March 28, 1939. H. A. DOUGLAS 2,151,903

ELECTRIC LAMP AND SOCKET CONSTRUCTION

Original Filed Jan. 12, 1935

Fig. 1

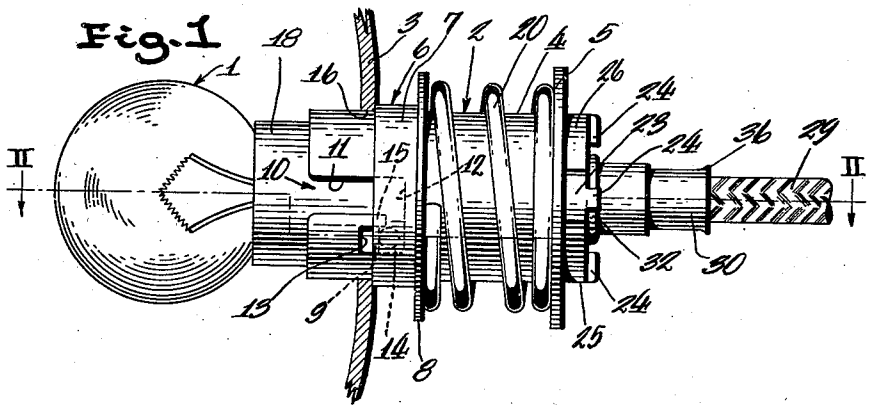


Fig. 2

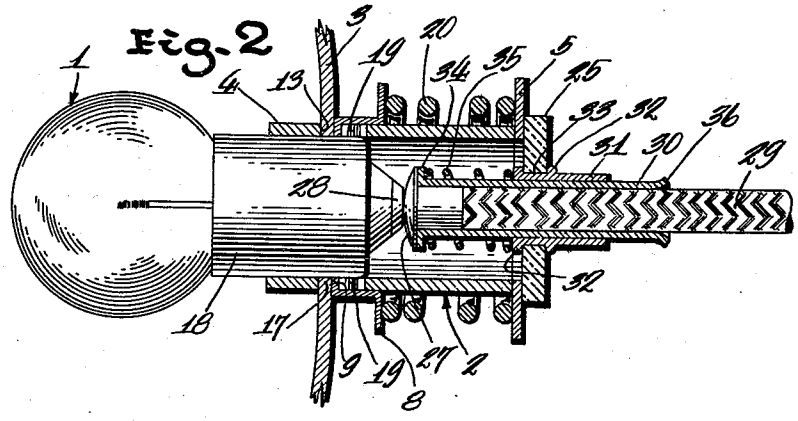
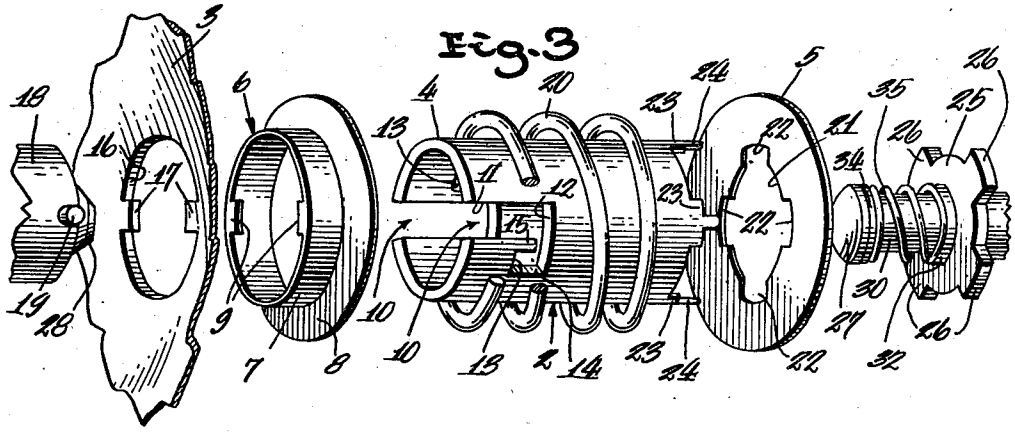


Fig. 3



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ELECTRIC LAMP AND SOCKET CONSTRUCTION

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Application January 12, 1935, Serial No. 1,526
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14 Claims. (Cl. 173—339)

My invention relates to electric lamp and socket constructions, and more particularly to such constructions in which a socket means for a lamp may be quickly connected with a mounting means, as for example a reflector, and the principal object of my invention is to provide a new and improved construction of this type. In the drawing accompanying this specification, and forming a part of this application, I have shown, for purposes of illustration, one form which my invention may assume, and in the drawing:

Figure 1 is a side elevation of an embodiment of my invention, the mounting means being shown fragmentarily and in section,

Figure 2 is a sectional view taken along the line II—II of Figure 1, looking in the direction of the arrows, and

Figure 3 is a perspective view of the parts shown in Figure 1, disassembled, some parts being shown fragmentarily.

In Figure 1 an incandescent electric lamp 1 is shown mounted in a socket means 2, the socket means 2 being connected to a mounting means 3. The mounting means 3 may be a plate or may constitute part of a reflector.

The socket means includes a shell member 4 of generally cylindrical form, provided with a flange 5, which may be fixed to the shell 4 in any desired manner. The socket means includes a member 6 which is movable with respect to the shell 4, and in this instance comprises a cylindrical portion 7 provided with a flange 8, the portion 7 fitting slidably on the shell 4. The cylindrical portion 7 may be provided with a desired number of radially inwardly extending projections 9, as also may be clearly seen in Figure 3. One of the projections 9 may be seen in Figure 1, and this projection is adapted to cooperate with a bayonet slot 10 provided in the shell member 4. The bayonet slot 10 comprises a portion 11 extending axially, a desired distance, from the left hand end of the shell 4 as viewed in Figure 1 and merging into a circumferentially extending portion 12 which in turn merges into another portion 14, extending axially toward the left hand end of the shell 4, but of less extent than the portion 11. The slot portions 11 and 14 have a tongue 15 between them, the tongue 15, with the opposed side wall of the portion 14, forming a bayonet seat having as its bottom the end 13 of the portion 14. The shell 4 is here shown as provided with two bayonet slots 10, the second slot being diametrically opposite the one seen in Figure 1, as indicated in Figure 3.

The mounting means 3 is provided with an aperture 16 through which the end of the shell member 4 may be passed. Extending radially inwardly from the aperture 16 are a desired number of projections 17, in this case two, which are adapted to cooperate with the bayonet slots 10. When the parts are assembled, as shown in Figure 1, the projections 17 are in engagement with the bottoms 13 of the seats of the bayonet slots 10, whereas the projections 9, while seated in the bayonet seats, are disposed on top of the projections 17.

The lamp 1 is provided with a base 18 in turn provided with means extending laterally therefrom adapted to cooperate with the bayonet slots 10. In this instance, the laterally extending means is in the form of two pins 19, these pins being adapted to seat in the bayonet seats but on top of the projections 9.

The socket means includes resilient means, in this instance a helical spring 20, surrounding the shell member 4, interposed between the flanges 5 and 8 and acting to bias the movable member 6 against the mounting means 3.

The flange 5 may be separate from the shell member 4 and constructed as shown in Figure 3, being provided with an aperture 21 of smaller diameter than the exterior of the shell 4, the aperture 21 being locally radially extended to provide a desired number of auxiliary apertures 22 respectively adapted to pass over axial extensions 23 on the shell member 4. The extensions 23 may be provided with tongues 24 of reduced width, these tongues being adapted to be clinched, as shown in Figure 1 over an insulating contact carrier 25. The contact carrier is here shown as a disk of a diameter fitting within the axial extensions 23, but provided with radial extensions 26 adapted to bear against the flange 5 between the auxiliary apertures 22.

The carrier 25 may carry a desired number of contacts, in this instance a flanged contact 27 adapted to cooperate with a contact 28 on the base 18 of the lamp 1. The contact 27 is provided on the end of a conductor 29 disposed within a sleeve 30 slidable in a bushing 31. The bushing 31 extends through an opening 33 in the carrier 25 and is fixed to the carrier 25 by the provision on the bushing of beads 32 disposed on opposite sides of the carrier. The end of the sleeve 30, within the shell 4 is provided with a flange 34 against which the flange of the contact 27 is adapted to abut. The flange 34 also serves as an abutment for a helical spring 35 which is disposed around the sleeve 30 between the flange 34 and the left hand bead 32. The

sleeve 30 is desirably provided with a flared or beaded end 36 to limit the motion which the spring 35 may impart to the sleeve, by abutment of the flared end 36 with the end of the bushing 31.

The construction may be assembled, and operated as follows. The flange 5 is slipped over the axial extensions 23 until the flange abuts the end of the shell 4, and then the contact carrier 25, with the desired parts assembled therewith, is so inserted through the aperture 21 that the projections 26 will lie between the extensions 23, whereupon the tongues 24 are clinched over the carrier 25. The spring 20 is then slipped over the shell 4. To assemble the movable member 6 with the shell 4, the movable member 6 may be slipped over the shell 4, with the projections 9 in registry with the axial portions 11. The movable member is then pushed against the bias of the spring 20 until the projections 9 are axially beyond the projection 15, whereupon the movable member may be turned about its axis, the projections 9 passing through the circumferentially extending portions 12 until they reach the end of that portion. When the movable member is then released for axial movement it will be moved by the spring 20 so that the projections 9 will become directly seated upon the bottoms 13 of the bayonet seats.

The socket means as thus assembled constitutes a unitary device which may be readily and quickly assembled with the mounting means 3. In order to assemble the socket means with the mounting means 3, the portions 11 of the bayonet slots are first brought into registry with the projections 17, whereupon the socket means is pushed toward the mounting means 3, the shell 4 slipping through the aperture 16, and the mounting means engaging the movable member 6. The movable member 6 is thereby moved relatively to the shell 4 thereby further compressing the spring 20. When the spring 20 has been sufficiently compressed, the left hand edge of the member 6 will have been moved a sufficient amount toward the right, as viewed in Figure 1, so that when the socket means is turned with respect to the mounting means, the projections 17 may pass through the circumferential portions 12 of the bayonet slots, and by then releasing the socket means the projections 17 will become seated directly against the bottoms 13. As the socket means is released for axial movement, the projections 9, which are at that time on top of the projections 17, follow the projections 17 into the axially extending portions 14 of the bayonet slots, and thus both the projections 9 and 17 are seated in the bayonet seats.

The lamp 1 may be assembled with the socket means by bringing the pins 19 into registry with the portions 11 of the bayonet slots 10 and performing the usual motions for connecting a bayonet joint. When the connection is completed, the pins 19 will rest on top of the projections 9 as shown in Figure 1 and will be pressed against the projections 9 by the spring 35 acting through the flange 34 to press the contact 27 against the contact 28.

The depth of the bayonet seats, from the end of the tongues 15 to the bottoms 13, is made sufficient so that when the projections 9 and 17 are in the bayonet seats the tongues 15 will extend beyond the projections 9, whereby the pins 19 will be restrained, by the sides of the seat, from undesired circumferential movement.

From the foregoing it will be apparent to those skilled in the art that the illustrated embodiment of my invention provides a new and improved socket construction and socket and lamp assembly, and accordingly, accomplishes at least the principal object of my invention. On the other hand, it also will be obvious to those skilled in the art that this particular embodiment of my invention may be variously changed and modified, without departing from the spirit of my invention, or sacrificing the advantages thereof, and that, accordingly, the disclosure herein is illustrative only, and my invention is not limited thereto.

I claim:

1. In combination: a mounting having an aperture; means for receiving an incandescent electric lamp, at one side of said mounting; said receiving means extending through said aperture and having a portion overlying a part of said mounting at said side of said mounting; a retaining member movable with respect to said receiving means at the other side of said mounting; means whereby said retaining member makes bayonet connection with said receiving means; and means for pressing said retaining member against said mounting, said pressing means being correlated with said receiving means to press said overlying part against the other side of said mounting.

2. In combination: a mounting having an aperture; means for receiving an incandescent electric lamp, at one side of said mounting; means whereby said receiving means and said mounting make bayonet connection with each other, one of the elements of said bayonet connection being provided on said receiving means and the other on said mounting; said receiving means extending through said aperture and having a portion overlying a part of said mounting at said side of said mounting: a retaining member, movable with respect to said receiving means at the other side of said mounting; means whereby said retaining member makes bayonet connection with said bayonet-connection-element provided on said receiving means; and means interposed between said retaining member and said receiving means for pressing said retaining member against said mounting, to thereby press said overlying part against the other side of said mounting.

3. In combination: a mounting having an aperture; an incandescent electric lamp; means for receiving said lamp, said receiving means having a part extending through said aperture to the other side of said mounting and overlying an adjacent portion of said other side; a retaining member movable with respect to said receiving means; means whereby said retaining member makes bayonet connection with said receiving means, one of the elements of said bayonet connection being provided on said retaining member and the other on said receiving means; means whereby said lamp makes bayonet connection with said bayonet-connection-element provided on said receiving means; and means for pressing said retaining member against said mounting, said pressing means being cooperable with said receiving means to hold the same to said mounting.

4. In combination: a mounting having an aperture; an incandescent electric lamp; means for receiving said lamp, at one side of said mounting; said receiving means extending through said aperture and having a portion overlying a part of said mounting at said side of said mounting; a retaining member movable with respect to said receiving means at the other side of said mount-

ing; means whereby said retaining member makes bayonet connection with said receiving means, one of the elements of said bayonet connection being provided on said retaining member and the other on said receiving means; means whereby said lamp makes bayonet connection with said bayonet-connection-element provided on said receiving means; and means for pressing said retaining member against said mounting, said pressing means being cooperable with said receiving means to press said overlying part against the other side of said mounting.

5. In combination: a mounting having a projection; means for receiving an incandescent electric lamp; said receiving means having a member provided with a bayonet slot cooperable with said projection; a retaining member carried by and movable with respect to said receiving means; said retaining member having a projection cooperable with said bayonet slot to hold said retaining member inoperative relation with respect to said receiving means; and means for pressing said retaining member against said mounting, said pressing means being cooperable with said receiving means to hold the same to said mounting.

6. Unitary socket means, assemblable with a mounting having an aperture provided with a projection, comprising: means for receiving an incandescent electric lamp, having a member provided with a bayonet slot; a retaining member carried by said receiving means, and having a projection cooperable with said bayonet slot; means for resiliently pressing said retaining member projection into seating engagement with respect to said bayonet slot; said socket means, when assembled as a unit, being connectable to the mounting by positioning the mounting aperture projection in operative relation with respect to said bayonet slot.

7. Unitary socket means, assemblable with a mounting having an aperture provided with a projection, comprising: means for receiving an incandescent electric lamp, said receiving means having a member provided with a bayonet slot and seat; a retaining member carried by said receiving means, having a projection disposable within said bayonet seat, and having a part spanning said bayonet slot; means for resiliently pressing said retaining means projection into seating engagement with respect to said bayonet seat; said socket means, when assembled as a unit, being connectable to the mounting from one side thereof by positioning the mounting aperture projection within said slot, axially moving said socket means with respect to the mounting to cause said projection to engage and axially move the spanning part of said retaining member and compress said resilient means, and then moving said socket means radially with respect to the mounting so as to dispose the mounting projection within said bayonet seat, said resilient means being operable to yieldably urge said retaining member to engagement with the mounting to hold said unitary socket means in assembled relation with respect to the mounting.

8. In combination: a mounting having a projection; means for receiving an incandescent electric lamp, and having a member provided with a bayonet slot cooperable with said mounting projection; retaining means having a projection cooperable with said bayonet slot; resilient means, operable to yieldably hold said mounting projection and said retaining member projection in operative relation with respect to said bayonet slot; an incandescent electric lamp, having a projection cooperable with said bayonet slot; and additional resilient means, operable to yieldably hold said lamp in operative position with respect to said receiving means.

9. In combination: an apertured mounting, provided with a part of a connection means; a retaining member, having a part of a connection means similar to the part provided on said mounting; an electric lamp, having a part of a connection means similar to the parts on said mounting and said retaining member; a body, having a part of a connection means complementary to the parts of the connection means carried by said retaining member, mounting, and electric lamp, said body being constructed and arranged to support said retaining member and said electric lamp, and be supported by said mounting, and resilient means yieldably acting on said retaining member to oppose disconnection of the cooperating connecting means.

10. In combination: a body, having spaced bayonet slots; a member, having projections disposed in the seats of said bayonet slots; a mounting, having an aperture through which said body extends, said mounting, adjacent the margin of said aperture, having spaced projections disposed in the seats of said bayonet slots, said mounting projections being interposed between said member projections and the seats of said bayonet slots; and resilient means acting on said member projections to yieldably hold said mounting projections in seating relation in said bayonet slot seats.

11. Means connectable to a mounting which has an aperture and a projection, comprising: a body having a bayonet slot; a member having a projection seating within said bayonet slot and a portion closing off the entrance of said bayonet slot; resilient means urging said member projection to seating relation; said connectable means when assembled, being connectable to the mounting by causing the mounting projection to traverse the entrance of said bayonet slot to engage and move the closing off portion of said member so as to unseat said member projection, the mounting projection being then in position to be moved to seating relation with respect to said bayonet slot, the member projection, after seating of the mounting projection, engaging the mounting projection and also seating in said bayonet slot, and said resilient means being constructed and arranged to oppose unseating movement of both said member projection and the mounting projection.

12. Connection means, comprising: a mounting, having an aperture, and formed with a projection; a body, disposed within said mounting aperture, and having a bayonet slot receiving said mounting projection; a retaining member, having a projection received within said bayonet slot; said body and said retaining member having portions constructed and arranged to engage opposite surfaces of said mounting; and resilient means, constructed and arranged to urge said portions into engagement with said opposite surfaces.

13. Unitary means, assemblable with a mounting having an aperture and provided with a projection, comprising: a body, having a bayonet slot; a retaining member, carried by said body, and having a projection seating within said bayonet slot; means for resiliently pressing said retaining member projection to seating relation; said unitary means being connectable to the

mounting by seating the mounting projection within said bayonet slot.

14. In combination: a mounting, having a projection; means for receiving an electrical circuit device, said receiving means having a bayonet slot receiving said projection, connecting said receiving means with said mounting, at least a portion of said slot being disposed on one side of said mounting; a member peripherally disposed about said receiving means, and slidable along said receiving means; and means for pressing said member against said one side of said mounting, said member covering the portion of said bayonet slot at said one side of said mounting, the urging force of said pressing means being transmitted to said receiving means to oppose disconnection of said projection from said bayonet slot.

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