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2,929,043

ANTENNA LEAD-IN CONNECTOR

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Fig. 1

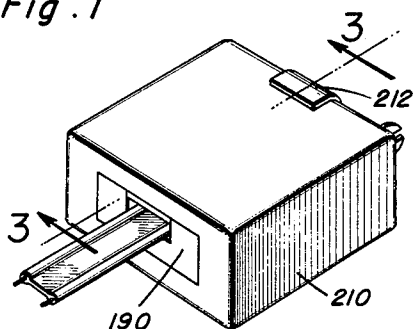


Fig. 2

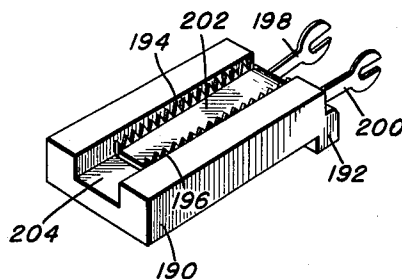


Fig. 3

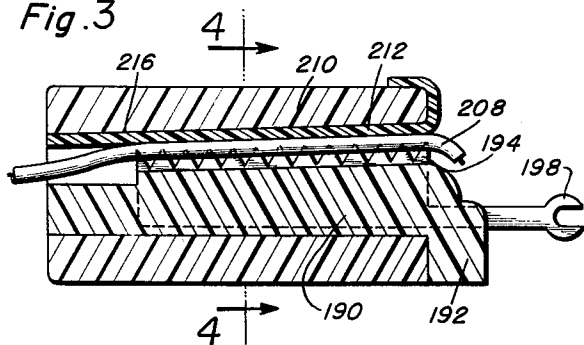


Fig. 4

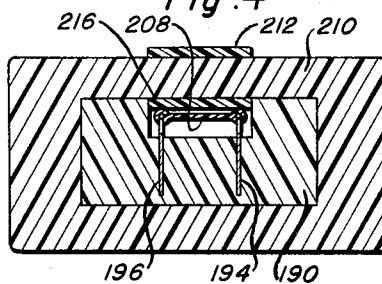


Fig. 5

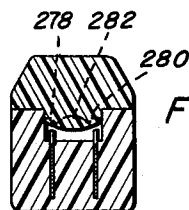
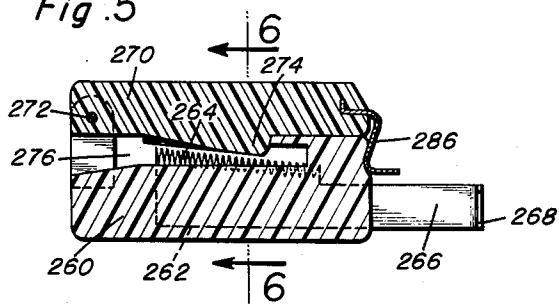


Fig. 6

Fig. 8

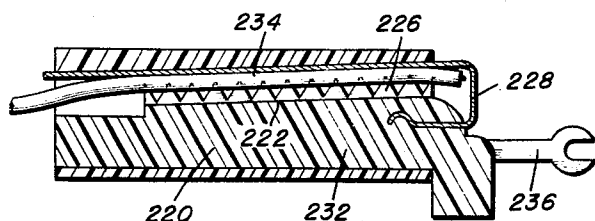
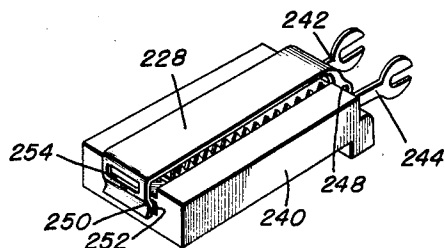


Fig. 7

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1

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ANTENNA LEAD-IN CONNECTOR

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3 Claims. (Cl. 339—99)

This invention relates to means for connecting antenna lead-ins such as conventional twin lead wiring or the like to various types of electronic equipment such as television receivers, etc.

The connections between an antenna and the lead-in wires therefor are usually subjected to severe abuse due to fluctuating weather conditions, such as high winds, snow and rain storms, and the like thus causing a considerable number of broken connections at the junction of the lead-in wires with the antenna. In order to correct any broken connections or the like, it is usually necessary to strip the antenna lead-in wire of insulation and then connect it to the terminals provided on the antenna connection block or the like. Since the antenna is usually mounted in a comparatively exposed position with relatively little accessibility, the present invention provides means for eliminating the necessity of stripping the antenna wires of insulation and positioning them about the terminals by allowing the connection to be made in a simple operation thus reducing the time necessary for replacing connections while eliminating considerable danger to the workmen.

The use of antenna lead-in wires for connection to antennae or to television receivers has resulted in the almost universal employment of "twin-lead" conductors. It is usually necessary to strip the insulation from the antenna thus varying the initial capacitance of the conductor while also considerably reducing the effective strength of the lead-in wire with respect to the connections made between the stripped conductors and the terminals. The present invention provides means for permitting connections to be made without necessitating the stripping of the wires and which provides a locking means for holding the antenna lead-in wire in place thus strengthening the assembly.

A further object of the present invention resides in the provision of means for splicing antenna lead-in wire without necessitating the stripping of the conductors of insulation.

Still further objects and features of this invention reside in the provision of antenna lead-in conductors that are strong and durable, simple in construction and manufacture, and which are inexpensive to produce thereby permitting wide distribution and utilization.

These, together with the various ancillary objects and features of the invention which will become apparent as the following description proceeds, are attained by these antenna lead-in connectors, preferred embodiments of which have been illustrated in the accompanying drawings, by way of example only, wherein:

Figure 1 is a perspective view of the invention employing an insulative casing;

Figure 2 is a perspective view of the invention as is shown in Figure 1 with the casing removed therefrom;

Figure 3 is a sectional detail view as taken along the plane of line 3—3 of Figure 1;

Figure 4 is a vertical sectional view as taken along the plane of line 4—4 in Figure 3;

2

Figure 5 is a sectional view of another modified form of the invention;

Figure 6 is a sectional detail view of the embodiment of the invention taken on line 6—6 in Figure 5;

Figure 7 is a sectional detail view of another modified form of the invention; and

Figure 8 is a perspective view of a further form of antenna lead-in connector.

Referring now particularly to the embodiment of the invention as is shown in Figures 1 through 4, it will be noted that herein there is disclosed an insulative plate 190 having a projecting portion 192 and having embedded therein a pair of contact elements 194 and 196 from which suitable terminals of any desired shape and size as at 198 and 200 may extend outwardly.

The contacts 194 and 196 are positioned within a channel 202 which may be a deepened or recessed portion 204. The contact plates 194 and 196 extend at an acute angle with respect to the channel 202 and converge toward the deepened or recessed portion 204 of the channel. Thus, when a twin-lead conductor as is indicated at 208 is positioned on the tooth portions 194 and 196 in the channel 202, and the casing 210 is wedgingly placed over the plate 190 so that the pressure plate 212 urges the twin-lead 208 onto the teeth 194 and 196, the teeth 194 and 196 will cross the individual conductors assuring that the contact elements 194 and 196 will electrically engage the conductors of the twin-lead conductor.

The casing 210 is of course provided with a wedge shaped portion as at 216 so as to enable it to be wedgingly received on the plate 190 and the portion 192 serves as a stop therefor.

Referring now to the embodiment of the invention as is shown in Figures 5 and 6, it will be noted that the antenna lead-in connector includes a body 260 formed of any suitable material, preferably of an electrically insulative plastic having a contact assembly as indicated at 262 embedded therein which contact assembly not only includes a pair of converging tooth plates 264 but a pair of prong connectors 266 having end portions 268 adapted to resiliently engage other electrical contacts. The body has a cover plate 270 hingedly secured thereto as at 272. Further, the cover plate 270 is provided with a wedge-shaped portion 274 which is adapted to engage and press twin-lead conductor onto the tooth plates 264. It is noted that the tooth plates 264 are disposed in a recess 276 in the body 264. The wedge-shaped portion 274 extends into the recess 276 and is provided with three arcuated or under-cut surfaces as at 278, 280, and 282 for allowing various size or thicknesses of twin-lead conductor to be inserted into the recess and into engagement with the tooth plates 264. A latch 286 is provided for holding the top plate 270 in a closed position.

Referring now to the embodiment of the invention as is shown in Figure 7, it will be noted that herein there is disclosed a body 220 which is provided with a wedge shaped recess 222 therein for reception of the contact assembly provided therein. The contact assembly includes a plurality of tooth plates 226 embedded in the body or plate 220. A resilient pressure plate has a hinge portion 228 embedded in the plate 224 and is adapted to overlie the twin-lead conductor. This pressure plate 228 may be formed of metal or plastic as may be desired so as to provide electrical insulation as may be found necessary. It is noted that the twin-lead 234 may be inserted in the position as is shown in Figure 7 or the portion 228 of the pressure plate 222 may be apertured for reception of the twin-lead conductor.

The terminals 236 of any suitable configuration are integrally formed with the toothed electrical contact elements 226.

A further embodiment of the invention includes an insulative plate as is shown in Figure 8 and indicated at 240 which has a pair of electrical contact elements embedded therein terminating in terminals 242 and 244 of any suitable configuration. These electrical contact elements are similar to the contact elements 194 and 196 and are positioned in much the same manner. A pressure plate 246 is hingedly secured by means of a pin 248 to the insulative plate 240 and by means of a catch 250 which seats in a recess 252 in the plate 240, the pressure plate 246 may be locked in overlying relationship with respect to any twin-lead conductor inserted through the slot 254 provided in the pressure plate 246. In this manner, the pressure plates provide part of the means for lockingly holding the twin-lead conductor in position.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. An antenna lead-in connector comprising an insulative body defining a rectangular channel which opens through one end and one surface thereof, a pair of contact elements in the form of elongated plates embedded in said body, tooth portions on each of said plates including teeth of graduated length extending into said channel, said plates converging toward each other where-

by each of said plates will intersect a conductor of a lead-in, said graduated teeth being of a greater length toward the converging ends of said plates to engage the lead-in insulation between the conductors thereof, a pressure plate having a wedge-shaped portion arranged in overlying relationship with respect to said toothed portions in said channel, and means hingedly securing said pressure plates to said body at said end which has said channel opening.

2. The combination of claim 1 wherein the diverging ends of said plates extend from said body and constitute plug prongs, and a latch carried by said pressure plate remote from said hinged end for detachable connection to said body.

3. The antenna lead-in connector of claim 2 wherein said channel terminates at a distance inwardly of said body from said end which has said channel opening there-through, to thereby form an abutment to limit the extent of penetration of the antenna wire into said channel.

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