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(54) **Board mounted electrical connector**

Leiterplattenmontierter elektrischer Verbinder

Connecteur électrique monté sur plaquette de circuits

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Description

The invention relates to an electrical connector having a shroud at a mating end of the connector and a board mount system. More particularly, the invention relates to an electrical connector having an insulating housing including a plurality of first contacts in a shroud, the housing further includes a board mount system for mounting the housing to a printed circuit board.

A known electrical connector disclosed in U.S. 5,129,831 ('831), comprises; an insulative housing, a shroud at a mating end of the housing, and multiple electrical contacts within the shroud and projecting toward the mating end. The shroud protects the contacts and assists in aligning the known connector during connection with a complementary connector. Keying elements on both the known connector and the complementary connector allow connection of the connectors when the connectors are oriented with the keying elements aligned with one another. The connector of the '831 reference has the advantage of being capable of using a keying protrusion to assure that the appropriate right angle connector is mounted to a corresponding location on a circuit board. The '831 reference has a disadvantage in that it does not provide for a plurality of different types of contacts in the housing or a short circuit bar.

Furthermore, a known board mount disclosed in U.S. 4,907,987, is fabricated from a metal stamping and comprises; a metal board lock formed with a slotted post defined by two barbed spring members extending along opposite sides of a slot having closed ends that join the spring members. A known electrical connector disclosed in U.S. 4,907,987, comprises; an insulative housing, multiple electrical contacts within the housing projecting toward a mating end of the connector, and a board mount comprising, a metal board lock assembled in an aperture of the housing, the board lock being comprised of a slotted post for insertion in an aperture of a circuit board.

An assembly is advantageously constructed by stacking the housing on the circuit board. In the assembly, the housing has a construction that determines the depth of insertion of the post in the aperture, and the housing receives an insertion force that is applied to insert the post.

Such an assembly has the disadvantage of being relatively tall in height, due to the height of the housing being added to a thickness of the circuit board. The assembly can be reduced in height by mounting the housing within a plane of thickness of the circuit board. To do so would require the board lock itself to have a construction that determines the depth of insertion of the post, and a construction that receives the insertion force, the force required to insert the post.

The present invention consists in an electrical connector having an insulating housing including a plurality of contacts in a shroud, and a board mounting system for mounting the housing to a printed circuit board, char-

acterised in that the board mounting system comprises a board mount which is a stamped piece and which is anchored to the housing at one end and includes a first flange for engaging the circuit board, a post projecting from the first flange for insertion into an aperture in the circuit board, and a second flange extending transversely to the longitudinal axis of the post and serving as a force receiving surface on which an insertion force is applied to insert the post into the board aperture.

The invention also consists in a board mount for mounting an electrical connector to a printed circuit board and which is a metal stamping capable of being anchored at one end to the connector housing, comprising a first flange for engaging the circuit board, a post projecting from the first flange for insertion into an aperture of the circuit board, and a second flange extending transversely to the longitudinal axis of the post and serving as a force receiving surface on which an insertion force is applied to insert the post into the aperture of the circuit board.

Embodiments of the invention will now be described by way of example with reference to the accompanying drawings, in which:

FIGURE 1 is an isometric view of shrouded electrical connectors combined with an unshrouded electrical connector and a mating plug;

FIGURE 2 is a section view taken along the line 2-2 of Figure 6;

FIGURE 3 is a section view taken along the line 3-3 of Figure 6;

FIGURE 4 is a section view taken along the line 4-4 of Figure 6;

FIGURE 5 is a top plan view of the connector shown in Figure 1;

FIGURE 6 is a front elevation view of the connector shown in Figure 1;

FIGURE 7 is a fragmentary bottom plan view of a circuit board;

FIGURE 8 is a perspective view of a pair of electrical contacts within a shroud of the connector shown in Figure 1;

FIGURE 9 is a perspective view of an electrical contact within another shroud of the connector shown in Figure 1;

FIGURE 10 is a perspective view of a pair of contacts within the unshrouded connector shown in Figure 1;

FIGURE 11 is an isometric view of a shorting bar, with parts separated from one another;

FIGURE 12 is a fragmentary elevation view of a shorting bar in the connector shown in Figure 1, and further illustrating, a number of alternative positions of the shorting bar;

FIGURE 13 is an isometric view of a board lock for the connector shown in Figure 1;

FIGURE 14 is a section view of the electrical connector with board mount being joined to a circuit

board;

FIGURE 15 is an end view of the board lock shown in Figure 13 with parts of the housing removed to illustrate details of the board lock;

FIGURE 16 is a view similar to Figure 14 illustrating an alternative board lock; and

FIGURE 17 is a view similar to Figure 14, illustrating an alternative board lock.

With reference to Figure 1, an electrical connector **1** comprises, an insulative housing **2** of unitary molded plastic construction, a shroud **3** at a mating end **4** of the housing **2**, and multiple electrical contacts **5** (Figures 2 and 8) within the shroud **3** projecting toward the mating end **4**. The contacts **5** are within a cavity **6** defined by the shroud **3**. A board mount **7** on the housing **2** connects the housing **2** with a circuit board **8** (Figure 7).

With reference to Figure 8, each of the contacts **5** is conductive and will now be described. Each contact **5** is of unitary construction obtained by being stamped and formed from a strip (not shown) of conductive metal. Each contact **5** comprises, a front pin **9** of 0.5 mm square cross section, a wider stepped portion **10** and a rear solder terminal **11** with a contact surface **12** for connection to one of multiple conductive pads **13** (Figure 7) of the circuit board **8**. The contact surface **12** is convex curved for establishing a surface mount connection with a conductive pad **13**. Alternatively, the contact surface **12** can be on a solder terminal **11** shaped as a post (not shown) for establishing a connection in a plated through hole of a circuit board (not shown).

In the cavity **6** of the shroud **3**, the pins **9** of the multiple contacts **5** are arranged in two rows, a top row **14** and a bottom row **15** (Figure 6). The pins **9** are on 2.0 mm. pitch spacing, meaning that the centerlines of the pins **9** are spaced apart 2.0 mm. Consequently, the centerlines of the two rows **14**, **15** are spaced apart 2.0 mm. Each pin **9** of the top row **14** is directly aligned with a pin **9** in the bottom row **15**.

The solder terminal **11** of each contact **5** projects from a rear of the housing **2**. The solder terminals **11** of the contacts **5** in the bottom row **15** bend upward to engage a first row **16** of the pads **13** near an edge **17** of the circuit board **8**. The solder terminals **11** of the contacts **5** in the bottom row **15**, being longer than those of the contacts **5** in the top row **14**, bend upward to engage a second row **18** of the pads **13** farther from the edge **17** of the circuit board **8**.

The solder terminal **11** of each contact **5** in the top row **14** is offset laterally from the centerline of the pin **9** of the same contact **5**. Thereby, a solder terminal **11** of each contact **5** in the bottom row **15** can bend upward without engaging a solder terminal **11** of a contact **5** in the top row **14**. The solder terminals **11** of the contacts **5** in one of the rows **14**, **15** are offset laterally with respect to the solder terminals **11** of the contacts **5** in the other of the rows **14**, **15**.

With reference to Figure 1, an electrical plug **19** is

a complementary connector adapted for mating connection with the connector **1**. The periphery of the shroud **3** is shaped to interfit with the complementary shaped periphery of the plug **19**. The shroud **3** assists in aligning the connector **1** during connection with the electrical plug **19**. The plug **19** contains electrical contacts (not shown) for mating with the pins **9**, such contacts being connected to respective electrical wires **20** terminated with the plug **19**. Multiple openings **21** extend through respective sides **22**, **23** of the shroud **3** beside one of the rows **14**, **15** of the pins **9**. The openings **21** are distributed about a periphery of the shroud **3**. All of the openings **21** extend through the mating end **4** of the connector **1** and extend rearward from the mating end **4**. One of the openings **21** is a keyway located along one side **22** of the shroud **3**, and is shaped to interfit with a complementary shaped, projecting key **24** on the plug **19**. The plug **19** will connect with the connector **1** only when the key **24** is aligned with the keyway, because no other side **23** of the shroud **3** has an opening **21** in a location which will be aligned with the key **24** when the plug **19** is attempted to be inserted into the shroud **3**.

With reference to Figures 11 and 12, a shorting bar **25** comprises, a conductive metal strip **26** with end spring fingers **27** within an insulative sheath **28**, fabricated by insert molding. The shorting bar **25** is adapted to be inserted into the cavity **6** of the shroud **3**. The metal strip **26** bridges between a pair of the pins **9** with the fingers **27** frictionally engaging the pair of pins **9** to connect them electrically. The shorting bar **25** is adapted for being positioned at a selected one of multiple positions **29**, some of which are indicated by dotted lines, interconnecting electrically at least two of the pins **9** in the two rows **14**, **15**. Since the centerlines of the fingers **27** are 2 mm. apart, they can connect with any pair of the pins **9** on 2 mm. pitch spacings. The multiple openings **21** through the shroud allow for entry of an extraction tool **30** to remove the shorting bar **25**. Each of the multiple positions **29** of the shorting bar **25** is aligned with at least one of the openings **21**, such that the extraction tool **30** can enter the opening **21** and pry the shorting bar **25** away from the pair of pins **9**.

The shroud **3** is one of multiple shrouds **3**, **31** at the mating end **4** of the housing **2**. The multiple shrouds **3**, **31** are of different peripheral shapes and contain electrical contacts **5**, **32** of different shapes. For example, the shroud **3** is rectangular and is contiguous at the mating end **4** of the connector **1** with the shroud **31** with a periphery that is rectangular with two diagonal chamfered corners **33**. The contacts **32** within the shroud **31** are arranged four in a row. Each of the contacts **32** (Figure 9) is of unitary construction, stamped and formed from metal strip, having a bulbous front end **34** and a solder terminal **35** projecting from a rear of the housing **2**. The solder terminal **35** is curved with a contact surface **36** for engaging one of the four solder pads **37** on the circuit board **8**. For example, the contacts **32** comprise, 0.84 mm. diameter pins on 0.200 mm. pitch spac-

ing.

The connector 1 further may be unitary with an unshrouded connector **38** with a generally D shaped periphery at the mating end 4 of the connector 1. The unshrouded connector 38 is separated by a clearance space **39** from the shroud 3. Electrical contacts **40** within the connector 38 are arranged in two rows, a top row **41**, and a bottom row **42**. Each of the contacts 40 is of unitary construction, stamped and formed from metal strip. Each of the contacts 40 comprises, an electrical receptacle **43** defined by a pair of opposed spring fingers **44**, a middle portion **45** with barbs **46** along opposite edges **47**, and solder terminals **48** projecting from a rear of the housing 2 for connection to a pad 13' in a row 16' or 18'. For example, the connector 38 can be a 68 position receptacle connector with the contacts 40 on 0.50 mm pitch spacing.

The solder terminal 48 of each contact 40 in the bottom row 42 is offset laterally from the centerline of the receptacle 43 of the same contact 40. Thereby, a solder terminal 48 of each contact 40 in the bottom row 42 can bend upward without engaging a solder terminal 48 of a contact 40 in the top row 41. The solder terminals 48 of the contacts 40 in one row are offset laterally with respect to the solder terminals 48 of the contacts 40 in the other row.

With reference to Figure 13, further details of an embodiment of the board mount 7' will be described. The board mount 7' is fabricated from a one piece metal stamping. A metal board lock of the board mount 7' comprises, a slotted post **19'** defined by two barbed spring members **20'** extending along opposite sides of a slot **21'** having closed ends that join the spring members 20'. The post 19' is adapted for insertion into the aperture 10' of the circuit board 8'. The post 19' is dimensioned with a width having an interference fit within the aperture 10' of the circuit board 8'. Further details of the post 10' and interaction with the aperture 10' are described in U. S. 4,907,987.

The board mount 7' further comprises, a web **22'** having a first edge **23'** and a second edge **24'**. The first edge 23' defines a periphery of both, the post 19', and a first flange **25'** extending transverse to a longitudinal axis of the post 19'. The post 19' projects in a plane defined by the thickness of the web 22'. The first flange 25' is turned outwardly of the plane of the web 22', and is transverse to the plane of the web 22' for engaging the circuit board 8', and, more particularly, to engage one of the pads 9'. Molten solder (not shown) is used to join the first flange 25' to the pad 9'. The first edge 23' along the first flange 25' has a wavy shape for amassing the molten solder, and for distributing the molten solder along the surface of the first flange 25'. The second edge 24' defines a second flange **26'** turned outwardly of the plane of the web 22' to extend transverse to the longitudinal axis of the post 19'. The second flange 26' extends over the axis of the post 19', and provides a force receiving, pressure plate against which an insertion

force is pressed to insert the post 19' with an interference fit in one of the apertures 10' of the circuit board 8'.

The web 22' is contiguous with a coplanar anchor fluke **27'** that extends outwardly beside the first flange 25' and the second flange 26'. An opening **28'** extends through the fluke 27'. The housing 2' is of unitary construction, for example, by molding a polymer known as an LCP, liquid crystalline polymer. With reference to Figures 14 through 17, an assembly of the housing 2' and the board mount 7' can be fabricated by insert molding, such that the housing 2' is molded unitarily with the board mount 7', and such that the housing 2' extends through the opening 28' in the fluke 27'. In an embodiment shown in Figure 17, the opening 28' communicates with an edge of the fluke 27'. Core pin openings **29'** extend through the housing 2' to intersect the fluke 27'. Thereby, the fluke 27' anchors the board mount 7' to the housing 2'. The web 22' and the first flange 25' and the second flange 26' and the post 19' project from a rear of the housing 2'. A notch **30'** at an intersection of the second flange 26' and the fluke 27' permits turning of the flange 26' outwardly.

A finger **33'** on the housing 2' projects from the housing 2', and overlies the second flange 26' and a portion of the web 22' adjacent the second flange 26'. The finger 33' is wider than the second flange 26', and provides a cushion against which an insertion force is applied. The cushion is particularly useful for reducing discomfort when an operator applies the insertion force by manual labor without the use of a tool to apply the insertion force. For example, the finger 33' can be fabricated unitarily with the housing 2'. The finger 33' partially envelops the second flange 26', adding strength to a connection of the finger 33' and the second flange 26'.

With reference to Figures 14 and 16, a hook **34'** on the fluke 27' projects from the housing 2'. A circuit board receiving space between the hook 34' and the first flange 25' is adapted to receive the edge 17' of the circuit board 8' between the hook 34' and the first flange 25'. The hook 34' and the first flange 25', across the width of the space, spans a thickness of the circuit board 8'. A third edge **43'** along the fluke 27' extends beside the hook 34' and extends from the hook 34' to an intersection of the third edge 43' with the first edge 23'. A notch **44'** at the intersection separates an inner end of the first flange 25' from the third edge 43' and from the fluke 27'. The third edge 43' is adapted to stop against the edge 17' of the circuit board 8', and provides a pivot. The third edge 43' registers in a rounded notch 17" in the edge 17' of the circuit board 17', and quickly locates the aperture 10' and the post 19' in mutual alignment for insertion of the post 19' into the aperture 10' when the third edge 43' is against the notch 17" in the edge 17' of the circuit board 8'. When the board mount 7' is pivoted relative to the circuit board 8', and an insertion force is applied to the second flange 26', the aligned post 19' and aperture 10' are assembled with an interference fit, as shown in phantom outline in Figures 14, 16 and 17.

With reference to Figures 14 and 16, a circuit board 8' must be positioned at an angle of elevation to pass over the post 19' and under the hook 34'. In the embodiment of Figure 16, the post 19" is taller than the post 19' in the embodiment of Figure 15. While the taller post 19" is capable of interfitting with a circuit board 8' of relatively larger thickness than is the shorter post 19', the circuit board 8' of Figure 16 is positioned at a relatively larger angle of elevation, particularly when the circuit board 8' of Figure 16 is thicker than the circuit board 8' of Figure 15.

A tip of the hook 34' in the embodiment of Figure 16 has an undercut clearance 45' to allow for insertion of the circuit board 8', positioned at an angle of elevation, into the clearance space. A curved end 46' on the hook 19', next to the undercut clearance 45', engages the circuit board 8', particularly when the post 19' is interfit within the aperture 10', as shown in phantom outline. In the embodiment shown in Figure 17, a hook 34 is absent. The third edge 43' provides a stop for the edge 17' of the circuit board 8'. The third edge 43' can provide a pivot, although the post 19' can be interfit with the aperture 10', either by pivoting, as described with reference to Figures 15 and 16, or by sliding the third edge 43' along the edge of the circuit board 8'.

Claims

1. An electrical connector (1) having an insulating housing (2,2') including a plurality of contacts (9) in a shroud (3), and a board mounting system (7,7') for mounting the housing (2) to a printed circuit board (8), characterised in that the board mounting system comprises a board mount (7,7') which is a stamped piece and which is anchored to the housing (2,2') at one end (27') and includes a first flange (25') for engaging the circuit board (8,8'), a post (19', 19") projecting from the first flange for insertion into an aperture (10') in the circuit board, and a second flange (26') extending transversely to the longitudinal axis of the post (19', 19") and serving as a force receiving surface on which an insertion force is applied to insert the post into the board aperture (10').
2. The electrical connector of claim 1, wherein at least the first contacts (9) have upwardly extending solder terminals (11) for engaging conductive pads (13) on the circuit board (8,8').
3. The electrical connector of claim 1 or 2, wherein the board mount includes a hook (34') facing the first flange (25') and defining a space between the hook and the first flange for receiving the edge of the circuit board (8,8').
4. The electrical connector of claim 1, 2 or 3, wherein the anchored end (27') of the board mount includes

an opening (28') through which the material of the insulating housing extends to secure the board mount to the housing.

5. The electrical connector of any preceding claim, wherein the housing (2,2') includes a finger (33') overlying the second flange (26') and providing a cushion against which an insertion force is applied.
6. A board mount (7,7') for mounting an electrical connector (1) to a printed circuit board (8,8') and which is a metal stamping capable of being anchored at one end (27) to the connector housing (2,2'), comprising a first flange (25') for engaging the circuit board, a post (19', 19") projecting from the first flange for insertion into an aperture (10') of the circuit board, and a second flange extending transversely to the longitudinal axis of the post and serving as a force receiving surface on which an insertion force is applied to insert the post into the aperture (10') of the circuit board.
7. The board mount of claim 6, wherein the metal stamping comprises a web (22') having a first edge (23') defining a periphery of the post (19', 19") and the first flange (25') which extends transversely to the longitudinal axis of the post, and a second edge (24') defining the second flange (26') which is turned outwardly from the plane of the web to extend transversely to the longitudinal axis of the post.
8. The board mount of claim 6 or 7, including an anchor fluke (27') connected to the web (22') for connecting the board mount to the electrical connector (1).
9. The board mount of claim 8, wherein the anchor fluke has an opening (28') through which material of an insulating housing (2,2') of the connector extends upon insert moulding of the housing around the anchor fluke.
10. The board mount of any preceding claim 6 to 9, including a hook (34') facing the first flange (25') and defining a space between the hook and the first flange for receiving the edge of the circuit board (8,8').
11. The board mount of claim 10, including an undercut clearance space (45') at a tip of the hook (34') and a curved end (46') adjacent the undercut clearance space for engaging the circuit board.
12. The board mount of any preceding claim 7 to 11, including a third edge (43') at an intersection with the first edge (23') and providing a stop for an edge of the circuit board such that the post (19', 19") is aligned with the aperture (10') of the circuit board.

13. The board mount of claim 12, including a notch (44') at the intersection of the third edge (43') and the first edge (23').

Patentansprüche

1. Elektrischer Verbinder (1) mit einem isolierenden Gehäuse (2, 2') mit mehreren Kontakten (9) in einem mechanischen Kontaktschutz (3) und einem Platinenmontagesystem (7, 7') zum Montieren des Gehäuses (2) an einer Leiterplatte (8), dadurch gekennzeichnet, daß das Platinenmontagesystem eine Platinenhalterung (7, 7') umfaßt, die ein gestanztes Stück ist und an dem Gehäuse (2, 2') an einem Ende (27') verankert ist und einen ersten Flansch (25') zur Ineingriffnahme der Leiterplatte (8, 8'), wobei ein Pfosten (19', 19'') von dem ersten Flansch zum Einsetzen in eine Apertur (10') in der Leiterplatte vorsteht, und einen zweiten Flansch (26'), der sich quer zur Längsachse des Pfostens (19', 19'') erstreckt und als kraftaufnehmende Fläche dient, auf die zum Einsetzen des Pfostens in die Platinenapertur (10') eine Steckkraft ausgeübt wird, enthält.

2. Elektrischer Verbinder nach Anspruch 1, bei dem mindestens die ersten Kontakte (9) sich nach oben erstreckende Lötanschlüsse (11) zur Ineingriffnahme von leitfähigen Kontaktstellen (13) an der Leiterplatte (8, 8') aufweisen.

3. Elektrischer Verbinder nach Anspruch 1 oder 2, bei dem die Platinenhalterung einen Haken (34') enthält, der dem ersten Flansch (25') zugewandt ist und zwischen dem Haken und dem ersten Flansch einen Raum zum Aufnehmen des Rands der Leiterplatte (8, 8') definiert.

4. Elektrischer Verbinder nach Anspruch 1, 2 oder 3, bei dem das verankerte Ende (27') der Platinenhalterung eine Öffnung (28') enthält, durch die sich das Material des isolierenden Gehäuses erstreckt, um die Platinenhalterung am Gehäuse zu sichern.

5. Elektrischer Verbinder nach einem der vorhergehenden Ansprüche, bei dem das Gehäuse (2, 2') einen Finger (33') enthält, der über dem zweiten Flansch (26') liegt und ein Kissen liefert, gegen das eine Steckkraft ausgeübt wird.

6. Platinenhalterung (7, 7') zum Montieren eines elektrischen Verbinders (1) an einer Leiterplatte (8, 8') die ein Metallstanzartikel ist, der an einem Ende (27) an dem Verbindergehäuse (2, 2') verankert werden kann, umfassend einen ersten Flansch (25') zur Ineingriffnahme der Leiterplatte, wobei ein Pfosten (19', 19'') von dem ersten Flansch zum Einsetzen in eine Apertur (10') der Leiterplatte vorsteht,

und einen zweiten Flansch, der sich quer zur Längsachse des Pfostens erstreckt und als kraftaufnehmende Fläche dient, auf die zum Einsetzen des Pfostens in die Apertur (10') der Leiterplatte eine Steckkraft ausgeübt wird.

7. Platinenhalterung nach Anspruch 6, bei der der Metallstanzartikel einen Steg (22') mit einem ersten Rand (23'), der eine Peripherie des Pfostens (19', 19'') und den ersten Flansch (25') definiert, der quer zur Längsachse des Pfostens verläuft, und einen zweiten Rand (24'), der den zweiten Flansch (26'), der von der Ebene des Stegs aus nach außen gedreht ist, um quer zur Längsachse des Pfostens zu verlaufen, umfaßt.

8. Platinenhalterung nach Anspruch 6 oder 7, mit einer Ankerflanke (27'), die mit dem Steg (22') verbunden ist, um die Platinenhalterung mit dem elektrischen Verbinder (1) zu verbinden.

9. Platinenhalterung nach Anspruch 8, bei der die Ankerflanke eine Öffnung (28') aufweist, durch die sich Material eines isolierenden Gehäuses (2, 2') des Verbinders erstreckt, wenn das Gehäuse um die Ankerflanke herum spritzgegossen wird.

10. Platinenhalterung nach einem der vorhergehenden Ansprüche 6 bis 9, mit einem Haken (34'), der dem ersten Flansch (25') zugewandt ist und zwischen dem Haken und dem ersten Flansch einen Raum zum Aufnehmen des Rands der Leiterplatte (8, 8') definiert.

11. Platinenhalterung nach Anspruch 10, mit einem hinterschnittenen Freiraum (45') an einer Spitze des Hakens (34') und einem gekrümmten Ende (46') neben dem hinterschnittenen Freiraum zur Ineingriffnahme der Leiterplatte.

12. Platinenhalterung nach einem der vorhergehenden Ansprüche 7 bis 11, mit einem dritten Rand (43') an einem Schnittpunkt mit dem ersten Rand (23') und einen Anschlag liefernd für einen Rand der Leiterplatte derart, daß der Pfosten (19', 19'') zu der Apertur (10') der Leiterplatte ausgerichtet ist.

13. Platinenhalterung nach Anspruch 12, mit einer Kerbe (44') an dem Schnittpunkt des dritten Rands (43') und des ersten Rands (23').

Revendications

1. Connecteur électrique (1) possédant un boîtier isolant (2,2') comportant une pluralité de contacts (9) dans une coquille (3), et un système (7,7') de montage sur carte destiné à monter le boîtier (2) sur une

carte à circuit imprimé (8), caractérisé en ce que le système de montage sur carte comprend un dispositif (7,7') de montage sur carte qui est une pièce estampée et qui est ancré au boîtier (2,2') à une extrémité (27') et comporte une première bride (25') destinée à engager la carte imprimée (8,8'), un montant (19',19'') faisant saillie depuis la première bride destiné à être inséré dans une ouverture (10') dans la carte imprimée, et une deuxième bride (26') se prolongeant transversalement à l'axe longitudinal du montant (19',19'') et servant de surface de réception de force sur laquelle est appliquée une force d'insertion pour insérer le montant dans l'ouverture (10') de la carte.

2. Connecteur électrique selon la revendication 1, dans lequel au moins les premiers contacts (9) présentent des bornes à souder (11) se prolongeant vers le haut, destinées à engager des plages conductrices (13) sur la carte imprimée (8,8').

3. Connecteur électrique selon la revendication 1 ou 2, dans lequel le dispositif de montage sur carte comporte un crochet (34') tourné vers la première bride (25') et définissant un espace entre le crochet et la première bride en vue de recevoir le bord de la carte imprimée (8,8').

4. Connecteur électrique selon la revendication 1, 2 ou 3, dans lequel l'extrémité ancrée (27') du dispositif de montage sur carte comporte un orifice (28') à travers lequel se prolonge le matériau du boîtier isolant afin de fixer le dispositif de montage sur carte au boîtier.

5. Connecteur électrique selon l'une quelconque des revendications précédentes, dans lequel le boîtier (2,2') comporte un doigt (33') recouvrant la deuxième bride (26') et fournissant un amortisseur contre lequel est appliquée une force d'insertion.

6. Dispositif (7,7') de montage sur carte, destiné à monter un connecteur électrique (1) sur une carte à circuit imprimé (8,8') et qui est un estampage métallique susceptible d'être ancré à une extrémité (27) sur carte, comprenant une première bride (25') destinée à engager la carte imprimée, un montant (19',19'') faisant saillie depuis la première bride en vue d'être inséré dans une ouverture (10') de la carte imprimée, et une deuxième bride se prolongeant transversalement à l'axe longitudinal du montant et servant de surface de réception de force sur laquelle est appliquée une force d'insertion pour insérer le montant dans l'ouverture (10') de la carte imprimée.

7. Dispositif de montage sur carte selon la revendication 6, dans lequel l'estampage métallique com-

prend une âme (22') présentant un premier bord (23') définissant une périphérie du montant (19',19'') et de la première bride (25') qui se prolonge transversalement à l'axe longitudinal du montant, et un deuxième bord (24') définissant la deuxième bride (26') qui est tournée vers l'extérieur du plan de l'âme pour se prolonger transversalement à l'axe longitudinal du montant.

8. Dispositif de montage sur carte selon la revendication 6 ou 7, comportant une patte d'ancrage (27') connectée à l'âme (22') en vue de connecter le dispositif de montage sur carte au connecteur électrique (1).

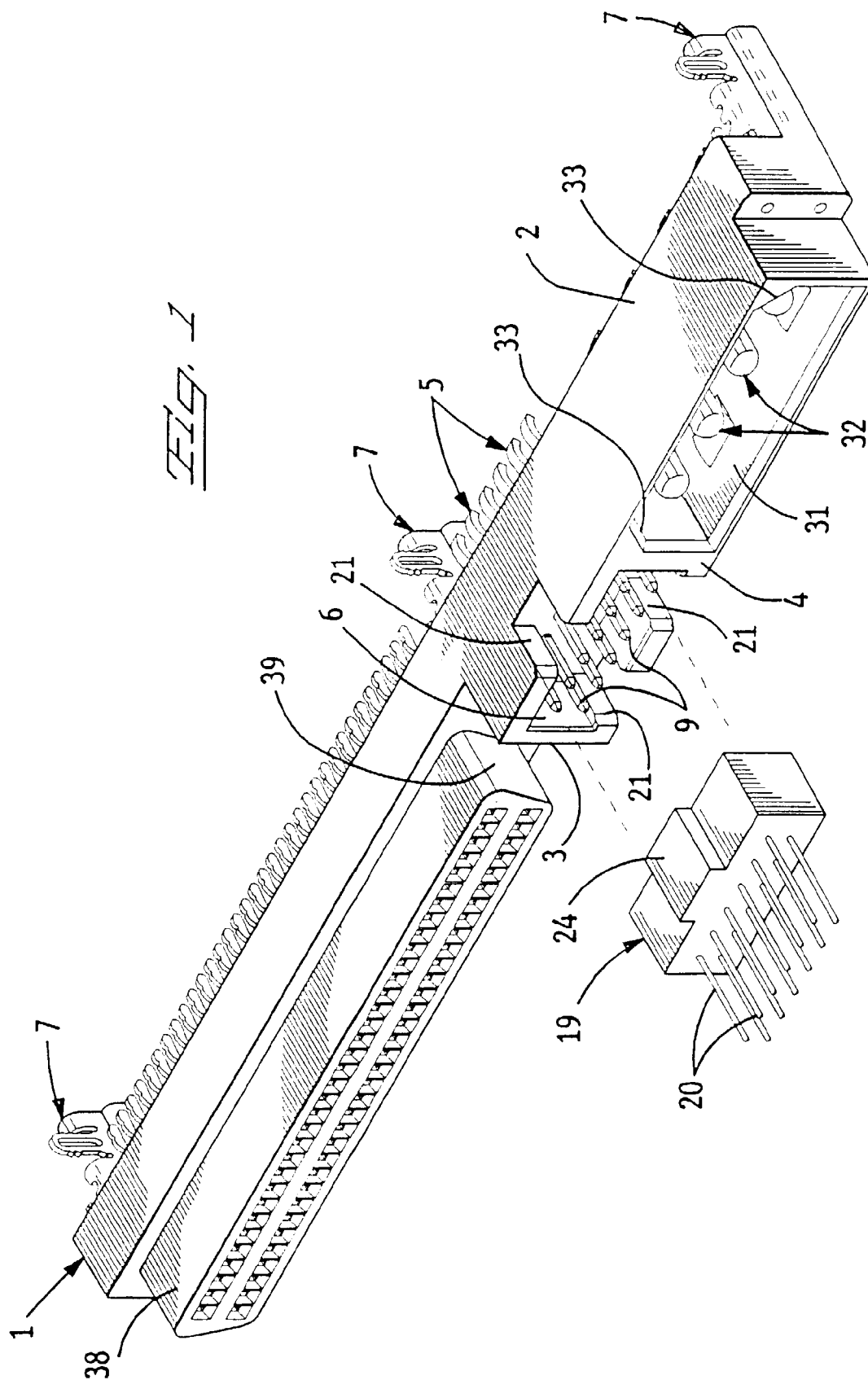
9. Dispositif de montage sur carte selon la revendication 8, dans lequel la patte d'ancrage possède un orifice (28') à travers lequel se prolonge du matériau d'un boîtier isolant (2,2') du connecteur par surmoulage du boîtier autour de la patte d'ancrage.

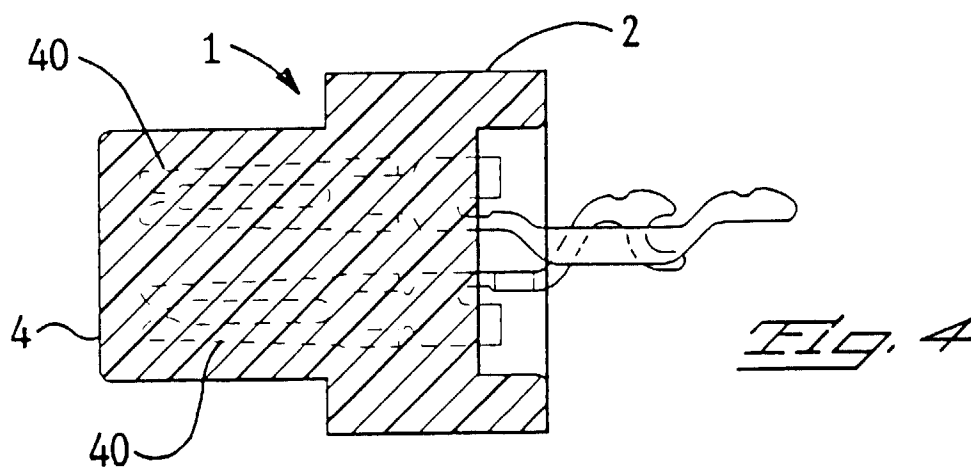
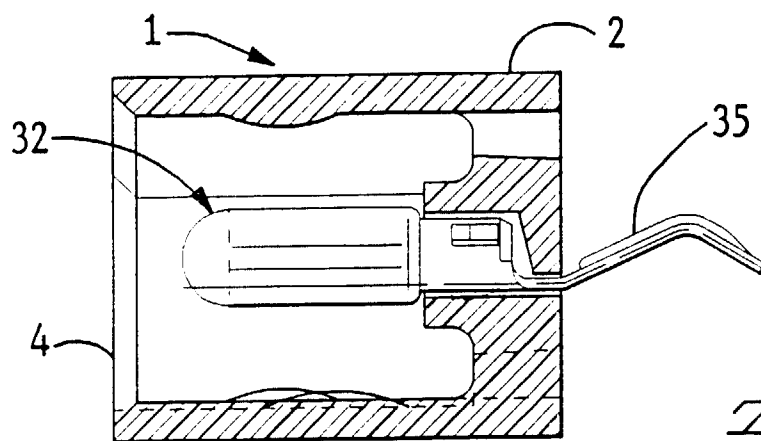
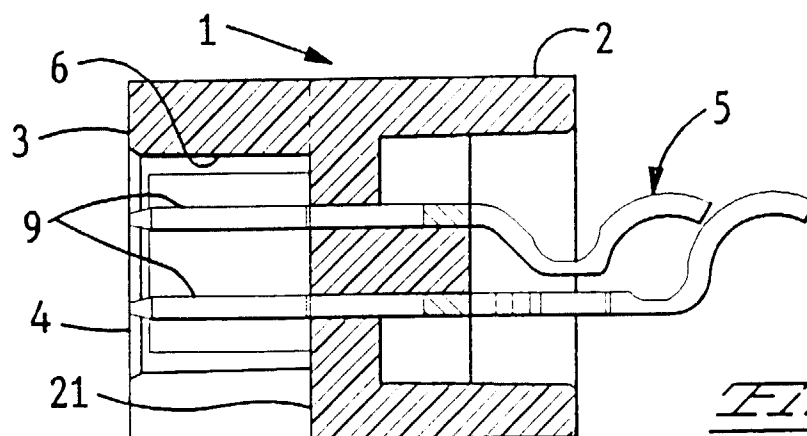
10. Dispositif de montage sur carte selon l'une quelconque des revendications 6 à 9 précédentes, comportant un crochet (34') tourné vers la première bride (25') et définissant un espace entre le crochet et la première bride en vue de recevoir le bord de la carte imprimée (8,8').

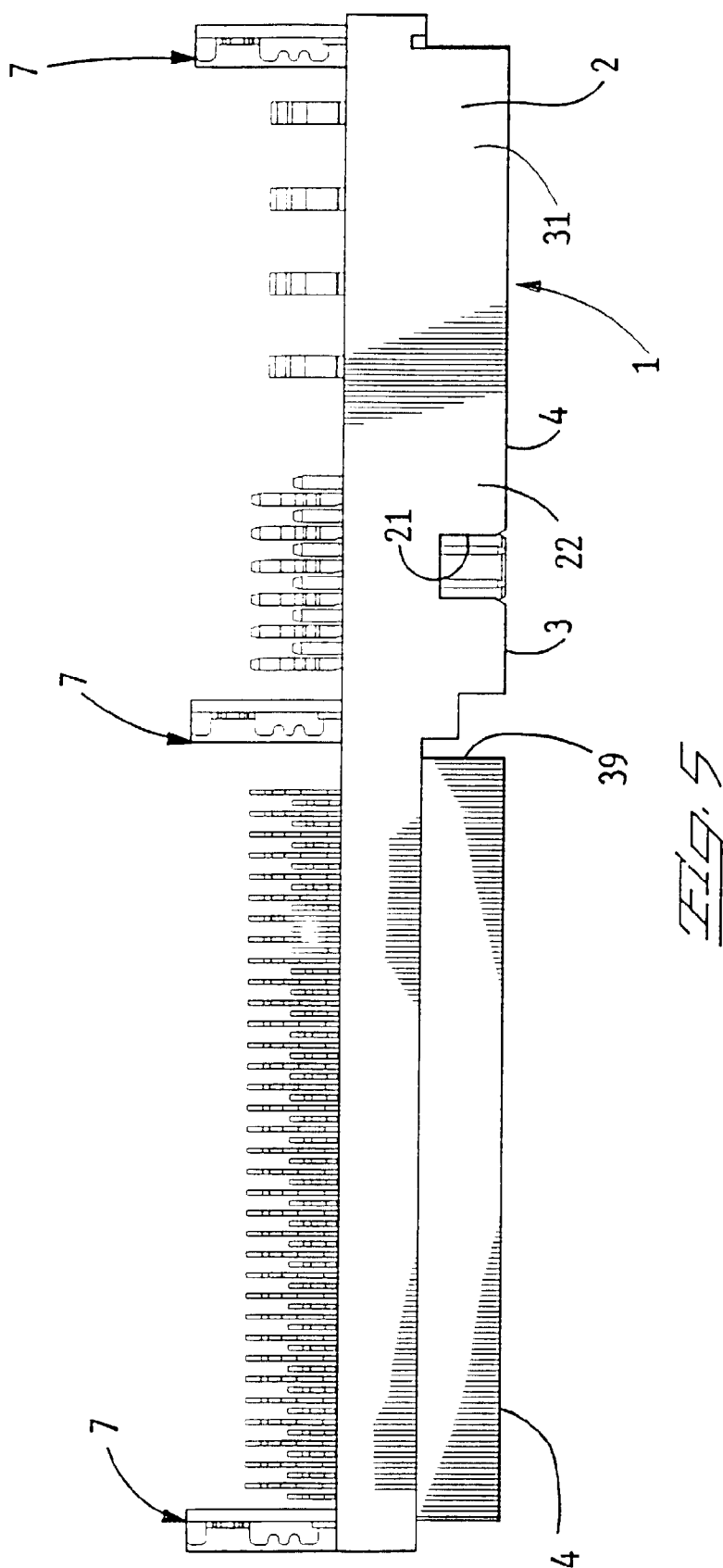
11. Dispositif de montage sur carte selon la revendication 10, comportant un espace libre en creux (45') à un bout du crochet (34') et une extrémité courbe (46') à côté de l'espace libre en creux destinée à engager la carte imprimée.

12. Dispositif de montage sur carte selon l'une quelconque des revendications 7 à 11, comportant un troisième bord (43') à une intersection avec le premier bord (23') et fournissant une butée vis-à-vis d'un bord de la carte imprimée, de sorte que le montant (19',19'') soit aligné avec l'ouverture (10') de la carte imprimée.

13. Dispositif de montage sur carte selon la revendication 12, comportant une encoche (44') à l'intersection du troisième bord (43') et du premier bord (23').







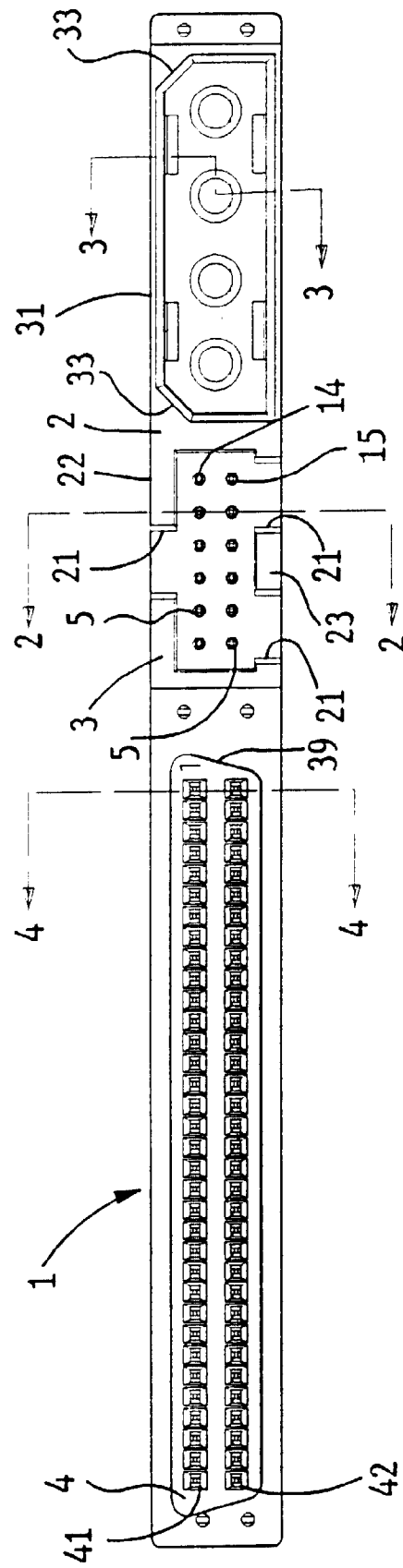


Fig. 5

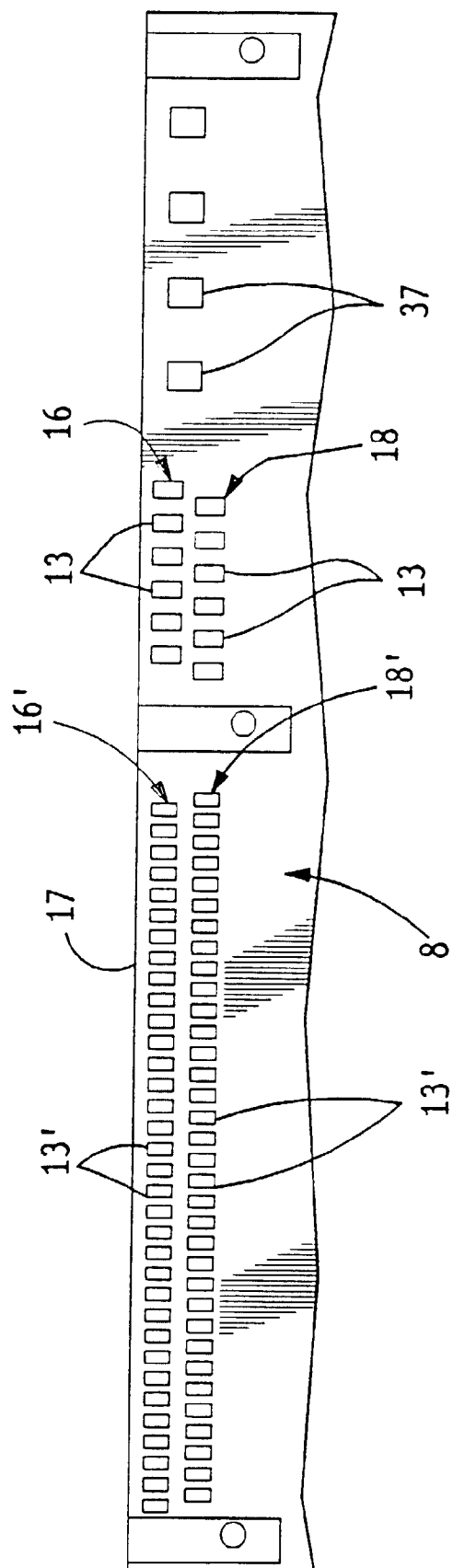
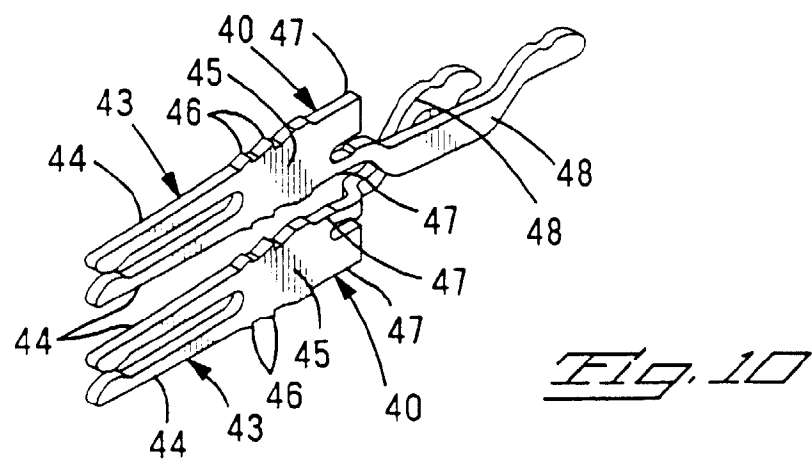
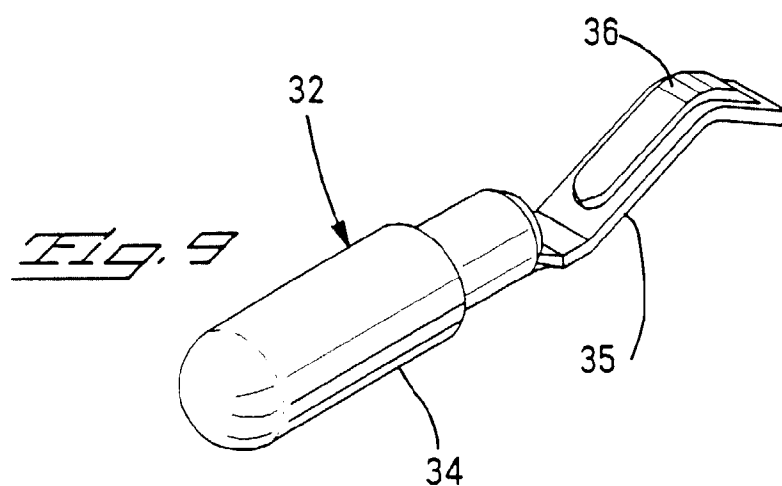
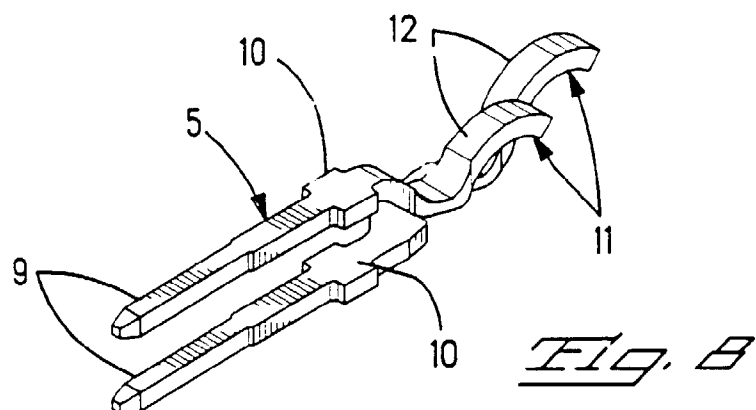
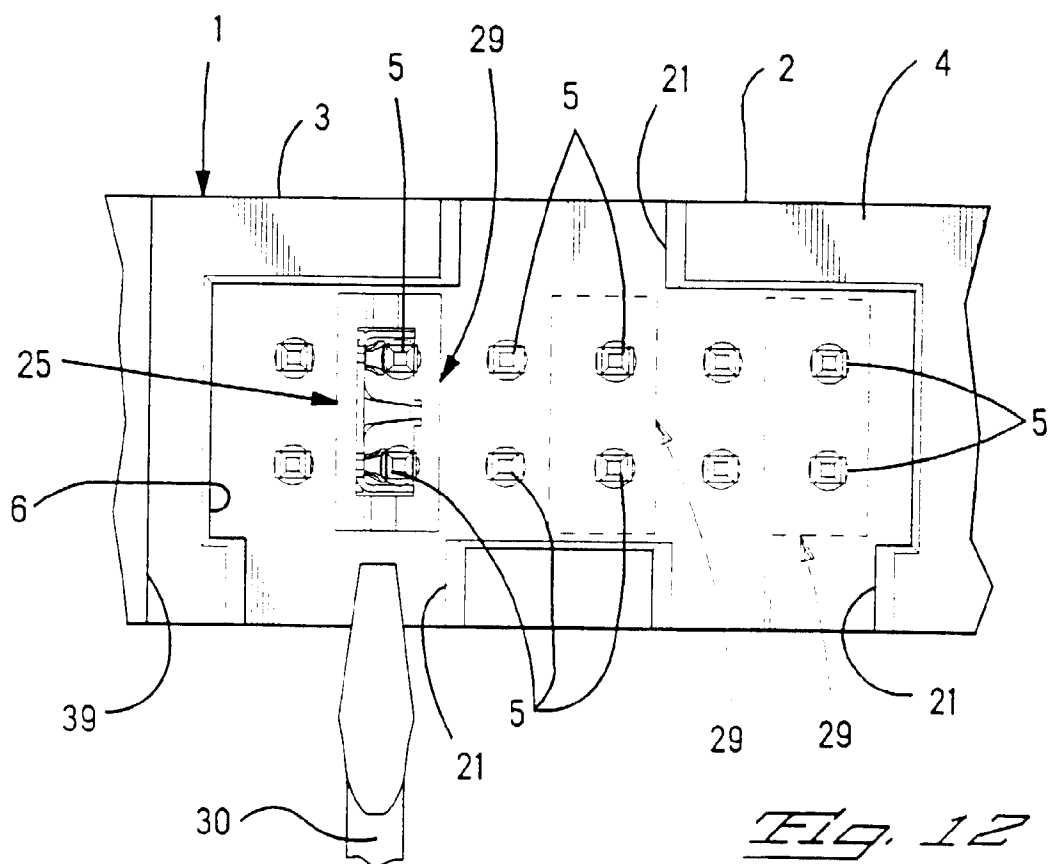
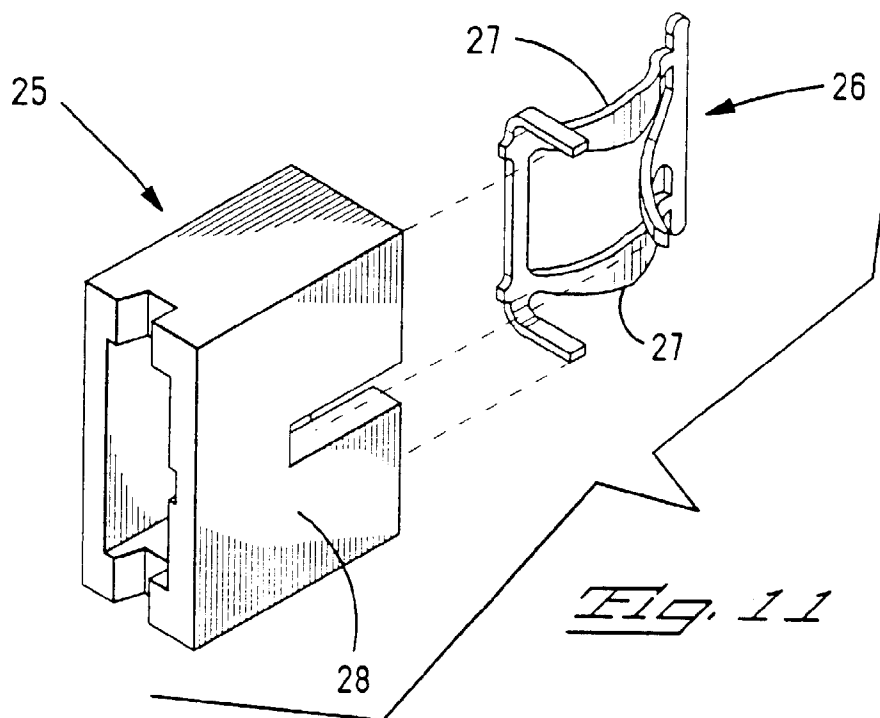
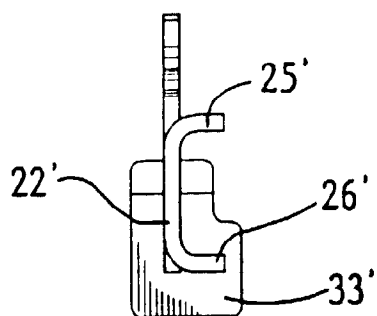
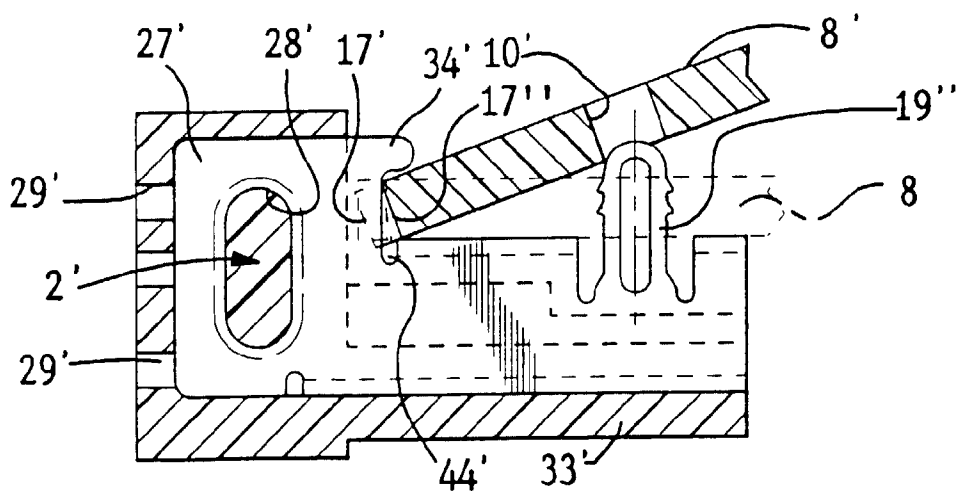
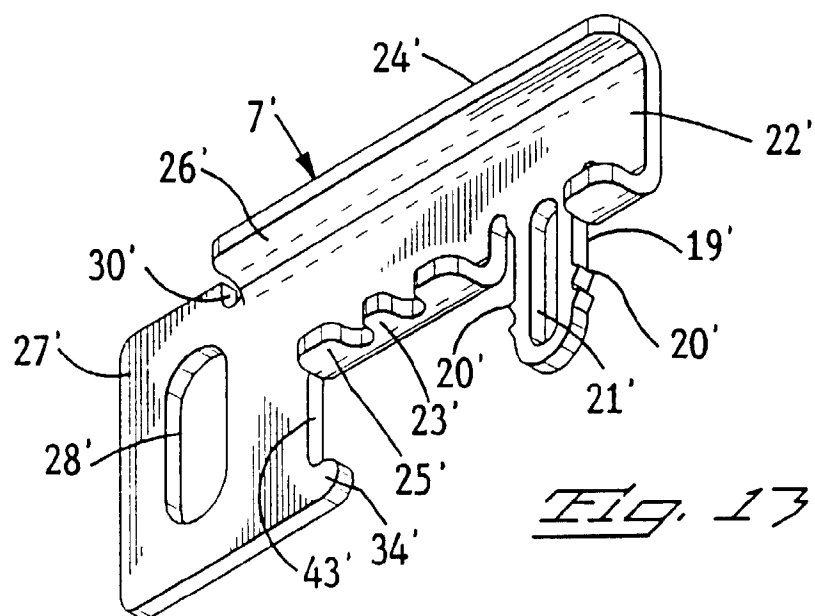


Fig. 7







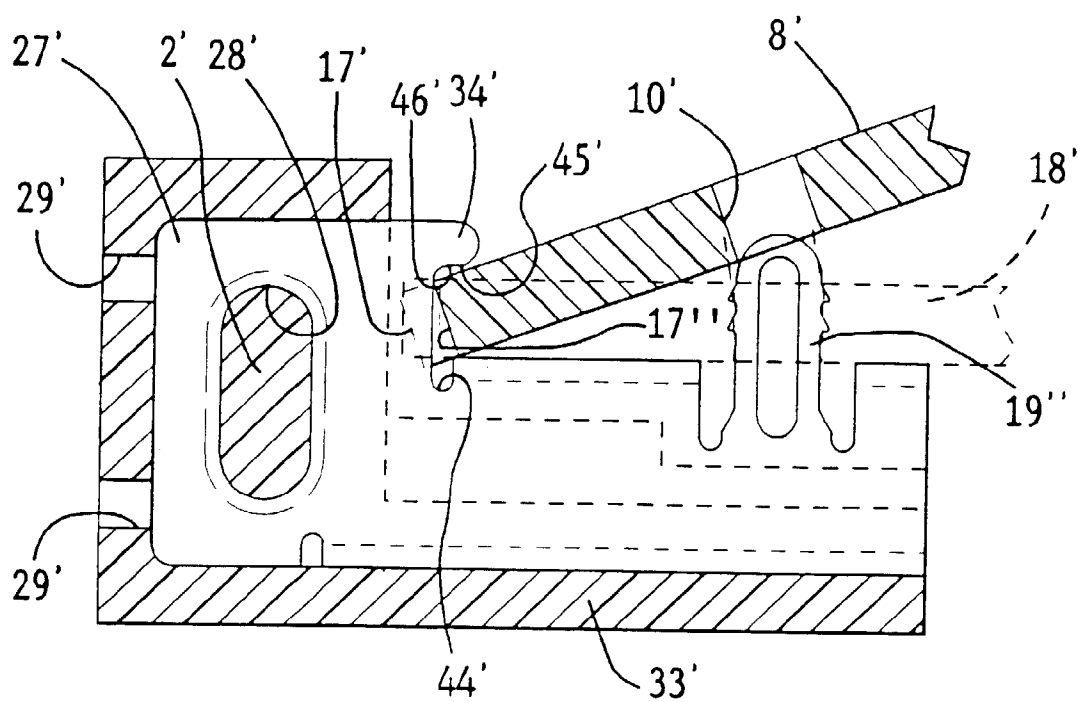


Fig. 16

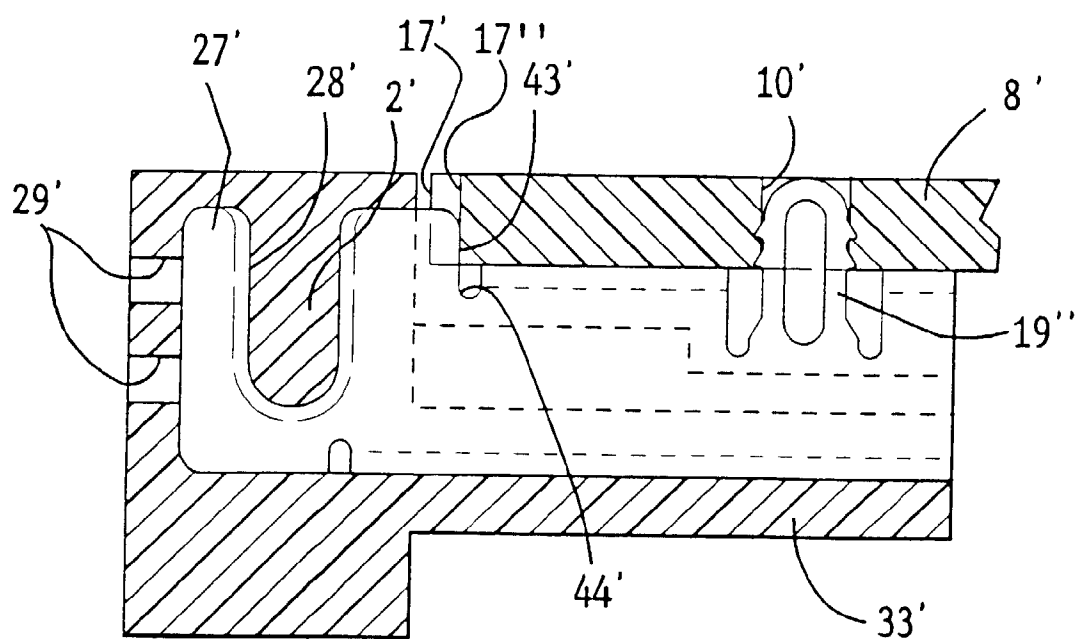


Fig. 17