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BATTERY FILLING BOTTLE

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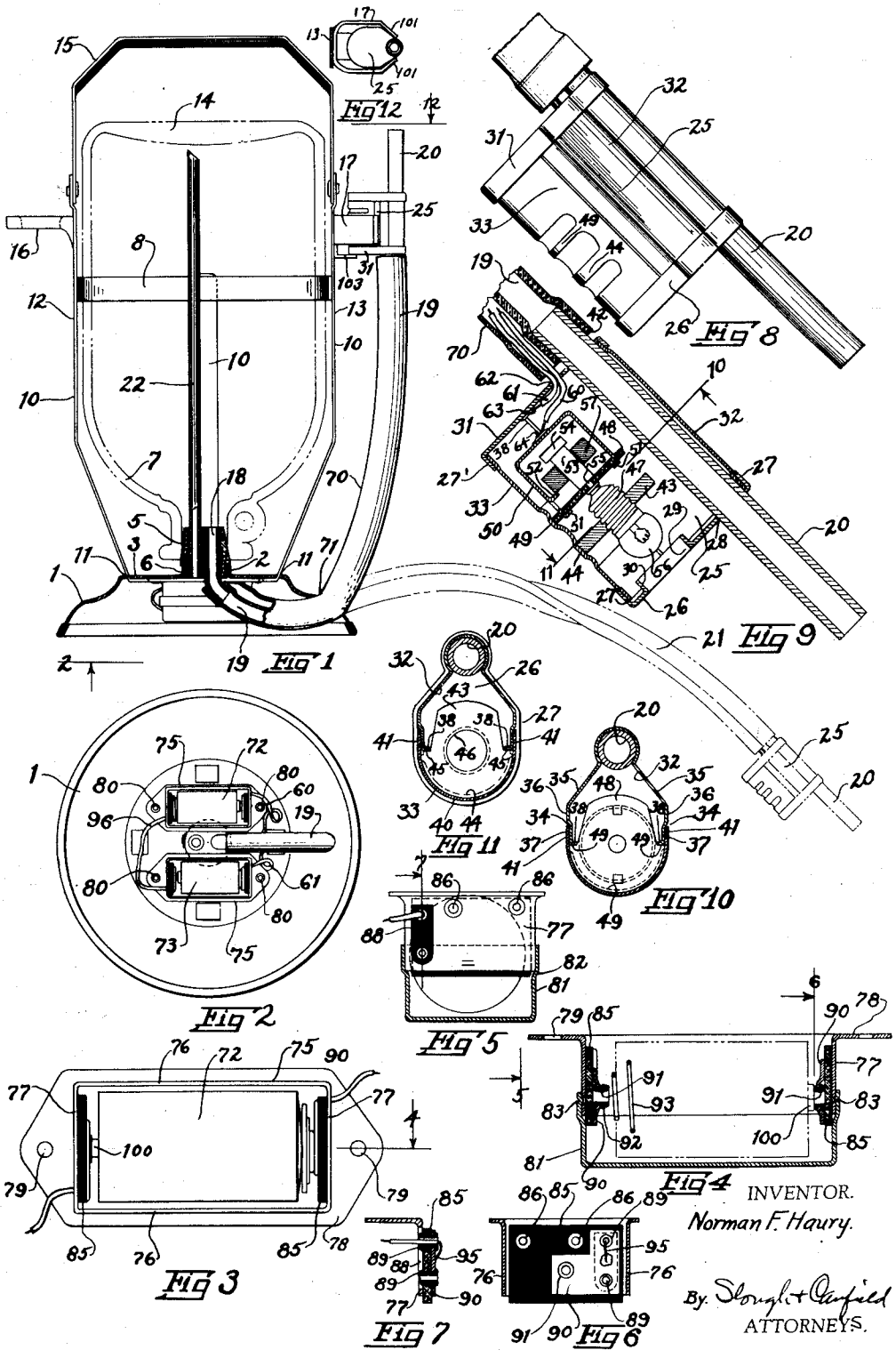


Fig 1 Fig 2 Fig 3 Fig 4 Fig 5 Fig 6 Fig 7 Fig 8 Fig 9 Fig 10 Fig 11 Fig 12

INVENTOR.
Norman F. Haury.
By Slough & Canfield
ATTORNEYS.

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BATTERY FILLING BOTTLE

Norman F. Haury, Elyria, Ohio, assignor to The Ledyard-Haury Company, Elyria, Ohio, a partnership

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10 Claims. (Cl. 240—6.4)

This invention relates to devices for supporting bottles or the like and for dispensing liquid therefrom.

My invention has numerous uses but I have chosen to describe it as applied to water bottles from which water is dispensed to refill storage battery cells.

As is well known, water must be supplied to the cells of a storage battery after they have been in use for a substantial period. Common practice is to carry a bottle of distilled water to the battery and to fill the battery through a hose or the like associated in some manner with the bottle.

In most instances, a storage battery is a part of the equipment of a motor vehicle and is so installed therein that access may be had thereto from the interior of the car. Furthermore, the battery is usually housed in a box. Thus the battery is usually so poorly illuminated that it is difficult to pour the replenishing water into the relatively small inlet orifices provided for the purpose on the battery. In some cases it is necessary to illuminate the battery by means of a hand-operated flash lamp or the like to avoid spilling of the water over the battery and to avoid overflowing the battery by supplying too much water thereto.

It is therefore one of the objects of my invention to provide an improved apparatus which may be applied to the water bottle and which, upon dispensing water from the bottle by the usual operation, will be operated automatically to illuminate the battery or the like into which the water is being dispensed.

Another object of my invention is to provide a suitable carrier for a water bottle provided with a dispensing nozzle and an electric lamp, the lamp being adapted to be automatically energized in an improved manner by the ordinary operation of applying the nozzle to the battery or the like to be watered.

Another object is to provide a carrier for water bottles or the like provided with a hinging hose, nozzle or like device out of which water from the bottle may be dispensed, and provided with an electric lamp adjacent the end of the nozzle adapted to be illuminated automatically by the operation of moving the nozzle or the like to its water discharging position and adapted to be extinguished upon moving the nozzle or the like to a non-dispensing position.

Another object is to provide, in a bottle carrier and liquid dispensing device, having a battery-energizable electric lamp for illuminating the point toward which the liquid is discharged, an improved mounting for the battery.

Another object is to provide in a bottle carrier and liquid dispensing device having a dispensing nozzle and an electric lamp associated therewith to illuminate the point toward which the liquid is discharged from the nozzle, an improved automatic switch for energizing and de-energizing the lamp responsive to ordinary movement of the nozzle to the discharging and non-discharging positions.

Another object is to provide in a bottle carrier and liquid dispensing device having a dispensing nozzle and an electric lamp associated therewith to illuminate the point toward which the liquid is discharged from the nozzle, an improved automatic gravity operated switch for energizing and de-energizing the lamp responsive to ordinary movement of the nozzle to the discharging and non-discharging positions.

Another object is to provide, in association with a carrier for a water bottle provided with a dispensing nozzle and an electric lamp associated with the nozzle, an improved automatic gravity operated switch and housing for the same and for the lamp constructed to house the same and also to function as a means of support for the nozzle in a non-discharging position.

Other objects will be apparent to those skilled in the art to which my invention appertains.

My invention is fully disclosed in the following description taken in connection with the accompanying drawing, in which:

Fig. 1 is an elevational view of an embodiment of my invention illustrating in broken lines a water bottle associated therewith and illustrating a dispensing hose and nozzle which I may employ, the latter being illustrated in solid lines in a non-dispensing position and in broken lines in a dispensing position;

Fig. 2 is a view of the bottom of the carrier, of Fig. 1, taken approximately from the plane 2 of Fig. 1 and illustrating an electric cell or battery housing with parts thereof removed for clearness;

Fig. 3 is a view to a larger scale of a part of Fig. 2;

Fig. 4 is a longitudinal sectional view taken from the plane 4 of Fig. 3;

Fig. 5 is a view partly in section and partly in elevation taken approximately from the plane 5 of Fig. 4;

Fig. 6 is a sectional view taken approximately from the plane 6 of Fig. 4;

Fig. 7 is a fragmentary sectional view taken approximately from the plane 7 of Fig. 5;

Fig. 8 is a view to an enlarged scale of a nozzle device which I may employ and shown also with the parts in the same position, in broken lines in Fig. 1;

Fig. 9 is a longitudinal sectional view of the parts of Fig. 8;

Fig. 10 is a cross-sectional view taken from the plane 10 of Fig. 9;

Fig. 11 is a cross-sectional view taken from the plane 11 of Fig. 9;

Fig. 12 is a partial top plan view taken approximately from the plane 12 of Fig. 1.

Referring to the drawing, I have shown at 1 a sheet metal base of inverted dish shape provided with an upstanding annular flange 2 surrounding the periphery of a central perforation in the bottom 3 of the base. A rubber plug 5 circular in section and upwardly tapering has a neck 6 which may be forced downwardly into the central opening whereby the neck 6 is constrictingly engaged by the flange 2 to securely hold the plug in position on the base.

The plug 5 thus provides a conical head or "cork" adapted to seal the mouth and neck of a water bottle 7 shown in broken lines in inverted position.

The weight of the bottle 7 and the liquid such as water therein is supported on the base 1 and the bottle is retained in its vertical position by a metal band 8 encircling the upper part of the bottle. The band 8 is supported upon and longitudinally spaced from the base 1 by a plurality such as four uprights 10—10. The lower ends of these uprights are preferably inserted through suitable perforations at 11—11 in the bottom 3 of the base, and internally of the base bent over and welded as by spot-welding to the base. The upper ends of the uprights 10—10 may be secured as by spot-welding to the band 8.

Preferably, two of the uprights, illustrated at 12 and 13, extend upwardly beyond the band 8 and to a point adjacent the upper end or "bottom" 14 of the bottle and there have a hinging connection with a handle or bail 15 by which the carrier as a whole and the bottle may be transported manually. Extending laterally from the upright 12 is a bracket having a central perforation therein for supporting a hydrometer or any other desired device which may be used by the attendant to perform other operations on the battery, the filling of which with water is the primary purpose of the construction being described.

The other extended upright, 13, has secured thereto as by spot-welding, a generally U-shaped clamp 17 the construction and purpose of which will be more fully described later.

A short piece of tubing 18 extends through a suitable bore in the plug 5 and below the plug and within the base is connected to one end of a hose 19, at the other end of which hose is affixed a tubular nozzle 20 preferably formed from a piece of steel tubing. When the hose is in its generally depending position indicated in broken lines at 21 in Fig. 1, water may flow out of the bottle through the hose 19 and out of the nozzle 20, and a stand pipe 22 extending through a suitable bore in the plug 5 and communicating with air in the base 1, and extending away from the base upwardly through the interior of the bottle to a point adjacent its upper end, permits air to enter the bottle to replace the water drawn therefrom.

Indicated generally at 25 is a housing associated with the nozzle 20 which variously functions as a handle for the nozzle 20, and as a means for supporting the nozzle in a non-discharging position in association with the clamp 17 to be described, and as a protection and enclosure for an electric lamp and automatic switch, all of which will now be described.

The housing comprises an end plate 26 having an inwardly directed perimetral flange 27, the contour of the plate being clearly shown in Fig. 11 wherein the edge of the flange 27 appears. The end plate 26 is provided with a perforation 28 whereby it may be telescoped over the nozzle 20 and is provided also with a perforation 29 surrounded by an integral flange 30. The plate 26 is thus advantageously constructed from sheet metal by a pressing and forming operation.

A second end plate 31 is provided substantially identical with the plate 26 except that it does not have the perforations 29. The housing also comprises an outer wall 32 and an inner wall 33 formed each from sheet metal and each generally of U-shape in cross-section and disposed concavely confronting each other and joined along adjacent longitudinal edges as at 34—34 and squared off at their longitudinal opposite ends whereby they may oppositely abut upon the plates 26 and 31 and be enclosed by the flanges 27 and 27' of these plates.

The wall 32 as shown in Figs. 10 and 11 is formed to partially embrace the nozzle 20 and therefrom proceeding inwardly the wall diverges on each side and thus comprises diverging portions 35—35 terminating inwardly in substantially parallel portions 36—36 beyond which the wall is inwardly offset as at 37—37, the offset portions 37 terminating in inwardly directed confronting flanges 38—38.

The wall 33 is generally semi-cylindrical comprising a circular bent portion 40 terminating in substantially parallel portions 41—41 proportioned and disposed to overlap the offset portions 37 of the other wall member.

The hollow casing thus provided, due to the flanges 27 and 27' overlapping the ends of the wall portions 32 and 33, may be held in assembled relation by constraining the end plates 26 and 31 against outward axial movement which may be effected either by closely press-fitting the parts together or by simply soldering or welding the end plates 26 and 31 upon the nozzle 20. Preferably, the end plate 26 is thus secured to the nozzle 20 and the end plate 31 is generally retained by its proximity to the extreme end 42 of the hose 19 so that when it may be desired, to inspect the parts within the housing to be described, the end plate 31 may be removed and the housing disassembled to give access to the contents thereof.

A transverse metal partition 43 is supported in the housing, being lodged in a groove 44 in the wall 33 and being clamped between the groove and the flanges 38 of the wall 32, the partition 43 having shoulders 45—45 engaging said flanges. The partition 43 is threaded as at 46 to receive the threaded end 47 of an incandescent lamp bulb.

A second transverse partition 48 similar to the partition 43 but composed of insulating material is secured in position in the housing by being seated in a groove 49 in the wall 33, and by being clamped between this groove and the flanges 38, shoulders 49 being provided on the partition 48 for this purpose.

A cup-like element 50 formed from sheet metal is supported on the partition 48 and out of contact with other metal parts of the housing by

tongues 51—51 formed on the ends of the skirt of the cup-like element and projected through suitable perforations in the partition 48 and riveted or bent over. The wall of the cup-like element 50 has an inwardly projecting tongue 52 bent inwardly from the metal of the skirt to provide a ledge or shoulder or stationary contact point. A post 53 provided with a head 54 has a shank 55 projected through a perforation in the partition 48 and riveted over and aligned with and disposed relatively to the incandescent lamp 56 so that the axial terminal of the lamp may abut thereupon when the lamp is screwed upwardly in the partition 43 in a well known manner.

Surrounding the post 53 and axially slidable thereon is a metal ring 57 of sufficient outer diameter as to rest upon the stationary contact point 52. A pair of conducting wires 60 and 61 are led into the housing through a suitable perforation at 62 in the end plate 31 and one wire is soldered to the inner surface of the end plate 31 as at 63 and the other is soldered to the cup-like element 50 as at 64. Both wires are insulated and externally of the housing are continued to a point within the base 1 of the carrier and in a manner to be more fully described are connected to a cell or pair of cells in the base 1 to supply electric current.

The operation of the switching mechanism may now be described. When the hose 19 and nozzle 20 and housing 25 are moved from the non-discharging position of Fig. 1 in solid lines to the discharging position shown in broken lines in that figure, the nozzle and housing and associated parts take up the position shown in Figs. 8 and 9. The housing 25 is thus inverted and gravity acting upon the ring 57 moves it from its normal position against the head 54, which position it takes up when the housing and nozzle are in a discharging position, and moves it to the position illustrated in Fig. 9, that is, into engagement with the contact point 52. Current may now flow inwardly on, say, the wire 60 through the point 52, ring 57, post 53, to the inner terminal of the lamp 56, out through the thread 47 thereof and partition 43 to a ground on the housing 25, thence returning by wire 61.

The lamp 56 is now illuminated and its light is projected outwardly through the aperture or perforation 29 and will illuminate the battery filling orifice or other point toward which water discharging from the nozzle 20 is directed.

When the housing 25 and nozzle 20 are returned to the non-discharging position of solid lines in Fig. 1, gravity acting on the ring 57 will remove it from the contact point 52 and lodge it against the head 54 and thus break the circuit at 52, and the lamp will automatically be extinguished.

This whole operation is automatic and occurs without thought on the part of the operator.

The wires 60 and 61 may be conducted to the base 1 of the carrier in any suitable manner but I prefer to carry them through a second hose-like or tubular conduit 70 substantially coextensive with and parallel with the hose 19, and preferably formed integrally therewith or secured thereto by adhesive.

Both the conduits 19 and 70 preferably extend through a suitable perforation 71 in the base.

I preferably provide, to illuminate the lamp 56, a pair of dry cells which I have illustrated at 72 and 73. And I provide a pair of housings for these cells whereby they may be enclosed and protected and whereby they may be connected in the circuit of the lamp 56 simply by inserting them into the housing. This construction will now be described.

A box illustrated separately in Figs. 3, 4, 5, 6 and 7, is provided for each cell and comprises a box proper 75 comprising side walls 76—76 and end walls 77—77 arranged to enclose a rectangular space and a flange 78 joined integrally with the walls and disposed at right angles thereto, and provided with perforations 79—79 whereby, by means of rivets 80, Fig. 2, the box, by means of its flange 78, may be rigidly secured to the underside of the bottom 3 of the base 1 of the carrier. The box also comprises a cover 81 formed to fit over the outside of the open end of the box 75, telescopically, and preferably has a shoulder 82 and inwardly bent portions 83—83 whereby its position telescopically toward the base 78 may be determined and whereby it may be securely but detachably connected with the box 75.

These parts are preferably made from sheet metal by cutting and pressing operations and the two boxes 75—75 and their covers 81 are preferably identical.

In each of the boxes, at the opposite ends 77 thereof, is riveted a flat rectangular piece of insulating material 85 by means of rivets 86—86. Each end 77 is also perforated as at 88, Figs. 5 and 7, and rivets 89, preferably of eyelet form, disposed in said perforation, securely rivet to the insulation 85, an L-shaped metal plate 90.

The plate 90 is perforated to receive a rivet 91, one head of the rivet lying between the insulation 85 and the plate 90, and the other end of the rivet lying on the opposite side of the plate 90. One of the rivets 91 as at 92 secures, under the head thereof, a conical helical spring 93, Fig. 4.

The wire 60 emerges from the conduit 70 through a suitable perforation or through the termination thereof in the base 1, Fig. 2, and passes through one of the eyelet rivets 89, and the end of the wire is soldered to the adjacent plate 90, as at 95, see Figs. 6 and 7. The other wire 61 passes through a similar eyelet, being similarly soldered with respect to the other box. The opposite ends of the said boxes have a wire 96 projected through corresponding eyelets 89 of the respective boxes and the ends of the wire 96 are soldered to the respective plates 90 of these boxes.

The dry cells 72 and 73 are disposed in the boxes above described and mounted therein by first presenting the bottom of the cell to the spring 93, moving the cell longitudinally to compress the spring whereby the well known central terminal connection 100 of the cell (see Fig. 4 in broken lines or Fig. 3 in solid lines), may be brought opposite the adjacent rivet 91. The compression on the spring 93 may then be released and the spring will force the contact terminal 100 into resilient contact engagement with the adjacent rivet 91. Thus contact from one pole of the cell is made on one rivet 91 and contact with the other pole is made on the other rivet 91 through the spring 93.

As will now be understood, a complete circuit is made from the lamp 56 by way of wire 60, one of the plates 90, a rivet 91, one pole of the battery, such as 100, through the battery 72, spring 93, another rivet 92, and plate 90, and by wire 96 through the other box in a similar manner as

just described, and therefore through the other cell 73 and back to the other wire 61.

Thus upon closing the circuit to the lamp 56 as above described, the two cells energize it in series with each other, and the dry cells may be removed from and inserted into the boxes as described and will automatically be connected in the circuit without the necessity of making any electrical connections therewith other than those which are automatically made by inserting the cells.

When the covers 81 are in place, the cells themselves and the electric contact which they make in the circuit are protected against injury or against moisture or other deteriorating influences so that the batteries will continue to function throughout their lives.

In the operation of the device as above described, when the housing 25 and nozzle 20 are moved to the discharging position of broken lines, Fig. 1, the housing 25 may be turned upside down or in any position to direct the light where wanted. However, when the housing 25 is returned to its non-discharging position, it is preferably moved to the position illustrated in Fig. 1 whereat the nozzle 20 is relatively remote from the upright 13, and in this position is attached to the upright 13 by means of the clamp device 17 which will now be described.

The clamp 17 is preferably formed from sheet metal generally in the form of a U and spot-welded or otherwise secured to the upright 13 as illustrated in Fig. 12. The legs 101—101 of the U are shaped to conform generally to the outside of the housing 25 and thus at their outer ends are bent inwardly to embrace the divergent portions 35—35 thereof, and the device 17 is furthermore made of resilient material so that the housing 25 may be thrust between the legs 101—101. A foot 103, which may be formed integrally with the clamp 17 or separately, is disposed immediately below the clamp and upon the foot the end plate 31 of the housing 25 may rest. The housing 25 may thus be supported in the solid line non-discharging position illustrated and may be removed therefrom simply by pulling outwardly on the housing 25.

My invention is not limited to the exact details of construction shown and described. Many changes and modifications may be made within the scope and spirit and of the invention without sacrificing its advantages.

I claim:

1. In a device of the class described, a liquid-discharging conduit, a nozzle device on the end of the conduit comprising an electric lamp support, a lamp on the support, a stem conductingly associated with the lamp, a support for the stem, a ring encircling the stem, a laterally disposed abutment engageable by a portion of the ring, the ring being axially movable on the stem to engage and disengage the abutment under the action of gravity on the ring, and a support for the abutment, and current conducting means connected to the lamp and to the abutment whereby upon movement of the nozzle device to one position, the ring may engage the abutment and close a circuit through the lamp and upon movement of the nozzle to another position, the ring may move to disengage the abutment and open the circuit.

2. In a device of the class described, a discharging conduit, a nozzle device on the end of the conduit comprising a sheet metal housing, a bracket electrically connected to the housing, an incandescent lamp screwed into the bracket, a second bracket supported on the housing and insulated therefrom, a stem supported by the insulated bracket and electrically engageable by the lamp, an abutment supported by the insulated bracket, a ring on the stem movable axially thereon in opposite directions under the action of gravity when the nozzle device is turned in alternative positions, the ring, when in engagement with the abutment and the stem, electrically connecting the two, a conducting wire connected to the abutment, a second wire conductively related to the first-named bracket and the two wires connected to a source of current

3. In a device of the class described, a fluid-discharging conduit, a nozzle device on the end of the conduit comprising a relatively rigid tubular discharge element, a housing mounted on and supported by the said element and comprising a pair of sheet metal housing members of generally U-shape in cross-section disposed concavely confronting each other and with the edges at the ends of the U-legs in engagement, a pair of oppositely disposed end plates at the longitudinal ends of the U-shaped element provided with flanges engaging the latter, the end plates being provided with perforations through which the tubular discharge element extends, a metal bracket in the housing thus formed threadedly supporting an incandescent lamp, an insulating bracket in the housing supporting a metallic stem adapted to electrically engage the inner element of the lamp when screwed in one direction, a metallic ring telescopically movable on the stem, and by the action of gravity when the housing is turned in alternate directions, a frame supported on the insulating bracket, an abutment on the frame, engageable by the ring when moved in one direction on the stem, an electric conductor connected to the frame, a second electric conductor grounded on the housing and thus electrically connected to the metal bracket, the housing being provided with an aperture through which the wires may be conducted, an electric cell on the device connected to the wires whereby upon movement of the nozzle device to a discharging position, the ring may move to engage the abutment and close a circuit to the lamp and upon movement to a discharging position, the ring may move to disengage abutment and break the circuit to the lamp.

4. In a device of the class described, a fluid-discharging conduit, a nozzle device on the end of the conduit comprising a relatively rigid tubular discharge element, a housing mounted on and supported by the said element and comprising a pair of sheet metal housing members of generally U-shape in cross-section disposed concavely confronting each other and with the edges at the ends of the U-legs in engagement, a pair of oppositely disposed end plates at the longitudinal ends of the U-shaped element provided with flanges engaging the latter, the end plates being provided with perforations through which the tubular discharge element extends, a metal bracket in the housing thus formed threadedly supported an incandescent lamp, an insulating bracket in the housing supporting a metallic stem adapted to electrically engage the inner element of the lamp when screwed in one direction, a metallic ring telescopically movable on the stem, and by the action of gravity when the housing is turned in alternate directions, a

frame supported on the insulating bracket, an abutment on the frame, engageable by the ring when moved in one direction on the stem, an electric conductor connected to the frame, a second electric conductor grounded on the housing and thus electrically connected to the metal bracket, the housing being provided with an aperture through which the wires may be conducted, an electric cell on the device connected to the wires whereby upon movement of the nozzle device to a discharging position, the ring may move to engage the abutment and close a circuit to the lamp and upon movement to a discharging position, the ring may move to disengage abutment and break the circuit to the lamp, one of the end plates being provided with an aperture through which light from the lamp may be projected.

5. In a device of the class described, a discharge conduit, comprising a tubular nozzle, a handle piece associated therewith, the handle piece having a chamber therein and including a pair of members movable relative to each other to give access to the chamber, the nozzle extending through the chamber in the handle piece and supporting the handle piece, and a lamp socket and a lamp positioned in said chamber, the lamp disposed to illuminate the projecting end of the nozzle.

6. In a device of the class described, a discharge conduit, a handle piece associated therewith, the handle piece having a chamber therein and including a pair of members movable relative to each other to give access to the chamber, a flanged end piece engaging the first named members to secure them in operative relation, a switch and a lamp socket positioned in said chamber.

7. In a device of the class described, a tubular discharging conduit element, a handle piece associated therewith, the handle piece having a chamber therein and including a pair of members movable relative to each other to give access to the chamber, one of said members having a portion adapted to embrace an intermediate portion of the conduit element to secure the handle piece thereon, a switch and a lamp socket positioned in the chamber of the handle piece.

8. In a device of the class described, a discharging conduit, a handle piece associated therewith, the handle piece having a chamber therein and including a pair of members movable relative to each other to give access to the chamber, one of said members being substantially U-shaped and having a portion adjacent the base adapted to engage the conduit to secure the handle piece thereon, and a lamp socket positioned within said chamber

9. In a device of the class described, a discharging conduit, a handle piece associated therewith, the handle piece having a chamber therein and including a pair of members movable relative to each other to give access to the chamber, one of said members being substantially U-shaped and having adjacent the base thereof a portion adapted to engage the conduit and to be clamped to the conduit when the legs of the member are drawn toward each other and a flanged end member engaging the first named members to secure them in operative relation.

10. In a device of the class described, a discharging conduit, a handle piece associated therewith, the handle piece having a chamber therein and including a pair of members movable relative to each other to give access to the chamber, a nozzle piece associated with said discharge conduit and extending through and beyond the handle piece, and supporting the same a lamp bulb positioned in the handle piece, a source of electric current and current conducting means connected to the lamp, the lamp being disposed to illuminate the end of the nozzle and the orifice of a battery cell when the discharging conduit is in the discharging position.

NORMAN F. HAURY.