July 22, 1930. W. C. MacFADDEN 1,771,094

SOCKET RECEPTACLE FOR RADIOTUBES

Filed Feb. 21, 1929

Fig. 1.

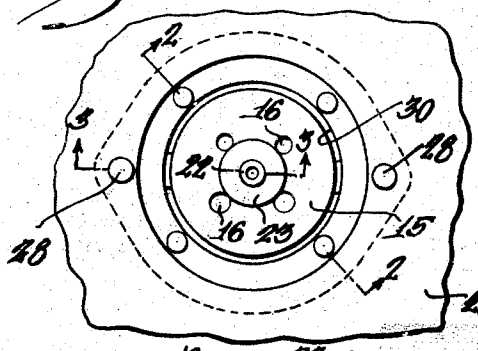


Fig. 3

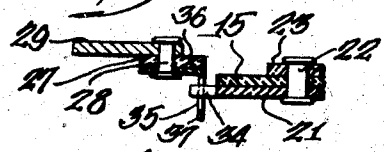


Fig. 4.

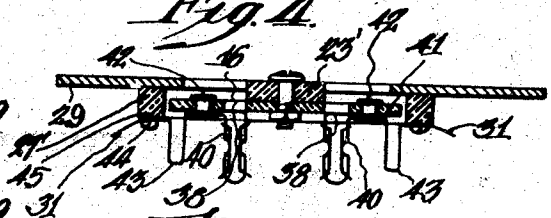


Fig. 2.

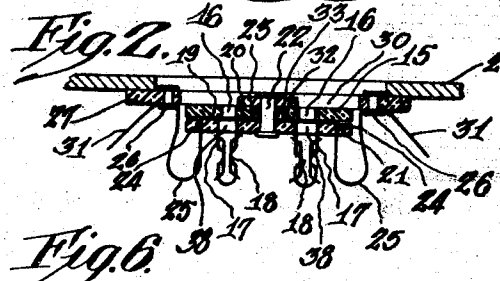


Fig. 5.

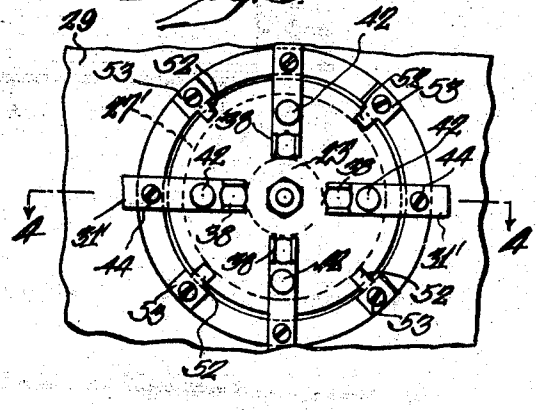


Fig. 6.

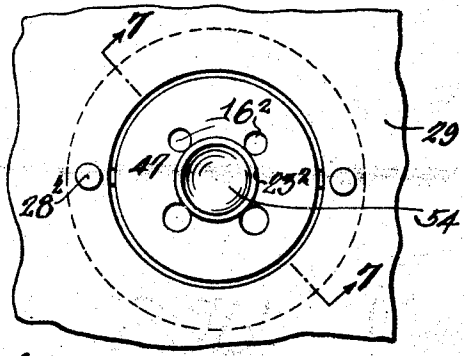


Fig. 9.

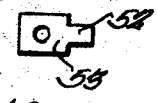


Fig. 7.

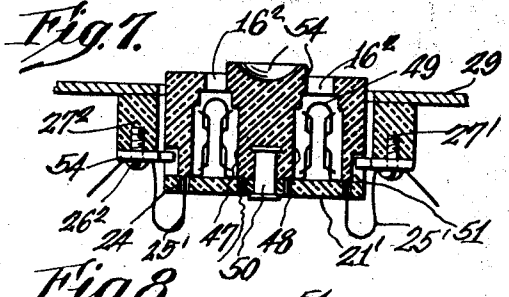


Fig. 10.

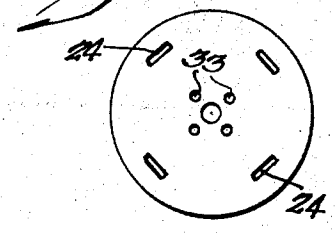
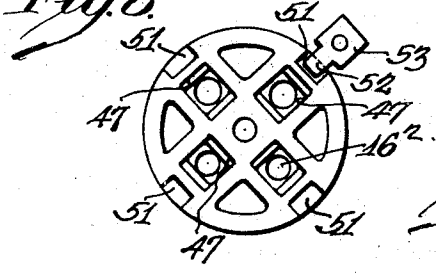


Fig. 8.



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by
Attorney.

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UNITED STATES PATENT OFFICE

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SOCKET RECEPTACLE FOR RADIOTUBES

Application filed February 21, 1929. Serial No. 341,696.

My invention relates to a socket receptacle for the pin terminals of a radio tube and to its support upon a radio panel.

One purpose of my invention is to range the passages of a socket receptacle for a radio tube around the outside circumference of a raised circular identification disc using the disc to guide the pin terminals into their passages.

A further purpose is to make a disc guide on a socket receptacle for the pin terminals of a radio tube nonintegral with the body of the receptacle.

A further purpose is to provide a vacuum tube receptacle with interchangeable guide members of the different colors that are used in the art to designate the different kinds of tubes so that the same receptacle may in use be given the correct color marking for any one of a number of different kinds of tubes with which it is adapted to be used and may have its color marking readily changed to accommodate its use to different kinds of tubes.

A further purpose is to provide a spring supported, shock proof mounted receptacle with improved double side contact members integral with the spring supports.

A further purpose is to provide a spring supported tube receptacle with a common stop limiting the inward movements of the receptacle during tube insertions and the outward movements of the receptacle during the withdrawals.

Further purposes will appear in the specification and in the claims.

I have elected to show a few only of the many forms of my invention, selecting forms that are practical and efficient in operation and which well illustrate the principles involved.

Figure 1 is a fragmentary top plan view showing a radio socket embodying a desirable form of my invention mounted in an opening in the top of a radio receiving set chassis.

Figure 2 is a section taken upon the line 2—2 of Figure 1.

Figure 3 is a section taken upon the line 3—3 of Figure 1.

Figure 4 is a view generally corresponding to Figure 2 but showing a different form of socket with means permitting ready interchange of discs.

Figure 5 is a bottom plan view of the structure shown in Figure 4.

Figure 6 is a top plan view of another form.

Figure 7 is a vertical section taken upon the line 7—7 of Figure 6.

Figures 8, 9 and 10 are bottom plan views of different details of Figure 7.

Like numerals refer to like parts in all figures.

Describing in illustration and not in limitation and referring to the drawings:—

In the form shown in Figures 1 to 3 metal strip U connectors are mounted on the bottom of an insulation plate 15 registering with perforations 16 for the pin terminals of a radio tube, not shown.

Each connector is an integral spring metal member and comprises U legs 17 and opposing contact members 18, one on each leg of the U, the contact members being in position to engage an inserted pin terminal along its opposite sides.

The legs of the U are bent at right angles away from one another at their outer ends at 19 and 20 respectively and a bottom plate 21 perforated to pass the bodies of the U is fastened to place against the bottom of the plate 15 with the right angle bend portions of the U between the upper and lower plates, the two plates holding the connectors to place.

The top and bottom plates are held together by a fastening member 22 which preferably also holds to place a circular disc 23 upon the top of the upper plate.

The disc circumference is preferably substantially tangent with the inner sides of the perforations 16 so that this circumference may be used when placing the tube to guide the prongs of the tube into registry with their passages 16.

The outwardly extending right bend 19 of the U connector members are extended downwardly through perforations 24 in the bottom plate and then bent into a spring 25 that is fastened at 26 to a ring base plate 27 of insulation material.

The base plate 27 fastens at 28 to the under

side of a plate 29, which may be the top of a radio cabinet. The plate 27 has an interior opening 30 at least large enough to pass the vacuum tube to the top plate 15.

The springs 25 are extended at 31 for connection into the radio circuit.

Desirably a point portion 32 at the inner ends of the right angle bends 20 are bent up into suitable holes 33 in the upper plate, in order to more definitely register the connectors in their proper positions.

The receptacle portion carrying the connectors is thus resiliently mounted upon the base plate by means of the spring portions 25 of the connectors.

I find it desirable to limit the inward movement of the receptacle when the vacuum tube is being pushed to place and also to limit its outward movement when the vacuum tube is being withdrawn and as illustrated in Figures 1 and 3 do this by means of radially extending ears 34 on the lower plate and cooperating brackets 35 on the ring base plate 27.

Each fastening member has vertically spaced portions 36 and 37 respectively above and below the cooperating ear which has thus a freedom of vertical movement between the said bracket portions.

When the tube is being pushed to place the inward movement of the receptacle is stopped when the ears engage their respective brackets at 37 and when the tube is being pulled out of the receptacle the outward movement of the receptacle is stopped when the ears engage the bracket portions 36.

In the form of Figures 1 to 3 the right angle bends 19 and 20 at the ends of the U are in opposite directions and the connector members are held to place by means of a bottom cover plate 21 perforated at 38 to pass the U bodies and at 24 to pass the spring portions of the connectors with the inward bends provided with upwardly extending point portions 32 into suitable small registry holes 32′ in the upper plate (as in Figure 10).

In the form shown in Figures 4 and 5 I have bent the tail ends of the U connector members in the same direction, radially outwardly at right angles to the legs of the U so that right angle bends of each connector overlap one another adjacent the outer leg 40 of the U and have held them to place upon a plate 41 by a single tubular rivet 42.

The right angle bend 43 that extends across the socket perforation 38 is suitably perforated to permit entry of the pin terminal of the radio tube.

One of the right angle bends is extended and bent downwardly beyond the rivet 42 forming a spring 43 which is bent upwardly and connected at 44 to an insulation base 45, desirably an integral ring 27′ suitably fastened at 46 to the plate 29 of the radio cabinet. The ends of springs 43 are extended at 31′ to provide connection into the radio circuit.

As in Figures 1 to 3 I provide the top of the plate with a raised boss 23′ for guiding the prongs of the tube into their sockets 16.

The guiding disc 23′ is tangent to the inner sides of the socket perforations 16 and is preferably not integral with the plate 41 in that I find it desirable to give the guiding disc a color corresponding to the kind of vacuum tube with which it is to be used.

It frequently happens that the same kind of receptacle will at different times be used with different kinds of tubes that in usual practice are represented by different colors and I prefer to have a plurality of guide members 23′ differently colored to represent the different kinds of tubes with which the receptacle may be used, the guide members being otherwise exactly alike and interchangeably mounted on the receptacle, and when the receptacle is used at different times with different kinds of tubes I change the guide member so as to accommodate its presented color to the tube that is to be used in the receptacle.

In the form of Figures 6 to 10 the connector members are mounted in a moulded insulation body 47, the bodies of the connector members being inside cavities 48 that extend upwardly from the bottom of the moulded body, which is perforated at 16^2 from the top into the cavities so that pin terminals entering the sockets 16^2 enter between the contact members of the respective connectors.

The connector members are shown generally similar to those of Figures 2 and 4 but the U bend portions 49 are directed toward the vacuum tube instead of away from the vacuum tube.

The outer ends of the U legs are bent at right angles away from one another as in the construction of Figure 2, a bottom cover plate 21^1 holding the right angle bends up against the bottom of the body.

The bottom cover plate is fastened to the body by a central tubular rivet 50 having an upper portion moulded into the bottom of the body and a lower portion riveted over the bottom plate after assembly.

The outer right angle bends are bent downward through the perforations 24 in the bottom plate and are extended as supporting springs 25′. The springs 25′ are fastened at 26^2 to the bottom of a plate 29 that may be the metal top plate of a radio chassis.

The body is moulded with radial cavities 51 which receive the extending ears 52 of stop members 53 fastened at 54 to the bottom of the ring. The extending ears 51 of the stop members limit the inward movement of the receptacle during tube insertion by engaging the bottoms of the cavities 51 and limit the outward movement of the receptacle during withdrawal from the receptacle by engagement with the top of the bottom plate.

The body of the receptacle is shown with

cavities 55 which serve to lessen the quantity of moulded material.

In the form of Figures 6 to 10 the guide 23^2 is moulded integral with the body and is hollowed at 54 upon its upper side to provide a space for retaining coloring matter to indicate the kind of tube that is to be used in the receptacle.

In view of my invention and disclosure variations and modifications to meet individual whim or particular need will doubtless become evident to others skilled in the art, to obtain all or part of the benefits of my invention without copying the structure shown, and I, therefore, claim all such in so far as they fall within the reasonable spirit and scope of my invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A socket receptacle for the prongs of a vacuum tube having passages registering with the prong terminals of the tube in combination with a selected identification disc having markings corresponding to said tube, means for securing said disc on the outer face of the receptacle adjacent the passages and adapted to guide the prongs when placing the tube in its receptacle.

2. A socket receptacle having passages for the prongs of a vacuum tube in combination with a disc having markings identified with said tube on the outer face of the receptacle, a rivet fastening said disc to said socket adjacent the inner sides of said passages.

3. A receptacle for a plug-in device having a plurality of passages to receive the pin terminals of said device in combination with a selected perforated disc having marking identified with said device, means cooperating with said perforation for mounting said disc upon the outside of the receptacle tangent with the passages thereof.

4. A receptacle for a vacuum tube having a plurality of passages to receive the pin terminals of the tube in combination with a selected one of a plurality of differently colored discs adapted to be mounted interchangeably upon the receptacle tangent to the inner sides of the passages.

WILFORD C. MacFADDEN.