

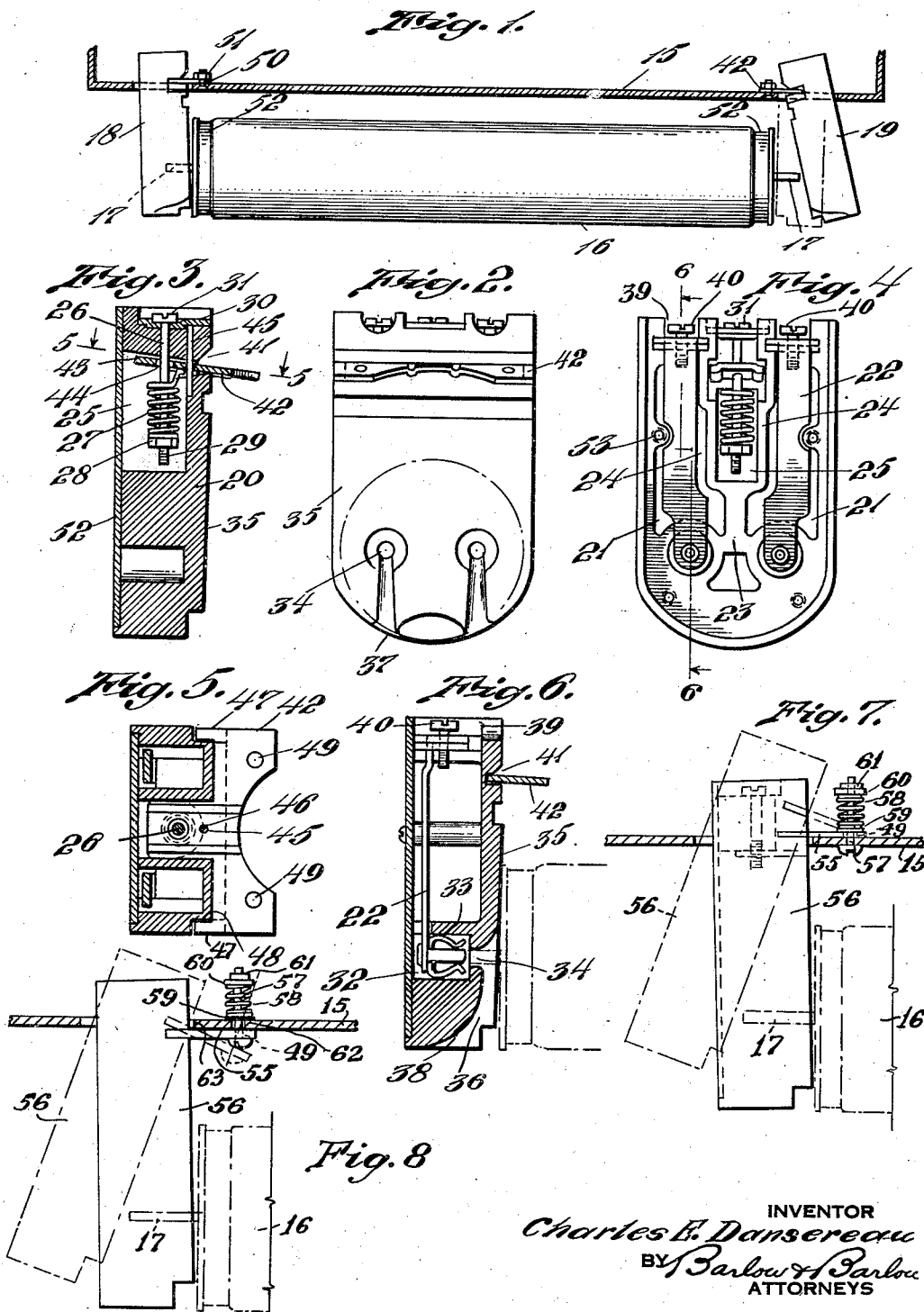
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C. E. DANSEREAU

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TUBULAR LAMP MOUNTING

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TUBULAR LAMP MOUNTING

Charles E. Dansereau, Lakewood, R. I., assignor
of one-half to Harry M. Burt, Narragansett,
and one-half to Guy H. Burt, Cranston, R. I.

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This invention relates to a lamp holder of the type more particularly adapted for holding an electric discharge device such as an elongated fluorescent lamp which is supported at each of its ends by a lamp socket by reason of at least one contact pin extending beyond each of the ends into a recess or slot in the socket.

In the more common types of lamp holders now on the market the sockets which receive the end contact pins of the lamp are usually fixedly mounted upon some base or support and the lamp is then inserted into slots in the socket and held in position by reason of the offset of the slot or by rotation of the lamp a portion of a turn with the pin resting on the wall of the recess or slot so as to prevent the contact pin of the lamp from being accidentally removed from the socket. It may be said that the positioning of the lamp in the socket is accomplished by movement of the lamp while the sockets remain fixed with reference to the base or support upon which they are attached.

One of the objects of this invention is to support a lamp in position by sockets but to move the sockets relative to the base so that they may receive the contact pins of the lamp upon moving back to a holding position so as to retain the lamp in the socket and support it in position.

Another object of the invention is to simplify the mounting of a lamp in position by making it unnecessary to turn or push the lamp to one position or another for removal of the lamp from its socket and thus prevent injury to the lamp contacts by twisting or pushing the lamps in the wrong direction by inexperienced operators.

Another object of this invention is to provide electrical contacts in the socket for engaging the contacts of the lamp by reason of a separate spring rather than by the resilience of the contacts, which contacts may become crystallized and therefore fail to operate.

Another object of the invention is to more positively lock the lamp in position against accidental removal due to vibration or the like.

Another object of the invention is to provide a more simple molded socket with fewer complicated recesses for the receiving and holding of the pins of the lamps in position.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawing:

Fig. 1 is a side elevation partly in section illus-

trating a lamp, a base, and sockets carried by the base, one of the sockets being moved to a position to permit discharge of one end of the tube therefrom, the dotted line indicating the position from which one of the sockets has been moved;

Fig. 2 is a face view of one of the sockets shown in Fig. 1;

Fig. 3 is a sectional view through the center of the socket shown in Fig. 2;

Fig. 4 is a rear or back view of the socket shown in Fig. 2;

Fig. 5 is a sectional view on line 5-5 of Fig. 3;

Fig. 6 is a sectional view on line 6-6 of Fig. 4;

Fig. 7 is a side elevation of a socket showing in section the base upon which it is mounted with the mounting being of a modified form with respect to the other views heretofore described; and

Fig. 8 is a view similar to Fig. 7 and illustrating a different modification of mounting the socket upon the base the relative position of the plate being carried by the socket being upon the opposite side of the base from that shown in Fig. 7.

In proceeding with this invention I contemplate some base or support upon which the lamp is mounted. Sockets are mounted upon this base so that at least one is swingable to permit some endwise movement of the lamp which extends between the two sockets so that the pins of the lamp may be inserted into one of the sockets while the other socket is swung out to permit this freedom of motion, after which the out swung socket is returned so that the pins at the other end of the lamp fit into this swingable socket and are held therein. The swingable socket may be moved endwise, i. e. axially of the lamp or it may be operated by swinging component elements thereof laterally apart so as to disengage the pins of the lamp and permit the lamp to be removed from its supported position. A spring is conveniently used for returning the out swung socket to a position to engage the lamp and to hold the socket in such engagement that the lamp cannot be accidentally jarred from position. In some cases both sockets may be swingable to permit removal of the lamp from position.

With reference to the drawing 15 designates a base or support, which may take the form of a reflector in certain mountings, from which a lamp 16 is suspended. This lamp or tube 16 is of the electron discharge type, such as a fluorescent tube now in common use. One or more contact

pins 17 extend from the right-hand end thereof and similarly extend from the left-hand end of this tube. These pins are each connected to a filamentary electrode within the tube envelope to conduct current into the envelope and these pins also serve as a means for supporting the tube in position. Sockets 18 and 19, located in a certain spaced relation to accommodate the lamp 16, are carried by the base 15; and the pins 17 of the lamp extend into recesses in these sockets 18 and 19 to engage the walls of the recess so as to support the lamp 16 in position. The sockets are generally hollow and contain within them electrical conducting strips of metal which engage the contact pins 17 so as to conduct current thereto. Wiring to the sockets is not illustrated but may conveniently be housed back of the base 15.

The sockets which are used may for convenience be of identical construction and each is molded from some plastic material of an insulating quality to provide a body designated generally 20 which is so molded as to be hollow at portions 21 extending longitudinally of the body for the accommodation of metallic strips 22; a dividing wall 23 is located between the hollowed portions 21 which dividing wall has branches 24 between which there is a chamber 25 located centrally of the body. A pin 26 extends centrally longitudinally of the body in this chamber and is encircled by a spring 27 which may be adjusted as to tension by nut 28 engaging the threads 29 on the pin 26. In a recess, at the end of the body, a plate 30 is located beneath the head 31 of the pin 26 to provide a better support for this head on the surface of the plastic material. Recesses 32 extend inwardly from the rear of the body for accommodation of prongs 33 mounted on the ends of conducting strips 22; while for each contact pin 17 there is a recess 34 extending inwardly from the face 35 of the socket to join with the recess 32 and provide a hole. This permits a contact pin disposed in a recess 34 to extend inwardly of the socket from the face 35 thereof and be engaged by the prongs 33. A channel 36 leads from the edge 37 of the socket to the recess 34 and the bottom wall 38 of said channel is curved or tapered as shown in Fig. 6. This serves to guide contact pins 17 of the tube to the recesses 34. A recess 39 is provided at the other end of the socket for the accommodation of the folded end of the strip 22 in which a binding screw 40 is provided for securing a lead wire thereto.

A slot 41 extending across the face of the socket has located therein a plate 42 with a tongue 43 thereof extending into the chamber 25 and receiving, through an opening 44 in the tongue, the pin 26. This plate is also held in position by a pin 45 embedded in the body and extending through an opening 46 in the plate at the center portion thereof. The spring 27 engages the plate tending to force the inward portion thereof upwardly as shown in Figs. 3 and 4. The opening 44 in the plate which receives the pin 26 is sufficiently large to permit freedom of movement of the plate or if the plate is held then movement of the body 20 with reference to the plate is permitted. The outer edges of the plate have fingers 47 which engage or extend into recesses adjoining slot 41 and engage the wall portion 48 of the body so as to prevent lateral movement of the plate with reference to the body. Openings 49 are provided

in the plate for firmly binding the plate by means of bolts 50 and nuts 51 to the base 15.

It will be apparent that the foregoing construction provides a pivotal mounting of the socket 18 on the plate 42 in a manner which creates but little friction opposing relative pivotal movement of said parts. For convenience this type of mounting will be referred to hereinafter as one which permits "free pivotal movement" of the socket.

As shown in Fig. 1 the sockets 18 and 19 are arranged in such position that the end caps 52 of the lamp engage the faces of the sockets. To position a lamp it is necessary to swing one of the sockets such as 19 outwardly to the full line position shown in Fig. 1. This permits the pins 17 to be inserted in the socket 18 and the pins 17 at the other end of the lamp to be brought up into a position such that, when the socket 19 is released and swung by spring 27 about the plate 42, said socket will assume or move toward the position relative to said plate shown in Fig. 3 and the pins will be received in the recesses 34 and engage the prongs 33. When these pins are in this position they will be supported by the walls of the recesses 34 and the prongs 33 so that no jarring of the support can shake the lamp loose. In cases where there may be some restriction of movement of the socket the channels or grooves 36 will assist in moving the pins to position. Both sockets 18 and 19 may be moved outwardly so that this result may be more readily accomplished.

A back plate or cover 52 may be secured in position by means of screws entering the threaded openings 53 (see Fig. 4) or any other suitable means may be utilized for the holding of the cover in position.

In the showing of Figs. 1 to 6 inclusive which I have just described the resilient means for rockably mounting the socket is contained within the body in a hollow chamber thereof and thus a wholly self-contained unit which may be firmly bound in position on the base is provided. However, in some instances a similar result may be provided as illustrated in Figs. 7 and 8 where I have shown a plate 55 which is rigidly mounted with reference to the socket or body thereof 55 while the remainder of the socket remains substantially the same as that heretofore described. In this case bolts 57 will extend through the base 15 and through the openings 49 of the plate while I will interpose a spring 58 between a washer 59 and a washer 60 held against a nut 61 acting as an abutment for the other end of the spring. In this mounting the plate 55 is on the back of the base 15 or against the surface of the base 15 which is distant from the lamp 16. If it is desired to rock the socket 56 the end of the plate 55 acts as a fulcrum for the lifting of the remainder of the plate and the socket when the socket is rocked from the full line position shown in Fig. 7 to the dotted line position shown therein for the freeing of the pins 17 of the lamp 16 or the reception thereof.

A mounting similar to that of Fig. 7 may also be had by the positioning of the plate 55 on the side of the base 15 opposite from that shown in Fig. 7, i. e. on the side which is closest to the lamp 16. In this case the headed bolt 57 extends through an opening 49 in the plate and through an opening 62 in the base 15. The spring 58 is interposed between washers 59 and 60 while the nut 61 acts as an abutment as previously. In this case the edge of the base 63 through which

the socket extends will act as a fulcrum about which the body of the socket 56 may be rocked while the plate acts as a lever arm to move the socket back toward working position by the spring 58. The socket may be rocked from the position shown in full line in Fig. 8 to the position shown in dotted line therein to permit release of the lamp contact pins 17 from the socket or reception thereof.

I claim:

1. A socket member for mounting on a support member a lamp having at least one contact pin at each end thereof, said socket member having at least one recess to receive a pin at one end of the lamp, said recess extending inwardly of said socket member from a face thereof, a contact member carried by said socket member and disposed so as to engage a pin in said recess, means to mount said socket member for free pivotal movement on said support member so that said recess can be swung toward and away from said pin, and means to resiliently bias said socket member toward said lamp, said recess being remote from the axis of pivotal movement of said socket member and on the side thereof on which the lamp is disposed.

2. A socket member as set forth in claim 1 wherein the axis of rotation of the pivotal mounting means is transverse to the axis of the lamp running from end to end thereof.

3. A socket member as set forth in claim 1 wherein the axis of rotation of the pivotal mounting means is on the side of the center line of the socket nearest to the lamp.

4. A socket member as set forth in claim 1 wherein the means to resiliently bias the socket member toward the lamp is housed within said socket member.

5. A socket member as set forth in claim 1 wherein a channel extends from an edge of the socket member on the same face thereof as that having the recess therein, said channel intersecting a wall of said recess and having at the point where it intersects said wall a width slightly greater than the diameter of the contact pin, so that the channel serves to guide the contact pin into the recess.

6. A socket member as set forth in claim 1 wherein a channel extends from an edge of the socket member on the same face thereof as that having the recess therein, said channel intersecting a wall of said recess and having at the point where it intersects said wall a width slightly greater than the diameter of the contact pin, so that the channel serves to guide the contact pin into the recess, said channel being of a depth such that a contact pin will bear against its bottom wall during insertion of a lamp and the depth of said channel reducing gradually from the edge of the socket member to the recess so as to cam the socket outwardly during insertion of the lamp.

7. A socket member as set forth in claim 1 wherein the pivotal mounting means for the socket member comprises a mounting member connected at one end to the support member and at its other end to the socket member, the connection between one of said members and one end of said mounting member being pivotal and the connection between the other member and the other end of said mounting member being immovable.

8. A socket member as set forth in claim 1 wherein the pivotal mounting means for the socket member comprises a plate having a tongue extending through an aperture in the socket

member, the resilient means for biasing said socket member toward the lamp comprising a spring bearing against said tongue.

9. A socket member as set forth in claim 1 wherein a slot is provided on a face of the socket member perpendicular to the axis of the lamp joining the ends thereof and wherein the means for pivotally mounting said socket member on the support member comprises a plate having an edge thereof received and rockable in said slot.

10. A socket member as set forth in claim 1 wherein a slot is provided on a face of the socket member perpendicular to the axis of the lamp joining the ends thereof, wherein the means for pivotally mounting said socket member on the support member comprises a plate having an edge thereof received and rockable in said slot, and wherein means is provided to captively secure said plate to said socket member.

11. A socket member for mounting on a support member a lamp having at least one contact pin at each end thereof, said socket member having at least one recess to receive a pin at one end of the lamp, said recess extending inwardly of said socket member from a face thereof, a contact member carried by said socket member and disposed so as to engage a pin in said recess, a plate to mount said socket member for free pivotal movement on said support member so that said recess can be swung toward and away from said pin, a slot on a face of said socket member which is disposed perpendicular to said lamp axis, an edge of said plate being received and rockable in said socket, means to captively secure said plate to said socket member, a recess in said socket spaced from the face in which said slot is formed, a passageway from said slot to said last named recess, a portion of said plate extending through said passageway and freely into said last named recess, and means cooperating with said plate portion to resiliently bias said socket toward said lamp, said contact-pin-receiving recess being remote from said slot and on the side thereof on which the lamp is disposed.

12. A socket member as set forth in claim 11 wherein the means for captively securing the plate to the socket member comprises a pin extending through an opening in said plate and anchored in said socket member.

13. A socket member as set forth in claim 11 wherein the means for resiliently biasing said socket member toward the lamp comprises a spring housed in said socket member and exerting resilient pressure between said socket member and the portion of the plate contained within said socket member.

14. A socket member as set forth in claim 11 wherein the means to resiliently bias said socket member toward the lamp comprises a pin fixed in said socket member and extending through an opening in the portion of the plate within said socket member and a spring encircling said pin and maintained under compression between said plate portion and an element fixed to said pin.

15. A socket member for mounting on a support member a lamp having at least one contact pin at each end thereof, said socket member having at least one recess to receive a pin at one end of the lamp, said recess extending inwardly of said socket member from a face thereof, a contact member carried by said socket member and disposed so as to engage a pin in said recess, a mounting member fixed to and projecting from the socket member, means on the projecting portion of said mounting member to secure said mounting member to said support member for

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free pivotal movement relative thereto so that said recess can be swung toward and away from said pin, and means to resiliently bias said mounting member about its axis of pivotal movement in such direction as to urge said socket member toward said lamp, said recess being remote from the axis about which said mounting member pivots and on the side thereof on which the lamp is disposed.

16. A socket member as set forth in claim 15 wherein the means for pivotally securing the mounting member to the support member is so constructed and arranged that the mounting member pivots on the support member about an edge of said mounting member remote from the socket member.

17. A socket member as set forth in claim 15 wherein the means for pivotally securing the mounting member to the support member is so constructed and arranged that the mounting member pivots on the support member adjacent the socket member.

18. A socket member as set forth in claim 15 wherein the mounting member and support member each have an opening, said openings being in registration, wherein a pin extends through said openings, and wherein the means for resiliently biasing the mounting member about its axis of pivotal movement comprises a spring encircling said pin and resiliently urging said mounting member toward said support member.

19. A socket member as set forth in claim 15 wherein the mounting member and support member each have an opening, said openings being in registration, wherein a pin extends through said openings, and wherein the means for resiliently biasing the mounting member about its axis of pivotal movement comprises a spring encircling said pin and resiliently urging said mounting member against said support member.

20. A socket member as set forth in claim 15 wherein the mounting member and support member each have an opening, said openings being in registration, wherein a pin extends through said openings, said pin having an abutment adjacent each end thereof, an abutment at one end of said pin bearing against a surface of the support member, the mounting member being disposed against the opposite surface of the support member, and wherein the means for resiliently biasing the mounting member about its axis of pivotal movement comprises a spring encircling said pin and disposed between said mounting member and the abutment at the other end of the pin.

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21. A socket member as set forth in claim 15 wherein the mounting member and support member each have an opening, said openings being in registration, wherein a pin extends through said openings, said pin having an abutment adjacent each end thereof, an abutment at one end of said pin bearing against a surface of the mounting member, the support member being disposed against the opposite surface of said mounting member, and wherein the means for resiliently biasing the mounting member about its axis of pivotal movement comprises a spring encircling said pin and disposed between the support member and the abutment at the other end of the pin.

22. A socket member as set forth in claim 15 wherein the support member has an edge past which the socket member extends, wherein the mounting member and support member each have an opening, said openings being in registration, wherein a pin extends through said openings, said pin having an abutment adjacent each end thereof, an abutment at one end of said pin bearing against a surface of the support member, the mounting member being disposed against the opposite surface of the support member, and wherein the means for resiliently biasing the mounting member about its axis of pivotal movement comprises a spring encircling said pin and disposed between said mounting member and the abutment at the other end of the pin whereby the axis of pivotal movement of the mounting member is at the edge of the mounting member remote from the socket member.

23. A socket member as set forth in claim 15 wherein the support member has an edge past which the socket member extends, wherein the mounting member and support member each have an opening, said openings being in registration, wherein a pin extends through said openings, said pin having an abutment adjacent each end thereof, an abutment at one end of said pin bearing against a surface of the mounting member, the support member being disposed against the opposite surface of said mounting member, and wherein the means for resiliently biasing the mounting member about its axis of pivotal movement comprises a spring encircling said pin and disposed between the support member and the abutment at the other end of the pin whereby the axis of pivotal movement of the mounting member is at the edge of the support member.

CHARLES E. DANSEREAU.