and the bulb, mechanically connected together, preparatory to insertion in the lamp shell. Fig. 4 illustrates a switch for electrically interconnecting the battery with the bulb. Fig. 5 illustrates a view of a section of the switch and its supporting part. Fig. 6 is a perspective view of parts of a battery-supporting frame and the lamp shell. Fig. 7 is a view of a section taken on the place at right angles to the plane on which the section, shown in Fig. 1, is taken, to illustrate the means for coaxially supporting the battery with respect to the lamp shell.

The lamp shell 1, of the battery lamp shown in the drawings, is, in form, preferably, a "streamlined" or elongated ovoid. One end is closed and the other end is open. The closed end is elongated and is substantially shaped torpedo-wise. The shell 1 has a T-shaped bracket 2, which is provided with end parts 3 and 4 for connecting one with the shell and the other with a supporting part, such as bicycle frame. The parts 3 and 4 are integrally connected to the ends by an arm 5. The part 3 may be connected to the shell 1 by suitable rivets or by spot welding. The part 4 may be provided with suitable holes for connecting the arm to a supporting part by means of bolts or screws. The central part of the arm 5 is longitudinally concaved, as shown at 7.

The bracket 2 is formed from rolled sheet steel, the arm 5 extending in the direction of the grain of the sheet steel, whereby the arm, at the ends of the concave central part 7, such as at the points 8, may be frequently bent and adjusted in its angular relation with respect to the end part 4 to dispose the shell at a desired angular relation with respect to any part to which the part 4 may be connected.

The lamp has an elastic frame 10 comprising a light reflector 11 and an elastic strip connected to the light reflector. A dry battery 12 is located within the elastic frame 10, and an electric bulb 14 is located in a suitable metal socket 15 that is secured to the light reflector 11. A movable, elastic, sheet metal switch member 17 is pivotally mounted on one side of the light reflector 11. When the parts are assembled, they are readily insertable through the open end of the shell 1.

The elastic sheet metal strip is substantially U-shape in form. The legs 18 of the strip are integrally joined by two curved parts 20 and a centrally-disposed reverse curved part 21 and end parts 22 of the legs 18 that are bent angularly toward each other are secured to the light reflector 11 by the hollow rivets 24. The legs 18 extend substantially parallel to each other and are, preferably, normally spaced from each other a distance slightly greater than the diameter of the battery cell 12, and the end parts 22 are disposed in proximity to and spaced from opposite sides of the bulb socket 15. The

frame is, thus, provided with elastic side and end parts.

The metal bulb socket 15 is secured to the light reflector 11 at a mid-point between the rivets 24. The movable switch member 17 is pivotally connected to the light reflector 11 by means of a rivet 25. The movable switch member 17 is formed Y-shaped and is provided, at the ends of its arms 26, with conically-projecting portions 27 produced by indenting the metal of which the member is formed. The ends of the arms of the switch member 17 are spaced from each other and the rivet 25 is disposed with reference to the hollow rivets 24, such that when the leg 28 of the Y-shaped movable switch member 17 is located substantially in alignment with the center of the socket, the projecting portions 27 are located in the ends of the hollow rivets 24. Also, the width of the ends of each of the arms is such that, when the leg 28 of the movable switch member 17 is displaced from alignment with the center of the socket, the projecting portions 27 will be moved from their positions in the hollow rivets 24, the edges of the arms 26 will contact the bulb socket, and the protruding portions 27 will contact the edges of the rivets 24. By reason of the elasticity of the movable switch member 17 and the inclined surfaces of the cone-shaped projections 27, the switch member 17 will be elastically snapped and pressed into contact with the bulb socket 15 by the edges of the rivets 24 operating against the inclined surfaces of the projections. Also, when the switch member 17 is moved to electrically disconnect the bulb from the elastic frame, the switch member 17, when moved to a certain point, will elastically complete the movement as the ends of the projections 27 pass the edges of the recesses of the rivets 24.

In assembling the parts, the battery cell 12 is located within the elastic frame 10, and the electric bulb 14 is inserted in the bulb socket 15 and rotated until the central terminal of the bulb makes contact with the centrally-located terminal of the battery cell 12. Upon continued rotation of the bulb, the end of the battery cell 12 is pressed against the centrally-disposed, curved part 21 of the elastic frame 10, and the pressure on the elastic end parts 20 and 21 of the frame causes the side parts 18 of the frame to concavedly bend against the battery cell 12, substantially as shown in Fig. 3, and frictionally engage the cylindrical surface of the battery cell to secure the battery cell in position in the frame and in electric contact with the central electric terminal of the bulb 14.

The centrally-disposed, reverse-curved part 21 of the elastic frame 10 contacts the conductive part of the end of the battery cell and, consequently, when the movable switch member 17 is moved to contact the lamp socket 15, the electric bulb is connected to the battery cell 12.

The edge of the open end of the lamp shell 1 has a diameter substantially the same as the distances that the end parts of the legs 18 are separated. The open end of the shell 1 is provided with a pair of cuts 29 located in each of the diametrically-opposite portions of the end edge of the shell and one of the corner parts of each of the cuts is turned inward. The cuts of each pair are spaced from each other substantially the width of the metal strip of which the elastic frame 10 is formed and the more remote of the corners 30, formed by the cuts, are inwardly bent leaving the proximate corners 31 extending in the direction of the contiguous parts of the shell 1. The remote corners 30 form spaced lugs, between which the elastic frame 10 may be located and slidably guided when the frame and the parts connected thereto are inserted in the lamp shell 1. Preferably, the curved parts 20 and the centrally-disposed, reverse-curved part 21 are so formed that the curved parts 20 engage the sloping surface of the closed end part of the shell and operate to elastically support the parts when the light reflector 11 is pressed against the end edge of the shell.

The edge of the shell 1 is provided with a recess 32 for receiving the leg 28 of the movable switch member 17, which protrudes outward from the periphery of the light reflector 11 and to the outside of the shell in position to enable operation of the switch. Also, the end edge part of the shell, opposite the recess 32, is provided with an opening, preferably a tapped opening 34. A lens 35, which is formed cup-shape and provided with a suitable flange 37 that fits over the edge of the open end of the shell, may be securely connected to the shell by means of a screw 38. The flange 37, also, forms a shoulder 39 that engages the periphery of the light reflector 11 to press the light reflector 11 against the edge of the shell 1 and the parts 20 against the sloping surface of the closed end of the shell. If desired, the flange 37 may be provided with a slot 40, and the lens 35 may be slipped over the leg 28 of the movable switch member 17 before it is secured by the screw 38. The recess 32 and the slot 40 each have a length sufficient to permit pivotal movement of the movable switch member 17 to open and close the connection between the battery cell and the bulb.

I claim:

1. In a dry battery lamp, a lamp shell; a battery; a movable frame for supporting the battery and insertable in the shell and having side parts located on opposite sides of the battery; one end of the shell having a plurality of inwardly-extending lugs for engaging the opposite edges of the side parts and slidably supporting the frame and the other end having an inclined part, the frame having elastically-projecting parts for elastically engaging the inclined part of the shell for elastically supporting the frame and means for securing the frame in the shell.

2. In a dry battery lamp, a lamp shell having relatively-sloping end wall parts; a dry battery cell; a light reflector; a removable elastic frame connected to the light reflector and having elastic side and end parts and insertable in the shell and having protruding elastic end parts for engaging the end wall parts for coaxially locating and elastically supporting the cell in the shell, the shell having pairs of lugs for sliding the frame when inserted in the shell and for supporting one end of the frame; a bulb socket extending through the light reflector; a light bulb located in the socket for engaging the terminal of the cell and securing the cell in the frame; a contact located on the light reflector in proximity to the bulb socket; a switch member pivotally supported on the light reflector and operable to connect and disconnect the cell to the light socket; a lens for closing the shell; and means for clamping the light reflector between the edge of the shell and the lens.

3. In a dry battery lamp, a dry battery; a light reflector; a removable elastic frame connected to the light reflector and electrically con-

nected to one terminal of the battery and having elastic side and end parts; the shell having pairs of lugs for slidably supporting the frame when inserted in the shell; a bulb socket extending through the light reflector; a light bulb located in the socket for engaging a terminal of the battery and securing the battery in the frame; a contact located on the light reflector in proximity to the bulb socket; a switch member pivotally supported on the light reflector and operable to connect and disconnect the frame to the light socket; and a detent for yieldingly resisting the connecting and disconnecting movements of the switch member.

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