Feb. 5, 1929. 1,701,093

J. S. ZOOK

BATTERY HAND LAMP

Filed Oct. 10, 1927 2 Sheets-Sheet 1

Fig. 1.

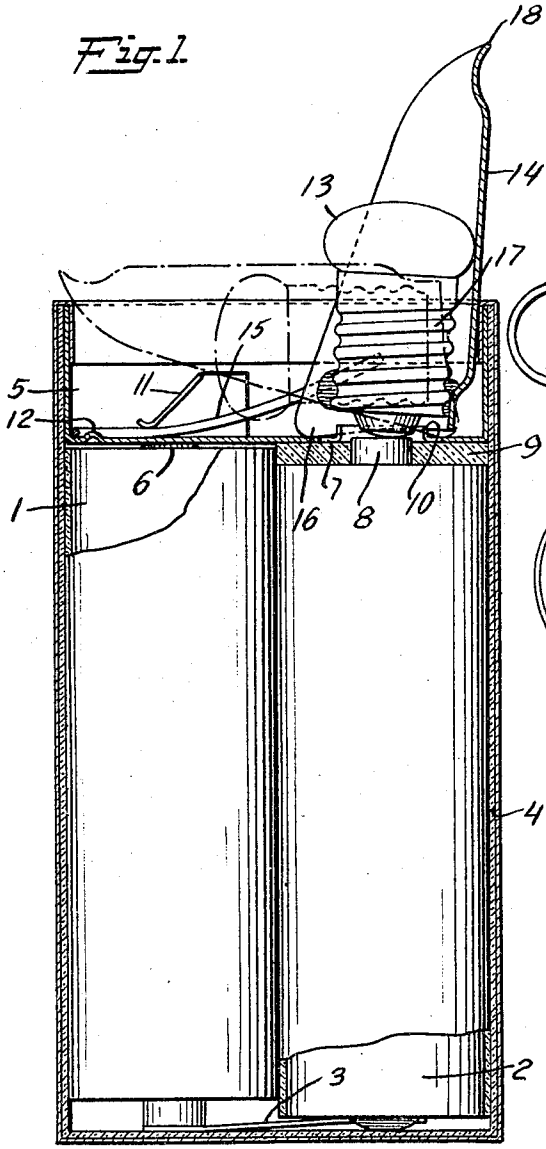


Fig. 2.

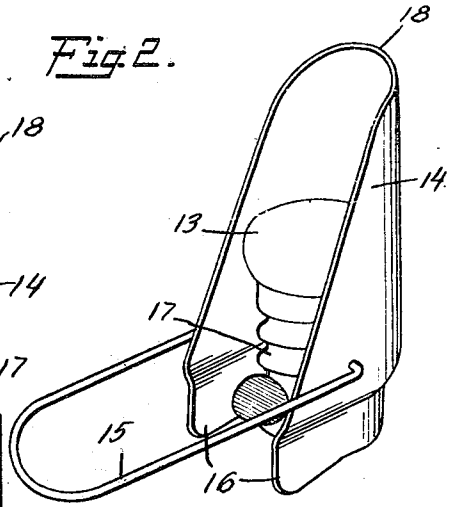


Fig. 3.

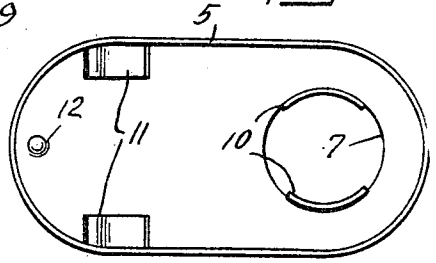


Fig. 4.

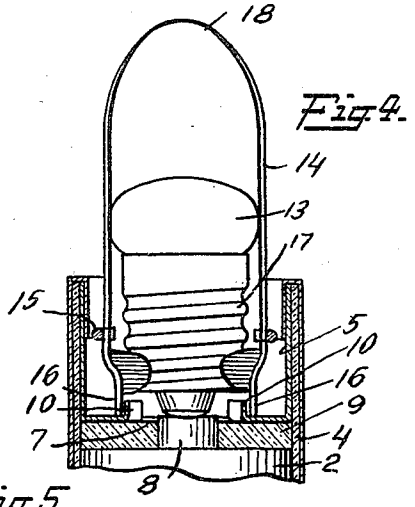
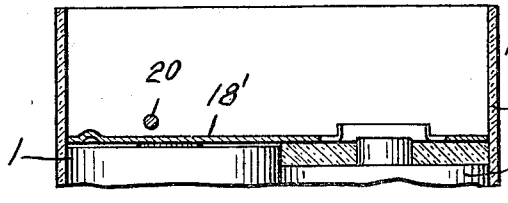


Fig. 5.



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Fig. 6.

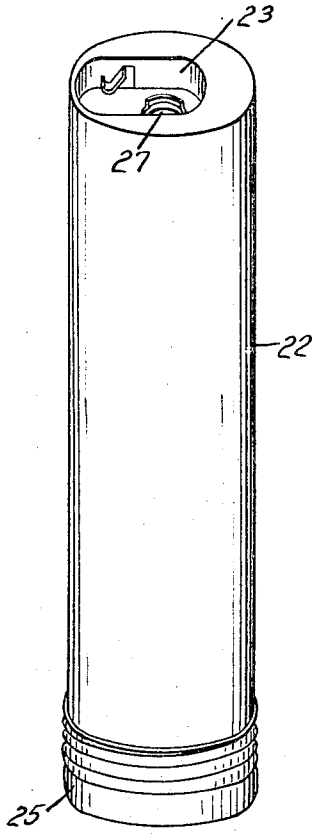


Fig. 7.

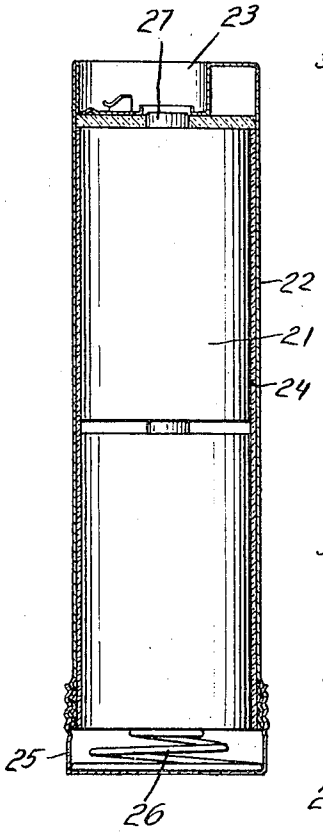
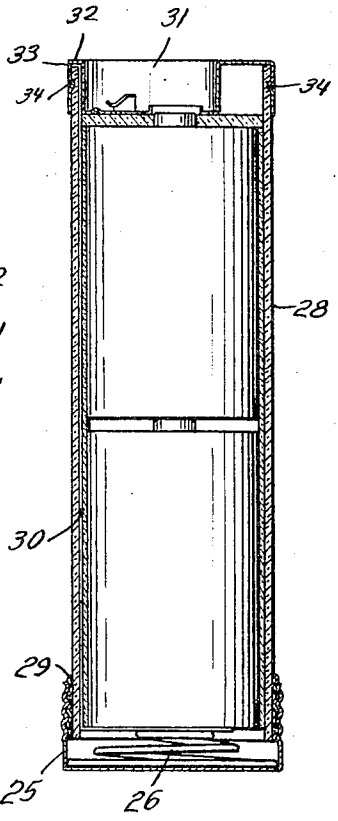


Fig. 8.



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UNITED STATES PATENT OFFICE.

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BATTERY HAND LAMP.

Application filed October 10, 1927. Serial No. 225,045.

My invention relates to a battery hand lamp and consists of a dry cell battery having an incandescent bulb in a removable holder so constructed as to be capable of being flipped by the thumb or finger into either the operative or the inoperative position.

It is an object of my invention to provide an improved battery hand lamp which is cheap to construct. It is a further object of my invention to provide a battery hand lamp which cannot be accidently lighted thus overcoming an objection encountered in lamps of this class. Further objects and advantages will be made clear by the following detailed description, which is to be taken in conjunction with the accompanying drawings, wherein

Fig. 1 illustrates in part sectional elevation the whole of the battery hand lamp with the incandescent bulb in solid lines for the operative position and in dotted lines for the inoperative position;

Fig. 2 is a perspective view of the incandescent bulb in its holder;

Fig. 3 is a plan view of the metallic cup;

Fig. 4 is a vertical, sectional view of the upper end of the battery at right angles to Fig. 1 showing the lamp in operative position;

Fig. 5 is a sectional view of the upper end of the battery showing a modified form of cup;

Fig. 6 is a perspective view of another form of the invention showing the lamp removed;

Fig. 7 is a vertical, sectional view of the form shown in Fig. 6, and,

Fig. 8 is a sectional view of another form of the invention.

In the form of the invention shown in Figs. 1 to 4 of the drawings, I enclose a battery consisting of one or more dry cells, 1 and 2, electrically connected, as by connector 3, in a suitable carton 4, which may be of paper, and which projects above the top of the dry cells to form an oval cup. In this cup I place a metallic cup 5, which is electrically connected to one of the poles of the battery, preferably by soldering to the negative can, as at 6. An opening 7, in the bottom of the metallic cup 5 allows the other pole, preferably the positive 8, to be exposed. The second pole must be insulated from the cup, as by a sheet of insulating paper 9. The side edges of opening 7 are bent up, as at 10, for the purpose to be explained hereinafter. At the end of the cup opposite to opening 7 wings 11 are formed as by punching in the sides of the cup 5, the purpose of these wings to be explained hereinafter. A small lug 12 is formed on the bottom of the cup at the end removed from opening 7, as by stamping the metal.

The incandescent bulb 13, Fig. 2, is mounted, as by soldering, in a holder which consists of a sheet metal backing 14, to which is bailed a looped spring 15 preferably made of wire. The holder pivots on this bail when the holder is flipped from the operative to inoperative position and vice versa. The lower portion or base of the backing 14 is provided with flanged supports 16, so shaped as to assist in the operation of the device, which will be explained hereinafter. The holder cooperates with the battery having the cup 5 mounted as described by slipping the looped spring wire 15 underneath wings 11 and over lug 12 so that the base of bulb 13 contacts with the terminal of the battery exposed through openings 7 as shown in solid lines in Fig. 1. The pressure of wings 11 on looped spring wire 15 insures a good contact between the base of the bulb and the exposed pole of the battery. Since the cup 5 is electrically connected to one pole of the battery at 6, electrical connection is made to the screw thread 17 of the lamp through the holder which is in contact at various points with the cup. When the holder is in the operative position, the flanged supports 16 are positioned on the outside of the bent up side edges 10 and are thereby prevented from slipping into opening 7. To put the hand lamp in the inoperative position, the backing 14 is flipped forward to the position shown by broken lines in Fig. 1, the bulb 13 then being at right angles to the operative position. The looped spring 15, which is in practically the same position as when the holder is in the operative position, in cooperation with the lug 12 prevents the backing 14 from rubbing against the cup 5 while the holder is being changed from one position to another. Since the base of the bulb is no longer in contact with exposed terminal 8, the bulb is no longer lighted. The looped spring 15 still acts to keep the holder of Fig. 2 firmly in position. The projecting portion of the flange 16 is so shaped with a relatively square corner that when the holder is flipped into either the operative or inoperative position it assumes such position with a snap since the spring pressure is

greatest at the intermediate position. This insures the holders being in either the operative or inoperative position and, furthermore, prevents the holder from being readily pushed into the operative position to accidently light the bulb while being carried in the pocket or elsewhere. When the holder is in the inoperative position, the backing 14 covers the top of the cup and acts as a closure. Furthermore, since the backing 14 now rests upon wings 11, as shown in dotted lines in Fig. 1, the bulb is protected against injury by shock during the act of flipping the holder into the inoperative position or in the event that the hand lamp is accidently struck against a rigid object. When in the operative position, backing 14 acts as a reflector. Lip 18 projects slightly above cup 5 to aid the finger or thumb in flipping the holder into the operative position.

Fig. 5 illustrates an alternative form of construction in which the metallic cup at the top of the hand lamp is dispensed with in favor of a metallic plate 18′, formed, positioned, and functioning as the bottom of cup 5, Fig. 3. In this construction, a rugged casing 19, of insulating material encloses the dry cell battery and extends above the top thereof to form the cup into which the incandescent bulb holder is inserted The function of turned in wings 11 of Fig 3 is performed by a suitable rod 20 of Fig. 5 rigidly held in the sides of the casing. The method of maintaining the electrical circuit in this hand lamp is the same as described in the first mentioned construction.

Figs. 6 and 7 illustrate another form of the invention in which one or more dry cells 21, positioned preferably one above the other, are connected in series the whole being encased in a cylindrical, octagonal or other suitably shaped metal casing 22. The upper end of the casing is recessed or punched to form a cup 23 similar to the cup described in connection with Figs. 1 to 3 of the drawings. A tube 24 of suitable insulating material may be arranged between the cells and the metal casing. The bottom of the casing may be closed by a threaded cap 25 having a spring 26 which is adapted to contact with the bottom of the zinc can of the lower cell and thus connect the holder of cup 23 to one pole of the battery through the casing 22. The incandescent bulb holder 14 is adapted to be mounted in the cup 23 in the manner heretofore described and permit contact to be made between the carbon pole 27 of the upper cell and the base terminal of the lamp bulb in the manner heretofore described.

In the form of the invention shown in Fig. 8 of the drawings, I employ a casing 28 formed of paper or other insulating material. A metal sleeve or ring 29 is arranged adjacent the lower end of the casing and is provided with external threads to receive the cap 25. A conductor strip 30 is arranged between the spring 26 and the bottom of the zinc electrode of the lower cell. This strip extends upwardly between the outer casing 28 and the insulating sleeve 24 and is connected to a cup 31 similar in construction to the cup 5 heretofore described. As the construction of the hand lamp shown in Fig. 8 is cylindrical in cross section, the recessed portion of the cup extends from a point adjacent the center to one edge similar to the construction shown in Fig. 6 of the drawings. The outer periphery of the cup 31 is flanged as at 32 and is then extended downwardly as at 33 over the exterior of the casing 28. At suitable intervals the flange of the cup may be punched into the paper or other material forming the casing 28 as indicated at 34 to anchor the cup in position.

The operation of the device will be apparent from the foregoing description. The lip 18 permits the user to insert his finger or thumb under the outer edge of the holder and swing it on its pivot to place the lamp in operative position. The holder then serves as a reflector. The wings 16 form a wiping contact with the bottom of the cup 5 and thus insures a good electrical connection between the terminal of the lamp and the cell. The base terminal of the lamp likewise moves across the other pole of the battery making a wiping contact When the lamp is in closed position holder 14 acts as a cover or closure and protects the incandescent bulb from injury.

I claim:

1. A battery hand lamp comprising a carton, a dry cell battery arranged therein, said carton extending above the top of said battery, a metallic cup arranged in the upper part of said carton, said cup being electrically connected to the negative pole of said battery and having an opening for exposing the positive pole and being insulated from said positive pole, said cup having turned in wings on the sides near the end opposite to said opening, an inwardly stamped lug on the bottom of said cup at the end opposite to said opening, raised portions along the edge of said opening, a holder pivotally mounted in said cup, an incandescent bulb mounted in said holder, a loop of spring wire bailed to the base of said holder, said wire being adapted to fit under said turned-in wings and be retained by said lug to maintain said bulb in contact with said exposed positive pole when in operative position, the base of said holder being so shaped that said spring wire will cause said holder to snap into either the operative or the inoperative positions, said holder being of such shape as to form a closure for said cup when in the inoperative position and to form a reflector for said bulb when in the operative position.

2. A battery hand lamp comprising a car-

ton, a dry cell battery arranged therein, said carton extending above the top of said dry cell battery, a cup arranged in the upper part of said carton, the bottom of said cup being electrically connected to one pole of said battery and having an opening for exposing the other pole and being insulated from said second pole, said cup having turned-in wings on the sides near the end opposite to said opening, an inwardly stamped lug on the bottom of said cup at the end opposite to said opening, raised portions along the edge of said opening, a holder pivotally mounted in said cup, an incandescent bulb mounted in said holder, a loop spring wire bailed to the base of said holder, said wire being adapted to fit under said turned-in wings and be retained by said lug to maintain said bulb in contact with said exposed pole when in the operative position, the base of said holder being so shaped that said spring wire will cause said holder to snap into either the operative or the inoperative positions, said holder being of such shape as to form a closure for said cup when in the inoperative position.

3. A battery hand lamp comprising a carton, a dry cell battery arranged therein, said carton extending above the top of said battery, a cup arranged in the upper part of said carton, the bottom of said cup being electrically connected to one pole of said battery and having an opening for exposing the other pole and being insulated from said second pole, said cup having turned-in wings on the sides near the end opposite to said opening, a holder pivotally mounted in said cup, an incandescent bulb mounted in said holder, a loop of spring wire bailed to the base of said holder, said wire being adapted to fit under said turned-in wings to maintain said bulb in contact with said exposed pole when in operative position, the base of said holder being so shaped that said spring wire will cause said holder to snap into either the operative or the inoperative positions.

4. A battery hand lamp comprising a dry cell battery, a cup arranged at one end of said battery, said cup being electrically connected to one pole of said battery and having an opening for exposing the other pole and being insulated from said second pole, a holder pivotally mounted in said cup, an incandescent bulb mounted in said holder, a looped spring bailed to the base of said holder, said spring being held in position at the loop end and maintaining said bulb in contact with said exposed pole when in operative position, the base of said holder being so shaped that said spring will cause said holder to snap into either the operative or the inoperative position.

5. In a battery hand lamp a dry cell battery, a cup arranged at one end of said battery, said cup being electrically connected to one pole of said battery and having an opening for exposing the other pole and being insulated from said second pole, an incandescent bulb holder pivotally mounted in said cup and adapted to be pivoted into an operative or inoperative position, said holder being of such shape as to form a closure for said cup when in the inoperative position.

6. In a battery hand lamp a dry cell battery, a cup arranged at one end of said battery, an incandescent bulb holder pivotally mounted in said cup and adapted to be pivoted through an arc of substantially 90° to assume an operative or inoperative position within said cup, said holder being of such shape as to form a closure for said cup when inoperative.

7. In a battery hand lamp, a battery, a cup above the top of said battery, a bulb holder pivotally mounted in said cup, an incandescent bulb mounted in said holder, means within said cup to maintain the base of the incandescent bulb in contact with one pole of said battery when the holder is in an operative position and to position said holder to form a closure for said cup when said holder is in an inoperative position.

8. In a battery hand lamp, a battery, a cup above the top of said battery, an incandescent bulb pivotally mounted in said cup, means within said cup to maintain the base of the incandescent bulb in contact with one pole of said battery when in an operative position and to maintain said bulb at right angles to said operative position when in an inoperative position.

9. In a battery hand lamp, a battery, a cup at one end of said battery, a bulb holder arranged in said cup, a looped spring bailed to said holder, and means forming a part of said cup for pressing on said spring to cause the base of a bulb in said holder to press firmly upon a battery terminal when said holder is in the operative position.

10. In a battery hand lamp, a battery, a cup at one end of said battery, a bulb holder arranged in said cup, a looped spring bailed to said holder, means in said cup for pressing on said spring to cause the base of a bulb in said holder to press firmly upon a battery terminal when said holder is in the operative position and to retain said holder firmly in position when in an inoperative position.

11. In a battery hand lamp, a battery, a cup at one end of the battery, a holder arranged in said cup, a looped spring bailed to said holder to permit said holder to be moved to an operative or inoperative position, means in said cup for pressing on said spring to cause the holder to be firmly held in position while in either an operative or inoperative position, and means on said holder cooperating with said means to cause relatively higher pressure to be exerted upon said holder by said spring when said holder is in an intermediate position.

12. In a battery hand lamp, a dry cell battery having a cup at one end of said battery, said cup being electrically connected to one pole of said battery and having an opening adjacent one end for exposing the other pole of the battery and being insulated from said second pole and projections extending inwardly from the sides of said cup adjacent the other end thereof.

13. A separable head for a hand lamp battery comprising a holder forming a reflector, a lamp mounted therein and disposed within said holder, and a looped spring bailed thereto.

14. A separable head for a hand lamp battery comprising a holder forming a reflector, a lamp mounted therein and disposed within said holder, and a looped spring bailed thereto, said holder being adapted to pivot on said bail.

15. In a battery hand lamp, a dry cell battery, and an incandescent bulb holder pivotally mounted on said battery and adapted to swing through an arc of substantially 90° from an operative position to an inoperative position, the axis of said bulb holder being within the base thereof, said bulb holder serving as a closure member when in inoperative position.

16. In a battery hand lamp, a dry cell battery having a cup at one end of said battery, said cup being electrically connected to one pole of said battery and having an opening adjacent one end for exposing the other pole of the battery and being insulated from said second pole and retaining members carried by the side walls of said cup adjacent the other end thereof.

In testimony whereof I affix my signature.

JOHN S. ZOOK.