

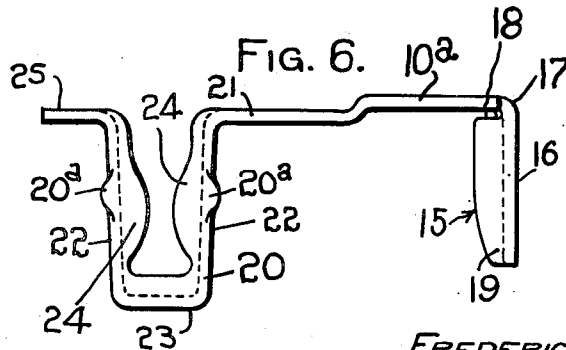
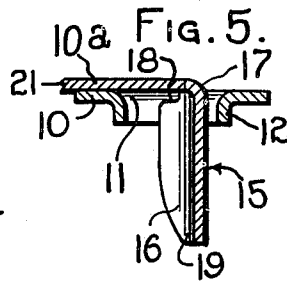
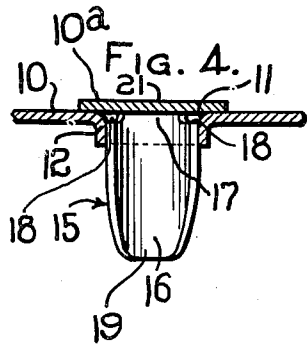
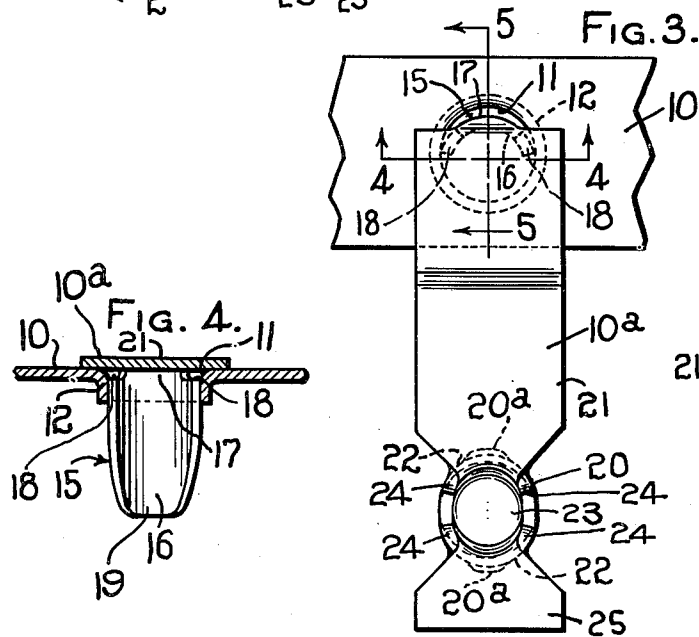
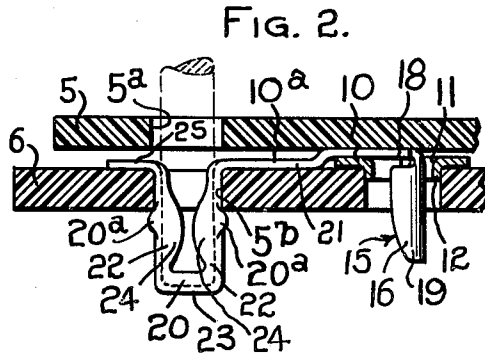
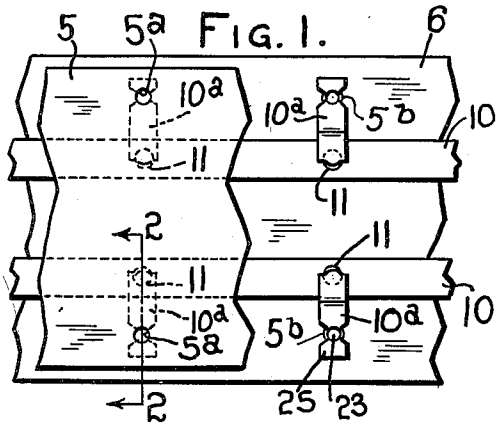
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2,631,184

PANEL MOUNTED ELECTRICAL STRIP CONNECTION

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PANEL MOUNTED ELECTRICAL STRIP
CONNECTION

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The present invention relates to electrical connectors and more particularly to electrical connectors for thin ribbon-like conductors such as are used in certain radio, electronic electrical apparatus.

The practice has arisen among some manufacturers of electrical apparatus, for example radio-receiving or transmission sets, to employ ribbon-like strip conductors secured to or sandwiched between thin panels of insulation. Such ribbon-like strip conductors are conveniently formed of spring brass strips approximately one quarter ($\frac{1}{4}$) inch wide and approximately 0.010 inch in thickness. A plurality of such strips are conveniently secured between insulating panels providing a simple inexpensive construction which will not be subject to wear and short-circuiting as in the case of other systems employing individually insulated conductors.

One of the primary objects of the invention is the provision of an improved solderless connector for bare ribbon conductors of the type above described.

A further object of the invention is the provision of an improved connector for two ribbon conductors in which one conductor is apertured to receive a spring contact fastener connector on the cooperating conductor.

A further object of the invention is the provision of an improved connector for electrical receptacles, such as prong-type sockets, by means of which the receptacle may be readily electrically connected to a cooperating conductor strip.

The above and other objects of the invention will be apparent to persons skilled in the art to which the invention relates from a consideration of the accompanying drawings and annexed specification illustrating and describing a preferred construction.

In the drawings:

Fig. 1 is a plan view partly broken away of a portion of a typical panel installation in which the invention may be used;

Fig. 2 is a greatly enlarged transverse sectional view as taken on the line 2—2 of Fig. 1, and illustrating a typical application of a receptacle embodying the invention;

Fig. 3 is an enlarged plan view of a typical form of conductor connection in which the connector of the invention may be used;

Fig. 4 is an enlarged sectional view as taken on the line 4—4 of Fig. 3, and illustrating a preferred form of connector embodying the invention;

Fig. 5 is an enlarged sectional view as taken on the line 5—5 of Fig. 3 and illustrating the con-

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ductor as viewed at right angles from the position shown in Fig. 4; and

Fig. 6 is an enlarged side elevation of a combined receptacle and connector embodying the invention.

Referring to the drawings a typical installation comprises a plurality of bare ribbon-like strips 10 suitably secured to a panel 5 of insulating material. If desired, the conductor strip may be confined between the panel 5 and a superimposed panel 6.

One feature of the invention resides in the provision of an improved solderless connector between a plurality of conductor strips 10 disposed either in alignment or in angular relation.

According to a preferred form of solderless connector, one of the conductor strips 10 may be apertured as at 11 and provided with an angularly turned edge or extrusion 12, said extruded opening adapted to receive a contact member 15 formed integral with a second conductor 10^a.

The contact member 15 of the conductor 10^a is provided preferably by forming a segmental tongue 16 on the end of the conductor disposed substantially at right angles to and connected to the strip 10^a by a reduced neck portion 17. The marginal side edges of the tongue 16 diverge outwardly from the neck 17 providing shoulders 18, and then taper toward the turned end of the tongue to provide an entering end 19. The chordal dimension between the shoulders 18 is preferably slightly greater than the diameter of the opening 11, so that the shoulder portions 18 will engage the walls or extruded edges 12 under tension and provide an effective electrical connection therewith.

The connector advantageously may be associated with a prong-receiving contact as illustrated in Figs. 1, 2 and 6, for use in installations adapted to receive a pronged electrical device, for example a thermionic tube (not shown) and adapted to be positioned in one of aligned apertures 5^a and 5^b of the insulating panels 5 and 6, respectively.

As illustrated in Figs. 2 and 6, the connector may be formed from an elongated strip 21 of material, for example sheet metal, provided with a tongue 15 at one end and a prong-engaging socket 20 at the opposite end. The socket 20 may be formed by providing a U-shaped portion, the legs 22 of which are angularly disposed with reference to the strip 21 and the bight portion of which forms the base or bottom 23 of the socket. Each of the legs 22 provides a laterally extending element in the form of an embossment 20^a for engagement behind the panel 6. The legs 22 are preferably formed with lateral wings

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24 to provide an encompassing wall to provide a substantially continuous peripheral contact with a prong (not shown), and the leg 22, remote from the strip 21 is preferably outturned as at 25 to provide a support-engaging lip for positioning the socket in the aperture 5 of the supporting panel 3.

It will be understood that when the panels 5 and 6 are assembled with the conductors 10, as illustrated in Figs. 1 and 2, the aperture 5^a of the superposed or cover panel 5 will be in alignment with the aperture 5^b of the supporting panel 6, so that a prong of suitable electrical appliance inserted through the aperture 5^a will engage and make electrical contact with the socket member 20 positioned in the aperture 5^b of the panel 6.

It will be further understood that the strip conductors 10 and 10^a will be prefabricated prior to assembly with the supporting panel 6 as by being apertured as at 11 at desired locations or being provided with a terminal end connector tongue 15 or both. The conductor 10^a or the connector 20 may be readily electrically connected to the conductor strips by simply snapping the tongue 15 in the aperture 11 of the other strip. Inasmuch as the chordal dimension of the tongue 15 exceeds the diameter of the aperture 11, the outer surface of the tongue will engage the extruded wall 12 of the aperture under tension and make an efficient electrical connection therewith.

Although I have illustrated two forms of connector in which the invention may be embodied, I do not intend to be restricted thereto as the scope of the invention is best defined in the appended claims.

I claim:

1. An electrical installation comprising superposed panels of insulating material, one of which is provided with a prong-receiving aperture and the other with an aligned socket contact receiving aperture, a plurality of one-piece, bare strip conductors sandwiched between said panels, one of said conductors having an opening therein, another of said conductors having an angularly disposed prong-receiving contact positioned in the socket contact-receiving panel aperture, an end of said second named conductor overlying the first named conductor and having an integral resilient angularly disposed connector tongue engaged in the opening in the first named conductor and in tensional engagement with the marginal edge thereof and serving to provide a substantial surface contact between said strips.

2. An electrical connector for connection with an apertured conductor having a bare contacting surface surrounding said aperture comprising a one-piece strip having a conductor-contacting surface adjacent one end for surface bearing con-

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tact with the conductor, and an angularly disposed transversely arcuate and resilient tongue depending from an end of said strip adjacent said conductor-contacting surface, said tongue tapering toward its terminal free end and having its maximum chordal dimension greater than the diameter of the conductor aperture to be transversely compressible upon insertion in the aperture of the conductor for maintaining the surfaced end portion of the connector in substantial surfaced electrical contact with the conductor, and a U-shaped prong-receiving socket formed in said connector strip in spaced relation to said tongue.

3. An electrical connection comprising a ribbon-like conductor strip provided with a substantially circular aperture and having a bare contacting surface surrounding said aperture, a second conductor having a conducting surface adjacent one end and an integral angularly extending transversely arcuate resilient segmental tongue adjacent said contacting surface and extending into the aperture of the first named conductor, the normal maximum chordal dimension of said tongue being greater than the diameter of the aperture of the first named conductor and said tongue being tapered toward its terminal end to be compressed upon insertion in the conductor aperture thereby maintaining the surfaced portions of said conductors in electrical contact.

4. An electrical connector as defined in claim 3 wherein the angularly extending tongue is connected to the conducting surfaced end of the second named conductor strip by a reduced neck portion.

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