

Dec. 2, 1941.

D. M. BASSETT

2,264,284

FLASH LAMP

Filed July 20, 1938

2 Sheets-Sheet 1

Fig. 1.

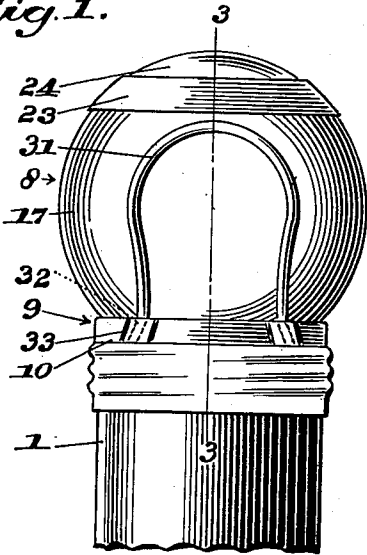


Fig. 3.

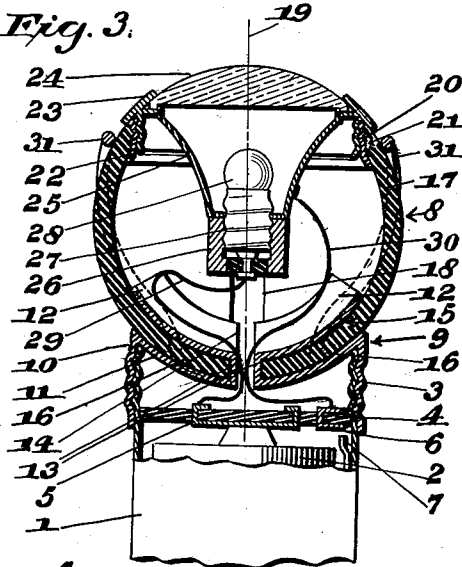


Fig. 2.

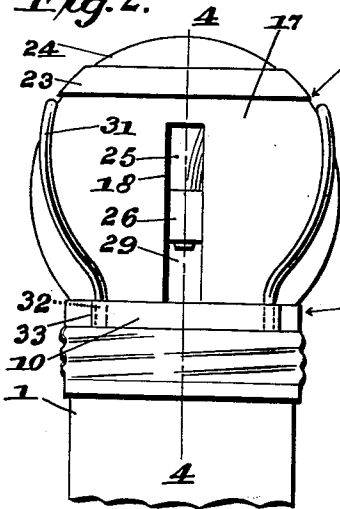


Fig. 4.

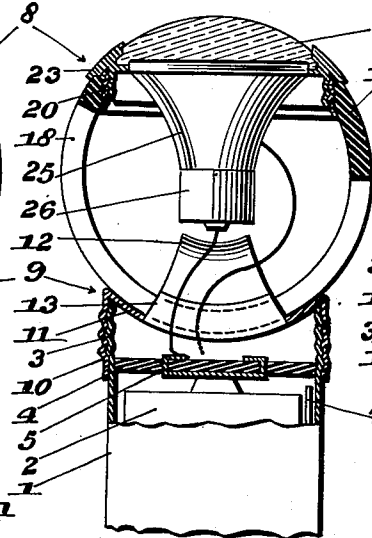


Fig. 6.

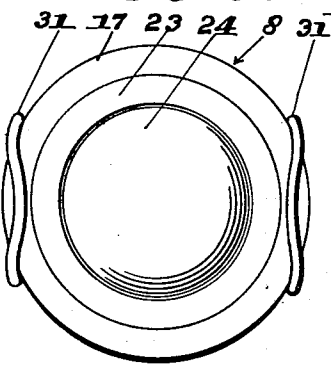
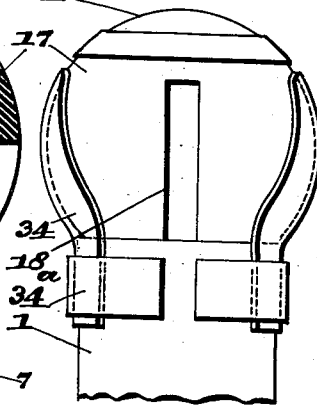


Fig. 5.

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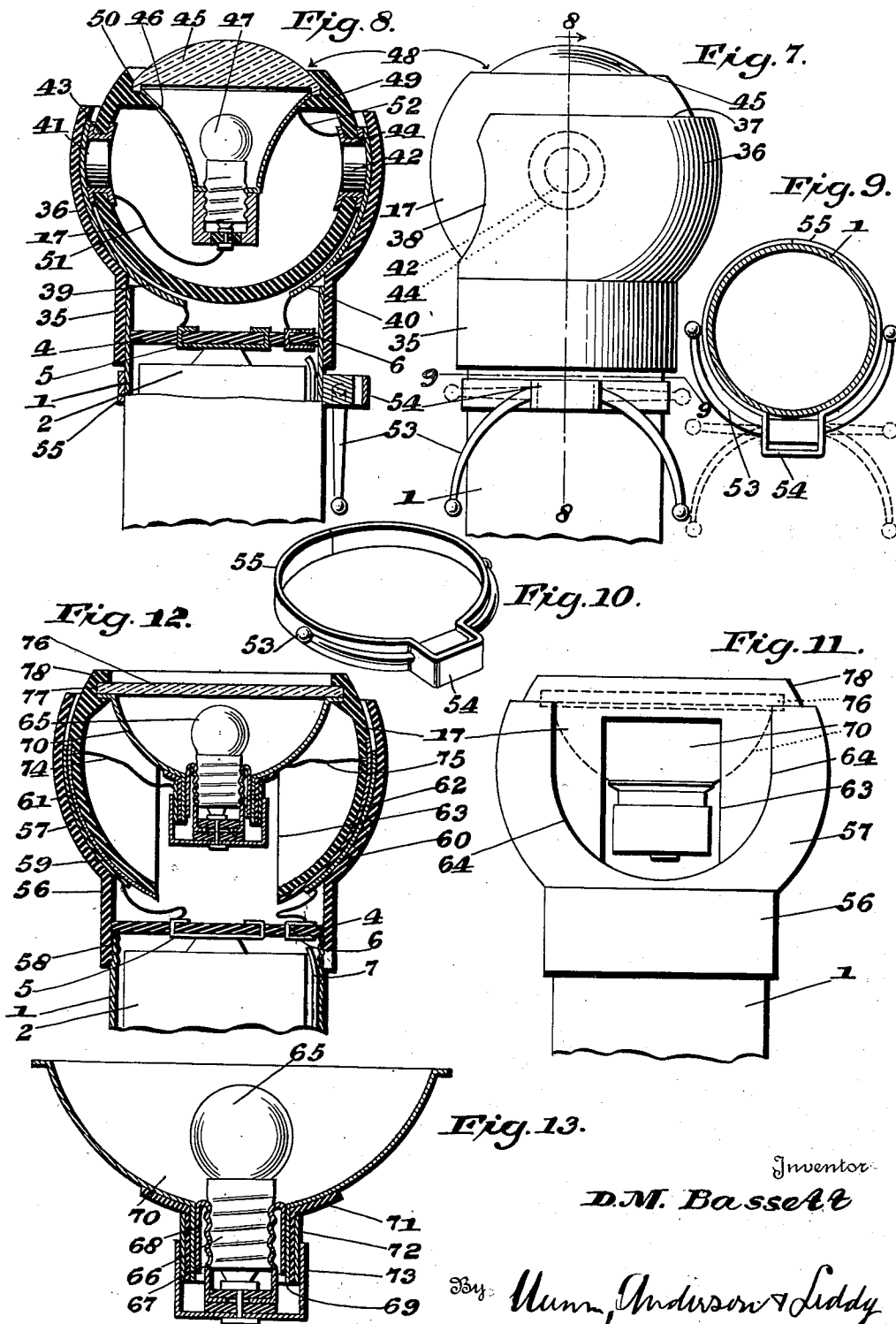
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UNITED STATES PATENT OFFICE

2,264,284

FLASH LAMP

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7 Claims. (Cl. 240—10.6)

This invention relates to improvements in flashlamps, and especially of the tubular or barrel type usually carried in the pocket of the user. As is commonly known, the lens, reflector and light bulb assemblage in such lamps is fixed in relationship to the barrel.

This adequately serves most purposes, but there are lines of work of such nature that in the pursuit thereof the workmen find an acute need for a more flexible type of lamp. Electricians, telephone men, wiring inspectors and the like, for example, make it a practice of holding a flashlamp between the head and shoulders to enable the working with both hands. This, obviously places the workman in a very cramped position so that it is hard to adhere to periods of work for any length of time without taking a rest and making some adjustment of the flashlamp.

This difficulty is remedied by making the flashlamp with an adjustable lens, reflector and light bulb assemblage so that the battery barrel can be held in any convenient way and still enable the workman to direct the light beam as he may desire. With this preamble in mind the objects of the invention are as follow:

First, to provide a flashlamp, or flashlight as it is commonly called, having a lens, reflector and light bulb assemblage which is so movably mounted upon the battery barrel as to enable changing the light beam through a wide range in relationship to said barrel.

Second, to provide a flashlamp wherein the foregoing assemblage is carried by and comprises part of a hollow, pliable and resilient sphere which is so mounted upon the battery barrel as to have a limited universal movement.

Third, to provide means for swivelly mounting a lens, reflector and light bulb assemblage on the virtual rim of one end of a flashlamp battery barrel.

Fourth, to provide a flashlamp wherein use is made of a hollow rubber sphere as the carrier means for a lens, reflector and lamp assemblage, the resilience of the rubber sphere safeguarding said assemblage against injury to a large extent when the flashlamp is struck against a wall or dropped on the floor.

Other objects and advantages will appear in the following specification, reference being had to the accompanying drawings in which—

Figure 1 is a side elevation of a portion of a flashlamp battery barrel, particularly illustrating the improved lens, reflector and light bulb assemblage.

Figure 2 is a side elevation of the same structure as in Figure 1, viewed from a position turned 90° from Fig. 1.

Figure 3 is a vertical section taken on the line 3—3 of Figure 1.

Figure 4 is a vertical section taken on the line 4—4 of Figure 2.

Figure 5 is an end elevation of the foregoing assemblage.

Figure 6 is a side elevation, corresponding to Figure 2, but illustrating a modified type of sphere-retainer.

Figure 7 is a side elevation of a second modification of the flashlamp.

Figure 8 is a vertical section taken on the line 8—8 of Figure 7.

Figure 9 is a horizontal section taken on the line 9—9 of Figure 7.

Figure 10 is a detail perspective view of the battery barrel holder in Figure 9.

Figure 11 is a side elevation of a third modification of the flashlamp.

Figure 12 is a vertical section of the structure shown in Figure 11.

Figure 13 is an enlarged sectional view of the reflector and lamp assemblage, particularly illustrating the adjustable lamp mount.

In all forms of the invention the battery barrel is commonly designated 1. This barrel comprises any known type of rigid tubular or equivalently formed container for one or more cells 2 (Fig. 3) comprising the battery. The barrel has a thread formation 3 at one end, and located adjacent to this formation is a fiber disc 4 which is centrally fitted with a metal button 5. This button is contacted by the central electrode of the innermost battery cell. The disc 4 also carries a contact 6 which is adapted to be engaged by the point 7 of a switch which is operable in any known way.

The assemblage 8, so designated in all forms of the invention, comprises the chief improvement to the known flashlamp. A secondary but equally important feature of this improvement comprises the retainer means by which the assemblage is movably attached to the previously described end of the battery barrel 1. The retainer means is capable of being made in several forms, attention first being directed to Figures 1 to 5.

As well shown in Figure 3 a cap member 9 is attached to the end of the barrel 1. This member comprises the assemblage-retainer means for the main form of the invention in Figures 1 to 5. It consists of a threaded ferrule 10 which is

screwed onto the threads 3. It has a concavity 11 constituting an end closure for the battery barrel. Wing portions 12 lie parallel to the end closure 11, being held in spaced relationship thereto by integral webs 13 which, in turn, are spaced from each other to define a slot 14. The spacing 15 between the end closure 11 and wing portions 12 provides a receptacle for the wall portions 16 of a hollow sphere 17. This sphere is commonly designated 17 in all forms of the invention, and it constitutes the carrier means of the foregoing assemblage.

The hollow sphere is preferably made of pliable and resilient material such as rubber. One advantage of the use of the pliable material is an insurance against denting when the flashlight is dropped, the same inadvertence when occurring with any known type of flashlight having a metal reflector resulting in a dent that will cause a shadow forever after. Another advantage of the resilient sphere or carrier means 17 is its gripping ability upon the reflector and lamp assemblage. The carrier means is distorted to get said assemblage in place, the restoration to its former shape being the factor which thereafter holds the assemblage. According to the first form of the invention (Fig. 3) the sphere 17 is slotted at 18. This slot substantially matches the slot 14, but it is of sufficiently extra width to account for the thickness of the webs 13. The wall portions 16 are sufficiently loose in the spacing 15 to enable the sphere to be turned in the direction of the plane designated by the line 19, and within the limits of the slot 18. Inasmuch as the cap member 9 is fixed it is possible to move the sphere 17 only in the direction of the plane 19 in reference to the barrel 1, but then it is a perfectly simple matter to allow for throwing the light beam into any wanted direction.

A threaded ferrule 20 is embedded in the open end 21 of the sphere 17 to retain the ferrule. A threaded ring 23 is screwed into the ferrule, and said ring carries both the lens 24 and a reflector 25. A receptacle 26 depends from the reflector, and the base 27 of a lamp 28 is screwed into the receptacle. Wires 29, 30 lead from the center contact of the lamp base to the button 5 and from the reflector 25 (or receptacle 26) to the contact 6, providing for a circuit closure when the switch 7 is moved into engagement with the contact 6.

Thus far it will be understood that the lens, reflector, and lamp assemblage 24, 25, 28 is carried by the hollow sphere 17 which, in turn, is so mounted by the retainer means 9 upon the end of the barrel 1 as to be capable of a limited angular movement in the direction of the plane 19 in reference to the battery barrel. The function of the retainer means 9 is augmented by a pair of spring wire retaining members 31. These are roughly in the form of rings (Fig. 1) to conform to the spherical shape of the carrier means 17. However, these are open rings, their flared terminals 32 extending down into sockets 33 of the ferrule 10 in which the rings stay fixed but from which they could be removed at will. It is to be understood that the use of the retainers 31 is optional. When used in conjunction with the retainer means 9 they serve to hold the hollow sphere 17 to better advantage but even then their chief purpose is to serve as guards which protect the sphere from the effect of some particularly hard blow.

Attention is next directed to Figure 6. The

inside structure of this modification is identical with that of Figs. 1 to 5, and for that reason is not shown. The main difference lies in the form of the sphere retainers 34. These comprise fairly large plates which are made in concave form to embrace the sides of the sphere 17. They are demountably secured to the barrel 1 by semi-circular clips 34a which embrace the barrel upon the rim of which the sphere 17 is thus directly mounted without an intervening ferrule.

Attention is next directed to the second modification in Figs. 7, 8 and 9. Here the battery barrel 1 has a sleeve 35 secured to it at one end, this sleeve having a semi-spherical terminal 36 which constitutes a socket for the hollow sphere 17. Said socket is cut off at 37 so as to be of less height than the sphere 17 (Fig. 7), and it is cut out at 38 on one side to make room for the adjustment of the hollow sphere.

The socket 36 is made of insulating material and is provided with a pair of metal ribbons 39, 40, which are extensions of the respective buttons 5 and contact 6 as shown.

These ribbons have trunnions 41, 42. On opposite sides the sphere 17 is fitted with flanged ring contacts 43, 44, in which the trunnions 41, 42 fit. The interfitting is done by squeezing the rubber sphere 17 enough to enable slipping the trunnions into the ring contacts. The sphere 17 is then turnable upon the trunnions, and this arrangement is regarded as an equivalent of the slot arrangement in Figure 3. The socket 36 and trunnions 41, 42 enable the limited movement of the carrier sphere 17, but at the same time provides the retainer means for the sphere.

The lens 45, reflector 46 and lamp 47 are again carried by the sphere 17, but instead of the rigid ferrule and ring arrangement in Figure 3 being used, the open end 48 of the sphere is made slightly oversize at 49 and socketed at 50. It is intended that by squeezing the walls of the sphere the opening 48 will be sufficiently distorted to enable the insertion of the lens, reflector and lamp assemblage. The resilience of the material of the sphere 17 causes the reshaping of the opening 48 with an attendant gripping effect upon said assemblage. Current is supplied to the lamp by wires 51, 52 which join the terminals of its base to the respective contacts 43, 44.

It is obvious in Fig. 7 that with no part of the assemblage projecting beyond the circumference of the carrier 17 that when the lamp is not in use the lens can be turned to a completely shielded position within the closed portion of the socket 36.

In the modification in Figs. 7, 8 and 9 provision is made of a holder 53 for supporting the battery barrel 1 upon a table. This holder comprises a pair of prongs which are turnably carried by the boss 54 of a clamp ring 55 (Fig. 10). This ring is fitted upon the barrel 1 against which it has a friction grip. The ring is capable of being turned around on the barrel, and when the prongs 53 are laid down (dotted lines, Fig. 9) they will form a support for the barrel. It is easy to see that by turning the sphere 17 on its trunnions and at the same time adjusting the clamp ring 55 around the barrel it will be possible to throw the beam of light into virtually any desired direction and to keep it shining steadily in that direction.

Attention is next directed to the modification in Figures 11, 12 and 13. The arrangement here shown enables focusing of the lamp and at the same time comprises a further improvement ac-

cording to which the barrel is prevented from rolling when laid upon a flat surface, at the same time enabling a limited adjustment of the assemblage-carrier means 17 as before. A sleeve 56 and its semi-spherically socketed terminal 57, somewhat on the order of the sleeve and socket in Figure 7, are attached to the barrel 1, but this time by threads 58. The sleeve and socket are made of insulating material, and the socket carries a pair of ribbons 59, 60 which are respectively wired to the button 5 and contact 6 as before.

The hollow sphere 17 has similar contact ribbons 61, 62 embedded in it, these being held in engagement with the ribbons 59, 60 by a fairly close fit which is largely augmented by the natural resilience of the sphere. A fairly large slot 63 is cut into the sphere 17 from the bottom. This slot is so much larger than the slot 18 (Fig. 3) that it is better identified as an opening. In fact it registers with even larger openings 64 (Fig. 11) in the socket 57, and here it will be apparent what the necessity of the oversize slot 63 is.

The margin of the opening 64 (Fig. 11) is intended to rest upon the table, and inasmuch as the opening is so broad it follows that the flashlamp will be prevented from rolling. The opening 64 is, therefore, the equivalent of the holder 53 (Fig. 7). But inasmuch as the sphere 17 protrudes at the opening 64 (Fig. 11) it is equally necessary to enlarge the slot 63 almost to the size of the opening 64 so that the bulging sphere will not reach the table and thus defeat the anti-rolling function of the margins of the hole 64.

A further purpose of the oversize slot 63, or opening as it has been called, is to enable access to the interior for the adjustment or focusing of the lamp 65. The threaded base 66 of this lamp is screwed into a socket 67 which is formed with an annular sleeve 68. This sleeve is movably but fairly tightly fitted in the tubular extension 69 at the base of the reflector 70.

Said extension has an insulating shell 71 attached to it, and a metallic ring 72 is affixed around the tubular part of this shell. The socket 67 has a metal cup 73 attached to it, and this cup has a slidable but fairly tight fit upon the ring 72. According to this arrangement it is easily seen that the operator may reach into the opening 63 for lamp renewals and to adjust the position of the lamp 65 by sliding the cup 73 up or down. Of course the amount of sliding is small, but it is enough to properly focus the lamp in respect to the reflector 70. Wires 74, 75 (Fig. 12) connect the contacts 61, 62 with the respective ring 72 and reflector 70.

A circular disc of glass 76, or a lens as in the other forms of the invention, is fitted in a socket 77 in the oversize open end 78 of the sphere 17. The rim of this disc is fitted in the socket in common with the rim of the reflector 70. The assemblage is inserted and removed upon distorting the opening by squeezing the sphere 17.

In Figs. 11 and 12 the range of adjustment of the assemblage of the carrier sphere 17 is not quite so great, as in Figs. 3 and 7. In Fig. 12 the main turning of the sphere 17 is done in the direction of the plane of the paper. The sphere can be revolved after it has been tilted with respect to the axis of the barrel 1, and to this end the contacts 59, 60 are made broad enough to maintain the engagement of the contacts 61, 62.

It will be understood from the foregoing that the sphere 17 in Fig. 12 is in true swivelled relationship to the barrel. It can be given limited

turns in any direction in respect to the barrel, not being circumscribed by a slot arrangement, as in Fig. 3 or a trunnion mount as in Fig. 8.

I claim:

1. A flashlamp comprising a battery barrel, a lens, reflector and lamp assemblage for the barrel, carrier means for said assemblage comprising a pliable hollow sphere, said sphere having a slot, and retainer means for the sphere, being mounted on one end of the barrel and comprising a ferrule having a concave end closure lying against the outside of the sphere and having wing portions lying against the inside of the sphere, the concavity and wing portions being joined by spaced webs which fit in the slot.

2. A flashlamp comprising a battery barrel, a lens, reflector and lamp assemblage for the barrel, carrier means for the assemblage comprising a hollow pliable sphere having a slot and an open end, means by which said assemblage is removably fitted in the open end, and retainer means by which the sphere is movably mounted upon an end of the barrel, said means including a closure for said end of the barrel and portions reinforcing said slot and contacting the sphere walls adjacent to the slot both on the inside and outside.

3. In a flashlamp, a lens, reflector and lamp assemblage, a spherical carrier for said assemblage, a battery barrel, retaining members in loop form engaging the opposite sides of the spherical carrier, said retaining members having terminals, and means adjacent to the open end of the battery barrel into which said terminals are fitted to demountably hold both the retaining members and the spherical carrier.

4. A flashlamp comprising a battery barrel, a lens, reflector and lamp assemblage for the barrel, carrier means for the assemblage comprising a hollow sphere having a slot and an open end, means by which said assemblage is removably fitted in the open end, and retainer means by which the sphere is movably mounted upon an end of the barrel, said means including a closure for said end of the barrel and portions reinforcing said slot and contacting the sphere walls adjacent to the slot both on the inside and outside.

5. A flashlamp comprising a battery barrel, a lens, reflector and lamp assemblage for the barrel, carrier means for said assemblage comprising a hollow sphere, said sphere having a slot, and retainer means for the sphere, being mounted on one end of the barrel and comprising a ferrule having a concave end closure lying against the outside of the sphere and having wing portions lying against the inside of the sphere, the concavity and wing portions being joined by spaced webs which fit in the slot.

6. A flashlight comprising a battery barrel including circuit conductors emanating from one end of said barrel, carrier means for said assemblage consisting of a hollow resilient sphere having an open end located remotely from said barrel end and having a slot next to said barrel end for the ingress of the conductors, said slot being situated in a plane coincident with the axis of the barrel, a reflector and lamp assemblage held in said open end by the contraction of the sphere and having the terminals of said conductors secured thereto, and retainer means attached to said end of the barrel, having portions spaced from each other to provide passage for said conductors and being fitted upon the margins of the

slot to provide a guide on which the carrier means is slidable for circumferential turning.

7. A flashlight comprising a battery barrel including circuit conductors emanating from one end of said barrel, carrier means for said assemblage consisting of a hollow resilient sphere having an open end located remotely from said barrel end and having a slot next to said barrel end for the ingress of the conductors, said slot being situated in a plane coincident with the axis of the barrel, a reflector and lamp assemblage held in said open end by the contraction

of the sphere and having the terminals of said conductors secured thereto, retainer means attached to said end of the barrel, having portions spaced from each other to provide passage for said conductors and being fitted upon the margins of the slot to provide a guide on which the carrier means is slidable for circumferential turning, and retaining members upstanding from said barrel end, having loop portions partly conforming to the spherical carrier means to constitute centers of turning for the latter.

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