April 18, 1944. W. G. DONALDSON 2,347,089

ELECTRICAL OR MECHANICAL CONNECTOR

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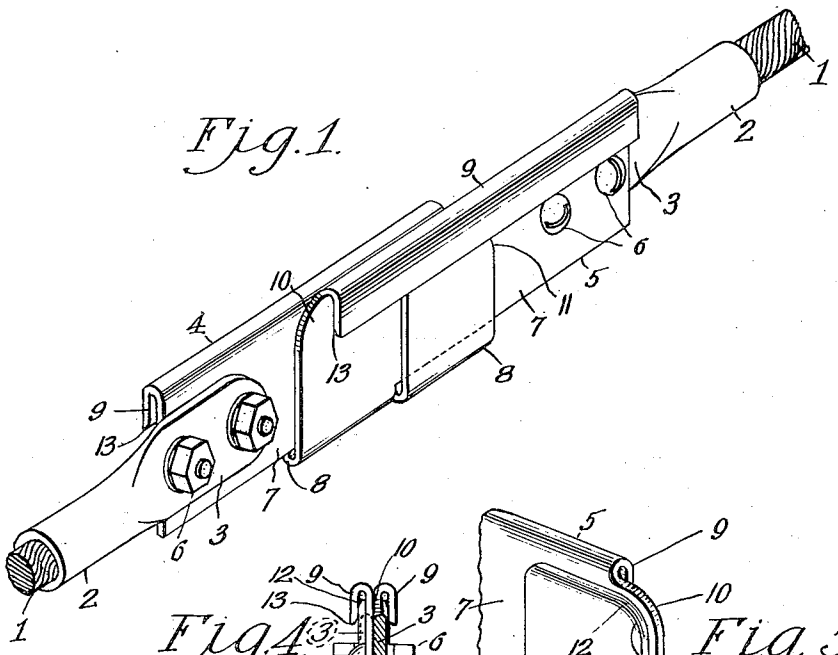


Fig. 1.

Fig. 4.

Fig. 5.

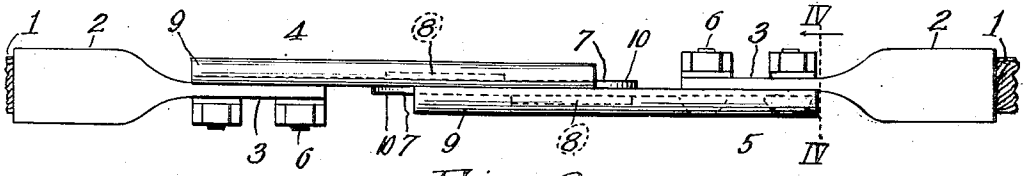


Fig. 2.

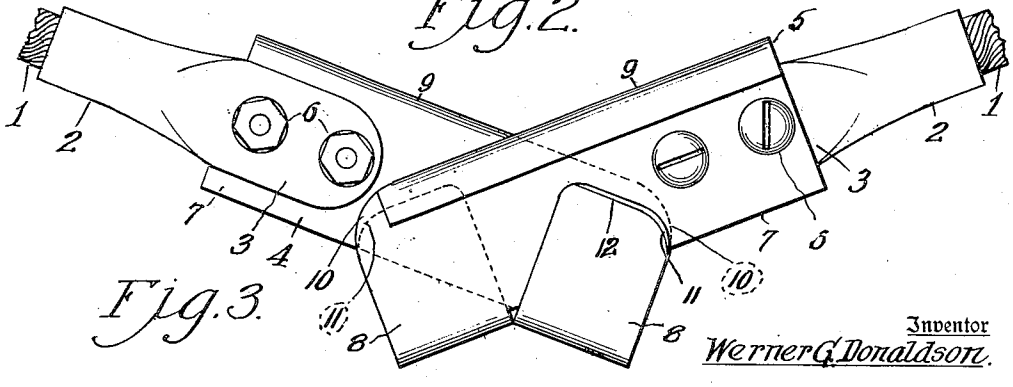


Fig. 3.

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ELECTRICAL OR MECHANICAL CONNECTOR

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Application May 10, 1943, Serial No. 486,443

1 Claim. (Cl. 287—64)

This invention relates to appliances of that type used chiefly for connecting line sections of electric cables, but which may be employed in other connections. Specifically the invention relates to a type of connector comprising two members interlocked to resist separation by relative transverse movement or by longitudinal movement, and capable of being interlocked together or detached from each other only through relative rotative movement of the members. Connections of the type mentioned consisting of a relatively long, narrow and thin shank, and a laterally-offset hook springing from a longitudinal edge of the shank and engaging flatwise the shank of the companion member, have been found defective in that the shanks and hooks are susceptible of distortion by lateral bending to such extent as to result when disposed in interlocked relation, in failure to establish a good and dependable contact of large area between the shanks of the members, or to destroy or impair an initially good contact.

In my improvement I have three objectives: to stiffen the shanks of the members; to insure a more efficient and dependable flatwise contact of the members; and to guard against the possibility of the conventional hook elements or either of them from spreading through lateral distortion or bending and reducing or weakening the contact when the two members are interlocked together in operative relation, and I obtain such desirable results by providing the shank of each member with a longitudinal hook disposed at the edge of the shank opposite to the edge thereof from which the conventional hook projects and facing or opening reversely with respect to the latter, the arrangement being such that the free end or edge of each conventional hook shall, when the members are brought in lateral flatwise crossed contact and rotatively or pivotally brought into longitudinal alinement with the cable sections, fit within the hook of the companion member at the opposite edge from its conventional hook, and be held by the latter in flat contact with its shank with a clamping relation due to the fact that the members are of resilient material, such as copper, having a resilient property, the inner edges of the shank hooks or the outer free edges of the other hooks, or both, being slightly rounded or beveled to cause the engagement to occur with a wedging action and the conventional hooks to be clamped flatly against the shanks as well as being overlapped by the receiving hooks and thus prevented from being sprung or bent outward from proper contact with the shanks.

With the objects set forth in view, the invention consists in certain new and useful features of construction and combinations of parts as hereinafter described and claimed; and in order that it may be fully understood, reference is to be had to the accompanying drawing, in which:

Figure 1 is a perspective view of a connector embodying the invention, as applied to two sections of a cable.

Figure 2 is an edge view of the same.

Figure 3 is a side elevation with the two members disposed as they are being secured together or disconnected.

Figure 4 is a section on the line IV—IV of Figure 2.

Figure 5 is a fragmental perspective of one of the members of the connector.

Referring now to the drawing in detail, 1 indicates two spaced and similar sections of a line cable, and secured in any suitable manner on the adjacent ends of said sections, are sockets 2, provided with flattened ends 3, respectively fitted against the remote ends of two similar members 4 and 5, constituting the connector, the two members fitting, when in assembled or operative relation, in overlapping connection between the points where the flattened ends of the sockets are bolted as at 6, or otherwise firmly secured, to said member.

Each connector member is in the form of a shank 7, of relatively long, narrow and thin resilient material of good conductor material, such as copper, if for use as a part of an electric circuit. Each also is provided along one of its longitudinal edges at the end remote from its connector socket, with a laterally-offset hook 8, and along its other longitudinal edge with a narrow hook 9, of substantially the same length as the shank, one function of said hook being to stiffen the member against distortion by lateral bending. At its free end adjacent the hook, the shank is slightly extended beyond the hook and terminates in a rounded corner, as at 10, to accommodate a narrow space between the hook 8 of the companion shank and the flattened end of the socket connected to said shank. The hooks 8 also have rounded corners as at 11, to conserve space between said hook and the bolt heads adjacent thereto.

The two hooks of each member spring from opposite longitudinal edges and stand at opposite sides thereof, and open or face in reversed directions, and it will also be noted that when in assembled position, the two hooks 8 spring from corresponding longitudinal edges of the

shanks, and the two hooks 9, from the other longitudinal edges of the shanks, and that the bridge or bent portions of the hooks 8, when in assembled position, are adapted to abut each other and thus guard against disconnection of the members in the event a pulling strain occurs tending to effect disconnection, as for example through sagging of the cable sections.

To insure a relatively large area of dependable flatwise contact between the shanks, the channels of hooks 9, correspond in width to the thickness of the material, particularly that of the hooks 8, and one edge of at least one of each of the pairs of hooks 8—9, which come into engagement when the members are fitted operatively together crosswise preliminary to effecting their interlocking connection, is rounded or beveled so that the engagement of said hooks shall be of a wedging character and the narrow and stiffer hooks 9, shall clamp the hooks 8 and the shanks firmly together. As shown, both hooks are beveled, the bevel on hooks 8 and 9, being respectively identified by reference characters 12 and 13.

To assemble the two members together so that each shall form a longitudinal extension for the cable to which it is attached, they are arranged flatly together in crosswise relation with the hooks 8 partially receiving the shanks 7, as indicated by Figure 3. Force is then applied to effect pivotal movement of the members, the bent or bridge portions of the hooks 8 abutting together and constituting the fulcrum point of such movement, which, before completion, results in the entrance by wedging action, of hooks 8 into the channels of the hooks 9, and the clamping of the shanks firmly together.

When the interlocking of the members is completed with the members forming a straight connection between the cable sections, the hooks 9, not only guard against lateral distortion or bending of the shanks, but also perform the same function for the hooks 8, a possibility always present and occasionally experienced with connectors of the type under consideration lacking the feature of the clamping of the hooks against the shanks. The separation of the members can be effected only by reversing the pivotal manipulation required to interlock them together.

From the above description and drawing, it will be apparent that I have produced a connector embodying the features of advantage set forth as objectives, and which is susceptable of modification in minor particulars, without departure from the spirit and scope of the appended claim.

I claim:

A connector composed of two relatively long, narrow and thin strips of resilient material fitting sidewise flatly together in overlapped relation for a substantial portion of their length and provided at corresponding longitudinal edges with narrow longitudinal hooks of substantially the full length of the strips, the hooks projecting laterally in opposite directions; the overlapping ends of the shanks of the strips having hooks springing laterally in opposite directions from their other longitudinal edges and projecting into the channels of the first-named hooks of the companion shanks respectively.

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