

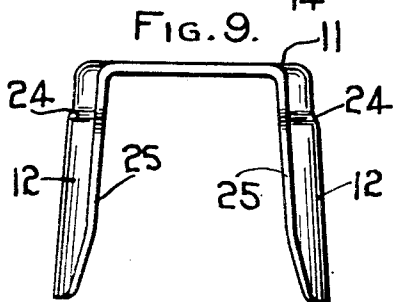
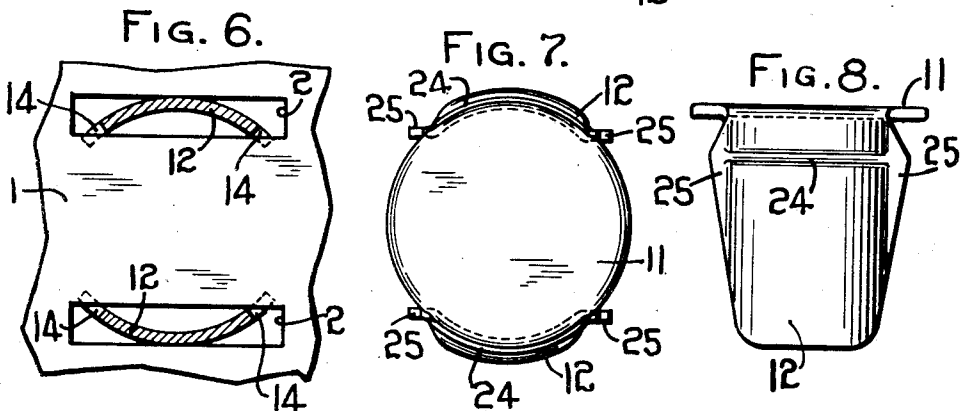
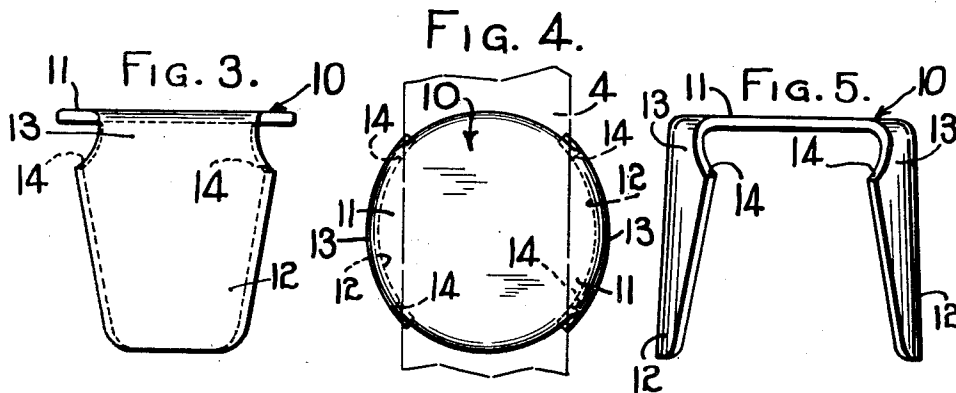
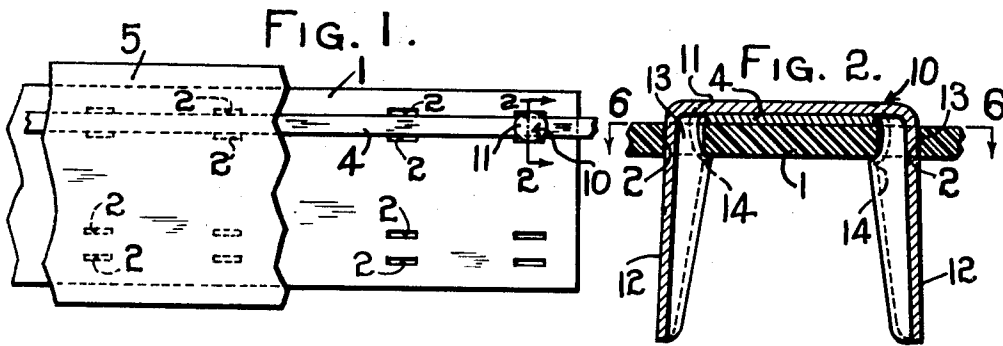
May 8, 1951

F. S. SAMPSON

2,551,970

ELECTRICAL CONDUCTOR INSTALLATION AND FASTENER THEREFOR

Filed Feb. 16, 1948



INVENTOR.  
FREDERICK S. SAMPSON,  
BY *John Todd*  
ATTORNEY.

# UNITED STATES PATENT OFFICE

2,551,970

## ELECTRICAL CONDUCTOR INSTALLATION AND FASTENER THEREFOR

Frederick S. Sampson, Saugus, Mass., assignor to  
United-Carr Fastener Corporation, Cambridge,  
Mass., a corporation of Massachusetts

Application February 16, 1948, Serial No. 8,573

2 Claims. (Cl. 173—324)

1

The present invention relates to electrical conductor installations and to fasteners for securing electrical conductors to a supporting panel, and aims to provide an improved simplified installation as well as an efficient fastener therefor.

It has been the recent practice of some manufacturers of electrical apparatus, for example of radio sets, to employ bare ribbon-like conductors which are secured to a face of or sandwiched between thin panels of insulating material. Such ribbon-like strip conductors are conveniently formed of thin brass strips approximately three sixteenths ( $\frac{3}{16}$ ) of an inch in width and approximately 0.010 inch in thickness. A plurality of such strip conductors are conveniently secured between insulating panels providing a simple and inexpensive construction which will not be subject to undue wear or short-circuiting.

A primary object of the present invention is the provision of a simple and efficient fastener for use with a slotted insulating panel to hold the bare insulating strips in proper place thereon while the necessary circuits and connections are being made.

A further object of the invention is the provision of an improved and novel installation and method of assembling conductor strips with insulating panels.

Other aims and 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 embodiment of the invention.

In the drawings:

Fig. 1 is a plan view of a fragmentary portion of an insulating panel;

Fig. 2 is an enlarged transverse sectional view of the installation as taken on the line 2—2 of Fig. 1;

Fig. 3 is an end elevation of a fastener member for securing a conductor strip to a panel according to one embodiment of the invention;

Fig. 4 is a top plan view thereof;

Fig. 5 is a side elevation of the fastener shown in Figs. 3 and 4;

Fig. 6 is a sectional view as taken on the line 6—6 of Fig. 2, and illustrating the relative position of the fastener legs in the panel slots; and

Figs. 7, 8 and 9 are respectively a top plan view, an end elevation and a side elevation of a modified form of fastener embodying the invention.

Referring to the drawings, the electrical conductor of the present invention comprises a panel

2

of suitable insulating material, for example a phenolic condensation product sheet 1 provided with a plurality of rows of elongated openings 2, preferably arranged in pairs and conforming generally to the course which the conductor 4 is to assume on the panel. The openings 2 are preferably elongated narrow slits and are preferably arranged in pairs spaced apart a distance substantially conforming to the width of the conductor. In some cases the conductors 4 may be sandwiched between opposed panels, for example the panel 1 and a superimposed panel 5, the latter being either perforate or imperforate as desired.

The conductor 4 is preferably a ribbon-like strip of suitable electrical conduction metal, for example spring brass, and conveniently may be approximately three sixteenths ( $\frac{3}{16}$ ) of an inch in width and approximately 0.010 inch in thickness. A suitable length of such strip is laid upon the panel 1 between adjacent rows of openings 2, and may be temporarily held in such position until assembly of the circuits is completed, by suitable fastener means bridging the conductor and engaging the openings 2 of the panel 1.

One form of fastener means suitable for the purpose is illustrated in Figs. 3, 4 and 5 and comprises a substantially U-shaped fastener 10, preferably formed of thin resilient sheet material having a thin flat head 11 of suitable width to extend across to the conductor and angularly extending legs 12 adapted to be engaged in the slits 2. The head may be of generally circular shape and the legs 12 which are of substantial width, depend from peripheral edge portions thereof so as to present arcuate segments, as illustrated in Figs. 4 and 6. The body portions of the legs may be connected to the head 11 by a neck portion 13 of less width than the leg, thus forming shoulders 14 at the opposite upper edges of the legs which are adapted to snap under the opposite face of the panel 1 when a permanent fastening is desired.

The segmental legs 12 are of such width that the segmental depth thereof is greater than the width of the slots 2. Thus when the ends of the fastener legs are inserted in the slots 2 there is three-point contact with opposite sides of the slot as shown in Fig. 6. Application of pressure to force the fastener legs 12 into the slots 2 causes flattening of the legs and tensional engagement with opposite sides of the slot at the three points of engagement above referred to. As the legs 12 preferably taper in width toward their free ends, the tensional engagement is increased as the fas-

3

tener legs are progressively forced into the slots 2.

In Figs. 7, 8 and 9 there is illustrated a slightly modified form of fastener in which the arcuate outer face of the legs 12 is shouldered as at 24 to provide a support-engaging lip. According to this form of the invention the opposite edge portions of the legs 12, particularly in the region of their maximum width may be provided with outturned fins 25, which will have a tendency to bite into the panel material at the ends of the slots 2, rather than the side edges of the slots and thus avoid tearing the sides of the slots and undue enlarging of the width thereof.

In installations where the conductors 4 are to be sandwiched between opposed insulating panels 1 and 5, the fasteners may, if desired, be removed after the assembly of the conductors on the panel 1 and before the panel 5 is to be superimposed thereon. In installations where the conductors 4 remain exposed, the fasteners, of course, are preferably not removed and become permanent fastenings for securing the conductors to the panel.

Although I have illustrated two preferred forms of the invention, and a preferred manner of constructing the conductor panel I do not intend to be restricted to the details thereof as illustrated and described, as the scope of the invention is best defined in the appended claims.

I claim:

1. An electrical installation comprising a panel of insulating material provided with rectangular slots oppositely arranged in pairs, a strip of conducting material disposed between said slots in abutting relation to said insulating material, and a snap fastener member securing said strip of conducting material to said support, said fastener being U-shaped and comprising a head engaging said strip of conducting material, attaching legs extending angularly from said head, said legs being of segmental cross section and formed of resilient material, said legs being deformable

4

toward flattened condition by engagement with the material at opposite side edges of the respective slots through which they are forced, and said legs having shoulder elements for engagement behind said insulating material.

2. An electrical installation comprising a panel of insulating material provided with rectangular slots oppositely arranged in pairs, a strip of conducting material disposed between said slots in abutting relation to said insulating material, and a snap fastener member securing said strip of conducting material to said support, said fastener being U-shaped and comprising a head engaging said strip of conducting material, attaching legs extending angularly from said head, said legs being of segmental cross section and formed of resilient material, said legs being deformable toward flattened condition by engagement with the material at opposite side edges of the respective slots through which they are forced, and each of said legs having a neck portion of reduced width connecting the same to said head providing shoulders adjacent said neck portions for engagement behind said insulating material.

FREDERICK S. SAMPSON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
285,640	McGill	Sept. 25, 1883
1,563,731	Ducas	Dec. 1, 1925
1,965,882	Cook	July 10, 1934
2,147,943	Churchill	Feb. 21, 1939
2,188,026	Wiley	Jan. 23, 1940
2,312,181	Matthews	Feb. 23, 1943

FOREIGN PATENTS

Number	Country	Date
218,300	Switzerland	Apr. 16, 1942