Sept. 6, 1938. L. H. VAN BILLIARD 2,129,540

LEAD-IN FOR RADIO RECEIVERS

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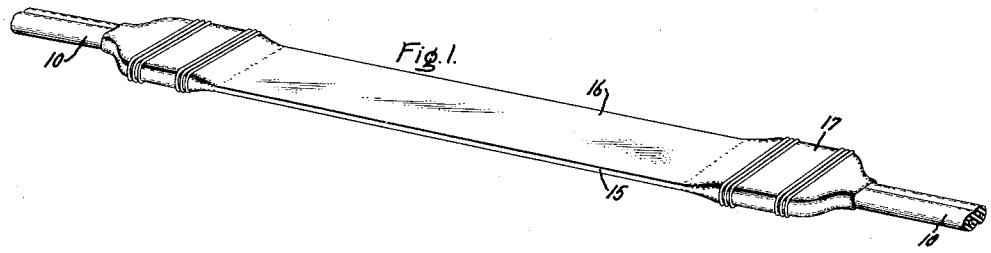


Fig. 1.

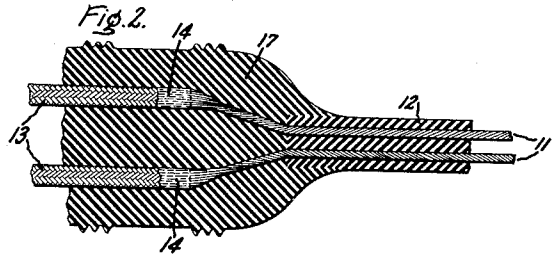


Fig. 2.

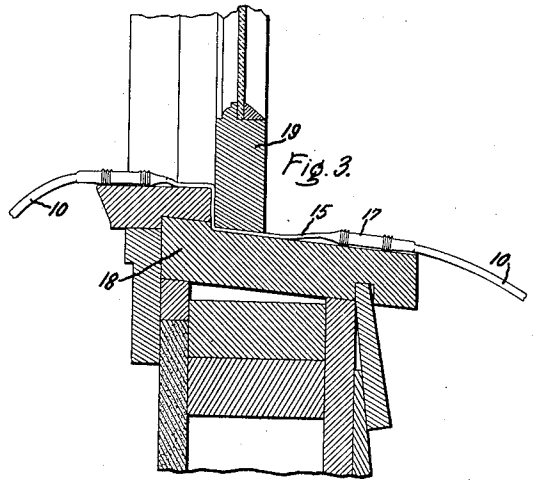


Fig. 3.

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LEAD-IN FOR RADIO RECEIVERS

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Application February 2, 1938, Serial No. 188,323

1 Claim. (Cl. 173—264)

My invention relates to a "lead-in" for radio receiving apparatus, and more particularly to a device for connecting the outside antenna portion of the radio apparatus with the inside receiver portion.

Customarily, such lead-in structure takes the form of a wire passing through a bushed hole in the wall of a building, or lead-in strip formed of metal with a lacquered fabric covering is disposed through a natural opening in a building, such as a door or window, and the antenna and receiver leads are fastened to clip connectors at each end of the strip. The former construction is objectionable because such holes in the wall of a building are unsightly and are likely to damage the property in which they are placed; the latter construction has the disadvantage that the lacquered fabric covering is subject to cracking as it is flexed around a door or window, thereby admitting moisture to the conductor; and the clip connections invariably become loosened from pulls on the receiver lead wire, or under the swaying action of the antenna lead wire, thereby causing disturbances in the radio receiver.

It is an object of my invention to provide a lead-in which will overcome these objections and disadvantages and one which may be easily and quickly installed in a natural opening in a building, such as a door or window. To this end, I provide as an integral portion of the antenna lead wire a lead-in comprising a plurality of extremely thin flexible wires covered with a thin molded rubber covering which is molded at each end to the insulation of the antenna leads.

In the accompanying drawing Fig. 1 is a perspective view of my lead-in strip formed as part of the antenna lead; Fig. 2 is a cross-sectional view showing the manner of connecting the antenna leads to the conductors of the lead-in strip, and Fig. 3 is an illustration, by way of example, of the lead-in strip installed in the frame of a window opening.

Referring to the drawing, the numeral 10 designates an antenna lead cord which comprises two conductors 11 insulated by a covering 12 of rubber, or the like. The insulation on the cord is stripped away to expose the conductors 11 and the exposed ends of the conductors are electrically connected to spaced wires 13 forming part of the lead-in strip.

In order to insure extreme flexibility and strength, the wires 13 are made in the form of a flat braid and are connected to the conductors 11 by means of a spot weld, shown at 14. Manifestly, other means of connection such as solder may be employed. The conductors are connected to each end of the lead-in wires in the manner just described. In order to insulate the conducting wires 13 a molded rubber covering 15, forming the other part of the lead-in strip, is placed about the conductors and is molded at each end to the rubber insulation of the antenna lead cord. As shown more particularly by Fig. 1, the molded covering takes the form of a thin flexible strip 16 with enlarged, or thickened, end portions 17 surrounding the connections between the conductors 11 and the wires 13. Usually, a lead-in strip of the type described is installed in a window or door opening of a building. Fig. 3 shows the strip disposed in a building opening between the sill 18 and the window 19. The strip fits snugly against the window elements and is readily conformable to the contour of the opening.

By forming the insulation of the lead-in strip of rubber, it is possible to secure a covering which has a long life and which may be compressed between the elements forming the opening in the building thereby permitting the strip to occupy spaces smaller than would be possible were the covering formed of incompressible material such as a lacquered fabric. In addition, the rubber covering gives an extremely flexible lead-in strip which is capable of being bent around sharp corners without cracking or damage of the insulating covering, and hence the covering protects the wires at all times from deterioration due to moisture such as invariably is encountered in an outside exposed location.

The thickened or enlarged portions 17 of the insulating covering, which surround the connections 14 between the lead-in wires and conductors, form heavy protective casings for the connections and being molded integrally to the insulation of the antenna lead cord act as a strain relief. Normally, a lead-in of this type is subjected to considerable strain due to the swaying of the antenna and antenna lead wire under the influence of the wind, and thus the enlarged strain relief portions of the lead-in will prevent such strains from damaging or loosening the connections between the lead-in wires and the antenna conductor.

By providing a covering of molded rubber a lead-in strip of pleasing appearance is produced which is cheaply and easily manufactured and one which may be incorporated integrally with the antenna lead wire thereby obviating the necessity of connecting the antenna lead wire to a separate lead-in strip. By the use of my construction it is unnecessary to deface a building

by boring holes for installation of the antenna lead wire and it is possible to use a lead-in strip which is easily installed in a building opening and which is not subject to loose connections or deterioration with resultant disturbances to reception in a radio receiver.

What I claim as new and desire to secure by Letters Patent of the United States, is:

A lead-in strip comprising thin flat flexible wires, an electrical conductor connected to each of the ends of said wires, said conductors at each pair of ends forming parts of an insulated cord, and a rubber insulating covering molded about said flat wires and connections, said covering embedding said wires to form a thin flat and flexible lead-in strip, and said covering being thickened about said connections and molded to said insulated cord to provide a strain relief between said wires and said conductors.

LEWIS H. VAN BILLIARD.