April 18, 1933. J. S. PIXLEY ET AL 1,904,248

LANTERN

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Fig. 1.

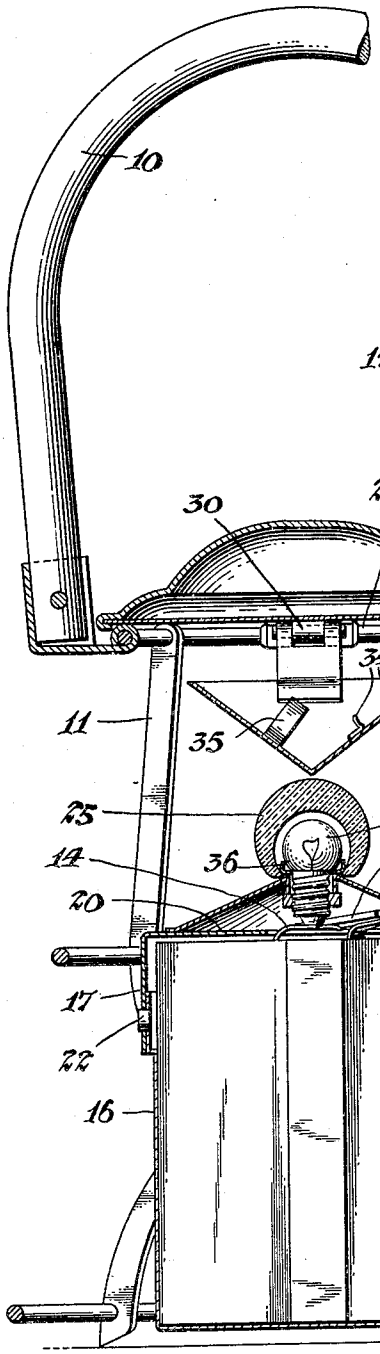
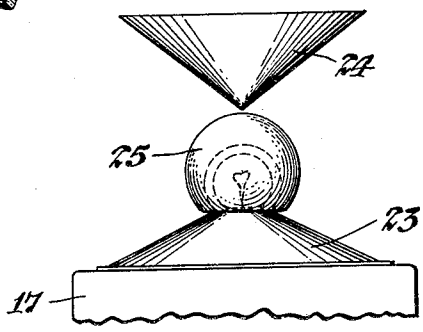


Fig. 2.



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Fig. 3.

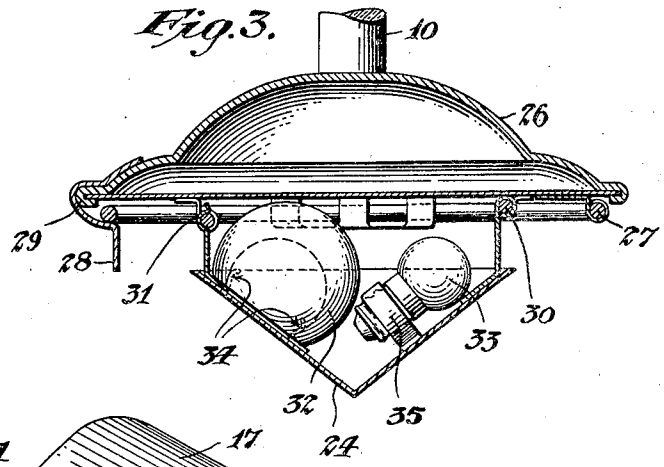


Fig. 4.

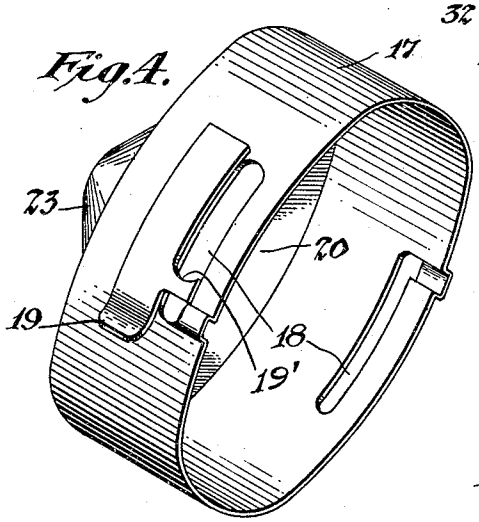


Fig. 5.

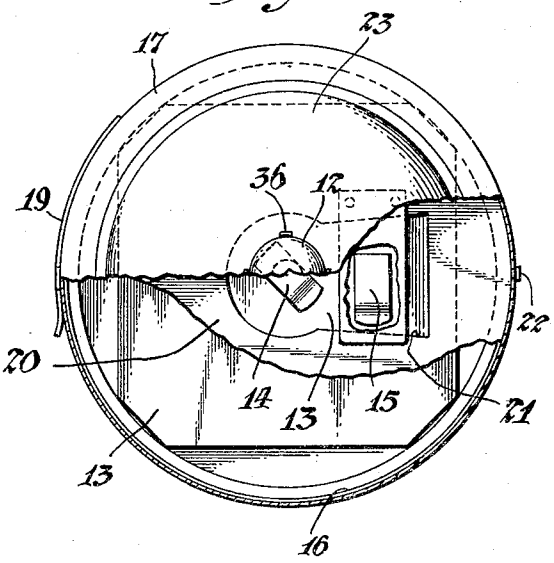
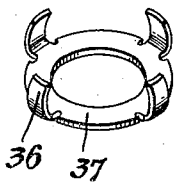


Fig. 6.



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Fig. 9.

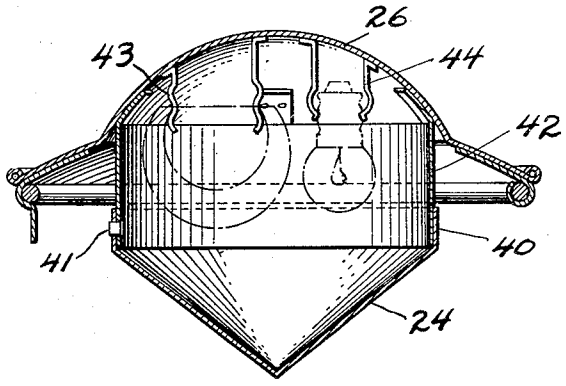


Fig. 7.

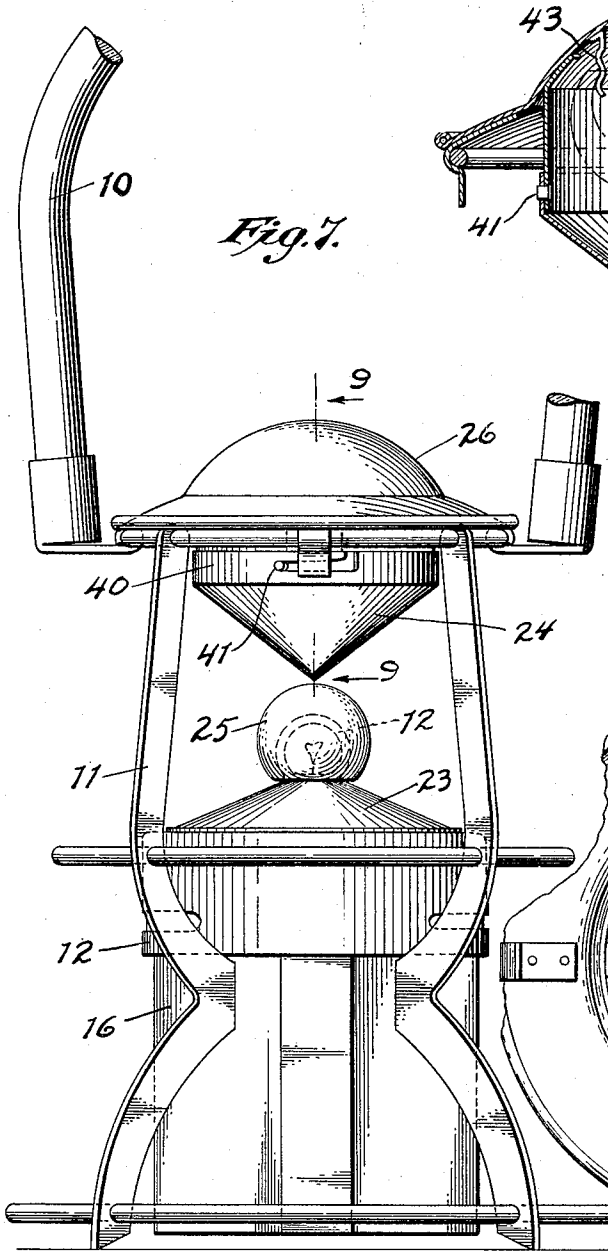
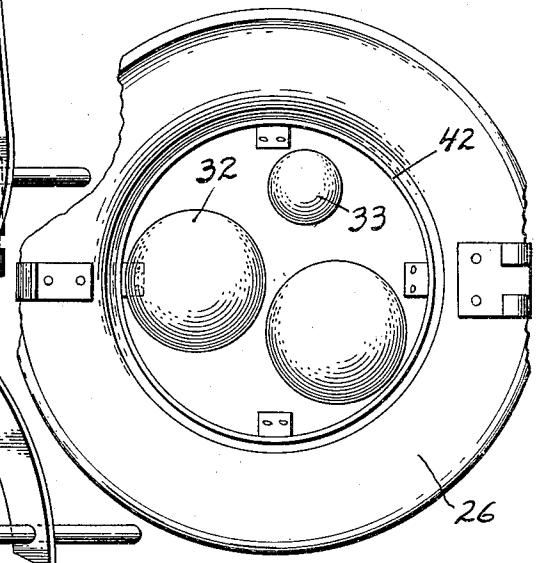


Fig. 8.



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Patented Apr. 18, 1933 1,904,248

UNITED STATES PATENT OFFICE

JUDSON S. PIXLEY, OF NEW YORK, N. Y., AND MARTIN BENDER, OF GLEN RIDGE, NEW JERSEY, ASSIGNORS TO ARMSPEAR MANUFACTURING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

LANTERN

Application filed November 25, 1929. Serial No. 409,603.

This invention relates to lanterns such as those used by railroad trainmen, switchmen, etc., in signaling at night. To lessen the fire hazard and general inconvenience of oil burning lanterns there has been a considerable desire to use an electric lamp. Several designs of such lamps have been tried out but for various reasons without satisfactory results.

One such design has included the customary handle and skeleton frame with the lamp extending downwardly in the lower portion of the frame and with a battery carried between the handle and lamp. One serious objection to this lamp has been its high center of gravity, making it top heavy and easy to topple over. Another objection has been the poor visibility of the light at times. The necessity of swinging the lamp in either or both a vertical and horizontal plane makes it necessary for the lamp to be seen on all sides and precludes solution of the problem of deficient light intensity by the use of the usual parabolic reflectors. Such reflectors would not allow the transmission of some of the signals, when, for example, the brakeman swings his lantern over his head.

One object of this invention is to overcome these disadvantages and provide a convenient, compact and inexpensive lantern capable of being seen much better at a distance than is the usual electric lantern regardless of the direction in which the lantern swings.

Another object is to get a maximum light intensity for a minimum cost.

Another object is to mount an electric lamp or bulb so as to distribute light-rays similarly to the familiar oil burning lantern being mounted so that the bulb extends upwardly from the base.

According to this invention an axial reflector is mounted on one side of the lamp so that another light image is provided adjacent the lamp, both the lamp and this image being visible from all around directions, this image being adjacent the lamp and causing the two apparent light sources to appear as a single and larger light source when viewed from a distance. Specifically two conical reflectors are arranged with their apices closely adjacent the lamp, one below and one above the lamp. To make the lamp and image appear larger a small removable globe is used, so designed that the lamp appears larger, it magnifying the rays on all sides and at the top. To provide for different colored lights this globe may be made of the desired color and a number of different colored globes carried, since the globe is a vest pocket size and readily attached or removed during use of the lantern. Instead of having a push button or other projecting switch actuator in the way of the user where it is likely to be accidentally opened or closed, the switch controlling the lamp is located between the lamp and battery and operable in response to relative movement between the lamp base and the battery. The simplicity and few number of the parts necessary make this switch much superior to those which have previously been used in such lanterns.

Referring to the drawings:

Fig. 1 shows one embodiment of this invention.

Fig. 2 is a detail showing the globe between the two reflectors.

Fig. 3 is a section through the upper reflector and top of the lantern.

Fig. 4 is a perspective showing the bayonet slots in the sides of the lamp base.

Fig. 5 is a top view showing the lamp base in place on the battery but with the upper portion of the reflector broken away.

Fig. 6 is a detail of the spring clip for the globe.

Fig. 7 is a side view of a lantern embodying the preferred form of the invention.

Figs. 8 and 9 are detail views showing the receptacle for spare globes and lamps.

In Fig. 1 the lantern illustrated comprises the usual handle 10, preferably of insulating material or covered with insulation and secured to the supporting frame 11, which is of the general shape shown. An electric lamp bulb 12 is supplied from a battery 13 of the customary dry cell type through one terminal 14 of the battery connected to the center contact of the lamp while the other

terminal 15 is grounded to the lamp base or support. To lower the center of gravity the battery is located within the container 16 as illustrated below the lamp. The lamp base 17 constitutes a cover for the container 16 and is secured to the container 16 by means of pins 22 on the container entering the bayonet slots 18 shown more clearly in Fig. 4.

The yieldable latch or spring member 19 secured to the side of the cover as shown prevents the pins 22 from accidentally coming out of their slots when the lantern is in use. The top 20 of the cover 17 is provided with a central opening through which one terminal 14 of the battery projects to engage the center lamp contact. The top of the cover also has an opening 21 through which the other battery terminal 15 may project when the lamp is not in use. A strip of insulation 21′ prevents the battery terminal 15 from accidentally contacting with the cover.

To supply current to the lamp the cover 17 is rotated relative to the container 16 and battery 13 until the terminal 15 engages the top of the cover 20 completing the circuit through the lamp. In order to insure the large recess 21 being located over the terminal 15, the pins 22 and bayonet slots 18 are made of different sizes so that it will be impossible for the cover 17 to be fitted to the container 16 in any but the correct manner.

As shown in Figs. 1 and 2 a conical reflector 23 is located below the lamp and another conical reflector 24 whose sides slope more steeply is arranged above the lamp with its apex adjacent the lamp so that in use an image of the lamp is seen on the upper reflector 24 near its apex. These reflectors are preferably chromium plated so as not to tarnish in use since they are not protected. To make the light source on the lamp 12 and its image on the reflector 24 appear larger a magnifying globe 25 fits over the lamp and is readily removed.

This globe is so shaped as to enlarge the appearance of the filament when viewed from any position on all sides or from the top, so that the image in the reflector 24 also is enlarged.

The lantern top 26 is pivotally secured at 27 as shown in Fig. 3, and a spring clip 28 engaging the under side of the frame member 29 retains the top 26 in position during use but permits the top to be readily raised. Pivot 27 has its axis substantially parallel to the plane of the handle 10. This permits the top to be raised so as to permit access to the reflectors, the lamp and the battery and removal, replacement or repair of the parts. The upper reflector 24 may be pivotally secured to the top 26 and after the top has been raised this reflector may be moved from its position by swinging it around its pivot 30 upon release of the spring clip 31 holding the reflector in position with respect to the top 26.

The spare globe 32 and lamp bulb 33 are shown as being held above the reflector 24 by means of the spring clips 34 and the support 35 respectively. When the reflector 24 has been dropped one of these spare globes or bulbs may be removed or inserted. When the top 26 is raised and the reflector likewise raised away from the lamp, the globe 25 is removable by an upward thrust which disengages the globe from the spring fingers 36 engaging the inside of the globe, as shown in Fig. 6. These spring fingers 36 are secured to a metal gasket 37 fitting around the base of the lamp and preventing the entry of any rain or snow into the lamp socket when the globe is off or being changed.

Within the reflector 24 or top 26 may be carried globes of different colors so that a light of any desired color can be available on removal of the existing globe and substitution of the globe of the desired color.

In operation rotation of the cover 23 with respect to the container 16 causes the contact member 15 to engage or disengage the top 20. The lamp base and cover 17 fits over the container sufficiently snugly so that there is no danger of the switch being opened or closed accidentally. In all operative positions of the switch the pins 22 are within the slots 18 and prevented from accidentally becoming disengaged by the finger 19′ of spring member 19. To remove the battery the cover 26 and reflector 24 are first raised to an out-of-the-way position.

Then the lamp base and reflector 23 are moved, the spring member 19 being also raised to permit the pins 22 to come out of the slots 18. Then the lamp base and reflector can be slid upwardly off the container 16. The battery may be readily withdrawn and a new one inserted when the cover 17 is removed.

The upper reflector 24 is preferably removable—for instance—it may have a flange 40 and pin 41 interlocking with a flange 42 projecting downwardly from the top. This flange 42 forms a chamber in which clips 43 and 44 may be provided so as to permit the carrying of extra or spare globes and/or lamps of any desired color. It is thus possible to readily change the color of the light as is frequently necessary in R. R. signalling. A single lantern may thus take the place of a number of different colored lanterns.

We claim:

1. A lantern provided with a handle, a supporting frame, a lamp within said frame, a circular reflector around said lamp, a battery below said lamp, one terminal of said battery being connected to one lamp terminal, the other lamp terminal being grounded to said reflector and means between the other ter-

minal of said battery and reflector for completing or opening the circuit through said lamp to light the same in response to movement of said battery relative to said reflector, and said means including a container for said battery, a rotatable connection mechanically securing said container to said reflector, a metal portion within said reflector and recessed to be out of contact with both battery terminals in one position of adjustment of said connection between the reflector and container and in electrical contact with one of said battery terminals in another position of adjustment of said mechanical connection, said mechanical connection including a pin and slot on opposite sides of said reflector and container, and yieldable means for retaining said pin within its slot.

2. A lantern provided with a handle, a supporting frame, a lamp within said frame, a circular reflector around the base of said lamp, a conical reflector supported above the lamp, a magnifying globe supported by said circular reflector, a battery below said lamp, one terminal of said battery being connected to one lamp terminal, the other lamp terminal being grounded to said reflector and means between the other terminal of said battery and reflector for completing or opening the circuit through said lamp to light the same in response to movement of said battery relative to said reflector, and said means including a container for said battery, a rotatable connection mechanically securing said container to said reflector, a metal portion within said reflector and recessed to be out of contact with both battery terminals in one position of adjustment of said connection between the reflector and container and in electrical contact with one of said battery terminals in another position of adjustment of said mechanical connection and said conical reflector being removable for insertion and removal of said magnifying globe.

3. A lantern comprising a receptacle for a battery, a lower reflector mounted on the top of the receptacle and having a central lamp socket and fastening means for a magnifying lens surrounding the socket, a framework carrying the receptacle, a handle connected to the upper part of the framework, a top hinged to the framework and having an upper conical reflector movable with it and a magnifying lens detachably mounted on the lower reflector with its tip approximately in contact with the apex of the upper reflector, said lens and lamp being removable when the top of the lantern is raised, said upper reflector functioning to prevent accidental removal of said lens when in lowered position and a switch for controlling the circuit through the lamp and battery.

4. A lantern comprising a receptacle, open at the top, a battery removably mounted in said receptacle and having a center terminal, a second terminal eccentric thereof, a rotatable cover for the receptacle having a plate with an opening therein for the two terminals and rotatable over the eccentric terminal, a reflector supported by the cover and having a socket for a lamp bulb, a lamp detachably mounted in said socket and having a center contact electrically engaging said center terminal of the battery and having an outer contact electrically engaging the reflector, said eccentric terminal being adapted to spring through the opening in the insulating plate when the cover is rotated in one direction.

5. A lantern having a lamp, means for supplying energy to said lamp, a frame carrying said lamp and energy means, a handle for the frame, a tapered reflector opposite said means arranged with its apex close to said lamp so that an image of the light may appear in said reflector close to the lamp itself, said lamp and its reflected image being visible from any side thereof, a magnifying lens between said lamp and reflector adapted to enlarge the image in the reflector, and a magnifying lens on each side of said lamp whereby the lighted lamp and its reflected image appear from a distance as a single and magnified light source and means for demountably securing the reflector to the frame so as to prevent the removal of the lens when the reflector is in its reflecting position above the lamp.

6. A lantern having a lamp, energy supplying means for the lamp, a conical reflector adjacent said lamp and in substantially vertical alignment therewith, a lens between said lamp and reflector, and means for yieldably mounting said lens whereby it may be released by an upward thrust on the lens, said conical reflector being removably mounted so that said reflector when in operative position holds the lens against removal.

7. A lantern having a lamp, means for supplying energy to said lamp, a frame carrying said lamp and energy means, a handle for the frame, a tapered reflector opposite said means arranged with its apex close to said lamp so that an image of the light may appear in said reflector close to the lamp itself, said lamp and its reflected image being visible from any side thereof, a magnifying lens between said lamp and reflector adapted to enlarge the image in the reflector, a magnifying lens on each side of said lamp whereby the lighted lamp and its reflected image appear from a distance as a single and magnified light source, said lenses being formed into a pocket sized globe, resilient means around the lamp for yieldably retaining said globe about the lens, said globe being released from said resilient means on pulling it upward, said tapered reflector being substantially conical in shape and mounted with its apex substantially contiguous said globe

whereby said reflector acts as a stop to preclude the globe being withdrawn without removal of said reflector, and said reflector being so mounted in the frame as to permit raising the reflector in order to remove the globe.

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