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ELECTRIC LAMP BASE

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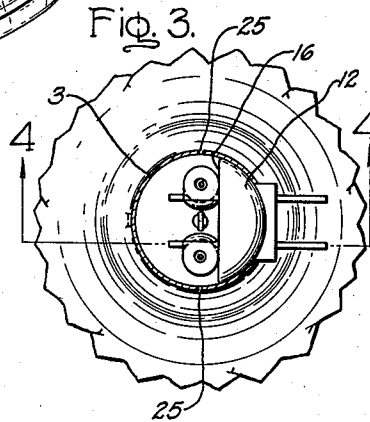
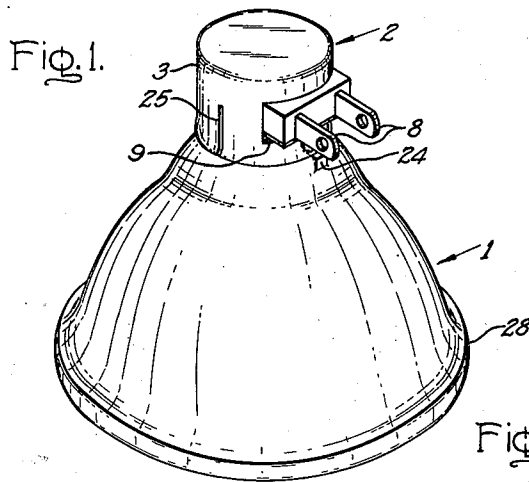
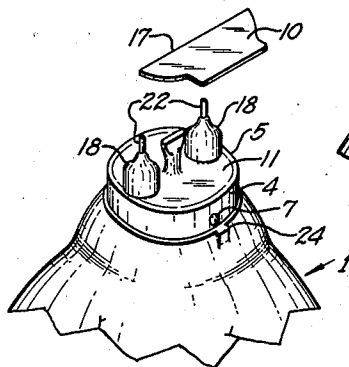
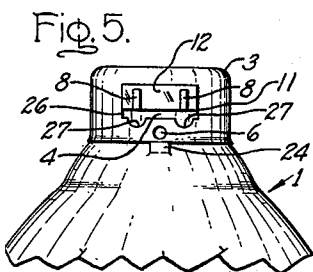
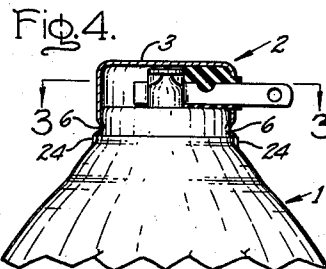
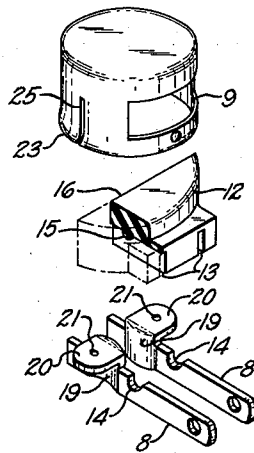


Fig. 2.



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## UNITED STATES PATENT OFFICE

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## ELECTRIC LAMP BASE

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9 Claims. (Cl. 176—32)

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My invention relates to electric lamps and more particularly to bases for such lamps.

Electric lamps comprising an incandescible filament enclosed in a gas tight glass bulb made up of a preformed reflector section and a cover section fused together at their peripheries are commercially available and are particularly useful as spot lights or flood lights. The filament is supported in the bulb by wires fused to and passing through the bottom of metal cups the edges of which are embedded into and fused to a relatively heavy, thick-walled neck at the vertex of the reflector section of the bulb. The neck has a flat end wall and openings in registry with the cups and through which the support wires pass. Heretofore such lamps have been provided with screw type bases having a skirt which fits the outer surface of the neck and which has indented portions engaging indented portions in said neck surface to hold the base on the bulb. Such lamps are disclosed in U. S. Patent 2,262,629 issued November 11, 1941, and assigned to the assignee of this application.

Such commercial lamps and the sockets therefor require a space of at least six inches in depth for proper mounting. In many lighting installations it is inconvenient and many times impossible to provide a space of such depth for the lamps. This is particularly true in lighting installations comprising fluorescent lamps mounted close to the ceiling for providing general illumination and in which spot lights are desirable for providing a higher level of illumination on localized areas, such as display counters. Frequently, in such installations, the spotlight must be either recessed into the ceiling or be allowed to extend below the fluorescent lamps.

The principal object of my invention is to provide a base for lamps of the above type which is shorter in length than the present bases. Another object of my invention is to provide a lamp of the above type which is shorter than the present lamps. Further objects and advantages of my invention will appear from the following detailed description of species thereof and from the appended claims.

In the drawing accompanying and forming part of this specification an embodiment of my invention is shown in which Fig. 1 is a perspective view of an electric lamp provided with my new base and as seen from above and Fig. 2 is an exploded view of the base showing in perspective its various parts and a fragmentary view of the lamp bulb; Fig. 3 is a top plan view of the neck portion of the bulb and the interior parts of the assembled base;

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Fig. 4 is a side elevational view of the neck and the base with part of the base shell cut away and Fig. 5 is a front elevational view of another species of base of my invention.

Referring to Figs. 1 to 4 of the drawing, the glass bulb of the lamp is shown at 1 and the base at 2. The base 2 comprises a cup-shaped metal cap 3 which engages the outer surface 4 of the thick neck 5 of the glass bulb 1 and is firmly held thereon by at least two indented parts 6 which are 180 degrees apart and engage similarly spaced indentations 7 in the outer surface 4 of the neck 5. A pair of contact prongs 8 extend outward through an opening 9 in the side of the cap and at right angles to the axis of the lamp for engagement with a suitable socket (not shown) which may be of conventional structure to accommodate the base prongs 8. Inasmuch as the prongs 8 and the socket are at the side of the base 2 rather than at its top and are transverse to the lamp axis rather than parallel thereto the mounting space for the lamp is considerably reduced. For example, a commercial lamp having the designation "Par-38" and provided with a screw type base extending along the lamp axis requires a mounting space of six inches in depth. The same lamp provided with my new base requires a mounting space of but four inches in depth.

As shown in Figs. 2, 3 and 4 the base also comprises a thin, flat electrically insulating piece 10 which rests on the flat end wall 11 of the neck 5 and extends outward through the opening 9 to electrically insulate the prongs 8 from the cap 3. A spacer 12 of electrically insulating material, such as asbestos board, which has a pair of straight slots 13 for accommodating the prongs 8, rests on the insulating piece 10, holds the prongs 8 upright in spaced relation and extends through the opening 9 in the cap 3 to electrically insulate the prongs 8 from each other and from the cap 3. The spacer 12 and the piece 10 form an electric insulator which rests on the wall 11 of neck 5 and insulates the prongs 8 from the cap 3. The prongs 8 have semi-circular depressions or notches 14 which are engaged by transverse projections or ridges 15 (Figs. 2 and 4) at the bottom of the slots 13 in the spacer 12 to prevent movement of the prongs 8 along the slots 13 when the prongs are inserted or removed from a socket. As best shown in Figs. 3 and 4, when the base is assembled on the bulb, the straight back flat surface 16 and 17 of the spacer 12 and the piece 10, respectively, rest against the metal cups 18 which are embedded and fused into the neck 5 of the bulb 1 the rounded sides of these members 12 and

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10 engage the cylindrical inner surface of the cap 3 and the top of the spacer 12 engages the top of the cap 3. The spacer 12, the piece 10 and the prongs 8 are thus clamped to and firmly held in position on the bulb 2 by the cap 3 to resist the forces tending to move the prongs 8 when the base 2 is moved into and out of engagement with a socket. The portions 19 of the prongs 8 adjacent their inner ends are curved to extend beyond the cups 18 (Figs. 3 and 4) and have ears 20 which are pierced as shown at 21 to accommodate the external portions of the current leading-in wires 22 which are fused gas tight to and pass through the bottom of the cups 18 into the interior of the bulb 1. The cups 18 and the leading-in wires 22 constitute spaced electric terminals secured to the neck 5 and extending parallel to the axis of the reflector portion of the bulb 1. The wires 22 support the light emitting filament (not shown) in the bulb and may be fastened, as by spot welding or soldering, to the ears 20 to electrically connect the prongs 8 with the filament. Since the prongs 8 are held stationary by the lamp members described above there is no physical force exerted on the connection between the prongs 8 and the wires 22 when the prongs 8 are moved into and out of a socket and the wires 22 thus may be fastened directly to the prongs 8 and the ears 20 omitted if desired.

The base 2 may be mounted on the lamp by placing the insulating piece 10 on the flat end surface 11 of the neck portion 5, the prongs 8 may then be placed on the insulating piece 10 with the wires 22 passing through the holes 21 in the ears 20. The spacer 12 is then placed over the prongs 8 and the wires 22 may then be welded to the upper surfaces of the ears 20. The cap 3 is then placed on the bulb 1 with the opening 9 in registry with portions of the prongs 8, the spacer 12 and the insulating piece 10 which protrude beyond the side surface 4 of the neck 5. The slightly flared rim 23 of the cap 3 is then forced down over the slightly tapered outer surface 4 of the neck 5 to make a press fit therewith and until it engages the shoulders 24 on the bulb 1. The closed end of the cap 3 is spaced sufficiently from the ears 20 to avoid short-circuiting of the prongs 8 and engages the top of spacer 12 to clamp the latter to the neck 5. The cap 3 may then be indented as shown at 6 to engage the indentations 7 provided in the side surface 4 of the neck 5 to secure the assembled base 2 firmly to the bulb 1. The cap 3 has a pair of diametrically opposed longitudinally extending slits 25 which facilitate placing the cap on the neck 5.

As shown in Fig. 5, the thin insulating piece 10 may be omitted provided the bottom of the opening 26 in the cap 3 is spaced sufficiently from the prongs 8 to avoid short-circuits. In this embodiment the prongs 8 and the spacer 12 rest directly on the flat surface 11 of the glass neck 5 and the bottom edge of the opening 26 is spaced a greater distance from the prongs 8. While the bottom edge may be straight, I prefer to provide two semi-circular notches 27 opposite the prongs 8. If the cap 3 should be accidentally displaced upward on the outer surface 4 of the bulb neck the prongs 8 would not be short-circuited by the cap 3 because the bottom edge of the opening 26 would engage the spacer 12 rather than the prongs 8 because of the provision of notches 27 in the said edge.

The lamps described above may be supported by a fixture engaging the part 28 (Fig. 1) of the bulb and electrical connection may be made by a

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socket supported by the lamp, or the lamps may be supported by a socket engaging both the cap 3 and the prongs 8 or the prongs 8 alone.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A projector lamp comprising a bulb having a light concentrating reflector portion with a short neck portion at the apex thereof and a base on said bulb neck comprising a comparatively shallow shell portion having contact prongs projecting therefrom transversely to the axis of said reflector portion to minimize the axial dimensions of said lamp.

2. A projector lamp comprising a bulb having a light concentrating reflector portion and a base attached to the apex of said bulb portion comprising a shallow cylindrical cap having contact prongs projecting therefrom transversely to the axis of said reflector portion to minimize the axial dimensions of said lamp.

3. In an electrical device comprising a bulb having a relatively heavy glass neck with spaced electric terminals externally protruding therefrom, a base comprising a metal cap enclosing said terminals with its rim secured to and surrounding said neck, contact prongs electrically connected to said terminals and projecting through an opening in the side of said cap for connecting said terminals to socket contacts for said device and an electrical insulator member having spaced slots accommodating and engaging said prongs and being interposed between said cap and said prongs and clamped against said terminals and said neck by said cap to hold said prongs in fixed position on said device.

4. In an electrical device comprising a bulb having a relatively heavy glass neck with spaced electric terminals externally protruding therefrom, a base comprising a metal cap enclosing said terminals with its rim secured to and surrounding said neck, contact prongs electrically connected to said terminals and projecting through an opening in the side of said cap for connecting said terminals to socket contacts for said device and an electrical insulator member having spaced slots accommodating and engaging said prongs with projections in said slots engaging depressions in said prongs and being interposed between said cap and said prongs and clamped against said terminals and said neck by said cap to hold said prongs in fixed position on said device.

5. A short base for an electric device having externally protruding electric terminals on a glass neck portion, comprising a cup-shaped metal cap for engaging said neck portion and enclosing said terminals, contact prongs extending through an opening in the cylindrical side wall of said cap for connecting said terminals to socket contacts for said device and an insulator member having spaced slots accommodating said prongs and being interposed between said cap and said prongs and clamped against said terminals and said neck by said cap to hold said prongs in fixed position on the device.

6. A short base for an electric device having externally protruding electric terminals on a glass neck portion, comprising a cup-shaped metal cap for engaging said neck portion and enclosing said terminals, contact prongs extending through an opening in the cylindrical side wall of said cap for connecting said terminals to socket contacts for said device and an insulator member having spaced slots accommodating said prongs with projections in said slots engaging de-

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pressions in said prongs and being interposed between said cap and said prongs and clamped against said terminals and said neck by said cap to hold said prongs in fixed position on the device.

7. In an electric lamp comprising a bulb having a light concentrating reflector portion and a relatively heavy glass neck in back of the reflector portion with spaced electric terminals externally protruding therefrom parallel to the axis of the reflector portion, a base comprising a metal cap enclosing said terminals with its rim secured to and surrounding said neck, spaced electric contact prongs electrically connected to said terminals, and projecting transversely of the reflector axis through an opening in the side of said cap for connecting said terminals to socket contacts for said lamp and an electrical insulator member engaging said prongs and being clamped between said cap, said terminals and said neck to hold said prongs in fixed position on said bulb.

8. In an electric lamp comprising a bulb having a light concentrating reflector portion and spaced electric terminals externally protruding from said portion and parallel to the axis thereof, a base comprising a metal cap enclosing said terminals and attached to said portion, spaced contact prongs electrically connected to said terminals and projecting transversely of the reflector axis through an opening in the side of said cap for connecting said terminals to socket contacts for

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said lamp and an electrical insulator member engaging said prongs and being clamped between said cap and said bulb to hold said prongs in fixed position on said bulb.

9. In an electric lamp comprising a bulb having a light concentrating reflector portion and spaced electric terminals externally protruding from said portion and parallel to the axis thereof, a base comprising a hollow member enclosing said terminals and attached to said portion and spaced contact prongs electrically connected to said terminals and projecting from the side of the base transversely of the reflector axis for connecting said terminals to socket contacts for said lamp.

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