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(54) An electrical connector assembly and a latching member for such an assembly.

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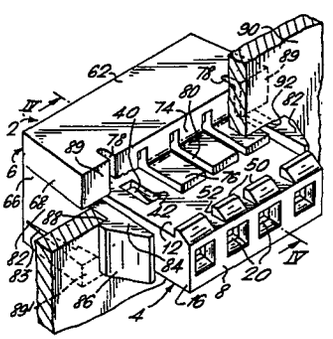
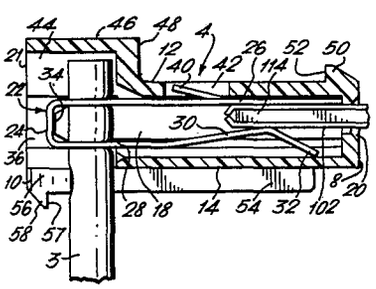
An electrical connector (4) has a wire-receiving face (10) through which wires (3) can be inserted into slotted wire-receiving portions of terminals (22).

For mounting the connector (4) in an opening (92) in a panel (90), the wire-receiving face (10) is enclosed by a cover (6) having resilient latch arms (84) which serve to latch the connector (4) in the opening (92), shoulders (88) on the latch arms (84) engaging one side of the panel (90) and shoulders (89) on the cover (6) engaging the other side of the panel (90). The latch arms (84) are flexible towards and away from end walls (16) of the connector (4). The latch arms may alternatively be provided on separate latching members attachable to the ends of the connector.





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

This invention relates to an electrical connector assembly comprising an electrical connector having means for mounting it in an opening in a panel and to a latching member for mounting an electrical connector in an opening in a panel.

We have disclosed in DOS 2,819,868, an electrical connector comprising an insulating housing having a mating face and 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.

This known connector is intended to be mated with juxtaposed terminal posts extending from a panel. The present invention is intended to provide means for mounting such a connector in an opening in a panel so that the connector can be disengagably mated with a complementary electrical connector in accordance with common wiring practice. 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 United States Patent Specifications Nos. 2,891,103,

3,179,738 and 3,573,716. However, to provide latch arms formed integrally with a connector according to DOS 2,819,868 would be to forgoe desirable features of that connector. For example, one important advantage of the connector of DOS 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 United States Patent Specification No. 4,137,624.

The present invention is directed in particular to the provision of panel mounting means capable of being mounted on the housing of the connector after wires have been connected to the wire-receiving portions of the terminals of the connector.

According to one aspect of the invention, an assembly comprising an electrical connector according to the second paragraph of this specification is characterised by cover means detachably interengaging with a portion of the housing and being in covering relationship with the wire-receiving face thereof, the cover means having formed integrally therewith resilient latch arms extending along the end walls and being normally spaced therefrom but being flexible there towards, the latch arms having latching ends; whereby the housing can be mounted in an opening in a panel, by flexing the latch arms towards the end walls, moving the housing with its mating face leading, through the opening in the panel from one side thereof, until the latching ends engage the other side of the panel and the cover means engage the one side of the panel.

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 and 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 a perspective view showing an assembly comprising an electrical plug connector mounted in an opening in a panel (shown in fragmentary form) with the aid of mounting means; in accordance with a first embodiment of the invention;

Figure 2 is a perspective view of the mounting means;

Figure 3 is an enlarged view taken on the lines III - III of Figure 2;

Figure 4 is an enlarged view taken on the lines IV - IV of Figure 2, but in which the mounting means and the panel are not shown;

Figure 5 is a cross-sectional view showing the plug connector in the assembly of Figure 1 mated with an electrical socket connector;

Figure 6 is an enlarged perspective view of the socket connector;

Figure 7 is a perspective view of an electrical terminal of the socket connector;

Figure 8 is a perspective view of mounting means according to a second embodiment of the invention;

Figure 9 is a plan view showing the plug connector when mounted in the opening in the panel with the aid of the mounting means of Figure 8, which has been assembled to the plug connector;

Figure 10 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, according to a third embodiment of the invention;

Figure 11 is a view taken on the lines XI - XI of Figure 10;

Figure 12 is a partially exploded fragmentary plan view of Figure 10 shown partly in section; and

Figure 13 is a perspective view of insulating housings of the plug connector and the socket connector of Figures 10 to 12.

Reference will now be made to Figures 1 to 4.

An electrical connector assembly 2 (Figure 1) comprises an electrical connector having an insulating housing 4, and mounting means in the

form of a resilient, insulating, moulded cover member 6 mounted over a wire-receiving face 10 (Figure 4) 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 4) 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 4, 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, an 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.

As shown in Figure 4, 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 arms 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. Ribs 50 are spaced from one another across the wall 12 at the mating face 8 and define shoulders 52 which face the shoulder 48.

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 4. 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 Federal Republic of Germany Patent Specification No. 2819868.

The cover member 6 is a moulded member of generally U-shaped cross-section as seen in Figure

3, comprising a web 60 and flanges 62 and 64 which extend in the same direction from the upper and lower (as seen in Figure 3) margins of the web 60. The flange 64 is short relative to the flange 62 and is dimensioned to be clipped over the lips 58 of the housing 4. Inwardly directed ribs 70 extending transversely across the internal surface of the flange 64 at its free end present shoulders 71 extending normally of the flange 64, for engaging the shoulders 57 of the ribs 58 when the cover member 6 has been clipped over the housing 4. The ribs 70 define spaced notches 72 (see Figure 2) which receive the ribs 54 of the housing 4 as the member 6 and housing 4 are mated. The flange 62 is shaped to extend over the surface of the rectangular boss 46 of the housing 4 and towards the mating face 8. To this end, the flange 62 has an inwardly directed portion 74 from the inner end of which extend tongues 76 defined by slots 80 (Figures 1 and 2), adapted to extend along the surface of side wall 12 beyond the shoulder 48 with the portion 74 facing the shoulder 48. Slots 78 in the flange 62 and the portion 74 (Figure 2) allow the tongues 76 to be simultaneously flexed outwardly as the cover member 6 is being mated with the housing 4. By virtue of the slots 80, the tongues 76 are individually flexible. When the cover member 6 has been mated with the housing 4, the tongues 76 act as covers for the openings 42 in the wall 12 to protect the tangs 40 of the terminals 22.

End walls 66 of the web 60 comprise end portions 68 and 68' presenting abutment faces 89 and 89' respectively, at their free ends. Formed integrally with each end wall 66 and extending between the portions 68 and 68', is a flexible latch arm 82

extending away from the web 60 and having a barb 84 with an inclined face 86 and a latching shoulder 88 formed in the outer surface of the arm 82 and which is directed towards the web 60, the faces 86 converging in a direction away from the web 60. Recesses 83 (Figure 3) in the end walls 66 enhance the flexibility of the latch arms 82. Openings 81 (Figure 3) in the web 60 are provided to permit the insertion of mould pins in moulding the cover member 6.

After the wires 3 have been inserted into the wire-receiving portions of the terminals 22, the cover member 6 is mated with the housing 4 merely by pushing the member 6 over the wire-receiving face 10 of the housing 4 until the shoulders 71 of the ribs 70 lodge against the shoulders 57 of the lips 58, and the portion 74 of the cover member 6 lies against the shoulder 48 in face to face relationship therewith. The assembly 2, comprising the connector and the cover member 6, can then be mounted in an opening 92 in a panel 90, as shown in Figure 1, by moving the assembly 2 with the mating face 8 of the housing 4 leading, through the opening 92 until the latch arms 82 are flexed towards the side walls 16 and the resile to engage the edges of the opening 92 as shown in Figure 1, the abutment faces 89 and 89' of the portions 68 and 68' bearing against one side of the panel 90 and the latching shoulders 88 of the latch arms 82 bearing against the other side of the panel 90.

After the connector assembly 2 has been mounted in the opening 92, the housing 4 can be mated with the housing 98 of a complementary socket connector 94 (Figures 5 and 6).

The housing 98 is similar in many respects to the housing 4 and so will not be described

in detail here. Those parts of the housing 98 which are similar to corresponding parts of the housing 4 described above accordingly bear the same reference numerals as the former parts but with the addition of a "prime" symbol.

Each of a plurality of terminals 104 (only one of which is shown) contained in cavities 18' in the housing 98, has, as best seen in Figure 7, a wire-receiving portion comprising a bight 106 from which extend arms 108 and 110, the bight 106 being formed with a wire-receiving slot 112 communicating with wire-receiving slots 107 in the arms 108 and 110. The terminals 104 can thereby be connected to wires 3 in the same manner as the terminals 22. The arm 108 extends beyond the free end of the arm 110 and has a channel shaped contact pin 114 adapted to be received between the arm 26 and the contact portion 30 of a corresponding terminal 22 in the housing 4, when the housings 4 and 98 have been mated.

A hood 100 extending from the mating face 8' of the housing 98 defines a cavity 120 (Figure 6) into which the contact pins 114 of the terminals 104 project. The lower surface 122 of the cavity 120 is divided by parallel grooves 124 each dimensioned to receive a rib 54 of the housing 4, end walls 128 of the hood 100 being dimensioned snugly to receive the leading portion of the housing 4 but to provide sufficient clearance for the ribs 50 on the wall 12 thereof. The ribs 54 and the grooves 124 serve mutually to guide the housings 4 and 98 into mating relationship. The wire-receiving face 10' of the housing 98 is provided with an extruded insulating cover member 142 detachably mated therewith in a

similar manner to that in which the cover member 6 is mated with the housing 4.

When the housing 4 is mated with the housing 98, the housings 4 and 98 are releasably latched to each other by a latching device 130, best seen in Figure 6, comprising a flexible support plate 132 extending from the surface 12' of the housing 98 and having a pair of spaced support arms 134 projecting towards the free end of the hood 100 and being spanned by a latching bar 136 providing a latching shoulder 140 facing the support plate 132, the bar 136 protruding through an opening 138 in the wall 126 of the hood 100 as shown in Figure 6. As the housings 4 and 98 are mated with each other, the bar 136 is flexed away from the wall 12 of the housing 4 by the two central ribs 50 and rides there over, to return to its initial position when the housings 4 and 98 have been fully mated, as shown in Figure 5, so that the shoulder 140 engages against the shoulders 52 of the ribs 50. The housings 4 and 98 can be disengaged by flexing the plate 132 in a clockwise direction, as seen in Figure 5, to release the bar 136 from the ribs 50.

According to the embodiment of Figures 8 and 9, the mounting means comprises an extruded 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' serving the same purpose as the end portions 68 and 68' of the cover member 6 and having abutment faces 163 and 163', respectively, corresponding to the abutment faces 89 and 89' of the cover member 6. 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 corresponding to one of the slots 78 of the cover member 6.

As shown in Figure 9, the cover 142 and the end pieces 156 can be employed to mount the housing 4 in the opening 92 of the panel 90, in a similar manner to the cover member 6.

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 10 to 13. 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 13, 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 12, each end piece 202 is subtantially 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 12, 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 10 and 12, 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 12), 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 11. The housing 206 has a latch member 292 (Figure 11) for engaging complementary ribs 286 on the wall 220 of the housing 204 as shown

in Figure 11, 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 11, 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.

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 (2, 204, 206) laterally of the cavities (18, 226 and 291); characterised by cover means (6 or 142, 156 or 202) detachably interengaging with a portion (48, 238 or 239) of the housing (2, 204 or 206) and being in covering relationship with the wire-receiving face (10, 218 or 218') thereof, the cover means (6 or 142; 156 or 202) having formed integrally therewith resilient latch arms (84, 168 or 270) extending along the end walls (16 or 224) and being normally spaced therefrom but being flexible there towards, the latch arms having latching ends (86, 165 or 276); whereby the housing (4, 204 or 206 can be mounted in an opening (92 or 208) in a panel (90 or 210), by flexing the latch arms (84, 168 or 270) towards the end walls (16 or 224), moving the housing (4, 204 or 206)

with its mating face (8, 216 or 216') leading, through the opening in the panel (90 or 210) from one side thereof, until the latching ends (86, 165 or 276) engage the other side of the panel (90 or 210) and the cover means (6 or 142, 156 or 202) engage the one side of the panel (90 or 210).

2. An assembly according to Claim 1, characterised in that the cover means consists of a single moulding in the form of a cover member (6) having a web (60), from opposite margins of which extend flanges (62 and 64), the web (60) abutting the wire-receiving face (10) of the housing (4) and the flanges (62 and 64) engaging over projections (46 and 58) on the side walls (12 and 14) of the housing (4), the latch arms (84) each extending from end wall (66) of the cover member (6).

3. An assembly according to Claim 1, characterised in that the cover means comprises 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, each end piece (156 or 202) embracing an end of the housing (4, 204 or 206), each latch arm (168 or 270) being formed integrally with one of the end pieces (156 or 202), flanges (146, 150 or 195) on the central portion (142 or 288) and flanges (160 and 170 or 258) on the end pieces (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).

4. An assembly according to Claim 2 or 3, characterised in that one (12) of the side walls (12 and 14) is formed with openings (42) receiving

locking tangs (40) on the terminals (22), one (76 or 154) of the flanges serving to cover the openings (42) in the side walls (12 and 14).

5. An assembly according to Claim 4, characterised in that the one flange (62) extends over a rectangular projection (46) on one side wall (12) of the housing (4), which projection presents an abrupt shoulder (48) facing away from the wire-receiving face (10), the one flange (62) being divided by slots (80) extending from its free edge remote from the wire-receiving face (10) and into a portion (74) of the flange (76) which abuts the abrupt shoulder (48).

6. An assembly according to Claim 3, 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).

7. 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, 318 or 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, 160, 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 and 170 or 258), the flanges (160 and

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, 17o 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).

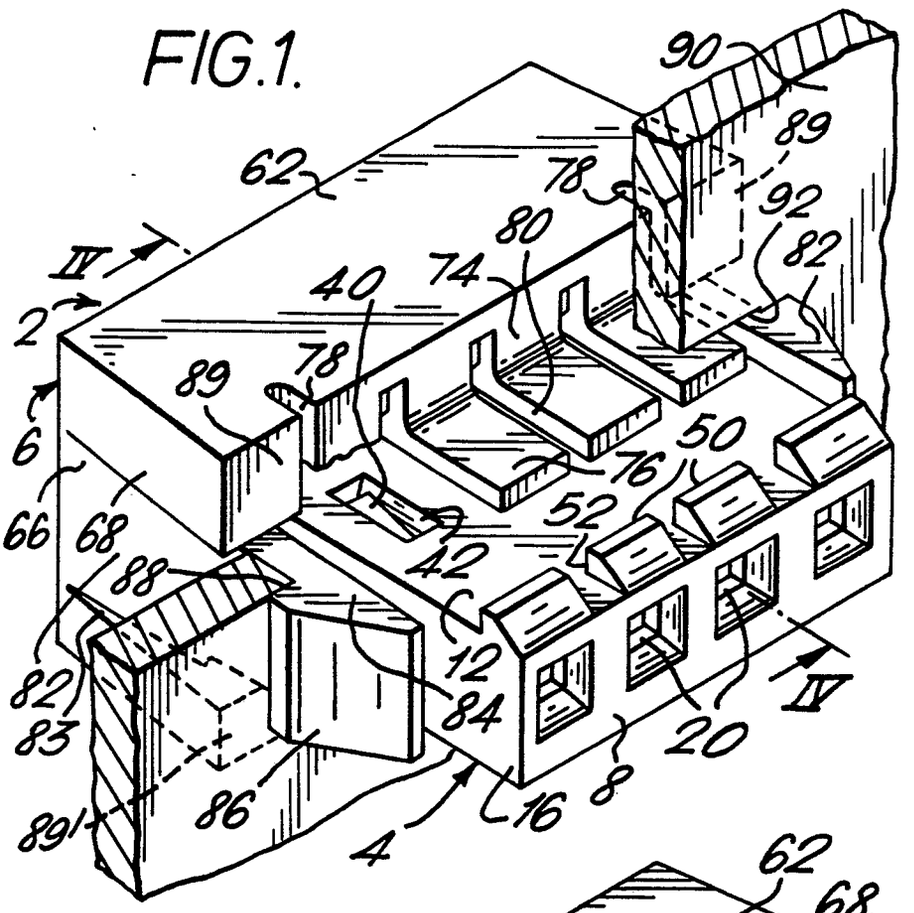
8. A latching member according to Claim 7, characterised in that a pair of elongate end portions (162' or 248) project from the end wall (164 or 252) on either side of the latch arm (168 or 270) each end portion (162 and 162' or 248) terminating in an abutment surface (162 or 264) facing towards the 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).

9. A latching member according to Claim 7, 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.

10. A latching member according to Claim 8 or 9, characterised in that each elongate end portion (248) has a key (66) extending from its abutment surface (264).

FIG.1.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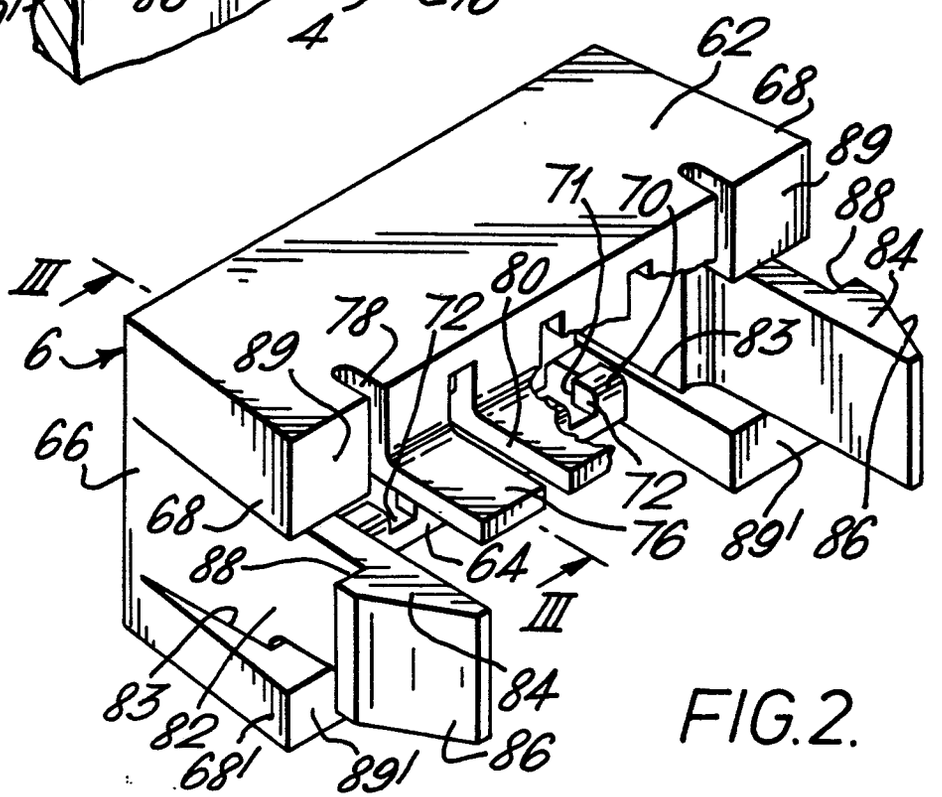
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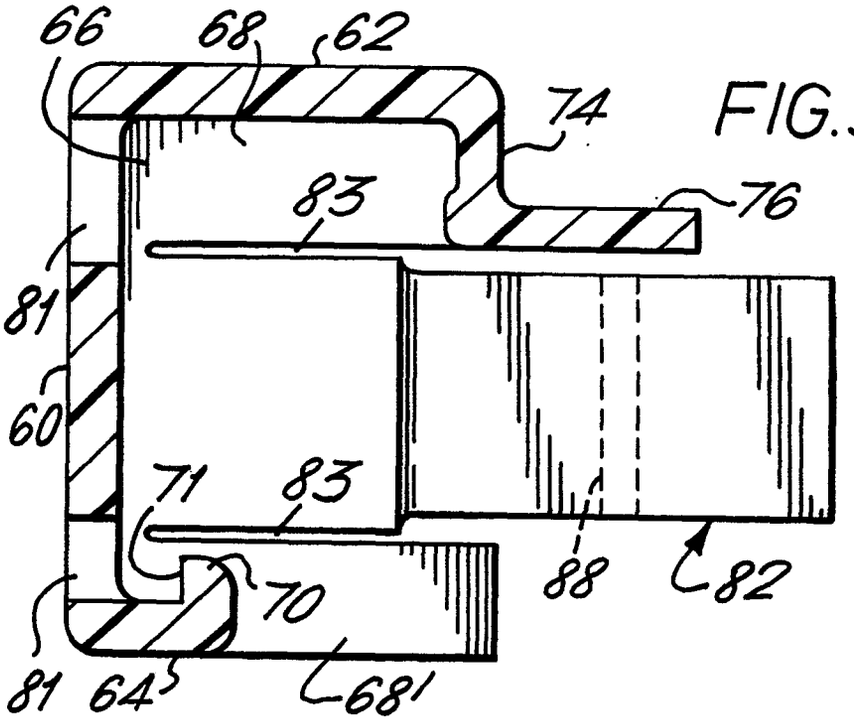
FIG.2.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71
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70
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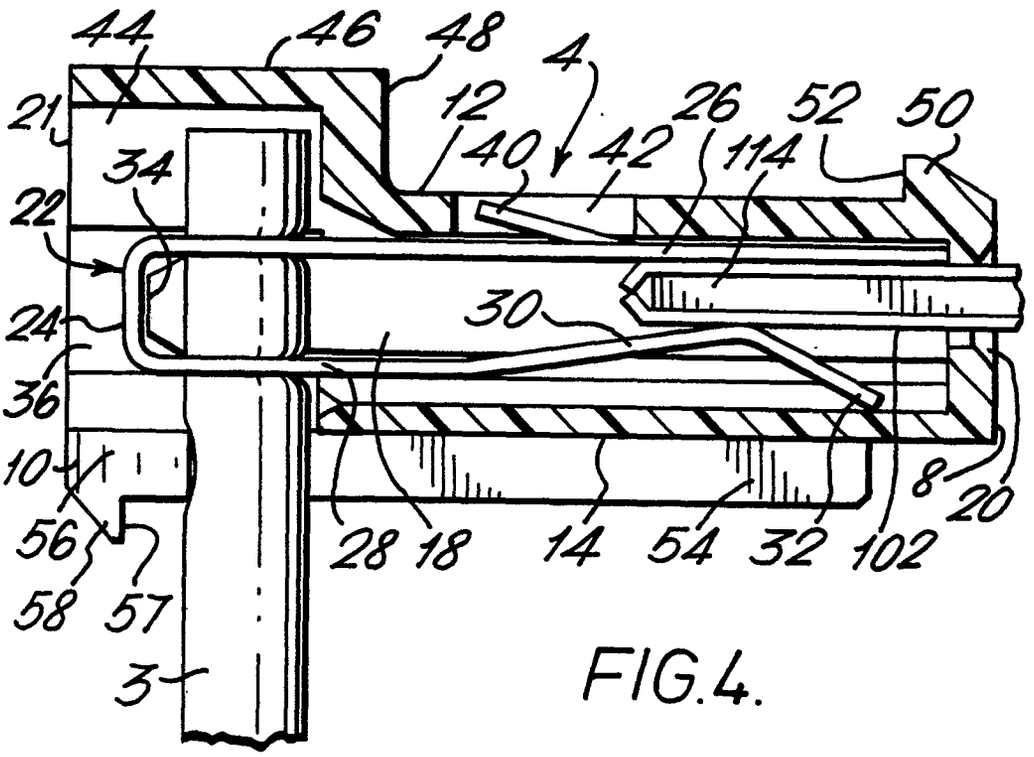
82
81
64
68'

FIG.3.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26
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42
114
34
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3
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32
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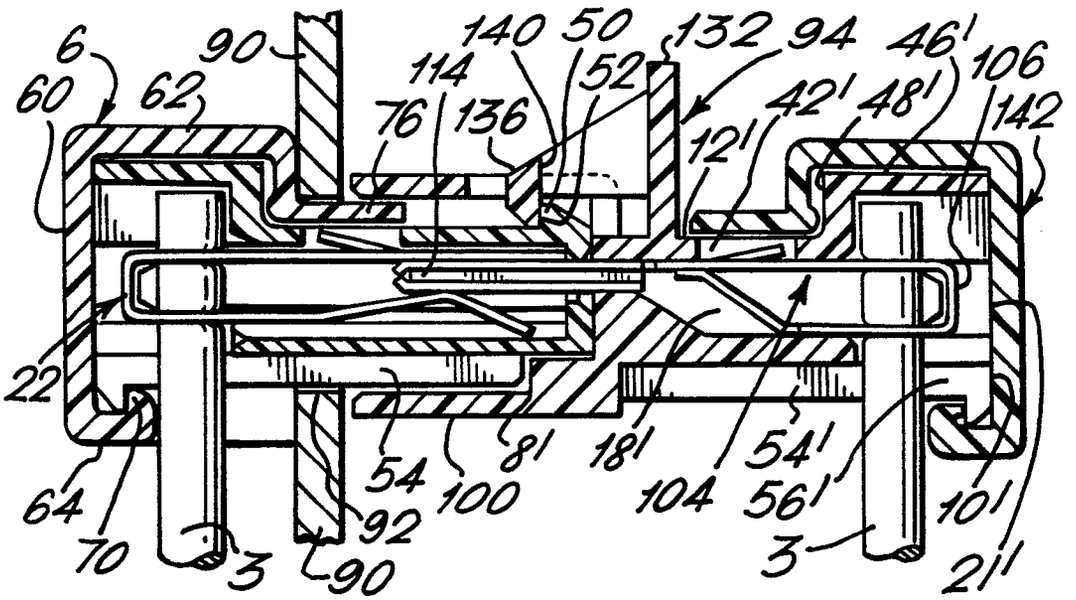
8
20

FIG.4.

FIG.5.


6
90
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132
94
46'
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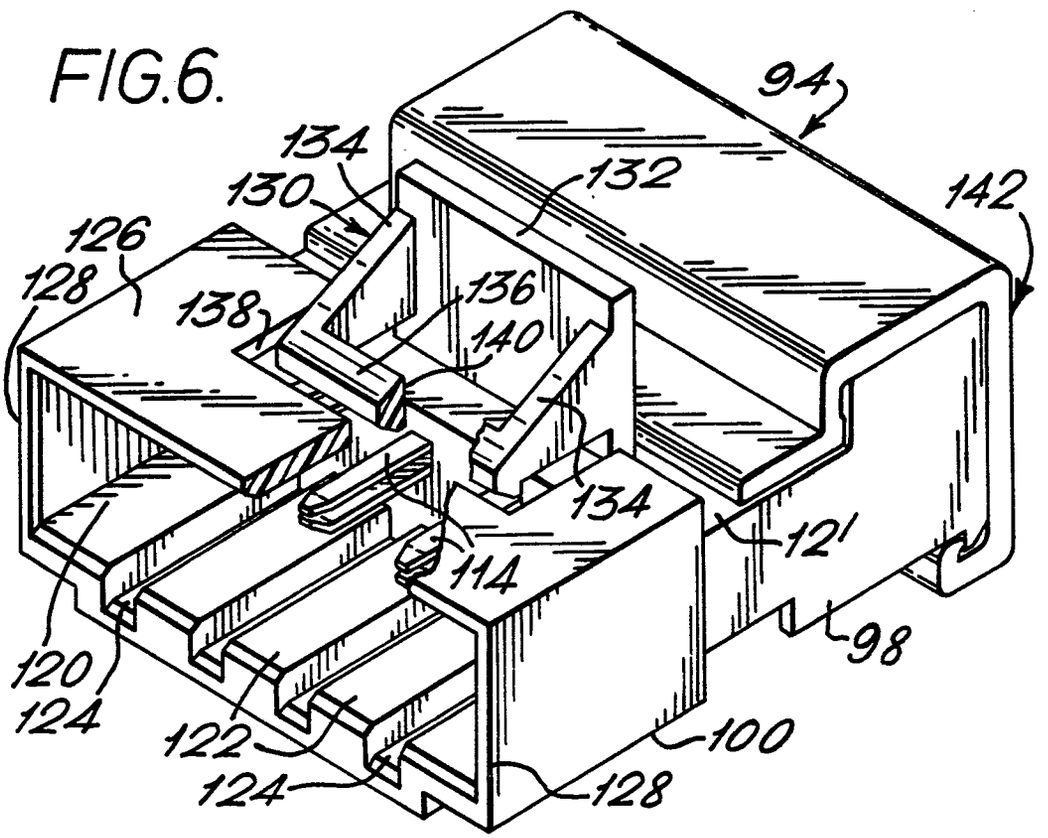
62
114
52
42'
48'
142
76
136
12'
22
64
70
3
90
54
92
100
8'
18'
104
54'
56'
101
3
211

FIG.6.


94
134
132
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136'
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12'
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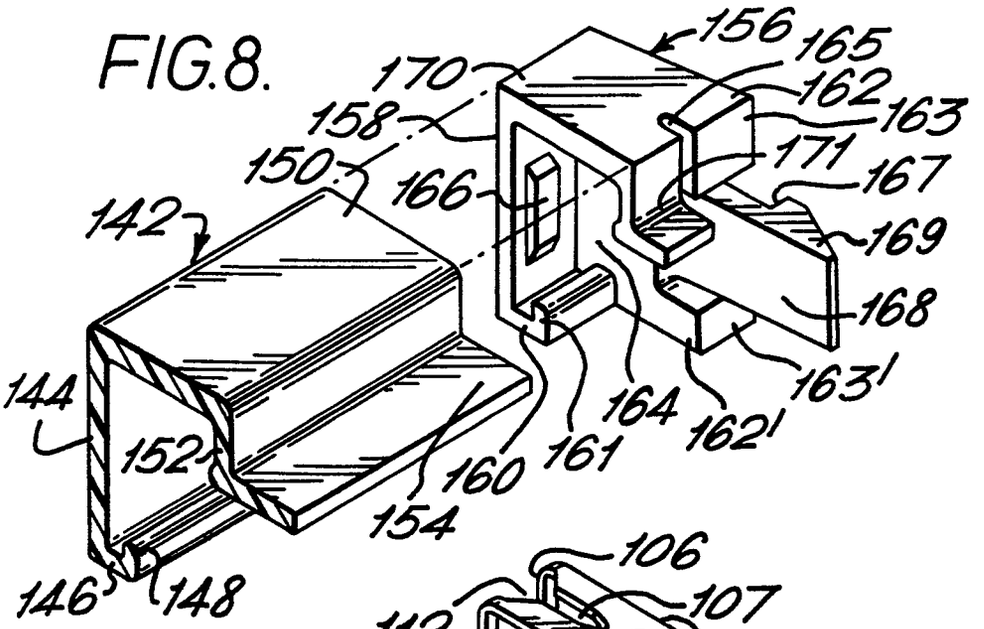
128

FIG.8.



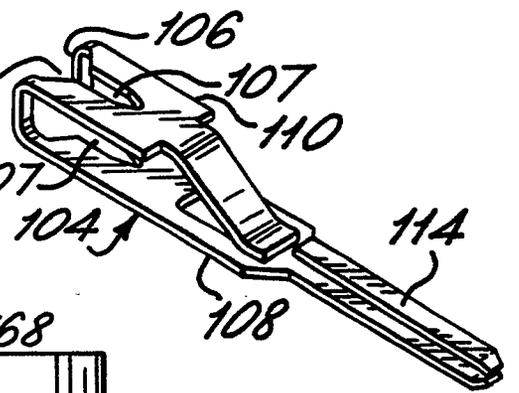


FIG.7.

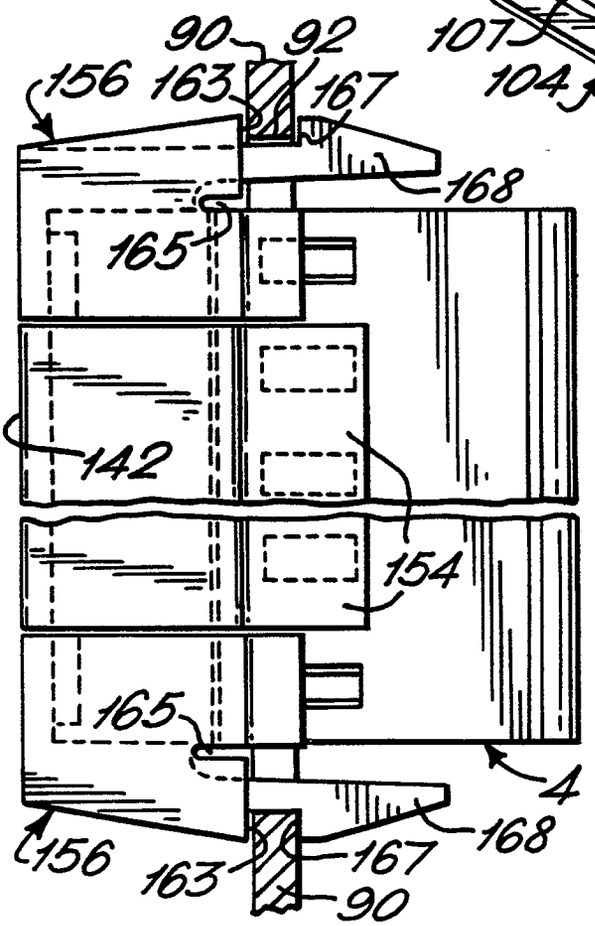
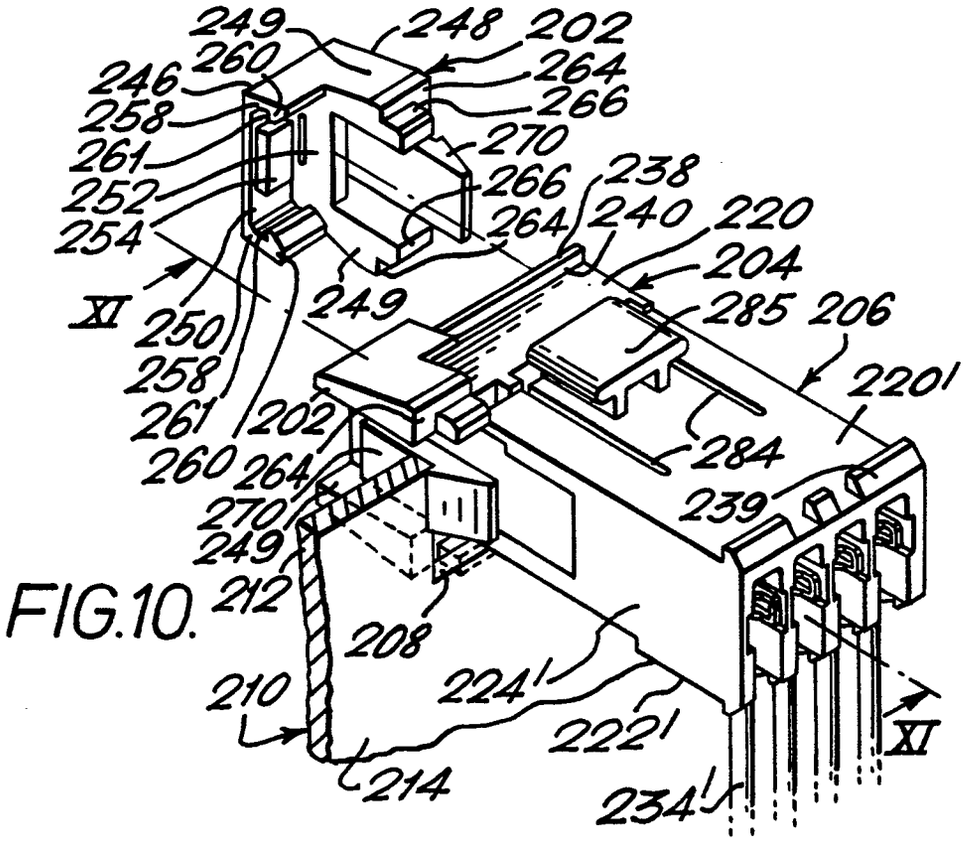


FIG.9.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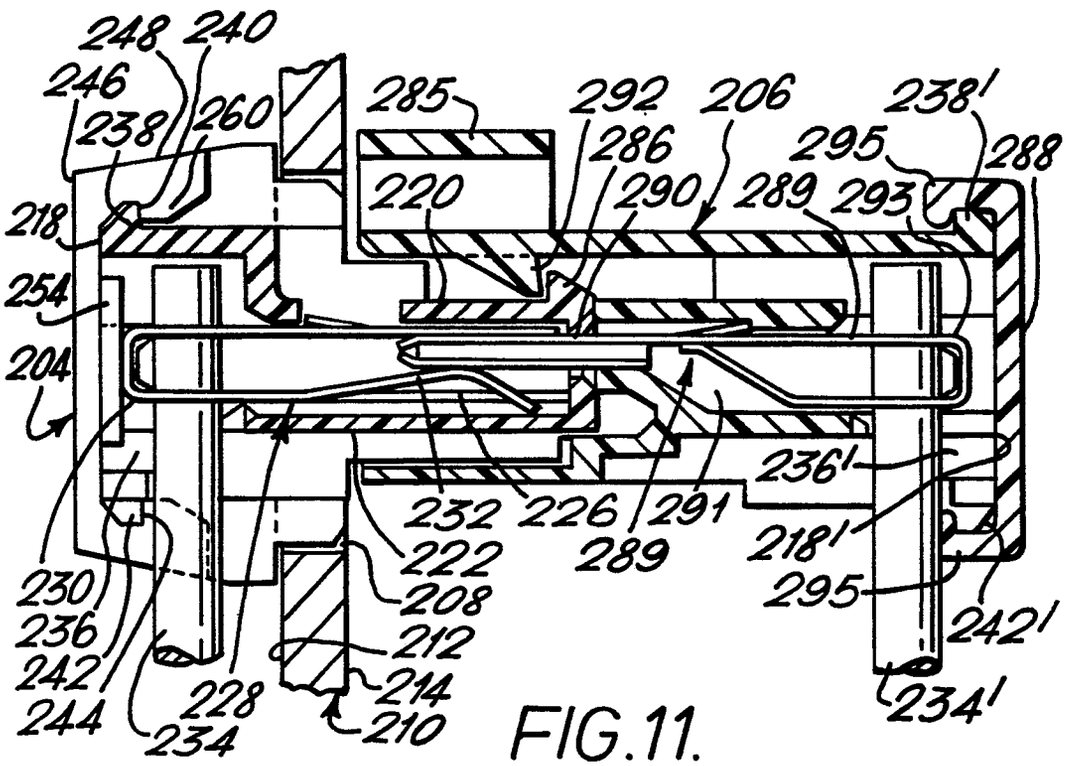
248
202
260
264
246
266
258
270
261
266
238
252
264
240
220
254
204
XI
249
285
206
250
220'
258
261
202
284
260
264
239
270
249
212
208
210
224'
222'
XI
214
234'

FIG.10.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218'
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242'
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234'

FIG.11.

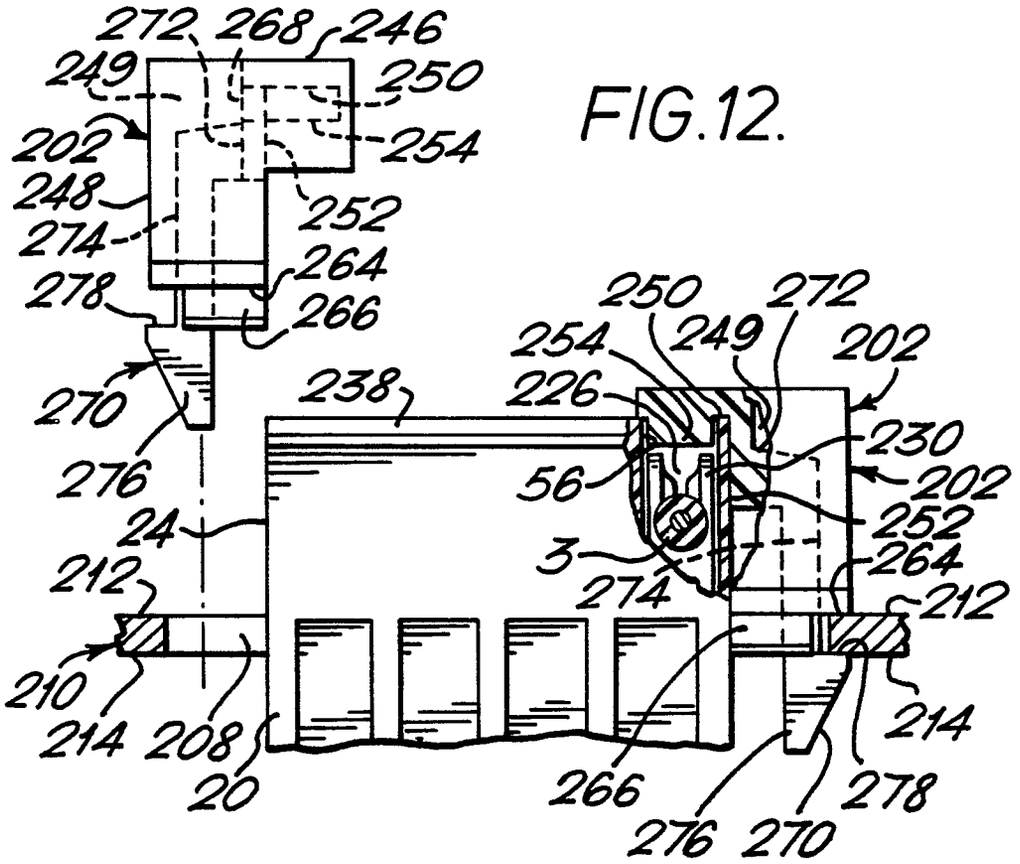
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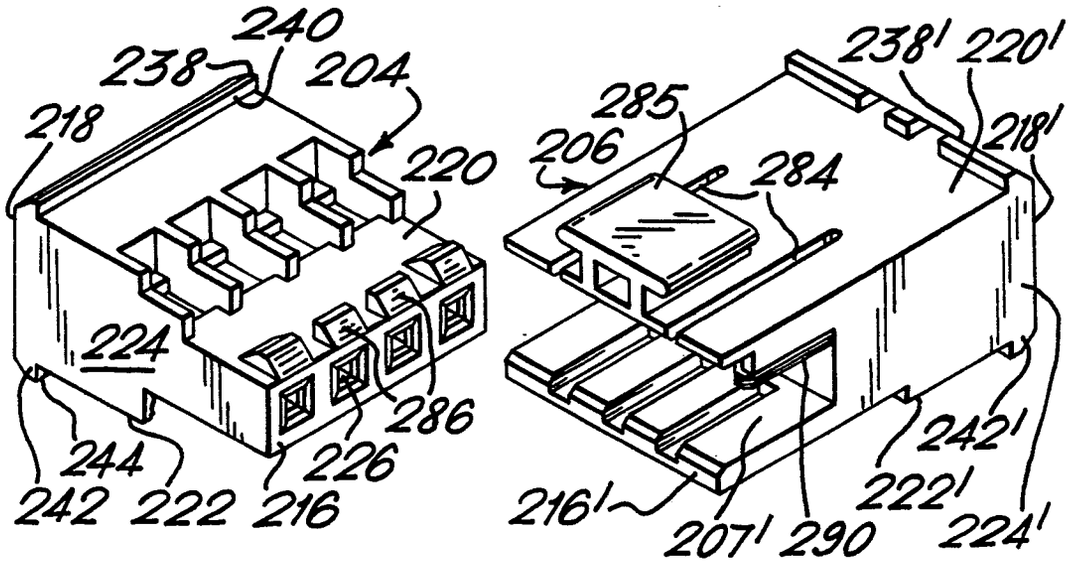
FIG.12.

FIG.13.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216'
207'
290
224'

European Patent Office

EUROPEAN SEARCH REPORT

0020834
Application number

EP 79 301 257.6

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
D	DE - A1 - 2 819 868 (AMP) * page 20, lines 11 to 26, page 21, lines 13 to 25; fig. 9 to 13 *	1,2,4
	FR -A - 2 153 752 (PRECISION MECANIQUE LABINAL) * page 2, line 32 to page 5, line 11; fig. 1 to 3 *	1,2
	US - A - 3 514 743 (S.C. SCHANTZ) * column 2, line 30 to column 3, line 11; fig. 1 to 8 *	1,2
	US - A - 3 337 836 (J.J. CHURLA, JR.) * column 2, line 39 to column 3, line 19; fig. 1 and 8 *	1
A	CH - A5 - 561 965 (BUNKER RAMO) * complete document *	
D,A	US - A - 3 573 716 (GARVER) * complete document *	

CLASSIFICATION OF THE APPLICATION (Int. Cl.³)

H 01 R 13/627
H 01 R 23/16

TECHNICAL FIELDS SEARCHED (Int.Cl.³)

H 01 R 13/506
H 01 R 13/516
H 01 R 13/627
H 01 R 23/10
H 01 R 23/16

CATEGORY OF CITED DOCUMENTS

X: particularly relevant
A: technological background
O: non-written disclosure
P: intermediate document
T: theory or principle underlying the invention
E: conflicting application
D: document cited in the application
L: citation for other reasons

&: member of the same patent family, corresponding document

X The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Berlin	14-02-1980	HAHN

EPO Form 1503.1 06.78