Oct. 9, 1951 G. B. BENANDER 2,570,751

LAMP SOCKET

Filed Aug. 24, 1949

Fig. 1.

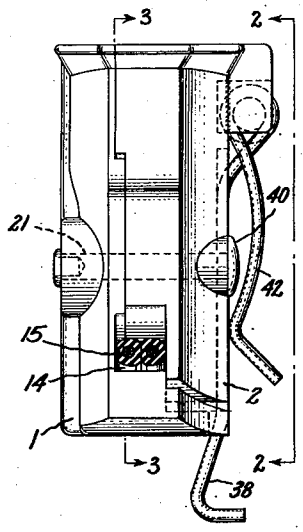


Fig. 2.

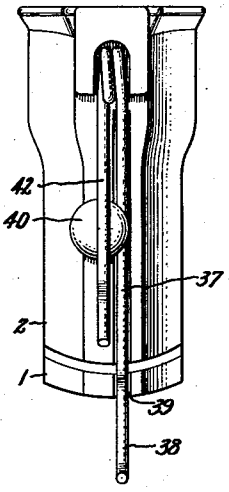


Fig. 3.

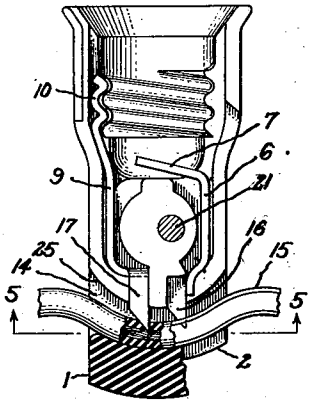


Fig. 4.

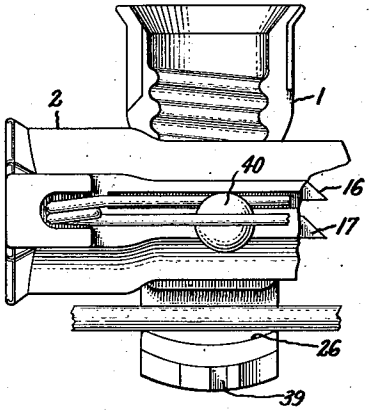


Fig. 6.

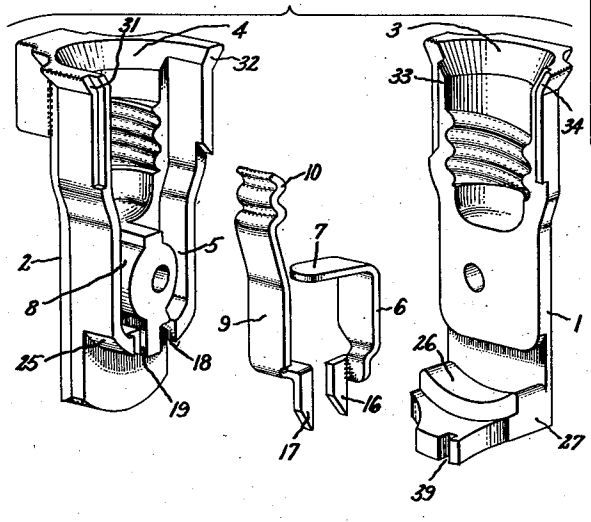
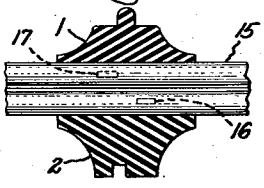


Fig. 5.



Inventor:
George B. Benander
by Otto R. V. Kuopp
His Attorney.

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UNITED STATES PATENT OFFICE

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LAMP SOCKET

George B. Benander, Oaklawn, R. I., assignor, by mesne assignments, to General Electric Company, a corporation of New York

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7 Claims. (Cl. 173—340)

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The present invention relates to lamp sockets and more particularly to lamp sockets adapted for use in decorative lighting sets such as strings of lights for Christmas tree decoration.

An object of the invention is to provide a unitary lamp socket of the type described which is of simple and compact design and which can be readily connected to or removed from any part of a conducting cord, for example, after the cord has been arranged on a Christmas tree.

Additional objects and features of the invention will become apparent from the following description and with reference to the accompanying drawing in which Fig. 1 is an elevational view of the improved lamp socket; Fig. 2 is a side elevational view of the socket of Fig. 1; Fig. 3 is a sectional view along line 3—3 of Fig. 1; Fig. 4 is a view of the socket in a wire receiving position; Fig. 5 is a view along line 5—5 of Fig. 3; and Fig. 6 is an exploded view of some of the elements of the socket.

Referring to the drawing, the lamp socket comprises a housing formed of two complementary body members 1 and 2 which are preferably made of a molded insulating material, such as a phenolic condensation product. Each half of the housing is provided with recesses 3 and 4, the walls of which are threaded so that when the parts are united together a receptacle or well is formed for receiving the threaded base of an electrical lamp.

A longitudinal recess or groove 5 is provided in part 2 communicating with recess 4 and adapted to receive a center contact member 6 which has an extension 7 bent at an angle and seated at the bottom of the well formed by recesses 3 and 4. A second recess or groove 8 in the part 2 extends from the inner wall of the recess 4 in a direction parallel to and spaced from groove 5. A second contact member 9 is arranged to be placed in groove 8 and is provided with a corrugated extension 10, the corrugations of which are aligned with the threads in recesses 3 and 4 to engage the contact shell of a lamp base.

A transverse aperture 14 adjacent to the bottom end of the housing is adapted to receive a conducting cord 15. The longitudinal axis of the aperture is generally parallel to the vertical line or plane of division between parts 1 and 2 with the line of division passing through the aperture. Contact with the respective conductors of the electric cord is obtained by piercing means in the form of prongs 16 and 17 electrically connected respectively to contacts 6 and 9 and projecting through slots 18 and 19 in the part 2 into aperture 14. In the illustrated modification, the top wall of aperture 14 is defined by concave bottom surface portion 25 of member 2, while the bottom wall of the aperture is defined by cooperating concave surface portion 26 on the horizontal extension 27 of member 1.

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To permit the mounting of the lamp socket on a cord, the body members 1 and 2 are pivotally secured together at a mid-point between the ends of the housing and below the recesses 3 and 4 by means of a pivot pin 21. By this arrangement, the parts can be rotated relative to one another about a transverse axis between a lamp receiving position and a position in which a cord can be inserted in aperture 14. In order to insert a conducting cord into the aperture, parts 1 and 2 are rotated relative one to the other to a point, for example, where the one is substantially at right angles to the other, as shown in Fig. 4. In this position, surface 26 is exposed so that a section of the conducting cord 15 can be placed thereon. When the members 1 and 2 are thereafter returned to their normal or lamp receiving position, the cord is enclosed between surfaces 25 and 26 and the prongs 16 and 17 are brought into piercing engagement with the cord causing them to penetrate the insulation on the cord and contact the conductors.

To assure this penetration, the pivotal connection between the body members 1 and 2 is preferably offset slightly from the longitudinal axis of the housing so that as the body members are returned to their normal position after insertion of the cord in the aperture, the surfaces 25 and 26 move towards one another, thereby exerting a positive clamping action on the cord.

Means for aligning the body members in their normal position include shoulders 31 and 32 on member 2 which engage projections 33 and 34 on the body member 1 when the parts 3 and 4 are returned from their angular or cord receiving position.

While the body members can be held in this position merely by insertion of a lamp base into the lamp receptacle or well, additional locking means are preferably provided exteriorly of the housing. In the illustrated modification, the locking means comprises one arm 37 of a spring member disposed in a longitudinal groove 36 provided on the exterior surface of member 2 and having an extension 38 projecting beyond the bottom of this member to engage a notch 39 in the extension 27 of body member 1. The

arm 37 of the spring member is retained in the slot by means of the head portion 40 at the pivot pin 21, part of which overlaps slot 36 and spring arm 37. The second arm 42 of the spring member is bowed outwardly from the housing adjacent its midsection to provide means for engaging a supporting member as, for example, the limb of a Christmas tree.

By the construction described, it will be seen that there is provided a lamp socket in the form of a single unitary structure which can be readily attached at any point on a lamp cord and can be as readily removed therefrom without disassembling the socket. It is unnecessary to cut the cord in attaching the socket thereby making for a stronger construction, since pulls on the cord are transmitted directly through the socket.

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

1. A lamp socket comprising a housing divided into two parts by a plane passing longitudinally therethrough, said housing defining a lamp receiving receptacle at the upper end thereof and an aperture adjacent the bottom end of said housing for receiving a conducting wire, said parts being secured together by means perpendicular to the dividing plane at a point below the receptacle portion of the housing to provide for relative rotation of the parts in said dividing plane, recesses in one of said parts, contacts in said recesses, prongs electrically connected to said contacts and extending into said aperture for piercing a conducting wire placed therein.

2. A lamp socket comprising two-body portions forming a housing having a lamp receiving well therein, an aperture adjacent the other end formed by cooperating surfaces on the two portions of the housing, contact means disposed in said well, prongs electrically connected to said contact means and protruding into said aperture, said portions being pivotally secured together at a point between the ends of said housing for relative rotation of said portions in a plane parallel to the longitudinal axis of said socket to move the aperture forming surfaces of the two portions away from each other to permit insertion of a conducting cord and to provide for the piercing of said cord by said prongs when said portions are rotated into complementary engagement.

3. A lamp socket comprising a housing including two parts having cooperating surfaces defining a lamp receiving receptacle at one end of said housing and a cord receiving aperture at the other end of said housing, lamp contacts in said receptacle, prongs electrically connected to said lamp contacts and extending into said aperture, means for connecting said parts adjacent their mid-sections for relative rotation about an axis transverse to the longitudinal axis of said aperture to a position permitting insertion of a cord into said aperture in piercing contact with said prongs.

4. A lamp socket comprising two complementary body members, a pivot pin rotatably securing said body members together at a point intermediate their ends, said body members forming opposite sides of a housing having a lamp receiving receptacle at one end and a cord receiving aperture adjacent the other end, said aperture being defined by cooperating surfaces on the two body members and having its longitudinal axis at right angles to the axis of rotation of said members, lamp contacts disposed in said recess, piercing means electrically connected with said contacts and protruding into said aperture through a wall portion formed by one of said members, the opposite wall portion of said aperture being formed by the other of said members whereby the relative rotation of said members to an angular position permits the insertion of a cord in said aperture and the return of said members to a lamp receiving position causes said prongs to pierce said cord.

5. A lamp socket comprising two complementary body members forming a housing and having recesses forming a lamp receptacle at one end of said housing, means securing said members together at a point adjacent their mid-section for relative rotational movement of said members about an axis offset from and transverse to the longitudinal axis of said housing, slots in one body member, lamp contacts disposed in said slots, prongs electrically connected to said contacts and protruding from a convex bottom surface portion of said member, a cord receiving aperture in said housing extending transversely of the axis of rotation of the body members and defined in part by said convex surface and an opposed concave surface on the second member, the rotation of one body member relative to the other permitting insertion of a cord in said aperture, said convex surface being adapted to cause said prongs to pierce the cord upon return of said members to a position for receiving a lamp in said receptacle.

6. A lamp socket comprising two complementary body members forming in their normal position a housing, cooperating recesses in said members forming a lamp receptacle at one end of said housing, a transverse aperture at the other end of said housing, the vertical plane of division between said members extending generally parallel to the longitudinal axis of the aperture, slots in one of said body members communicating with said receptacle and said aperture, lamp contacts disposed in said slots and having prongs protruding from a convex surface forming the upper wall portion of said aperture, a horizontal extension on the second of said body members forming the bottom wall of said housing, a concave surface portion on the upper surface of said extension defining the lower wall portion of said aperture, means pivotally securing said members together at a point between said receptacle and said aperture for relative rotation thereof about an axis transverse perpendicular to and offset from the longitudinal axis of said housing whereby the relative rotation of said members from a position in which a cord can be inserted in said aperture to the normal position causes the concave surface to move towards the convex surface and press the cord into piercing engagement with said prongs.

7. A lamp socket comprising two complementary body members forming in their normal position a housing, cooperating recesses in said members forming a lamp receptacle at one end of said housing, a transverse aperture at the other end of said housing, the vertical plane of division between said members extending generally parallel to the longitudinal axis of the aperture, slots in one of said body members communicating with said receptacle and said aperture, lamp contacts disposed in said slots and having prongs protruding from a convex surface forming the upper wall portion of said aperture, a horizontal extension on the second of said body members forming the bottom of said housing, a concave surface portion on the upper surface of said extension defining the lower wall portion of said

aperture, means pivotally securing said members together at a point between said receptacle and said aperture for relative rotation thereof about an axis transverse to and offset from the longitudinal axis of said housing whereby the relative rotation of said members from a position in which a cord can be inserted in said aperture to the normal position causes the concave surface to move towards the convex surface and press the cord into piercing engagement with said prongs and means for locking said members in the normal position comprising a longitudinal slot in the first body member, a spring member having one arm disposed in said slot and extending beyond the lower portion of the body member to engage the horizontal extension on the second body member, said spring having a second arm to engage a supporting member.

GEORGE B. BENANDER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,229,403	Benander	Jan. 21, 1941
2,402,766	Moore	June 25, 1946
2,465,700	Tuttle	Mar. 29, 1949

FOREIGN PATENTS

Number	Country	Date
211,884	England	Oct. 16, 1924
366,351	France	Oct. 3, 1906