Dec. 6, 1927. 1,651,660

M. ALDEN

ELECTRICAL CONNECTER

Filed Jan. 17, 1927

Fig. 1.

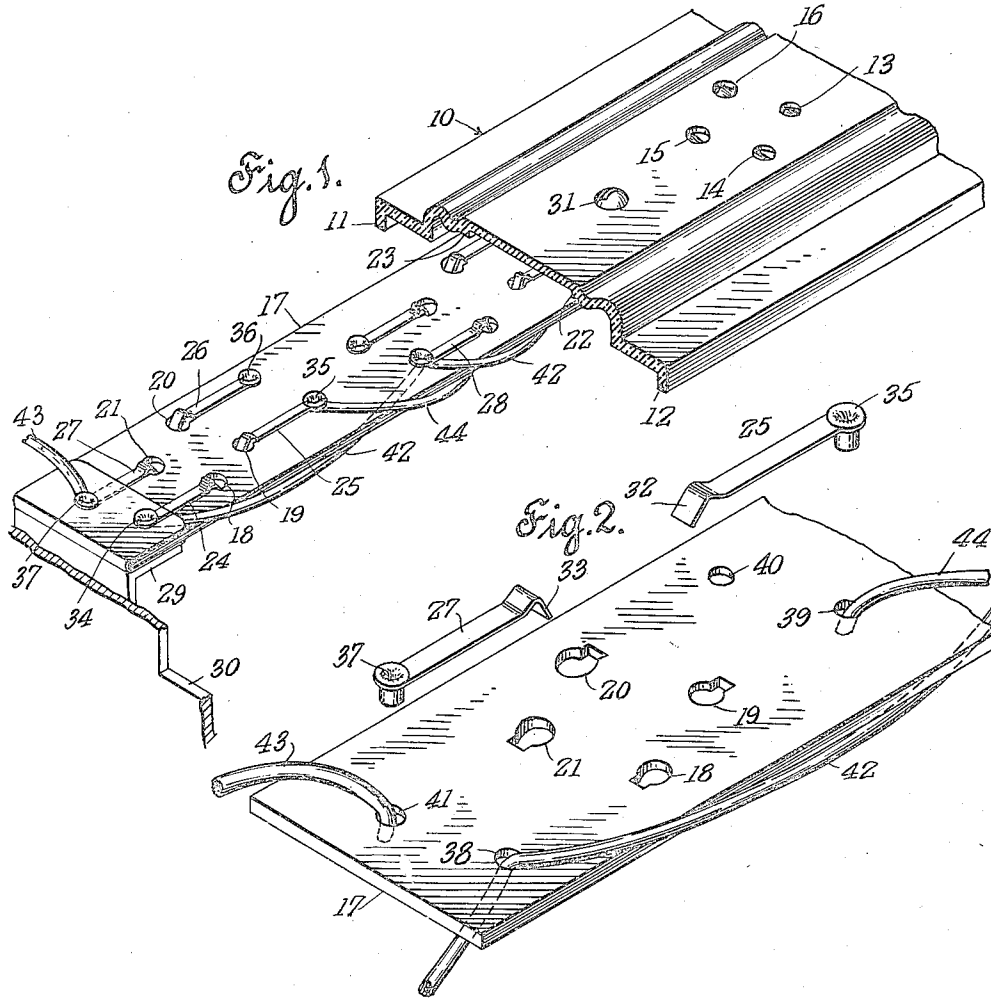
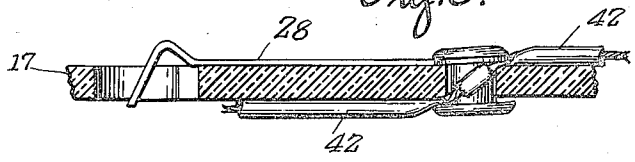


Fig. 2.

Fig. 3.



INVENTOR

Milton Alden

BY

ATTORNEY

Patented Dec. 6, 1927. 1,651,660

UNITED STATES PATENT OFFICE.

MILTON ALDEN, OF SPRINGFIELD, MASSACHUSETTS.

ELECTRICAL CONNECTER.

Application filed January 17, 1927. Serial No. 161,621.

One object of my invention is to produce a multiple socket for vacuum tubes and other detachably held electrical devices which is easy of manufacture.

Another object is to produce a device of this nature in which such contacts as it is desired to permanently connect together may be connected during manufacture in a simple and easy manner which at the same time ensures thoroughly good connections between thse interconnected parts.

By means of my invention an attractive and reliable "gang" or multiple socket may be produced inexpensively. Heretofore common connections between associated contacts have been usually accomplished by the soldering of jumpers between such parts as it is desired to connect together, a method which is slow and by no means reliable. In my invention such connections are accomplished by threading a rubber covered wire through a hole or holes and upsetting a tubular rivet or eyelet in each hole in such a manner that it cuts through the soft insulation of the wire and clampingly engages its conducting parts, thus effecting a rapid, easy, and sure connection.

Referring to the drawings:

Fig. 1 is a top perspective view of one form of my invention with a cover plate partially broken away.

Fig. 2 is an enlarged perspective view of a part of the contact holding plate showing some of the parts used in this particular construction.

Fig. 3 is a longitudinal section of a part of the contact holding plate showing the details of one contact and its jumper or connecting wire.

The cover plate 10 is preferably formed of insulating material of such a section that it may readily be used as a panel or as a wall of a container which may be used to hold the apparatus to be associated with the vacuum tubes when inserted in their sockets, such as transformers, couplers, and the like. The flanges 11 and 12 may be provided to enclose the side walls of this container. This cover plate is provided with apertures such as 13, 14, 15 and 16 which are suitably arranged in groups to register with the prongs of the type of vacuum tube to be used and these apertures also register with apertures in the contact-holding plate 17 such as 18, 19, 20 and 21.

The transverse section of the plate 10 is designed so as to ensure alignment between this plate and the plate 17 and the shoulders 22 and 23 are provided on the under side of the plate 10 to ensure enough spacing between said plates to allow adequate movement of the spring contact strips such as 24, 25, 26, 27 and 28.

The lower or contact holding strip 17 of insulation may be secured to angles at its opposite ends as 29 which may in turn be secured to the container a fragment of which is shown at 30. The cover strip 10 may be secured to the strip 17 by screws 31.

The apertures as 20 and 21 in the strip 17 contain the resilient contact tips as 32 and 33 of the contact strips as 25 and 27. These contact tips yieldingly engage the terminal prongs of the vacuum tube (not shown) upon insertion. The apertures as 20 and 21 are made elongated or key-hole shaped to allow space for the yielding resilient movement of the tips 32 and 33. The ends of the contact strips as 24, 25, 26 and 27 opposite to the contact tips as 32 and 33 are perforated or so formed as to take an eyelet or tubular rivet, such as 34, 35, 36 and 37 and these rivets are passed through the apertures as 38, 39, 40 and 41 in the plate 17 thereby securing the contact strips such as 25 and 27 to this plate.

When it is desired to connect the corresponding contact member of each group together such as a number of "negative filament" members, a conductor 42, preferably stranded and having a soft insulating covering 43 such as rubber, may be threaded through the apertures of such contacts as it is desired to connect. The eyelets are then inserted through the contact arm and through the proper apertures in the strip 17 and clinched. The eyelet in clinching will cut through the insulation on the wire and form a firm and sure connection between the conductor, the contact strip and eyelet. If a single flexible lead from a contact member is desired the end of the conductor may be inserted in the eyelet aperture before the insertion and clinching of the rivet.

This simple method ensures a first class electrical connection without the use of solder. It also makes a clean and neat job with no strands of wire or loose ends exposed.

It should also be noted that the construc-

tion shown keeps the filament lines well away from the sensitive grid and plate terminals.

I claim:

1. A socket comprising an insulating strip having a series of openings, a soft covered conductor threaded through said openings, contacts adjacent thereto and eyelets riveted through said openings and cutting through the covering on the conductor and connecting said conductor to said contact.

2. A socket comprising an insulating strip having an opening, a soft rubber covered wire threaded through said opening, a contact and an eyelet riveted through said opening and said contact and cutting through the covering on the wire.

3. A socket comprising a strip having a series of openings, the walls of which are insulated from each other, a soft covered conductor threaded through said openings, contacts adjacent thereto and rivets extending through said openings and cutting through the covering on the conductor and connecting said conductor to said contact.

4. A socket construction comprising a strip having openings along an edge thereof, a covered conductor threaded consecutively through said openings and around said edge and contact members riveted to said conductor in said openings.

5. A socket comprising a strip having a number of groups of openings, one group of openings being adapted to receive the prongs of vacuum tube bases, contact members each having a contact portion extending adjacent one of the openings for the tube prongs and the opposite end of each contact member extending adjacent another opening, covered conductors threaded through the latter openings and rivets extending through said latter openings and cutting the covering on the conductors and securing the conductors to the respective contact members.

6. A socket comprising an insulating strip having a series of openings, a soft covered conductor threaded through a series of said openings, contacts adjacent thereto and rivets extending through said openings and cutting through the covering on the conductor and connecting said conductor to said contacts.

7. A socket construction comprising an insulating strip having a series of openings along one edge thereof, a covered conductor threaded around said edge and through said openings and contact members riveted to said conductor in said openings.

8. A socket comprising an insulating strip having a group of openings adapted to receive the prongs of tube bases, contact members each having a contact portion extending adjacent one of the openings for the tube prongs and said strip having at least one other opening and the opposite end of at least one of said contact members extending adjacent said other opening, a covered conductor threaded through the latter opening and a rivet extending through said latter opening and cutting the covering on the conductor and securing the conductor to the respective contact member.

9. The method of forming a connection in a socket comprising threading a soft rubber covered wire through a series of openings in a support and upsetting a rivet in each opening and thereby cutting through the covering on the wire to effect electrical connection.

10. The method of forming an electric contact connection which comprises passing an insulated wire through an opening in an insulating support, passing a rivet through the contact and through said support and upsetting the rivet and thereby cutting the insulation and connecting the parts.

11. A multiple socket comprising a strip having a number of sets of contact members for the prongs, said strip having two series of openings near one edge, each opening being adjacent a part of one of the contact members and two insulated conductors, each threaded through the openings of one series of openings and riveted to its contact member.

MILTON ALDEN.