

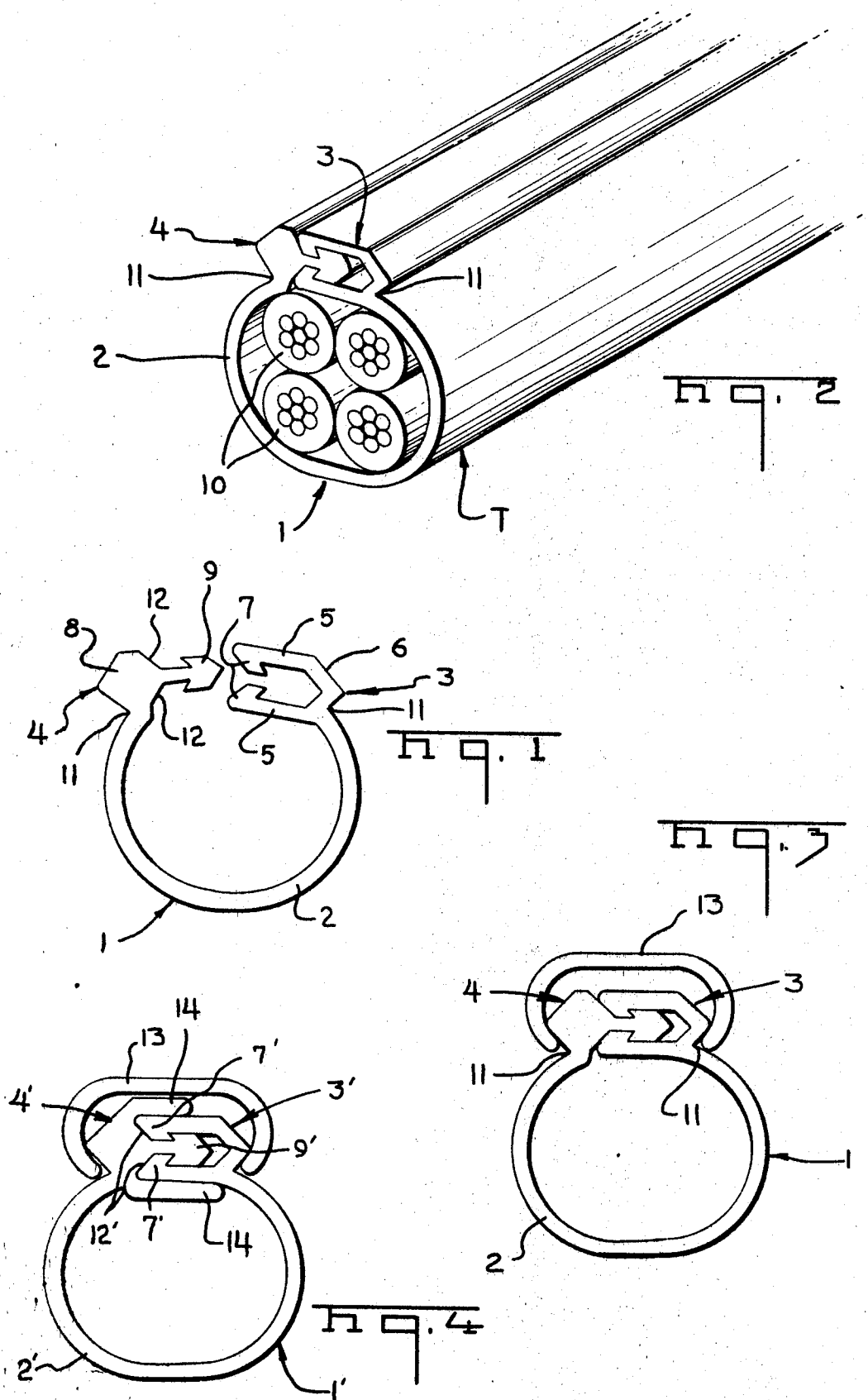
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A. L. MUELLER ET AL

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FLEXIBLE MATERIAL TO FORM A TUBULAR MEMBER

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FLEXIBLE MATERIAL TO FORM A TUBULAR MEMBER

Arthur Llewellyn Mueller, Havertown, and John Omer Trimble, Malvern, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

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4 Claims

ABSTRACT OF THE DISCLOSURE

A plastic tubing comprises a strip of material having a thin wall body section provided with a receiving section along one longitudinal edge and a barbed section along another longitudinal edge, the receiving section defining a U-shaped configuration and the barbed section having a barb, the receiving section and the barb is mateable with the receiving section to form the body section into a tube having an inner surface of substantially constant diameter.

This invention relates to a plastic tube and more particularly to a plastic tube for covering electrical wires, pipes, cables or the like to form an insulating and protective covering therefor.

Plastic tubing is presently being used in increasing amounts to cover electrical wires, pipes, cables or the like. Some of the reasons for using this tubing are: it is inexpensive, noncorrosive, very flexible, nonflammable, resistant to chemicals, easy to apply and economical to manufacture.

An object of the invention is to provide plastic tubing that is economical to manufacture and is readily securable in position.

Another object of the invention is the provision of plastic tubing that has a configuration to be readily secured in position.

A further object of the invention is to provide plastic tubing having interengaging edges that will maintain the tubing in a secured position.

An additional object of the invention is to provide plastic tubing provided with interengaging edges on which means can be mounted to prevent disengagement of the interengaging edges.

A still further object of the invention is the provision of plastic tubing provided with interengaging edges between which a seal can be formed.

Other objects and attainments of the present invention will become apparent to those skilled in the art upon a reading of the following detailed description when taken in conjunction with the drawings in which there are shown and described illustrative embodiments of the invention; it is to be understood, however, that these embodiments are not intended to be exhaustive nor limiting of the invention but are given for purposes of illustration in order that others skilled in the art may fully understand the invention and the principles thereof and the manner of applying it in practical use so that they may modify it in various forms, each as may be best suited to the conditions of a particular use.

The foregoing and other objects are achieved by a plastic tubing comprising a thin-walled body section provided with a receiving section along one longitudinal edge and a barbed section along another longitudinal edge, the receiving section defining a U-shape provided with legs connected together by a bight, free ends of the legs having inwardly-directed lugs disposed toward the bight at an acute angle with respect to the legs, the bight and one of the legs extending outwardly from the body

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section at an angle therefrom, the barbed section having a body portion and a barb, the body portion extending outwardly from the body section at an angle thereto and the barb extending outwardly from the body portion substantially at right angles thereto, the body section having a configuration so that the receiving section and barb are substantially in alignment, the barb being disposable within the receiving section with the barb being engageable by the lugs to secure the barb within the receiving section to form the body section into a flexible tube with the bight of the receiving section and the body portion of the barbed section being disposed substantially parallel with respect to each other.

In the drawing:

FIG. 1 is a cross-sectional view of a sheet of material to form a tubular member;

FIG. 2 is a perspective view of the sheet of material of FIG. 1 formed into a tubular member in which conductor members are disposed;

FIG. 3 is a cross-sectional view of FIG. 2 with sections of the tubular member within a channel member; and

FIG. 4 is a cross-sectional view of an embodiment of the invention.

The present invention will be described in conjunction with electrical conductors but it is to be understood that the invention is suitable for use to cover pipes, cables, or the like without departing from the principles of the invention.

Turning now to the drawing, a continuous strip 1 of a suitable plastic such as, for example, vinyl, polypropylene, polyethylene, or other plastic, has a cross-section as shown in FIG. 1. The plastic can be either rigid, semi-rigid or flexible depending upon the intended use. Strip 1 is preferably extruded in a conventional manner in accordance with the configuration as illustrated in FIG. 1. Strip 1 includes a body section 2 which is provided along one edge with a receiving section 3 and along the other edge with a barbed section 4.

Receiving section 3 has a U-shaped configuration including legs 5 and a bight 6. The free ends of legs 5 have inwardly directed lugs 7 disposed toward the bight at an acute angle with respect to the legs. Bight 6 has sections on each side of the center thereof with each section being substantially parallel with respect to a respective lug common to the leg to which the section and lug are integral.

Barbed section 4 includes a body portion 8 and a barb 9 extending outwardly from body portion 8 at substantially a right angle with respect to the body portion. Barb 9 preferably takes the form of an arrowhead with the inner surfaces of barb 9 being beveled at an angle substantially the same as the angular disposition of lugs 7 so that a positive latching arrangement is effected between the receiving and barbed sections.

Surfaces 12 between barb 9 and body portion 8 are preferably beveled in accordance with the angular disposition of lugs 7 of receiving section 3 so that the legs and lugs of receiving section 3 fit snugly between barb 9 and body portion 8.

Since strip 1 is preferably extruded in accordance with the configuration illustrated in FIG. 1, receiving section 3 is disposed in alignment with barb 9 so that barb 9 can be readily inserted within receiving section 3 with lugs 7 latchably engaging barb 9 to secure strip 1 in a tubular configuration as illustrated in FIG. 2 in order to cover electrical conductors and maintain them in a bunched condition. Bight 6 of receiving section 3 and body portion 8 of barbed section 4 are disposed substantially parallel with respect to each other so that they can readily be grasped in order to mate barb 9 within

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receiving section 3. The outer surfaces of lugs 7 are beveled to facilitate the insertion of barb 9 within receiving section 3. Receiving section 3 and barbed section 4 maintain strip 1 in a tubular configuration which can be subjected to torsional and bending stresses without coming apart.

In use, electrical conductors 10 are introduced within body section 2 between receiving section 3 and barb section 4 and the barbed section and receiving section are mated together to form tubular member T to cover electrical conductors 10 and to maintain them in a bunched condition.

Acute areas 11 are located at the junction between body section 2 and receiving section 3 and barbed section 4. Receiving section 3 and barbed section 4 can be disposed within a U-shaped channel 13 and the ends of channel 13 are disposed in acute areas 11 to maintain tubular member T in a locked position. If desired, channel 13 may serve as a mounting member to mount tubular member T in position on a mounting means such as, for example, a wall or a ceiling. A forked tool (not shown) may be used to engage acute areas 11 to secure receiving section 3 and barbed section 4 together.

FIG. 4 illustrates an embodiment of the invention wherein barbed section 4' comprises extensions 14 extending outwardly from body portion 8' in a direction substantially parallel with respect to barb 9'. Inner extension 14 is longer than outer extension 14. The legs and lugs of receiving section 3' fit snugly between barb 9' and extensions 14 with extensions 14 exerting pressure on the legs and lugs of receiving section 3' to maintain receiving section 3' and barb section 4' in a positively latched position. Inner extension 14 extends substantially along the entire length of receiving section 3' in order to provide sufficient area of contact therebetween. Receiving section 3' and barbed section 4' can be disposed within channel 13 in a manner similar to that of the embodiment of FIGS. 1 through 3.

Sealing compound may be disposed within receiving sections 3 and 3' to form a watertight seal between the receiving sections and barbed sections when in a mated position. If desired, a layer of conductive material may be bonded to the embodiments of FIGS. 1 through 3 and FIG. 4 in order to provide effective electrical shielding characteristics for the electrical conductors to be carried within the formed tubular members. The conductive material can be woven metallic filaments, woven fabric including threads of conductive and nonconductive filaments, a thin film of metallic material or the like. Conventional ground connection means are applied to the conductive material to ground the shielding means as desired. Barbed section 3 of one strip can be secured in a receiving section 4 of another strip to increase the size of the strip. More than two strips may be secured together.

As can be discerned, there has been disclosed a novel and unique tubular member formed from a strip of material having along its longitudinal edges a receiving and barbed section in order to form the strip of material into a tubular member that readily retains its configuration in the presence of torsional or bending stresses.

The invention is claimed in accordance with the following:

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1. In a tubular member, the improvement comprising an elongated piece of material including a body section capable of being bent into a tubular configuration and having a receiving section along one longitudinal edge and a barbed section along the other longitudinal edge, said receiving section comprising a substantially flat leg member projecting from an edge of the body section in angular relation to the strip, a second leg member extending parallel to and coextensive with the first leg member and connected thereto, adjacent its junction with the edge of the strip, by a U-shaped portion forming a bight, lugs located at free ends of said leg members directed toward said bight, said barbed section having a body portion and a barb extending outwardly from said body portion at an angle with respect thereto, said barb being disposable within said receiving section said barb being engageable by said lugs to form said body section into said tubular member having a substantially smooth inner surface, including that of the first leg members, and of substantially constant diameter and with said bight of said receiving section and said body portion of said barbed section being disposed substantially parallel with respect to each other.

2. The tubular member according to claim 1 wherein said body section has a configuration so that said receiving section and said barbed section are disposed opposite each other with said barb in alignment with said receiving section.

3. The tubular member according to claim 1 wherein said body portion includes beveled surfaces mateable with outer surfaces of said inwardly-directed lugs so that said beveled surfaces fit snugly against said outer surfaces of said inwardly-directed lugs.

4. The tubular member according to claim 1 wherein acute areas are disposed at junctions between said body section and said receiving section and said barbed section, free ends of a channel member being disposable within said acute areas to maintain said receiving section and said barbed section in a locked position.

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LAVERNE D. GEIGER, Primary Examiner

E. J. EARLS, Assistant Examiner

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