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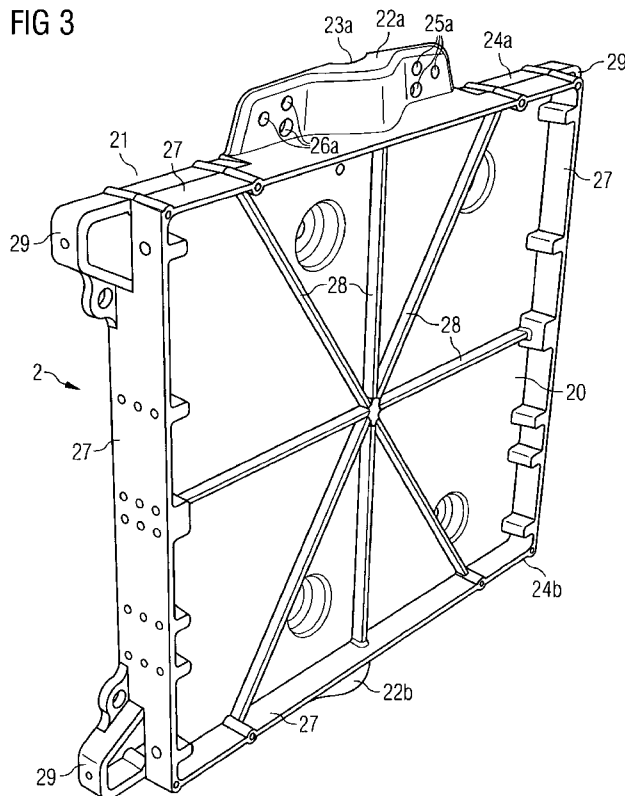
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(54) Title: SUPPORTING ELEMENT AND KIT FOR ASSEMBLING AT LEAST ONE DEVICE TO A POLE

FIG 3



(57) Abstract: The present invention refers to assembling at least one device to a pole. In particular, according to the present invention, a supporting element (2) as a base body is used for assembling at least one device to a pole, wherein said supporting element (2) has: a front side arranged for supporting said at least one device to said front side (20); a back side (21) arranged for assembling to said pole; and a first ledge (22a) comprising a recess (23a) for accompanying said pole. Additionally, the present invention refers also to a kit for assembling at least one device (14) to a pole, to a method for assembling the supporting element (2) to a pole, and to a method for manufacturing the supporting element (2).



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Supporting element and kit for assembling at least one device to a pole

FIELD OF THE INVENTION

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The present invention relates to assembling of at least one device to a pole. In particular, the present invention relates to a supporting element for assembling at least one device to a pole, to a kit for assembling at least one device to a pole, to a method for assembling the supporting element to a pole, and to a method for manufacturing the supporting element.

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BACKGROUND OF THE INVENTION

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Different kits for assembling devices to a pole are known from practice. These kits are usually arranged such that they comprise a pole mounting kit and a plinth, both as separate components.

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Figures 1a to 1c show parts comprised in a kit 1 for assembling devices like Base Transceiver Stations (BTS), for example, to a pole according to a state of art. In Figure 1a a plinth 11 of the kit 1 is provided, wherein the plinth 11 comprises an element 111 for assembling the plinth 11 to a pole mounting kit 12 and elements 112 for assembling devices to the plinth 11. Further, in Figure 1b a pole mounting kit 12 with a bracket 121 is provided, wherein the bracket 121 enables attaching of the pole mounting kit 12 to the pole 13.

25

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Figure 1c shows mounting of the kit 1 for assembling devices to the pole 13. The plinth 11 is assembled to a pole mounting kit 12 via the assembling element 111. The bracket 121 and the pole mounting kit 12 close around the pole 13 and enable assembling of devices to the pole 13 via the plinth 11.

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Figure 2 shows two kits, each as provided by Figure 1c, assembling devices 14a, 14b to the pole 13. Each of the kits

12a, 12b comprises a plinth 11a, 11b and a pole mounting kit 12a, 12b. Each of the plinths 11a, 11b is assembled to the corresponding pole mounting kit 12a, 12b via a corresponding assembling element 111a, 111b. The devices 14a, 14b are
5 assembled to the corresponding plinths 12a, 12b via elements 112a, 112b. The mounting of the kits to the pole 13 is performed by closing the pole mounting kits 12a, 12b via brackets 121.

10 One problem arising when using the kits of state of art for assembling devices to a pole is that a lot of time and effort is necessary for mounting the kits. In general, here are two ways of mounting. The one way has assembling a pole mounting kit to pole at first and then mounting a plinth with devices
15 to the pole mounting kit. The second way of mounting of a kit of state of art comprises assembling of a pole mounting kit to a plinth at first and then mounting of that whole package to the pole. However, both ways of mounting need much time. Moreover, in both cases, a risk of a faulty installation is
20 provided.

Additionally, the kits of state of art have the disadvantage of increased manufacturing costs.

25 SUMMARY OF THE INVENTION

Object of the present invention is providing of an improved kit for assembling at least one device to a pole.

30 This object is achieved by a supporting element comprising features according to claim 1, a kit comprising features according to claim 17, a method for assembling a supporting element to a pole comprising features according to claim 19, and/or a method for manufacturing a supporting element
35 comprising features according to claim 22.

Further embodiments of the present invention are provided with the corresponding dependent claims.

The object of the present invention is achieved by a supporting element as a base body for assembling at least one device to a pole, wherein said supporting element has:

- 5 - a front side arranged for supporting said at least one device to said front side;
 - a back side arranged for assembling to said pole; and
 - a first ledge comprising a recess for accompanying said pole.

10

By use of the supporting element as introduced above, a fast, secure, and accurate assembling of devices to a pole is enabled, which does not have fault installation risk.

- 15 According to an embodiment of the present invention, the supporting element comprises a first side arranged with said first ledge.

20 According to an embodiment of the present invention, the recess of the first ledge:

- starts near a back border of said first side, said back border of said first side being directed to said back side;
 - takes course towards said front side;
 - leads from said front side back to said back border of said first side at a central point of said recess of said first ledge; and
25 - ends near said back border of said first side.

30 Here, the wording "near a back border" means "in the area of the back border". Thus, the recess can start at the back border of the first side directly or that the recess can start before the back border of the first side, for example.

35 According to an embodiment of the present invention, the first ledge is formed such that it is arranged centred on said first side. In this way, a stable assembling of devices to a pole can be supported. However, also further positioning of the ledge of the supporting element is possible. The

present invention is not restricted to central positioning only.

5 According to an embodiment of the present invention, the supporting element has a frame and said first ledge is arranged on said frame. Thus, a stable construction of the supporting element can be assisted.

10 According to an embodiment of the present invention, the first ledge has at least one through hole at a right end part of said first ledge and at least one through hole at a left end part of said first ledge. Here, the through holes can be used for assembling or mounting of the supporting element to a pole.

15 As regards the right and left end parts of the first ledge, they can be arranged essentially parallel to said back side, for example, to support a stable and secure mounting of devices to the pole. However, also further ways of arranging the right and left end parts of the first ledge are possible according to the present invention.

20 According to an embodiment of the present invention, the supporting element has at least one second ledge comprising a recess for accompanying said pole. Thus, by providing further additional ledges the holding of the devices attached to the supporting element can be improved. In particular, this will be the case if heavy devices have to be mounted or assembled to the supporting element, for example.

30 According to an embodiment of the present invention, the supporting element comprising a second side arranged with said second ledge. However, also further positioning of the ledge of the supporting element is possible. The present invention is not restricted to central positioning only.

According to an embodiment of the present invention, the recess of said second ledge:

- starts near a back border of said second side, said back border of said second side being directed to said back side;
 - takes course towards said front side;
 - leads from said front side back to said back border of said
- 5 second side at a central point of said recess of said second ledge; and
- ends near said back border of said second side.

10 Also here, the wording "near a back border" means "in the area of the back border". Thus, the recess can start at the back border of the first side directly or that the recess can start before the back border of the first side.

15 According to an embodiment of the present invention, the second ledge is formed such that it is arranged centred on said second side.

20 According to an embodiment of the present invention, supporting element has a frame and said second ledge is arranged on said frame. In this way, stability of the supporting element can be improved.

25 According to an embodiment of the present invention, the second ledge has at least one through hole at a right end part of said second ledge and at least one through hole at a left end part of said second ledge. Here, the through holes can be used for assembling or mounting of the supporting element to a pole.

30 The right end part and said left end part of said second ledge can be arranged essentially parallel to said back side, for example, to support a stable and secure mounting of devices to the pole. However, also further ways of arranging the right and left end parts of the first ledge are possible

35 according to the present invention. In this way, stability of the supporting element can be improved.

According to an embodiment of the present invention, said at least one through hole at said right end part of said first ledge can be opposite said at least one through hole at said right end part of said second ledge, and said at least one through hole at said left end part of said first ledge can be opposite said at least one through hole at said left end part of said second ledge. As mentioned, the through holes can be used for mounting the supporting element to a pole. In this way, a secure mounting of the supporting element to a pole is supported.

According to an embodiment of the present invention, said second side is a opposite side of said first side and said second ledge is arranged such that it is opposite said first ledge.

According to an embodiment of the present invention, the supporting element has an essentially rectangular form.

According to an embodiment of the present invention, at least one of front side and back side of said plate has at least one rib arranged for strengthening of said supporting element.

If the supporting element has a frame, the ribs can be arranged such that they are supported by the frame. Thus, a better strengthening of the supporting element can be provided.

The object provided above is achieved by a kit for assembling at least one device to a pole, comprising a supporting element for assembling at least one device to a pole as introduced above and described in more detail bellow.

According to an embodiment of the present invention, the kit comprises a bracket element, which is arranged to bracket said pole and to be fastened to said first ledge of said supporting element.

According to an embodiment of the present invention, the supporting element can comprise at least one further (second) ledge comprising a recess for accompanying a pole, as already
5 described above. Here, the kit can comprise at least one further (second) bracket element, which is arranged to bracket said pole and to be fastened to the at least one further or second ledge of the supporting element. Thus, a more stable assembling at least one device to a pole can be
10 ensured.

The object provided above is achieved also by a method for assembling a supporting element to a pole, wherein the supporting element is a supporting element for assembling at
15 least one device to a pole as introduced above and described below in more detail, and wherein the method comprises a fastening of said supporting element to said pole by fastening an element for accompanying said pole to said first ledge of said supporting element.

20 In case that the supporting element comprises at least one further (second) ledge comprising a recess for accompanying a pole, as already described above, the method will comprise at least one further fastening step, in which least one further
25 (second) element for accompanying the pole is fastened to a corresponding at least one further (second) ledge of the supporting element.

According to a further embodiment of the present invention,
30 as the element for accompanying said pole a bracket element, being arranged to bracket said pole and to be fastened to said first ledge of said supporting element, is used.

In case that the supporting element comprises at least one
35 further (second) ledge comprising a recess for accompanying a pole, as already described above, at least one further (second) bracket element will be fastened to a corresponding

at least one further (second) ledge of the supporting element.

According to a further embodiment of the present invention,
5 as said element for accompanying said pole a second supporting element, as introduced above and described in more detail below, is used. Here, the method comprises fastening of said first ledge of said supporting element to said first ledge of said second supporting element. In this way, a more
10 place saving assembling of devices to a pole can be provided.

In case that the supporting element comprises at least one further (second) ledge comprising a recess for accompanying a pole, as already described above, it depends on whether the
15 second supporting element has further (second) ledges comprising a recess for accompanying a pole. If so, a corresponding fastening is performed also with regard to these further (second) ledges, i.e., the method comprises at least one further (second) fastening of at least one further
20 or second ledge of the supporting element to a corresponding at least one further or second ledge of the second supporting element.

The object provided above is achieved also by a method of
25 manufacturing of a supporting element for assembling at least one device to said pole, as introduced above and described in more detail below, wherein the method comprises die casting of said supporting element.

30 Thus, the supporting element can be provided as a die casted element. In this way, costs of manufacturing supporting elements and kits for assembling at least one device to a pole can be reduced considerably.

35 By use of the present invention an improved assembling of devices to poles is enabled. In particular, fault installation risk is reduced considerably. Moreover, the costs of manufacturing can be kept low. Further, a fast,

effective, and flexible assembling or mounting of devices to poles is provided by use of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

5

The present invention will be more clearly understood from the following description of embodiments of the invention read in conjunction with the attached drawings, in which:

10 Fig. 1a to 1c show parts of a kit for assembling devices to a pole according to a state of art;

Fig. 2 shows two kits assembling devices to a pole according to the state of art;

15

Fig. 3 shows a front side of a supporting element for assembling at least one device to a pole arranged according to an embodiment of the present invention;

20

Fig. 4 shows a back side of the supporting element for assembling at least one device to a pole arranged according to the embodiment of the present invention;

25

Fig. 5 shows a supporting element assembled to a pole according to an embodiment of the present invention;

30 Fig. 6 shows two supporting elements assembled to a pole according to an embodiment of the present invention;

35 Fig. 7 shows assembling of devices to a supporting element according to an embodiment of the present invention;

Fig. 8 shows an option of manufacturing of a supporting element according to an embodiment of the present invention;

5 Fig. 9 shows an option of manufacturing of a supporting element according to an embodiment of the present invention;

10 Fig. 10 shows an option of manufacturing of a supporting element according to an embodiment of the present invention; and

15 Fig. 11 shows an option of manufacturing of a supporting element according to an embodiment of the present invention.

DESCRIPTION OF THE EMBODIMENTS

20 Figures 3 and 4 show a supporting element or plinth 2 for assembling at least one device to a pole arranged according to an embodiment of the present invention, wherein Figure 3 shows front side 20 of the supporting element 2 in more detail and Figure 4 shows back side 21 of the supporting element or plinth 2 in more detail.

25 The supporting element or plinth 2 has a front side 20 arranged for supporting devices to the supporting element and a back side 21 for assembling the supporting element to a pole.

30 Further, the supporting element or plinth 2 has two ledges 22a, 22b, both comprising a recess 23a, 23b for accompanying a pole and, thus, for fastening, mounting, or assembling the supporting element 2 to a pole.

35 According to the present embodiment, the ledges 22a, 22b are arranged on to opposite sides 24a, 24b of the supporting element 2. In particular, the ledges 22a, 22b are arranged

such that they are placed essentially centred on the sides 24a, 24b and that they are opposite. However, it has to be noted, that several positioning of the ledges 22a, 22b are possible. The present invention is not restricted to the
5 central positioning provided by the present embodiment only.

The recesses 23a, 23b of the ledges 22a, 22b have their openings at the back side 21 of the supporting element or plinth 2. According to the present embodiment, the recesses
10 23a, 23b are arranged as having an essentially circular or oval form. However, the present invention is not restricted to this form of recesses only, thus, also further forms of recesses are possible according to the present invention. In general, they will depend on the form of the pole.

15 Further, according to the present embodiment, the recesses 23a, 23b comprise through holes 25a, 25b on their right end parts and through holes 26a, 26b on their left end parts. The through holes 25a, 25b, 26a, 26b can be used for fastening,
20 mounting, or assembling the supporting element 2 to a pole.

Here, through holes 25a, 25b at right end parts of ledges 22a, 22b placed on different sites 24a, 24b are arranged as being opposite. The same applies also to the through holes
25 26a, 26b at left end parts of ledges 22a, 22b.

According to the present embodiment, the recesses 23a, 23b are arranged such that each of them starts at corresponding back border of the side the corresponding recess is located
30 at, wherein back borders are borders directed to the back side 21, takes course towards the front side 20, leads from the front side 21 back to the back border of the corresponding side at a central point of the corresponding recess; and
35 ends near the corresponding back border of the corresponding side.

According to the present embodiment, the recesses 23a, 23b are placed central in the corresponding ledges 22a, 22b, however, there also further possibilities for placing recesses 23a, 23b in the ledges 22a, 22b can exist.

5

Further, the recesses 23a, 23b are arranged such that they are opposite.

10 According to the present embodiment, the supporting element or plinth 2 has a frame 27, which has a form of a slide. Here, different forms of frames may be provided. In this way, stability of the supporting element or plinth 2 is improved. According to the present embodiment, the ledges 22a, 22b are arranged on the frame 27. Further, to provide an additional
15 support for the stability of the supporting element or plinth 2, the supporting element or plinth 2 has ribs 28 on both the front side 20 and the back side 21 or the supporting element or plinth 2.

20 Additionally, according to the present embodiment, the supporting element or plinth 2 has further ledge like arranged elements 29 without recesses. According to the present embodiment, each of the further ledge like arranged elements 29 comprises a hole. Here, the ledge like elements
25 29 are arranged at edges of sides connecting the first side 24a comprising the first ledge 22a and the second side 24b comprising the second ledge 22b.

According to the present embodiment, the ledge like elements
30 29 are used as spacers when devices assembled to a pool are near a wall or another object. Further, according to the present invention, the ledge like elements 29 have essentially a form of a hook. Thus, they can be used as a hook when lifting the supporting element or plinth 2 on a
35 pool. Preferably, devices will be assembled or mounted at the supporting element or plinth 2 before the lifting the on a pool.

Figure 5 shows a supporting element 2 assembled to a pole 13 according to an embodiment of the present invention.

5 In particular, in Figure 5 a kit for assembling devices 14 to a pole 13 is provided, the kit comprising the supporting element or plinth 2 and bracket elements 50a, 50b arranged to bracket the pole 13 partially and to be fastened to the corresponding ledges 22a, 22b. According to the present embodiment the devices are BTS products, however, assembling
10 also of further devices is possible.

The assembling of the supporting element or plinth 2 is performed by fastening the bracket elements 50a, 50b to the corresponding ledges 22a, 22b by use of the through holes
15 26a, 26b of the ledges 22a, 22b. In particular, fastening elements 51a, 51b are fastened or fixed to the corresponding bracket elements 50a, 50b, lead through the through holes 26a, 26b of the ledges 22a, 22b, and fastened or fixed to the ledges 22a, 22b at the front side 20 of the supporting
20 element or plinth 2.

In Figure 6, two supporting elements 2_1, 2_2 are assembled to a pole 13 according to an embodiment of the present invention.

25 In particular, the supporting elements 2_1, 2_2 are placed opposite each other at the pole 13, and fastening elements 51_1, 51_2 for fastening the supporting elements 2_1, 2_2 to each other at the pole 13 are used.

30 Here, a fastening element 51_1 is fastened or fixed at ledge 22_1a at front side of the first supporting element 2_1, leads through a through hole 25_1a at the right end part of the ledge 22_1a to a through hole at the left end part of the
35 ledge 22_2b of the second supporting element 2_2, and is fastened or fixed at ledge 22_2a of the second supporting element 2_2.

Further, a fastening element 51_2 is fastened or fixed at ledge 22_1a at front side of the first supporting element 2_1, leads through a through hole 26_1a at the left end part of the ledge 22_1a to a through hole 25_2a at the right end part of the ledge 22_2b of the second supporting element 2_2, and is fastened or fixed at ledge 22_2a of the second supporting element 2_2.

The same procedure of assembling is performed also with regard to second ledges of the supporting elements or plinths 2, however, due to the assembled devices 14_1, 14_2 to the supporting elements 2 and, thus, to the plinth 13, said second ledges are not visible in Figure 6.

Here, with regard to Figures 5 and 6 it has to be noted, that various fastening elements, various forms of fastening elements can be used, the present invention is not restricted to the provided examples, the bolt like fastening elements only.

Figure 7 shows assembling of devices 14_A, 14_B to a front side 20 of a supporting element or plinth 2 according to an embodiment of the present invention. According to the present embodiment the devices are BTS products, however, assembling also of further devices is possible.

The devices 14_A, 14_B are supported, assembled, or mounted to the supporting element or plinth 2 by use of device fastening elements 7_1, 7_2. According to the present embodiment, device fastening elements 7_1, 7_2 are clamp like elements or clamps.

Here, it has to be noted that various kinds of device fastening elements can be used according to the present invention. The present invention is not restricted to the clamp like elements or clamps only.

For mounting of the first device 14_A to the front side 20 of the supporting element 2, a first clamping side of a first clamp or fastening element 7_1 is mounted to the supporting element 2 and a second clamping side of the first clamp or fastening element 7_1 is mounted to the first device 14_A, wherein the clamp or fastening element 7_1 is arranged to clamp or fasten the first device 14_A.

For mounting of the further (second) device 14_B to the supporting element 2, a first clamping side of a further (second) clamp or fastening element 7_2 is mounted to the first device 14_A or to the second side of the clamp or fastening element 7_2, respectively, and a second clamping side of the further (second) clamp or fastening element 7_2 is mounted to the second device 14_B, wherein the further (second) clamp or fastening element 7_2 is arranged to clamp or fasten the further (second) device 14_B.

Here, it has to be noted, that also further ways of fastening or mounting of devices to a supporting element or plinth are possible and applicable according to the present invention. Figure 7 shows an example of a possible mounting of devices to a supporting element, the present invention, however, is not restricted to this way of mounting.

As regards manufacturing of supporting elements for assembling at least one device to said pole the manufacturing comprises die casting of the supporting elements. The surface of the die casted supporting elements can be treated by anodizing and powder painting, for example.

Here, as regards supporting elements provided by the embodiments, at least the two following alternatives of realizing the manufacturing and depending on design either three of five machining directions are possible.

The first alternative comprises making of a supporting element by a pure natural mold without slides. The both

slides can be machined straight, wherein only the threads are rounded.

When considering the first alternative, at least two sub
5 alternatives of manufacturing can be divided. Figures 8 and 9
show exemplary embodiments of the two sub alternatives.

Figure 8 shows an option of manufacturing of a supporting
element according to an embodiment of the present invention.
10 Here, the supporting element 2 is made by a pure natural mold
without slides. The both slides are machined straight,
wherein only the threads are rounded. Here, three machining
directions 81, 82, 83 pointed out by arrows are possible. The
crossing lines 84 point out, that manufacturing of threads at
15 sides arranged to comprise ledges with recesses is not
required or necessary, thus, not mandatory at first. The
interrupted line on the front side of the frame of the
supporting element 2 represents the parting line.

20 Fig. 9 shows an option of manufacturing of a supporting
element according to an embodiment of the present invention.
Here, the supporting element 2 is made by a pure natural mold
without slides. The both slides are machined straight,
wherein only the threads are rounded. Here, five machining
25 directions 91, 92, 93, 94, 95 pointed out by arrows are
possible. The crossing lines 96, 97 point out, that
manufacturing of fastening elements on sides arranged to
comprise ledges with recesses is not required or necessary,
thus, not mandatory at first. Also here, the interrupted line
30 on the front side of the frame of the supporting element 2
represents the parting line.

The second alternative comprises making of a supporting
element by a natural mold and by two slides in both ends to
35 make ends straight and core pins for threads.

When considering the second alternative, at least two sub alternatives of manufacturing can be divided. Figures 10 and 11 show exemplary embodiments of the two sub alternatives.

5 Figure 10 shows an option of manufacturing of a supporting element according to an embodiment of the present invention. Here, the supporting element 2 is made by a natural mold and by two slides in both ends to make ends straight and core pins for threads. Here, three machining directions 10_1,
10 10_2, 10_3 pointed out by arrows are possible. The crossing lines 10_4 point out, that manufacturing of threads at sides arranged to comprise ledges with recesses is not required or necessary, thus, not mandatory at first. The interrupted line on the front side of the frame of the supporting element 2
15 represents the parting line.

Fig. 11 shows an option of manufacturing of a supporting element according to an embodiment of the present invention. Here, the supporting element 2 is made by a natural mold and
20 by two slides in both ends to make ends straight and core pins for threads. Here, five machining directions 11_1, 11_2, 11_3, 11_4, 11_5 pointed out by arrows are possible. The crossing lines 11_6, 11_7 point out, that manufacturing of fastening elements on sides arranged to comprise ledges with
25 recesses is not required or necessary, thus, not mandatory at first. Also here, the interrupted line on the front side of the frame of the supporting element 2 represents the parting line.

30 Thus, the present invention refers to assembling at least one device to a pole. In particular, according to the present invention, a supporting element as a base body is used for assembling at least one device to a pole, wherein said supporting element has: a front side arranged for supporting
35 said at least one device to said front side; a back side arranged for assembling to said pole; and a first ledge comprising a recess for accompanying said pole. Additionally, the present invention refers also to a kit for assembling at

least one device to a pole, to a method for assembling the supporting element to a pole, and to a method for manufacturing the supporting element.

5 While embodiments and applications of this invention have been shown and described above, it should be apparent to those skilled in the art, that many more modifications (than mentioned above) are possible without departing from the inventive concept described herein. The invention, therefore,
10 is not restricted except in the spirit of the appending claims. It is therefore intended that the foregoing detailed description is to be regarded as illustrative rather than limiting and that it is understood that it is the following claims including all equivalents described in these claims
15 that are intended to define the spirit and the scope of this invention. Nor is anything in the foregoing description intended to disavow the scope of the invention as claimed or any equivalents thereof.

20 Thus, for example, different forms of recesses, different ways of positioning of ledges, different fastening elements for mounting supporting elements to poles, and/or different device fastening elements are possible. Further, also manufacturing of the supporting elements can vary.

25

30

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Reference list

| | | |
|----|-------|--|
| | 1 | prior art kit for assembling devices to a pole |
| 5 | 11 | plinth |
| | 11a | plinth |
| | 11b | plinth |
| | 111 | element for assembling a plinth to a pole mounting kit |
| 10 | 111a | element for assembling a plinth to a pole mounting kit |
| | 111b | element for assembling a plinth to a pole mounting kit |
| | 112 | elements for assembling devices to a plinth |
| 15 | 112a | elements for assembling devices to a plinth |
| | 112b | elements for assembling devices to a plinth |
| | 12 | prior art pole mounting kit |
| | 12a | prior art pole mounting kit |
| | 12b | prior art pole mounting kit |
| 20 | 121 | bracket |
| | 13 | pole |
| | 14 | devices |
| | 14_1 | devices |
| | 14_2 | devices |
| 25 | 14_A | devices |
| | 14_B | devices |
| | 2 | supporting element |
| | 2_1 | supporting element |
| | 2_2 | supporting element |
| 30 | 20 | front side of a supporting element |
| | 21 | back side of a supporting element |
| | 22a | ledge |
| | 22b | ledge |
| | 22_1a | ledge |
| 35 | 22_2a | ledge |
| | 23a | recess |
| | 23b | recess |
| | 24a | a side of a supporting element |

| | | |
|----|-------|--|
| | 24b | a side of a supporting element |
| | 25a | through holes on a right end part of a ledge |
| | 25b | through holes on a right end part of a ledge |
| | 25_1a | through holes on a right end part of a ledge |
| 5 | 25_2a | through holes on a right end part of a ledge |
| | 26a | through holes on a left end part of a ledge |
| | 26b | through holes on a left end part of a ledge |
| | 26_1a | through holes on a left end part of a ledge |
| | 27 | frame |
| 10 | 28 | ribs |
| | 29 | further ledge like element |
| | 50a | bracket element |
| | 50b | bracket element |
| | 51a | fastening element |
| 15 | 51b | fastening element |
| | 51_1 | fastening element |
| | 51_2 | fastening element |
| | 7_1 | device fastening element |
| | 7_2 | device fastening element |
| 20 | 81 | machining direction |
| | 82 | machining direction |
| | 83 | machining direction |
| | 84 | crossing lines pointing out, that manufacturing of threads at certain sides is not mandatory at first |
| 25 | | |
| | 91 | machining direction |
| | 92 | machining direction |
| | 93 | machining direction |
| | 94 | machining direction |
| 30 | 95 | machining direction |
| | 96 | crossing lines pointing out, that manufacturing of fastening elements at certain sides is not mandatory at first |
| | 97 | crossing lines pointing out, that manufacturing of fastening elements at certain sides is not mandatory at first |
| 35 | | |
| | 10_1 | machining direction |
| | 10_2 | machining direction |

10_3 machining direction
10_4 crossing lines pointing out, that manufacturing
 of threads at certain sides is not mandatory at
 first
5 11_1 machining direction
 11_2 machining direction
 11_3 machining direction
 11_4 machining direction
 11_5 machining direction
10 11_6 crossing lines pointing out, that manufacturing
 of fasting elements at certain sides is not
 mandatory at first
 11_7 crossing lines pointing out, that manufacturing
 of fasting elements at certain sides is not
15 mandatory at first

Claims

1. A supporting element as a base body for assembling at least one device to a pole, wherein said supporting element
5 has:

- a front side arranged for supporting said at least one device to said front side;
- a back side arranged for assembling to said pole; and
- a first ledge comprising a recess for accompanying said
10 pole.

2. The supporting element according to claim 1, said supporting element comprising a first side arranged with said first ledge.
15

3. The supporting element according to claim 2, wherein said recess of said first ledge:

- starts near a back border of said first side, said back border of said first side being directed to said back side;
- 20 - takes course towards said front side;
- leads from said front side back to said back border of said first side at a central point of said recess of said first ledge; and
- ends near said back border of said first side.

4. The supporting element according to claim 2 or 3, wherein said first ledge is formed such that it is arranged centred on said first side.
25

5. The supporting element according to at least one of the preceding claims, wherein said supporting element has a frame and said first ledge is arranged on said frame.
30

6. The supporting element according to at least one of the preceding claims, wherein said first ledge has at least one through hole at a right end part of said first ledge and at least one through hole at a left end part of said first ledge.
35

7. The supporting element according to at least one of the preceding claims, wherein said supporting element has at least one second ledge comprising a recess for accompanying
5 said pole.

8. The supporting element according to claim 7, said supporting element comprising a second side arranged with said second ledge.

9. The supporting element according to claim 8, wherein said recess of said second ledge:

- starts near a back border of said second side, said back border of said second side being directed to said back side;
- 15 - takes course towards said front side;
- leads from said front side back to said back border of said second side at a central point of said recess of said second ledge; and
- ends near said back border of said second side.

10. The supporting element according to claim 8 or 9, wherein said second ledge is formed such that it is arranged centred on said second side.

11. The supporting element according to at least one of the preceding claims 7 to 10, wherein said supporting element has a frame and said second ledge is arranged on said frame.

12. The supporting element according to at least one of the preceding claims 7 to 11, wherein said second ledge has at least one through hole at a right end part of said second ledge and at least one through hole at a left end part of said second ledge.

13. The supporting element according to at least one of claim 5 and according to claim 12, wherein said at least one through hole at said right end part of said first ledge is opposite said at least one through hole at said right end

part of said second ledge and wherein said at least one through hole at said left end part of said first ledge is opposite said at least one through hole at said left end part of said second ledge.

5

14. The supporting element according to at least one of claims 2 to 6 and according to at least one of claims 7 to 13, wherein said second side is a opposite side of said first side and wherein said second ledge is arranged such that it is opposite said first ledge.

15. The supporting element according to at least one of the preceding claims, wherein said supporting element has an essentially rectangular form.

15

16. The supporting element according to at least one of the preceding claims, wherein at least one of front side and back side of said plate has at least one rib arranged for strengthening of said supporting element.

20

17. A kit for assembling at least one device to a pole, comprising a supporting element for assembling at least one device to a pole according to claim 1.

25 18. The kit according to claim 18, comprising a bracket element being arranged to bracket said pole and to be fastened to said first ledge of said supporting element.

30 19. A method for assembling a supporting element to a pole, said supporting element being a supporting element for assembling at least one device to said pole according to claim 1, said method comprising a fastening of said supporting element to said pole by fastening an element for accompanying said pole to said first ledge of said supporting element.

35

20. The method according to claim 19, wherein as said element for accompanying said pole a bracket element being arranged

to bracket said pole and to be fastened to said first ledge of said supporting element is used.

21. The method according to claim 20, wherein as said element
5 for accompanying said pole a second supporting element according to claim 1 is used, said method comprising fastening of said first ledge of said supporting element to said first ledge of said second supporting element.
- 10 22. A method for manufacturing of a supporting element for assembling at least one device to said pole according to claim 1 comprising die casting of said supporting element.

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FIG 1A

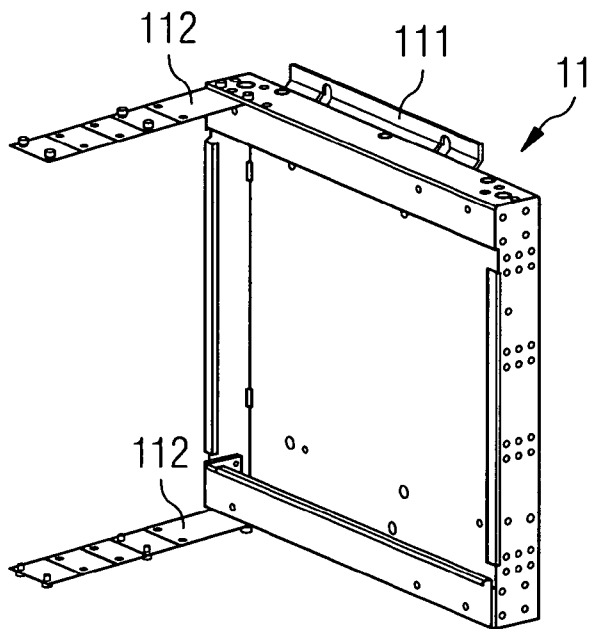


FIG 1B

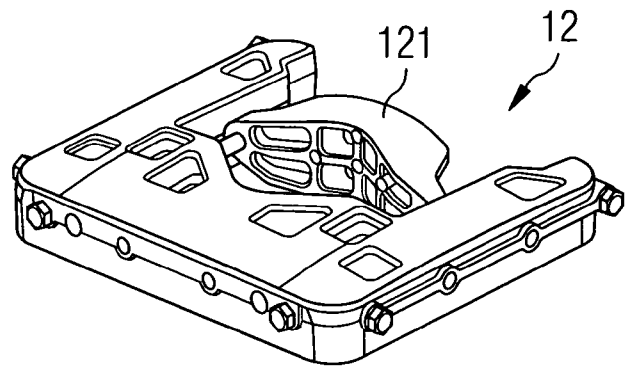


FIG 1C

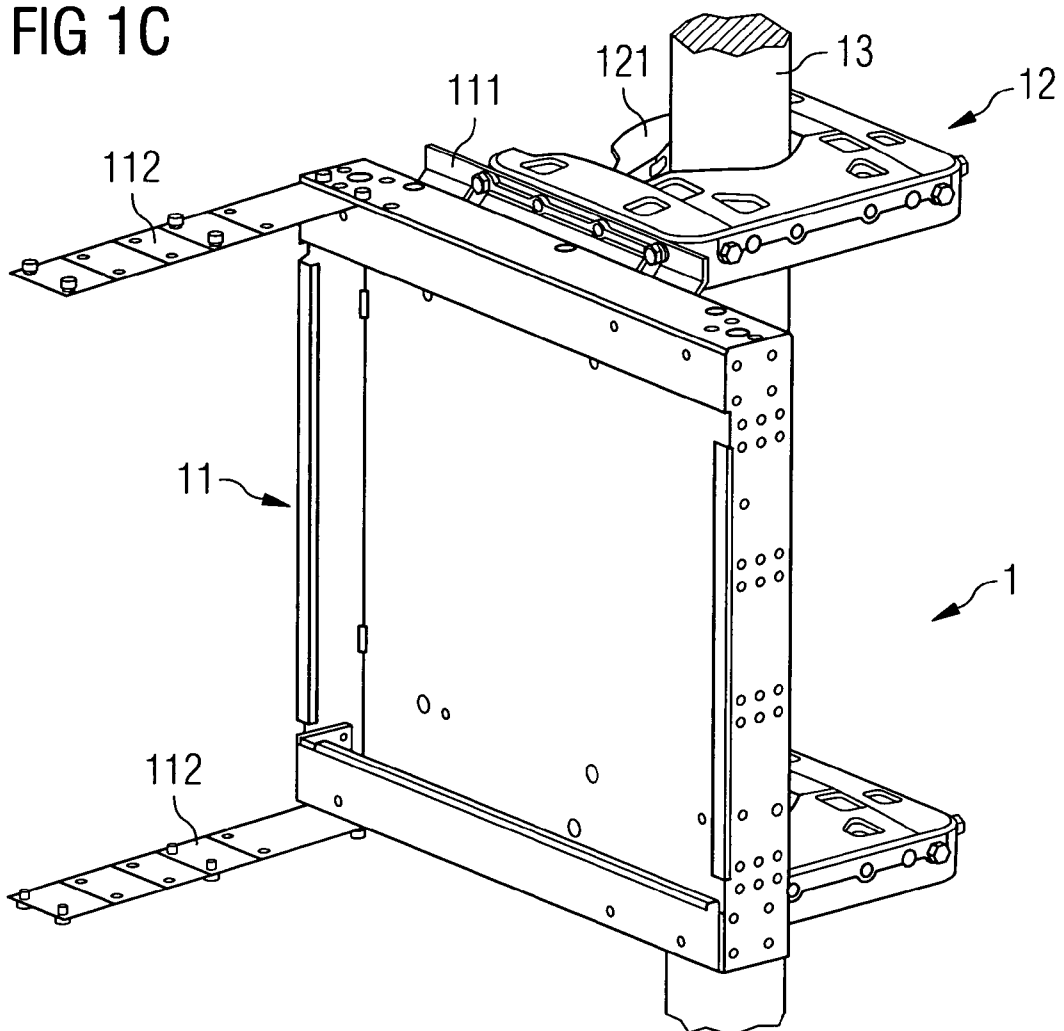


FIG 2

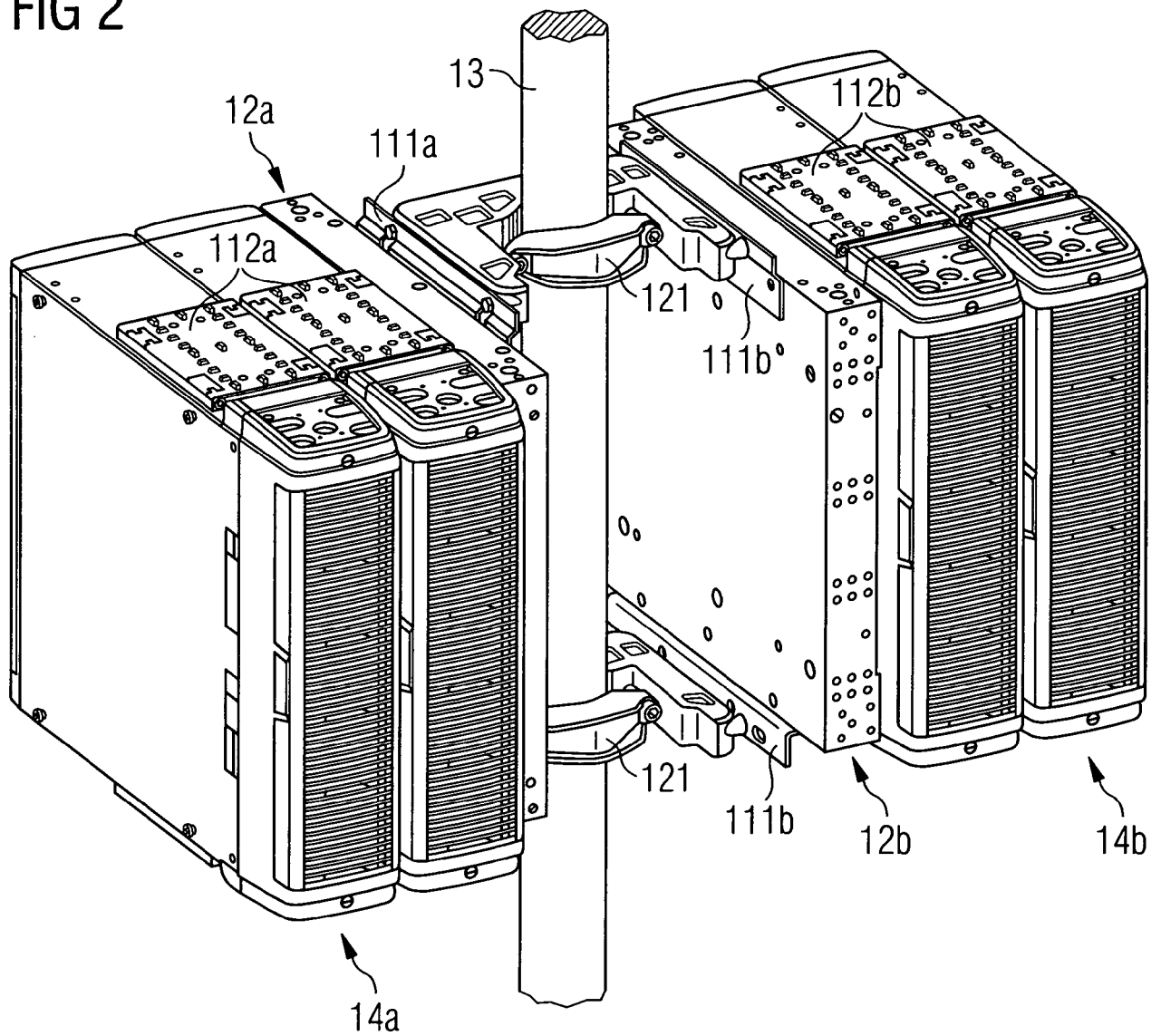


FIG 3

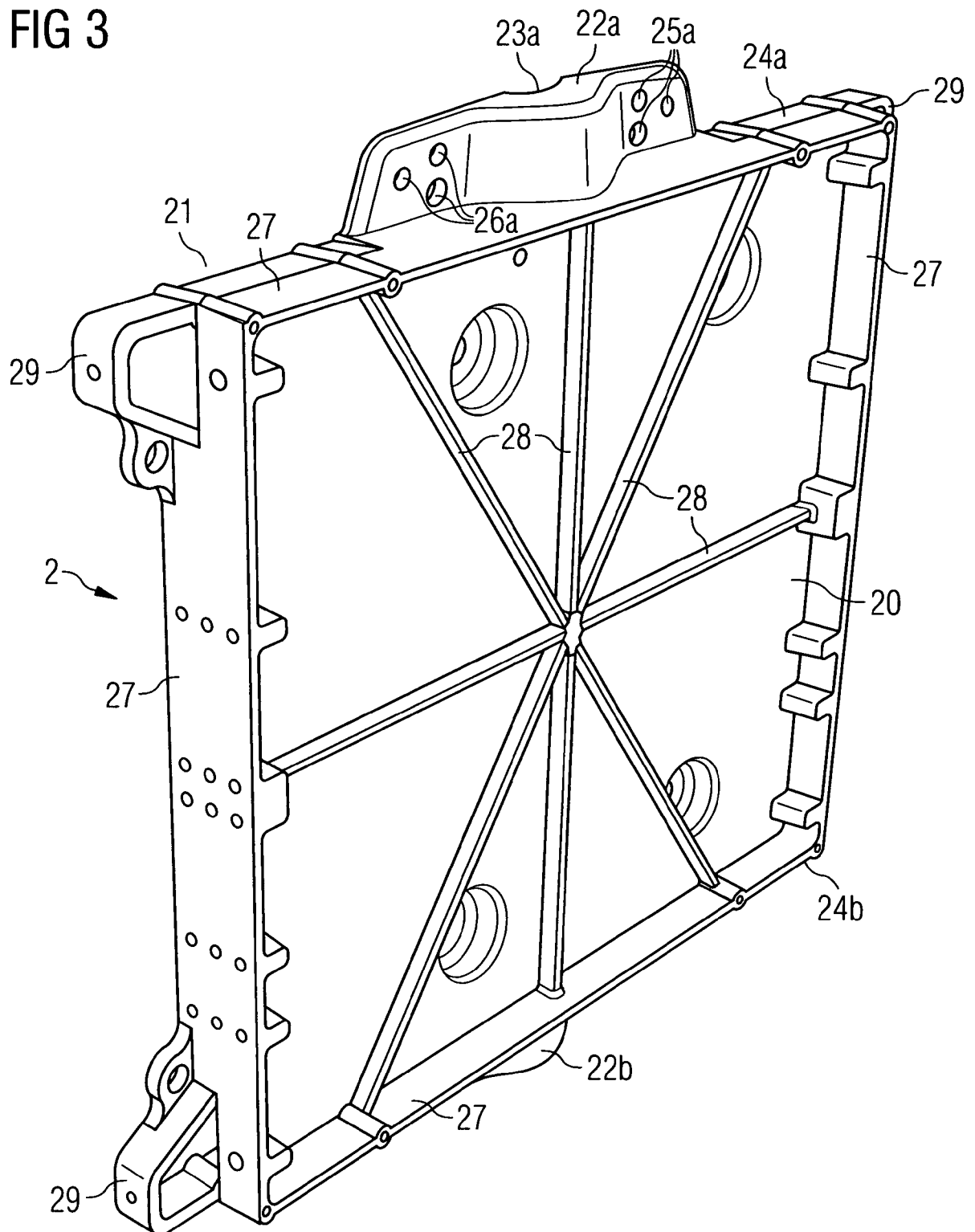


FIG 4

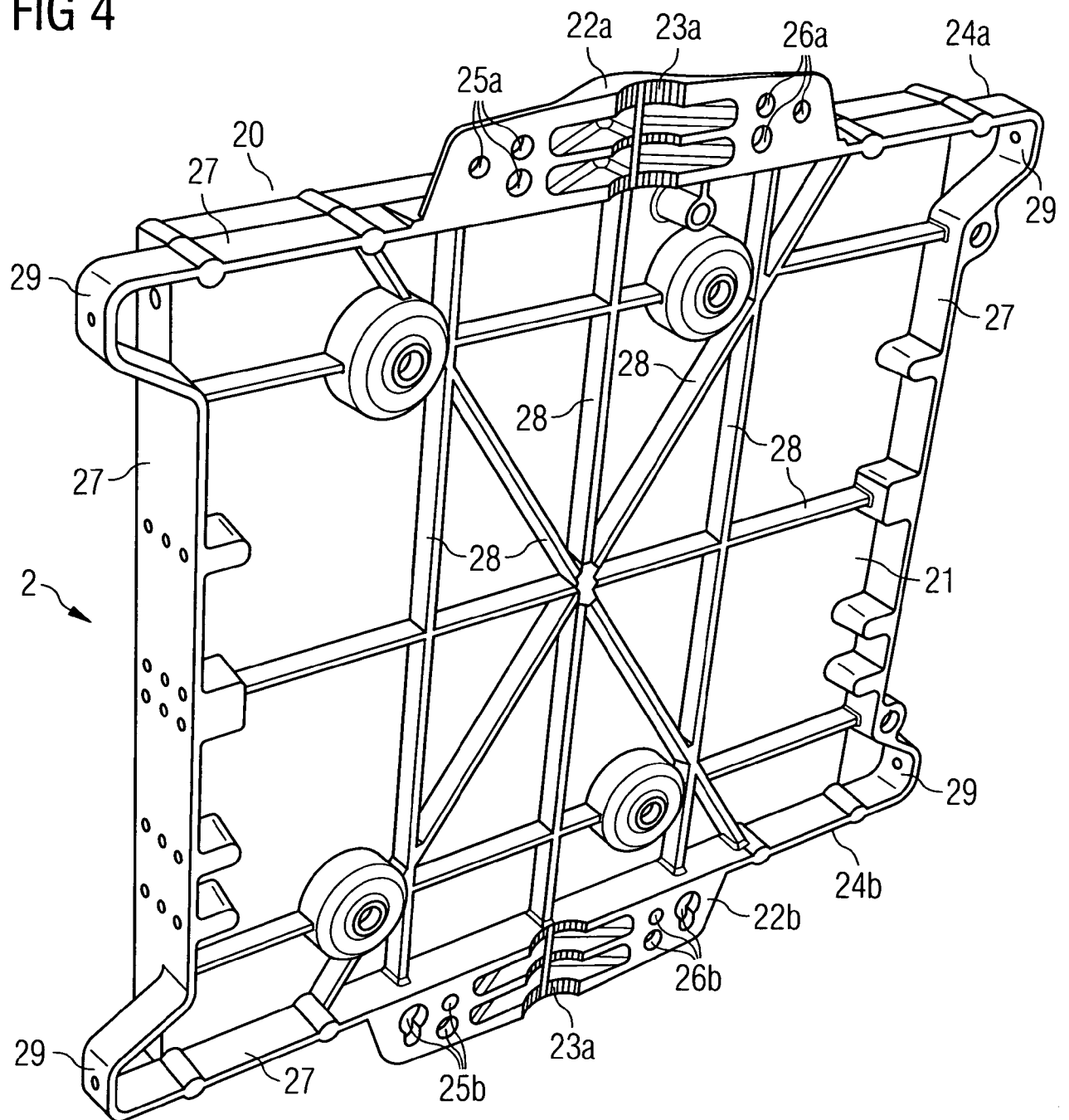


FIG 5

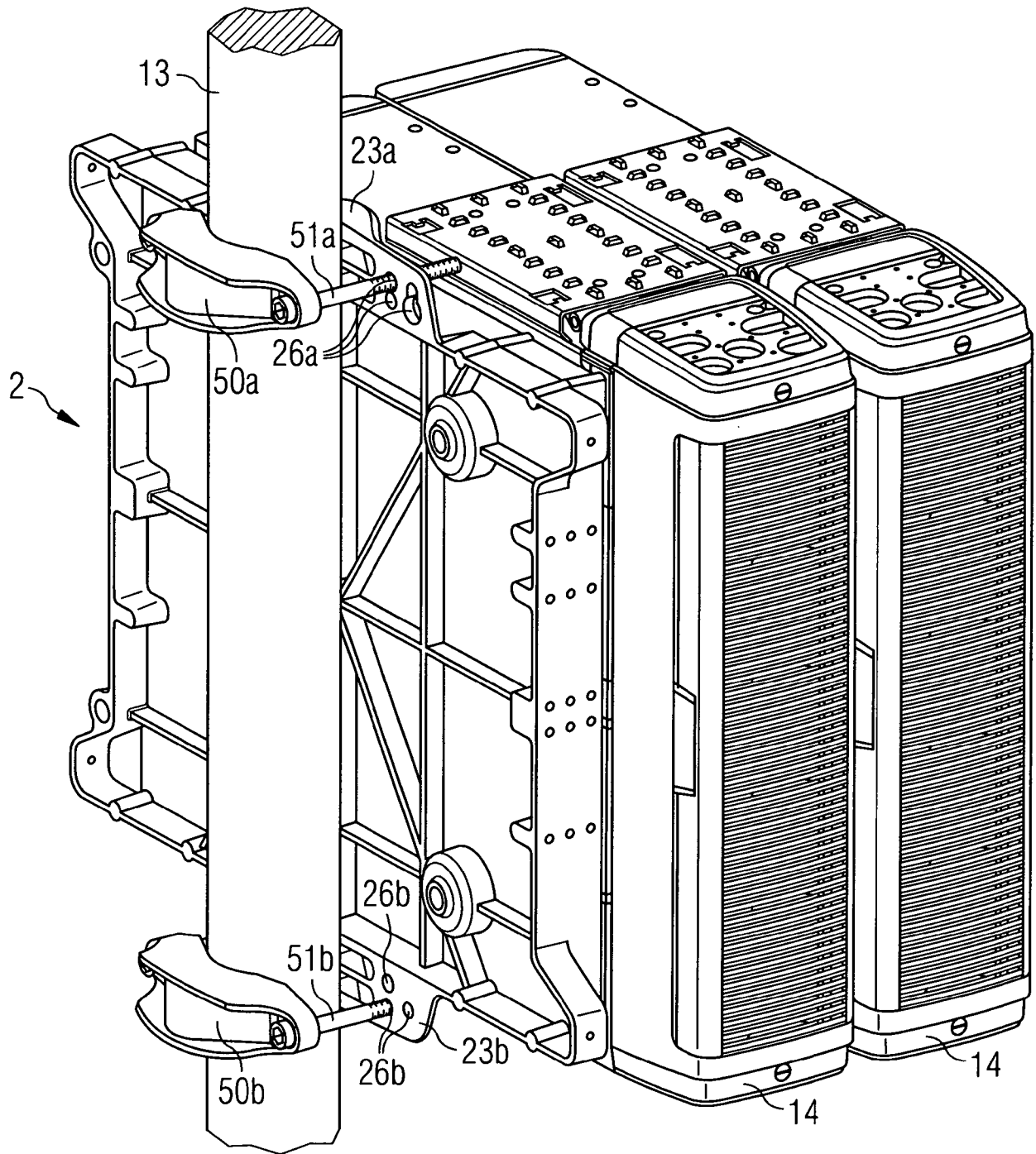


FIG 6

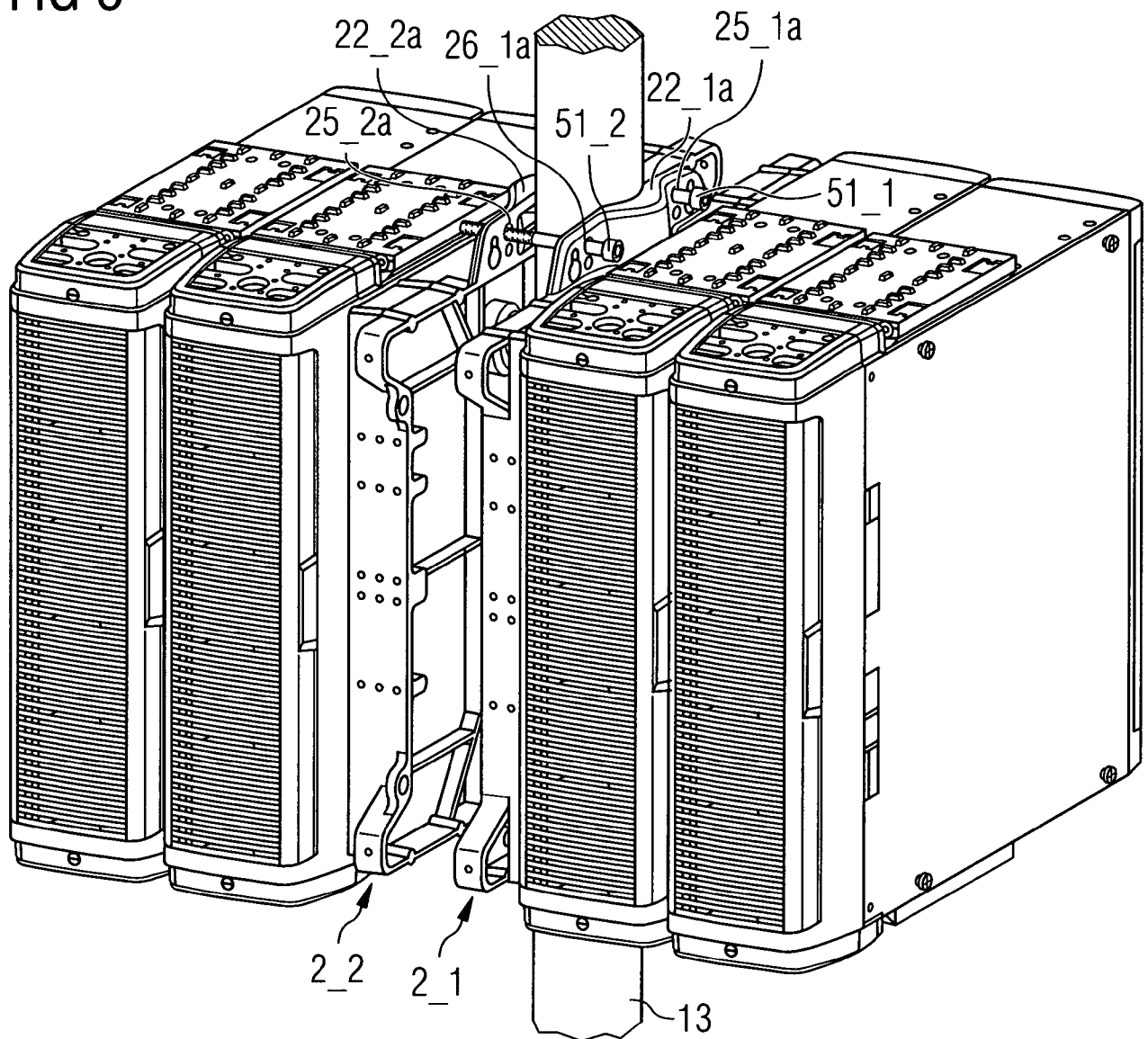


FIG 7

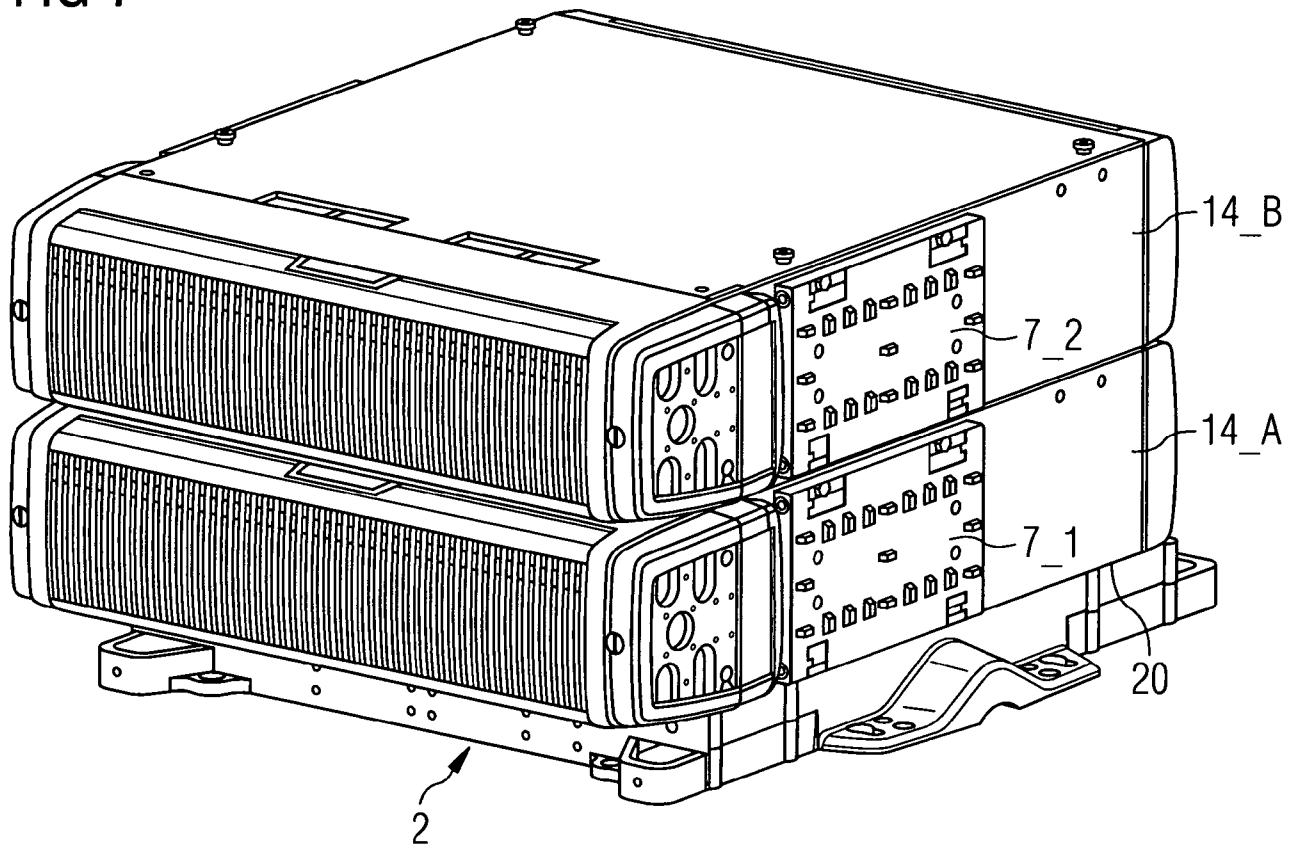


FIG 8

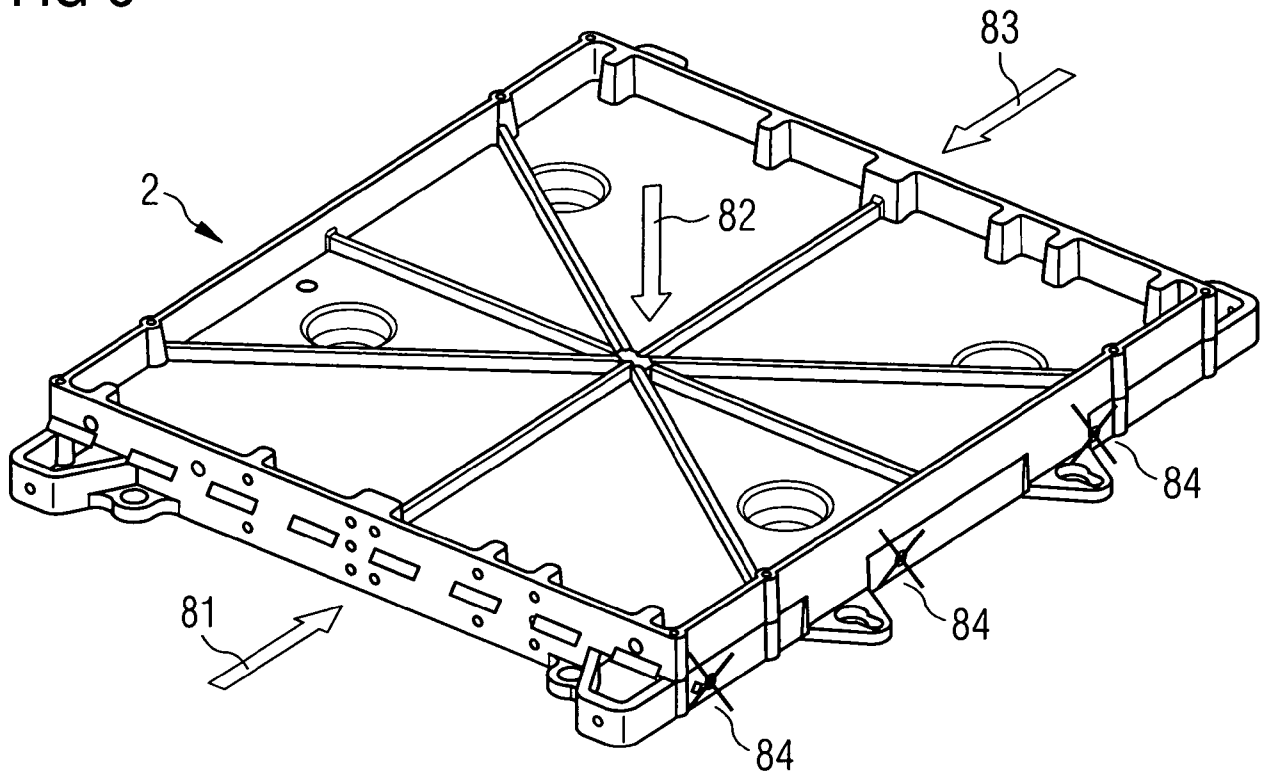


FIG 9

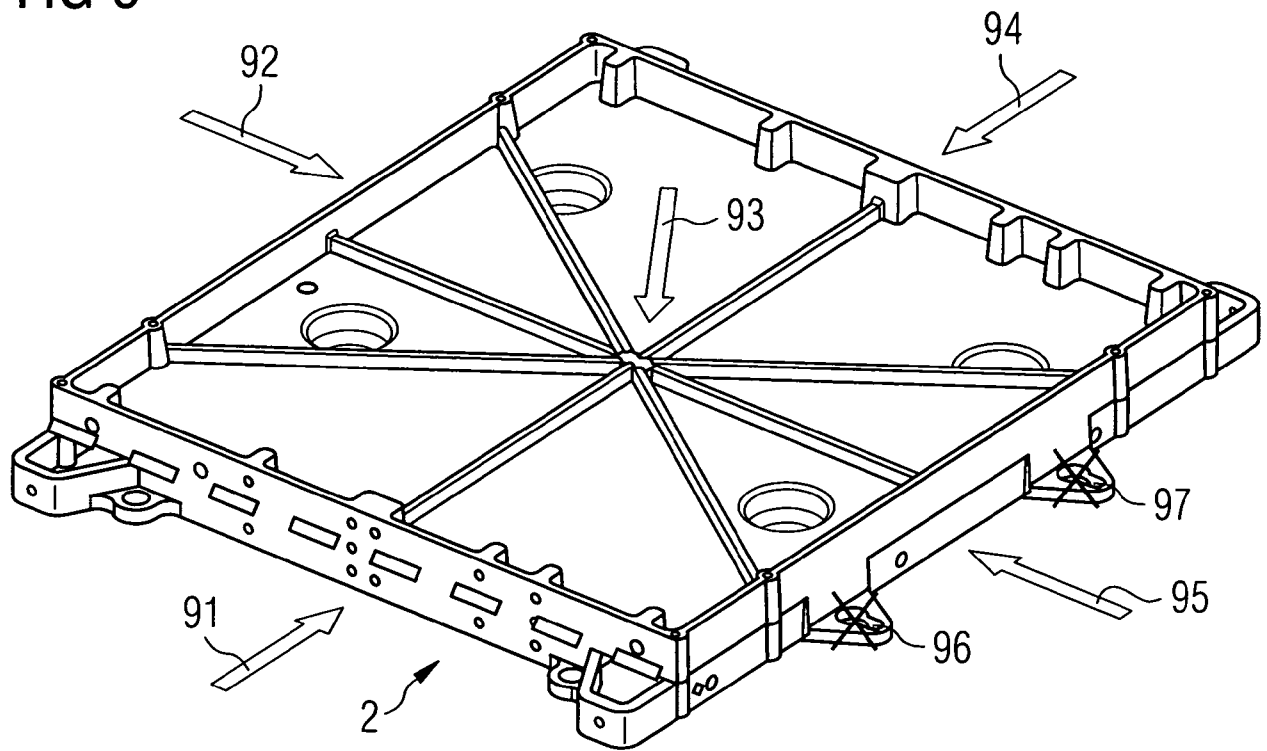


FIG 10

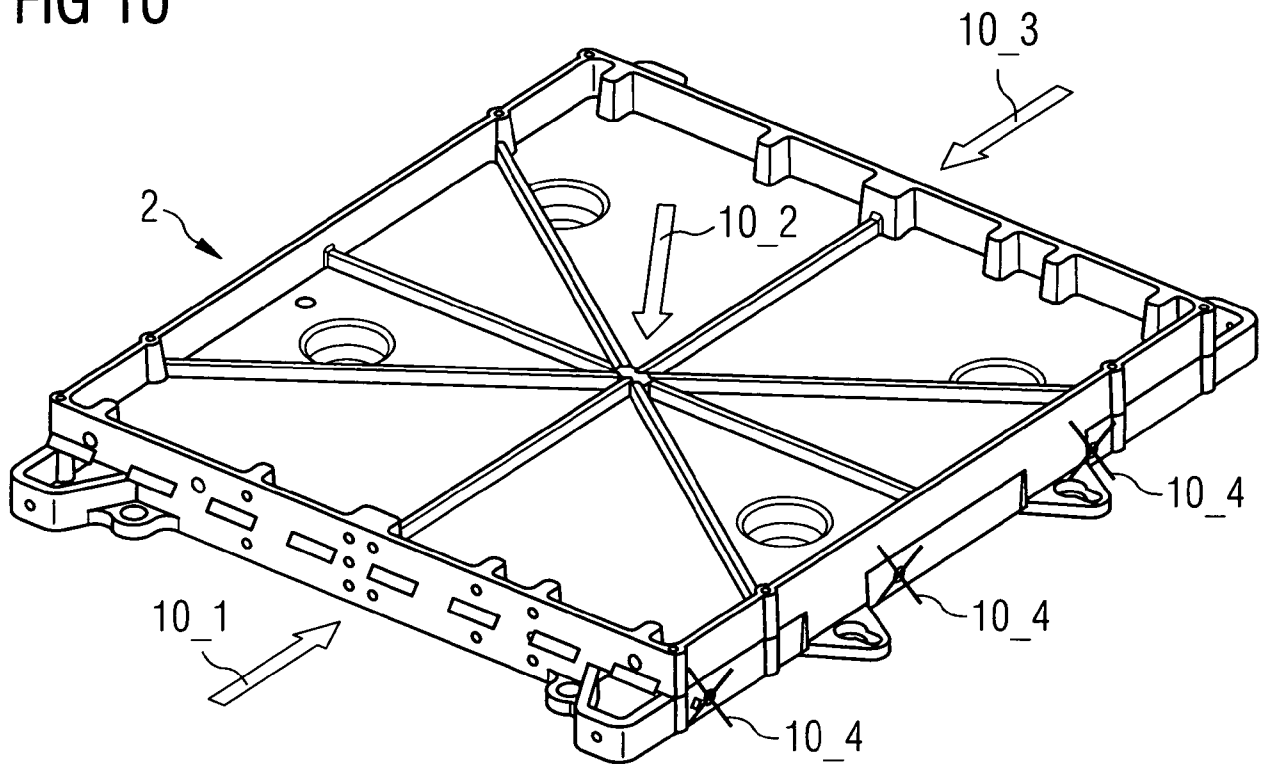
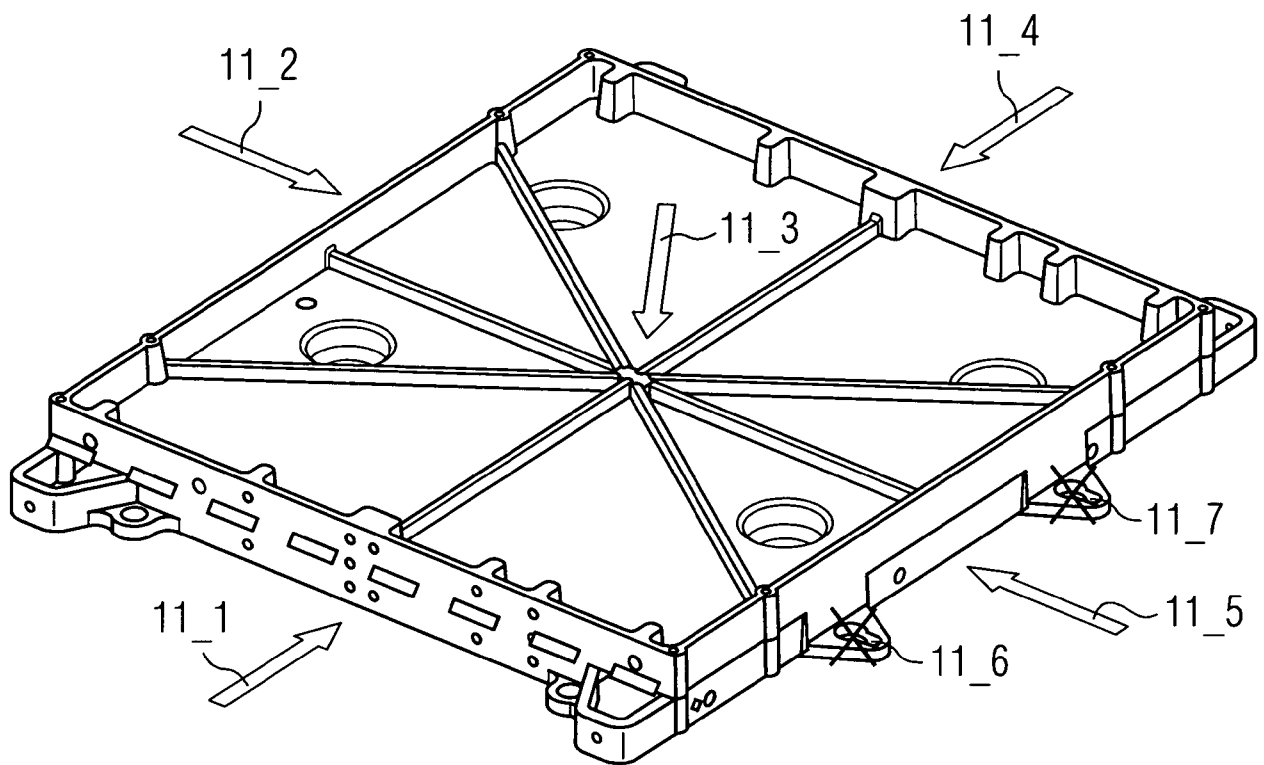


FIG 11



INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2008/064375

A. CLASSIFICATION OF SUBJECT MATTER

INV. F16M13/02
ADD. H05K5/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

F16M H05K E01F G09F H01Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|--|----------------------------|
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| X | WO 99/63263 A (NOKIA NETWORKS OY [FI]; MALLENIIUS ATTE [FI]) 9 December 1999 (1999-12-09) sentences 19-30; figures 1-3 ----- | 1-5, 7-11, 14, 16-20 |
| X | EP 1 111 290 A (SAGEM [FR]) 27 June 2001 (2001-06-27) figures 1,2 paragraphs [0001], [0008] - [0011] ----- -/-- | 1-5, 7-11, 14-20 |

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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Date of the actual completion of the international search

13 July 2009

Date of mailing of the international search report

23/07/2009

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INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2008/064375

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2008/064375

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
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| US 6126128 | A | 03-10-2000 | NONE |