Feb. 5, 1952 R. H. ALEXANDER 2,584,528

SOCKET CONTACT OF SPRING WIRE

Filed April 28, 1948

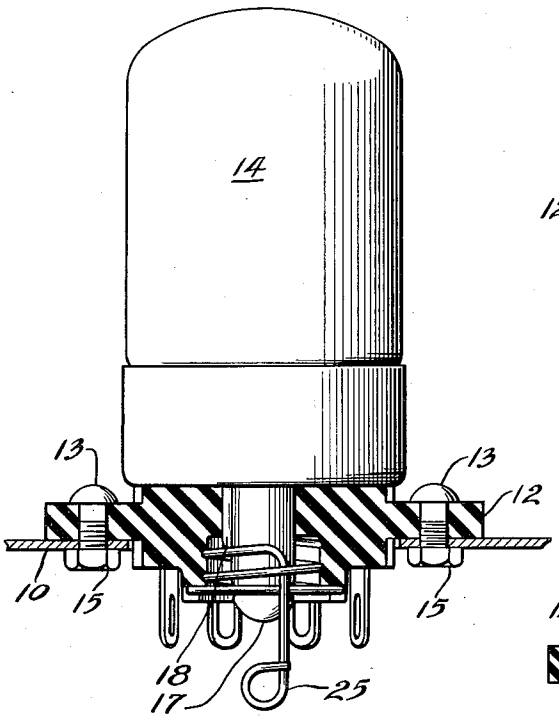


FIG. 1

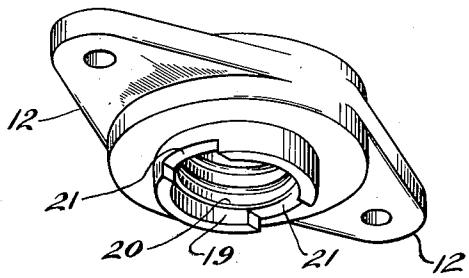


FIG. 3

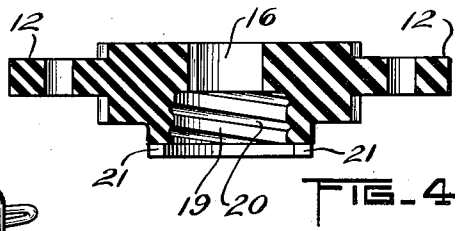


FIG. 4

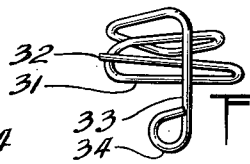


FIG. 6

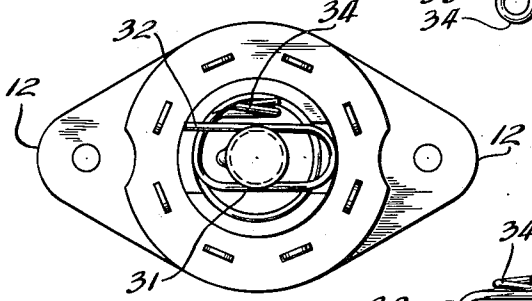


FIG. 2

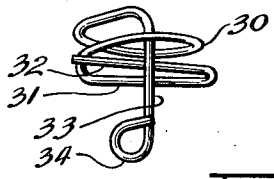


FIG. 5

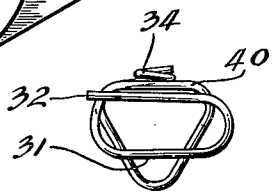


FIG. 7

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SOCKET CONTACT OF SPRING WIRE

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The present invention relates to plug-in socket devices and more particularly to such sockets as possess a center contact including lock-in means to hold the inserted device locked in intimate electrical engagement of the parts.

An object of the present invention is to provide an improved contact and lock-in device.

Another object of the present invention is to provide a female electrical contact member arranged for resilient interlocking engagement with an inserted male member having a protuberance or groove for such engagement.

Still another object of the present invention is to provide a unitary contact and resilient locking device formed of a single piece of metal or wire.

A further object of the present invention is to provide an improved contact and resilient locking device. Still a further object of the present invention is to provide a simplified arrangement for securing a contact locking device to its associated insulating base structure.

The foregong objects, and others which may appear from the following detailed description, are attained in accordance with one aspect of the present invention by providing a central locking member for a local tube base in the form of a single helically wound wire contact member adapted to be screwed into cooperating threads in the socket base member, and having inwardly bent portions adapted to engage the locking shoulder of the tube prong adapted to be received by the socket.

The present invention will be more fully understood by reference to the following detailed description which is accompanied by a drawing in which:

Fig. 1 illustrates in a vertical sectional view a socket employing the improved contact of the present invention and showing a tube inserted in the socket, while

Fig. 2 illustrates a bottom plan view of the socket of Fig. 1, and

Fig. 3 is a perspective view of the socket molding of Fig. 1 viewed from generally beneath the socket;

Fig. 4 is a transverse sectional view of the socket molding similar to the view in Fig. 1, but without the tube and socket clip member, while

Fig. 5 separately illustrates the wire contact clip arrangement adapted to be screwed into the prong receiving aperture in the socket of Fig. 1, and

Figs. 6 and 7 illustrate a modified form of the spring clip.

In Fig. 1 there is shown a fragmentary portion

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of a metallic chassis or mounting plate 10 having an aperture therein in which is mounted a socket molding 12, adapted to receive an electron discharge tube 14. The socket molding is shown as being secured to the chassis 10 by means of screws 13 and nuts 15, though obviously rivets or other securing means may equally well be used.

The socket molding 12 has a central aperture 16 therein adapted to receive the central prong 17 of electron discharge tube 14. Aperture 16 has a keyway along one side to receive key 18 on the prong 17. Thus it is assured that the tube may be inserted in the socket in only the correct orientation. The central aperture 16 terminates in an enlarged bore 19 having on its interior surface a screw thread 20 of rather coarse pitch and wide spacing.

The lower portion of molding 12 is provided with locking notches 21 communicating with bore 19 and which, as will become apparent later, prevent the accidental removal of the lock-in spring clip 25.

One form of the improved lock-in socket clip is shown in Figs. 1, 2 and 5, and consists of a helical portion 30, a pair of prong engaging portions 31 and 32, generally parallel to one another, at one end of the helical portion, and a downwardly depending perpendicular portion 33 terminating in a soldering loop 34. The helical portion 30, as will be seen from an inspection of Figs. 1 and 2, rests in the screw thread grooves 20 of the socket base. The parallel prong contacting portions 31 and 32 extend far enough beyond the turns of the helical portion so as to engage in the locking notches 21, while the depending portion 33 extends within the helical portion and far enough below the lower face of the socket molding 12 as to provide ready access to the soldering loop 34.

The modified form of lock-in clip shown in Figs. 6 and 7 has a helical portion of generally triangular conformation, as indicated at 40 in Fig. 7. Thus, the depending portion 33 which serves as a soldering lug may be arranged along one of the flat faces of the triangle on the outside, rather than requiring that it be bent up through the helical portion as in Figs. 1, 2 and 5. Otherwise the arrangement of the socket clip of Figs. 6 and 7 is the same as previously described.

What is claimed is:

1. A lock-in contact clip formed of a length of spring wire, an intermediate portion of said length being wound into an open triangular helix and adapted to be screwed into a threaded hole, another portion of said length being bent to form a narrow elongated loop having substantially

parallel sides and adapted to engage a circumferential groove in a contact prong and still another portion of said length being formed in a small loop for receiving a connection wire.

2. A lock-in socket including a base member of insulating material, said base member having an aperture adapted to receive a lock-in contact prong, a portion of said aperture being enlarged and having a screw thread on its interior surface, a contact member including a length of spring wire having an intermediate portion formed in a helix adapted to engage said screw thread, another portion of said wire being formed into a pair of parallel portions lying in a plane normal to the axis of said helix and adapted to engage said contact prong, another portion of said wire extending along the axis of said helix and terminating in a loop for making electrical connection to said wire.

3. A lock-in socket including a base member of insulating material, said base member having an aperture adapted to receive a contact prong, a portion of said aperture being enlarged and having a screw threaded on its interior surface, a contact member including a length of spring wire having an intermediate portion formed in a helix adapted to engage said screw thread, and another portion of said wire being formed into a pair of parallel portions lying in a plane normal to the axis of said helix and adapted to engage said contact prong, said parallel portions extending beyond the surface of said helix and adapted to engage locking notches in said base member.

4. A lock-in socket including a base member of insulating material, said base member having a central aperture adapted to receive a lock-in contact prong, a portion of said aperture being enlarged and having a screw thread on its interior surface, a contact member including a length of spring wire having an intermediate portion formed in a helix adapted to engage said screw thread, another portion of said wire being formed into a pair of parallel portions lying in a plane normal to the axis of said helix and adapted to engage said contact prong, an end portion of said wire being bent to lie parallel to the axis of said helix and terminating outside of said enlarged aperture in a soldering loop.

5. A lock-in socket including a base member of insulating material,. said base member having a central aperture adapted to receive a lock-in contact prong, a portion of said aperture being enlarged and having a screw thread on its interior surface, a contact member including a length of spring wire having an intermediate portion formed in a helix adapted to engage said screw thread, another portion of said wire being formed into a pair of parallel portions lying in a plane normal to the axis of said helix and adapted to engage said contact prong, an end portion of said wire being bent to lie parallel to the axis and within said helix and terminating outside of said enlarged portion of said aperture in a soldering loop.

6. A lock-in socket including a base member of insulating material, said base member having a central aperture adapted to receive a lock-in contact prong, a portion of said aperture being enlarged and having a screw thread on its interior surface, a contact member within the enlarged portion of said aperture and including a length of spring wire having an intermediate portion formed in a triangular helix adapted to engage said screw thread, and another portion of said wire being formed into a pair of parallel portions lying in a plane normal to the axis of said helix and adapted to lockingly engage said contact prong.

7. A lock-in socket including a base member of insulating material, said base member having a central aperture adapted to receive a lock-in contact prong, a portion of said aperture being enlarged and having a screw thread on its interior surface, a contact member including a length of spring wire having an intermediate portion formed in a triangular helix adapted to engage said screw thread, and another portion of said wire being formed into a pair of parallel portions lying in a plane normal to the axis of said helix and adapted to lockingly engage said contact prong, an end portion of said wire being bent to lie parallel to the axis of said helix and terminating outside of said enlarged aperture in a soldering loop.

8. A lock-in socket including a base member of insulating material, said base member having a central aperture adapted to receive a lock-in contact prong, a portion of said aperture being enlarged and having a screw thread on its interior surface, a contact member including a length of spring wire having an intermediate portion formed in a helix adapted to engage said screw thread, and another portion of said wire being formed into a pair of parallel portions adapted to lockingly engage said contact prong, said parallel portions lying in a plane normal to the axis of said helix and extending beyond the surface of said helix and adapted to engage locking notches in said base member.

9. A lock-in socket including a base member of insulating material, said base member having a central aperture adapted to receive a lock-in contact prong, a portion of said aperture being enlarged and having a screw thread on its interior surface, a contact member including a length of spring wire having an intermediate portion formed in a helix adapted to engage said screw thread, and another portion of said wire being formed into a pair of parallel portions lying in a plane normal to the axis of said helix and adapted to lockingly engage said contact prong, said parallel portions extending beyond the surface of said helix and adapted to engage locking notches in said base member, an end portion of said wire being bent to lie parallel to the axis of said helix and terminating outside of said enlarged aperture in a soldering loop.

10. A lock-in socket including a base member of insulating material, said base member having an aperture adapted to receive a contact prong, a portion of said aperture being enlarged and having a screw thread on its interior surface, a contact within said enlarged portion and including a length of spring wire having an intermediate portion formed in a helix adapted to engage said screw thread, and another portion of said wire being formed into a pair of parallel portions lying in a plane normal to the axis of said helix and adapted to engage said contact prong, said parallel portions extending beyond the surface of said helix and adapted to engage locking notches in said base member, an end portion of said wire being bent to lie parallel to the axis and within said helix and terminating outside of said enlarged aperture in a soldering loop.

11. A lock-in socket including a base member of insulating material, said base member having an aperture adapted to receive a contact prong, a portion of said aperture being enlarged and having a screw thread on its interior surface, a

contact member within said enlarged portion and including a length of spring wire having an intermediate portion formed in a triangular helix adapted to engage said screw thread, and another portion of said wire being formed into a pair of parallel portions lying in a plane normal to the axis of said helix and adapted to engage said contact prong, said parallel portions extending beyond the surface of said helix and adapted to engage locking notches in said base member.

12. A lock-in socket including a base member of insulating material, said base member having an aperture adapted to receive a contact prong, a portion of said aperture being enlarged and having a screw thread on its interior surface, a contact member within said enlarged portion and including a length of spring wire having an intermediate portion formed in a triangular helix adapted to engage said screw thread, and another portion of said wire being formed into a pair of parallel portions lying in a plane normal to the axis of said helix and adapted to engage said contact prong, said parallel portions extending beyond the surface of said helix and adapted to engage locking notches in said base member, an end portion of said wire being bent to lie

parallel to the axis of said helix and terminating outside of said enlarged aperture in a soldering loop.

ROBERT H. ALEXANDER.

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