

An electrical connector assembly and a latching member for such an assembly

We have disclosed in DE—A1—2,819,868, an electrical connector assembly comprising an insulating housing having a mating face and a wire-receiving face, side walls and end walls extending between these faces, a plurality of terminal-receiving cavities extending through the housing from the wire-receiving face to the mating face, and each containing an electrical terminal having a wire-receiving portion adjacent to the wire-receiving face, the housing having wire-admitting openings to permit wires received in the wire-receiving portions of the terminals to extend from the housing laterally of the cavities; and cover means detachably interengageable with a portion of the housing so as to be in covering relationship with the wire-receiving face thereof; the cover means comprising end parts each comprising a substantially rectangular web from each of two opposite margins of which extends a flange, these flanges extending from the margins of the web in the same direction as one another.

This known connector assembly is intended to be mated with juxtaposed terminal posts extending from a panel. The present invention is intended to provide means for mounting the housing in an opening in a panel so that the assembly can be disengageably mated with a complementary electrical connector in accordance with common wiring practice. The cover means of the known assembly cannot serve this purpose. Multi-terminal electrical connectors having latch arms formed integrally therewith and by means of which they can be mounted in panels, are known, for example, from FR—A—2,153,752, CH—A5—561,965, US—A—2,891,103, US—A—3,179,738, US—A—3,337,865, US—A—3,514,743 and US—A—3,573,716. However, to provide latch arms formed integrally with a connector according to DE—A1—2,819,868 would be to forgo desirable features of the connector. For example, one important advantage of the connector of DE—A1—2,819,868 is that wires can be connected to the terminals of the connector by means of automatic or semi-automatic wire insertion machines as disclosed, for example, in US—A—4,137,624.

According to one aspect of the invention, an electrical connector assembly according to the first paragraph of this specification is characterised in that each end part comprises an end wall extending from one of the two adjacent margins of the web in the same direction as the flanges, the web, the flanges and the end wall co-operating to define a pocket for receiving an end of the housing, each flange having a projection directed inwardly of the pocket, a latch arm extending from the end wall in the same direction thereas and having on its side remote from the web a latching shoulder positioned beyond the end wall, the latch arm being flex-

ible transversely of the plane of the end wall and the latching shoulder facing the web, the cover means comprising an extruded central portion covering the central part of the wire-receiving face of the housing and two end pieces in the form of separate mouldings, which constitute said end parts, flanges on the central portion and the flanges on the end parts engaging over projections on the side walls of the housing.

The said central portion can conveniently be cut to length from a plastics extrusion.

According to another aspect of the invention, a moulded thermoplastics latching member for assembly to an elongate, substantially, rectangular, electrical connector housing having a mating face a wire-receiving face, and a plurality of terminal-receiving cavities extending between these faces, the latching member comprising a hooked flexible latch arm extending from a body portion of the latching member, is characterised in that the body portion comprises a substantially rectangular web from each of two opposite margins of which extends a flange, the flanges extending from the margins of the web in the same direction as one another, an end wall extending from one of the two adjacent margins of the web in the same direction as the flanges, the web, the flanges and the end wall co-operating to define a substantially rectangular pocket for receiving an end of the housing, each flange having a projection directed inwardly of the pocket, the latch arm extending in the same direction as the end wall and having on its side remote from the web, a latching shoulder, positioned beyond the end wall, the latch arm being flexible transversely of the plane of the end wall and the latching shoulder being substantially parallel to the web.

For a better understanding of the invention reference will now be made by way of example to the accompanying drawings in which:—

Figure 1 is an enlarged longitudinal sectional view of an electrical plug connector;

Figure 2 is a fragmentary perspective view of mounting means for the connector;

Figure 3 is a plan view showing the plug connector when mounted in the opening in a panel with the aid of the mounting means of Figure 2, which has been assembled to the plug connector;

Figure 4 is a perspective, partially exploded, view showing an assembly comprising an electrical plug connector mated with an electrical socket connector, the plug connector being mounted in an opening in a panel with the aid of mounting means;

Figure 5 is a view taken on the lines V—V of Figure 4;

Figure 6 is a partially exploded fragmentary plan view of Figure 4 shown partly in section; and

Figure 7 is a perspective view of insulating housings of the plug connector and the socket connector of Figures 4 to 6.

As shown in Figure 3, an electrical connector assembly 2 comprises an electrical plug connector having an insulating housing 4 and mounting means in the form of a tripartite cover means 142, 156, described below, mounted over a wire receiving face 10 (Figure 1) of the housing 4.

The housing 4 is in the form of a rectangular body moulded from thermoplastics material, for example a filled nylon, and has a mating face 8, directed oppositely to the wire-receiving face 10, side walls 12 and 14, and end walls 16 which extend between the faces 8 and 10. A plurality of terminal-receiving cavities 18 (Figure 1) extend through the housing 4 between the faces 8 and 10, each cavity 18 having a pin-receiving opening 20 at the mating face 8 and a larger, wire-receiving opening 21 at the wire-receiving face 10. A terminal 22 contained in each cavity 18, one of which cavities is shown in Figure 1, has a wire-receiving portion proximate to the wire-receiving face 10, and comprising a bight 24 from which arms 26 and 28 extend towards the mating face 8. The arm 26 is substantially straight while the arm 28 has, intermediate its ends, and inwardly bowed contact portion 30 part of which extends obliquely towards the arm 26, and part 32 of which extends obliquely away from the arm 26. A contact pin 114 of a mating connector (not shown) is received between the arms 26 and 28.

As shown in Figure 1, each terminal 22 is supported in its cavity 18 by shoulders 34 provided on opposed internal walls 36 of the cavity 18 which walls extend normally of the side walls 12 and 14. Additional shoulders (not shown) may be provided for co-operation with shoulders (not shown) on the contact arm 28 further to support the terminal 22. Each terminal 22 has a locking tang 40 struck from its arm 26 and which extends into an opening 42 in the side wall 12 to restrain withdrawal of the terminal 22 from its cavity 18. A wire-receiving slot (not shown) in the bight 24 communicates with wire-receiving slots (not shown) in the arms 26 and 28, the cavity 18 being enlarged at the face 10 as shown at 44 to permit, in co-operation with wire admitting slots 56, described below, a wire 3 to be moved into the cavity 18 through the opening 21 and into the slots in the arm 26 and 28 by way of the slot in the bight 24. By virtue of such enlargement of the cavity 18, the side wall 12 has an external rectangular boss 46 presenting a shoulder 48 which faces away from the opening 21.

Spaced ribs 54 on the side wall 14 extend from the wire-receiving face 10 towards the mating face 8, a tapered lip 58 projecting outwardly from each of the ribs 54, at the face 10, presenting a shoulder 57 facing in the direction

of the mating face 8. The wire-admitting slots 56 are provided in the side wall 14 between adjacent ribs 54 and communicate with the cavities 18 to permit each wire 3 to extend laterally through one of the slots 56 as shown in Figure 1. Advantageously, the walls of the slots 56 converge towards the face 10 to restrain withdrawal of the wires 3 from the openings 56, and to serve as strain-relief means for the wires 3.

An electrical connector having terminals similar to the terminals 22 and being similarly supported in a housing is described in detail in DE-A-2819868.

As shown in Figures 2 and 3, the cover means comprises an extruded central portion in the form of a cover 142 for the central part of the face 10 of the housing 4 and a pair of separate, moulded, cover end pieces 156. The cover 142 is of uniform cross-section throughout its length and comprises a web 144, having a shorter flange 146 extending normally from one margin of the web 144 and a longer flange having a portion 150 extending in the same direction from the opposite margin of the web 144 normally thereof, and an inwardly directed portion 152 from the inner edge of which extends, normally of the portion 152, a tongue 154 parallel to the portion 150. The flange 146 terminates in an upstanding rib 148.

Each end piece 156, which is shaped in rotational symmetry with the other end piece 156, comprises a web 158 from opposite margins of which extend flanges 160 and 170, shaped exactly to match the flanges 146 and 150, respectively, of the cover 142, an end wall 164 extending from an adjacent margin of the web 158 to define in co-operation with the web 158 and the flanges 160 and 170, a pocket for receiving one end of the housing 4. On the internal surface of the web 158 is a boss 166 adapted to enter the housing 4 at its wire-receiving end, to stabilize the end piece 156 on the housing 4. Each end piece 156 has a latch arm 168 with a latching end 169 having a latching shoulder 167, the arm 168 extending from the wall 164 between end portions 162 and 162' and having abutment faces 163 and 163', respectively. The flange 170 is displaceable so that an inwardly directed projection 171 thereof can be snapped over the boss 46 of housing 4, by virtue of a slot 165.

As shown in Figure 3, the cover 142 and the end pieces 156 can be employed to mount the housing 4 in the opening 92 of the panel 90.

The end pieces 156 can be used in conjunction with a cover 142 of any desired length, to accommodate a connector housing 4 of corresponding length. A cover 142 can conveniently be cut to the desired length from a plastics extrusion (not shown).

The housing 4 may, for example, be mounted on the panel 90 with the mating face thereof against one side of the panel to mate the terminals of the housing with mating terminals

(not shown) projecting from the one side of the panel. In this case a hole is made in the panel to receive each latch arm, the latch arms being longer than the latch arms described above and, the end portions of the cover member or of the end pieces, also being made suitably longer.

Reference will now be made to Figures 4 to 7. Mounting means in the form of end pieces 202 are intended for assembly either to a plug connector housing 204 or to a socket connector housing 206 each of which is best seen in Figure 7, for the purpose of mounting the housing 204 or 206 in an opening 208 in a panel 210, having opposite sides 212 and 214.

The housing 204, which has been moulded from thermoplastics material, has a mating face 216, a wire-receiving face 218, side walls 220 and 222 and end walls 224 extending between the faces 216 and 218. A plurality of terminal-receiving cavities 226 extends through the housing 204 between the faces 216 and 218. Terminals 228, which are identical with the terminals 22 described above, are similarly received and supported in the cavities 226 of the housing, the terminals 228 having wire-receiving portions 230 near the face 218 and receptacles 232 for receiving pins 290 of mating terminals 289 in cavities 291 in the housing 206, which terminals are identical with the terminals 104 described above. The terminals 289 have wire receiving portions 293.

Wires 234 are electrically connected to the portions 230 in the same way as the wires 3 are connected to the wire-receiving portions of the terminals 22, as described above, the wires 234 extending through slots 236 in the wall 222.

A lip 238 extending across the wall 220 at the wire-receiving face 218 presents a shoulder 240 facing in the direction of the mating face 216, lips 242 provided on the wall 222, between the slots 236, presenting shoulders 244 facing in the same direction as the shoulder 240.

As seen in plan view in Figure 6, each end piece 202 is substantially L-shaped, having first and second arms 246 and 248, respectively, having internal surfaces 250 and 252 which meet to define a pocket to receive one side of the wire-receiving end of the housing 204. As best seen in Figure 6, a latch arm 270 has a barb 276 presenting an outwardly extending latching shoulder 278, and being formed on the free end of a cranked shaft 274 connected at 272 to a wall 268 of an outer recess 249 in the arm 248. The arm 246 has two identical flanges 258, one on each of two opposite sides of the surface 250 and being arranged in rotational symmetry, each flange 258 having an inwardly projecting lip 260 and being dimensioned to engage over one of the lips 238 and 242 of the housing 204, when the end piece 202 has been assembled thereto, so that shoulders 261 of the lips 260 bear against the shoulders 240 and 244 of the lips 238 and 242. The arm 248 is

divided into two portions 249 for the same purpose as the portions 162 and 162' of the end pieces 156 described above.

The portions 249 are, however, identical, being arranged in rotational symmetry, each portion 249 having an abutment face 264 from which projects a key 266. A rectangular boss 254 is provided on the surface 250.

In order to mount the housing 204 in the opening 208 in the panel 210, an end piece 202 is pushed onto each end of the terminal receiving end of the housing 204, as will be apparent from Figures 4 and 6, so that the flanges 258 are cammed outwardly by engagement with the lips 238 and 242 and then snap there over, the bosses 254 being snugly received in the cavities 226 to stabilize the end pieces 202 with respect to the housing 204. The housing 204 with the end pieces 202 thereon, is then moved through the opening 208 in the panel 210 from its side 212, with the mating face 216 of the housing 204 leading, the latch arms 270 being cammed towards one another by the walls of the opening 208 until the barbs 276 thereof pass these walls.

The housing 204 is stabilized in the opening 208 by virtue of the abutment of the faces 264 against the side 212 of the panel 210 and the engagement of the keys 266 in the opening 208 (as shown in Figure 5), the shoulders 278 of the latch arms 270 bearing against the opposite side 214 of the panel 210.

The socket connector housing 206 has a mating face 216', a wire-receiving face 218', side walls 220' and 222' and end walls 224'. A recess 207' in the housing 206 is dimensioned to receive the plug housing 204, as best seen in Figure 5. The housing 206 has a latch member 292 (Figure 5) for engaging complementary ribs 286 on the wall 220 of the housing 204 as shown in Figure 5, a handle 285 being provided on the side wall 220' between slots 284 therein, for disengaging the member 292 from the ribs 286. Wires 234' extend through slots 236' in the wall 222'.

As shown in Figure 5, the wire-receiving face 218' of the housing 206 is enclosed by a cover member 288 having flanges 295 clipped over lips 238' and 242' at the wire-receiving face 218'. An identical cover member (not shown) may be employed to enclose the wire-receiving face 218 of the housing 204, between the end pieces 202. The cover member 288 may be made by plastics extrusion as in the case of the cover member 142.

The end pieces 202 may be similarly assembled to the housing 206 for mounting it in a hole in a panel.

Since each end piece 202 is symmetrical about a plane perpendicular to, and bisecting, the surface 252, i.e. a plane parallel to the side walls 220 and 222 and bisecting the wire-receiving and the mating faces 218 and 216, the end piece 202 can be assembled to either end of the housing 204 or 206.

(18)

Claims

1. An electrical connector assembly comprising an electrical connector including an insulating housing (4, 204 or 206) having a mating face (8, 216 or 216'), and a wire-receiving face (10, 218 or 218'), side walls (12 and 14; or 220 and 222 or 220' and 222') and end walls (16 or 224) extending between these faces (8, 216, or 216' and 10, 218 or 218') a plurality of terminal-receiving cavities (18, 226 or 291) extending through the housing (4, 204 or 206) from the wire-receiving face (10, 218 or 218') to the mating face (8, 216 or 216'), and each containing an electrical terminal (22, 228 or 289) having a wire-receiving portion (24, 230 or 293) adjacent to the wire-receiving face (10, 218 or 218'), the housing (4, 204 or 206) having wire admitting openings (56 or 236) to permit wires (3, 234 or 234') received in the wire-receiving portions (24, 230 or 293) of the terminals (22, 228 or 289) to extend from the housing (4, 204, 206) laterally of the cavities (18, 226 and 291); and cover means (142, 156 or 202) detachably interengageable with a portion (48, 238 or 239) of the housing (4, 204 or 206) so as to be in covering relationship with the wire-receiving face (10, 218 or 218') thereof; the cover means (142, 156 or 202) comprising end parts (156 or 202) each comprising a substantially rectangular web (158 or 250) from each of two opposite margins of which extends a flange (160 and 170 or 258) these flanges extending from the margins of the web (158 or 250) in the same direction as one another; characterised in that each end part (156 or 202) comprises an end wall (164 or 252) extending from one of the two adjacent margins of the web (158 or 250) in the same direction as the flanges (160 and 170 or 258), the web (158 or 250), the flanges (160 and 170, or 258) and the end wall (164 or 252) co-operating to define a pocket for receiving an end of the housing (4, 204 or 206), each flange having a projection (161 and 171 or 260) directed inwardly of the pocket, a latch arm (168 or 270) extending from the end wall (164 or 252) in the same direction thereas and having on its side remote from the web (168 or 250) a latching shoulder (167 or 278) positioned beyond the end wall (164 or 252), the latch arm being flexible transversely of the plane of the end wall and the latching shoulder (167 or 278) facing the web (158 or 250), the cover means comprising an extruded central portion (142 or 288) covering the central part of the wire-receiving face (10, 218 or 218') of the housing (4, 204 or 206) and two end pieces (156 or 202) in the form of separate mouldings, which constitute said end parts, flanges (146, 150 or 295) on the central portion (142 or 288) and the flanges (160 and 170 or 258) on the end parts (156 or 202) engaging over projections (46 and 58 or 238 and 242) on the side walls (12 and 14; or 220 and 222; or 220' and

222') of the housing (4, 204 or 206).

2. An assembly according to Claim 1, characterised in that each end piece (202) is formed symmetrically about a plane parallel to the side walls (220 and 222 and 220' and 222') and bisecting the wire-receiving and the mating faces (218 and 216 or 218' and 216') of the housing (204 or 206).

3. A moulded thermoplastics latching member (156 or 202) for assembly to an elongate, substantially rectangular, electrical connector housing (4, 204 or 206) having a mating face (8, 216 or 216') and a wire-receiving face (10, 218, 218') and a plurality of terminal-receiving cavities (18, 226 or 291) extending between these faces, the latching member (156 or 202) comprising a hooked flexible latch arm (168 or 270) extending from a body portion (158, 164 or 250, 252, 258) of the latching member (156 or 202), characterised in that the body portion comprises a substantially rectangular web (158 or 250) from each of two opposite margins of which extends a flange (160, 170, or 258) extending from the margins of the web (158 or 250) in the same direction as one another, an end wall (164 or 252) extending from one of the two adjacent margins of the web (158 or 250) in the same direction as the flanges (160 and 170 or 258), the web (158 or 250), the flanges (160 and 170 or 258) and the end wall (164 or 252) co-operating to define a substantially rectangular pocket for receiving an end of the housing (4, 204 or 206), each flange having a projection (161, 171 or 260) directed inwardly of the pocket, the latch arm (168 or 270) extending in the same direction as the end wall (164 or 252) and having on its side remote from the web (158 or 250), a latching shoulder (167 or 278), positioned beyond the end wall (164 or 252), the latch arm (168 or 270) being flexible transversely of the plane of the end wall (164 or 252), and the latching shoulder (167 or 278) being substantially parallel to the web (158 or 250).

4. A latching member according to Claim 3, characterised in that a pair of elongate end portions (162' or 248) project from the end wall (164 or 252) on either side of the latch arm (168 or 270) each end portion (162 and 162' or 248) terminating in an abutment surface (162 or 264) facing towards the latching shoulder (167 or 278) of the latch arm (168 or 270), but being spaced therefrom and lying between the end wall (164 or 252) and the latching shoulder (167 or 278).

5. A latching member according to Claim 3, characterised in that the flanges (258) are identical with one another but are arranged in rotational symmetry, the elongate end portions (248) also being identical with one another and being arranged in rotational symmetry.

6. A latching member according to Claim 4 or 5, characterised in that each elongate end portion (248) has a key (266) extending from its



abutment surface (264).

Revendications

1. Ensemble à connecteur électrique comprenant un connecteur électrique comportant un boîtier isolant (4, 204 ou 206) ayant une face d'accouplement (8, 216 ou 216') et une face de réception de fils (10, 218 ou 218'), des parois latérales (12 et 14; ou 220 et 222 ou 220' et 222') et des parois extrêmes (16 ou 224) s'étendant entre ces faces (8, 216 ou 216' et 10, 218 ou 218'), plusieurs cavités de réception de bornes (18, 226 ou 291) s'étendant à travers le boîtier (4, 204 ou 206), de la face de réception de fils (10, 218 ou 218') à la face d'accouplement (8, 216 ou 216'), et contenant chacune une borne électrique (22, 228 ou 289) ayant une partie de réception de fils (24, 230 ou 293) adjacente à la face de réception de fils (10, 218 ou 218'), le boîtier (4, 204 ou 206) ayant des ouvertures d'admission de fils (56 ou 236) pour permettre à des fils (3, 234 ou 234') reçus dans les parties de réception de fils (24, 230 ou 293) des bornes (22, 228 ou 289) de sortir du boîtier (4, 204, 206) latéralement aux cavités (18, 226 et 291); et des moyens de recouvrement (142, 156 ou 202) pouvant être enclenchés de façon amovible avec une partie (48, 238 ou 239) du boîtier (4, 204 ou 206) afin d'en recouvrir la face de réception de fils (10, 218 ou 218'); les moyens de recouvrement (142, 156 ou 202) comprenant des parties extrêmes (156 ou 202) comportant chacune une âme sensiblement rectangulaire (158 ou 250) de chacun de deux bords opposés de laquelle part une aile (160 et 170 ou 258), ces ailes partant des bords de l'âme (158 ou 250) dans la même direction; caractérisé en ce que chaque partie extrême (156 ou 202) comprend une paroi extrême (164 ou 252) partant de l'un des deux bords adjacents de l'âme (158 ou 250) dans la même direction que les ailes (160 et 170, ou 258), l'âme (158 ou 250), les ailes (160 et 170, ou 258) et la paroi extrême (164 ou 252) coopérant pour définir une poche destinée à recevoir une extrémité du boîtier (4, 204 ou 206), chaque aile comportant une saillie (161 et 171 ou 260) dirigée vers l'intérieur de la poche, un bras de verrouillage (168 ou 270) partant de la paroi extrême (164 ou 252) dans la même direction qu'elle et ayant, sur son côté éloigné de l'âme (168 ou 250), un épaulement de verrouillage (167 ou 278) positionné au-delà de la paroi extrême (164 ou 252), le bras de verrouillage étant flexible transversalement au plan de la paroi extrême et l'épaulement de verrouillage (167 ou 278) faisant face à l'âme (158 ou 250), les moyens de recouvrement comprenant une partie centrale extrudée (142 ou 288) recouvrant la partie centrale de la face de réception de fils (10, 218 ou 218') du boîtier (4, 204 ou 206) et deux pièces extrêmes (156 ou 202) sous la forme de pièces moulées séparées, qui constituent lesdites parties extrêmes, des

ailes (146, 150 ou 295) situées sur la partie centrale (142 ou 288) et les ailes (160 et 170 ou 258) situées sur les parties extrêmes (156 ou 202) s'enclenchant sur des saillies (46 et 58 ou 238 et 242) des parois latérales (12 et 14; ou 220 et 222; ou 220' et 222') du boîtier (4, 204 ou 206).

2. Ensemble selon la revendication 1, caractérisé en ce que chaque pièce extrême (202) est formée symétriquement par rapport à un plan parallèle aux parois latérales (220 et 222 et 220' et 222') et bissecteur des faces de réception de fils et d'accouplement (218 et 216 ou 218' et 216') du boîtier (204 ou 206).

3. Élément de verrouillage moulé en matière thermoplastique (156 ou 202) à assembler sur un boîtier de connecteur électrique allongé, sensiblement rectangulaire (4, 204 ou 206) ayant une face d'accouplement (8, 216 ou 216') et une face de réception de fils (10, 218, 218') et plusieurs cavités de réception de bornes (18, 226 ou 291) s'étendant entre ces faces, l'élément de verrouillage (156 ou 202) comprenant un bras flexible de verrouillage (168 ou 270) en forme de crochet dépassant d'une partie de corps (158, 164 ou 250, 252, 258) de l'élément de verrouillage (156 ou 202), caractérisé en ce que la partie de corps comprend une âme sensiblement rectangulaire (158 ou 250) de chacun de deux bords opposés de laquelle part une aile (160 et 170 ou 258), ces ailes partant des bords de l'âme (158 ou 250) dans la même direction, et une paroi extrême (164 ou 252) partant de l'un des deux bords adjacents de l'âme (158 ou 250) dans la même direction que les ailes (160 et 170 ou 258), l'âme (158 ou 250), les ailes (160 et 170 ou 258) et la paroi extrême (164 ou 252) coopérant pour définir une poche sensiblement rectangulaire destinée à recevoir une extrémité du boîtier (4, 204 ou 206), chaque aile comportant une saillie (161, 171 ou 260) dirigée vers l'intérieur de la poche, le bras de verrouillage (168 ou 270) s'étendant dans la même direction que la paroi extrême (164 ou 252) et ayant, sur son côté éloigné de l'âme (158 ou 250), un épaulement de verrouillage (167 ou 278) positionné au-delà de la paroi extrême (164 ou 252), le bras de verrouillage (168 ou 270) étant flexible transversalement au plan de la paroi extrême (164 ou 252), et l'épaulement de verrouillage (167 ou 278) étant sensiblement parallèle à l'âme (158 ou 250).

4. Élément de verrouillage selon la revendication 3, caractérisé en ce que deux parties extrêmes allongées (162' ou 248) font saillie de la paroi extrême (164 ou 252), de chaque côté du bras de verrouillage (168 ou 270), chaque partie extrême (162 et 162' ou 248) se terminant par une surface de butée (162 ou 264) tournée vers l'épaulement de verrouillage (167 ou 278) du bras de verrouillage (168 ou 270), mais étant espacée de celui-ci et s'étendant entre la paroi extrême (164 ou 252) et l'épaulement de verrouillage (167 ou 278).



5. Elément de verrouillage selon la revendication 3, caractérisé en ce que les ailes (258) sont identiques entre elles, mais sont disposées en symétrie de rotation, les parties extrêmes allongées (248) étant également identiques entre elles et étant disposées en symétrie de rotation.

6. Elément de verrouillage selon la revendication 4 ou 5, caractérisé en ce que chaque partie extrême allongée (248) comporte une clavette (266) faisant saillie de sa surface de butée (264).

Patentansprüche

1. Elektrische Verbindereinheit mit einem elektrischen Verbinder, der ein isolierendes Gehäuse (4, 204 oder 206) aufweist, das eine Gegenfläche (8, 216 oder 216') und eine Drahtaufnahmeseite (10, 218 oder 218'), Seitenwände (12 und 14; oder 220 und 222 oder 220' und 222') und Endwände (16 oder 224) aufweist, die sich zwischen diesen Flächen (8, 216 oder 216' und 10, 218 oder 218') erstrecken, wobei sich eine Vielzahl von Anschlußaufnahmehohlräumen (18, 226 oder 291) durch das Gehäuse (4, 204 oder 206) von der Drahtaufnahmeseite (10, 218 oder 218') zu der Gegenfläche (8, 216 oder 216') erstreckt und wobei jeder Hohlraum einen elektrischen Anschluß (22, 228 oder 289) enthält, der einen Drahtaufnahmeabschnitt (24, 230 oder 293) benachbart zu der Drahtaufnahmeseite (10, 218 oder 218') aufweist, wobei das Gehäuse (4, 204 oder 206) Drahteinlaßöffnungen (56 oder 236) hat, um es Drähten (3, 234 oder 234'), die in den Drahtaufnahmeabschnitten (24, 230 oder 293) der Anschlüsse (22, 228 oder 289) aufgenommen sind, zu gestatten, sich von dem Gehäuse (4, 204, 206) seitlich von den Hohlräumen (18, 226 und 291) zu erstrecken; wobei eine Abdeckeinrichtung (142, 156 oder 202) lösbar in Eingriff mit einem Abschnitt (48, 238 oder 239) des Gehäuses (4, 204 oder 206) zu bringen ist, so daß dessen Drahtaufnahmeseite (10, 218 oder 218') dadurch abgedeckt ist; wobei die Abdeckeinrichtung (142, 156 oder 202) Endteile (156 oder 202) aufweist, von denen jedes einen im wesentlichen rechteckigen Steg (158 oder 250) aufweist, wobei sich von jedem von zwei gegenüberliegenden Rändern des Stegs ein Flansch (160 und 170 oder 258) erstreckt und diese Flansche sich von den Rändern des Stegs (158 oder 250) in der gleichen Richtung erstrecken, dadurch gekennzeichnet, daß jedes Endteil (156 oder 202) eine Endwand (164 oder 252) aufweist, die sich von einem der beiden benachbarten Ränder des Stegs (158 oder 250) in derselben Richtung erstreckt wie die Flansche (160 und 170 oder 258), wobei der Steg (158 oder 250), die Flansche (160 und 170 oder 258) und die Endwand (164 oder 252) zusammenwirken, um eine Tasche zur Aufnahme eines Endes des Gehäuses (4, 204 oder 206) zu bilden, daß jeder

Flansch einen Vorsprung (161 und 171 oder 260) hat, der zum Inneren der Tasche hin gerichtet ist, wobei sich ein Verriegelungsarm (168 oder 270) von der Endwand (164 oder 252) in derselben Richtung wie diese erstreckt und an seiner von dem Steg (168 oder 250) entfernten Seite eine Verriegelungsschulter (167 oder 278) hat, die jenseits der Endwand (164 oder 252) angeordnet ist, wobei der Verriegelungsarm quer zu der Ebene der Endwand nachgiebig ist und die Verriegelungsschulter (167 oder 278) dem Steg (158 oder 250) zugekehrt ist, daß die Abdeckeinrichtung einen extrudierten mittleren Abschnitt (142 oder 288) aufweist, der den mittleren Teil der Drahtaufnahmeseite (10, 218 oder 218') des Gehäuses (4, 204 oder 206) abdeckt, sowie zwei Endstücke (156 oder 202) in der Gestalt getrennter Formteile, die die Endteile bilden, und daß Flansche (146, 150 oder 295) an dem mittleren Abschnitt (142 oder 288) und die Flansche (160 und 170 oder 258) an den Endteilen (156 oder 202) über Vorsprünge (46 und 58 oder 238 und 242) an den Seitenwänden (12 und 14; oder 220 und 222; oder 220' und 222') des Gehäuses (4, 204 oder 206) eingreifen.

2. Einheit nach Anspruch 1, dadurch gekennzeichnet, daß jedes Endstück (202) symmetrisch zu einer Ebene ausgebildet ist, die parallel zu den Seitenwänden (220 und 222 und 220' und 222') ist und die die Drahtaufnahmeseite und die Gegenfläche (218 und 216 oder 218' und 216') des Gehäuses (204 oder 206) in zwei Teile unterteilt.

3. Geformtes thermoplastisches Verriegelungsglied (156 oder 202) zum Zusammenfügen mit einem länglichen, im wesentlichen rechteckigen elektrischen Verbindergehäuse (4, 204 oder 206), das eine Gegenfläche (8, 216 oder 216') und eine Drahtaufnahmeseite (10, 218, 218') und eine Vielzahl von sich zwischen diesen Flächen erstreckenden Anschlußaufnahmehohlräumen (18, 226 oder 291) hat, wobei das Verriegelungsglied (156 oder 202) einen mit einem Haken versehenen nachgiebigen Verriegelungsarm (168 oder 270) aufweist, der sich von einem Hauptteil (158, 164 oder 250, 252, 258) des Verriegelungsgliedes (156 oder 202) her erstreckt, dadurch gekennzeichnet, daß der Hauptteil einen im wesentlichen rechteckigen Steg (158 oder 250) aufweist, wobei sich von jedem von zwei gegenüberliegenden Rändern des Stegs ein Flansch (160, 170 oder 258) erstreckt, die sich von den Rändern des Stegs (158 oder 250) untereinander in der gleichen Richtung erstrecken, daß sich eine Endwand (164 oder 252) von einem der beiden benachbarten Ränder des Stegs (158 oder 250) in der gleichen Richtung erstreckt wie die Flansche (160 und 170 oder 258), wobei der Steg (158 oder 250), die Flansche (160 und 170 oder 258) und die Endwand (164 oder 252) zusammenwirken, um



eine im wesentlichen rechteckige Tasche zur Aufnahme eines Endes des Gehäuses (4, 204 oder 206) zu bilden, daß jeder Flansch einen Vorsprung (161, 171 oder 260) hat, der zum Inneren der Tasche hin gerichtet ist, daß sich der Verriegelungsarm (168 oder 270) in derselben Richtung erstreckt wie die Endwand (164 oder 252) und an seiner von dem Steg (158 oder 250) entfernten Seite eine Verriegelungsschulter (167 oder 278) aufweist, die jenseits der Endwand (164 oder 252) angeordnet ist, und daß der Verriegelungsarm (168 oder 270) quer zu der Ebene der Endwand (164 oder 252) nachgiebig ist, wobei die Verriegelungsschulter (167 oder 278) im wesentlichen parallel zu dem Steg (158 oder 250) ist.

4. Verriegelungsglied nach Anspruch 3, dadurch gekennzeichnet, daß ein Paar länglicher Endabschnitte (162' oder 248) von der Endwand (164 oder 252) auf jeder Seite des Verriegelungsarms (168 oder 270) vorragt, wobei

jeder Endabschnitt (162 und 162' oder 248) in einer Anlagefläche (162 oder 264) endet, die zu der Verriegelungsschulter (167 oder 278) des Verriegelungsarms (168 oder 270) hinweist, aber mit Abstand gegenüber dieser angeordnet ist und zwischen der Endwand (164 oder 252) und der Verriegelungsschulter (167 oder 278) liegt.

5. Verriegelungsglied nach Anspruch 3, dadurch gekennzeichnet, daß die Flansche (258) zueinander identisch sind, aber rotations-symmetrisch zueinander angeordnet sind, wobei die länglichen Endabschnitte (248) auch zueinander identisch und rotationssymmetrisch zueinander angeordnet sind.

6. Verriegelungsglied nach Anspruch 4 oder 5, dadurch gekennzeichnet, daß jeder längliche Endabschnitt (248) einen Vorsprung (266) hat, der sich von der Anlagefläche (264) her erstreckt.

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