Aug. 22, 1944. E. E. HANNIGAN 2,356,398

ELECTRICAL SOCKET AND CONTACT FOR THE SAME

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Fig. 1.

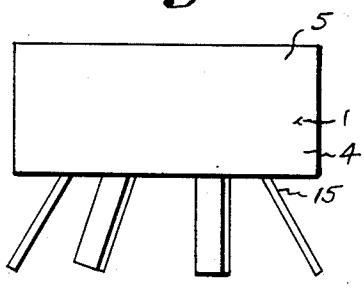


Fig. 2.

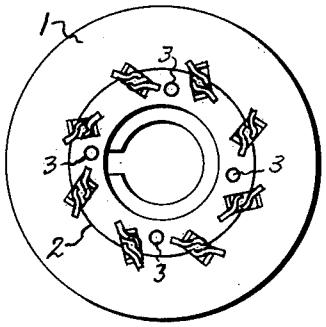


Fig. 3.

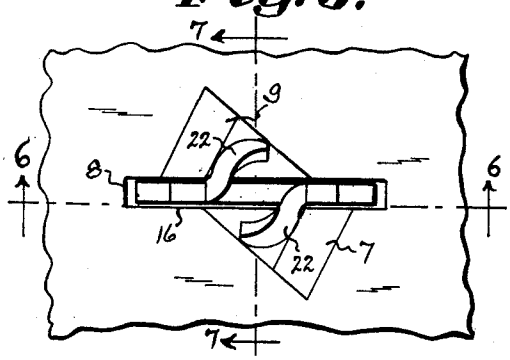


Fig. 4.

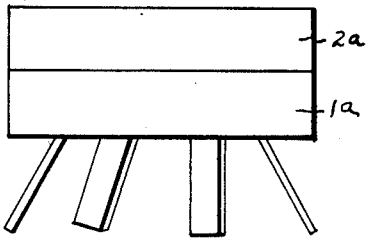


Fig. 5.

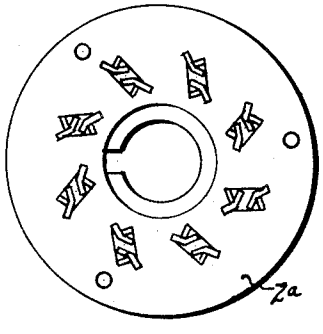
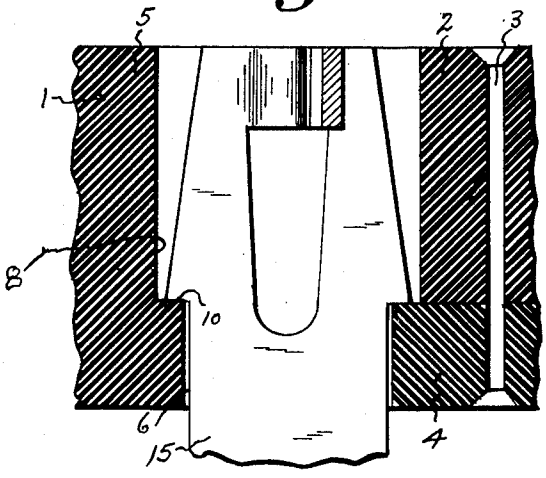


Fig. 6.



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Fig. 7.

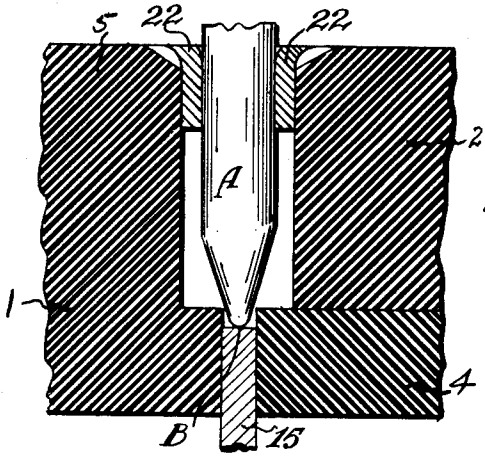


Fig. 8.

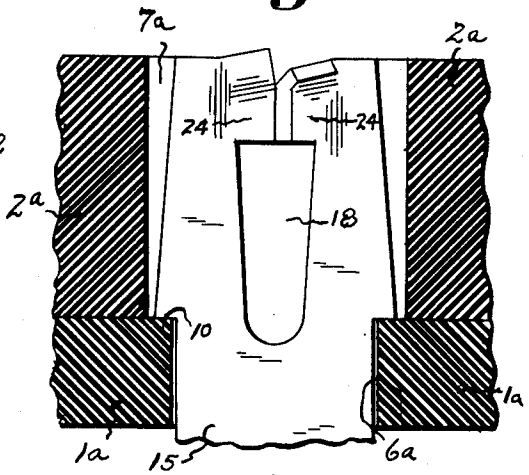


Fig. 9.

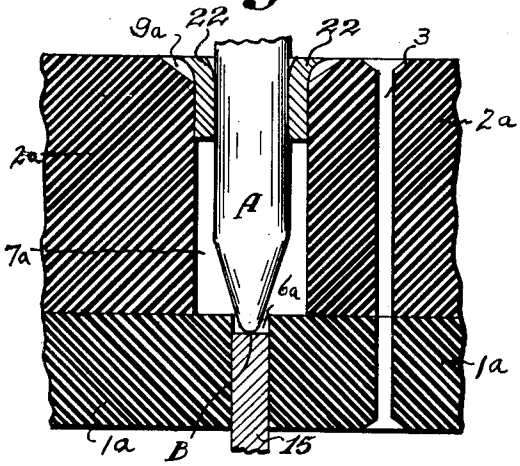


Fig. 10.

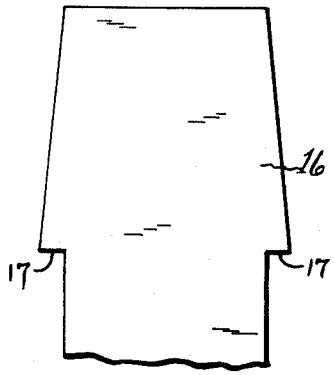
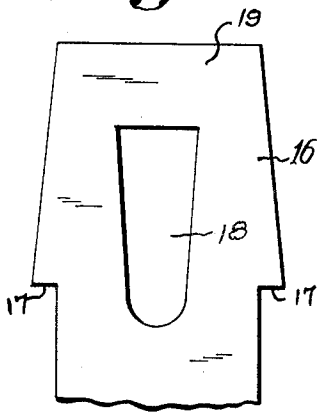


Fig. 11.



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Fig. 12.

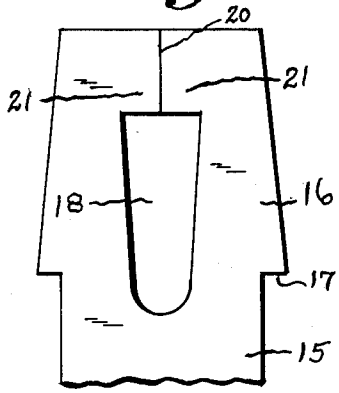


Fig. 13.

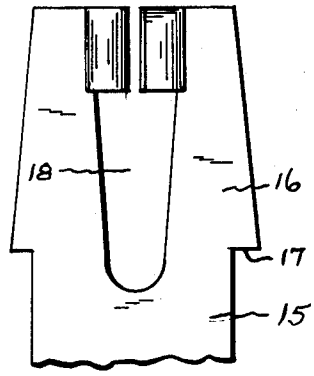


Fig. 14.

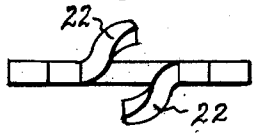


Fig. 15.

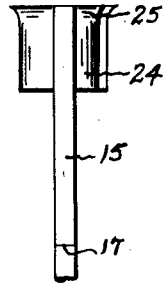


Fig. 16.

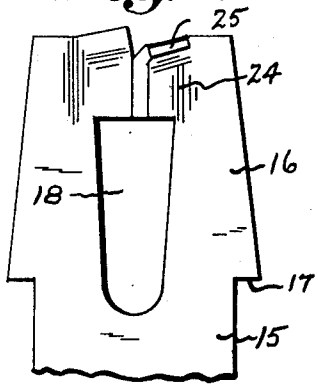


Fig. 17.

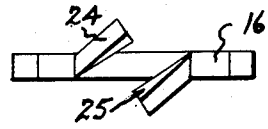
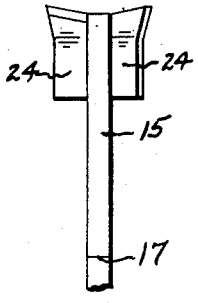


Fig. 18.



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Patented Aug. 22, 1944

2,356,398

UNITED STATES PATENT OFFICE

2,356,398

ELECTRICAL SOCKET AND CONTACT FOR THE SAME

Emmet E. Hannigan, La Grange, Ill., assignor to Cinch Manufacturing Corporation, Chicago, Ill., a corporation of Illinois

Application October 10, 1942, Serial No. 461,546

3 Claims. (Cl. 173—328)

The present invention relates to improvements in electrical socket installations as well as the contacts therefor, particularly to sockets and contacts for pronged radio tubes and like pronged appliances, and aims generally to improve existing constructions of that type.

The invention aims to provide an improved, economical socket construction which may be readily assembled and will be suitable for use with a variety of tube styles, such as the octal, loctal and miniature tubes. A further aim of the invention is to provide an improved contact that can be economically produced with a minimum of scrap and which has a more durable spring action to withstand innumerable insertions and withdrawals of the pronged appliances without impairing contact efficiency.

Illustrative of the invention, reference is made to the accompanying drawings showing two preferred embodiments of the invention and in which

Fig. 1 is a side elevation of an improved radio and the like socket member;

Fig. 2 is a top plan view of the socket shown in Fig. 1;

Fig. 3 is an enlarged detail top plan view of one of the contacts and a surrounding portion of the socket;

Fig. 4 is a side elevation of a modified form of socket member;

Fig. 5 is a top plan view of the socket shown in Fig. 4;

Fig. 6 is an enlarged detail fragmentary sectional view taken on the line 6—6 of Fig. 3;

Fig. 7 is a similar view taken on the line 7—7 of Fig. 3 illustrating a portion of the prong of a tube therein;

Figs. 8 and 9 are sectional views similar to Figs. 6 and 7, but illustrating the socket of Figs. 4 and 5;

Figs. 10, 11 and 12 are enlarged diagrammatic views of a portion of the blank illustrating the manner of forming the contact;

Figs. 13, 14 and 15 are side elevations, top plan and edge elevations, respectively, of one form of improved contact; and

Figs. 16, 17 and 18 are side elevation, top plan and edge elevation, respectively, of another form of improved contact.

Referring to the drawings, the improved socket installation may comprise nested annular insulating members 1 and 2 suitably secured together as by rivets 3 for mounting a plurality of contact members as is usual.

According to one form of the invention (Figs. 1, 2, 3, 6 and 7) the insulating member 1 may be of L-shaped cross-section providing a base portion 4 and an upstanding peripheral rim 5, and the ring member 2 may be of such shape as to be fitted on the base inside the rim. The base 4 is formed with a thin, elongated slot 6 preferably with one face thereof in line with the inner vertical face of the rim 5 (see Fig. 7) and the inner face of the rim 5 is formed with a recess 7, preferably V-shaped and located intermediate the vertical edges of the slot 6.

The insulating member 2, which advantageously is of a thickness equal to the height of the rim 5, preferably has formed in its periphery a plurality of rectangular recesses 8 of a depth equal to the width of the slot 6 but of greater length, the inner vertical face 7 being formed with a supplementary recess 9 preferably V-shaped and complementary to the recess 7, so that when the two recesses 7 and 9 are in juxtaposed aligned position a substantially rectangular contact-receiving opening is formed.

Alternatively the socket may comprise a plurality of superposed insulating members 1^a and 2^a (Figs. 4, 5, 8 and 9), the lower member 1^a of which is formed with a thin elongated slot 6^a and the upper member 2^a of which is formed with a rectangular opening 7^a with longitudinally disposed recesses 9^a extending beyond the diagonal corners of said recess 7^a and adapted to be disposed in the plane of the opening 6^a of the member 1^a.

In either event the slots and recesses combine to form contact-receiving openings of simple and unique construction characterized by the provision of a thin elongated opening shouldered as at 10 for a blade-like contact, the upper portion of which has an elongated opening, preferably rectangular, with its major axis inclined to the axis of the thin elongated opening.

According to the invention the contacts are of a simple novel construction and may be formed from a single piece of metal with a minimum of waste, thus providing an extremely economical contact to manufacture.

The contacts may be stamped from a single strip or ribbon of metal to provide an elongated thin blade-like body 15, the lower terminal end of which may be suitably formed for the ready application of an electrical conductor. The head end 16 of the contact is preferably wider than the body 15 providing shoulders 17 adapted to seat upon the shoulders 10 of the socket openings (see Fig. 10).

The head portion 16 of the blade-like contacts 15 is thereafter cut out or apertured as at 18 be-

low the top edge thereof (see Fig. 11), leaving an upper connecting portion 19 which may be cut along a median line, as at 20 (Fig. 12) providing wings 21 adapted to be bent outwardly and angularly to the plane of the blade 15. Advantageously the wings 21 are bent to an angle less than 45 degrees to the plane of the head 16, so as to provide resilient wings and contact portions adapted to engage the side surfaces of a prong with a spring action.

According to one form of the invention, the wings 20 may be bent angularly to the plane of the blade 15 and shaped to semi-circular form as at 22 (see Figs. 2, 7, and 13 to 15 inclusive), providing opposed semi-circular portions adapted to grip and bear on opposite sides of a cylindrical tube prong A, as shown in Figs. 7 and 9. Advantageously, the ends of the wings may overlap along a transverse median plane (see Fig. 14) and preferably this may be accomplished by bending the tines on opposite sides of the cut-out portion 18 toward each other after the wings have been formed into their desired shape.

Alternatively the wings may be angularly bent plane surfaces 24 adapted to make line contact with a cylindrical tube prong, as illustrated in Figs. 16 to 18 inclusive, in which case the upper portions of the wings may be outwardly flared as at 25 to provide a ready entering throat for the tube prong.

It will be observed that as the wings 20 are bent outwardly in opposite directions at one angle of less than 45 degrees from the plane of the blade body, the resiliency of the metal tends normally to urge the two contact wings together. These opposed contact wings thus receive the tube prong and expand under a spring action which is desirable in providing a satisfactory electrical connection between the tube prong and contact.

As is illustrated in Figs. 7 and 9, both forms of socket and contacts provide a simple construction employing a blade-like contact readily insertable in the insulating support which provides opposed spring contact between the sides of the tube prong A and the contact wings, as well as end contact (at B, Figs. 7 and 9) between the end of the prong and the bottom of the aperture 18. Insertion of the tube in the socket permits the end of the prongs to engage the bottom of the aperture 18 forcing the contact 15 bodily inwardly of the sections 1 and 2 and maintaining the shoulders 17 thereof seated upon the shoulders 10 of the socket recess.

While I have illustrated and described preferred embodiments of my invention, I do not wish to be limited thereto because the scope of my invention is best defined by the following claims.

I claim:

1. A contact for pronged tube sockets and the like comprising a thin ribbon-like metal member having a head and stem and laterally offset shoulders between the head and stem, the head portion being bifurcated along the axis thereof to provide spaced longitudinal legs and an intermediate prong-receiving opening, lateral extensions on said legs disposed at an angle of less than 45 degrees with reference to the plane of the ribbon-like members adapted to make resilient electrical contact with opposite sides of a prong inserted in said opening.

2. A contact for pronged tube sockets comprising a thin ribbon-like metal member formed with a bifurcated portion at one end and laterally offset arcuate portions on said bifurcations angularly disposed with reference to the plane of the ribbon-like member for engagement with the sides of said prong.

3. A contact for pronged tube sockets and the like comprising a thin ribbon-like metal member having a head and stem and laterally offset shoulders between the head and stem, the head portion being bifurcated providing spaced longitudinal legs and an intermediate prong-receiving opening, lateral arcuate extensions on said legs disposed angularly with relation to the plane of the ribbon-like member adjusted to make electrical contact with opposite sides of a prong inserted in said opening.

EMMET E. HANNIGAN.