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ELECTRICAL CONDUCTOR WITH ADHESIVE BACKING

Filed Jan. 18, 1956

FIG. 1

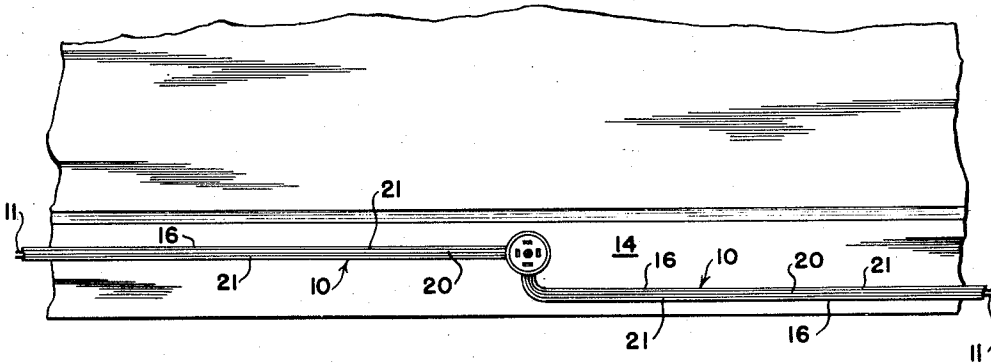


FIG. 2

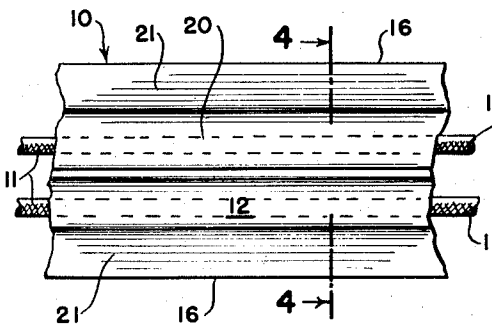


FIG. 3

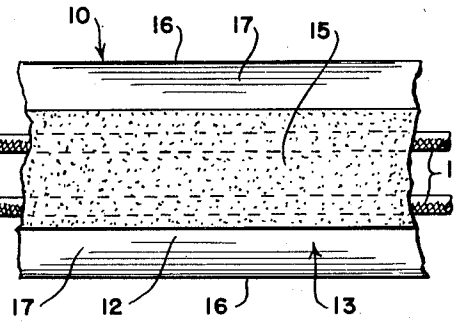


FIG. 4

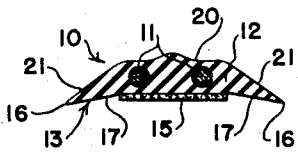


FIG. 5

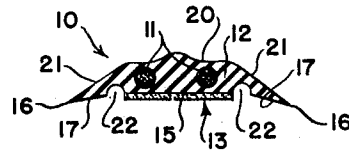
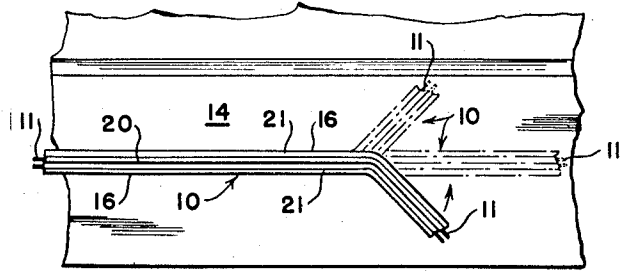


FIG. 6



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ELECTRICAL CONDUCTOR WITH ADHESIVE BACKING

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7 Claims. (Cl. 174—117)

This invention relates to electrical conductors and more particularly to such conductors in which all wires are included within a single substantially flat carrier which may be mounted where desired.

Electrical wiring leads are today used in an infinitude of applications and locations both in the home and in commerce. Such use presents a problem in the sightly yet proper disposition of such leads. From a standpoint of safety, of fire prevention, of durability, and of neatness, the common sight of loose wiring about a home is distressing. Nor is the home the only place in which such conditions prevail. Automobiles and trucks furnish another locale for them. Yet the wires must run from the outlet to the apparatus which they activate. Accordingly, it is the primary object of this invention to provide a new type of electrical conductor whereby electrical wires may be led from outlet to appliance in such a manner that an attractive installation results, and yet dangers of tripping over the wire, of destruction and short circuiting of the wiring, from attrition due to its laying about loose and exposed, are eliminated. This object is to be achieved by providing a conductor in substantially ribbon form having a mounting surface bearing a pressure sensitive adhesive. The adhesive is an integral part of the conductor structure, and the conductor may be applied to a surface such as a wall, a floor, or interior surfaces of an automobile simply by laying the conductor where desired with the mounting surface thereof against the surface to which the conductor is to be applied. Exerting pressure then upon the side of the conductor opposite the mounting surface will result in a rapid installation. It will be readily seen that thus a firm system of wiring may be installed without the necessity for the use of tacks or other destructive means.

Another object herein is to provide a conductor substantially flat in form in which the body of the conductor, or carrier for the conductive leads, is of a flexible and resilient material such as rubber or a resilient plastic. With such material the conductor may be rolled into a coil for ease in packaging, storage and shipment. Due to the use of adhesive, when this is the manner of packaging, it will be necessary to interpose a protective strip of material over the adhesive and successive turns of the coil. Moreover, by use of such material for the carrier, in the process of application of the conductor to a surface, it will not be necessary for the surface to be flat, for the flexible material will easily adapt itself to undulations in the surface. This characteristic will make this novel conductor especially valuable for wiring in automotive, truck, and aircraft bodies, and the like. It is contemplated as well, that the carrier material have the property of yielding in a sidewise direction to its normal axis without rupture, so that in the process of application, if necessary the path of laying the conductor need not be straight, but may be led around obstructions, and will still adhere to the surface of application.

Still another object herein is to have a mounting surface of such a character that after application of the conductor,

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the adhesive will not be exposed for attack by the various solvents and forces which would have a tendency to weaken the grip of the adhesive upon the surface. This object is to be accomplished by limiting the extent of adhesive to the central area of the mounting surface, leaving a region adjacent each edge of the mounting surface free of adhesive. The portions of the mounting surface embracing these regions will overhang the portion bearing adhesive, so that when the conductor is applied, the edges of the mounting surface will be resiliently in snug contact with the support to which the conductor is applied. Thus a seal will be provided against dirt which would accumulate at the adhesive, if the adhesive were to extend to the very edges of the mounting surface. The seal also would form an effective barrier against the entry of moisture as well as mechanical forces tending to loosen the conductor. The seal effect may be achieved by making the entire mounting surface concave. In the alternative, the overhanging regions referred to might be linear. As an aid to achieving the desired confinement of the adhesive to a limited area, grooves may be provided in the mounting surface, the area between the grooves being coated with adhesive, while the regions between the grooves and the edges are free of adhesive. Such grooves act also to improve the seal desired by permitting use of a greater degree of overhang, for the grooves cut down the section of the carrier and will permit a greater yielding of the edge regions of the conductor.

A final object herein is to provide a conductor of the character described in which the conductor has surfaces tapering down to meet the edges of the mounting surface. By this expedient, use of dusting and other appliances will slide right over without dislodging the conductor.

How these and many other objects are to be implemented will become apparent through a consideration of the accompanying drawings wherein;

Fig. 1 is a plan view of an installation in which the present invention is utilized;

Fig. 2 is a top view of an electrical conductor constructed according to my invention;

Fig. 3 is a bottom view of the same;

Fig. 4 is a section at 4—4 of Fig. 2;

Fig. 5 is a cross section of a second embodiment of my invention, and

Fig. 6 shows an installation demonstrating bending of the conductor.

The drawing shows an electrical conductor 10 comprised of wires 11 mounted within a carrier 12 which may be of rubber or resilient plastic. The conductor has a mounting surface 13 which comprises the bottom of the conductor. The mounting surface carries an adhesive 15 whereby the conductor may be mounted on a support, indicated by the numeral 14 in Fig. 1. At either side of the mounting surface are edges 16. As is clearly shown in the embodiments shown, the adhesive 15 is limited to the central portion of the mounting surface, leaving on either side between such portion and edges 16 regions 17 free of adhesive. To mount the conductor on a support, the conductor is simply placed in position, and pressure applied to outer surface 20 of the conductor, whereupon the conductor will adhere to the support. It will be seen that regions 17 overhang the adhesive, so that after application of the conductor to a support as described, edges 16 will be in firm contact with the support to form an effective seal thereagainst.

Sloping edges 21 are shown in the drawings, extending from the outer surface 20 to edges 16. These edges furnish an expedient to guard against dislodgement of the conductor by making it easy for dust mops, etc. to slide over the conductor.

In the embodiment shown in Fig. 5, grooves 22 are provided. These, it will be seen, reduce the section of the

conductor between mounting surface 13 and outer surface 20. Such grooves lend resiliency to the overhanging portions of the carrier, so that a seal with a support may be achieved without necessity for regions 17 to be great in extent.

In Fig. 6 is shown a conductor 10 mounted on a flat support 14, there being a bend in the conductor. It is contemplated that a material be used for the carrier which will permit such distortion of the conductor without rupture.

While I have described specific embodiments of my invention, it is apparent that changes and modifications may be made therein without departing from the spirit of my invention.

I claim:

1. An insulated electrical conductor comprising conductive leads mounted in a resilient insulating carrier having a mounting surface, a layer of pressure sensitive adhesive on a portion of said mounting surface, regions of said mounting surface adjacent the edges thereof which are free of adhesive, said regions overhanging and extending below the plane of said adhesive, whereby when said carrier is applied to a support by means of said adhesive, said edges will be in firm contact with said support.

2. An insulated electrical conductor as claimed in claim 1 including a pair of grooves in said mounting surface,

said adhesive being located wholly between said grooves, and said regions extending from said grooves to the edges of said mounting surface.

3. An insulated conductor as claimed in claim 1 wherein said carrier has side surfaces extending inwardly from the edges of said mounting surface, and forming acute angles therewith.

4. An insulated electrical conductor as claimed in claim 1 wherein said conductor may be mounted on a flat support, and said carrier has the property of bendability in the plane of said flat support.

5. An insulated electrical conductor as claimed in claim 1 wherein said carrier is rubber.

6. An insulated electrical conductor as claimed in claim 1 wherein said carrier is of a resilient plastic.

7. An insulated electrical conductor as claimed in claim 1 wherein said mounting surface is concave.

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