W. GRETHER.

PORTABLE ELECTRIC LANTERN.

APPLICATION FILED JULY 9, 1917.

1,301,253.

Patented Apr. 22, 1919.

2 SHEETS—SHEET 1.

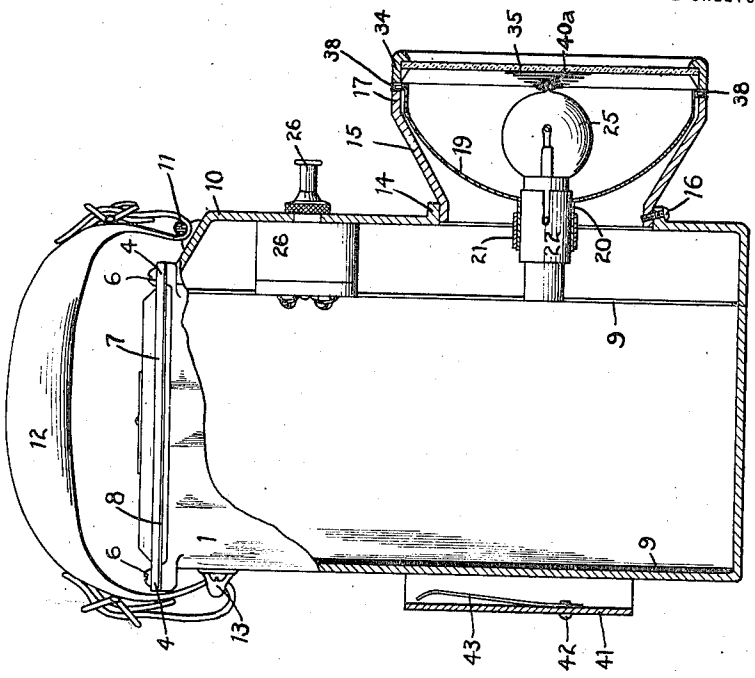


Fig. 2

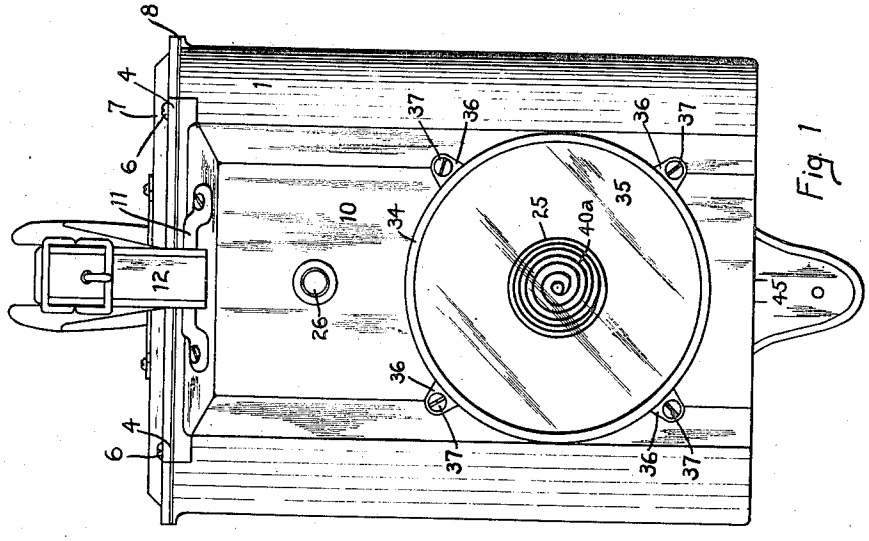


Fig. 1

Witness

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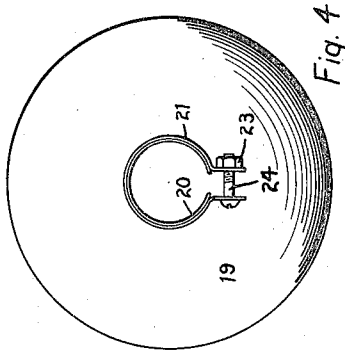


Fig. 4

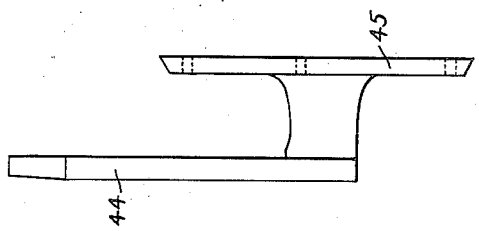


Fig. 6

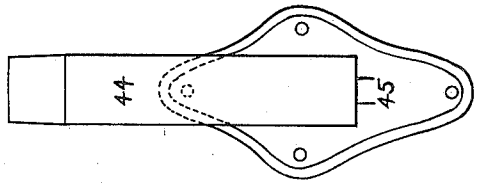


Fig. 5

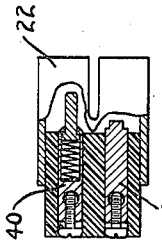


Fig. 7

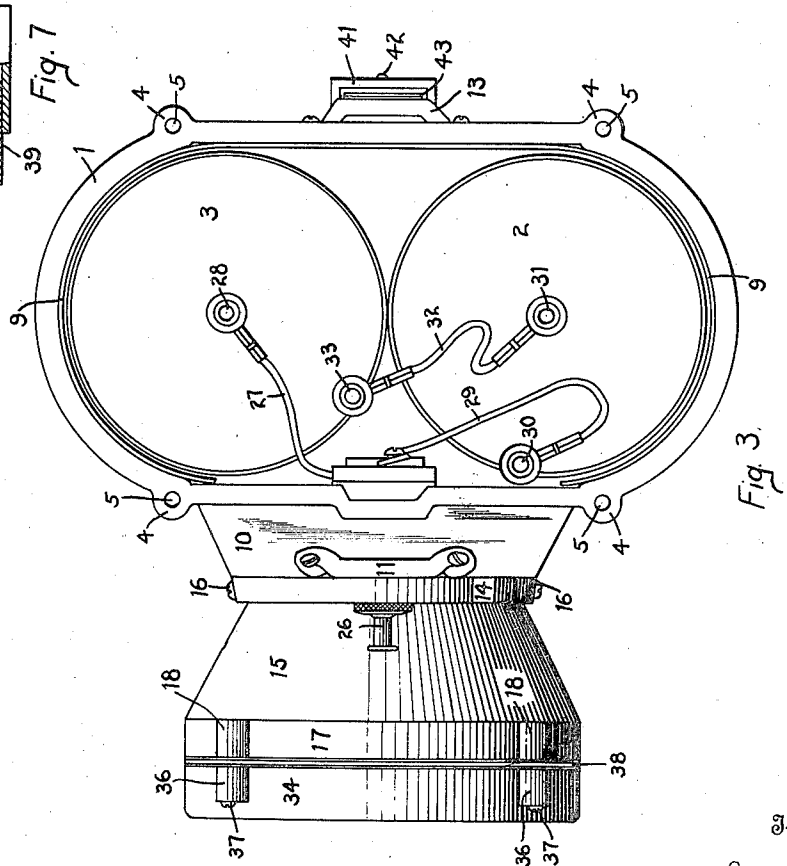


Fig. 3

Witness

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UNITED STATES PATENT OFFICE.

WILLIAM GRETHER, OF DAYTON, OHIO.

PORTABLE ELECTRIC LANTERN.

1,301,253. Specification of Letters Patent. Patented Apr. 22, 1919.

Application filed July 9, 1917. Serial No. 179,334.

To all whom it may concern:

Be it known that I, WILLIAM GRETHER, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Portable Electric Lanterns, of which the following is a specification.

This invention relates to new and useful improvements in portable electric lanterns.

The principal object of my invention is the provision of a portable electric lantern which is not only safe under all conditions of use, but which is watertight and adapted to project its rays a great distance and through dense media such as smoke. It is furthermore designed to meet the requirements of the most exacting uses to which a portable electric lantern may be put, namely, fire department, war, mine, police and like service. Water from a hose or other source may be turned upon the searchlight without affecting it, and it may be used in the presence of leaking gas, escaping chemical fumes, or explosives with absolute safety.

My improved electric lantern is designed to run on two ordinary No. 6 dry cells which may be purchased in almost any local store, and from which it will develop and project a light of sufficient intensity to penetrate the densest smoke.

While it is one of the objects of my invention to provide an electric lantern light enough in weight to be readily carried by the improved leather handle, yet it is of sufficient compactness and strength that a fireman may, by gripping that handle firmly in one hand, batter in a window or similar closure with its bottom end.

Another object of the invention is to provide means for securing the lens holder to the reflector casing in such a manner that, though it may be subject to severe shocks, its ready removal or attachment will not be impaired, since threads or other connections which break easily, are eliminated.

Other important objects will be set forth in the following specification and particularly pointed out in the subjoined claims.

The preferred form of embodiment of my invention is illustrated in the accompanying drawings, of which Figure 1 is a front view of my improved portable electric lantern. Fig. 2 is a side view thereof, partly broken away. Fig. 3 is a top plan view of the lantern with the cover and handle removed. Fig. 4 is a rear view of the reflector. Fig. 5 is a front view of the bracket by which the lantern may be firmly held on a piece of fire apparatus. Fig. 6 is a side view of said bracket. And Fig. 7 is a sectional view of the improved safety socket for the lamp.

Throughout the specification and drawings, similar reference characters denote corresponding parts.

In a detailed description of the preferred form of embodiment of my invention, the numeral 1 designates a portable electric lantern casing preferably constructed of aluminum, and of a shape approximately elliptical in cross section to snugly receive two ordinary dry cells 2 and 3, or a storage battery (not shown). At each corner of the approximately elliptical top of the lantern casing 1 there is a boss 4 which contains a threaded hole 5 to receive a screw bolt 6. The numeral 7 designates a preferably aluminum cover plate and 8 an oil paper gasket, through the non-threaded holes in which the screw bolts 6 are passed into the threaded holes 5 in the bosses before mentioned, for the purpose of firmly holding said cover plate on the lantern casing.

Between the cover plate 7 and the top of the casing 1 the oil paper gasket is tightly compressed to prevent the cover from rattling and the entrance of moisture to the cells. There is also an insulating paper lining 9 vertically disposed between the cells 2 and 3, and the lantern casing 1, to thoroughly insulate the former from the latter as well as to prevent the cells from rattling. (See Figs. 2 and 3.)

The lantern casing 1 has a front projecting panel portion 10 to provide for the following described elements. Screwed to the top of the panel portion 10 is a humped fastening piece 11 which receives one end of a leather handle 12, the other end of said handle passing around the humped portion of a similar fastening piece 13 screwed to the upper rear portion of the lantern casing. (See Figs. 1 and 2.) The manner in which this handle 12 is secured to the lantern casing not only permits one to easily turn the searchlight in a desired direction, but also enables a fireman to so grip the lantern that he may readily raise its bottom end to a horizontal position and with it batter in a window or similar closure barring his entrance to a fire. The lantern is so compactly constructed as to have sufficient strength for

this purpose without injuring the well-protected reflecting means now to be described.

Provided in the lower part of the panel portion 10 of the lantern casing 1, is a socket 14 which tightly receives the inner end of a preferably conical reflector casing 15, the latter being firmly secured within the former by means of screws 16 passing through threaded holes in both. (See Fig. 2). The reflector casing 15 terminates at its outer end in a circumferential band portion 17 around which there are disposed, at equal distances apart, preferably integral bosses 18 for a purpose to be hereinafter described.

Positioned within the reflector casing 15 is a preferably brass, nickel-plated parabolic reflector 19 which terminates at its inner end in a split cylinder 20 around which a bolt clamp 21 is preferably soldered. (See Fig. 4). This split cylinder 20 is adapted to receive a safety socket 22, which is firmly secured therein by tightening the nut 23 on the bolt 24 of the clamp 21. Preferably fitted within the socket 22 is a National coil filament lamp 25 which is adapted to project a powerful light from two to three hundred feet from my improved portable lantern.

To supply current to the lamp 25, the socket 22 is in electrical connection with a push switch 26, preferably of the Cutler Hammer type, provided in the upper part of the panel portion 10 of the lantern casing 1. A wire 27 leads from a terminal 28 of the dry cell 3 to the socket 22, the latter being connected to the switch 26 by a connection not shown. The switch 26 is in turn connected by an insulated wire 29 to a terminal 30 of the dry cell 2, the other terminal 31 of the latter being connected by an insulated wire 32 to the terminal 33 of the dry cell 3. (See Fig. 3).

While I have employed a lamp and switch of the special types hereinbefore mentioned, it is to be understood that any other suitable kind of lamp and switch may be employed in my portable lantern without departing from the spirit of my invention.

Secured in the following described fool-proof and water-tight manner to the outer end of the reflector casing 15, is a lens holder 34. Preferably set within this holder by white lead putty to make a watertight connection, is a lens 35. Furthermore, to make a fool-proof and watertight connection between the lens holder 34 and reflector casing 15, when the former is secured to the latter, the following fastening means are employed.

As before stated, bosses 18 are provided around the outer peripheral end of the reflector casing 15. Corresponding bosses 36 are also provided around the periphery of the lens holder 34. The bosses 36 contain non-threaded holes through which screws 37 are passed into threaded holes within the bosses 18 for the purpose of securing the lens holder 34 to the outer end of the reflector casing 15. This affords a fool-proof and safe connection between those members, for where threads are used for that purpose, the shock to which the reflector casing is frequently subjected will cause the threads to break, making it necessary to provide new parts before the lens holder can again be secured to the reflector casing. The screw and boss connection which I have provided, will withstand many of the most severe shocks which the lantern may receive in a fireman's hand, and is also made watertight by the following means.

Adapted to be placed between the lens holder 34 and the outer end of the reflector casing 15 is an annular copper-asbestos gasket 38 which, when the lens holder is screwed onto the reflector casing, is tightly compressed to prevent the entrance of water or gas to the lighting elements. Consequently, should the reflector casing accidentally come within the path of a stream of water from a line of hose, none of that water will penetrate the connecting means above described to injure the searchlight parts.

Not only are the reflector and lamp protected as above described, but these elements are positioned and constructed to cooperate with the lens in sending forth a powerful light to aid a fireman and others under the most adverse conditions. All the lantern parts are designed to present a strong, durable and efficient unitary structure which is not only serviceable as a powerful searchlight, but also as a battering ram for firemen, policemen and others who may have use for such an instrument.

My portable lantern has an additional safety feature in the means provided to prevent the ignition of leaking gas, chemical fumes, or explosives by sparks that might be produced in the reflector casing should the lens 35 in any way become broken. Referring to Fig. 7, the socket 22 contains on one side a rigid contact 39 and on the other a spring-plunger contact 40. When the base of the lamp 25 is inserted in the socket 22, it will first engage the spring-plunger contact 40. The latter extends outwardly a sufficient distance beyond the rigid contact 39 to prevent an electrical circuit between the socket 22 and lamp 25 until it has been pushed in to a point where the rigid contact 39 is in engagement with the lamp base.

Unless the lamp 25 is held against the rigid contact 39 by some exterior means, the spring-plunger contact 40 has sufficient power to force the lamp base away from the rigid contact 39 for the purpose of breaking the lamp circuit. The means provided

for holding the lamp base—which is longitudinally movable within socket 22—against both contacts 39 and 40, is a preferably conical-shaped, spiral spring 40^a which is compressed between the tip of the lamp 25 and the middle portion of the lens 35. (See Figs. 1 and 2). Now, should the lens 35 in any way become broken, the spring 40^a will be immediately released, at once causing the unrestrained spring-plunger contact 40 to break the circuit at the base of the lamp before any leaking gas, chemical fumes or explosives can be ignited by sparking at any point within the reflector casing. This is one of the most important safety features of my improved lantern, which makes it especially adapted for fire, mine and munitions-making service, and which will not affect the light projected therefrom.

For the purpose of holding the lantern on the side or dash board of any piece of fire apparatus, the following construction is provided. Suitably secured in a vertical position to the rear portion of the lantern casing 1, is a holder 41. Preferably fixed within said holder by a rivet 42, is a leaf spring 43 which is adapted to be compressed by the entrance into the holder of the tongue 44 of a bracket plate 45. The latter is adapted to be screwed on the dash board or side of the fire apparatus, after which the lantern may be removably supported thereby by forcing the spring-containing holder 41 down over the bracket tongue 44. (See Figs. 2, 5 and 6). While I prefer this form of device for removably supporting the lantern on the fire apparatus when not in use, any other suitable means for this purpose may be employed if desired.

The portable electric lantern above described is adapted not only for fire department service, but for that which is equally hazardous and exacting such as in mines, munitions plants, naval and police work. It is equally well adapted for general commercial usage, such as watchmen's service in factories where it is desired to throw a strong light the entire length of a floor, and in power and light service where by its use the top of an electric pole may be highly illuminated from the ground. It may likewise be used by automobilists for emergency use when the regular lights fail, or in garages and other places where a strong and safe light is required.

I do not wish to be limited to the details of construction and arrangement herein shown and described, and any changes or alterations may be made therein within the scope of the subjoined claims.

Having described my invention, I claim:

1. A portable electric lantern comprising a main casing, a reflector casing projecting therefrom, a lamp within the latter, a lens holder, a lens within said holder, inner bosses secured to the reflector casing, outer bosses secured to the lens holder, the outer bosses seated on the inner bosses, and screws passed through the outer bosses into the inner bosses to clamp the lens holder to the reflector casing.

2. A portable electric lantern comprising a main casing approximately elliptical in cross section, and having a front projecting panel portion, a reflector casing secured thereto, a lamp within the latter, a lens holder firmly secured to the outer end of said reflector casing, a lens tightly fixed within said holder, and a handle extending from the top of said panel portion, in line with the minor axis of the elliptical top of the casing, to the rear top portion of the latter, whereby the lantern may be firmly gripped for use as a battering medium.

In testimony whereof I have hereunto set my hand this 7th day of July, 1917.

WILLIAM GRETHER.

Witnesses:

SAMUEL L. FINN,

HOWARD S. SMITH.