

Nov. 28, 1950

B. F. LARSEN
SOLDERLESS CONNECTOR

2,532,068

Filed Dec. 23, 1948

2 Sheets-Sheet 1

FIG. 1

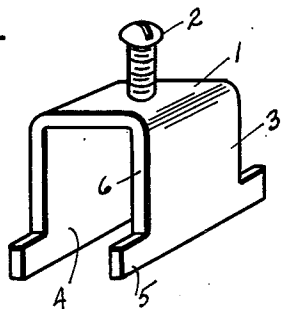


FIG. 2

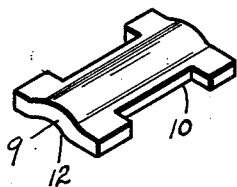


FIG. 3

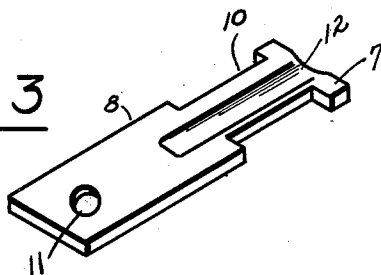


FIG. 4

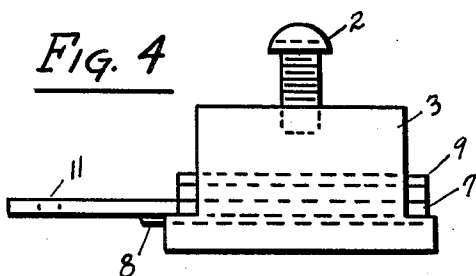


FIG. 6

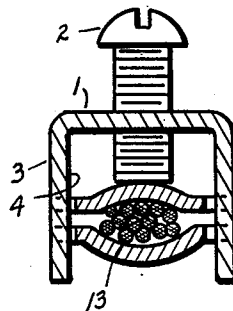
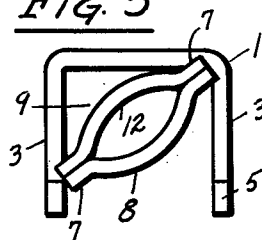


FIG. 5



Inventor

Bruno F. Larsen

Ralph Hammas

Attorney

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Fig. 7

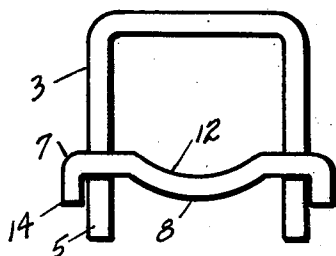


Fig. 8

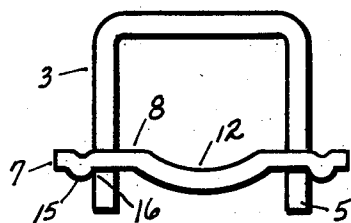
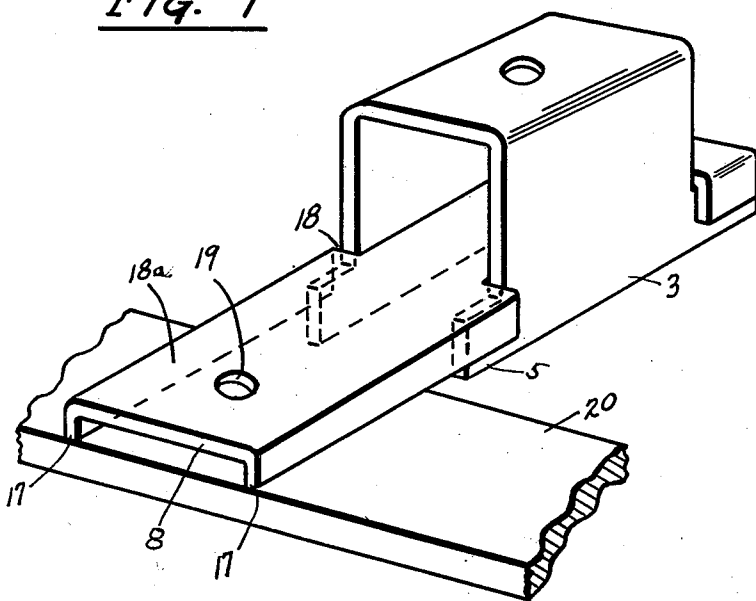


Fig. 9



Inventor

Bruno F. Larsen

By

Ralph Hammar

Attorney

UNITED STATES PATENT OFFICE

2,532,068

SOLDERLESS CONNECTOR

Bruno F. Larsen, Erie, Pa., assignor to Pelham Electric Manufacturing Corp., Erie, Pa., a corporation of New York

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6 Claims. (Cl. 24-135)

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This invention is intended to provide an improved solderless connector useful in making connections to stranded or solid conductors. Advantages include simplicity of construction and ease of manufacture and assembly. Further objects and advantages appear in the specification and claims.

In the drawing, Figs. 1, 2, and 3 are perspectives of parts of the connector; Fig. 4 is a side view with the parts in position to receive a conductor; Fig. 5 is an end view showing the manner of assembly; Fig. 6 is a section showing the clamping action on a conductor; Figs. 7 and 8 are fragmentary views of modifications, and Fig. 9 is a perspective of another modification.

The connector comprises a channel shaped member having a base 1 threaded to receive a clamping screw 2 and flanges 3 having opposed faces 4 for receiving a conductor therebetween. This channel shaped member can be conveniently formed of flat strip metal. Because the base does not carry current, it need not be copper but may be of any suitable material such as cadmium plated steel. At the lower ends of the flanges are integral projections 5 extending endwise from the edges 6. In the assembled position, the projections 5 underlie projections 7 on contact members 8, 9 having notches 10 slidably embracing the surfaces 4 and edges 6 of the flanges. The contact member 8 which carries current should be of metal having good electrical conductivity such as copper. The contact member 9 may be of steel. The contact member 8 may be provided with terminal connection indicated at 11. It is ordinarily more convenient to have the contact member 8 beneath the contact member 9. The opposed faces of the contact members may have grooves 12 for receiving a conductor 13. The lowermost contact member has its projections 7 resting on the projections 5 and closing the space between the ends of the flanges. Upon tightening the screw 2, a downward pressure is exerted on the uppermost contact member providing the clamping or contact pressure against the conductor 13. This clamping pressure is withstood by the underlying projections 5 on the flanges 3.

The connector is assembled by retracting the screw 2 and inserting the contact members 8, 9 between the flanges 3 at an angle as indicated in Fig. 5. The notches 10 at one side of the contact members embrace the upper part of the channel shaped member permitting the projections 7 at the other side of the contact members to clear the projections 5. When the screw is

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tightened sufficiently so that the contact members cannot reach the angled position of Fig. 5, the parts cannot be disassembled although there is sufficient clearance between the contact members to permit insertion of a conductor therebetween.

In Figs. 7, 8, and 9 are shown modifications, each of which use the channel shaped member 3 and contact member 9 of the previously described construction. In the Fig. 7 construction, the contact member 8 has its projections 7 bent downwardly so as to embrace the outer surfaces of the projections 5 on the flanges 3. The downward extensions 14 assist in preventing spreading of the flanges 3 under extreme contact pressure. The same resistance to spreading of the flanges 3 is obtained in the modification shown in Fig. 8 in which the projections 7 on the contact member 8 are provided with projections or bosses 15 which engage the outer corners 16 of the projections 5. Spreading of the flanges 3 under contact pressure is effectively resisted by the bosses 15. The bosses 15 may be formed by a stamping operation as indicated.

In the modification shown in Fig. 9 the contact member 8 is made from channel-shaped copper having downwardly extending side flanges or ribs 17 which depend along the outer surfaces of the projections 5 or at least cooperate with the outside corners 16 and effectively prevent spreading of the flanges 3 under contact pressure. The formation of the contact member 8 merely requires the cutting of notches 18 of the same size as the notches 10. The terminal lug portion 18a of the contact member has a bolt hole 19 by which the lug may be clamped against a bus bar 20. When the terminal connection is made, the lower edges of the flanges 17 provide line contact which effectively prevents heating. The assembly of the contact members 8 and 9 into the channel shaped member and the clamping action on a conductor is the same as in the previously described construction.

What I claim as new is:

1. In a solderless connector, a channel shaped member having spaced flanges extending from a base, the channel being open at at least one end and the flanges having opposed faces for receiving a conductor therebetween, contact members between the flanges having notches therein slidably embracing the opposed faces and the end edges of the flanges, projections underlying the contact members extending endwise outward from each end edge of the flanges, and a clamping screw in the base of the channel for forcing

the contact members together so as to develop contact pressure on a conductor inserted between the contact members.

2. In a solderless connector, a channel shaped member having spaced flanges extending from a base, the channel being open at the bottom and at at least one end and the flanges having opposed faces for receiving a conductor therebetween, a contact member having notches slideably embracing the opposed faces and the end edges of the flanges, projections underlying the contact member extending outward from the end edges of the flanges, the contact member resting on said projections and closing the space between the ends of the flanges, and a co-operating contact means for forcing a conductor against the contact member and for forcing the contact member against said projections.

3. In a solderless connector, a channel shaped member having spaced flanges extending from a base, the channel being open at at least one end and the flanges having opposed faces for receiving a conductor therebetween, a terminal lug of channel section having downwardly extending side flanges, notches in the lug slideably embracing the opposed faces and the end edges of the flanges on said member, projections extending endwise outward from the flanges on said member underneath the terminal lug and between the downwardly extending side flanges of the terminal lug, and a co-operating contact means for forcing a conductor against the lug and for forcing the lug against said projections.

4. In a solderless connector, a channel shaped member having spaced flanges extending from a base, the channel being open at at least one end and the flanges having opposed faces for receiving a conductor therebetween, projections extending endwise outward from the end edges of the lower ends of the flanges, a contact member between the opposed faces of the flanges having notches slideably embracing the opposed faces and the end edges of the flanges and having portions resting on the upper edges of the projections and co-operating therewith to prevent spreading of the flanges under contact pressure, and a co-operating contact means for forcing a conductor against the contact member and for

forcing the contact member against said projections.

5. In a solderless connector, a channel shaped member having spaced flanges extending from a base, the channel being open at at least one end and the flanges having opposed faces for receiving a conductor therebetween, projections extending endwise outward from the end edges of the lower ends of the flanges, a contact member between the flanges having notches therein slideably embracing the opposed faces and end edges of the flanges and having portions resting on the upper edges of the projections and other portions projecting below said upper edges to provide stops limiting the spreading of the flanges, and a co-operating contact means for forcing a conductor against the contact member and for forcing the contact member against said projections.

6. In a solderless connector, a channel shaped member having spaced flanges extending from a base, the channel being open at at least one end and the flanges having opposed faces for receiving a conductor therebetween, a contact member between the opposed faces of the flanges having notches therein slideably embracing the opposed faces of the flanges and the end edges of the flanges, projections underlying the contact member extending endwise outward from the end edges of the flanges, and a clamping screw extending through the base of the channel for forcing a conductor against the contact member.

BRUNO F. LARSEN.

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