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Description

The present invention relates to a mortar carriage according to Claim 1, for applying a fresh mortar layer, preferably a thin-bed mortar layer, to a building substrate, preferably on a bed joint of a row of bricks.

Using a mortar carriage, fresh mortar may be applied in a known way easily and quickly with consistent quality to a building substrate. The building substrate is, for example, a row of bricks, a lintel, or a structural panel.

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DE 20 2013 006 184 U1 discloses a device for applying mortar having a housing and a running axis device with running wheels for moving the device on the building substrate . The housing additionally has at least one lateral guide element on a housing side wall area. The lateral guide element extends obliquely away from the housing side wall area, so that the path position of the device with respect to the building substrate may be adjusted by a height adjustment of the lateral guide element. In addition, the device of DE 20 2013 006 184 U1 has one or more limit plates, with which the width of the mortar strip to be applied may be adjusted. The limit plates project into the receiving space for the fresh mortar.

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A mortar carriage arises from DE 20 2010 010 973 U1 which has two lateral guide and support rails for supporting the mortar carriage on the wall. The guide and support rails also serve for laterally guiding the mortar carriage along the wall.

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FR 2 079 767 A5 discloses a mortar carriage according to the preamble of Claim 1.

It is the object of the present invention to provide a mortar carriage for applying a fresh mortar layer, preferably a thin-bed mortar layer, to a building substrate, preferably to a row of bricks, a lintel, or a building panel,

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which is simple and inexpensive to produce and is flexibly adaptable to the respective building substrate.

The problem is solved by a mortar carriage with the features of Claim 1.
5 Advantageous refinements of the invention are characterized in the subsequent subclaims.

The invention is exemplarily explained below in greater detail with reference to a drawing, in which:

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Figure 1: shows a perspective depiction of the mortar carriage according to the invention from behind/above

Figure 2: shows a perspective top view of the mortar carriage according to the invention from behind/below

15 Figure 3: shows another perspective view of the mortar carriage according to the invention from behind/below

Figure 4: shows a perspective view of the mortar carriage according to the invention from above

20 Figure 5: shows a perspective view of the mortar carriage according to the invention from in front/above

Figure 6: shows a view of the mortar carriage according to the invention from below

25 Figure 7: shows a partial view of a cross section through the mortar carriage according to the invention in the area of a mortar outlet opening

Figure 8: shows a partial view of a central longitudinal section through the mortar carriage according to the invention in the area of the mortar outlet opening

30 Figure 9: shows a perspective view from below of a mortar spreading plate according to the invention of the mortar carriage according to the invention according to a first embodiment

Figure 10: shows a perspective view from below of a mortar spreading plate according to the invention of the mortar carriage according to the invention according to another embodiment

5 Figure 11: shows a perspective view from below of a bottom slider of the mortar carriage according to the invention

Figure 12: shows a perspective view of a toothed strip of the mortar carriage according to the invention.

10 The mortar carriage 1 according to the invention (figs. 1-8) has a housing 2, a mortar spreading plate 3, a bottom slider 4, and a scraper strip 5. In addition, mortar carriage 1 has a carriage longitudinal direction 6a, a carriage transverse direction 6b perpendicular thereto, and a carriage height direction 6c perpendicular to carriage longitudinal direction 6a and to carriage transverse direction 6b. A direction of travel or spreading direction or working direction 7 of mortar carriage 1 is parallel to carriage longitudinal direction 6a.

The subsequently used terms "forward" or "front" and "rear" etc. relate to direction of travel 7.

20 Housing 2 (figs. 1-8) has two housing side walls 8 parallel to one another, a housing front wall 10, a housing rear wall 11, a handle plate 12, a U-shaped rim 13, and a housing bottom plate 14 and a housing bottom rim 15.

25 The two plate-shaped housing side walls 8 each extend preferably perpendicular to carriage transverse direction 6b. In addition, they each have a side wall upper edge 16a parallel to carriage longitudinal direction 6a and a side wall lower edge parallel to said side wall upper edge. Furthermore, the two housing side walls 8 each have a side wall inner surface 8a facing the other housing side wall 8 and a side wall outer surface 8b facing away from the other housing side wall 8.

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Plate-shaped housing front wall 10 is designed as inclined towards carriage height direction 6c. It extends up to housing rear wall 11, as seen from the top down. Housing front wall 10 preferably has a front wall upper edge 17a parallel to carriage transverse direction 6b and a front wall lower edge parallel to said front wall upper edge. In addition, housing front wall 10 has a front wall inner surface or front wall slip surface 10a, serving as a mortar slip surface and inclined towards carriage height direction 6c, and a front wall outer surface 10b parallel to said front wall inner surface.

10 Plate shaped housing rear wall 11 (figs. 1-6) in the case shown is perpendicular to the two side walls 8 and perpendicular to carriage longitudinal direction 6a. It has a rear wall upper edge 18a parallel to carriage transverse direction 6b and a rear wall lower edge parallel thereto. Housing rear wall 11 additionally has a rear wall inner surface 11a and a rear wall outer surface 11b parallel thereto.

The two housing side walls 8, housing front wall 10, and housing rear wall 11 delimit a funnel-like mortar receiving space 20, which is open at the top and bottom and is fillable with mortar. A mortar outlet opening 21, in particular a rectangular mortar outlet opening, is provided at the lower end of mortar receiving space 20. Mortar outlet opening 21 is preferably delimited by housing front wall 10, housing rear wall 11, and two inclined mortar sliding surfaces 22, which each connect to one of the two side wall inner surfaces 8a and extend inward and downward away from the same. Inclined, planar mortar sliding surfaces 22 ensure that the mortar slides down as completely as possible and does not get stuck. In addition, mortar sliding surfaces 22 may also be concavely curved. In addition, a material reinforcement or thickening 54 (fig. 7) is formed below mortar sliding surfaces 22 due to the incline of the same, which serves for screwing in a screw, which will be discussed below in more detail.

Housing front wall 10, housing rear wall 11, and the two mortar sliding surfaces 22 preferably end flush with respect to each other at the bottom.

Handle plate 12 (figs. 1-6) connects to front wall upper edge 17a and projects outward from housing front wall 10. In addition, handle plate 12 has a handle cutout 23 penetrating through from the top down. Handle plate 12 is preferably perpendicular to carriage height direction 6c. In addition, handle plate 12 has a free handle plate front edge 12a.

Circumferential U-shaped rim 13 extends outwardly around handle plate 12, the two housing side walls 8 and housing rear wall 11. It projects outward from handle plate 12, the two housing side walls 8, and housing rear wall 11, and is curved downward and is open at the bottom. U-shaped rim thereby connects to the two side wall upper edges 16a and rear wall upper edge 18a, and free handle plate front edge 12a. U-shaped rim 13 serves for additional gripping of mortar carriage 1 from below and/or from the side by the respective operating person, and also for stabilizing housing 2.

Housing bottom plate 14 is particularly rectangular and preferably perpendicular to carriage height direction 6c. It has a preferably planar bottom plate top side 14a, and a preferably planar bottom plate underside 14b opposite the same. Furthermore, housing bottom plate 14 has two bottom plate side edges 24a parallel to carriage longitudinal direction 6a, and a bottom plate front edge 24b parallel to carriage transverse direction 6b and a bottom plate rear edge 24c likewise parallel to carriage transverse direction 6b.

Housing bottom plate 14 is preferably connected to housing front wall 10 via reinforcing ribs 25.

Furthermore, housing bottom plate 14 has a U-shaped bottom plate cutout 26, which extends from bottom plate rear edge 24c inward into housing bottom plate 14. Bottom plate cutout 26 is thus open towards bottom plate rear edge 24c. Bottom plate cutout 26 thus has two cutout side edges 26a

parallel to carriage longitudinal direction 6a and a cutout bottom edge 26b parallel to carriage transverse direction 6b.

5 Circumferential housing bottom rim 15 extends outwardly around housing bottom plate 14. It connects to bottom plate front edge 24b, the two bottom plate side edges 24a, and bottom plate rear edge 24c and projects upward from bottom plate top side 14a. Housing bottom rim 15 additionally has two side rim strips 27, a front rim strip 28, and a rear rim strip 29.

10 Rear rim strip 29 has a preferably planar rim strip inner surface 29a and a preferably planar rim strip outer surface 29b. Rim strip inner surface 29a and rim strip outer surface 29b are preferably perpendicular to carriage longitudinal direction 6a. In addition, rear rim strip 29 has a rim strip upper edge 30a parallel to carriage transverse direction 6b and a rim strip lower edge 30b parallel to carriage transverse direction 6b.

An intermediate space or gap for accommodating scraper strip 5 is present between rim strip inner surface 29a and rear wall outer surface 11b, which will be described below in greater detail.

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To fix scraper strip 5 on housing 2, rear rim strip 29 has multiple, preferably two, elongated holes 31, which extend from rim strip upper edge 30a into rear rim strip 29. Elongated holes 31 are thus open towards rim strip upper edge 30a. In addition, elongated holes 31 are arranged adjacent to one another in carriage transverse direction 6b.

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Bottom plate cutout 26 additionally also extends through rear rim strip 29, so that rim strip lower edge 30b is offset upward in the area of bottom plate cutout 26 (fig. 2), so that mortar spreading plate 3 may be inserted unimpeded from behind.

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In addition, a reinforcing or stiffening strip 32 connects to rim strip outer surface 29b in the area of bottom plate cutout 26. Stiffening strip 32 projects

outward from rim strip outer surface 29b and extends parallel to carriage transverse direction 6b. It serves for stabilizing this area, as this area is not connected to housing bottom plate 14, but instead is spaced apart from the same.

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Housing 2 additionally preferably has two bearing strips 33 (figs. 6, 7) extending parallel to carriage longitudinal direction 6a, which serve for mounting mortar spreading plate 3, which will be described below in greater detail.

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Bearing strips 33 connect to bottom plate underside 14b in the area of cutout side edges 26a of bottom plate cutout 26. In addition, they project downward below bottom plate cutout 26. A preferably planar bearing strip top side 33a of bearing strips 33 is thereby perpendicular to carriage height direction 6c.

15 In addition, bearing strip top sides 33a are preferably coplanar to bottom plate underside 14b.

In addition, bottom plate 14 preferably has four attachment holes 34, which function for fixing bottom plate 14 to the rest of housing 2 by means of screws. Each two attachment holes 34 are arranged adjacent to one of the two cutout side edges 26a of bottom plate cutout 26 and are arranged adjacent to one another in carriage longitudinal direction 6a.

20 Housing walls 8-11, handle plate 12, and U-shaped rim 13, and also stiffening strips 25, which are preferably present, are preferably in one piece, preferably designed as integral, and are made of plastic, preferably a non-fibre-reinforced plastic or a fibre-reinforced plastic, for example from a fibreglass-reinforced plastic (GRP or fibreglass). They form a corpus 9 of housing 2. The component or corpus 9 made of plastic is preferably produced by injection moulding. However, corpus 9 may also be made of metal. In this case, the individual components of corpus 9 are preferably made of sheet metal, preferably stainless steel sheet metal. Corpus 9 may then be produced by bending and/or welding sheet metal parts. In a

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production made from metal, reinforcing or stabilizing elements may potentially be omitted, which are provided for the preferred embodiment made of plastic.

- 5 Housing bottom rim 15 and housing bottom plate 14 are likewise preferably in one piece, preferably designed as integral. They form a housing bottom part 19 of housing 2. At least housing bottom rim 15 and housing bottom plate 14 are connected securely and preferably non-detachably to one another. Housing bottom part 19 is likewise preferably made of plastic,
10 preferably a non-fibre-reinforced plastic or a fibre-reinforced plastic, for example from a fibreglass-reinforced plastic (GRP or fibreglass). Housing bottom part 19 made of plastic is preferably produced by injection moulding. Housing bottom part 19 may, however, also be made of metal.
- 15 Housing bottom part 19 and corpus 9 are connected securely, preferably detachably, to one another. Corpus 9 and housing bottom part 19 are preferably screwed to one another. Therefore, screws are inserted into attachment holes 34, as already explained.
- 20 Alternatively, housing bottom part 19 and corpus 9 may also be non-detachably connected to one another, e.g. by gluing or welding.

- As already explained, mortar carriage 1 according to the invention additionally has scraper strip 5 (figs. 1-3, 6, 8, 12), known per se for scraping
25 the freshly applied mortar and for defining the thickness of the fresh mortar layer. Scraper strip 5 has a lower scraper edge 35 for this purpose. Scraper strip 5 is preferably a toothed strip 36, whose scraper edge 35 has teeth 35a in a known way. It thereby also lies within the scope of the invention that toothed strip 36 has something other than the triangular toothing depicted.
- 30 In particular, toothed strip 36 may also have, e.g., rectangular toothing or arched toothing. In addition, individually attached, projecting teeth for height adjustment may additionally be provided (not shown). This is known per se.

In addition, multiple, preferably two, threaded pins 37 are fixed on scraper strip 5 (fig. 12). Threaded pins 37 are arranged adjacent to one another and flush in carriage transverse direction 6b. Scraper strip 5 has two opposite, preferably planar, scraper strip top sides 5a. Threaded pins 37 project from one of the two scraper strip top sides 5a. They are connected securely, and preferably non-detachably, in particular welded, to scraper strip 5.

Scraper strip 5 is preferably made of plastic, in particular a fibre-reinforced plastic, preferably a fibreglass-reinforced plastic (GRP or fibreglass) or from metal, in particular stainless steel.

As already explained, mortar carriage 1 according to the invention additionally has movable bottom slider 4 (figs. 2-8, 11) for partially or completely closing mortar outlet opening 21. In particular, mortar outlet opening 21 is completely closed before filling mortar carriage 1 with fresh mortar and/or after finishing the mortar application on a row of bricks. The mortar outlet may be controlled by partially closing mortar outlet opening 21.

Bottom slider 4 (fig. 11) is preferably designed as L-shaped and has a slider baseplate 38 and a slider backplate 39 projecting preferably at right angles from the same and also a connecting piece 40 arranged between them.

Slider baseplate 38 is perpendicular to carriage height direction 6c. It additionally has a preferably planar slider baseplate top side 38a and a preferably planar slider baseplate underside 38b opposite the same. In addition, slider baseplate 38 has a first, free slider baseplate end edge 41a extending parallel to carriage transverse direction 6b, a second slider baseplate end edge 41b opposite the same in carriage longitudinal direction 6a and extending parallel to carriage transverse direction 6b, and two slider baseplate side edges 41c extending parallel to carriage longitudinal direction 6a.

Slider backplate 39 is perpendicular to carriage longitudinal direction 6a. It has a preferably planar slider backplate inner surface 39a facing slider baseplate 38 and a preferably planar slider backplate outer surface 39b opposite the same. In addition, slider backplate 39 has a first, free slider
 5 backplate end edge 42a extending parallel to carriage transverse direction 6b, a second, connected slider backplate end edge 42b opposite the same and extending parallel to carriage transverse direction 6b, and two slider backplate side edges 42c.

10 Slider backplate 39 is connected to connection piece 40 at second slider backplate end edge 42b. Connection piece 40 is attached at the other end to second slider backplate end edge 42b.

Plate-like connection piece 40 is preferably perpendicular to carriage height
 15 direction 6c. Slider backplate 39 and connection piece 40 preferably have a smaller extension in carriage transverse direction 6b than slider baseplate 38. In addition, they preferably have the same extension in carriage transverse direction 6b. Connection piece 40 is preferably fixed centred on slider baseplate 38 with respect to carriage transverse direction 6b.

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Bottom slider 4 is preferably made of plastic, in particular a fibre-reinforced plastic, preferably a fibreglass-reinforced plastic (GRP or fibreglass) or from metal, in particular stainless steel.

25 As already explained, mortar carriage 1 according to the invention additionally has mortar spreading plate 3 according to the invention. Mortar spreading plate 3 serves in a way known per se to define the width and shape of the freshly applied mortar layer.

30 Mortar spreading plate 3 (figs. 1-3, 5-10) has a spreading baseplate 43 and two guide strips 44 according to the invention securely connected to spreading baseplate 43, and two slide strips 55.

Spreading baseplate 43 is arranged preferably perpendicular to carriage height direction 6c. It has a preferably planar baseplate top side 43a, and a preferably planar baseplate underside 43b opposite the same. In addition, spreading baseplate 43 has, parallel to carriage transverse direction 6b, a baseplate front edge 45a extending parallel to carriage transverse direction 6b, a baseplate rear edge 45b parallel thereto, and two baseplate side edges 45c parallel to carriage longitudinal direction 6a.

In addition, spreading baseplate 43 according to a first embodiment of the invention (fig. 9) has a centred, in particular rectangular, mortar passage cutout 46, which extends from baseplate top side 43a through spreading baseplate 43 to baseplate underside 43b. Mortar passage cutout 46 is arranged centred in carriage transverse direction 6b. In addition, mortar passage cutout 46 extends from baseplate rear edge 45b of spreading baseplate 43 into the same. Mortar passage cutout 46 is thus open towards baseplate rear edge 45b. Mortar passage cutout 46 additionally has a cutout bottom edge 46a parallel to carriage transverse direction 6b and two cutout side edges 46b parallel to carriage longitudinal direction 6a.

The two guide strips 44 according to the invention are preferably at right angles to spreading baseplate 43. They connect to baseplate underside 43b of spreading baseplate 43 and project from the same. The two guide strips 44 are thereby connected securely, and preferably non-detachably, to spreading baseplate 43, in particular are welded.

The two guide strips 44 have a longitudinal extent parallel to carriage longitudinal direction 6a. In addition, they are adjacent to one another and at a distance from one another, as seen in carriage transverse direction 6b.

According to another, not depicted, embodiment, guide strips 44 are arranged such that they run approximately outward from one another or move away from one another, as seen from the top down, so that a funnel-

like introduction opening is formed for the bricks. An automatic centring thus takes place during placement.

5 The two guide strips 44 each have a guide strip inner face 44a facing the respectively other guide strip 44 and a guide strip outer surface 44b facing away from the respectively other guide strip 44. In addition, the two guide strips 44 each have a guide strip upper edge 47a and a guide strip lower edge 47b. In addition, the two guide strips 44 each have a front and a rear guide strip end 48a; 48b. The two guide strips 44 are preferably bent at front
10 guide strip end 48a in such a way that they face away from one another and form an insertion funnel.

Guide strip inner face 44a and guide strip outer face 44b are, with the exception of the bent end areas, each designed as planar and perpendicular
15 to carriage transverse direction 6b.

The two guide strip inner faces 44a additionally serve for lateral, slidable or sliding, guiding of mortar carriage 1 along the building substrate. They thus form carriage lateral guide surfaces 53 of the mortar carriage according to
20 the invention.

The two guide strips 44 are each adjacent to one of the two baseplate side edges 45c of spreading baseplate 43. However, they are thereby arranged offset inwardly with respect to baseplate side edges 45c in such a way that
25 a plate bearing surface 49 is formed between respective baseplate side edges 45c and guide strip 44. The two plate bearing surfaces 49 are part of bottom plate underside 43b of spreading baseplate 43. They serve for mounting mortar spreading plate 3 in housing 2, which will be discussed below in greater detail.

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The two guide strips 44 are additionally arranged such that mortar passage cutout 46 is arranged between the two guide strips 44. However, they are spaced apart from mortar passage cutout 46 so that in each case some part

of baseplate underside 43b remains between mortar passage cutout 46 and guide strip 44.

5 The two slide strips 55 according to the invention are each arranged adjacent on the inner side to one of the two guide strips 44. They are arranged in particular in the area of baseplate underside 43b between mortar passage cutout 46 and guide strip 44. They thus likewise connect to baseplate underside 43b of spreading baseplate 43 and project from the same. The two slide strips 55 are thereby connected securely, and
10 preferably non-detachably, to spreading baseplate 43, in particular are welded. In addition, the two slide strips 55 preferably each connect directly to one of the two guide strips 44, in particular to guide strip inner face 44a. The two slide strips 55 respectively do not project into mortar passage cutout 46.

15 The two slide strips 55 preferably likewise have a longitudinal extent parallel to carriage longitudinal direction 6a. They additionally extend preferably between baseplate front edge 45a and baseplate rear edge 45b, however do not project beyond this. In addition, the two slide strips 55 are arranged
20 adjacent to one another and spaced apart from one another, as seen in carriage transverse direction 6b.

Slide strips 55 according to the invention each additionally have a planar slide strip underside 55b, horizontal or perpendicular to carriage height
25 direction 6c, which each forms a carriage sliding surface 50 of mortar carriage 1. The two carriage sliding surfaces 50, spaced apart from one another in carriage transverse direction 6b, serve according to the invention for sliding, or slidable or sliding guiding, of mortar carriage 1 on the bricks, which will be discussed below in greater detail.

30 Carriage sliding surfaces 50 are thus each directly adjacent to carriage lateral guide surfaces 53 or they each connect directly to one of the two carriage lateral guide surfaces 53. Horizontal carriage sliding surfaces 50

are thereby preferably at right angles to carriage lateral guide surfaces 53.

Furthermore, guide strips 44 preferably end at their rear guide strip end 48b substantially flush with spreading baseplate 43. At their front guide strip end 5 48a, guide strips 44 preferably project past spreading baseplate 43 in carriage longitudinal direction 6a. In addition, they are spaced apart from spreading baseplate 43 in the rear area of the same in carriage height direction 6c.

10 According to another embodiment of the invention, mortar spreading plate 3 has two (fig. 10) or more (not depicted) mortar passage cutouts 46 adjacent to one another in carriage transverse direction 6b. In this case, mortar passage cutouts 46 are also arranged between the two guide strips 44 in such a way that slide strips 55 are each arranged directly adjacent to 15 guide strips 44.

The webs between mortar passage cutouts 46, arranged adjacent to one another, thereby serve in a known way for closing rows of perforations and thus prevent mortar from falling out.

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Mortar spreading plate 3, thus spreading baseplate 43 and guide rails 44, is preferably made of metal or plastic, in particular a fibre-reinforced plastic, preferably a fibreglass-reinforced plastic (GRP or fibreglass). Spreading baseplate 43 and guide rails 44 are securely, and preferably non- 25 detachably, connected to one another, in the case of metal preferably welded to one another.

Mortar spreading plate 3 serves, as already mentioned, in a known way for defining the width of the fresh mortar layer to be applied and optionally for 30 dividing the same into multiple fresh mortar strips. In the case of the two mortar passage windows 46, adjacent to one another, the fresh mortar layer is divided into two fresh mortar strips parallel to one another.

In the assembled state, mortar spreading plate 3 is inserted into housing 2, in particular into bottom plate cutout 26 of housing bottom plate 14. Mortar spreading plate 3 is inserted into housing 2 to the extent that baseplate front edge 45a of spreading baseplate 43 bears against cutout bottom edge 26b of bottom plate cutout 26 of housing bottom plate 14 (fig. 6). The two plate bearing surfaces 49 of spreading baseplate 43 of mortar spreading plate 3 thereby each rest on mounting strip top side 33a of the two mounting strips 33 (fig. 7). Baseplate underside 43b of spreading baseplate 43 is thus coplanar with bottom plate underside 14b of housing bottom plate 14. Baseplate top side 43a of spreading baseplate 43 is preferably coplanar with bottom plate top side 14a of housing bottom plate 14.

In addition, mortar outlet opening(s) 46 is/are arranged flush with mortar outlet opening 21 in carriage height direction 6c.

Furthermore, guide strips 44 are arranged with their area projecting past spreading baseplate 43 in carriage longitudinal direction 6a below housing bottom plate 14.

During assembly, mortar spreading plate 3 is inserted into housing 2 from rear rim strip 29. The assembly of mortar spreading plate 3 is thereby carried out before the assembly of scraper strip 5.

Scraper strip 5 in the assembled state of mortar carriage 1 is arranged in the gap between rear rim strip 29 of housing bottom rim 15 and housing rear wall 11.

To fix scraper strip 5 on housing 2, threaded pins 37 of scraper strip 5 are arranged in elongated holes 31 of rear rim strip 29. Scraper strip 5 is clamped with housing 2, in particular with rear rim strip 29, by means of washers and wing nuts (not shown) screwed onto threaded pins 37.

Because of elongated holes 31, the height of scraper strip 5 may thereby be steplessly adjusted with respect to housing 2 and to mortar spreading plate 3.

- 5 In addition, scraper strip 5 is arranged preferably behind mortar spreading plate 3 as seen in direction of travel 7. Scraper edge 35 of scraper strip 5 is additionally arranged above carriage sliding surfaces 50 yet below baseplate top side 43a of spreading baseplate 43, so that scraper strip 5 serves as an abutment for mortar spreading plate 3 counter to direction of
10 travel 7, and mortar spreading plate 3 may not slip out of housing 2.

- In the assembled state of mortar carriage 1, bottom slider 4 is additionally mounted to be movable in housing 2 back and forth to a limited extent in carriage longitudinal direction 6a. Connection piece 40 with its connection
15 piece underside 40a is slidably mounted on bottom plate top side 14a of housing bottom plate 14. In addition, slider baseplate 38 with slider baseplate underside 38b is likewise slidably or movably mounted on bottom plate top side 14a of housing bottom plate 14.

- 20 In particular, slider baseplate underside 38b, depending on how far bottom slider 4 is inserted into housing 2, is guided on both sides of bottom plate cutout 26 on bottom plate top side 14a of housing bottom 14. For lateral guiding of bottom slider 4, guide webs (not shown), preferably spaced apart from bottom plate 14, are provided with vertical guide surfaces on which
25 slider baseplate side edges 41c glide along.

- Bottom slider 4 is arranged above mortar spreading plate 3. Consequently, it is also slidably or slidingly guided in areas on baseplate top side 43a of spreading baseplate 43 of bottom slider 4.

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Bottom slider 4 serves, as already described, for opening and closing mortar outlet opening 21 of housing 2.

In an open position (not shown), bottom slider 4 is moved so far into direction of travel 7 that it exposes mortar outlet opening 21.

5 To close it, slider baseplate 38 is pushed underneath housing front wall 10 of housing 2 and up to housing rear wall 11 of housing 2 counter to direction of travel 7. Scraper strip 5, on which first or rear slider baseplate end edge 41a of bottom slider 4 abuts, serves in turn as an abutment for the movement of bottom slider 4 counter to direction of travel 7 (figure 8).

10 In the closing or closed position (figs. 1-8), bottom slider 4 is then pushed back so far to housing rear wall 11 counter to direction of travel 7 that slider baseplate 38 completely closes mortar outlet opening 21. Slider baseplate 38 is arranged flush with mortar outlet opening 21 and preferably between mortar outlet opening 21 and mortar passage cutouts 46 of mortar spreading
15 plate 3 as seen in carriage height direction 6c. In particular, slider baseplate 38 thus completely covers mortar passage cutout(s) 38.

For partial or complete opening of mortar outlet opening 21, bottom slider 4 is gripped at slider rear plate 3 and moved in direction of travel 7.

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Mortar carriage 1 serves in a known way for applying fresh mortar to a bed joint of a row of bricks or to another building substrate.

25 Therefore, mortar carriage 1 according to the invention is initially placed with the two carriage sliding surfaces 50 of mortar spreading plate 3 on the building substrate, preferably the bed joint of the row of bricks. It must thereby be ensured that at least one of the two carriage lateral guide surfaces 53 abut one of the two lateral surfaces of the row of bricks and that bottom slider 4 completely closes mortar outlet opening 46. The two carriage
30 lateral guide surfaces 53 are preferably spaced apart from one another by a bit more than the width of the row of bricks so that a slight clearance of e.g. 3-4 mm is present. This guarantees that mortar carriage 1 does not jam during movement.

This is carried out by a corresponding selection of suitable mortar spreading plate 3 with the suitable spacing of carriage lateral guide surfaces 53 apart from one another.

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In addition, if this is necessary or has not previously been carried out, the height of scraper strip 5, in particular of toothed strip 36, is adjusted relative to carriage sliding surfaces 50. The height of the fresh mortar layer to be applied is defined by this means, and by the toothing itself.

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In case it has not yet been carried out, fresh mortar is poured into mortar receiving space 20.

To apply the fresh mortar layer, mortar carriage 1 is moved or pushed or pulled in a known way in direction of travel or application direction 7 on the row of bricks after opening bottom slider 4. Mortar carriage 1 is thereby preferably gripped by the operating person on handle plate 12 and pulled across the building substrate. In addition, in particular for placing, mortar carriage 1 may be gripped on the sides or rear at U-shaped rim 13. Carriage sliding surfaces 50 slide along on the top side of the row of bricks during mortar application and at least one of the two guide strip lateral surfaces 44a or carriage lateral guide surfaces 53 slides along the lateral surfaces of the row of bricks.

Front, bent guide strip ends 48a facilitate the guiding of mortar carriage 1 in case the lateral surfaces of the bricks arranged one behind the other are not exactly parallel to one another, but instead are offset slightly to one another, as guide strip ends form an insertion funnel.

When mortar carriage 1 is moved along the row of bricks, the fresh mortar located in mortar receiving space 20 drops downward in a way known in itself, discharges through mortar outlet opening 21 of housing 2 and mortar passage cutout(s) 46, is scraped off by scraper strip 5, in particular by

toothed strip 36, and is thus applied in a defined thickness or amount on the row of bricks. If the end of the row of bricks is reached and fresh mortar is still present in mortar receiving space 20, then mortar outlet opening 21 is to be closed by means of bottom slider 4 and mortar carriage 1 is moved to
5 the next row of bricks.

The advantage of the invention on the one hand is that mortar spreading plate 3 and bottom slider 4 and scraper strip 5 are individually exchangeable, as they are each detachably connected to housing 2. Thus,
10 these parts may be individually replaced due to wear. In addition, they may be easily cleaned and reused. Cleaning is generally carried out at the end of work or during longer interruptions.

Exchangeable mortar spreading plate 3 additionally has the advantage that
15 the width and the shape of the fresh mortar layer may be easily adjusted to different circumstances. Depicted mortar spreading plates 3 form, for example, a fresh mortar layer in the shape of one or two fresh mortar strips spaced apart in carriage transverse direction 6b. The two strips are advantageous for bricks with holes opening upwards (e.g. sand-lime
20 perforated bricks), as it is guaranteed that the fresh mortar layer does not run across the holes and fall into the same.

Thus, in that the width and shape of the fresh mortar layer may be predefined by exchangeable mortar spreading plate 3 and independently
25 from mortar outlet opening 21 of housing 2, mortar carriage 1 may be used for different wall widths and holes without requiring additional adjustments. In particular, the amount of mortar receivable by mortar carriage 1 is always the same, as mortar receiving space 20 remains volumetrically identical.

30 The thickness of the fresh mortar layer is determined by exchangeable scraper strip 5.

Mortar spreading plate 3 according to the invention additionally has the advantage that suitable mortar spreading plate 3 with the suitable spacing of carriage lateral guide surfaces 53 may be used depending on the building substrate. Because the spacing of carriage lateral guide surfaces 53 is
5 linked to the size of mortar passage cutouts 46, it is particularly advantageous that mortar spreading plate 3 also has the two guide strips 44 and carriage sliding surfaces 50. This is because mortar passage cutouts 46 and the spacing of carriage lateral guide surfaces 53 must both each be adjusted to the brick width. The combination of guide strips 44 with mortar
10 spreading plate 3 is thus very advantageous. In addition, only a single part must be swapped out and additional guide or sliding rails do not have to be exchanged.

The design of the individual components of inventive mortar carriage 1, in
15 particular of housing 2, out of plastic is also advantageous, as by this means the weight of mortar carriage 1 is significantly reduced. By this means, mortar receiving space 20 for the fresh mortar may also be increased and the maximum amount of fresh mortar accommodated may also be increased. This is because different requirements exist in different countries
20 with respect to the maximum allowable weight of the filled mortar carriage. However, the lighter mortar carriage 1 is in itself, then the more mortar may be accommodated before reaching the allowable maximum weight and the larger mortar receiving space 20 may be configured.

25 Furthermore, the mortar carriage according to the invention is designed very simply from a few individual components so that it may be easily and inexpensively produced.

It also lies within the scope of the invention that a guide strip 44 is present
30 only on one side of mortar spreading plate 3.

This is necessary, for example, when applying adhesive mortar to a building substrate. The guide strip then slides only on the building substrate edge

surface and the two carriage sliding surfaces 50 slide on the building substrate surface.

Furthermore, it lies within the scope of the invention that only multiple slide
5 strips 55 or other sliding elements are arranged on each side of mortar
passage cutout 46, thus that mortar spreading plate 3 has more than two
carriage sliding surfaces 50, preferably coplanar to one another. Carriage
sliding surfaces 50 may also be formed differently than by additional
structural elements, e.g. by a thickening of spreading baseplate 43.

10

In addition, it is also naturally within the scope of the invention that the two
side walls 8 and housing rear wall 11 are not designed as perpendicular to
carriage transverse direction 6b or carriage longitudinal direction 6a. They
also do not have to be designed as plate-like or planar, but instead may also
15 be bent. This also applies for housing front wall 10.

In particular, housing rear wall 11 is preferably designed as somewhat
inclined and extends up to housing front wall 10 as seen from bottom to top.
Housing rear wall 11 is preferably inclined in such a way that the outer side
20 of U-shaped rim 13 is flush with the free end of threaded pins 37 in carriage
height direction 6c. Or, as seen in carriage longitudinal direction 6a, the
outer side of U-shaped rim 13 ends at the same plane as threaded pin 37.
By this means, mortar carriage 1 may be applied as close as possible to the
respective connecting brick.

25

The advantage of threaded pin 37 fixed to scraper strip 5 is that no screws
project into mortar receiving space 20. The material of housing 2 is not
weakened and the threads do not become so heavily fouled.

30 In addition, it naturally also lies within the scope of the invention to apply
other liquid or viscous materials or also loose material by means of mortar
carriage 1 to the respective building substrate. However, preferably

inorganic, fresh mortar is predominantly applied by means of mortar carriage 1.

According to one advantageous embodiment of the invention, mortar carriage 1 additionally has another, additional slide strip 51 extending parallel to carriage transverse direction 6b (fig. 6). Additional slide strip 51 is preferably arranged adjacent to cutout bottom edge 26b of bottom cutout 26 of housing bottom plate 14.

Additional slide strip 51 has a planar lower additional sliding surface 52 which is perpendicular to carriage height direction 6c. Additional sliding surface 51 thus additionally abuts bottom plate underside 14b of housing bottom plate 14 with its strip width side opposite to additional slide strip 52. Additional sliding surface 52 is thus arranged in carriage height direction 6c at the same height as carriage sliding surfaces 50. It is thus coplanar to carriage sliding surfaces 50. Additional slide strip 51 is securely, and preferably detachably, connected to housing bottom plate 14, in particular by screwing (not shown). The extension of additional slide strip 51 in carriage transverse direction 6b thereby corresponds preferably to at least the spacing of the two carriage lateral guide surfaces 53 from one another.

Additional slide strip 51, in particular additional sliding surface 52, serves for additional slidable guiding of mortar carriage 1 on the row of bricks. In particular, additional slide strip 51 also serves for stabilizing or for reinforcing and protecting housing bottom plate 14. Additional slide strip 51 is preferably made of metal or plastic.

According to another embodiment, which is not shown, the additional slide strip is not fixed on housing 2, but instead on the two guide rails 44 of mortar spreading plate 3. In particular, the additional slide strip is fixed to guide strip lower edges 47b in the area of front, free, projecting guide strip ends 48a. This is carried out in turn in such a way that the additional sliding

surface is arranged in carriage height direction 6c at the same height as carriage sliding surfaces 50.

Patentkrav

1. Mørtelslæde (1) til påføring af friskmørtellag, fortrinsvis et tynd-leje-mørtellag, på et bygningssubstrat, fortrinsvis på en lejefuge i en murstensrække, omfattende

a) et hus (2) med et fortrinsvis tragtliggende mørtelmodtagerum (20) til påfyldning med friskmørtel og med en mørteludgangsåbning (21),

10 b) en nede under mørteludgangsåbningen (21) anbragt mørtelspredeplade (3) til fastlæggelse af bredden af friskmørtellaget og eventuelt til opdeling af friskmørtellaget i et antal friskmørtelstriber,

15 c) en bundglider (4) til hel eller delvis lukning eller frigivelse af mørteludgangsåbningen (21),

d) fortrinsvis en afstrygerliste (5) til fastlæggelse af friskmørtellagets tykkelse,

20 e) mindst to slædeglideflader (50) til glidende bevægelse af mørtelslæden (1) på bygningssubstratet,

f) mindst én, fortrinsvis to slædesideføringsflader (53) til sideværts føring af mørtelslæden (1) på bygningssubstratet,

25 hvorved mørtelspredepladen (3) omfatter de mindst to slædeglideplader (50) såvel som den mindst ene slædesideføringsflade (53),

kendetegnet ved, at

mørtelspredepladen (3) løsbart er forbundet til huset (2).

30

2. Mørtelslæde (1) ifølge krav 1,

kendetegnet ved, at

mørtelspredepladen (3) er dannet som eet stykke.

3. Mørtelslæde (1) ifølge krav 1 eller 2,

kendetegnet ved, at

- 5 de mindst to slædeglideflader (50) er vandrette og lodrette i forhold til en slæde-
højderetning (6c) for mørtelslæden (1) og/eller at de mindst to slædeglideflader
(50) har en indbyrdes afstand i en slædetværreretning (6b) for mørtelslæden (1),
og/eller de mindst to slædeglideflader (50) er indbyrdes coplanare.

4. Mørtelslæde (1) ifølge et af de foregående krav,

10 **kendetegnet ved, at**

den mindst ene slædesideføringsflade (53) er rettet vertikalt og fortrinsvis vin-
kelret på en slædens tværreretning (6b) og/eller parallelt med en kørreretning (7)
for mørtelslæden (1).

15 5. Mørtelslæde (1) ifølge et af de foregående krav,

kendetegnet ved, at

de to slædesideføringsflader (53) i slædens tværreretning (6b) har en indbyrdes
afstand og vender mod hinanden, og/eller hver slædeføringsflade (53) slutter
sig direkte til en slædeglideflade (50).

20

6. Mørtelslæde (1) ifølge et af de foregående krav,

kendetegnet ved, at

- mørtelspredepladen (3) omfatter en spredebundplade (43) såvel som mindst
én, fortrinsvis to føringslister (44), der er fast og fortrinsvis uløseligt forbundet til
25 spredebundpladen (43), hvorved hver af føringslisterne (44) omfatter en mod
den anden føringsliste (44) vendende føringsliste-inderplade (44a), som hver for
sig danner en af de to slædesideføringsflader (53), hvorved spredebundpladen
(43) omfatter en, fortrinsvis plan, bundpladeoverside (43a) samt en derover lig-
gende, fortrinsvis plan, bundplanunderside (43b), såvel som fortrinsvis en med
30 slædens tværreretning (6b) parallel bundpladeforkant (45a) samt en dermed pa-
rallel bundpladebagkant (45b) og to, i forhold til slædens længderetning (6a) pa-
rallelle, bundpladesidekanter (45c),

hvorved spredebundpladen (43) fortrinsvis omfatter et antal, fortrinsvis mod bundpladebagkanten (45b) åbne mørtelpassageudsparinger (46), der strækker sig gennem spredebundpladen (43) fra bundpladeoversiden (43a) til bundpladeundersiden (43b).

5

7. Mørtelslæde (1) ifølge krav 6,

kendetegnet ved, at

de to føringslister (44) er vinkelrette på spredebundpladen (43), og/eller de to føringslister (44) rager frem fra spredebundpladens (43) bundpladeunderside (43b).

10

8. Mørtelslæde (1) ifølge krav 6 eller 7,

kendetegnet ved, at

de to føringslister (44) fast og fortrinsvist uløseligt er forbundet til spredebundpladen (43), navnlig sammensvejset.

15

9. Mørtelslæde (1) ifølge et af kravene 6 til 8,

kendetegnet ved, at

de to føringslister (44) har en længdeudstrækning parallelt med slædens længderetning (6a) og/eller, set i slædens tværretning (6b), er anbragt grænsende op til hinanden og med en indbyrdes afstand.

20

10. Mørtelslæde (1) ifølge et af kravene 6 til 9,

kendetegnet ved, at

de to føringsslidser (44) på en forreste føringslisteende (48a), set i en køreretning (7) for mørtelslæden (1), er ombøjet således, at de vender bort fra hinanden og danner en indføringstragt, og **ved, at** de to føringslister (44) hver for sig er arrangeret til at grænse op til en af de to bundpladesidekanter (45c) på spredebundpladen (43) og er anbragt således forskudt indad i forhold til bundpladesidekanterne (45c), at der mellem den respektive bundpladesidekant (45c) og føringslisten (44) er dannet en pladelagerflade (49), der er en del af bundpladeundersiden (43b) på spredebundpladen (43), hvorved mørtelspredepladen (3) med pladelagerfladerne (49) er lagret i huset (2).

25
30

11. Mørtelslæde (1) ifølge et af kravene 6 til 10,

kendetegnet ved, at

de to føringslister (44) er arrangeret således, at mørtelpassageudsparingerne
5 (46) er placeret mellem de to føringslister (44), hvorved de to føringslister (44)
har en afstand fra mørtelpassageudsparingen (udsparingerne) (46), hvorved
slædeglidefladen (50) er anbragt mellem den (eller de) respektive mørtelpassa-
geudsparinger (46) og føringslisten (44).

10 12. Mørtelslæde (1) ifølge et af de foregående krav,

kendetegnet ved, at

mørtelspredepladen (3) omfatter to glidelister (55), som fast og fortrinsvis uløse-
ligt er forbundet til spredebundpladen (43), hvorved hver glidelist (55) hver for
sig omfatter en bort fra spredebundpladen (43) vendende glidelisteuundside
15 (55b), som hver for sig danner en af de to slædeglideflader (50),
og **ved, at** med fordel de to glidelister (55) er anbragt med indersiden i hvert til-
fælde grænsende op til en af de to føringslister (44),
og/eller **ved, at** med fordel de respektive to glidelister (55) ikke rager ind i mør-
telpassageudsparingen (udsparingerne) (46),
20 og/eller **ved, at** med fordel de to glidelister (55) strækker sig mellem bundpla-
dens forkant (45a) og bundpladens bagkant (45b), og/eller de to glidelister (55),
set i slædetværretningen (6b), er anbragt grænsende op til hinanden og med en
indbyrdes afstand.

25 13. Mørtelslæde (1) ifølge et af de foregående krav,

kendetegnet ved, at

mørtelspredepladen (3) består af metal.

14. Mørtelslæde (1) ifølge et af de foregående krav,

30 **kendetegnet ved, at**

mørtelspredepladen (3) er forbundet fast, men løsbart til huset (2).

15. Mørtelslæde (1) ifølge et af de foregående krav,

kendetegnet ved, at

huset (2) omfatter to hussidevægge (8), en husforvæg (10), en husbagvæg (11), en gribeplade (12), fortrinsvis en U-rand (13), en husbundplade (14) og fortrinsvis en husbund-rand (15), hvorved husbagvæggen (11) fortrinsvis er ud-
5 formet som skråtstillet og strækker sig, set fra neden og opad, til en husforvæg (10) på huset (2).

16. Mørtelslæde (1) ifølge krav (15),

kendetegnet ved, at

10 de to hussidevægge (8), husforvæggen (10), husbagvæggen (11), fortrinsvis gribepladen (12) og fortrinsvis U-randen (13) er dannet i eet stykke af plastmateriale og danner et legeme (9) af huset (2).

17. Mørtelslæde (1) ifølge krav 15 eller 16,

15 kendetegnet ved, at

husbundpladen (14) samt husbundranden (15) er dannet i eet stykke af plastmateriale og danner en bunddel (19) af huset (2), hvorved legemet (9) og bunddelen (19) fortrinsvis fast, men løsbart er forbundet til hinanden, fortrinsvis skruet sammen.

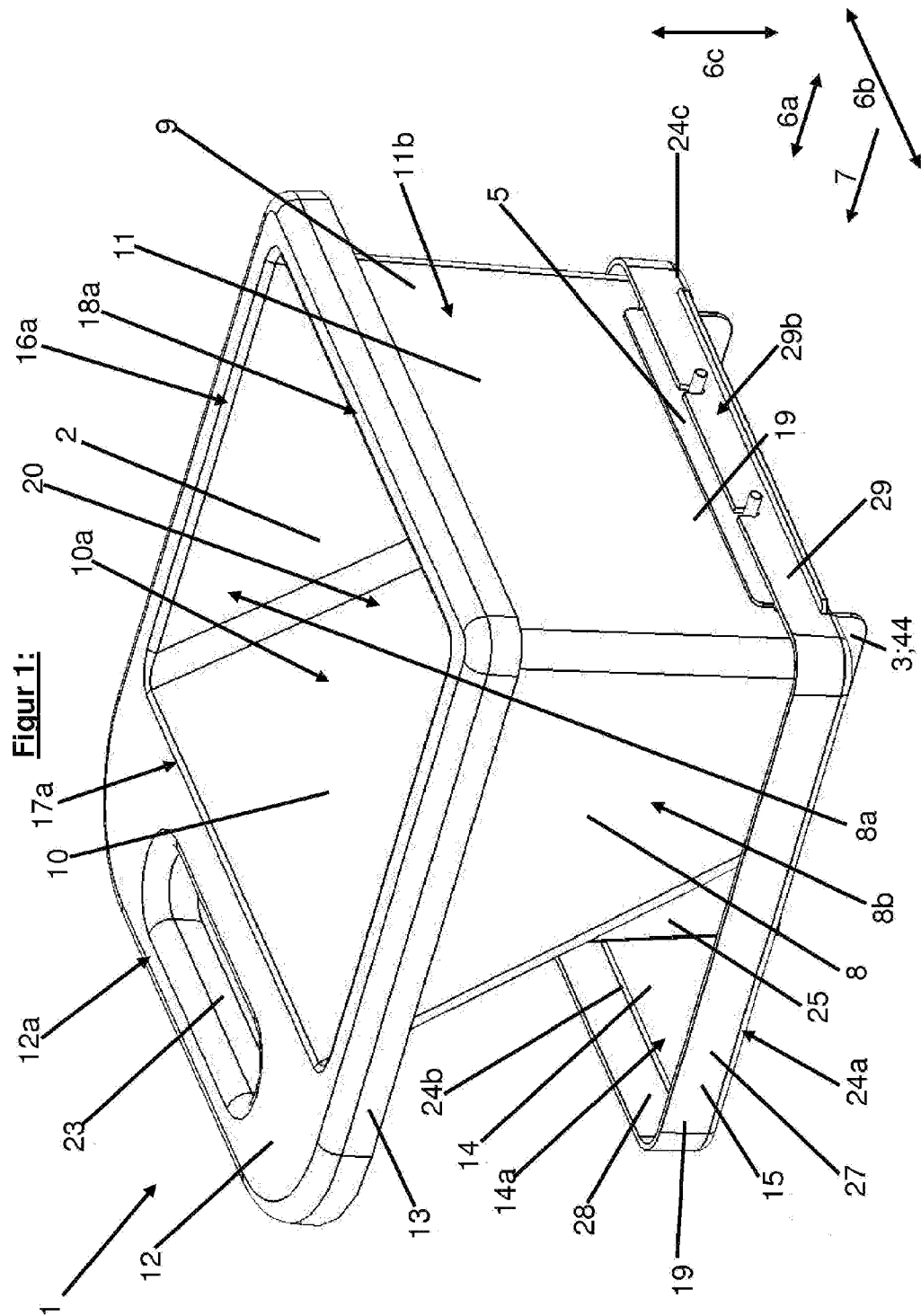
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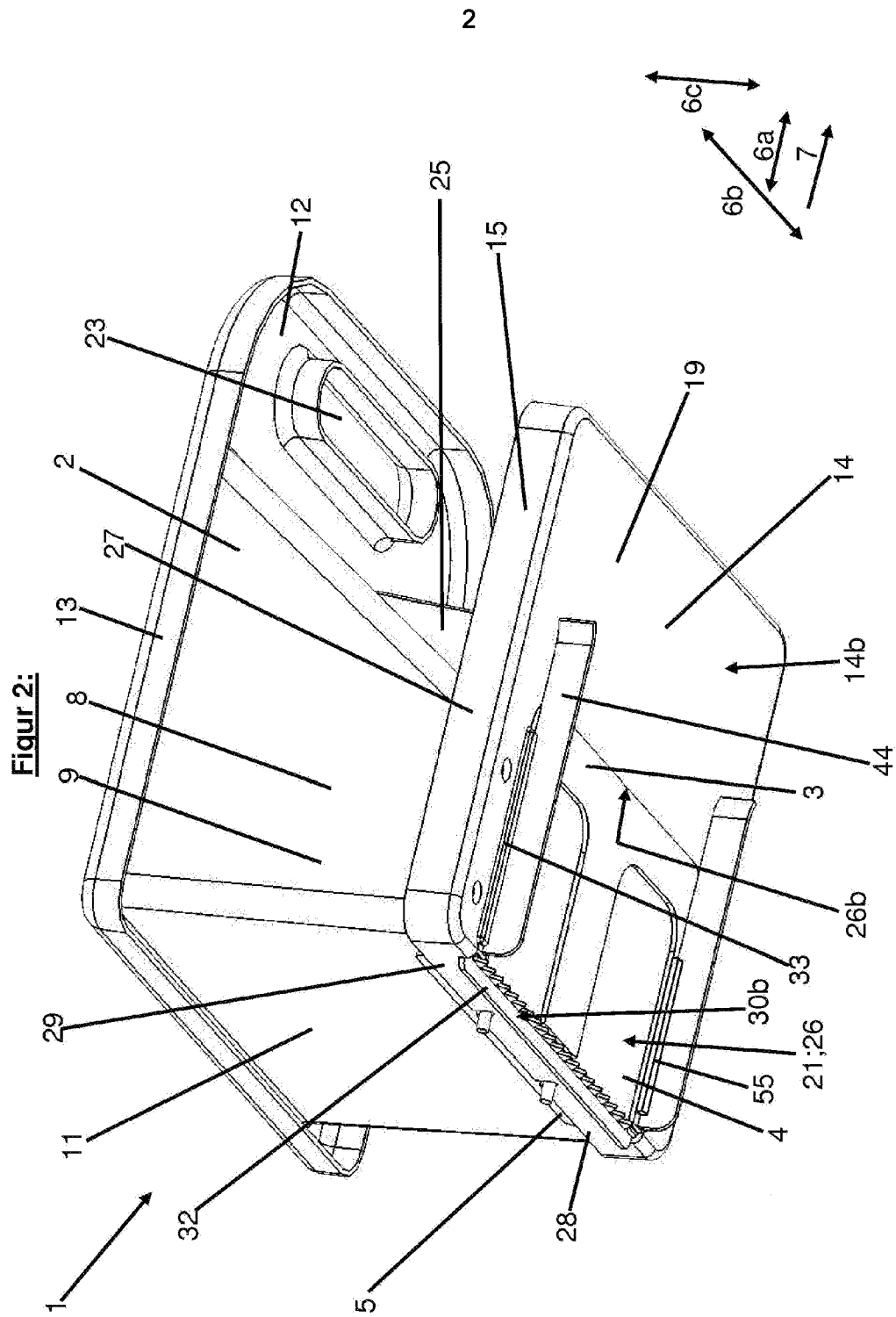
18. Mørtelslæde (1) ifølge et af kravene 15 til 17,

kendetegnet ved, at

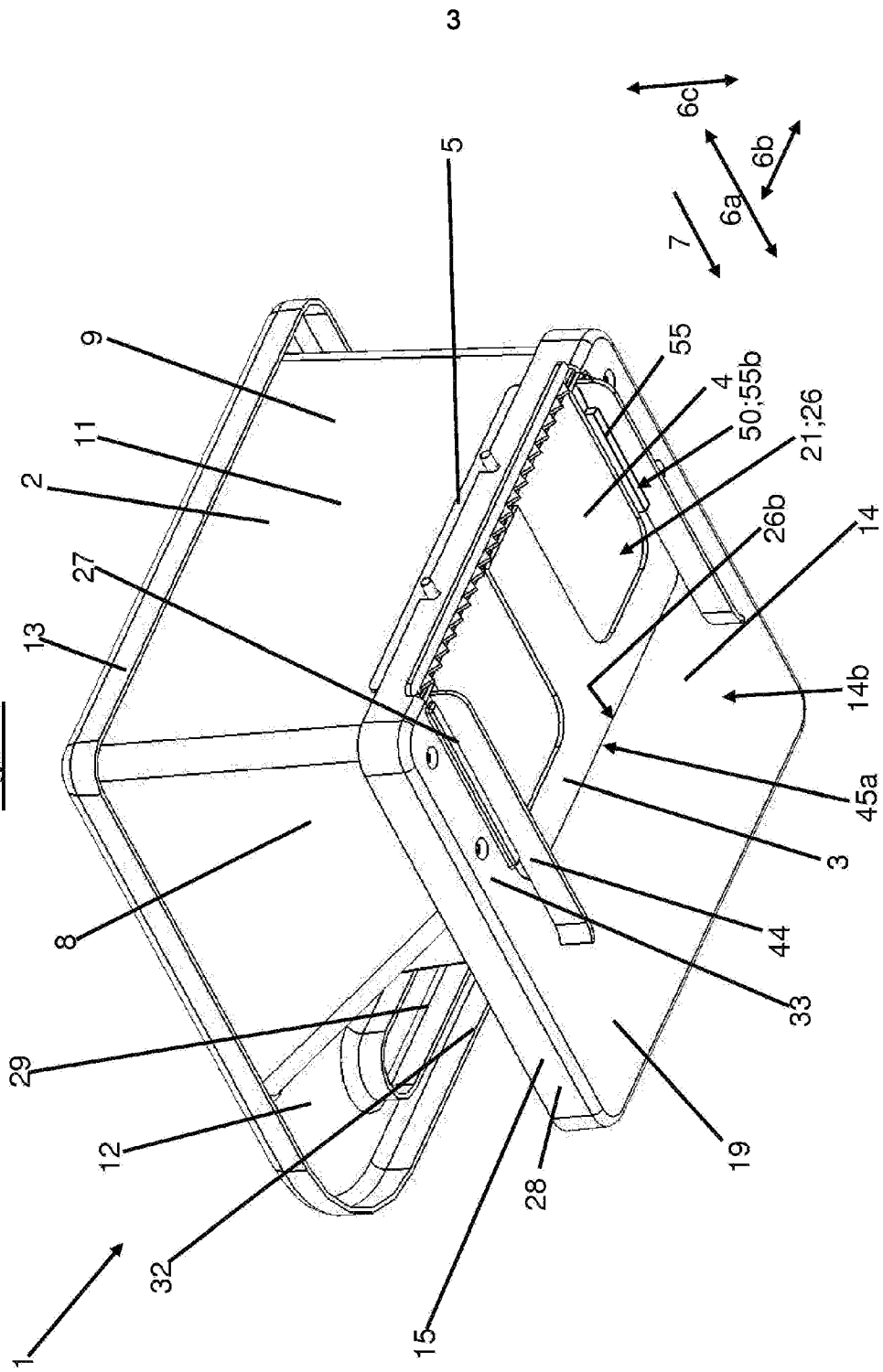
mørtelslæden (1) omfatter en ekstra-glideliste (51), der strækker sig parallelt med slædetværretningen (6b), og som omfatter en plan, nedre, ekstra-
25 glideflade (52) med henblik på glidende forskydning af mørtelslæden (1) på byggesubstratet, hvorved ekstra-glidefladen (52) er vinkelret på slædens højderetning (6c), og hvorved ekstra-glidefladen (52) fortrinsvis, set i slædens højderetning (6c), er arrangeret i samme højde som slædeglidefladerne (50), hvorved ekstra-glidelisten (51) med fordel ligger an mod en bundpladeunderside (14b) af
30 husbunden (14).

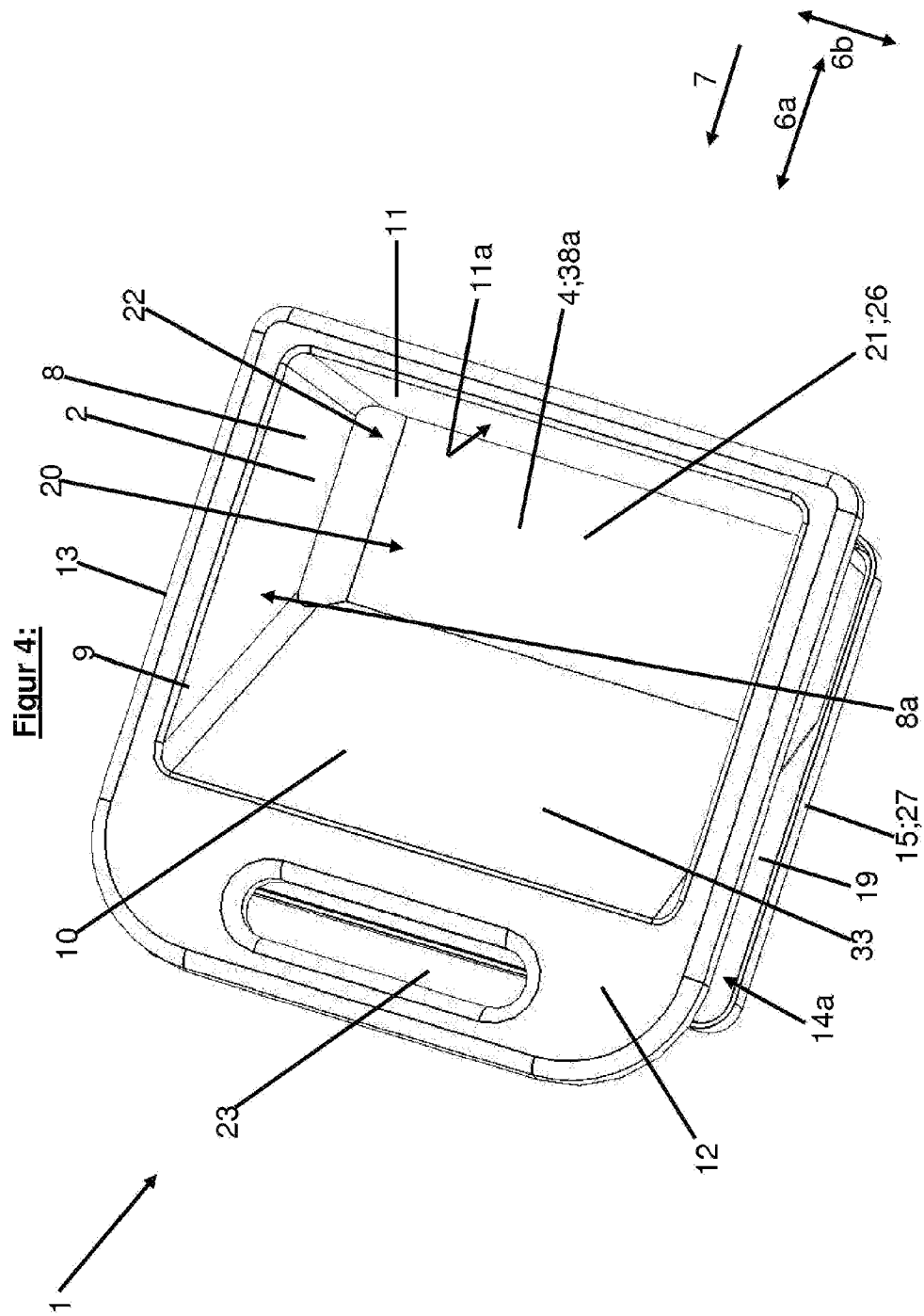
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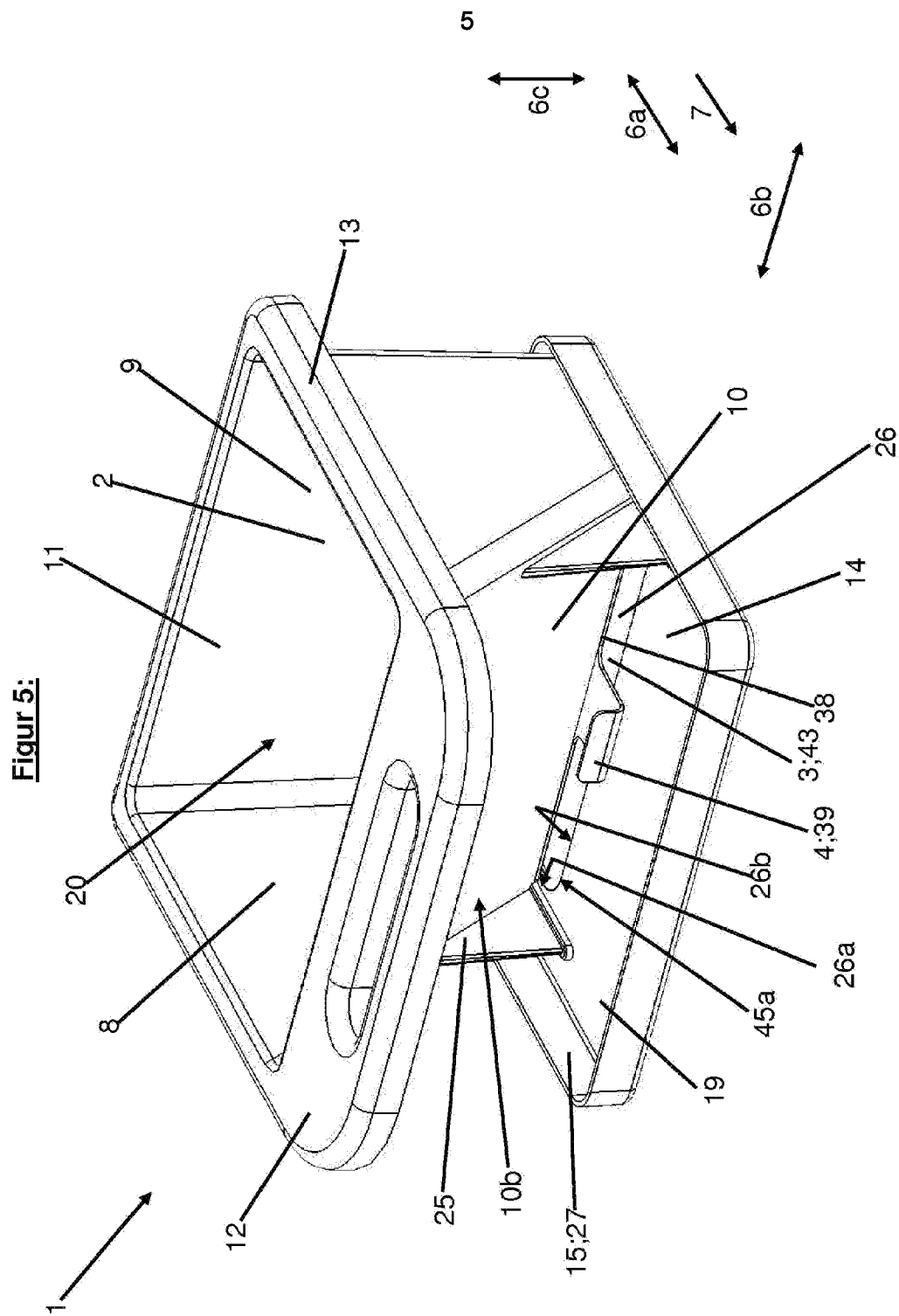




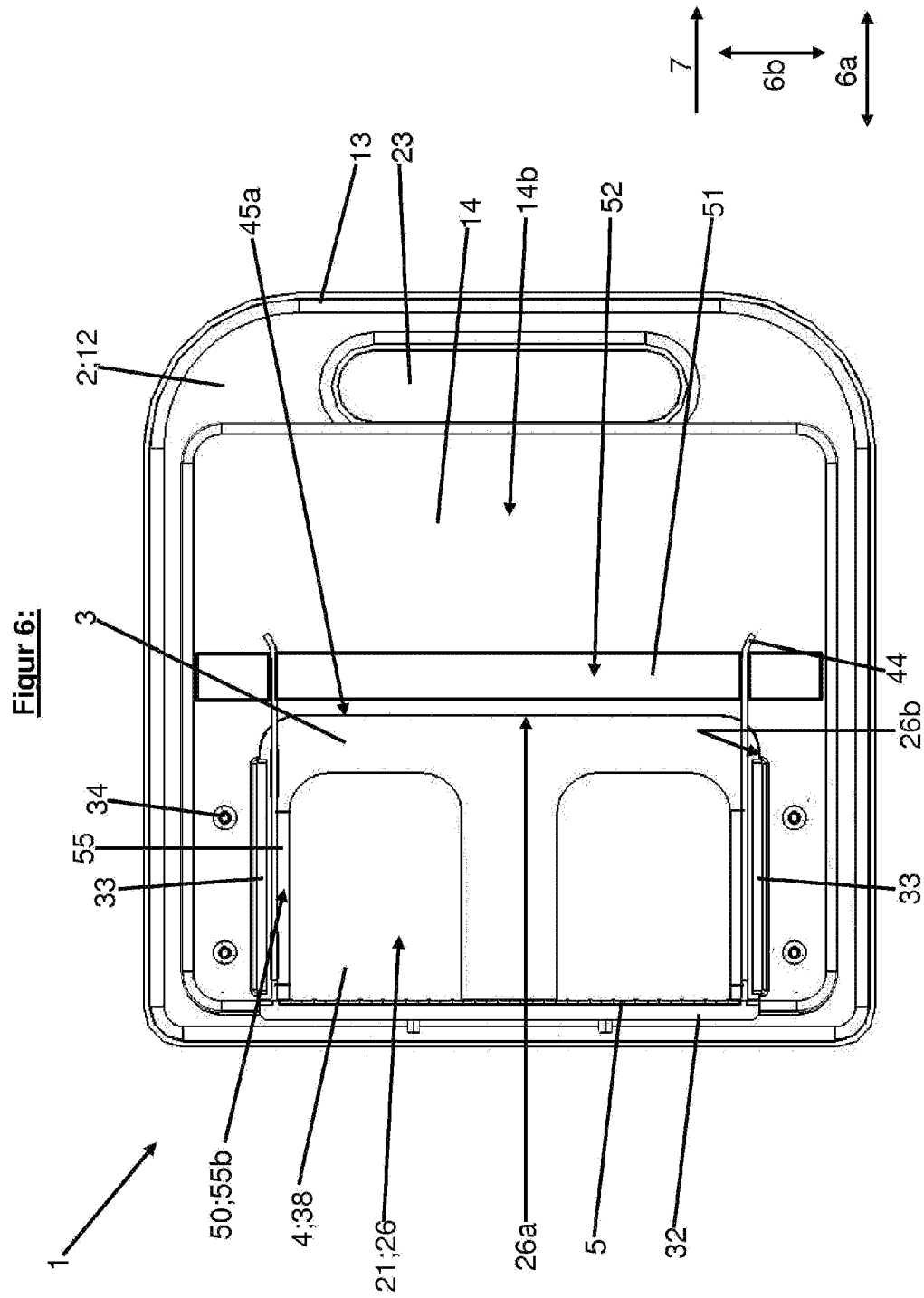
Figur 3:



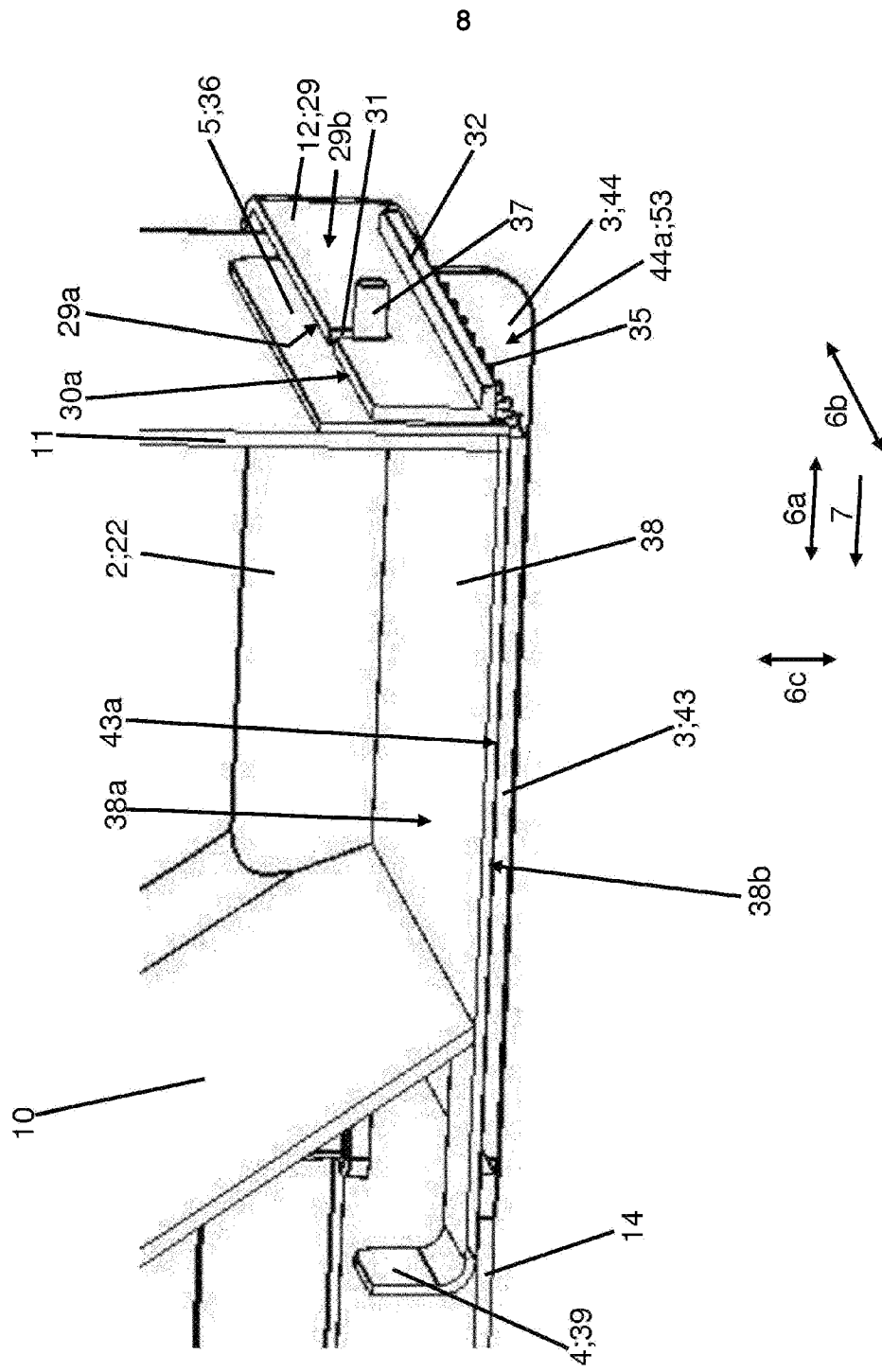


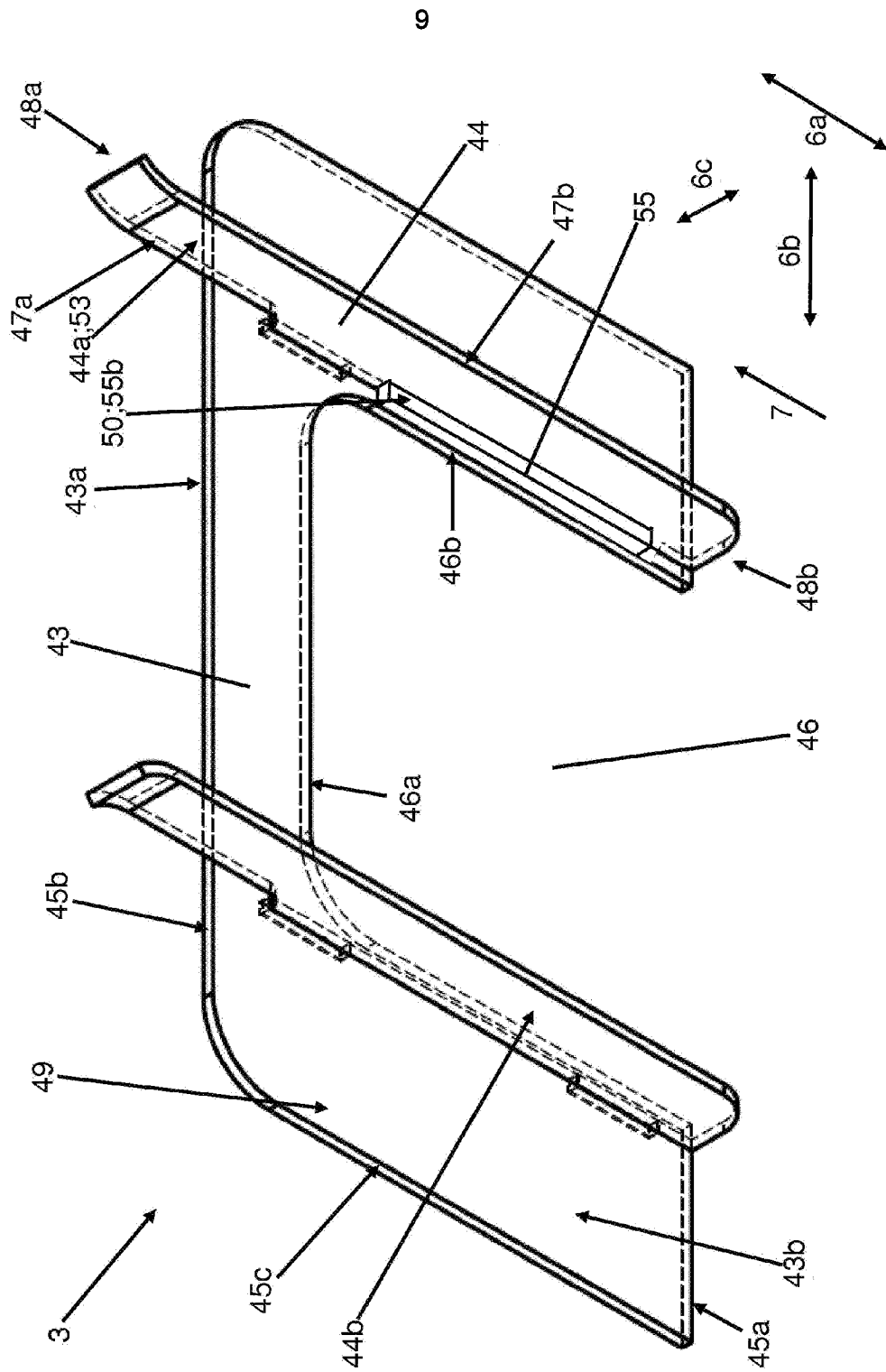


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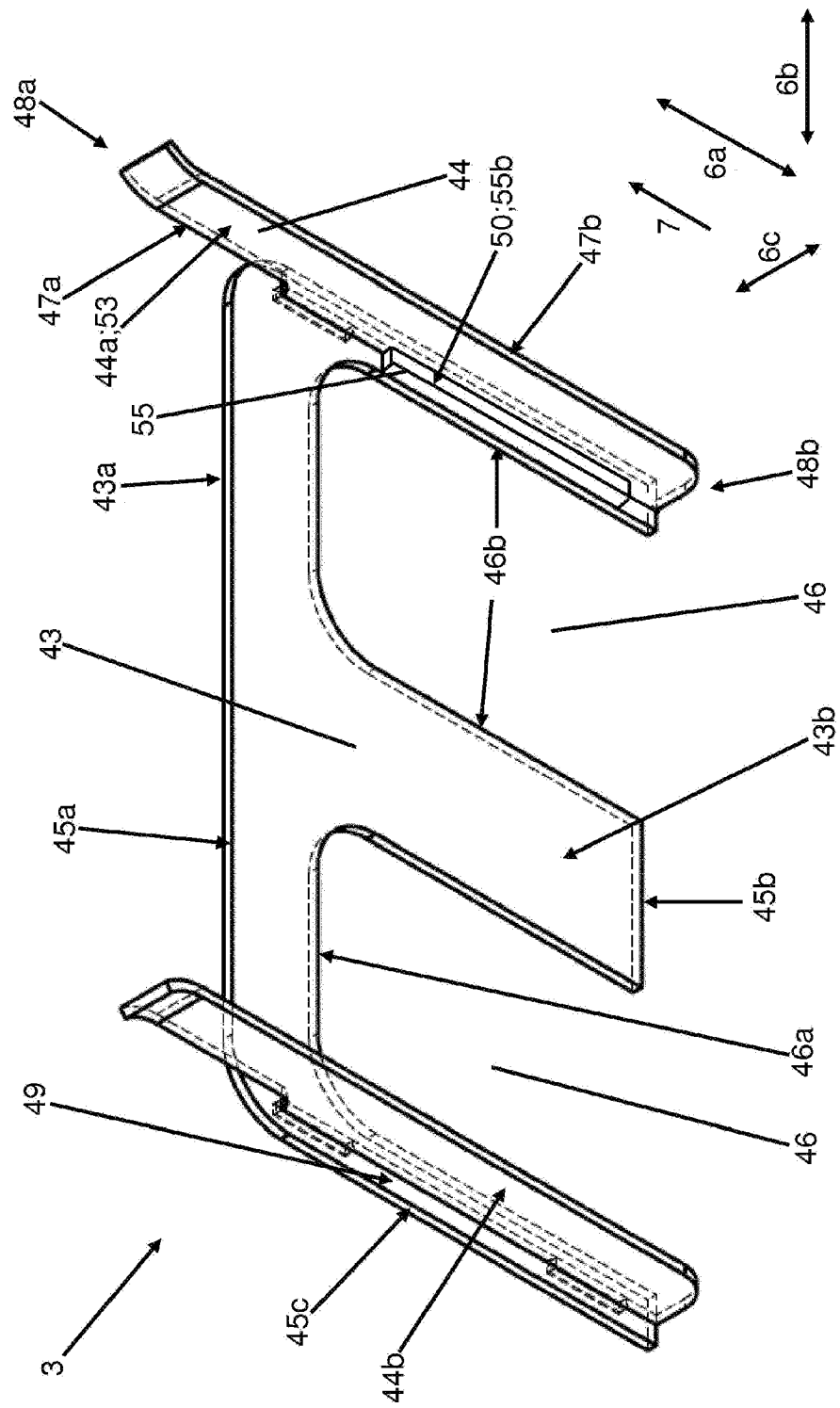


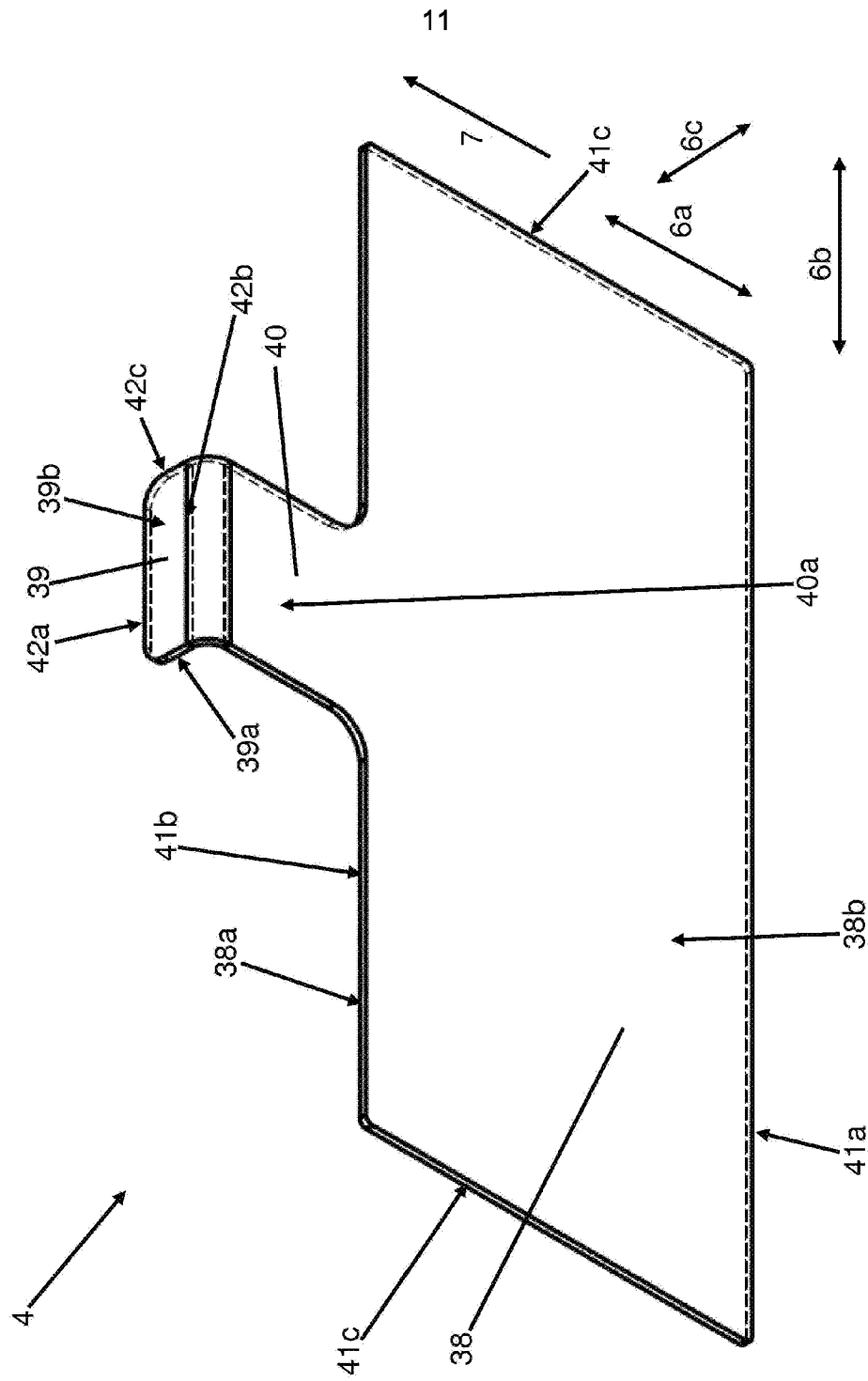
Figur 8:



Figur 9:

10

Figur 10:

Figur 11:

12

Figur 12: