

March 21, 1944.

G. DEAKIN

2,344,766

TELEPHONE CORD CONNECTING BLOCK

Filed Oct. 23, 1941

FIG. 1.

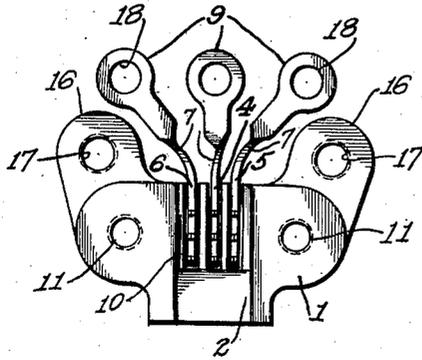


FIG. 3.

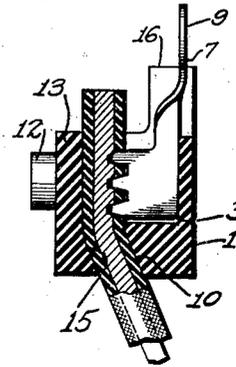


FIG. 2.

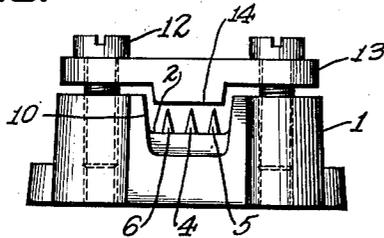


FIG. 4.

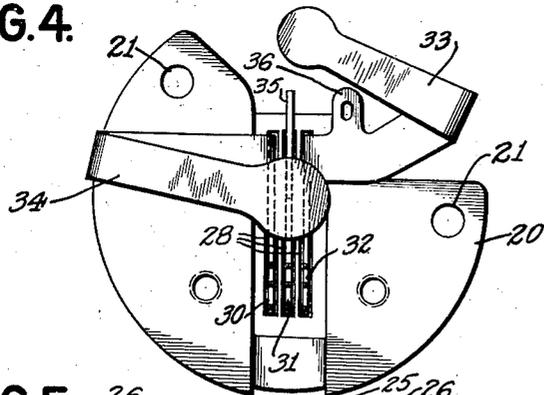


FIG. 6.

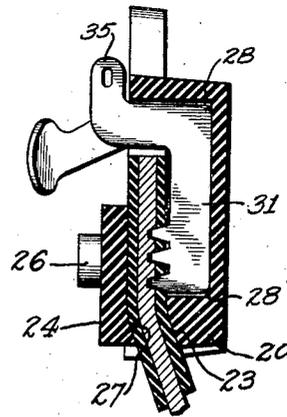
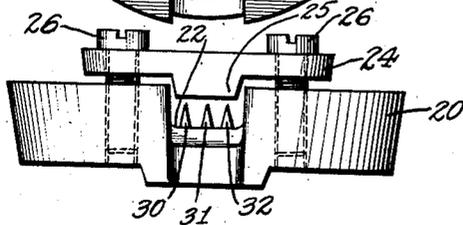


FIG. 5.



INVENTOR
GERALD DEAKIN
BY *R. P. Morris*
ATTORNEY

UNITED STATES PATENT OFFICE

2,344,766

TELEPHONE CORD CONNECTING BLOCK

Gerald Deakin, New York, N. Y., assignor to International Standard Electric Corporation, New York, N. Y., a corporation of Delaware

Application October 23, 1941, Serial No. 416,189

2 Claims. (Cl. 173-340)

This invention relates to a telephone cord connecting block, and more particularly, to a connecting block designed for use in connection with telephone subsets.

In the manufacture of telephone sets it is necessary to provide flexible cords to connect the microphone to other apparatus and also to provide connections over three other cords for the signal application to the set. It has been customary to provide such cords with tips or lugs for connecting the same to binding posts or other terminal connecting devices. Where the so-called tinsel cord is used this practice entails baring the ends of the conductor, wrapping with a serving of fine wire and then soldering the ends to individual lugs or tips. Usually the braided cover of the conductors are served with a layer of strong thread adjacent to the tip to prevent the cover from ravelling. When a great number of pieces of apparatus are being manufactured, the seemingly unimportant detail of making connecting cord terminals becomes an expensive item, due to the amount of time involved in attaching tips to the conductors.

An object of the present invention is to eliminate the necessity of finishing the ends of telephone cords according to former methods, by providing a novel detachable connecting block which may readily be attached to an unfinished cord.

Another object is the provision of a cord connecting block which may readily be installed in existing equipment, particularly handsets, so that the equipment may be interconnected by untipped cords or the ordinary type of cord having tips, thus simplifying and expediting repairs or replacements.

Another object of the invention is the provision of a connector block for untipped, insulated cord terminals to which an ordinary tipped cord may be connected without removing or destroying the tips so that the tipped cord may be used again with the former type of terminal blocks or, if desired, the tips may be used to connect the cord to additional circuit terminals.

A further object is the provision of a cord terminal block for new subscribers' sets designed so that the sets may be used without modification with other equipment provided with tipped cords or with tipless cords.

A still further object is the provision of a cord terminal, designed so that metal parts associated therewith subject to wear or corrosion, may be replaced easily.

According to a feature of the present invention, a multi-conductor cord is connected to a connecting block which comprises a base member of insulating material on which are mounted a plurality of connection members, one for each

conductor of the cord, together with clamping means for clamping the conductors into contact with the connection members and separate means for holding the cord to the base so that strain on the cord will not be applied to the connection members themselves. The base member may then be secured in the telephone set at the time of assembly with the cord already secured therein without any additional preparation of the cord, or the connecting block may be installed in instruments already in service so that their connection facilities may be modernized to the extent that they may be used with other equipment having either the untipped cords or the type having tips.

The invention will now be described in detail with the aid of the accompanying drawing of which

Fig. 1 illustrates in plan view the base of the cord connecting block with the clamping member removed;

Fig. 2 shows a plan view, and

Fig. 3 shows a vertical section of the connecting block;

Fig. 4 shows in plan view a modified form of clamp used for connection to a telephone microphone;

Figs. 5 and 6 show elevational and sectional views of the clamp of Fig. 4.

The drawing shows the invention enlarged to about twice the normal size for the sake of clearness.

In the embodiment illustrated in Figs. 1, 2 and 3, the base of the connecting block is made of insulating material preferably molded to comprise a member 1, across the top of which is a channel 2 shaped to fit a multi-conductor cord. Formed in member 1 and extending part way along the channel are a plurality of slots or recesses 3. A contact member 4, 5 or 6 is disposed in each of the respective recesses. One edge of each contact member is straight and rests on the bottom of its recess while the opposite edge has a series of sharp teeth which project above the surface of channel 2. Each contact member has an arm 7 projecting beyond member 1 which is turned over and formed into an eye 9 so that the contact member may be attached by a screw to a terminal strip. Beyond the ends of recesses 3, channel 2 is inclined as indicated by reference character 10.

On opposite sides of the channel, member 10 is provided with threaded holes 11 to receive screws 12 which pass through holes in a clamping bar 13. The latter has a ridge 14 formed on its under surface which is in register with channel 2 when the clamping bar is in position. The ridge is formed with a depending slanting surface 15 which is disposed above the inclined part of the channel.

The connecting block may be secured to a support by ears 16 formed integrally with the block which are provided with screw holes 17. In another arrangement the ears or similar means may be dispensed with and the holes 11 may be extended through the block. With the latter arrangement, screws 12 are long enough to pass through the block and are used for securing the clamping bar and also for fastening the connecting block assembly to a support. Holes 11 in this case may be unthreaded so the screw will slip through easily.

With the arrangement described above a cord may be attached to the block by placing the cord or a part thereof, adjacent to one end in the channel overlying the teeth of the contact members, so that one conductor of the cord is positioned over each contact member. On tightening screws 12, the teeth of the contact members are forced through the braided cover and the insulation of the respective conductors and penetrate the flexible conductor. The action of the screws on clamping bar 13 exerts sufficient pressure on the cord to hold it immovably in the channel. The inclined surfaces 10 and 15 are provided to reduce the effect of tensile strains exerted on the cord in the area thereof engaged by the teeth of the contact members. Movement of the contact members in the direction of a strain on the cord is prevented since the ends of the contact members are in engagement with the ends of their recesses, and when in service are further secured against any movement by screws, not shown, in holes 18 at the ends of the contact members.

With the arrangement just described, the contact members may be easily replaced when worn or corroded, and if required connecting blocks 1 may be adapted for different circuit arrangements merely by inserting contact members having the required length and shape of the external parts 7 and 9.

Figs. 4, 5 and 6 show another modification of a cord connecting block especially adapted for micro-telephone mounting. The connecting block comprises a base member 20, preferably of molded insulating material, which may be attached to the bottom of existing microphone chambers by screws passing through holes 21, or by any other suitable means. The base is provided with a channel 22 having an inclined part 23. A clamping member 24 having a depending ridge 25 formed thereon which cooperates with channel 22 is secured to the base by screws 26. The ridge has a slanting portion 27 which cooperates with the inclined part 23 of the channel in the same manner as that of the previously described embodiment.

In this embodiment, three recesses 28 are formed in the base extending part way along the channel in which contact members 30, 31 and 32 are located. The contact members may be removably disposed in the recesses. A preferred arrangement is to have the contact members forced into the slots while subjected to pressure and heat or by any other suitable method.

The outer contact members 30 and 32 are provided with portions projecting laterally to form contact springs 33 and 34 for a micro-telephone. These projecting portions preferably are made integrally with members 30 and 32, but they may be separately secured thereto, if desired. The center contact member 31 is extended at 35 to offer a convenient means of connection to a wire

leading to the telephone receiver. The other telephone receiver lead is connected to spring portion 33 at the lateral extension 35 provided thereon.

The parallel conductor cord 37 passes between base member 20 and clamping plate 24. Contact between the conductors of cord 37 is obtained by means of screws 26 which press plate 24 against the cord forcing the sharp points to pierce the insulation and penetrate the flexible conductor securing the cord in the same manner as in the other embodiment of the invention described above.

While the present invention has been disclosed with reference to specific embodiments thereof, it will be understood that these embodiments are merely presented by way of example and that many modifications of the invention will be suggested thereby to those skilled in the art without departing from the spirit or scope of the invention.

What is claimed is:

1. A removable connecting block for flexible telephone cords of the multi-conductor type comprising a base member of insulating material, a channel adapted to receive a cord to be connected formed in said base member, a plurality of parallel recesses formed side by side in said channel and corresponding in number to the conductors of said cord, a contact member removably seated in each of said recesses but held against longitudinal displacement therein, a plurality of teeth on each contact member extending upwardly above the surface of said channel, a clamping member comprising a bar of insulating material, a depending ridge formed on said bar adapted to fit into said channel, screw means disposed on opposite sides of said channel for securing said clamping member to said base with said ridge in register with said channel, and means for clamping said cord in said channel at a point removed from said teeth and adjacent to the point of exit of said cord from said block so that the strain on said cord is not applied to said contact teeth themselves.

2. A removable connecting block for flexible telephone cords of the multi-conductor type comprising a base member of insulating material, a channel adapted to receive a cord to be connected formed in said base member, a plurality of parallel recesses formed side by side in said channel and corresponding in number to the conductors of said cord, a contact member disposed in each of said recesses, a plurality of teeth on each contact member extending upwardly above the surface of said channel, a clamping member comprising a bar of insulating material, a depending ridge formed on said bar adapted to fit into said channel, screw means disposed on opposite sides of said channel for screwing said clamping member to said base with said ridge in register with said channel, said channel and said ridge on said clamping member being provided with cooperating clamping surfaces inclined with respect to the portion of the channel in which said contact members are disposed, whereby a portion of the cord placed within said channel will have a length substantially parallel with said recesses with the teeth of the contact members engaging the conductors, and a length emerging from the contact block clamped between said inclined surfaces and bent at an angle with respect to the first-mentioned length.

GERALD DEAKIN.