

March 19, 1935.

H. A. DOUGLAS

1,995,115

CONNECTER

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Fig. 1

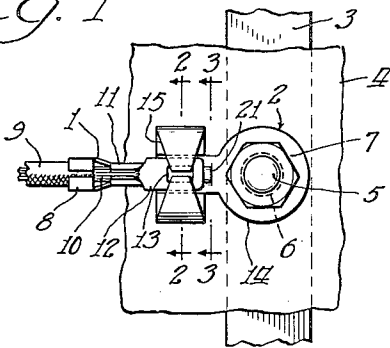


Fig. 2

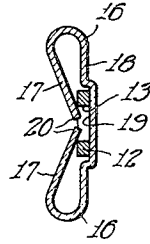


Fig. 3

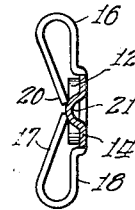


Fig. 4

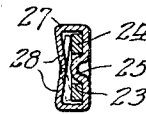
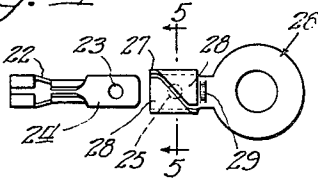


Fig. 5

Fig. 6

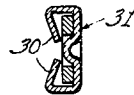
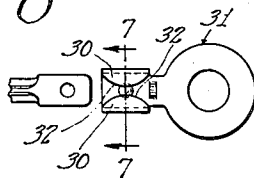


Fig. 7

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UNITED STATES PATENT OFFICE

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CONNECTER

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Application June 2, 1932, Serial No. 614,882

4 Claims. (Cl. 173-269)

This invention relates to connectors more particularly for electrical circuit conductors.

The invention is particularly useful in switchboards for telephone exchanges and the like.

5 Among other objects, the invention aims to provide interengaging members which may be economically formed entirely of sheet metal and a series of which may be associated with a fixed conductor such as a bus bar, for example, 10 the interengaging members being firmly but yieldingly secured together to be readily separable when required. Other applications and advantages will be readily apparent to those skilled in the art.

15 The invention will be more fully explained by reference to the accompanying drawing, in which—

Figure 1 is an assembled view of a preferred form of connector embodying my invention;

20 Figure 2 is a section taken on the line 2—2 of Figure 1;

Figure 3 is a section taken on the line 3—3 of Figure 1;

25 Figure 4 is a modified form of connector, the interengaging members being shown in separated relation;

Figure 5 is a section taken on the line 5—5 of Figure 4 showing the interengaging members in interengaged relation;

30 Figure 6 is a view of a further modified form; and

Figure 7 is a section taken on the line 7—7 of Figure 6 showing the interengaging members in interengaged relation.

35 In the illustrative connector shown in Figures 1 to 3 inclusive the interengaging members 1 and 2 may be one of a series of such connectors associated with a fixed conductor such as the bus bar 3 carried by a suitable insulating mounting 4. The member 2 and the bus bar 3 may be 40 clamped together and to the mounting 4 by means of a bolt 5 which passes through the bus bar 3 and the mounting 4 and through a suitable aperture 6 which may be punched in the member 2, a clamping nut 7 being screwed 45 upon the bolt 5.

The interengaging members 1 and 2 are advantageously formed of sheet metal such as brass which has some resiliency. In accordance 50 with the invention, the interengaging members have cooperating transverse shoulders which are yieldingly maintained in longitudinal alignment to prevent accidental separation of the members. Each of the members 1 and 2 desirably has a 55 flat portion at one of its ends and a folded por-

tion at its other end. The folded portion 8 of the member 1 is conveniently folded to cylindrical form to receive the insulated wire 9 which may have its end 10 stripped of insulation to be received in the folded portion 11 of the member 1 also folded to somewhat cylindrical form, but of reduced diameter with respect to the folded portion 8 to snugly grip the wire 10. The wire 10 and member 1 may be soldered together for further security, if desired. The flat portion 12 of the member 1 is desirably elongated as shown and is recessed; for instance, it may have a longitudinal slot 13 punched therein, the ends of the slot providing transverse shoulders on the flat portion 12.

15 The flat portion 14 of the member 2 which receives the bolt 5 therethrough is conveniently of generally circular shape, while the folded portion 15 of said member is bent upon itself to form a spring clip between the sides of which the flat portion 12 of the member 1 is received. In this instance, the portion 15 is bent along its longitudinal edges 16 to form two spring tongues 17 which form one side of the clip opposite to the side 18 formed by the body of the portion 15. The side 25 18, being as here shown considerably wider than the flat portion 12 of the member 1, may be advantageously channeled as at 19 to receive this portion 12 and guide it in the clip. The free ends 20 of the tongues 17 are normally spaced from the side 18 of the clip a distance less than the thickness of the flat portion 12, so that this portion is received in the clip against the pressure of the tongue 17 which thus yieldingly retains the member 1 in interengagement with the member 2. To 35 further insure this interengagement I have shown the tongues 17 tapered to cause their free ends 20 to be narrower than the length of the slot 13 and to closely approach each other proximate a median line passing through the channel 19, flat portion 12 and slot 13. The free ends 20 of the tongues 17 are thus received in a cutaway portion of the portion 12 represented by the slot 13 which thus provides a detent-receiving recess for the detents here represented by the free ends 20, 45 the ends 20 of the tongues thus providing transverse shoulders on the clip 15 which cooperate with the transverse shoulders provided by the ends of the slot 13 to prevent accidental separation of the members 1 and 2. The member 2 may conveniently be provided with a struck up portion 21 against which the portion 12 of the member 1 abuts when the ends 20 of the tongues 17 are received in the slot 13, thus limiting the ex- 55

tent of insertion of the member 1 in the member 2.

In the modified form of connector shown in Figures 4 and 5, the interengaging member 22 is similar to the member 1, but may have a round hole 23 punched in the flat portion 24 thereof which receives a detent portion 25 of the other interengaging member 26. The portion 27 of the member 26 is shown folded to form a spring clip which includes the spring tongues 28. The tongues 28 may be tapered as shown to pass each other instead of merely approaching each other as shown in the previous figures. So constructed and arranged the portion 27 of the member 26 may be made of substantially the same width as the portion 24 of the member 22 which is snugly received therein and thus is guided to place the detent 25 and detent recess 23 in register. A struck up portion 29 on the member 26 may limit the extent of insertion of the portion 24 in the portion 27 to a point where the detent and detent recess are in register as described.

In the further modification shown in Figures 6 and 7 the spring tongues 30 of the interengaging member 31 may have their free ends 32 arcuate to approach each other in the region of a median line passing through the interengaging members, the parts being otherwise similar to the arrangement shown in Figures 4 and 5.

Such changes may be made as fall within the scope of the following claims without departing from the invention.

I claim:

1. In an electrical connector, the combination with a metal member having a flat portion at one end, said portion being elongated longitudinally and having a recess therein providing transverse shoulders on the flat portion; of a spring metal member having its longitudinal edge portions

folded upon itself to provide a spring clip receiving the flat portion by a telescoping sliding action, the spring metal member where folded being in the form of a pair of oppositely disposed transversely tapering spring tongues directed toward each other providing one side of the clip and pressing upon the flat portion, said flat portion being snugly received between the tongues and the other side of the clip opposite the tongues; and the ends of the tongues forming transverse tongue shoulders on the clip to be received in said recess of the flat portion and resiliently maintained by said tongues in longitudinal alignment with the transverse shoulders of the flat portion to cooperate therewith to yieldingly retain the flat portion in interengagement with the clip, said flat portion shoulders being movable into and out of said cooperating alignment against the resiliency of the tongues.

2. The structure of claim 1 wherein the clip is substantially wider transversely than the flat portion and the side of the clip opposite the spring tongues has a channel therein receiving the flat portion.

3. The structure of claim 1 wherein the clip is provided with a stop to limit the insertion of the flat portion to insure the interengagement of the shoulders of both members.

4. The structure of claim 1 wherein the clip is substantially wider transversely than the flat portion and the side of the clip opposite the spring tongues has a channel therein receiving the flat portion, and wherein the bottom of the channel is struck up to form a stop to be engaged by the end flat portion when the ends of the tongues have been received within the recess in the flat portion.

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