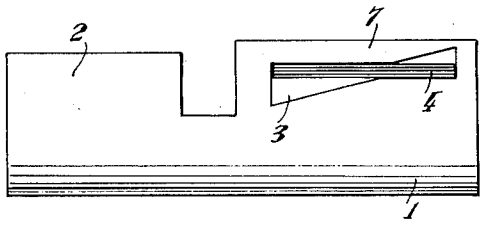
Dec. 25, 1956 S. G. YOUNG 2,775,746

ELECTRICAL SOCKET CONNECTORS

Filed Jan. 19, 1954

Fig. 1.



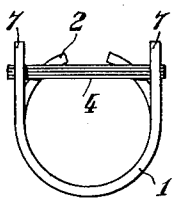
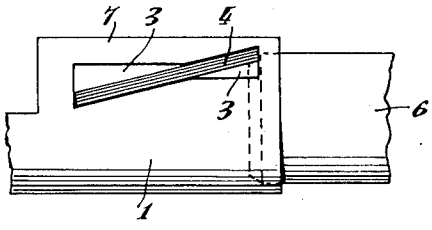


Fig. 5.

Fig. 2.



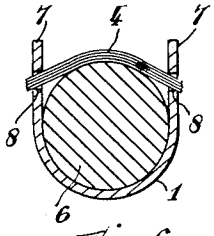


Fig. 6.

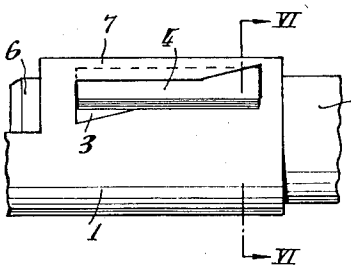


Fig. 3.

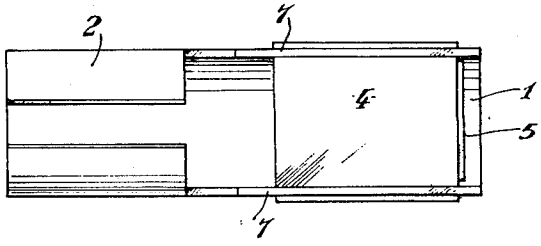


Fig. 4.

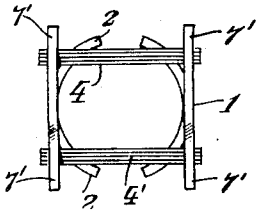


Fig. 7.

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ELECTRICAL SOCKET CONNECTORS

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3 Claims. (Cl. 339—256)

The invention relates to electrical socket connectors of the type adapted to receive and grip resiliently a pin of an electric plug or a like member inserted therein; and in particular has the object of providing a novel and efficient construction of socket especially suitable for engagement by plug pins of comparatively small diameter, such as the pins of tubular lamps or radio type tubes.

Another object of this invention is to provide a construction which is highly resistant to vibration.

A further object of the invention is to provide a construction affording satisfactory engagement between the socket and the inserted pin, while permitting a comparatively large variation in the cross-sectional dimension of the pin, e. g. the diameter, in the case of a round pin.

A still further object of this invention is to provide a construction of simple and inexpensive form which can be readily adapted to a variety of uses.

The socket connector according to the invention is characterised by the provision of two limbs resiliently connected together and each provided with a tongue or like contact-making part extending towards the other such limb, the tongues extending in generally parallel relationship to each other to form a socket therebetween, the median plane of the socket formed by said tongues lying substantially normally to the planes of the two said limbs. In the preferred construction, the limbs form the side arms of a strip of springy metal bent into a substantially U-shaped frame, one of the arms being of longer length than the other and forming a fixed terminal. Each limb of the U-shaped framework has a sheared out rectangular portion forming the said tongue which projects into the opening in the other limb caused by the opposite tongue.

Various embodiments of the invention are illustrated diagrammatically and by way of example in the annexed drawing, in which

Figure 1 shows an enlarged side view of a socket according to the invention;

Figure 2 shows a plan view of Figure 1;

Figures 3 and 4 are fragmentary views corresponding to Figure 1 but showing stages in the insertion of a pin;

Figure 5 shows a side view similar to Figure 1, but of a modified construction; and

Figures 6 and 7 show fragmentary views of two further modifications on a further enlarged scale.

In Figures 1 and 2, the socket comprises a U-shaped member 1 of suitable resilient material, one limb 2 of which is extended to form a lug 3 for connection both mechanically and electrically to a terminal post or other suitable part secured in the casing of the socket connector. This fixed limb 2 has a tongue 4 stamped out of itself and bent to extend towards the other limb 5 of the socket and into a hole 6 formed therein by a similar stamped out tongue 7 which extends in the opposite direction into the hole formed in the fixed limb 2 by the tongue 4. If desired, the tongues 4 and 7 may each project through the hole in the opposite limb to an extent

somewhat beyond the plane of such limb. These tongues 4 and 7 may be slightly inwardly curved as shown in Figs. 1 and 3, and are arranged at a distance apart which is slightly less than the diameter of the pin with which they are to engage. As shown in Figure 3, insertion of a pin 8 thus tends to force the tongue 7 upwards and away from the tongue 4, which action is permitted by virtue of the resilient connection between the two limbs. Finally, on pushing the pin home, the tongue 7 moves back along the pin 8 to grip the latter firmly between the two tongues. This position is shown in Figure 4.

The resiliency of the socket is due mainly to the U-shaped frame and only slightly to the projecting tongues which are comparatively rigid, and in this connection it should be stated that, if desired, the two limbs 2 and 5 may in fact be separate members, provided they are resiliently coupled to one another at one or both ends, as for example by helical springs.

In the case of a socket adapted to receive round pins, the tongues may be of curved cross section to correspond to the curvature of the pins and further stiffen the tongues (see Figure 6 showing one tongue only). It will be evident that the pins may be of rectangular or any other desired section in which case the projecting tongues may be correspondingly modified.

In an alternative construction (Fig. 5) the resilient framework 9 comprises a double U-shaped form, both limbs having projecting tongues being free and resiliently connected to the fixed part of the socket secured to the terminal 10 and arranged in the middle part of the framework.

In a further modification illustrated in Figure 7, the tongues 11 (only one shown) may be bent down from the sides of the limbs of the U-shaped member instead of in the endwise manner shown in Figures 1–6.

Throughout the foregoing description and in the drawing, the pin 8 has been assumed to enter the socket in a direction such that the two limbs 2 and 5 are urged apart during insertion of the pin. This movement apart of the limbs is illustrated in Fig. 3, the arrow indicating the angle between the two broken lines in this figure (chain dotted and of equal dots, which respectively represent the central plane of the upper limb 5 in its stressed and unstressed positions). It is however to be understood that analogous and satisfactory operation may be obtained by insertion of the pin in such a direction as to urge the limbs together, e. g. from the top in the position of the socket shown in Figs. 3 and 4.

The present invention provides a socket connector that is particularly suitable for small size pins and in which effective engagement can be obtained with pins having comparatively large variation in size. It also provides an electrical connection between a pin and a socket which is highly resistant to vibration by virtue of the resiliency being mainly provided in the framework instead of in the engaging tongues.

I claim:

1. An electric socket connector of the type adapted to receive and grip resiliently a pin inserted therein, such connector comprising two limbs resiliently connected together, each of said limbs being in the shape of a generally flat strip and each being provided with a tongue formed out of the material of the strip so as to leave a hole therein, each of said tongues extending towards the other of said limbs and in spaced, generally parallel relationship to each other to form a socket therebetween, the median plane of said socket being substantially at right angles to the respective planes of the two said limbs.

2. A socket connector as claimed in claim 1, wherein at least one of said tongues extends into the hole formed in the other of said limbs.

3. A socket connector as claimed in claim 1, wherein said tongues are arranged to be comparatively stiff in relation to the connections of the limbs so that the resiliency of the connector as a whole is derived mainly from the resilient connection of the limbs to each other.

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