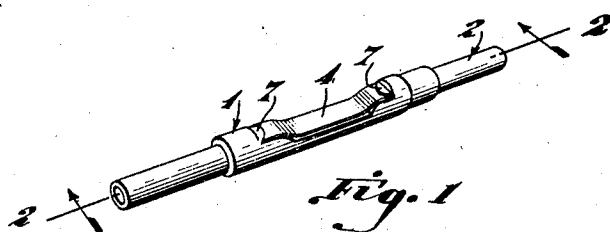
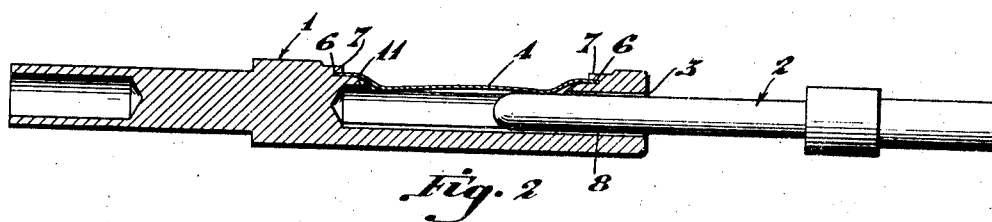
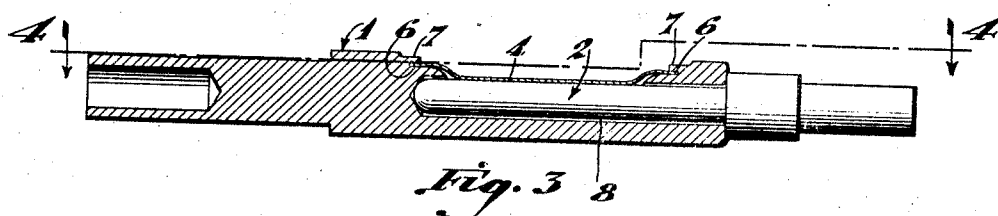
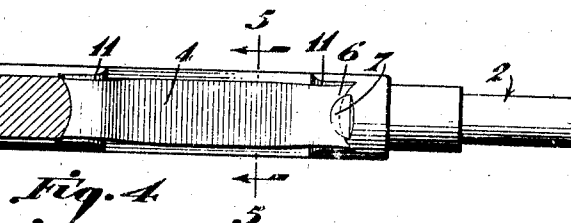
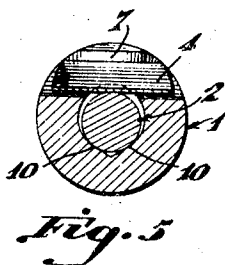


Aug. 3, 1943.

M. LITWIN ET AL
PIN AND SOCKET CONNECTION
Filed June 12, 1942

2,325,691



INVENTOR.
Max Litwin
BY Bertram Milner
Wood, Carey, Herron & Evans,
Attorneys.

UNITED STATES PATENT OFFICE

2,325,691

PIN AND SOCKET CONNECTION

Max Litwin and Bertram Milner, Cincinnati,
Ohio, assignors to Litwin & Sons, Cincinnati,
Ohio, a corporation of Ohio

Application June 12, 1942, Serial No. 446,782

3 Claims. (Cl. 287—126)

This invention relates to a pin and socket connection as part of a plug assembly in an electrical wiring system and is particularly directed to the construction of the socket in such a combination.

In a copending application filed May 7, 1942, Serial No. 442,064, in which we are co-inventors, a form of pin and socket connection having certain advantages is disclosed and claimed. The present invention, although relating to the same general problem to which the copending application is directed, solves this problem in a substantially different way. The construction of the present invention includes a number of specific advantages not present in the construction of our copending application.

One of the objects of the present invention has been to provide a socket connection in which the inserted pin is forced against an inner surface of the socket connection along substantially its entire length and held positioned there by a spring element inserted in the casing of the socket and maintained under tension by the pin.

Another object has been the provision of a socket connection having its interior surface so configured that the pin contacts it lineally at two different places thereby providing a maximum of contact between the pin and socket and greatly lowering the potential drop.

Another object of the invention has been the provision of a spring element for holding the pin tightly against the inner surface of the socket under tension; said spring element being so constructed and configured that it may be held firmly in position against movement in any direction by folded-over tangs or ears projecting from the surface of the case and preferably integrally associated therewith.

Other and further advantages will be apparent from the further and more detailed description of the invention when considered in conjunction with the drawing in which:

Figure 1 is a perspective view of the pin and socket connection of the present invention in assembled condition.

Figure 2 is an enlarged sectional view along the line 2—2, Figure 1, showing the pin partially inserted in the socket.

Figure 3 is a similar view showing the pin fully inserted.

Figure 4 is a sectional plan view along the line 4—4, Figure 3, showing the attachment of the spring to the casing.

Figure 5 is a sectional view along the line 5—5, 55

Figure 4, showing particularly the configuration of the interior of the socket.

As best shown in Figure 2, the socket generally is indicated as 1 and the pin as 2. The mouth or opening of the socket is shown as 3. A spring element 4 is positioned in the casing of the socket over a slot or opening formed therein. This spring element depends into the interior of the socket. In the preferred embodiment shown, the spring element has its ends 6 secured to the casing of the socket by tangs 7 which may be cut from the socket casing. This attachment is best shown in Figure 4.

As the pin is inserted in the socket, it commences to engage the spring in the manner shown in Figure 2 and places the spring under tension thereby forcing the pin against the inner surface of the socket on the side opposite to that on which the spring is positioned.

When the pin is fully inserted, as shown in Figure 3, the spring holds it firmly positioned against the inner surface of the socket 8. Due to the comparative length of the spring the contact between the pin and the inner surface of the socket is along the entire length of the pin and casing and not merely at one or two points as in some constructions of this general type. This feature of the invention is clearly shown in Figure 3.

In order to achieve a simple yet effective means of attachment of the spring to the casing, the preferred embodiment of the invention contemplates a spring in which the ends are indented as shown in Figure 4. This configuration permits the tangs 7 to hold the spring very securely against either lineal or lateral movement.

An important feature of the invention is illustrated in Figure 5. This figure shows the preferred construction of the interior of the socket. In this construction a V-shaped trough is cut or otherwise formed in the inner surface of the socket casing preferably along its entire length. This trough may be positioned directly opposite to that part of the casing wall in which the spring is inserted as shown in Figure 5. The purpose of the trough is to permit the seating of the pin against the inner wall of the socket in such a way that a double lineal contact is established as at the points 10—10, Figure 5. In this way there is exactly twice as much area contact between the outer surface of the pin and the inner surface of the socket as would be the case if both were round and the trough were not provided.

In fitting the spring 4 into position in the socket casing the preferred construction contem-

plates that it may be bent inwardly around shoulders 11 formed in the casing and depend slightly into the interior of the casing cavity as illustrated in Figure 2. This results in an engagement between the pin and socket which is tight and secure but one which at the same time permits a smooth and even disengagement.

The configuration of the spring and the attachment to the casing of the socket are obviously not essential to the practice of the entire invention although the forms shown are particularly effective and practical and constitute the preferred form.

It will be apparent that various changes may be made in the forms of the elements and the construction and arrangement of the parts without departing from the spirit of the invention as herein disclosed.

Having fully described our invention, we desire to be limited only by the ensuing claims:

1. In a pin and socket connection, a socket of generally tubular configuration having a longitudinal slot in the outer casing thereof, a resilient strip spring element suspended across said slot and depending into the interior of the socket and tangs positioned on the outer surface of the casing at both ends of the slot, said tangs engaging the ends of the spring element and maintaining the same securely in position against movement in any direction.

2. A socket for the reception of a pin comprising a hollow tube having a longitudinal slot therein, a strip spring element disposed in said slot, said spring element having a notch formed in each end thereof and a tang positioned on the side of the tube at each end of the spring, said tangs being adapted to engage with the notched ends of the spring for maintaining the same securely against movement in any direction.

3. A socket for the reception of a pin comprising a hollow tube having a longitudinal slot in the outer casing thereof and a V-shaped trough formed in the inner surface of said socket opposite the slot, a resilient spring element disposed in said slot and depending into the interior of the socket and tangs positioned on the outer surface of the socket casing at both ends of the slot, said tangs engaging the ends of the spring element and maintaining the same securely in position against movement in any direction, said spring being adapted to maintain a pin positioned in the socket in lineal engagement with the edges of the V-shaped trough and thereby to establish a double lineal contact between the pin and the socket.

MAX LITWIN.
BERTRAM MILNER.