Dec. 13, 1927.

E. A. EVERETT

1,652,398

LAMP SOCKET

Filed Oct. 26, 1925

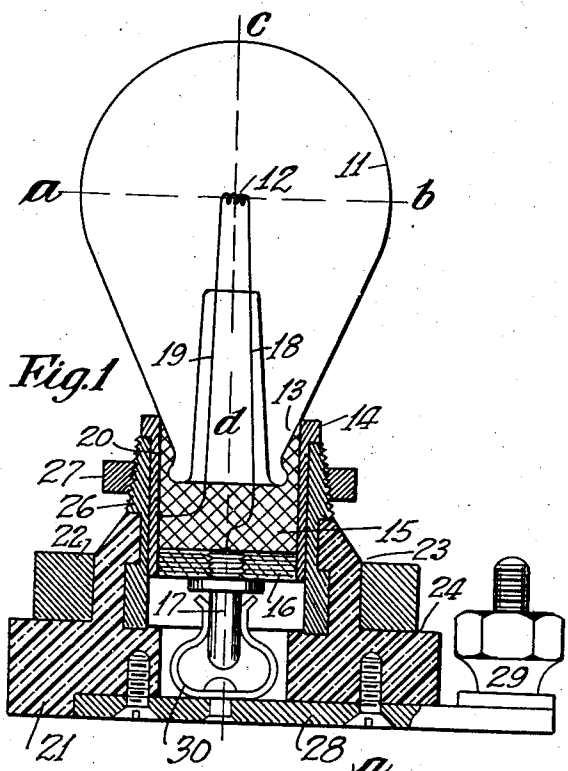


Fig.1

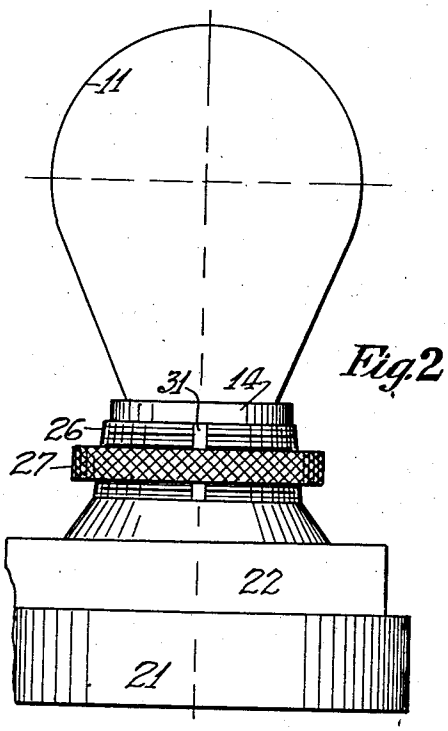


Fig.2

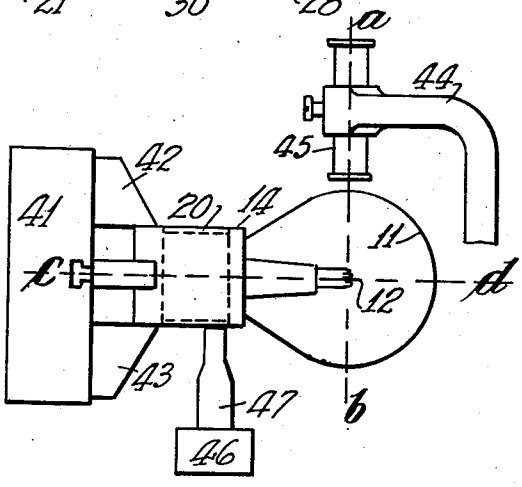


Fig.4

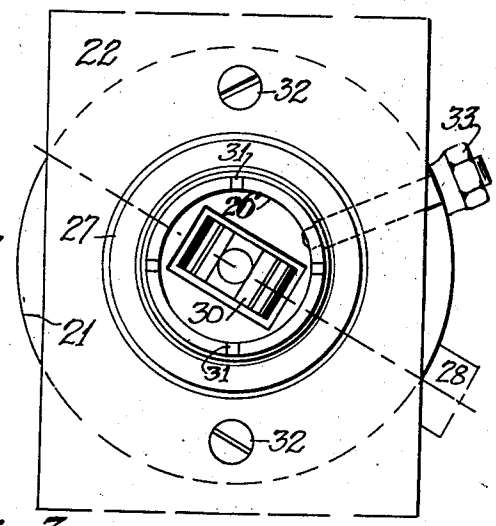


Fig.3

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LAMP SOCKET.

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This invention relates to lamp bases and particularly to bases for electric lamp bulbs and to the method of manufacturing and supporting these bases. Heretofore certain types of bases have become established in the trade such as the screw base and the bayonet joint base. It is found in practice however, that it is not possible to obtain an accurately positioned source of illumination with bases of the established type and the present invention is directed towards obtaining this accuracy by a novel type of base, which, when applied to lamp bulbs enable them to be interchanged without variation in the location of the source of illumination. This invention is particularly applicable to incandescent lamps of the concentrated filament type which are used to project a beam of light from a reflector or lens and in which the filament must be accurately positioned with relation to the optical axis of the lens or reflector and this condition must be maintained as the lamp bulbs are interchanged.

In general, my invention comprises applying to the lamp bulb a special base which, after cementing in place is turned down in a lathe in which the bulb has been positioned with relation to the filament so that the contour of the base bears a fixed and definite relation to the filament of the bulb without regard to any irregularities in the contour of the glass of the bulb to which the base is cemented. Bulbs having bases manufactured in this way are absolutely alike in the relation of the base to the filament and are therefore interchangeable. This result is secured without any adjustment between the base itself and the filament as the base is cemented in place. The bases can therefore be secured to the bulbs with the usual commercial accuracy and without any special adjustments of these parts relative to each other.

These bases are also arranged so that they may be rotated in their support and positioned at any angle without affecting the electrical connections to the filament of the bulb. The bases are clamped in position by an outside clamping ring and may be inserted in and removed from their support by a straight movement in the direction of the axis of the lamp bulb. Lamps can thus be instantly replaced with accuracy.

My invention is more particularly described in the following specification and shown in the accompanying drawings, in which, Fig. 1 is a sectional elevation of a lamp bulb complete on its supporting stand embodying my invention, Fig. 2 is an elevation of the lamp and its support complete, Fig. 3 is a plan view of the bulb support with the bulb removed and Fig. 4 shows one method of finishing the lamp base with a predetermined relation to the filament.

Referring to the drawings, 11 is the lamp bulb, 12 is the filament whose position is defined by the intersection of the lines *a*—*b* and *c*—*d*, 13 is the end of the lamp bulb which is cemented at 15 to the base 20. The lower end of this base is closed by a fibre washer 16 in the centre of which the stud 17 is located on the vertical centre line *c*—*d*. The circuit of the filament is made through a conductor 18 which is soldered to the stud 17 and the conductor 19 which is soldered to the base 20.

The lamp bulb is secured in a support which comprises the insulated stand 21 of Bakelite or other suitable material which has a circular stem at 23 which is inserted in a suitably drilled aperture in the carrier 22 and to which it may be secured by the screws 32. The stand 21 is shouldered at 24 so that the engaging surfaces between 21 and 22 can be accurately machined or finished and the parts assembled with precision.

Moulded into or otherwise secured to the stand 21 is the hollow stem 26 which, as shown in Fig. 1 has a collar at its lower end embedded in the insulation. The projecting end of this tube is provided with a tapered thread and is transversely slotted as indicated at 31. When the lamp base 20 is inserted in this tube it is clamped in place by the knurled ring 27 on the threaded stem of 26.

A bar 28 extends across the bottom of 21 and projects at one side to carry the binding screw 29. The clip 30 is secured to this bar in line with stem 17; this forms the connections for one side of the circuit. The other side of the circuit is established through the binding screw 33 which extends through the stand 21 to engage the hollow stem 26, as indicated in Fig. 3.

It is apparent that the tubular support 26 has a fixed and predetermined relation to the carrier 22 and that the base 20 when inserted so that collar 14 rests on the outer edge of 26 has a fixed and predetermined

relation to the carrier 22, also that bulbs fitted with similar bases can be interchanged and maintain this condition. It will further be observed that the bulb may be rotated in the hollow stem 26 to any extent desired without interfering with the electrical connections, that it is inserted and withdrawn by a straight up and down movement and that it may be clamped in any position by the clamping nut 27.

When a lamp of this type is to be located so that the source of illumination or filament is accurately positioned in the optical axis or focal centre of a lens or reflector, such, for instance, as is required in light signals it is necessary that the base 20 and collar 14 bear a predetermined relation to the filament 12 so that when the carrier 22 is properly positioned with reference to the lens the filament will be in the focal centre thereof. This result I secure by machining the surface of base 20 with reference to the position of the filament after the base has been cemented in place.

One arrangement for carrying out this method is illustrated in Fig. 4. The lamp bulb 11 has cemented thereto in the usual process of manufacture the base 20 which is made from comparatively heavy stock. This base is mounted in a lathe chuck 41 and adjusted in jaws 42—43 until the filament 12 is located at the intersection of the vertical axis *c*—*d* and the transverse axis *a*—*b* as determined by the sighting tube 45 secured in the arm 44 rigidly mounted on the lathe. The sight is observed as the bulb is rotated in the head stock and the bulb is adjusted until the filament rotates true in the line of sight. In this position the cutting tool 47 on the carrier 46 trims down the base 20 as indicated by the dotted outline leaving the collar 14 at the bulb end and eventually cutting off the base where it enters the chuck. In this way it will be noted that it is possible to position the collar 14 in exact relation to the filament and the contour of the base 20 is concentric with the vertical axis *c*—*d* which is the vertical line of the filament.

When a bulb with a base prepared in this way is assembled in the stand 21 it is apparent that the turned surface of the base will position the filament on the vertical line *c*—*d* and the collar 14 will position the filament horizontally on the line *a*—*b*. Thus, through the tubular support 26, stand 21 and carrier 22, the filament of any bulb is instantly positioned with relation to predetermined conditions.

It will be noted that these conditions are obtained without adjustments and by parts which rigidly engage each other. The process of changing lamps is of the most elementary character and does not permit of mistake.

Having thus described my invention, I claim:

1. In a lamp bulb support, in combination, a bulb with a concentrated filament, a base on said bulb having a collar formed thereon in a predetermined relation to said filament, a hollow stem receiving said base with the collar resting upon the exposed end of said stem and clamping means for securing said base in said stem.

2. In a lamp bulb support, in combination, a bulb with a concentrated filament, a base on said bulb having a collar formed thereon in a predetermined relation to said filament, a hollow stem receiving said base with the collar resting upon the exposed end of said stem, said stem split longitudinally and having an exterior clamping nut threaded thereon for securing said base in said stem.

3. In a lamp bulb support, in combination, a bulb with a concentrated filament, a base on said bulb having a collar formed thereon in a predetermined relation to said filament, a hollow stem receiving said base with the collar resting upon the exposed end of the stem and having an annular groove formed therein, a supporting stand moulded around said groove and means for clamping said base in said stem.

4. A lamp bulb as described comprising a concentrated filament and a cylindrical one piece base, said base provided with a collar developed from said cylinder at the end adjacent said bulb, said collar having a predetermined relation to said filament.

5. In a lamp bulb support, in combination, a lamp bulb with a filament, a base on said bulb having a collar in a predetermined relation to said filament, an insulated stem projecting from said base on the axial line of said bulb, a hollow stem receiving said base with the collar resting on one end of said stem, a contact engaging said insulated stem and means exterior to said stem for clamping said base in place.

6. The method of establishing a predetermined relation between the source of illumination of a lamp and its base comprising clamping the base in a lathe chuck, sighting the source of illumination on the centre line of the chuck and turning down the base with a lathe tool.

7. The method of establishing a predetermined relation between a concentrated filament in a lamp bulb and a base secured to the bulb with the usual commercial accuracy, comprising clamping the base in a lathe chuck and sighting the filament through a sight secured to the lathe and turning down the base with a lathe tool when in this position.

8. In a lamp support of the class described, the combination of a lamp bulb having a concentrated filament and a base secured to said bulb with a fixed collar thereon ad-

jacent the bulb having a predetermined relation to said filament and a hollow stem for said base engaging said collar whereby said filament is positioned relative to said stem.

9. In a lamp support of the class described, the combination of a lamp bulb having a concentrated filament and a base secured to said bulb having a predetermined relation to said filament, a carrying member, a stand inserted in an aperture in said carrying member, a hollow stem moulded in said stand with one end projecting and means embodied in said projecting end for clamping said base in said hollow stem.

10. In a lamp support of the class described, the combination of a lamp bulb having a concentrated filament and a base secured to said bulb having a projection with a predetermined relation to said filament, a support for said bulb comprising a stand with a circular stem having a hollow stem for snugly receiving said base moulded in said stand and engaging said projection so as to bring the filament into the axial line of said hollow stem.

Signed at New York city in the county of New York and State of New York this 14th day of October A. D. 1925.

EDWARD A. EVERETT.