

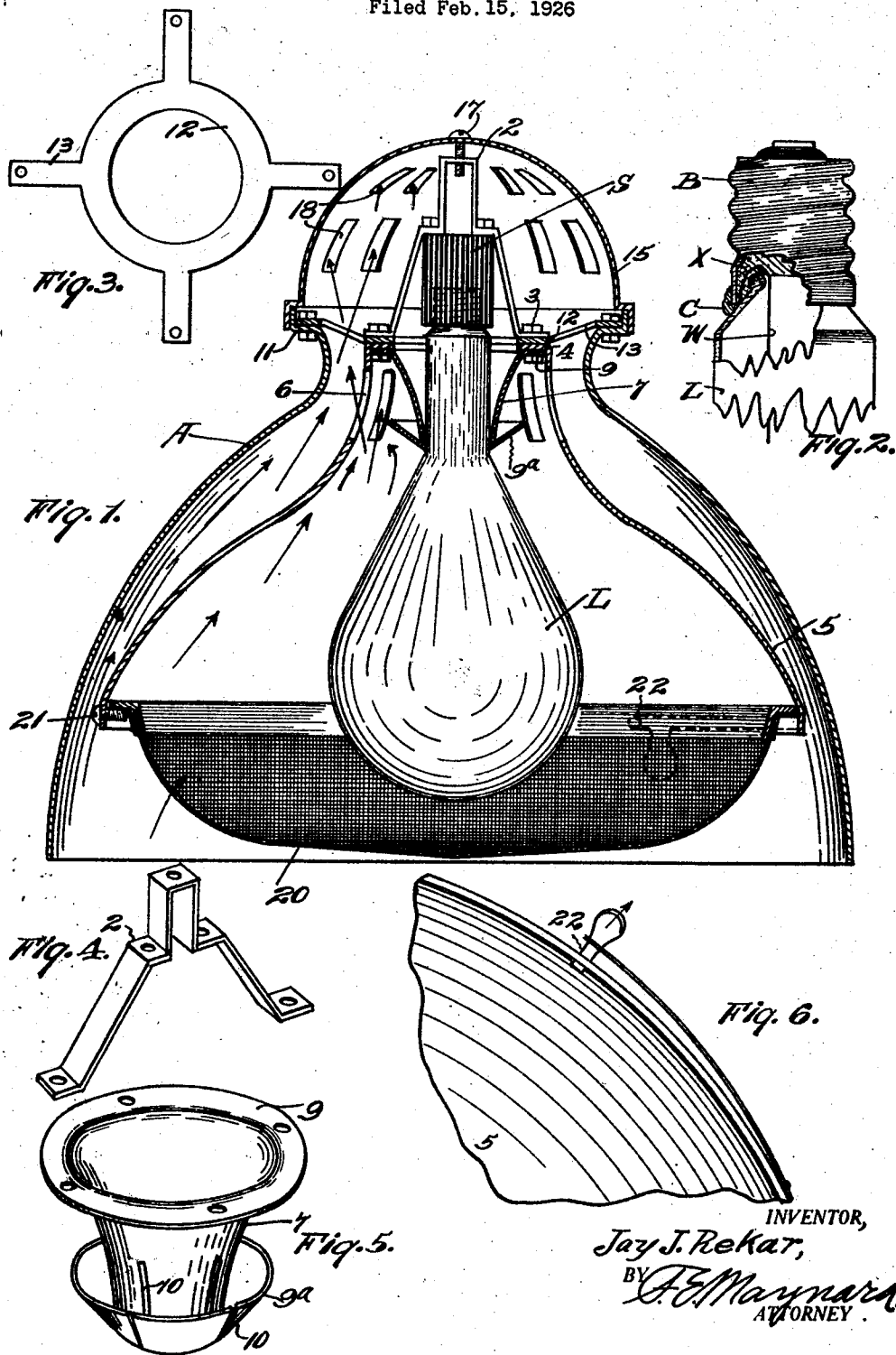
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INCANDESCENT LAMP STRUCTURE

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INCANDESCENT-LAMP STRUCTURE.

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This invention relates to lamp structures and more particularly to types of lamps in which incandescent lamp bulbs are mounted detachably in sockets;—generally screw-threaded.

As is well known, the common commercial lamp bulb has its neck merely gripped in a bed of cement in its threaded base and therefore there is no firmer connection of the glass to its base than the mere bond of cement. Consequently there is a very material loss of lamps in use directly caused by the breaking down of the cement bond uniting the bulb neck and the base, and as such a cause of failure is considered as a defective lamp the manufacturer is called upon to, and does, make good this loss to the buyer by replacement. This is a serious matter of finances when the bulbs are of the higher power type costing the buyer from \$6.00 up.

There are several causes for the breaking down of the cement bond holding the neck of the bulb. One is due to lateral pressure applied occasionally from one cause or another, or constant pressure laterally by gravity acting with much leverage upon the lamp base when the axis of the installed lamp is much out of a vertical line. Another cause is vibration of the bulb from any source and in any position of the bulb. A third and very common cause of the breaking down of the cement is the rather high degree of heat generated by the lamp and which, in the absence of proper ventilation of the lamp structure and socket, destroys the cohesion of the shellac cement and this lets go of the bulb neck, so that the bulb breaks away entirely from the base or is held merely by the lead-in wires of the filament.

In some of the high-grade, high-power lamps now on the market, an interior heat baffle is arranged at the intersection of the "pear" shaped bulb and the neck. And various means have been proposed to grip the base in the socket to prevent loosening of the base in its mount. But this last means is wholly ineffective to prevent strain of the bulb upon the cement bed.

My present invention has many objects which will be made manifest in the ensuing specification of apparatus embodying the principles of the invention; it being understood that modifications, variations and adaptations may be resorted to within the spirit

and scope of the invention as it is here claimed.

Among the several objects the following are here briefly mentioned:—the provision of means to grip the glass body of the lamp and to take some of the lateral strain from the cement in the lamp base, especially when the bulb is inclined out of the vertical and at the same time to steady the bulb against undesired vibrations which tend, not only to loosen the base in the socket threads but, with more serious consequences, to break down the cement hold on the neck end. The bulb holding means has the further function of reflecting downward or outward a considerable portion of light rays, and furthermore, has the purpose of throwing off or deflecting much heat that would affect the base and socket and which frequently melts the lead "spot" holding the base terminal of a lead-in to the filament. Such an event is attended with serious consequences when the bulb is in use in therapeutic apparatus because the melting of the terminal spot generally results in perforating the proximate zone of the very thin glass neck. When so perforated the bulb explodes and the fragments may shower upon a patient being treated.

An embodiment of the invention is illustrated in the accompanying drawings wherein:—

Figure 1 is a central vertical section of the invention as incorporated in a commercial, therapeutic lamp utilizing a standard 1000 w.—115 v. light unit or incandescent lamp.

Figure 2 is an elevation of the base and fragment of a lamp bulb.

Figure 3 is a plan of a spider for connecting parts.

Figure 4 is a perspective of a bridge member.

Figure 5 is a perspective of the bulb-holding, light-reflecting and heat deflecting device.

Figure 6 is a bottom plan of a segment of the lamp reflector, showing a screen latch.

In the present disclosure a "mogul" socket S is designed to receive a lamp base B of a pear shaped bulb or lamp L. The usual lead contact spot C is shown in Fig. 2 for a lead-in wire W from the metal screw base B. In lamps of this character the neck of

the bulb is held in the base only by adhesion of cement X. Heat and strains readily rupture this band of cement and the bulb is loosened and of no use.

5 I provide means preferably rigidly associated with the socket S to engage a part of the glass bulb and eliminate its vibration as to its socket and to so grip or support the bulb as to reduce or obviate side strain of its weight upon the cement in the base. The holder is designed to yieldingly support the glass so as to allow for expansion and for disalignment of the bulb as to the socket.

10 The socket S is here attached to and by a bridge 2, which is fastened by bolts 3 to a ring flange 4 of a parabolic reflector 5; the flange forming a circular mouth around a lamp neck inserted in the socket S.

15 The mouth part of the reflector 5 is provided with a series of air outlet holes 6 below the flange so that the hot air rising from the lamp may readily pass out and away from the neck of the lamp.

20 To cause the positive deflection of the heat and at the same time to steady and support the bulb of the lamp, I provide the above referred to means and arrange it in rigid association with the socket. In its present form this means includes a device having a part or parts surrounding the smaller or neck portion of the bulb at a considerable distance from the socket. The device may comprise a tube 7 whose lower end closely embraces the neck of the lamp L to steady it from side play. The tube is shown as flaring outwardly from the neck and having a rim 9 bearing against flange 4. This flare provides a large air space around the neck adjacent to the socket and deflects the hot air out through the vents 6.

40 To cast back light rays from the lamp a reflecting collar arrangement 9^a is provided at the lamp gripping part of the device. This collar, as here shown, is integral with the tube 7. In such case the tube and collar may be kerfed at 10 to allow yielding of the gripping parts.

50 It will be seen, therefore, that the lamp is supported by the holder in such a manner that if the axis of the bulb is not vertical the constant side leverage burden is taken off of the cement by the remote effective supporting part engaging the lower side of the tilted neck.

55 It is understood that bulb gripping means may be associated with various standard or stock reflectors, or with any special equipment, more especially with equipment in which the bulbs are used or mounted with axes out of the vertical and in which the gravity moment is effective on the cement as the fulcrum of the bulb. In all cases where the bulb hangs in an inclined position from its socket the heat ascends toward the socket and heats it up.

In therapeutic lamps I cover the reflector 5 with a canopy A conforming generally to the form of the reflector, from which it is spaced to allow cool air to pass up between the canopy and the reflector. This flow of air acts inductively to draw the hot air out through the reflector vents 6.

70 The canopy top has an annular shoulder 11 and a spider ring 12 has arms 13 fastened on the shoulder. The ring 12 is bolted, with the bridge feet and the tube 7, on the flange 4 of the reflector; the shoulder 11 forming a wide annular air channel around the top of the reflector.

75 A dome 15 has its bottom centered and supported by the canopy shoulder 11 and extends to the top of the bridge 2, to which it is removably attached by a central screw 17. The dome has ample vent holes 18 for the rapid escape of hot air coming up from the energized lamp-bulb. The rapid escape of air from the canopy and the reflector constantly carries off heat from the socket S.

80 There is so much danger of inflicting injury upon a patient by the bursting or falling of a bulb that glass plate guards have been resorted to and mounted below the bulb in some lamps. But this expedient only increases the danger because the proper ventilation of the lamp is not possible and heating is intensified. To obtain safety and ventilation I provide a foraminous screen 20 of basket form setting up in the canopy and detachably resting upon a set of lugs or screws 21 and a releasing spring latch 22, which devices are provided in the skirt of the reflector.

What is claimed is:

1. A lamp structure including a canopy having a ventilated upper portion, a reflector mounted in the canopy and venting outward thereto, a lamp socket in the upper part of the canopy, and a device for deflecting hot air outwardly through the reflector and away from the lamp base socket.

2. A lamp structure including a canopy having a ventilated upper portion, a reflector mounted in the canopy and venting outward thereto, a lamp socket in the upper part of the canopy, and a device for deflecting hot air outwardly through the reflector and away from the lamp socket and engageable with an applied lamp bulb to steady it.

3. A ventilated, reflecting lamp structure including an inner, outletted reflector, a ventilated dome above the outlet of the space in the reflector, a bulb base socket, and a bulb holder rigidly fixed in the reflector for holding an applied bulb against side strain when the structure is tilted.

4. A ventilated, lamp structure including concentric canopy and reflector members forming an air passageway, a bulb and a base, in which it is cemented, a socket for

said base, having mounting means fixed in the upper part of the canopy, means, in the reflector, having a part engageable with the neck of the bulb and whereby, when the bulb is in an inclined position, the strain of its weight is taken off the base cement; said bulb engaging means having a deflector to throw hot air outward from the lamp to said passageway.

5 5. A reflecting lamp structure including a canopy having a ventilated top, a reflector spaced from and mounted in the canopy and having vent holes out to the canopy space for air escape to the top, and a tubular air deflector closing the top of the reflector above the vent holes and diverting hot air from an applied lamp bulb.

10 6. A lamp structure including a canopy having a ventilated top, a reflector spaced from and mounted in the canopy and having vent holes for escape of air to the canopy top, and a bulb holder for deflecting hot air from the base of the bulb and having a light reflecting portion to cast back light from the bulb and closing the top of the reflector around the bulb.

25 7. A lamp structure including a canopy

having a ventilated top, a reflector spaced from and mounted in the canopy and having vent holes to the canopy top, and a tubular air deflector adapted to receive the neck of a bulb and closing the top of the reflector above the vent holes; said deflector forming an air space around the neck of the bulb and in direct communication with the top chamber.

8. In a lamp structure, a lamp socket, and means including a converging tube having a girdle to engage the glass of an incandescent bulb in the socket and to protect the socket and lamp base from heat, and the girdle having a flared collar portion for reflecting light coming from the lamp.

9. A lamp reflector and a socket arranged axially therewith, and a heat deflector closing the top of and coaxial with the reflector and having a central orifice to receive the neck of a lamp bulb in the socket, said deflector having a part engageable with the neck of the bulb to support it in an inclined position and reduce strain upon the bulb base cement; said reflector having vent holes below its closed top.

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