

(12) PATENT
(19) AUSTRALIAN PATENT OFFICE

(11) Application No. **AU 200115307 B2**
(10) Patent No. **772489**

(54) Title
Railway baseplate assembly

(51) ⁶ International Patent Classification(s)
E01B 009/48 E01B 009/68
E01B 009/42

(21) Application No: 200115307

(22) Application Date: 2000.11.21

(87) WIPO No: W001/38642

(30) Priority Data

(31) Number	(32) Date	(33) Country
9927786	1999.11.24	GB
0009595	2000.04.18	GB

(43) Publication Date : 2001.06.04

(43) Publication Journal Date : 2001.08.16

(44) Accepted Journal Date : 2004.04.29

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(56) Related Art
EP 0619852
US 4715533
FR 423341

AU 200115307

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
31 May 2001 (31.05.2001)

PCT

(10) International Publication Number
WO 01/38642 A1

- (51) International Patent Classification: E01B 9/48, 9/68, 9/42 (74) Agent: FENLON, Christine, Lesley; Haseltine Lake & Co, Imperial House, 15-19 Kingsway, London WC2B 6UD (GB).
- (21) International Application Number: PCT/GB00/04422
- (22) International Filing Date: 21 November 2000 (21.11.2000)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 9927786.5 24 November 1999 (24.11.1999) GB
0009595.0 18 April 2000 (18.04.2000) GB
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- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SI, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

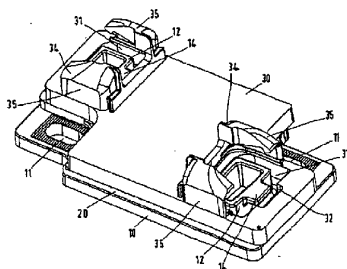
Published:

— With international search report.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: RAILWAY BASEPLATE ASSEMBLY



(57) Abstract: A railway baseplate assembly comprising a baseplate (30), a cushioning pad (20) for lying beneath the baseplate (30), and means (10) for securing the baseplate (30) to an underlying rail foundation when the assembly is in use, wherein the said securing means (10) comprise a non-screw-threaded post member (12), which post member (12) extends, when in use, through holes (21, 31) provided in the baseplate (30) and cushioning pad (20) in such a way as to engage the said baseplate (30). The post member (12) and baseplate (30) may be such that engagement of the baseplate (30) with the post member (12) can be brought about by movement of the baseplate (30) relative to the post member (12) firstly in a direction substantially perpendicular to the plane of the baseplate (30) and towards the post member (12) so that the post member (12) extends through the hole (31) in the baseplate (30) and secondly in a direction substantially parallel to the plane of the baseplate so that the post member (12) engages the baseplate (30). The post member (12) is fastened, directly or indirectly, to the rail foundation and the post member (12), cushioning pad (20) and baseplate (30) may be such that the cushioning pad (20) and baseplate (30) can be brought into engagement with the post member (12) while the post member (12) is fastened to the rail foundation.

WO 01/38642 A1

RAILWAY BASEPLATE ASSEMBLY

5 The present invention relates to a railway baseplate assembly suitable for use, for example, in attenuating vibrations.

Prior art rail fastening assemblies have been developed by the applicant which incorporate rail fastening clips of the type which are described in GB-1510224 (termed "e"-clips by the applicant) or of 10 the type which are described in EP-B-0619852 (termed by the applicant FASTCLIP™ rail fastening clips).

A prior art rail fastening assembly of the latter type comprises, as shown in Figure 1 of the accompanying drawings, a first, lower baseplate 1 which 15 has an approximately rectangular shape and is formed at each of its four corners with an ear 1C through which there is a hole 1A for receiving a bolt 1B by which the baseplate 1 is secured to an underlying railway foundation (not shown). On the approximately 20 rectangular area defined between the bolts 1B on the upper surface of the baseplate 1 there is placed a cushioning pad 2 and on top of that pad 2 a second, upper baseplate 3 of approximately the same size and shape as the pad 2. The upper baseplate 3 is secured 25 to the lower baseplate 1 through the use of screw-threaded bolts 3B which pass through openings 3A (not shown) in two diagonal corners of the upper baseplate 3, through corresponding openings 2A (not shown) in the underlying cushioning pad 2 and thence into the lower baseplate 1. The openings 3A in the upper baseplate 3 30 for receiving the bolts 3B are lined with respective rectangular bushes 4 (not shown). The upper baseplate 3 is formed, in its two diagonal corners which do not have openings 3A for the bolts 3B, with respective 35 shoulders 5 for receiving respective rail clips 7 of the type described in EP-B-0619852. Such rail clips 7

-2-

are installed in the shoulders 5 to secure a rail 9 laid across a rail pad 8 provided on the upper baseplate 3 between the shoulders 5. Sidepost insulators 60 are provided on respective shoulders 5 to
5 insulate the rail 9 from the shoulders 5.

The use of screw-threaded fastenings in a working part of the assembly, i.e. to hold the upper baseplate 3 to the lower baseplate 1, is undesirable owing to maintenance difficulties.

10 Furthermore, baseplates of this type are undesirably large because of the combined area occupied by the means by which the upper and lower baseplates are secured together and that occupied by the shoulders for receiving the rail fastening clips. The baseplate
15 is particularly large where FASTCLIP™ rail fastening clips are used, because of the relatively large size of the shoulders required for this fastening. However, it is advantageous to use a FASTCLIP™ rail fastening clip because the clip can be retained by the shoulder in a
20 pre-assembly position in which the clip is partially installed in the shoulder so as to retain the sidepost insulator and therewith the rail pad, thereby allowing the whole assembly to be delivered to site as a unit and hence speeding up the installation and maintenance
25 of rail track. In addition, the FASTCLIP™ rail fastening clip may be more readily installed by machine, again speeding up the installation process.

According to an embodiment of a first aspect of the present invention there is provided a railway
30 baseplate assembly comprising a baseplate, a cushioning pad for lying beneath the baseplate, and means for securing the baseplate to an underlying rail foundation when the assembly is in use, wherein the said securing means comprise a non-screw-threaded post member, which
35 post member extends, when in use, through holes provided in the baseplate and cushioning pad in such a

-3-

way as to engage the said baseplate.

Preferably the post member and baseplate are such that engagement of the baseplate with the post member can be brought about by movement of the baseplate relative to the post member firstly in a direction substantially perpendicular to the plane of the baseplate and towards the post member so that the post member extends through the hole in the baseplate and secondly in a direction substantially parallel to the plane of the baseplate so that the post member engages the baseplate.

Desirably, the post member is fastened, directly or indirectly, to the rail foundation and the said post member, cushioning pad and baseplate are such that the cushioning pad and baseplate can be brought into engagement with the post member while the post member is fastened to the rail foundation.

Preferably there are two post members, which extend through respective holes in the baseplate and cushioning pad.

Desirably, two shoulders are provided on an upper surface of the said baseplate, for retaining respective rail fastening clips, the said holes in the said baseplate being located adjacent to respective shoulders such that the clips at least partially overlie said holes when installed in said shoulders. The said shoulders are desirably formed integrally with the said baseplate.

The or each post member is preferably provided with a laterally-extending tab which engages with a corresponding ledge in the baseplate.

In one embodiment, the or each post member may extend into an associated post housing provided in the said rail foundation. The or each said post member and the or each said post housing may be provided with interlocking serrations, whereby the height of the post

-4-

member within the post housing can be adjusted. The said post member may be retained at a desired height within the post housing by means of a wedge member inserted between the post member and the post housing.

5 A shim may be placed between the baseplate and the underlying rail foundation to support the baseplate at a desired height above the foundation.

In an alternative embodiment, the assembly further comprises a lower baseplate, located beneath the other baseplate, from which lower baseplate the said post member projects upwardly, said lower baseplate being attached to an underlying rail foundation when the assembly is in use. Desirably, the or each post member is formed integrally with the lower baseplate.

10

15 In another alternative embodiment, the or each post member is directly secured to the rail foundation.

The or each post member is preferably at least partially surrounded by a cushioning bush provided within the associated hole in the baseplate.

20 In embodiments of the present invention, respective covers are preferably provided over the holes in the baseplate. Means may be provided for locking the covers onto the baseplate.

The assembly may be used with rail fastening clips which are approximately M-shaped in plan, the shoulders preferably having walls for retaining outer legs of the rail fastening clips. In this case each cover may be provided with a ramp for use in deflecting the said rail fastening clip. Such an assembly may further

25

30 comprise a sidepost insulator, clip toe insulator and rail pad. The sidepost insulator may have means for securing the insulator to the baseplate and a portion for preventing unintentional disengagement of the cover from the baseplate.

35 A baseplate for use in such an assembly as the said lower baseplate preferably comprises a plate-like

-5-

member on which at least one post member is provided.
The or each post member may be formed integrally with
the plate-like member.

5 The or each post member preferably has a
laterally-extending tab. In the case of two post
members, the tab of one post member extends inwardly
(i.e. towards the centre of the baseplate) and the tab
of the other post member extends outwardly (i.e. away
from the centre of the baseplate).

10 The or each post member is preferably hollow and
substantially rectangular in outline.

A cushioning pad for use in an assembly embodying
the present invention has one or more holes formed
therein for receiving respective post members.

15 A baseplate for use in an assembly embodying the
present invention comprises a plate-like member having
one or more holes therein for receiving respective post
members.

20 Such a baseplate preferably has two holes and
further comprises shoulders on the said plate-like
member which extend upwardly from a region of the said
plate-like member around the said holes such that when
a rail clip is installed in such a shoulder it at least
partially overlies the said hole. Desirably, the said
25 shoulders are formed integrally with the said plate-
like member and are suitable for retaining
substantially M-shaped rail clips.

A post member for use in one assembly embodying
the present invention is shaped so as fit inside an
30 associated post housing, the said post member having
means for engaging the said associated post housing.

The post housing engaging means of such a post
member preferably comprise serrations, provided on an
exterior portion of the said post member, for engaging
35 corresponding serrations on an interior portion of the
said associated post housing. Desirably, the post

-6-

member is hollow and has a tapered internal surface so as to accommodate a wedge member for urging the serrations of the post member against the serrations of the post housing.

5 A post housing for use in one assembly embodying the present invention is shaped so as to accommodate an associated post member, the said post housing having means for engaging the said associated post member. The post member engaging means of such a post housing
10 preferably comprise serrations, provided on an interior portion of the said post housing, for engaging corresponding serrations on an exterior portion of the said associated post member.

15 A concrete railway sleeper for use with a railway baseplate assembly embodying the present invention is provided with two pairs of post housings.

Reference will now be made, by way of example, to the accompanying drawings, in which:-

20 Figure 1 (described above) shows a prior art rail fastening assembly;

Figure 2 shows a first rail fastening assembly embodying the present invention and a rail;

Figure 3 shows a first part of the first rail fastening assembly embodying the present invention;

25 Figure 4 shows the first part and a second part of the first rail fastening assembly embodying the present invention;

30 Figure 5 shows the first and second parts and a third part of the first rail fastening assembly embodying the present invention, the third part being in a first position;

Figure 6 shows the first, second and third parts, the third part being in a second position;

35 Figure 7 shows the first to third parts and a fourth part of the first rail fastening assembly embodying the present invention;

-7-

Figure 8 shows the first to third parts and a fifth part of the first rail fastening assembly embodying the present invention;

5 Figure 9 shows the first, second, third, fifth and sixth parts and a seventh part of the first rail fastening assembly embodying the present invention;

10 Figure 10 shows the first, second, third, fifth, sixth and seventh parts and an eighth part of the first rail fastening assembly embodying the present invention;

15 Figure 11 shows views of the fourth part, Fig. 11a showing a plan view, Fig. 11b showing a perspective view, Fig. 11c showing a side view, and Fig. 11d showing a cross-sectional view taken along the line X-X in Fig. 11c;

Figure 12 shows further cross-sectional views of a modified fourth part;

Figure 13 shows views of the fifth part;

20 Figure 14 shows a perspective view of a second railway baseplate assembly embodying the present invention;

Figure 15 shows a perspective view of a third railway baseplate assembly embodying the present invention;

25 Figure 16 shows a perspective view of a fourth railway baseplate assembly embodying the present invention;

30 Figures 17 and 18 shows respective perspective and partially cut-away views of parts of a railway sleeper for use in the railway baseplate assembly of Figure 16, which sleeper incorporates a first component of the said assembly;

35 Figure 19 shows a perspective view of parts of the railway sleeper of Figures 17 and 18 together with a second component of the assembly of Figure 16;

Figure 20 shows a perspective view of the railway

-8-

sleeper of Figures 17 and 18 together with the second and a third component of the assembly of Figure 16 during installation;

5 Figure 21 shows an exploded partial cross-sectional side view of the sleeper and components of Figure 20;

Figures 22 and 23 show respective perspective and partial cross-sectional side views of the sleeper and components of Figure 18 in an installed condition;

10 Figure 24 shows a partial cross-sectional side view of the components of Figure 20 in an alternative installed condition;

Figure 25 shows a perspective view of parts of the railway sleeper of Figures 17 and 18 together with the second, third and a fourth component of the assembly of Figure 16;

Figure 26 shows a perspective view of a fifth railway baseplate assembly embodying the present invention;

20 Figure 27 shows a partially cut-away view of part of a railway sleeper for use in the railway baseplate assembly of Figure 26, which sleeper incorporates a first component of the said assembly;

Figure 28 shows a perspective view of the railway sleeper of Figure 27 together with a second component of the assembly of Figure 26;

25 Figure 29 shows a perspective view of the railway sleeper of Figure 27 together with the second and a third component of the assembly of Figure 26 during installation; and

30 Figures 30 and 31 show respective partially cut-away perspective and side views of an alternative embodiment of the fifth component of the first railway baseplate.

35 Figure 2 shows a first rail fastening assembly embodying the present invention and a rail 9. In this

embodiment, the assembly comprises a lower baseplate 10, a cushioning pad 20 placed thereover, an upper baseplate 30 placed over the cushioning pad 20, a pair of cushioning bushes 40 (not visible in Figure 2), a pair of covers 50 over the bushes 40 and secured to the upper baseplate 30, a pair of sidepost insulators 60 secured to the upper baseplate 30, a pair of rail fastening clips 7 carrying respective toe insulators 71 and secured to the upper baseplate 30, and a rail pad 80 secured to the upper baseplate 30.

The lower baseplate 10 is shown in more detail in Figure 3. The lower baseplate 10 comprises a substantially rectangular plate-like member and has at two diagonally-opposing corners respective elongate slots 11 for receiving means (not shown) whereby the lower baseplate 10 is secured to an underlying railway foundation. Protruding from corner regions of the baseplate 10 not having slots 11 are respective substantially rectangular hollow post members 12, called "studs" hereafter, having respective recesses 13 therein. The studs 12 are preferably formed integrally with the plate-like member of the lower baseplate 10. Projecting laterally from a wall of each stud 12 is a tab 14. The tab on one of the studs 12 projects inwardly towards the centre of the lower baseplate 10, whilst the tab 14 on the other of the studs 12 projects outwardly away from the centre of the baseplate 10.

The cushioning pad 20 is shown in more detail in Figure 4 in combination with the lower baseplate 10. The cushioning pad 20 is shaped approximately like a rectangle, of the same size as the rectangular lower baseplate 10, but having two diagonally-opposed corners 22 cut away to reveal the elongate slots 11 of the lower baseplate 10. Next to each cut-away corner 22 there is provided a rectangular hole 21 through which there projects one of the hollow studs 12 of the lower

-10-

baseplate 10.

The upper baseplate 30 is shown in more detail in Figure 5, in combination with the lower baseplate 10 and cushioning pad 20. The upper baseplate 30 comprises a plate-like member which is substantially identical in size and outline to the cushioning pad 20 beneath it. Aligned with the holes 21 of the cushioning pad 20 the upper baseplate 30 has respective holes 31. Each hole 31 has along one edge a ledge 32 for receiving the tab 14 provided on the corresponding stud 12, thereby preventing separation of the upper and lower baseplates 10, 30 through the application of vertical force alone. In Figure 5 the upper baseplate 30 is shown in a first "unlocked" position in which it is slightly off-centre such that the tabs 14 of the studs 12 are not engaged with the ledges 32. Figure 6 shows the upper baseplate 30 in a second "locked" position in which the tabs 14 are engaged with the ledges 32. A cushioning piece (not shown) is preferably located in the ledge 32 on the upper baseplate 30 to prevent direct contact between the upper and lower baseplates 10, 30. The cushioning piece is preferably made of polyurethane material.

Around the holes 31 through which the studs 12 project are formed respective shoulders 34 for securing respective rail clips 7. The shoulders 34 have side walls 35 having features for engaging the rail clips 7. The shoulders are preferably formed integrally with the remainder of the upper baseplate 30.

The bush 40 is shown in Figure 7, in combination with the lower baseplate 10, the cushioning pad 20 and the upper baseplate 30, and also in more detail in Figures 11 or 12. As shown in Figure 11, the bush 40 slots into the hole 31 in the upper baseplate 30. The bush 40 comprises a plate 42, formed approximately centrally with a slot 41, and walls 43 which extend

-11-

completely along three sides of the plate 42 and partially along the fourth side thereof. The bush 40 is desirably made of polyurethane. Once the bush 40 is installed and in position, the upper plate 30 cannot be disengaged from the lower plate 10. The cross-sectional views of Fig. 12 illustrate a modified bush 40' in which set into the plate 42 there is a reinforcing plate 44 having a wear stop 45 which is encapsulated in the front wall 43 of the bush 40'.

The cover 50 is shown in Figure 8, in combination with the lower baseplate 10, the cushioning pad 20, the upper baseplate 30 and the bush 40 (not visible), and in more detail in Figure 13. The cover 50 is shaped so as to fit over the hole 31 between the walls 35 of the shoulder 34. It is formed centrally with a ramp 51 up which part of the rail fastening clip 7 climbs during installation of the clip into the baseplate 30.

A modified cover 50' and a modified upper baseplate 30' are shown in cross-section in Figures 30 and 31. The cover 50' has lugs 52, 53 which engage in respective slots 36, 37 in the upper baseplate 30' in order to retain the cover 50'. Figures 30 and 31 also illustrate a modified sidepost insulator 60' which locks over part of the shoulder 34 by means of lugs (not shown) and has portions 61, 62 which engage a recess 54 in the cover 50' and fill the gap between the cover 50' and the shoulder 34 so as to prevent the cover 50' from becoming disengaged.

The sidepost insulator 60 and the rail clip 7 are shown in more detail in Figure 9, in combination with the lower baseplate 10, the cushioning pad 20, the upper baseplate 30, the bush 40 (not visible) and the cover 50. The rail fastening clip 7, its toe insulator 71, and the sidepost insulator 60 are of the types described in EP-B-0619851 and EP-B-0619852, which describe what the applicant has termed the FASTCLIP™

-12-

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5 rail fastening system. The sidepost insulator 60, which sits on part of the shoulder 34, is provided to insulate the shoulder 34 from the rail 9; the rail fastening clip 7 carries the toe insulator 71 so as to insulate the clip 7 from the rail 9. However, it should be noted that a conventional L-shaped insulator, sitting on the flange of the rail, may alternatively be used and the toe insulator 71 and sidepost insulator 60 dispensed with.

10 The rail clip 7 is substantially M-shaped in plan. During installation of the clip 7 into the shoulder 34 a substantially U-shaped central portion of the clip is caused to ride up the ramp 51 of the cover 50 as the outer legs of the clip 7 engage the walls 35 of the
15 shoulder 34, thereby deflecting the clip 7.

The rail pad 80 is shown in more detail in Figure 10, in combination with the lower baseplate 10, the cushioning pad 20, the upper baseplate 30, the bush 40 (not visible), the cover 50, the sidepost insulator 60
20 and the rail clip 7. The rail pad 80 is retained in position by the sidepost insulator 60 and may take the form of a conventional rail pad of one of many different types.

Figure 14 shows a second railway baseplate
25 assembly embodying the present invention in which the upper baseplate 30' and cushioning pad 20' are extended so as to enable washers to be held captive between the upper and lower baseplates 30', 10' before
30 installation, reducing the number of loose components in the assembly.

Figure 15 shows a third railway baseplate
embodying the present invention, which incorporates
four bolt holes 11" in the lower baseplate 10", for use
in locations where two baseplate hold down fixings are
35 not considered sufficient.

A fourth railway baseplate assembly will now be

-13-

described with reference to Figures 16 to 25.

Figure 16 shows the fourth railway baseplate assembly installed on a concrete railway sleeper 100. The railway baseplate assembly comprises a baseplate 150, for example made of cast iron, having a central rail seat area 151 for receiving a rail pad (not shown) and rail (also not shown). On either side of the rail seat area 151 are respective shoulders 152 for receiving rail fastening clips (not shown) for holding the rail down to the baseplate 150 and also for locating the sidepost insulators (not shown). Between the underside of the baseplate 150 and the upper surface of the concrete sleeper 100 is a cushioning pad 140 made of resilient material. The baseplate 150 is secured to the underlying concrete sleeper 100 by means of post members 120 which pass through respective holes in the baseplate 150, each post member 120 having a laterally-extending tab 121 which overlies part of the baseplate 150, the post members 120 being held within respective post housings 110 (not shown in Figure 16) embedded in the concrete sleeper 100. The post members 120 are held in position in the post housing 110 by respective wedge members 130 and are partially surrounded by cushioning bushes (not shown) within the post housings 110, as in the first embodiment.

The post housings 110 are shown in more detail in Figures 17 and 18. Each post housing 110 is substantially rectangular in cross-section. At the top and bottom of the housing 110 respective lips 111 and 112 are formed so as to inhibit movement of the housing 110 when it is embedded in the concrete sleeper 100.

Each housing 110 has an opening 113 into which an associated post member 120 is inserted, as shown in more detail in Figures 19 to 24. Each post member 120 is shaped so as to slot into opening 113 of the post housing 110. On an external face of the post member

-14-

120 a region is formed with serrations 122. When the post member 120 is inserted into the post housing 110 the serrations 122 can interlock with serrations 114 formed on a corresponding internal face within the opening 113 of the housing 110. The serrations 114 within the post housing 110 are towards the top of the opening 113, whereas the serrations 122 on the post member 120 are towards the bottom of the post member, at the end opposite to that at which the tab 121 is formed. The depth of the post housing 110 is less than the length of the post member 120. Accordingly, when the post member 120 is inserted into the opening 113 of the post housing 110 to its fullest extent it protrudes above the top of the housing 110. The post member 120 has an aperture 123 running through its length, one face 124 of the aperture 123 being tapered so as to receive the wedge member 130, one tapered face of the wedge member 130 bearing against the face 124 of the post member 120 and an opposite face of the wedge member 130 bearing, through an opening in the side of the post member 120, on an internal face of the opening 113 in the post housing 110. Height adjustment of the post member 120 relative to the post housing 110 is achieved by incremental engagement of the two sets of serrations, 114, 122, the minimum adjustment achievable being one tooth pitch. A shim 160 of appropriate thickness is placed beneath the cushioning pad 140 of the assembly to support the baseplate 150 at the desired height, as shown in Figure 24.

Figure 25 shows the cushioning pad 140 in more detail. The cushioning pad 140 has a substantially rectangular central portion 141 formed with studs. At opposite corners of the rectangular studded portion 141 the pad 140 has locating regions 142 formed with respective holes 143 for receiving the post members 120 respectively.

The baseplate 150 shown in Figure 16 has the same outline as the cushioning pad 140. Post members 120 project into holes 153 respectively provided in the baseplate 150, each hole 153 having a rebate 154 for receiving the corresponding tab 121 of the post member 120 when the baseplate 150 is located in its operative position. The shoulders 152 are designed to receive FASTCLIP™ rail clips as in the first embodiment. The holes 153 may be covered with respective cover members (not shown), as in the first embodiment.

A fifth railway baseplate assembly embodying the present invention will now be described with reference to Figures 26 to 29. The fifth embodiment is similar in some respects to the fourth embodiment, in that the lower baseplate of the first embodiment is omitted, but unlike the fourth embodiment the fifth embodiment is not height-adjustable.

Figure 26 shows the fifth railway baseplate assembly installed on part of a concrete railway sleeper 200. This railway baseplate assembly comprises a baseplate 230 having a central rail seat area 231 for receiving a rail pad (not shown) and rail (also not shown). On either side of the rail seat area 231 are respective shoulders 232 for receiving rail fastening clips (not shown) for holding the rail down to the baseplate 230 and also for locating sidepost insulators (not shown). Between the underside of the baseplate 230 and the upper surface of the concrete sleeper 200 is a cushioning pad 220 made of resilient material. The baseplate 230 is secured to the underlying concrete sleeper 200 by means of post members 212 which pass through respective holes 233 in the baseplate 230. As shown in more detail in Figure 27, each post member 212 has a recess 213 therein, a laterally-extending tab 214 which overlies part of the baseplate 230 and a vertically-extending stem 215 cast directly into the

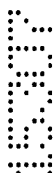
concrete sleeper 200.

Figure 28 shows the cushioning pad 220 in more detail. The cushioning pad 220 has a substantially rectangular central portion 221 formed with studs. At opposite corners of the rectangular studded portion 221 the pad 220 has locating regions 222 formed with respective holes 223 for receiving the post members 212 respectively.

The baseplate 230 shown in Figures 26 and 29 has the same outline as the cushioning pad 220. Post members 212 project into holes 233 respectively provided in the baseplate 230, each hole 233 having a rebate 234 for receiving the corresponding tab 214 of the post member 212 when the baseplate 230 is slid from its interim position (Figure 29) to its operative position (Figure 26). The shoulders 232 are designed to receive FASTCLIP™ rail clips as in the first embodiment. The post members 212 are partially surrounded by respective bushes (not shown) and holes 233 may be covered with respective cover members (not shown), as in the first embodiment.

Thus, the screw-threaded bolt used in the prior art to connect upper and lower baseplates together is replaced in an assembly embodying the present invention by a non-screw-threaded post member extending through a hole in the baseplate in such a way as to engage the baseplate. Moreover, since the means by which the baseplate is secured to the rail foundation are located beneath the rail clips, within the plan view region of the baseplate which also provides for the anchorage of the aforementioned FASTCLIP™ rail fastening clips, the new assembly can be made much smaller than the prior art assembly and still have the advantages provided by using FASTCLIP™ rail fastening clips.

"Comprises/comprising" when used in this specification is taken to specify the presence of stated features, integers, steps or components but does not preclude the presence or addition of one or more other features, integers, steps, components or groups thereof.



THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A railway baseplate assembly for supporting a railway rail, which assembly comprises a baseplate, a cushioning pad for lying beneath the baseplate, and means for securing the baseplate to an underlying rail foundation when the assembly is in use, wherein the said securing means comprise a non-screw-threaded post member which extends, when in use, through holes provided in the baseplate and cushioning pad in such a way as to engage the baseplate but not the said rail.

2. An assembly as claimed in claim 1, wherein the post member and baseplate are such that engagement of the baseplate with the post member can be brought about by movement of the baseplate relative to the post member firstly in a direction substantially perpendicular to the plane of the baseplate and towards the post member so that the post member extends through the hole in the baseplate and secondly in a direction substantially parallel to the plane of the baseplate so that the post member engages the baseplate.

3. An assembly as claimed in claim 1 or 2, wherein the said post member is fastened, directly or indirectly, to the rail foundation and the said post member, cushioning pad and baseplate are such that the cushioning pad and baseplate can be brought into engagement with the post member while the post member is fastened to the rail foundation.

4. An assembly as claimed in claim 1, 2, or 3, wherein the cushioning pad extends substantially in parallel with the baseplate.

5. An assembly as claimed in any one of claims 1 to 4, wherein there are two post members, which extend through respective holes in the baseplate and cushioning.

6. An assembly as claimed in claim 5, wherein two shoulders are provided on an upper surface of the said baseplate for retaining respective rail fastening clips, the said holes in the said baseplate being located adjacent to respective



shoulders such that the clips at least partially overlie said holes when installed in said shoulders

7. An assembly as claimed in claim 6, wherein the said shoulders are formed integrally with the said baseplate.

5 8. An assembly as claimed in any one of the preceding claims, wherein the or each post member is provided with a laterally-extending tab which engages with a corresponding ledge in the baseplate.

9. An assembly as claimed in claim 8, comprising two post members, wherein the tab of one post member extends towards a central region of the baseplate
10 and the tab of the other post member extends away from the central region of the baseplate.

10. An assembly as claimed in any one of the preceding claims wherein the or each said post member is hollow and substantially rectangular in outline.

11. An assembly as claimed in any one of the preceding claims, wherein the or
15 each post member extends into an associated post housing provided in the said rail foundation.



12. An assembly as claimed in claim 11, wherein the or each said post member and the or each said post housing are provided with interlocking serrations, whereby the height of the post member within the post housing can be
20 adjusted.



13. An assembly as claimed in claim 12, wherein the said post member is retained at a desired height within the post housing by means of a wedge member inserted between the post member and the post housing.

14. An assembly as claimed in claim 13, wherein the said post member is
25 hollow so as to accommodate the wedge member and has a tapered internal surface opposite to a portion of the wall of the post member open to the post

housing, whereby the wedge member may bear against the tapered internal surface of the post member and the post housing.

15. An assembly as claimed in claim 12, 13 or 14, further comprising a shim placed between the baseplate and the underlying rail foundation to support the baseplate at a desired height above the foundation.

16. An assembly as claimed in any one of claims 1 to 8, further comprising a lower baseplate, located beneath the baseplate of claim 1, from which lower baseplate the said post member projects upwardly, said lower baseplate being attached to an underlying rail foundation when the assembly is in use.

10 17. An assembly as claimed in claim 16, wherein the or each post member is formed integrally with the lower baseplate.

18. An assembly as claimed in any one of claims 1 to 8, wherein the or each post member is directly secured to the rail foundation.

15 19. An assembly as claimed in any one of the preceding claims, wherein the or each post member is at least partially surrounded by a bush provided within the associated hole in the baseplate.

20. An assembly as claimed in any one of the preceding claims, wherein respective covers are provided over the holes in the baseplate.

20 21. An assembly as claimed in claim 20, wherein means are provided for locking the covers onto the baseplate.

22. An assembly as claimed in any one of claims 6 to 21, wherein the said rail fastening clips are approximately M-shaped in plan.

23. An assembly as claimed in claim 22, wherein the said shoulders have walls for retaining outer legs of the rail fastening clips.

24. An assembly as claimed in claim 23, when read as appended to claim 20 or 21, wherein each cover is provided with a ramp for use in deflecting the said rail fastening clip.

25. An assembly as claimed in any one of claims 22 to 24, further comprising a
5 sidepost insulator located on the shoulder and arranged to provide electrical insulation between the shoulder and the rail when in use.

26. An assembly as claimed in claim 25, when read as appended to claim 20 or 21, wherein the said sidepost insulator has means for securing the insulator to the baseplate and a portion for overlying the cover, thereby to prevent
10 unintentional disengagement of the cover from the baseplate.

27. An assembly as claimed in any one of the preceding claims, wherein the cushioning pad has one or more holes formed therein for receiving respective post members.

28. An assembly as claimed in any one of claims 9 to 15, or in any one of
15 claims 19 to 27 when read as appended to any one of claims 9 to 15, wherein the said rail foundation comprises a concrete railway sleeper provided with a pair of post housings.



29. An assembly as claimed in claim 28, wherein each post housing is shaped so as to accommodate an associated post member, the said post housing having
20 means for engaging the said associated post member.



30. An assembly as claimed in claim 29, wherein the post member engaging means comprise serrations provided on an interior portion of the said post housing for engaging corresponding serrations on an exterior portion of the said associated post member.

31. A railway baseplate assembly substantially as hereinbefore described with reference to the accompanying drawings.

DATED this 26th day of February 2004

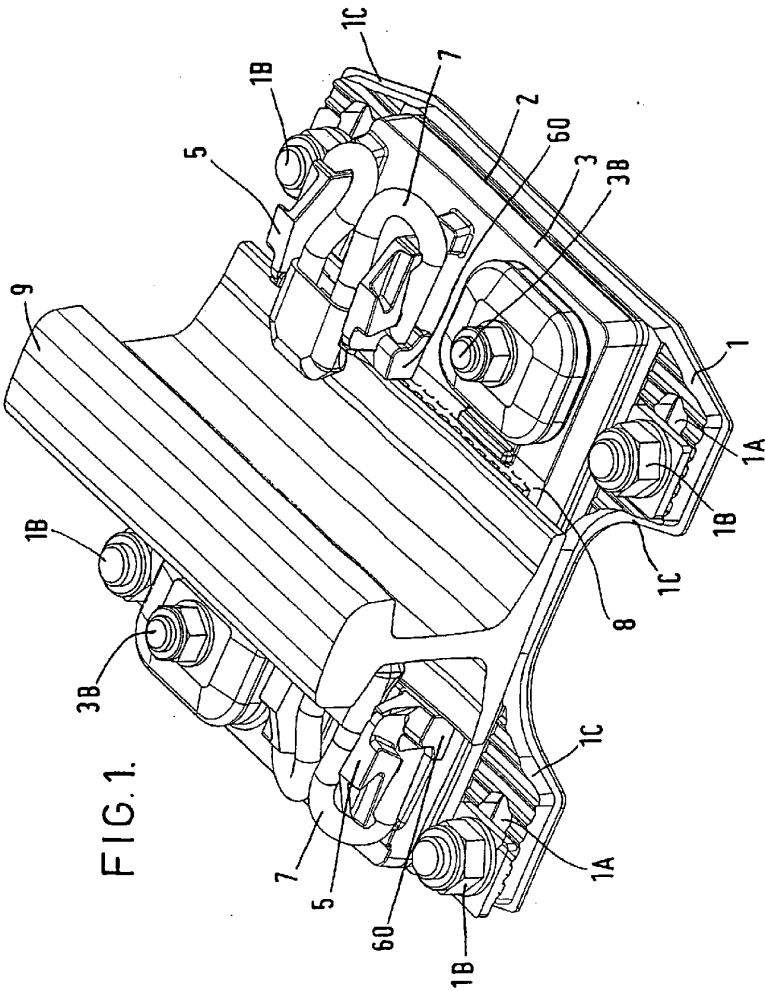
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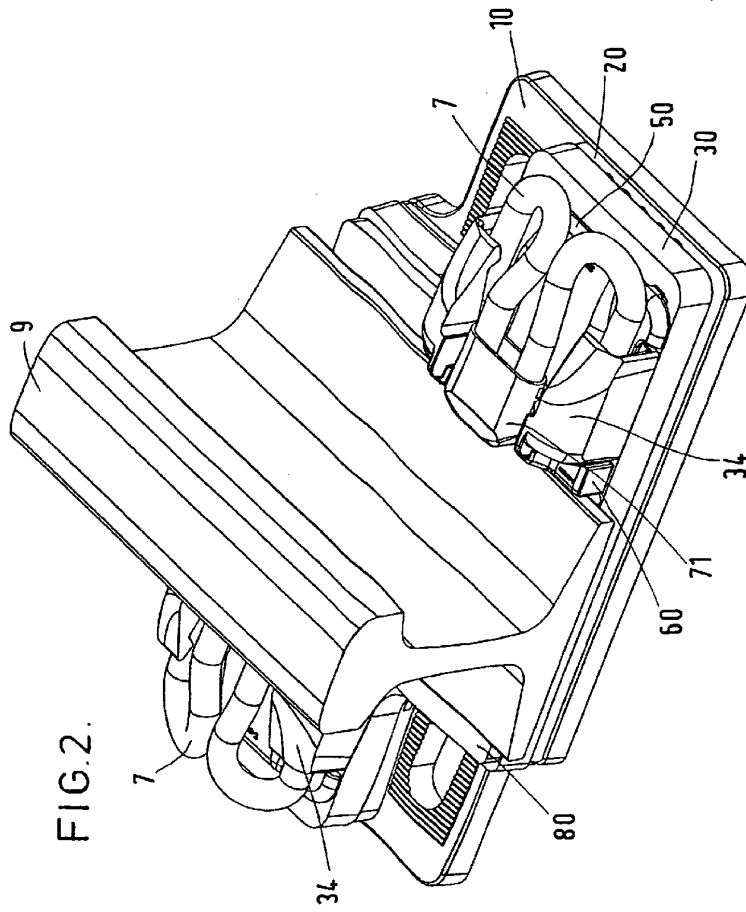
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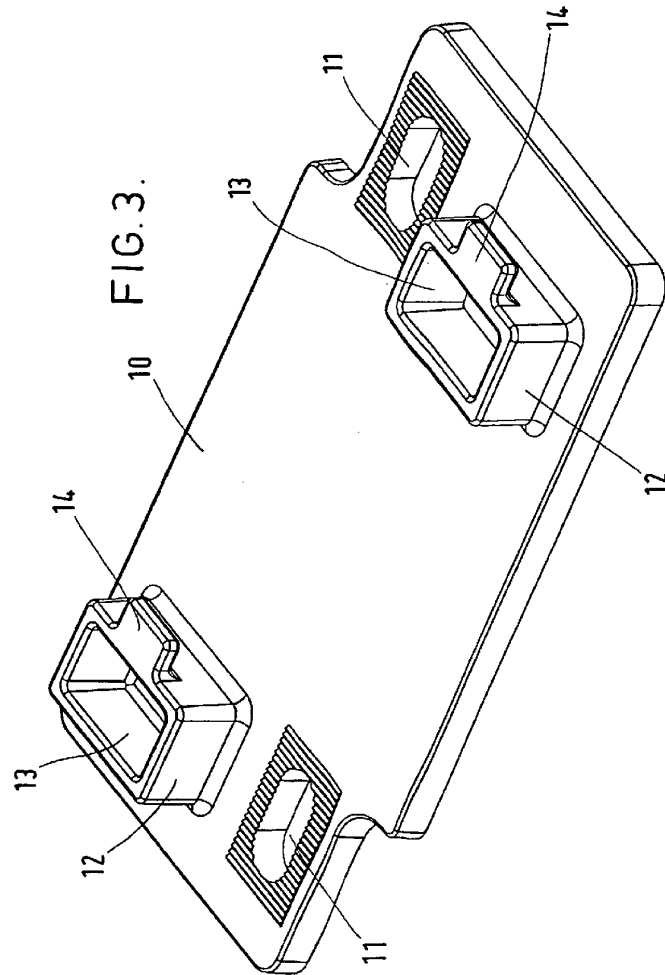
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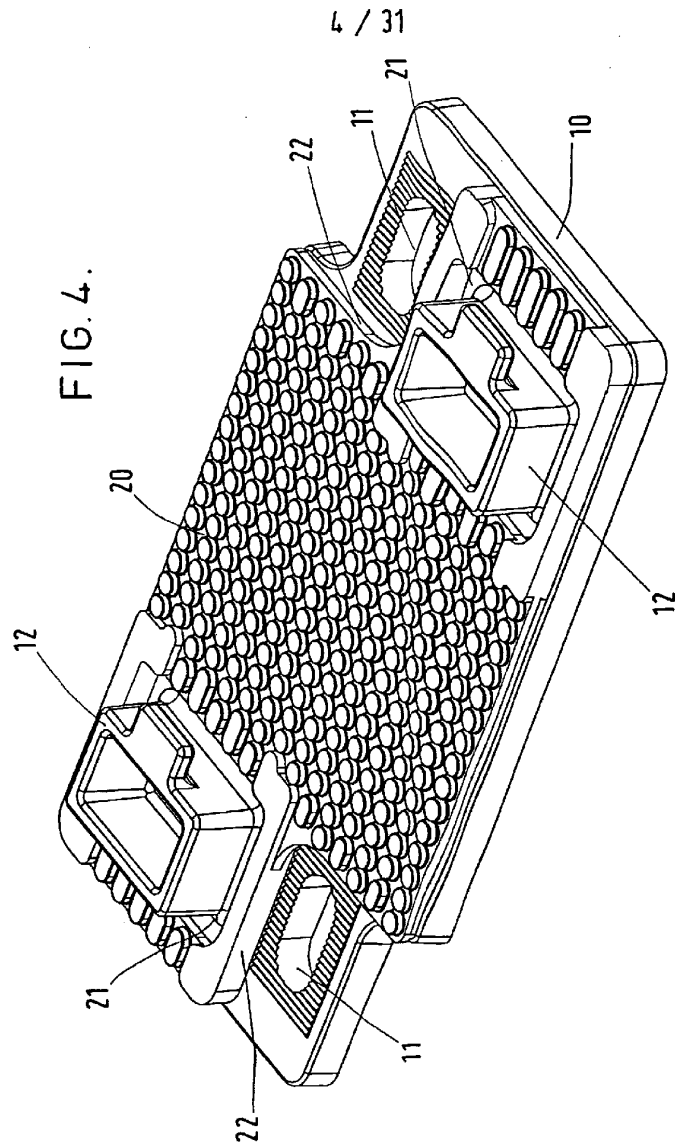


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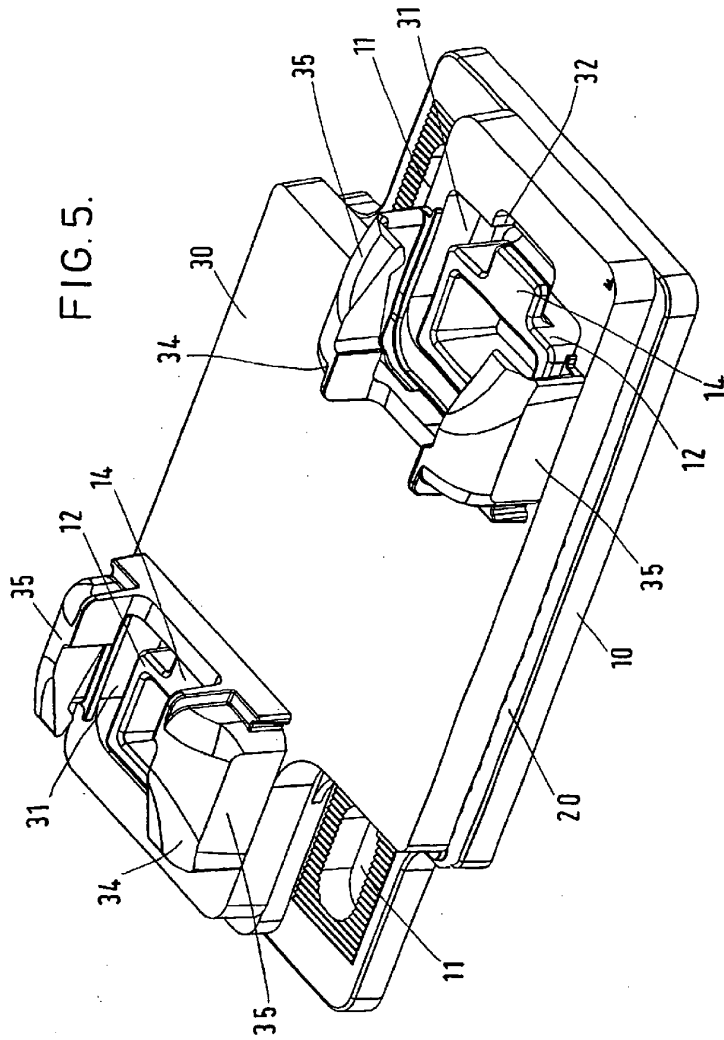
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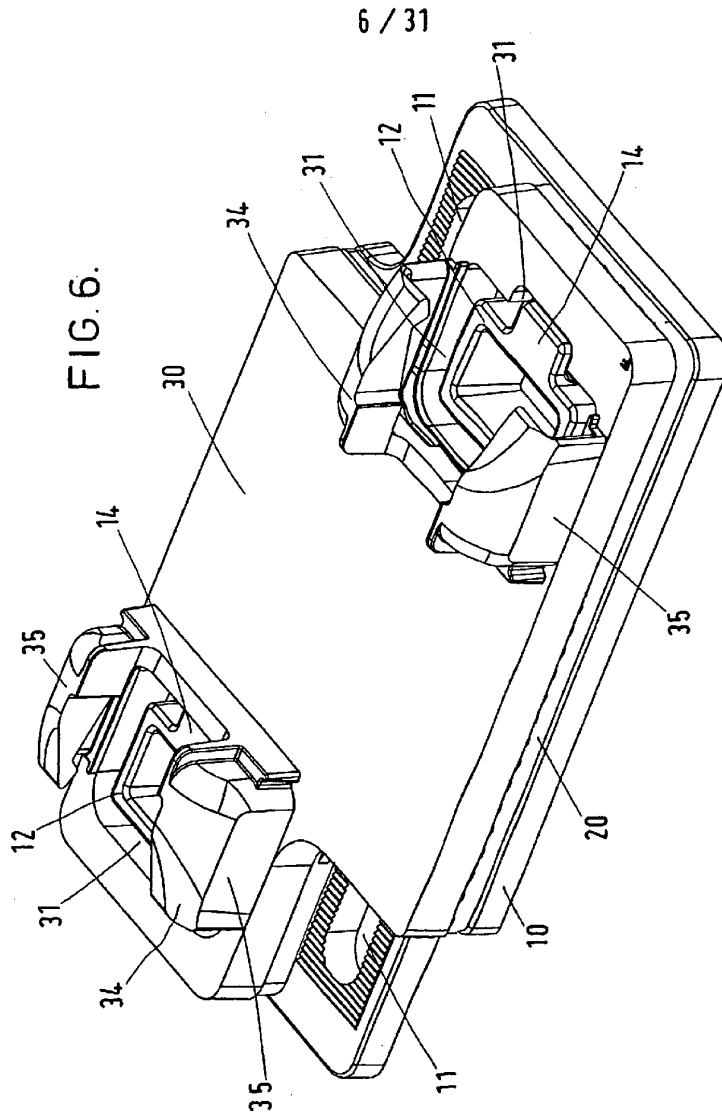




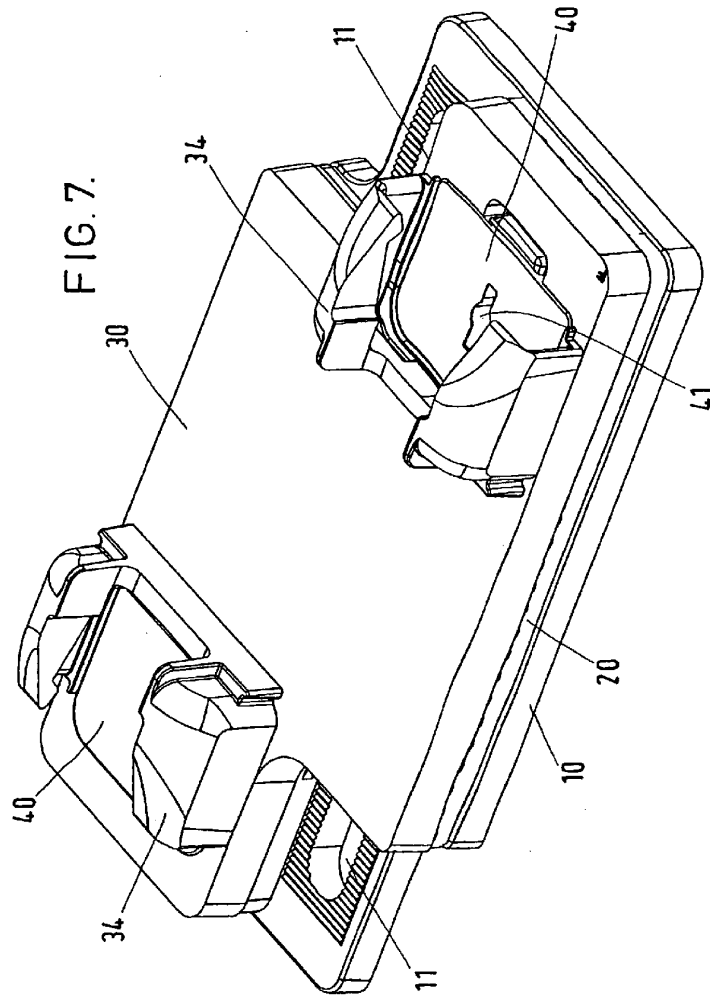
5 / 31

FIG. 5.



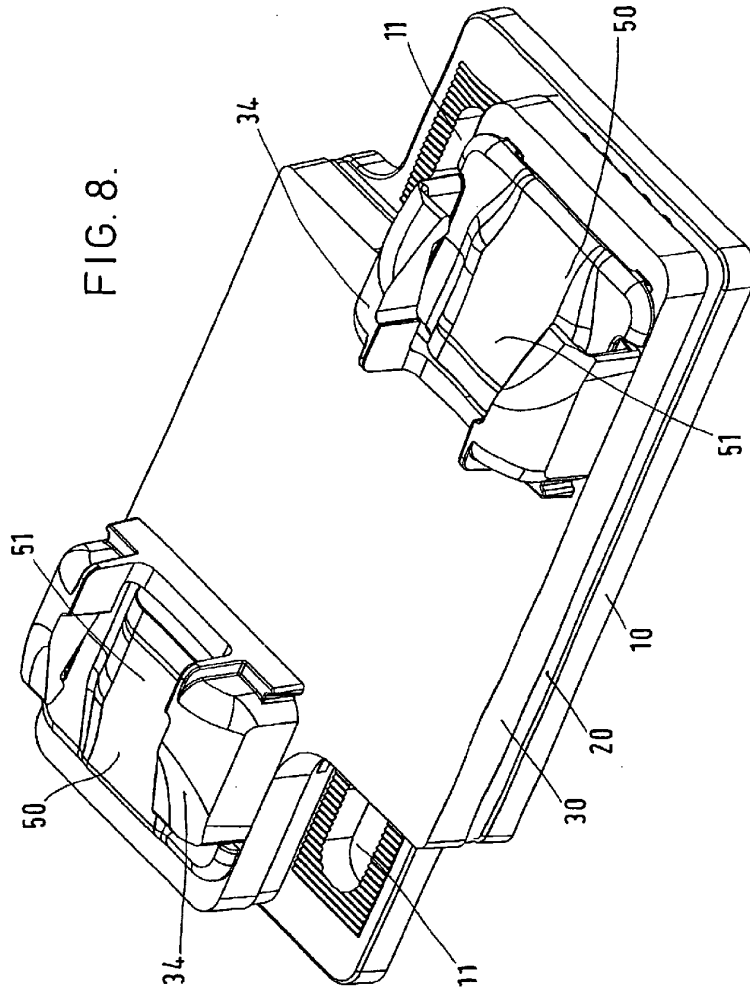


7 / 31

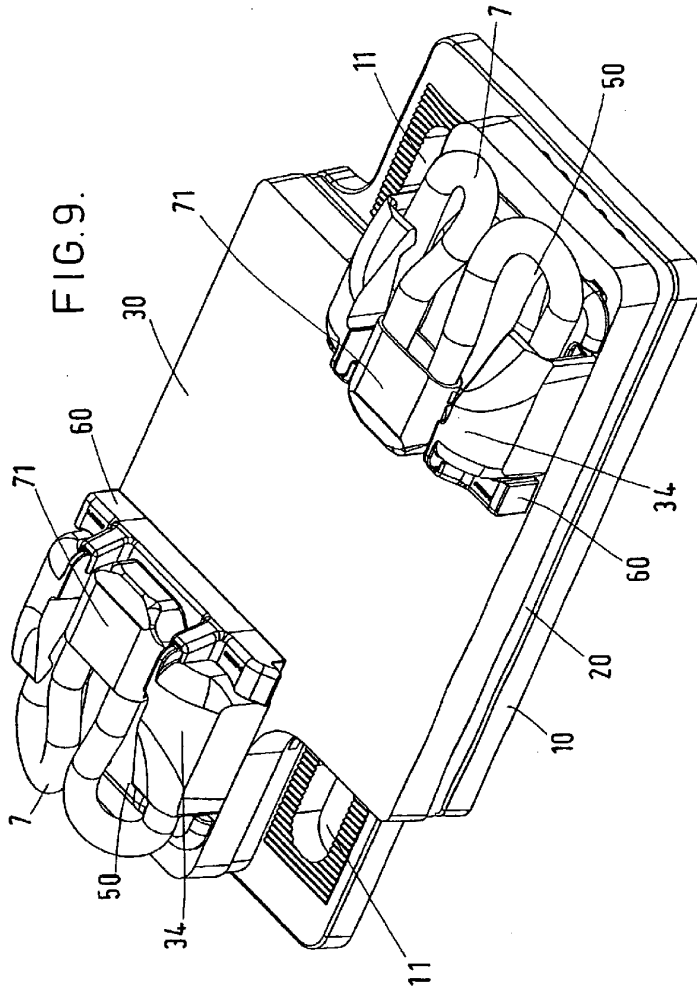


8 / 31

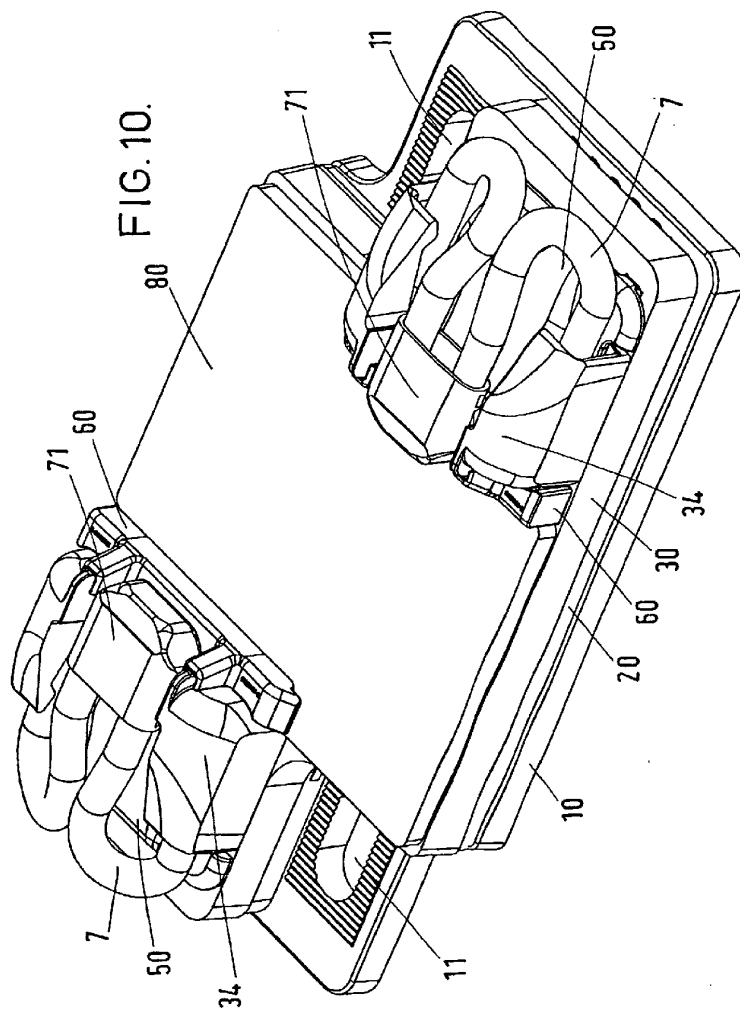
FIG. 8.

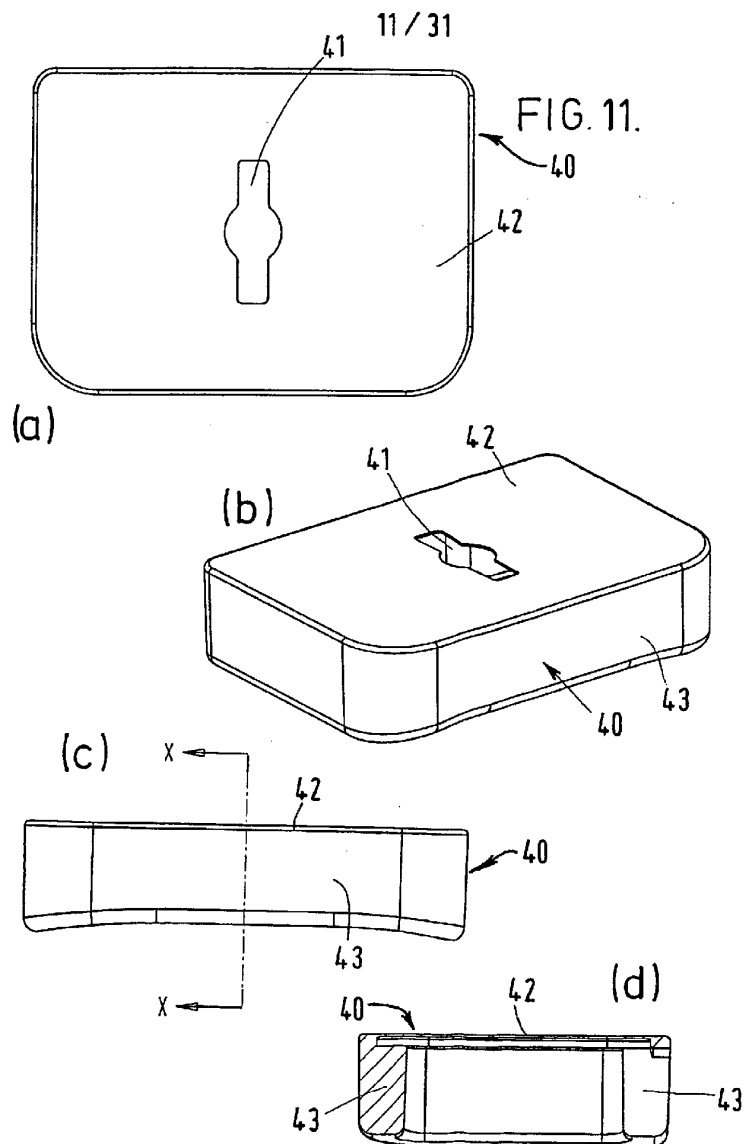


9 / 31



10 / 31





12 / 31

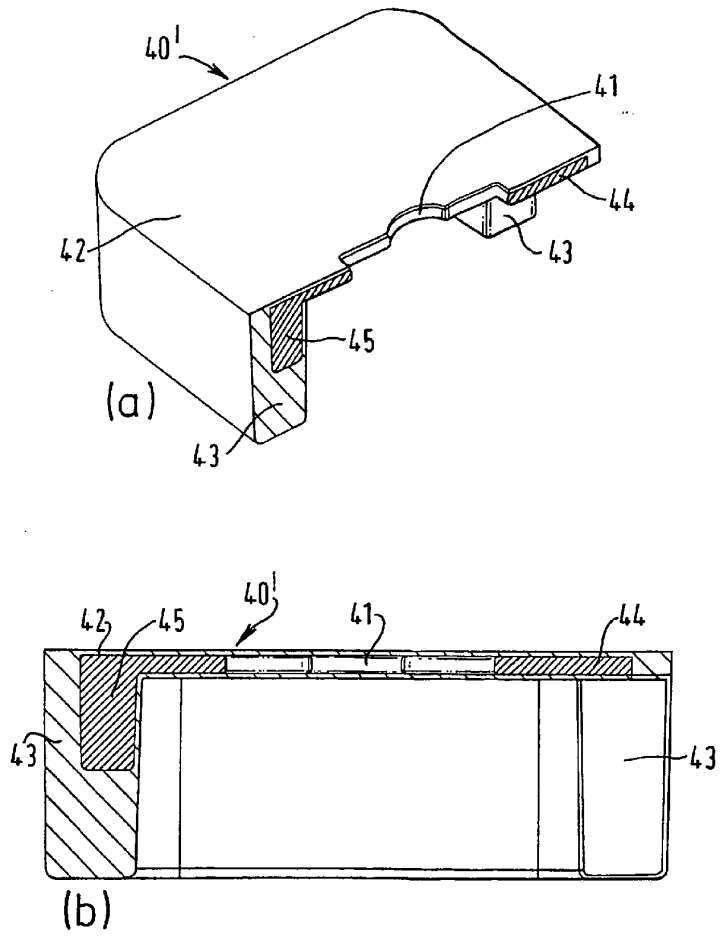


FIG.12.

13 / 31

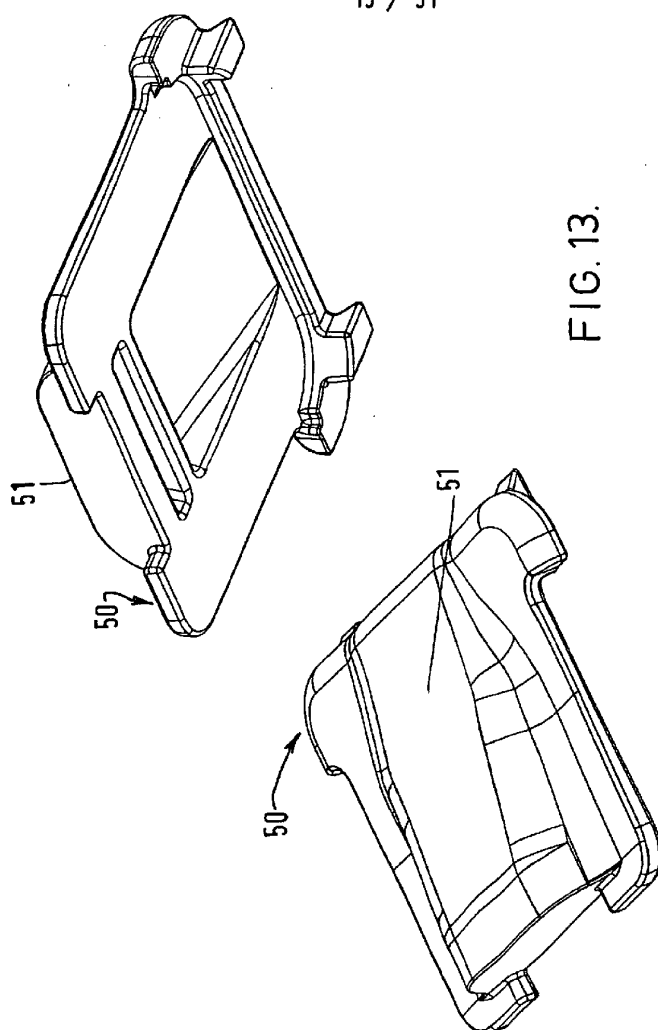
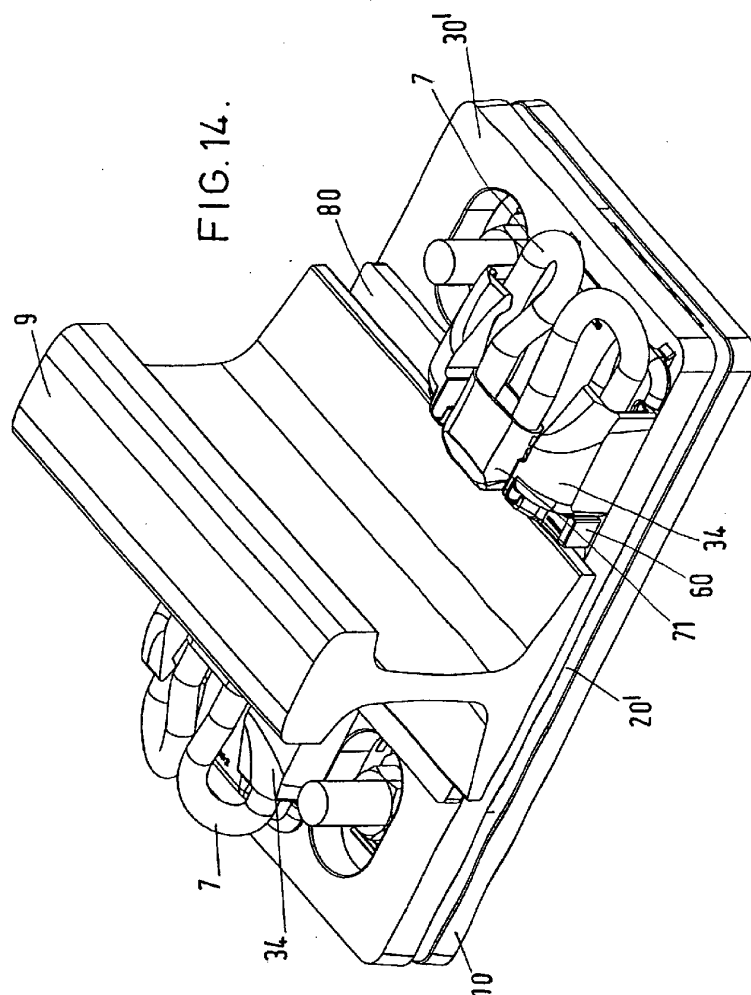
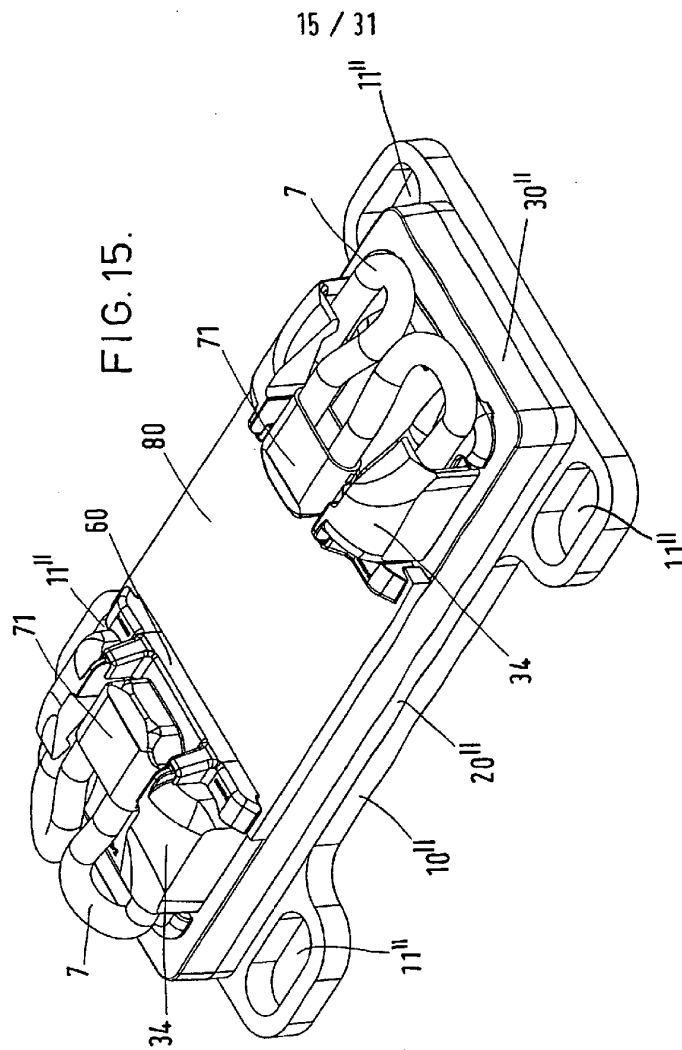


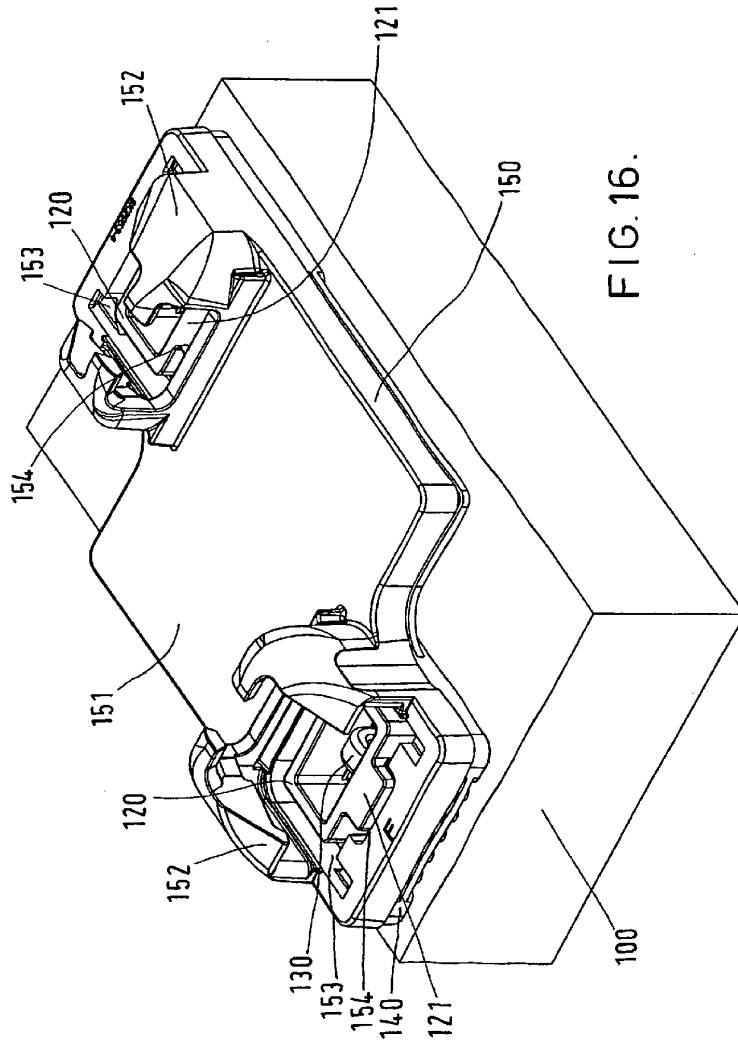
FIG. 13.

14 / 31

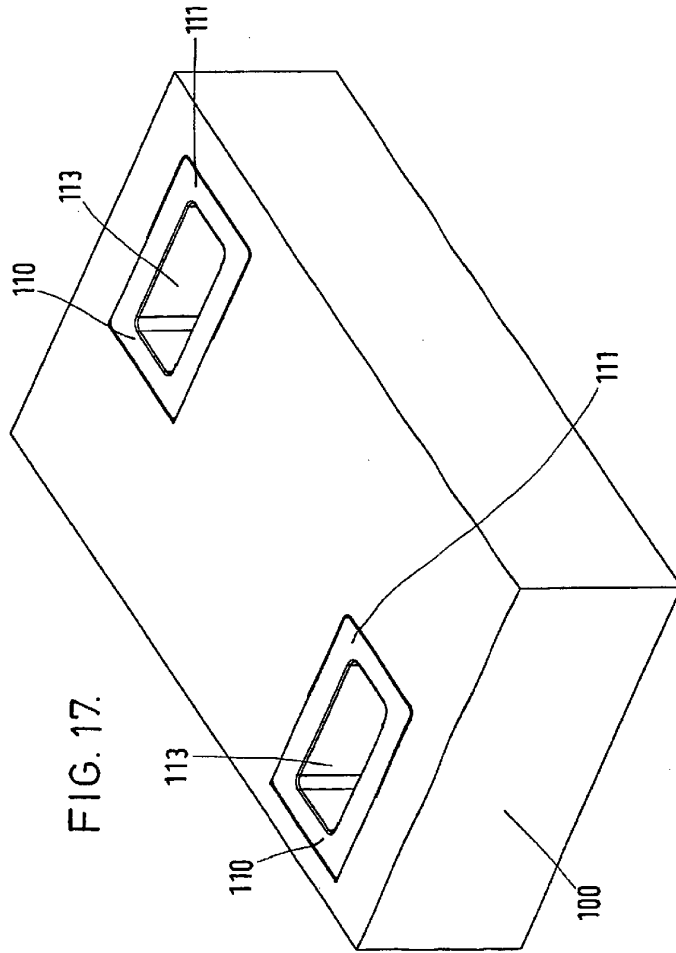




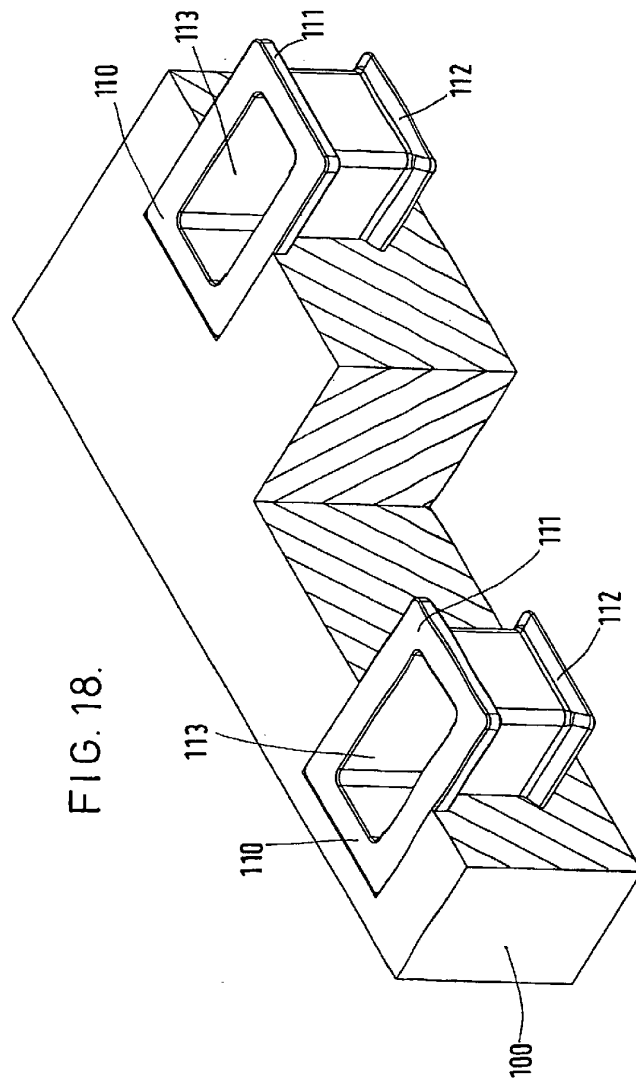
16 / 31



17 / 31



18 / 31



19 / 31

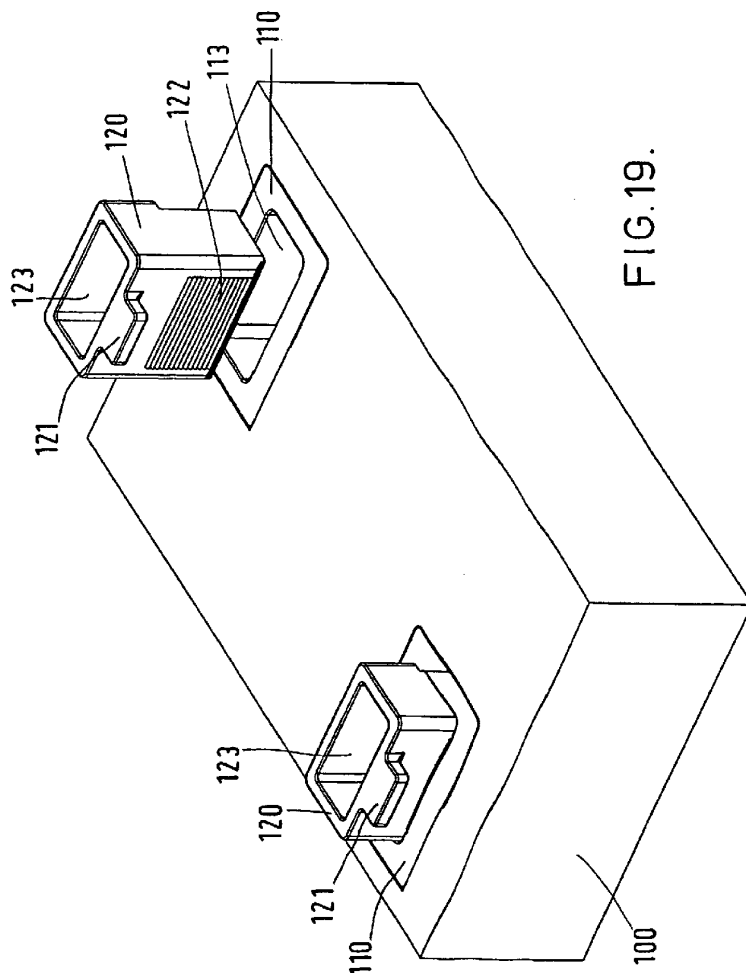
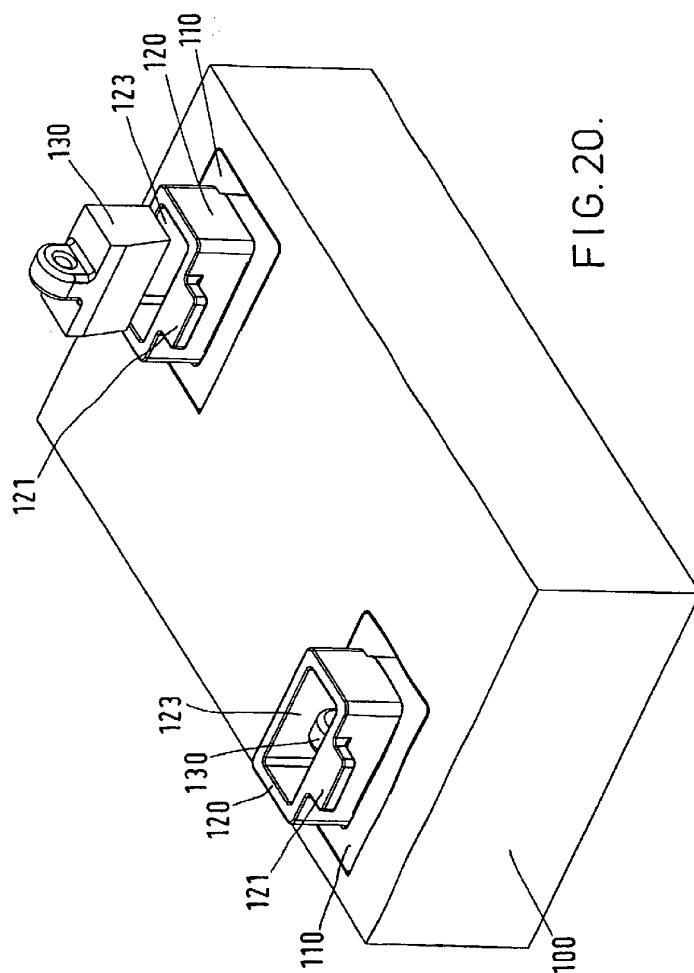
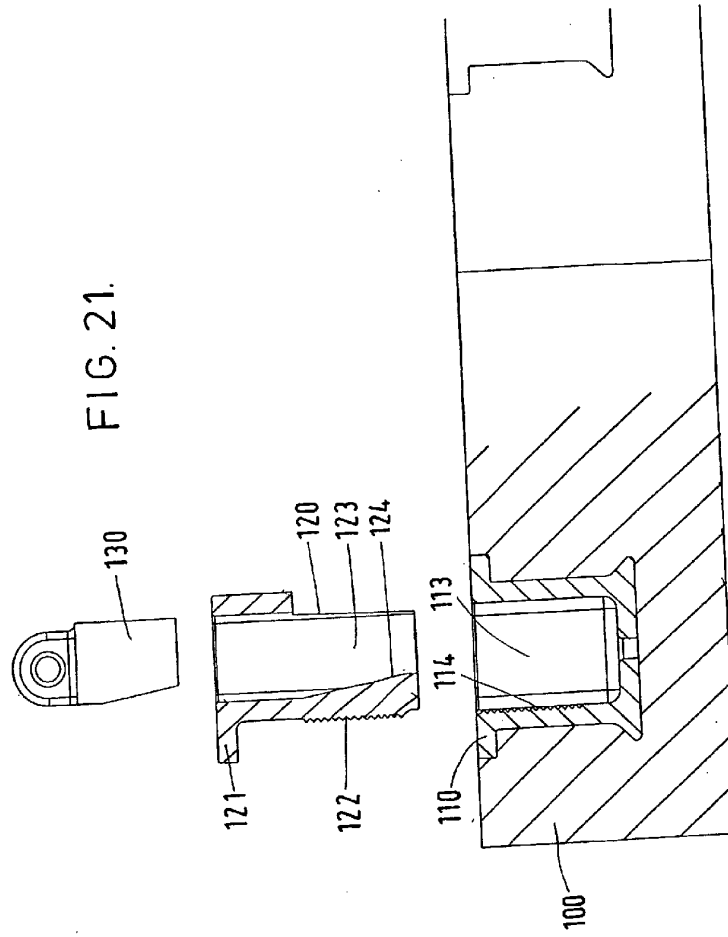


FIG. 19.

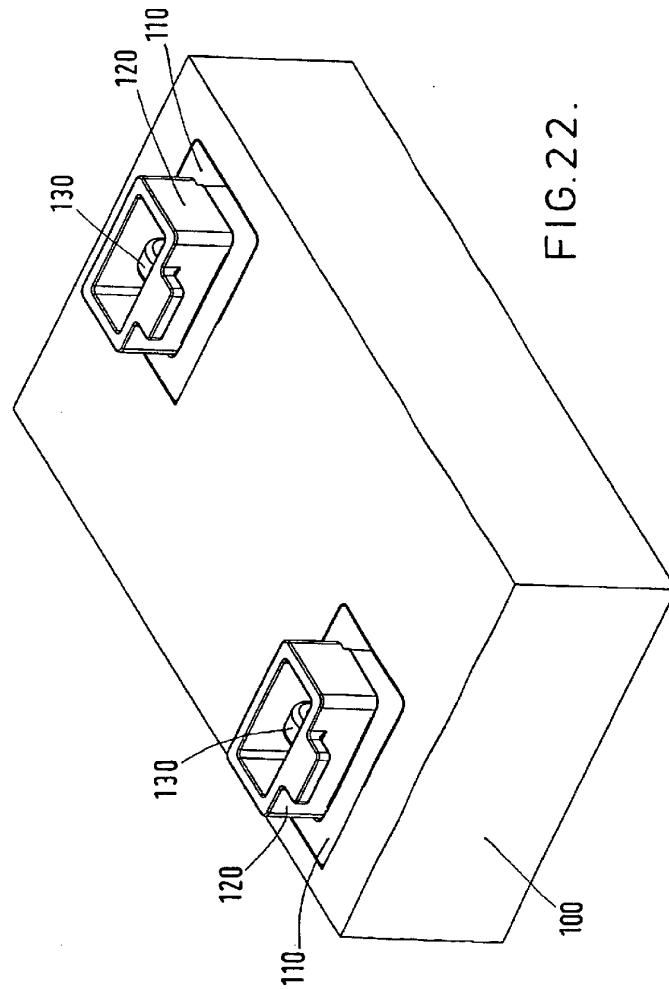
20 / 31

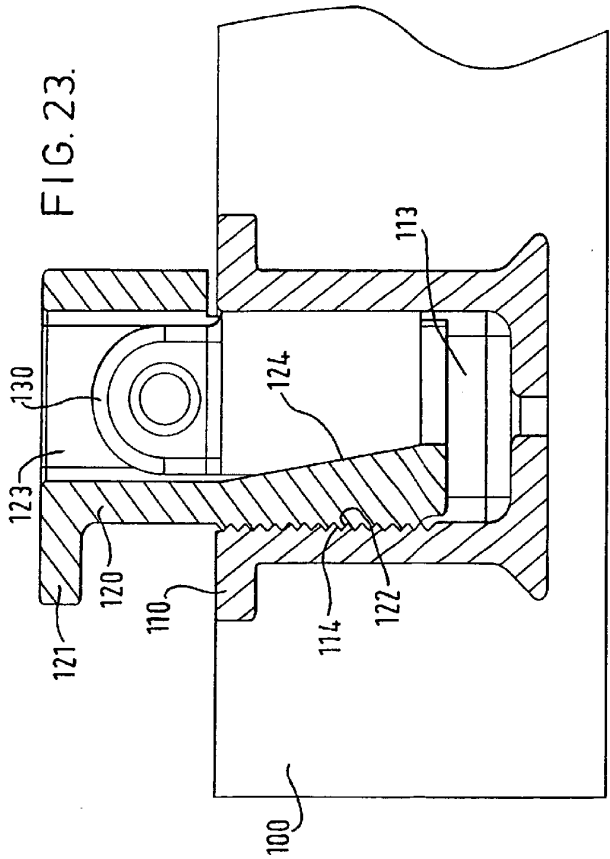


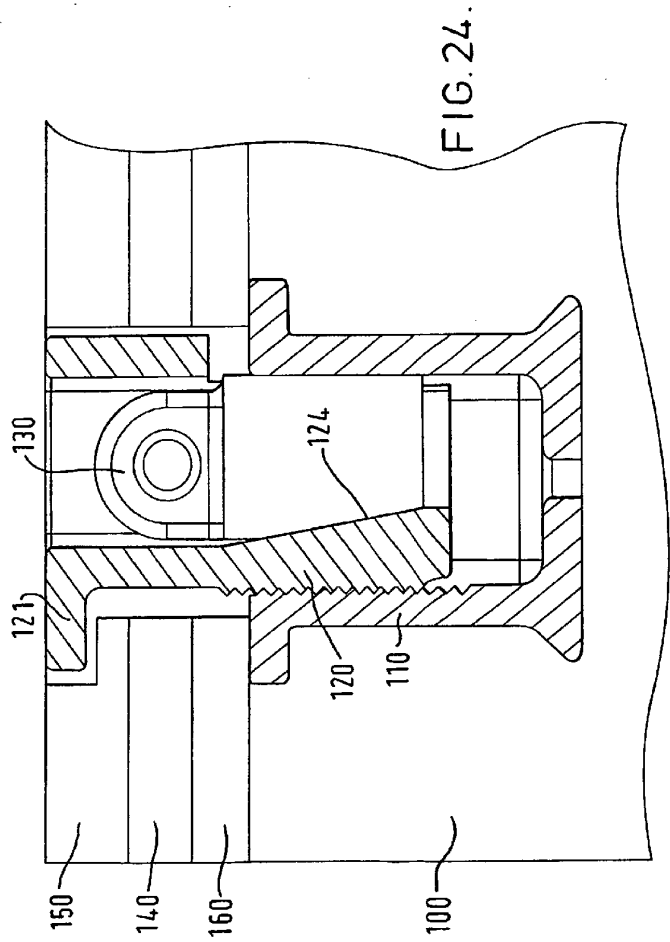
21 / 31



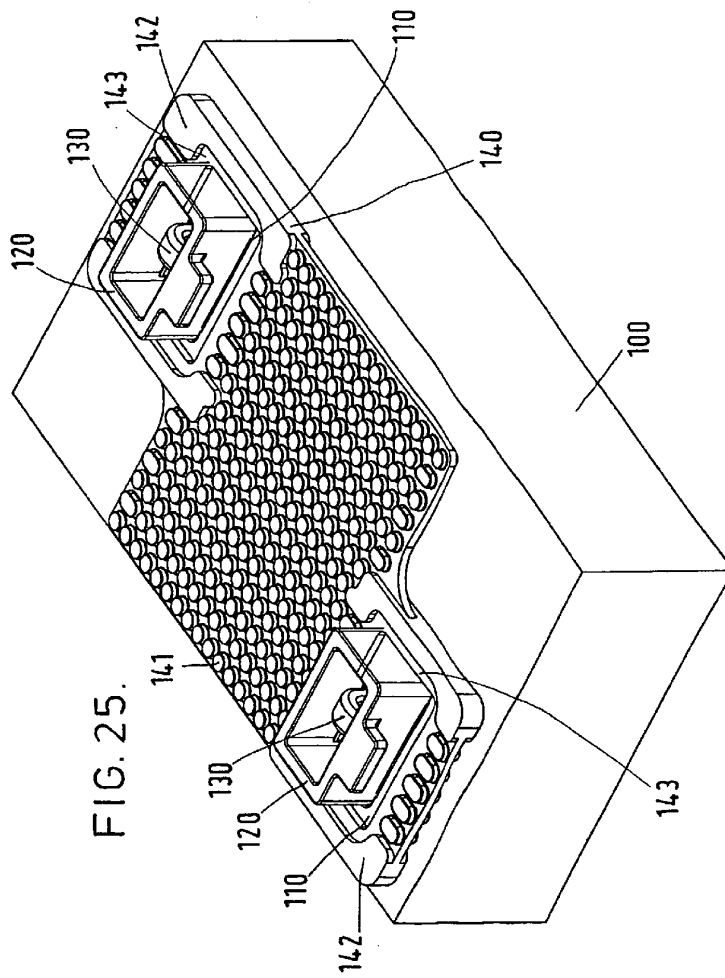
22 / 31



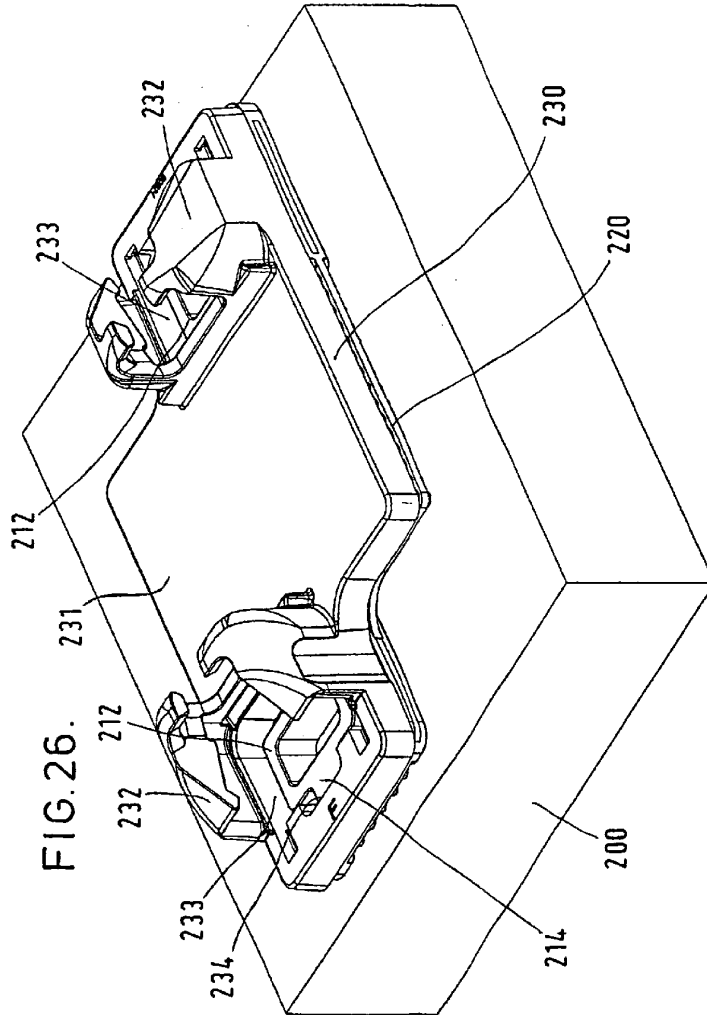


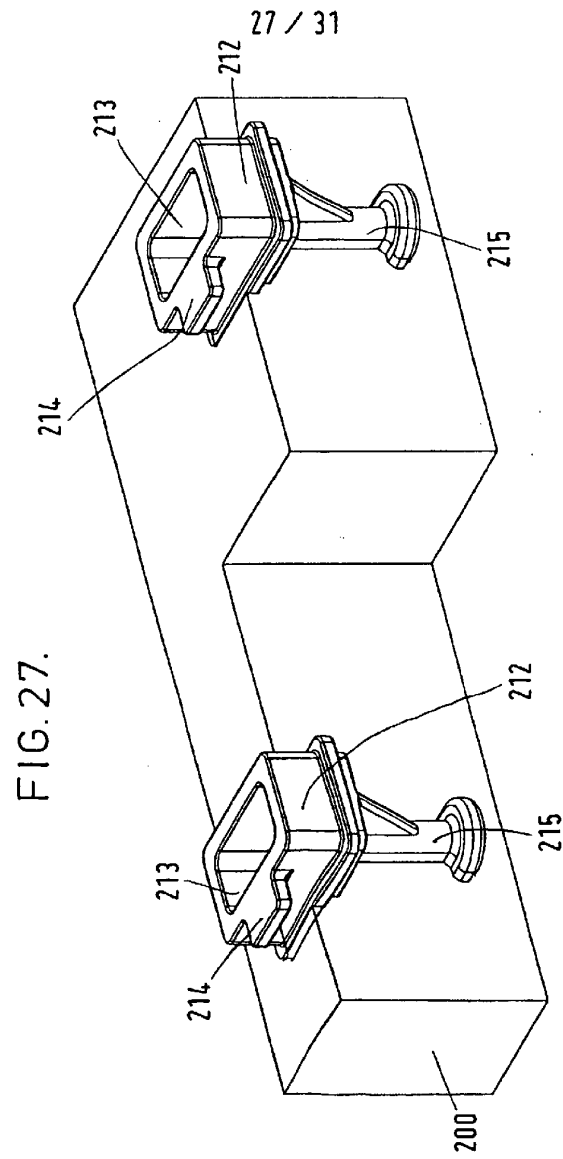


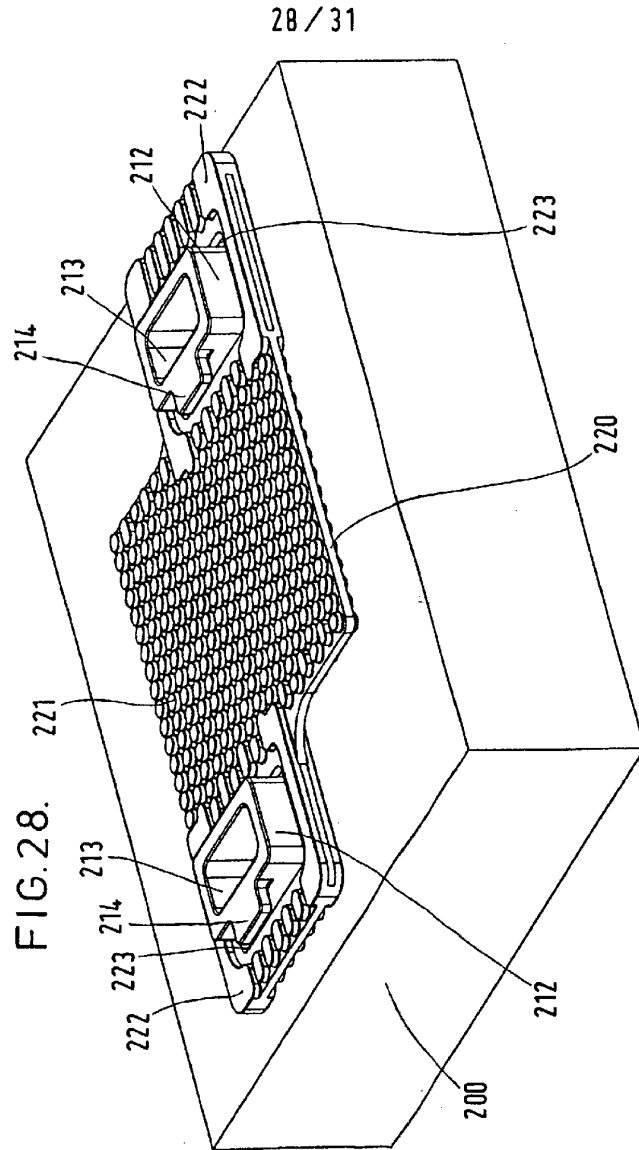
25 / 31



26 / 31







29 / 31

