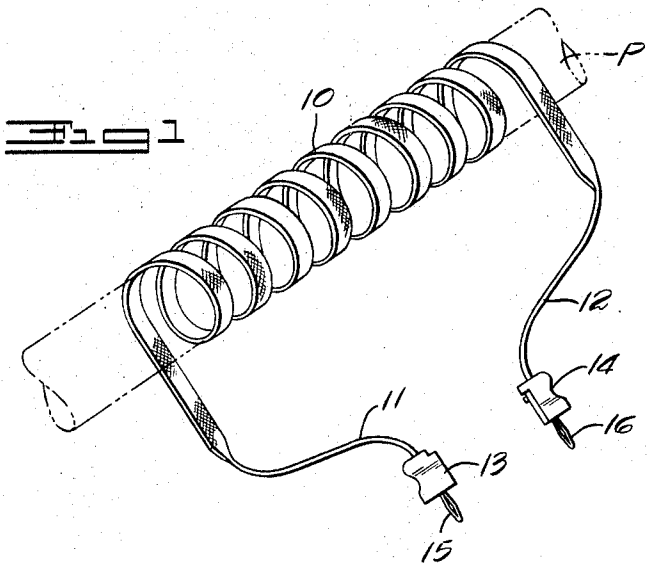
Sept. 26, 1967 E. H. BRISCOE 3,344,392

ELECTRICAL TERMINAL CONNECTOR

Filed Feb. 8, 1965

Fig 1



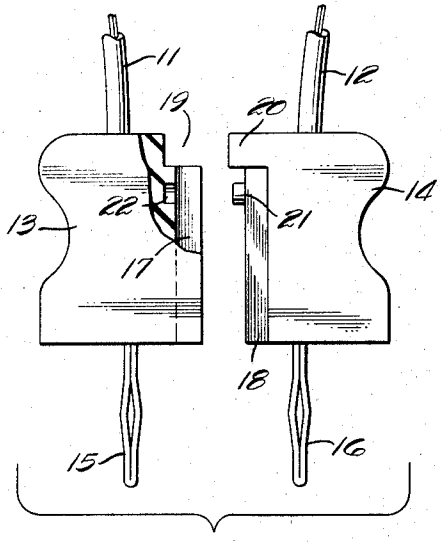
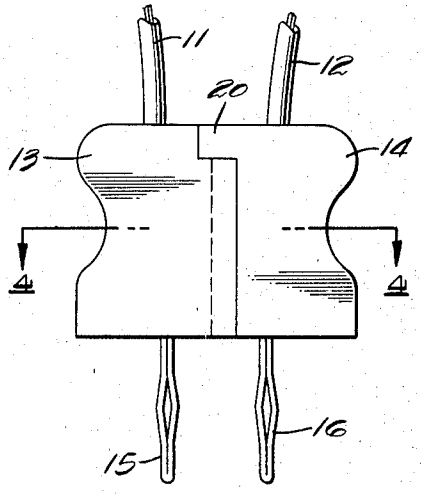


Fig 2

Fig 3



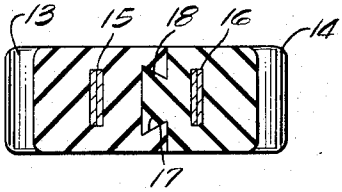


Fig 4

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ELECTRICAL TERMINAL CONNECTOR

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ABSTRACT OF THE DISCLOSURE

An electric terminal connector for flexible, electrical heating tapes or the like, wherein the terminal connector is composed of a plurality of relatively separable terminal sections having quick detachable, relatively interfitting mortise and tenon connections and stop means for locating the separable sections in desired interfitting order.

This invention relates to an electrical terminal connector. It has to do, more particularly, with an electrical terminal connector which is particularly useful as a terminal connector for a flexible electric conductor which is intended to be wrapped, wound, or otherwise positioned around an object to be serviced by the conductor the connector of this invention including readily separable and connectable interfitting terminal contact-carrying sections which correspond in number to the conductor wire ends.

Various electrical devices or appliances, such as a heating tape, are flexible and have lead or conductor wires extending from opposite ends thereof. At present it is customary to connect the ends of the lead wires to the usual terminal plug which is formed as a single section that carries both terminal elements or contacts which are usually embedded permanently in the material of the plug and are permanently connected to the wires or are removably connected thereto by terminal screws. Thus, the device or appliance is usually connected to the terminal plug in such a manner that it is in closed loop form. This makes it difficult to use the device, for example in the case of an electrical heating type, it makes it difficult to wrap the device helically around a pipe or other cylindrical member to be heated.

It is, therefore, the object of this invention to provide a terminal connector which is composed of separate terminal sections which are of such a nature that they interfit and interlock to become a standard size and shape terminal connector but can be readily separated or detached to facilitate proper positioning and arrangement of the electrical appliance or device. The separate terminal sections carry terminal elements or contacts which are adapted to be connected to the separate terminal wires of the electrical appliance or device. Usually, a pair of terminal wires are provided on the appliance and extend from opposite ends thereof but this invention is not limited to that arrangement and the connector may comprise two or more interfitting separable terminal sections with terminal contacts carried by the respective sections.

In the accompanying drawing, one example of the use of this invention is illustrated but it is to be understood that the connector can be used in many other applications.

In this drawing:

FIGURE 1 is a perspective view illustrating the use of the present terminal connector on an electrical heating tape.

FIGURE 2 is an enlarged face elevational view showing an electrical connector embodying this invention, the connector being formed of two terminal sections shown separated from each other.

FIGURE 3 is a view similar to FIGURE 2 but showing the two terminal sections assembled in interfitting and interlocking relationship with each other.

FIGURE 4 is a transverse sectional view taken along line 4—4 of FIGURE 3.

With reference to the drawing, in FIGURE 1 I have illustrated the terminal connector of this invention as being of the male plug type but it could as readily be a female receptacle connector. It is shown, merely by way of example, connected to a heating tape **10** of a suitable flexible type which is designed to be spirally wrapped around a pipe P or the like. Separate insulated lead wires **11** and **12** extend from the opposite ends of the flexible tape **10**. The wires **11** and **12** are shown as being single strands but it is to be understood that they could be built up of groups of fine strands. The terminal connector embodying the present invention is illustrated in this form as comprising a pair of terminal sections **13** and **14** which are connected to the respective lead wires **11** and **12**. The details of these sections **13** and **14** and the manner in which they cooperate with each other are illustrated in FIGURES 2 to 4.

The sections **13** and **14**, as indicated best in FIGURE 2, are each preferably composed of rubber or plastic or other suitable insulating material. Embedded in the sections **13** and **14**, respectively, and projecting from the outer ends thereof are the spring contact members of prongs **15** and **16**. These prongs are preferably permanently electrically connected to the inner ends of the respective lead wires **11** and **12**, as by soldering, although they could be connected by contact screws. Also, the prongs **15** and **16** are not necessarily permanently embedded in the respective sections **13** and **14** but could be mounted therein in other ways.

The two sections **13** and **14** are so formed and are of such size and outline that when in engaged relationship, as shown in FIGURE 3, they form a connector of a size and shape corresponding to a standard electrical terminal connector. In this example of the male plug, when assembled, the prongs **15** and **16** will have a standard spacing. To permit assembly and disassembly of the two sections readily, they are provided with a cooperating interfitting and interlocking connector structure which is illustrated in detail in FIGURES 2 to 4.

The connector structure is illustrated as a mortise and tenon structure formed on the side edges which are adapted to be innermost and adjacent each other with the sections assembled as indicated in FIGURES 3 and 4. This structure is shown as comprising a mortise on the inner edge of the section **13** and a tenon on the inner edge of the section **14** but this arrangement could be reversed. The mortise is in the form of an undercut slot or groove **17** extending the greater part of the length of the section **13** and the tenon is in the form of a dovetail rib **18** which is complemental to the groove **17** and extends along the greater part of the length of the section **14**. At the one end, that is the inner end, of the slot **17**, it terminates at a notch or cutaway **19**, and at the corresponding end of the rib **18** there is formed a stop lug **20** which is complemental to the notch **19** which projects outwardly at a right angle to the outer face of the rib **18**.

In the use of this connector, assuming the tape **10** is to be wrapped spirally on the pipe P, this is facilitated greatly by separation of the sections **13** and **14** of the terminal connector which can be done readily by sliding the section **14** upwardly and axially relative to the section **13** from the assembled position indicated in FIGURE 3. Sliding in one direction only will be permitted by the stop lug **20** which stops movement in the other direction. In this sliding movement, the rib **18** will slide longitudinally in the slot **17** until it moves out of that slot at which time complete separation of the two interfitting sections **13** and **14**

is permitted. To reassemble the sections, it is a simple matter to slip the end of the rib **18**, which is opposite that associated with the stop lug **20**, into the inner end of the slot **17** and then slide the rib completely into the slot until the lug **20** contacts the shoulder provided by the notch **19**.

It is preferred to provide an interlocking means for normally holding the sections **13** and **14** in this assembled and located relationship where the outer ends of the sections are flush. This means is illustrated as a resilient detent means comprising a small projecting button or teat **21** on one of the adjacent surfaces which cooperates with a small socket or indentation **22** in the other surface. In the example shown, the detent projection **21** is on the outer face of the rib **18** and the socket **22** is in the bottom of the slot **17** but it is to be understood that these could be reversed. Obviously, these interlocking portions are located longitudinally in the proper positions for cooperation as indicated.

It will thus be apparent that I provide a terminal connector which is composed of readily separable or detachable and connectable terminal sections which will facilitate the use of electrical devices or attachments which have a plurality of lead wires or connector terminal wires, the separation of which is desirable during the time the device is applied for use. The connector sections are such that they may be readily assembled and connected so that the resulting terminal connector corresponds substantially to a standard electrical connector.

According to the provisions of the patent statutes, the principles of this invention have been explained and have been illustrated and described in what is now considered to represent the best embodiment. However, it is to be understood that, within the scope of the appended claim, the invention may be practiced otherwise than as specifically illustrated and described.

Having thus described this invention, what is claimed is:

An electrical terminal connector comprising a pair of axially separable, unitary connector sections normally disposed in interfitting, side by side alignment and each composed of a body of electrical insulating material, an electrically conductive contact member embedded at least in part in said body and a remotely extending lead wire electrically connected with said contact member within said body, the bodies of said sections being formed along their adjacent sides with integral longitudinally extending, relatively interfitting, dovetail mortise and tenon portions, one of said bodies being formed adjacent said mortise and tenon portions with a resiliently flexible detent and the other of said bodies being formed with a recess engageable with said detent when said sections are disposed in interfitting, side by side alignment, said detent and recess serving to yieldably hold said sections against relative axial separation; and stop means formed on the body of one of said sections and engageable with the body of the other of said sections when said sections are brought into side by side alignment, said stop means limiting axial separation of said sections to one direction of relative movement.

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