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MULTIPLE HEAD ELECTRIC LANTERN

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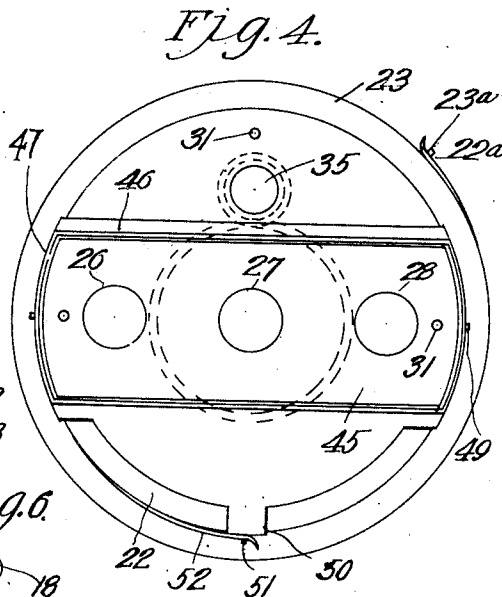
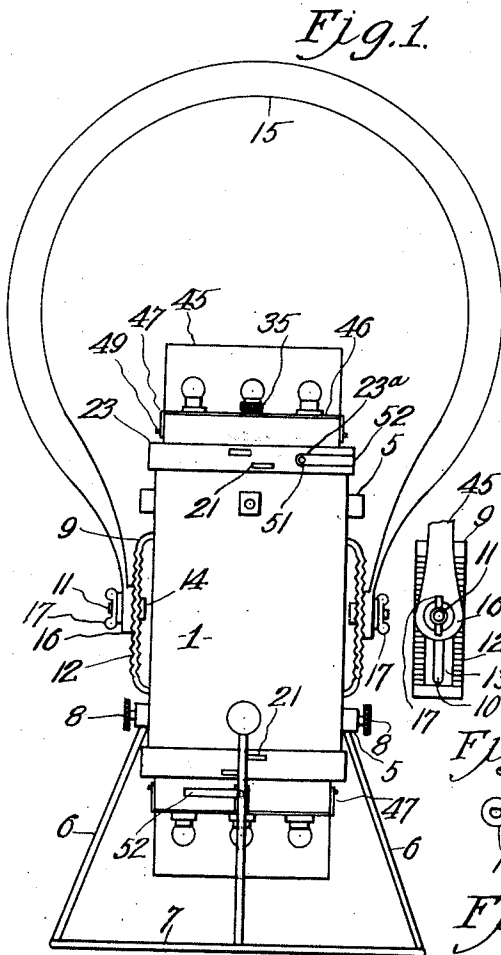
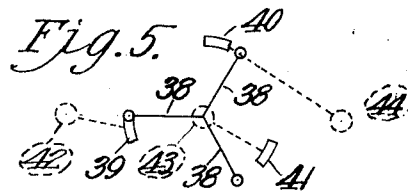
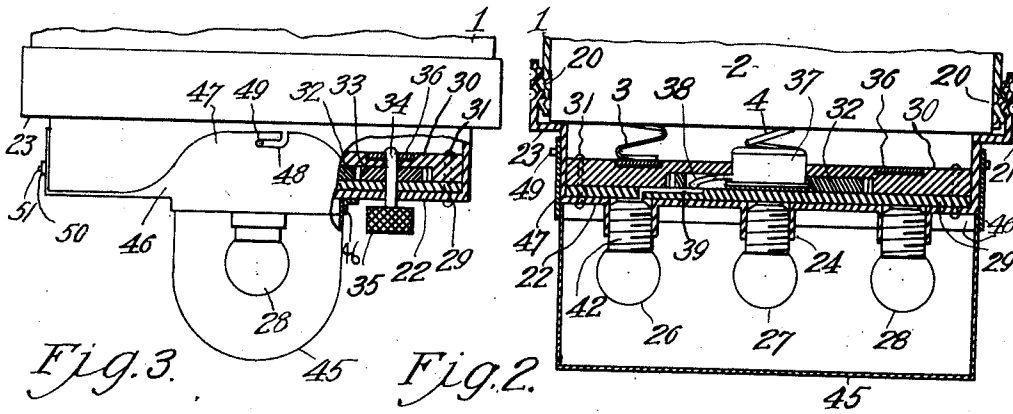


Fig. 7.

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MULTIPLE HEAD ELECTRIC LANTERN

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4 Claims. (Cl. 240—10.63)

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This invention relates to electric lanterns and one of its chief objects is to produce a multiple head lantern, that is a double-ended lantern having a plurality of electric lamp bulbs which can be energized separately or concurrently at one or both ends of the lantern.

Another object of the invention is to provide heads of the general character mentioned which are quickly detachable and can be placed on either end of the lantern body.

A further object of the invention is to provide a quick-detachable transparent hood or housing for the head, said hood or housing being of any desired color depending upon the use of the lantern.

A still further object of the invention is to produce a detachable head having a self-contained switch unit so that the proper connections are automatically established for circuit closing purposes when the head is positioned on either end of a lantern.

Another object is to produce a bail mounting of such character that the lantern may be reversed with either end in suspended position, the bail having an adjustable connection so that it may be lengthened or shortened, swinging or non-swinging.

With the general objects named in view and others are will hereinafter appear, the invention consists in certain novel and useful features of construction and organization of parts as hereinafter described and claimed; and in order that it may be fully understood, reference is to be had to the accompanying drawing, in which—

Figure 1 is a side elevation of a lantern embodying the invention.

Figure 2 is a fragmental central vertical section on an enlarged scale through one of the removable heads of the lantern, showing a portion of the lantern body and battery.

Figure 3 is a fragmentary cross-section through the head at right angles to Figure 2.

Figure 4 is a bottom plan view of a head.

Figure 5 is a diagrammatic view of the switch and circuit completing connections mounted in the lantern head.

Figure 6 is a fragmental face view of the bail attaching connections.

Figure 7 is a plan view of one of the spacing washers used in combination with the bail suspension when it is desired to have a swinging lantern, the construction shown in Figures 1 and 6 being of non-swinging type.

In the said drawing, where like reference characters identify corresponding parts in all of the

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figures, 1 is a lantern body of any desired shape and containing a dry cell or battery 2, provided with positive and negative terminals 3 and 4 at both of its ends and insulated from the body of the lantern. The body 1 is provided with outwardly projecting lugs 5 which are adapted to receive the ends of legs 6 of a supporting stand or ring 7, said legs being clamped in position by means of clamp screws 8. The lugs 5 are placed in multiple adjacent both ends of the lantern as shown so that the lantern body may be reversed, either end down.

In order to suspend the lantern body, a pair of spaced elongated brackets 9 are positioned at diametrically opposite points, said brackets being longitudinally slotted as at 10 to receive suspension bolts 11. The brackets along their opposite faces are corrugated as at 12, while non-corrugated surfaces 13 are left along the opposite sides of the slot 10 on the outer faces of said brackets for a purpose which will hereinafter appear.

The bolt 11 is provided with a head 14 which is corrugated to interlock with the corrugated inner surfaces of the brackets 9 at any position of longitudinal adjustment for providing a long or short bail 15 in relation to the top of the lantern body. The bail 15 has corrugated heads 16 for cooperative engagement with the outer corrugations of the brackets 9 and is held in locked position by thumb nuts 17. With a construction as above described a nonswinging bail is provided. When it is desired to have a swinging bail, the ends of the threaded bolts 11 are flattened at one side to interlock with flattened sides 18 in washers 19. These washers are disposed on both sides of the bail heads 16, to respectively hold the corrugated surfaces of brackets 9 and heads 16 from contact and to provide a non-oscillating surface for abutment by the clamp nut 17 so that said nut shall not loosen in service.

By preference, the lantern body and its removable bulb and switch carrying heads are detachably connected in any quickly operable manner, as by providing the opposite ends of the body 1 with a plurality of pairs of outwardly projecting lugs 20 to interlock with corresponding inwardly projecting lugs 21 formed on annular removable lantern heads comprising closed ends 22 and shouldered portions 23. The heads are locked in position through engagement of a hole 22a in the body of the lantern by a pin 23a projecting from the lantern head.

Projecting outwardly from the outer face 22 of the lantern head are a plurality of bulb sockets 24 for receiving lamp bulbs, each head in the

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form of the invention here shown having three bulbs respectively numbers 26, 27 and 28. Fitted down against the inner face of the end 22 is a suitable control switch having insulating disks 29 and 30, held together and locked to the lantern head by a plurality of rivets 31.

The disk 30 is counter-bored to form a pair of annular intersecting chambers or cavities respectively receiving rotatable annular peripherally-toothed insulating disks or gears 32 and 33, the open side of said chambers being closed by the disk 29 as shown. The gear or pinion 33 is keyed to a conducting operating shaft 34, one end of said shaft projecting through and in circuit-closing contact with the head 22, and having its outer end equipped with an operating knob 35. Rotation imparted to pinion 33 through the handle 35 and shaft 34 effects rotation of the larger disk 32.

Embedded substantially flush with the outer face of the insulating disk 30 is a metal conducting ring 36 in circuit closing contact with the terminal 3 of the battery 2, said circuit being completed to the shell of the lamp sockets through shaft 34 thence to the head 22 integrally formed with the lamp sockets, or, obviously, the terminal 3 of the battery may be otherwise grounded to the lantern body and removable head.

In order to provide a suitably controlled circuit to energize the lamps, say, to initially illuminate bulb 26, then successively bulbs 28 and 27 in parallel therewith, the rotatable disk 30 is molded or otherwise integrally formed with a central conducting contact 37 in engagement with the battery terminal 4. The member 37 is formed with three outwardly radiating spring fingers or switch arms 38 arranged respectively in positions corresponding to 0°, 120° and 240°, that is, equi-spaced, 120° apart. The arms 38 are adapted to successively engage contacts 39, 40 and 41, which are embedded in and integrally formed with lamp terminals 42, 43 and 44 of bulbs 26, 27 and 28, all carried by the insulating disk 29. Assuming that contact 39 is at 0°, then contacts 40 and 41 are respectively positioned at 130° and 260°. The contacts 39, 40 and 41 are each approximately 10° in length so that as the arms 38 sweep over the contacts, a circuit is first completed through contact 39 to light bulb 26. While contact is still maintained at 39, another arm 38 engages contact 40 to light bulb 28; and while said first two arms 38 are still maintaining circuits, the third arm 38 engages contact 41 to light the third bulb 27. Continued movement of the arms 38, see Figure 5 successively extinguishes bulb 26, then 28 and finally 27. The switch is now in position for repetition of its operating cycle.

In order to provide means for the protection of the bulbs and at the same time to provide means for the display of varying colors depending upon the purpose of the signal lamp, a quick-detachable hood or housing 45 of transparent plastic or the like may house either or both groups of bulbs. The hood is secured in a rectangular metal frame 46 fitted against the outer face of the lantern head 22 and having a pair of opposite extension fingers 47 embracing the offset portion of the head. The fingers 47 are formed with bayonet slots 48 as shown to engage pins 49 projecting from the lantern head. The hood is locked in position by means of an extension flange 50 overlying the head 22 and having a downward extension carrying a pin 51 for engagement in an opening in the end of a spring finger 52 secured to the lantern head.

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From the above description it will be apparent that I have produced a construction embodying all of the features of advantage set forth as desirable, and while I have described and claimed the preferred embodiment, it is to be understood that I reserve the right to all changes within the spirit and scope of the appended claims.

I claim:

1. In an electric lantern, the combination with a body portion having an open end adapted to receive a battery, of a head removably closing the open end of said body, an insulating disk secured to said head and having an outer arcuate battery contact on one of its faces and having a cavity formed with an opening through the face having the battery contact, a second battery contact rotatable within the cavity and exposed through the opening thereof, a plurality of lamp sockets electrically connected to the outer battery contact, a plurality of switch arms electrically connected to the inner rotatable battery contact, and a plurality of fixed contacts within the cavity, one for each lamp socket, for engagement by said switch arms.

2. In an electric lantern, the combination with a body portion having an open end adapted to receive a battery, of a head removably closing the open end of said body, an insulating disk secured to said head and having an outer arcuate battery contact on one of its faces and having a cavity formed with an opening through the face having the battery contact, a second battery contact rotatable within the cavity and exposed through the opening thereof, a plurality of lamp sockets electrically connected to the outer battery contact, a plurality of switch arms electrically connected to the inner rotatable battery contact, and a plurality of fixed contacts within the cavity, one for each lamp socket, positioned for successive engagement by said switch arms.

3. In an electric lantern, the combination with a body portion having an open end adapted to receive a battery, of a head removably closing the open end of said body, a plurality of lamp sockets carried by the head, an insulating disk fitting flatwise against the inner side of the head, a plurality of lamp contacts carried by the insulating disk and having one end exposed in the lamp sockets, the other ends of said contacts being exposed on the opposite side of the disk, a second disk fitting flatwise on the first disk and provided with a counterbore forming a cavity for said last-identified contact ends, said second disk having an opening from the cavity into the lantern body, a rotatable electrical non-conducting disk disposed in the cavity, an electrical conducting element carried by the disk and having arms to close circuits through the contacts within the cavity, said conducting element extending outwardly through the cavity opening, and means to rotate said non-conducting disk.

4. In an electric lantern, the combination with a body portion having an open end adapted to receive a battery, of a head removably closing the open end of said body, a plurality of lamp sockets carried by the head, an insulating disk fitting flatwise against the inner side of the head, a plurality of lamp contacts carried by the insulating disk and having one end exposed in the lamp sockets, the other ends of said contacts being exposed on the opposite side of the disk, a second disk fitting flatwise on the first disk and provided with a counterbore forming a cavity for said last-identified contact ends, said second disk having an opening from the cavity into the lan-

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tern body, a rotatable electrical non-conducting gear disposed in the cavity, an electrical conducting element carried by the gear and having arms to close circuits through the contacts in the cavity, an arcuate contact strip exposed within the lantern body on the second disk, a non-conducting gear journaled between said first and second disks and enmeshed with the gear carrying the conducting element, and an operating shaft for rotating the last-named gear and in electrical conducting relation with the arcuate contact strip and the removable lantern head.

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