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L. T. HOLDEN

2,470,618

ELECTRICAL APPARATUS

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FIG. 1

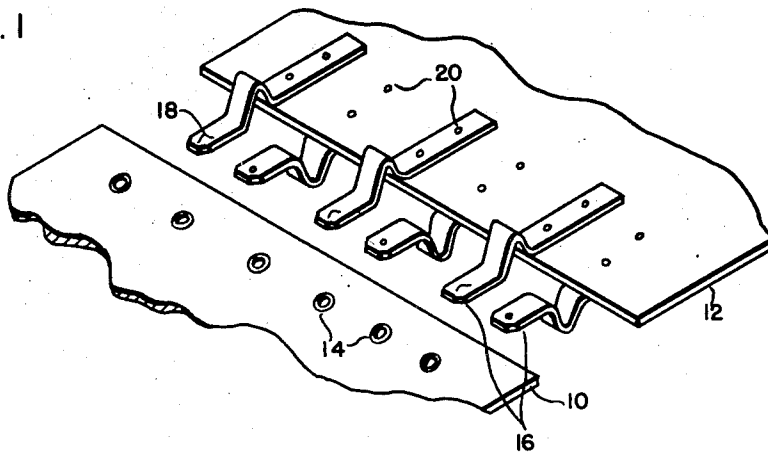


FIG. 2

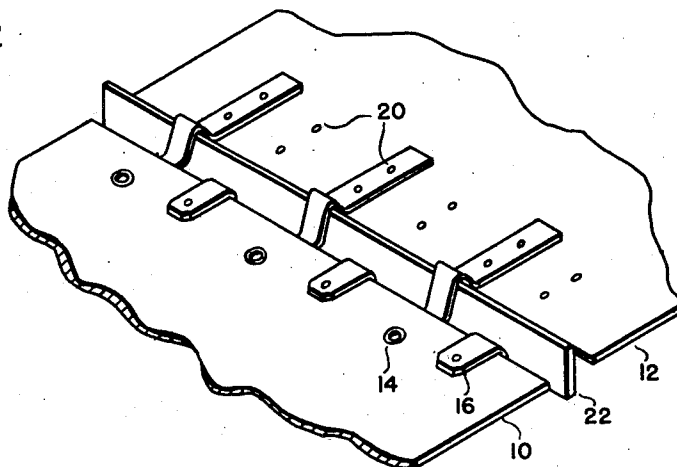
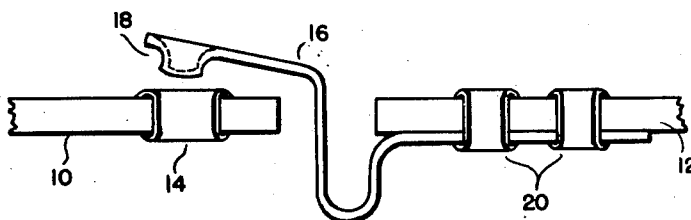


FIG. 3



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4 Claims. (Cl. 173-324)

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This invention relates to electrical apparatus and particularly to electrical connector structures.

The advent of sub-miniature tubes has made practical the use of chassis "cards" on which an electrical assembly or sub-assembly may be mounted and wired for interconnection or connection to other units. It is desirable that such interconnected units shall have not only secure electrical connections, but also a mechanical structure which lends support and stability to the components of the card chassis.

It is therefore an object of this invention to provide a connector structure for electrically and mechanically associating chassis card assemblies or other electrical structures.

A further object is to provide cooperating electrical connector structures which may be easily and quickly joined or separated.

Other objects, features and advantages of this invention will suggest themselves to those skilled in the art and will be apparent from the following description of the invention taken in connection with the accompanying drawing in which:

Fig. 1 is a perspective view of disengaged chassis cards fitted with connectors in accordance with the present invention;

Fig. 2 is a perspective view of the chassis cards in engaged and locked condition; and

Fig. 3 is an enlarged detailed cross-sectional view of cooperating members of a single connector, shown during the joining of the two chassis cards.

Referring now to the drawing, Figs. 1 and 2 illustrate cooperating portions of chassis cards 10 and 12 which may be of insulating material such as Bakelite. Card 10 is provided, a short distance in from one edge, with a series of holes provided with metal eyelets 14. A series of spring metal fingers or straps 16 have their proximal ends secured in alternate manner to the two surfaces of card 12, as shown, and are suitably spaced to engage corresponding eyelets 14 of card 10. The straps 16 are formed with projections 18 near their ends, for engagement, respectively, with the eyelets 14, best seen in Fig. 3. The straps 16 are secured to card 12 by means of rivets 20, and are so mounted that alternate straps may engage opposite surfaces of card 10. Thus, a strap 16 secured to the lower surface of card 12 (as shown in Fig. 3) is adapted to extend over the upper surface of card 10 and make contact with an eyelet 14, and an adjacent strap 16 secured to the upper surface of card 12 is adapted to extend over the lower surface of card 10 and make contact

with an eyelet 14. Each strap 16, secured to the lower surface of card 12, has its distal end sprung downward slightly and each strap, secured to the upper surface of said card, has its distal end sprung upward slightly.

When the fingers or straps 16 mounted upon card 12 are properly engaged with the eyelets 14 on card 10, straps 16 form jaws which by their spring action tend to stay locked in place. This locking effect may be made independent of any spring action, or rendered more secure by providing the straps 16 with opposed U-bends, as shown, and inserting therethrough a locking rod 22 formed of insulating material and dimensioned to make a snug fit.

The connector structure here shown thus functions to provide a strong yet easily separable mechanical connection. Metal eyelets 14 and straps 16 further serve as terminals for circuit connections between the electrical assemblies mounted on chassis cards 10 and 12.

While there has been described what is at present considered to be the preferred embodiment of this invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the scope of the invention as set forth in the appended claims.

What is claimed is:

1. A card chassis for electrical assemblies, comprising at least first and second chassis cards, and means mechanically and electrically interconnecting said chassis cards, said means including a plurality of spaced metal eyelets mounted successively upon opposite surfaces of said first chassis card, a plurality of correspondingly spaced metal straps secured to said second chassis card and adapted to engage said eyelets, each of said metal straps having a U-bend therein, the U-bends of successive straps extending in opposite directions, said straps forming jaws between which said first card and eyelets thereon are engaged, and a locking bar extending through said U-bends and thereby locking said straps in place upon said first chassis card.

2. In an electrical assembly for mechanically and electrically coupling first and second chassis cards which are disposed substantially in a single plane and have adjacent edges opposing each other, the combination of a plurality of straps of springy electrical conducting material disposed in substantially parallel spaced relationship and spanning the said edges, each of said straps having a proximal end portion secured to the first card and having a distal end portion extending

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beyond the said edge of said second chassis card, said straps being secured to said first card at spaced points along its said edge, the distal end portions of successive straps being sprung slightly in opposite directions and provided with oppositely extending eyelet engaging projections, a like plurality of eyelets secured to the second chassis card adjacent its edge aforesaid so as to be lined up respectively with the several straps aforementioned, so that the eyelet engaging projection on each strap may engage one of said eyelets, the distal end portions of successive straps being positioned on opposite sides of the second card, and the spring action of the straps maintaining the projections in separable operable engagement with the respective eyelets.

3. In an electrical assembly as defined in claim 2, wherein each strap is formed with a substantially U-shaped bend intermediate the opposing edges of the two cards, said bends being located substantially in a line and successive bends extending in opposite directions, and a removable locking bar extending through said bends to releasably lock the projections in operable engagement with the respective eyelets.

4. In an electrical assembly for mechanically and electrically coupling first and second chassis cards which are disposed substantially in a single plane and have adjacent edges opposing each other, the combination of a plurality of straps of electrical conducting material disposed in substantially parallel spaced relationship and spanning the said edges, each of said straps having a proximal end portion secured to the first card and having a distal end portion extending beyond

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the said edge of said second chassis card, said straps being secured to said first card at spaced points along its said edge, the distal end portions of successive straps being provided with

- 5 oppositely extending eyelet engaging projections, a like plurality of eyelets secured to the second chassis card adjacent its edge aforesaid so as to be lined up respectively with the several straps aforementioned, so that the eyelet engaging projection on each strap may engage one of said eyelets, the distal end portions of successive straps being positioned on opposite sides of the second card, each strap being formed with a substantially U-shaped bend intermediate the opposing edges of the two cards, said bends being located substantially in a line and successive bends extending in opposite directions, and a removable locking bar extending through said bends to releasably lock the projections in operable engagement with the respective eyelets.

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