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(54) EDGE TRIMMING PROFILE

(57) There is described an edge trimming profile (100) for finishing of a peripheral edge (Tp) of at least one set of one or more tiles (T) of a floor or wall covering. The edge trimming profile (100) comprises a base leg member (110) provided with through-openings (110A) to secure the edge trimming profile (100) to a receiving surface to be covered by the set of one or more tiles (T), and an angled leg member (120) extending at an angle from a longitudinal end of the base leg member (110), which angled leg member (120) includes a border portion (120A) that is destined to be exposed and form a visible trim (TR) along the peripheral edge (Tp) of the set of one or more tiles (T). The angled leg member (120) further

includes a spacer structure (150) extending along a longitudinal direction and projecting away from a first surface (120a) of the angled leg member (120), which spacer structure (150) is designed to come in abutment with a supporting surface (Ts) provided along the peripheral edge (Tp) of the set of one or more tiles (T) to maintain a spacing (e) between the trim (TR) and the peripheral edge (Tp) of the set of one or more tiles (T). The spacer structure (150) is comprised of a plurality of spacer members (150) that are distributed in the longitudinal direction along the first surface (120a) of the angled leg member (120) and that are spaced apart from one another to allow passage of grout applied to fill and seal gaps between the angled leg member (120) and the peripheral edge (Tp) of the set of one or more tiles (T).

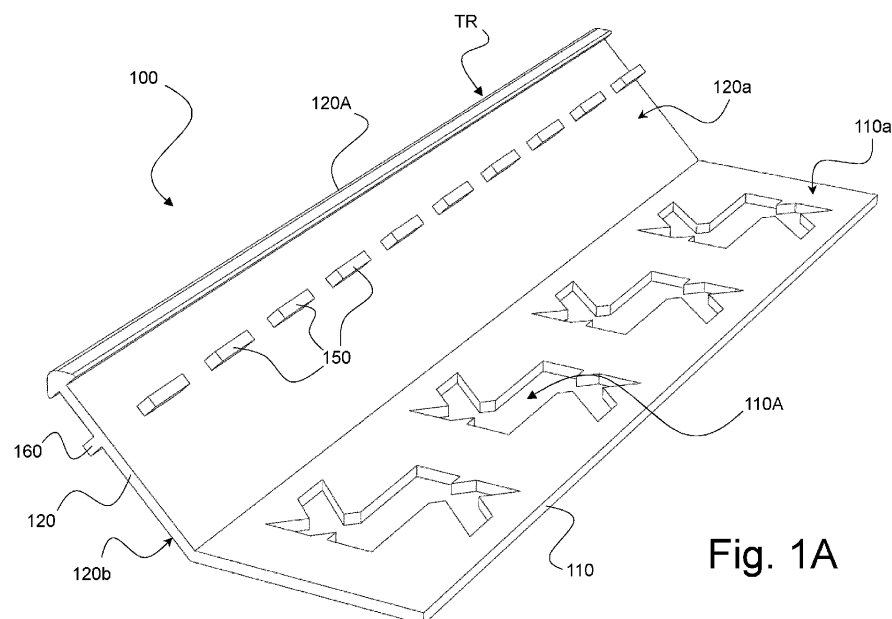


Fig. 1A

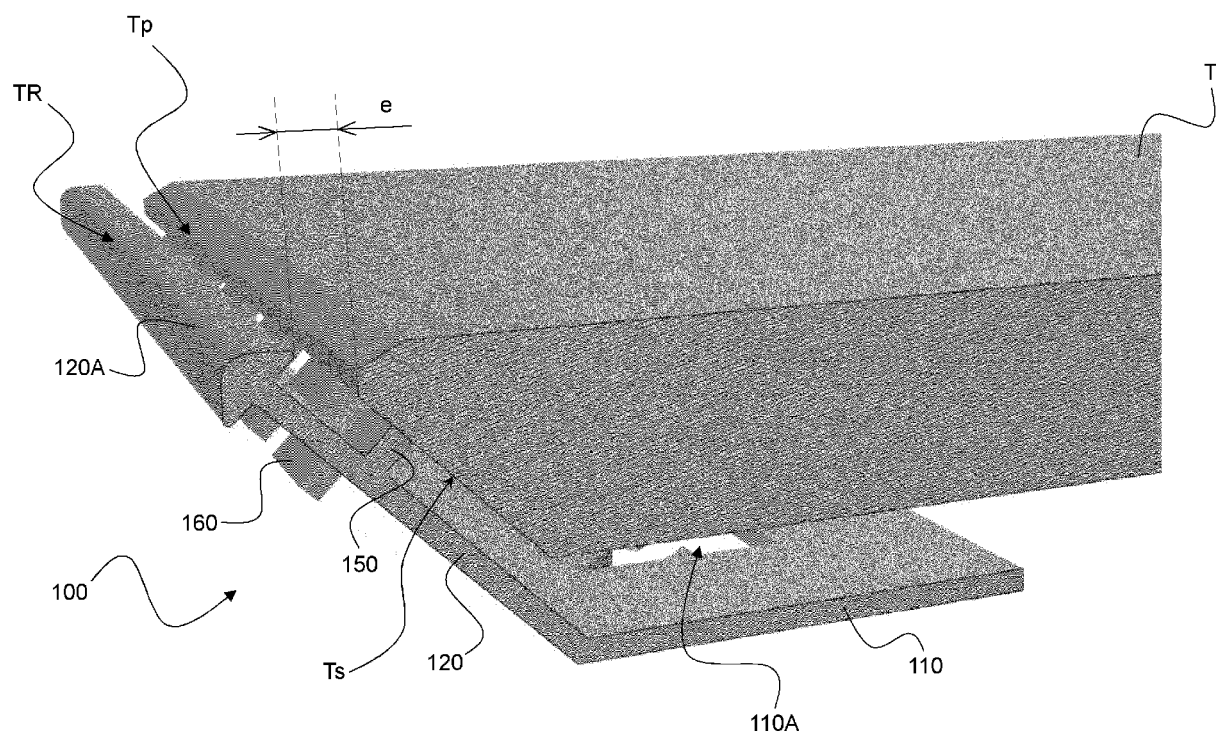


Fig. 2B

Description

TECHNICAL FIELD

[0001] The present invention generally relates to an edge trimming profile for finishing of a peripheral edge of at least one set of one or more tiles of a floor or wall covering.

BACKGROUND OF THE INVENTION

[0002] Edge trimming profiles are known in the art and widely used to finish the peripheral edges of sets of tiles (especially ceramic tiles) of floor and wall coverings.

[0003] British Patent No. GB 2 203 996 B discloses an edge trimming profile designed to fill the gap between the ends of two panels or tiles forming an outwardly facing corner. The edge trimming profile comprises a pair of oppositely facing base leg members, or webs, connected to a contoured corner in-fill section. The base leg members are spaced below the level of the outer surface of the corner in-fill section so that a panel or tile can be positioned on top of a respective base leg member with its outer face coterminous with the outer face of the corner in-fill section. In one embodiment, the corner in-fill section is connected at both ends to the base leg members by walls which are each provided with a continuous rib extending along the length of the wall, as well as a groove located above it. The continuous rib is designed to ensure that the end face of an abutting tile is spaced from the corner piece by a predetermined distance, usually the same distance as that normally provided between adjacent tiles. The groove is designed to provide a good key for the grout when it is applied to fill the gap between the corner piece and the abutting tile.

[0004] International (PCT) Publication No. WO 98/54423 A1 and related U.S. Patent No. US 6,238,773 B1 disclose an edge trimming profile comprising a base leg member provided with through-openings to secure the edge trimming profile to a receiving surface to be covered by a set of one or more tiles. The edge trimming profile further comprises an angled leg member extending at an angle from a longitudinal end of the base leg member, which angled leg member includes a border portion that is destined to be exposed and form a visible trim along the peripheral edge of the set of one or more tiles. The angled leg member further includes at least one spacer structure shaped as a continuous rib extending along a longitudinal direction and projecting away from a first surface of the angled leg member, which continuous rib is designed to come in abutment with a supporting surface provided along the peripheral edge of the set of one or more tiles to maintain a spacing between the trim and the peripheral edge of the set of one or more tiles.

[0005] Yet another known solution likewise making use of a continuous rib as spacer structure is disclosed in French Utility Model No. FR 2 912 445 B3.

[0006] Tests undertaken by the Applicant have however revealed that the use of a continuous rib as spacer structure has certain possible drawbacks and limitations, especially with regard to robustness of the resulting joint formed between the edge trimming profile and the adjacent abutting tiles. These issues are caused in part by the line of weakness that is formed between the edge trimming profile and adjacent tiles along the whole length of the continuous spacer rib, as well as by the possible trapping of residual air pockets below the continuous spacer rib. The application of an excessive quantity of mortar between the underside of the tiles and the receiving surface may furthermore cause fine positional adjustment issues in that excess mortar may be forced upward along the peripheral edge of the adjacent tiles, possibly preventing or affecting proper abutting of the continuous spacer rib of the edge trimming profile against the supporting surface formed along the peripheral edge of the adjacent tiles.

[0007] There therefore remains a need for an improved solution.

SUMMARY OF THE INVENTION

[0008] A general aim of the invention is to remedy the above-noted shortcomings of the prior art.

[0009] More precisely, an aim of the present invention is to provide an edge trimming profile that retains the ability to ensure that a minimum spacing can be maintained between the edge trimming profile and adjacent tiles, while ensuring proper abutting of the edge trimming profile against the peripheral edge of the tiles.

[0010] A further aim of the invention is to provide such a solution that allows for a more robust joint between the edge trimming profile and the adjacent, abutting tiles, thus increasing the relevant life expectancy thereof.

[0011] Another aim of the invention is to provide such a solution that is reasonably easy and cost-efficient to produce.

[0012] These aims and others are achieved thanks to the solutions defined in the claims.

[0013] There is accordingly provided an edge trimming profile for finishing of a peripheral edge of at least one set of one or more tiles of a floor or wall covering, the features of which are recited in claim 1, namely, such an edge trimming profile comprising (i) a base leg member provided with through-openings to secure the edge trimming profile to a receiving surface to be covered by the set of one or more tiles, and (ii) an angled leg member extending at an angle from a longitudinal end of the base leg member, which angled leg member includes a border portion that is destined to be exposed and form a visible trim along the peripheral edge of the set of one or more tiles. The angled leg member further includes a spacer structure extending along a longitudinal direction and projecting away from a first surface of the angled leg member, which spacer structure is designed to come in abutment with a supporting surface provided along the

peripheral edge of the set of one or more tiles to maintain a spacing between the trim and the peripheral edge of the set of one or more tiles. According to the invention, the spacer structure is comprised of a plurality of spacer members that are distributed in the longitudinal direction along the first surface of the angled leg member and that are spaced apart from one another to allow passage of grout applied to fill and seal gaps between the angled leg member and the peripheral edge of the set of one or more tiles.

[0014] In accordance with one embodiment of the invention, the angled leg member further includes an additional spacer structure extending along the longitudinal direction and projecting away from a second surface of the angled leg member, opposite the first surface, which additional spacer structure is designed to come in abutment with a supporting surface provided along a peripheral edge of another, adjacent set of one or more tiles to maintain a spacing between the trim and the peripheral edge of the adjacent set of one or more tiles. This additional spacer structure is likewise comprised of a plurality of spacer members that are distributed in the longitudinal direction along the second surface of the angled leg member and that are spaced apart from one another to allow passage of grout applied to fill and seal gaps between the angled leg member and the peripheral edge of the adjacent set of one or more tiles. In this latter context, the angled leg member preferably forms an angle of substantially 135° with respect to the base leg member, thereby allowing edge trimming of two adjacent sets of one or more tiles positioned on respective receiving surfaces forming an angle of substantially 90° .

[0015] With regard to the aforementioned embodiment, the border portion of the angled leg member may especially be formed at a distal end of the angled leg member such that the trim projects on both sides of the angled leg member away from the first and second surfaces. In this context, a width of the trim, as measured perpendicularly to a plane of the angled leg member, preferably does not exceed 5 mm and/or a thickness of the trim, as measured within the plane of the angled leg member (120), preferably does not exceed 2 mm.

[0016] In accordance with another embodiment of the invention, the base leg member includes a supplemental spacer structure extending along the longitudinal direction and projecting away from a lower surface of the base leg member, opposite the angled leg member, which supplemental spacer structure is designed to come in abutment with a supporting surface provided along a peripheral edge of another, adjacent set of one or more tiles to maintain a spacing between the trim and the peripheral edge of the adjacent set of one or more tiles. This supplemental spacer structure is likewise comprised of a plurality of spacer members that are distributed in the longitudinal direction along the lower surface of the base leg member and that are spaced apart from one another to allow passage of grout applied to fill and seal gaps between the base leg member and the peripheral edge of

the adjacent set of one or more tiles.

[0017] With regard to the aforementioned other embodiment, the border portion of the angled leg member may especially project inwardly so as to form the trim into an angled or rounded corner comprising a connecting section connected to the base leg member, forming an angle of substantially 90° with respect to the base leg member, and a terminal section extending away from the connecting section along a direction that is substantially parallel to a plane of the base leg member, thereby allowing edge trimming of two adjacent sets of one or more tiles positioned on respective receiving surfaces forming an angle of substantially 90° .

[0018] In this latter context, the spacer members provided on the angled leg member may advantageously project from the connecting section of the trim along the direction that is substantially parallel to the plane of the base leg member and protrude beyond a distal end of the terminal section of the trim. In such case, a width of the trim, as measured within the plane of the base leg member, preferably does not exceed 5 mm and/or a thickness of the terminal section of the trim, as measured perpendicularly to the plane of the base leg member, preferably does not exceed 2 mm.

[0019] With regard to the aforementioned embodiments, the spacer members provided on the angled leg member may in particular be located at a distance with respect to an outer edge of the trim that is comprised between approximately 4 mm and 6 mm.

[0020] Alternatively, the spacer members provided on the angled leg member may advantageously project at an angle from the terminal section of the trim toward the base leg member and protrude beyond a distal end of the terminal section of the trim. In such case, a width of the trim, as measured within the plane of the base leg member, preferably does not exceed 15 mm and/or a thickness of the terminal section of the trim, as measured perpendicularly to the plane of the base leg member, preferably does not exceed 2 mm. The spacer members provided on the angled leg member may in particular project at an angle of approximately 135° with respect to the terminal section of the trim.

[0021] By way of preference, the spacer members are dimensioned to maintain a spacing of approximately 1 mm to 3 mm between the trim and the peripheral edge of each set of one or more tiles.

[0022] The spacer members may in particular have a length in the longitudinal direction of the order of 5 mm and/or be spaced apart from one another in the longitudinal direction by a spacing of the order of 5 mm.

[0023] The spacer members may furthermore be aligned in the longitudinal direction or be arranged in a staggered manner about the longitudinal direction.

[0024] An overall height of the edge trimming profile, as measured with respect to an upper surface of the base leg member, perpendicularly to a plane of the base leg member, may be comprised between approximately 4 mm and 22 mm. An overall length of the edge trimming

profile, as measured along the longitudinal direction, may be comprised between approximately 100 mm and 3'000 mm.

[0025] The edge trimming profile may be made of a variety of materials, including a metal, such as stainless steel, anodized aluminium, or chrome-plated brass, a polymer, such as PVC, or a composite material.

[0026] Further advantageous embodiments of the invention form the subject-matter of the dependent claims and are discussed below.

BRIEF DESCRIPTION OF THE DRAWINGS

[0027] Other features and advantages of the present invention will appear more clearly from reading the following detailed description of embodiments of the invention which are presented solely by way of non-restrictive examples and illustrated by the attached drawings in which:

Figures 1A and 1B are perspective views of an edge trimming profile in accordance with a first embodiment of the invention, as shown respectively from above and below;

Figure 1C is a side view of the edge trimming profile of Figures 1A-B;

Figure 1D is a top view of the edge trimming profile of Figures 1A-C;

Figure 1E is a bottom view of the edge trimming profile of Figures 1A-D;

Figure 2A is a schematic perspective view of the edge trimming profile of Figures 1A-E shown next to the peripheral edge of an abutting tile;

Figure 2B is a schematic partial perspective view of a cross-section of the arrangement shown in Figure 2A as taken along a vertical sectional plane perpendicular to a longitudinal direction of the edge trimming profile where the tile abuts against spacer members of the edge trimming profile;

Figures 3A and 3B are perspective views of an edge trimming profile in accordance with a second embodiment of the invention, as shown respectively from above and below;

Figure 3C is a side view of the edge trimming profile of Figures 3A-B;

Figure 3D is a top view of the edge trimming profile of Figures 3A-C;

Figure 3E is a bottom view of the edge trimming profile of Figures 3A-D;

Figures 4A and 4B are perspective views of an edge trimming profile in accordance with a third embodiment of the invention, as shown respectively from above and below;

Figure 4C is a side view of the edge trimming profile of Figures 4A-B;

Figure 4D is a top view of the edge trimming profile of Figures 4A-C;

Figure 4E is a bottom view of the edge trimming pro-

file of Figures 4A-D;

Figures 5A and 5B are perspective views of an edge trimming profile in accordance with a fourth embodiment of the invention, as shown respectively from above and below;

Figure 5C is a side view of the edge trimming profile of Figures 5A-B;

Figure 5D is a top view of the edge trimming profile of Figures 5A-C; and

Figure 5E is a bottom view of the edge trimming profile of Figures 5A-D.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

[0028] The present invention will be described in relation to various illustrative embodiments. It shall be understood that the scope of the invention encompasses all combinations and sub-combinations of the features of the embodiments disclosed herein.

[0029] As described herein, when two or more parts or components are described as being connected, attached, secured or coupled to one another, they can be so connected, attached, secured or coupled directly to each other or through one or more intermediary parts.

[0030] Figures 1A-E and 2A-B illustrate an edge trimming profile, designated globally by reference numeral 100, in accordance with a first embodiment of the invention. The edge trimming profile 100 is specifically designed to allow edge trimming of two adjacent sets of one or more tiles positioned on respective receiving surfaces forming an angle of substantially 90°, as in the case of a corner joining two perpendicular walls or a corner joining a step and a riser of a staircase. In that regard, one will appreciate that the edge trimming profile 100 can be arranged indifferently on a vertically or horizontally oriented receiving surface.

[0031] The edge trimming profile 100 comprises a base leg member 110 to secure the edge trimming profile 100 to a receiving surface to be covered by a first set of one or more tiles, such as the receiving surface of a step of a staircase. The edge trimming profile 100 is secured to the relevant receiving surface, along with the associated tiles, by means of a suitable mortar, the base leg member 110 being provided with suitable through-openings 110A allowing mortar to penetrate and protrude through the base leg member 110 to favour securement of the overlying tile(s), as is typical in the art. The through-openings 110A may take any desired shape, including but not limited to the shape shown in Figures 1A-B and 1D-E. The base leg member 110 is preferably substantially planar, but variations could be contemplated. The base leg member 110 could for instance exhibit a slightly trapezoidal cross-section, with the thickness of the base leg member 110 reducing towards the distal end, as taught in British Patent No. GB 2 203 996 B. One will understand that the upper surface 110a of the base leg member 110 is oriented towards one or more overlying tiles, while the lower

surface 110b of the base leg member 110 is oriented towards the receiving surface that is to be covered by the relevant tiles.

[0032] The edge trimming profile 100 further comprises an angled leg member 120 extending at an angle, designated α in Figure 1C, from a longitudinal end of the base leg member 110, as shown. In the illustrated example, the angled leg member 120 essentially consists of a rectilinear leg member ending with a widened protrusion at the distal end. In the illustrated example the angled leg member 120 forms an angle α of substantially 135° with respect to the base leg member 110, and the angled leg member 120 includes a border portion 120A at the distal end that is destined to be exposed and form a visible trim TR along the peripheral edges of the two sets of tile(s) that are to be positioned on either side of the angled leg member 120.

[0033] The angled leg member 120 further includes a first spacer structure 150 extending along a longitudinal direction and projecting away from a first surface 120a of the angled leg member 120. As shown in greater detail in Figures 2A-B, the spacer structure 150 is designed to come in abutment with a supporting surface Ts provided along the peripheral edge Tp of the set of one or more tiles T (only one tile T being shown in Figures 2A-B) to maintain a spacing e between the trim TR and the peripheral edge Tp of the set of one or more tiles T. In contrast to the known solutions, the spacer structure 150 does not consist of a continuous rib but is rather comprised of a plurality of spacer members 150 that are distributed in the longitudinal direction along the first surface 120a of the angled leg member 120 and that are spaced apart from one another. Thanks to this arrangement of the spacer members 150, grout applied to fill and seal gaps between the angled leg member 120 and the peripheral edge Tp of the set of one or more tiles T is allowed to pass through without being blocked by the spacer structure 150. As a result, the formation of a line of weakness is mitigated, as is the potential trapping of air pockets, which drastically improves robustness of the resulting joint.

[0034] In the illustrated example, the angled leg member 120 further includes a second spacer structure 160 extending along the longitudinal direction and projecting away from a second surface 120b of the angled leg member 120, opposite the first surface 120a. This additional spacer structure 160 is similarly designed to come in abutment with a supporting surface provided along the peripheral edge of another, adjacent set of one or more tiles (such as tile(s) that would be provided on the receiving surface of a riser adjacent the aforementioned step) to maintain a spacing between the trim TR and the peripheral edge of the adjacent set of one or more tiles. The spacer structure 160 is likewise comprised of a plurality of spacer members 160 that are distributed in the longitudinal direction along the second surface 120b of the angled leg member 120 and that are spaced apart from one another. By the same token, grout applied to fill and

seal gaps between the angled leg member 120 and the peripheral edge of the adjacent set of one or more tiles is allowed to pass through without being blocked by the spacer structure 160. As a result, the formation of a line of weakness is similarly mitigated, as is the potential trapping of air pockets, which drastically improves robustness of the resulting joint.

[0035] In the illustrated example, the border portion 120A forming the trim TR at the distal end of the angled leg member 120 is the only portion of the edge trimming profile 100 to ultimately be exposed and remain visible. In this case, the trim TR projects on both sides of the angled leg member 120 to form a head portion with a substantially triangular cross-section as shown in Figures 1A-C and 2A-B. The width w_1 of the trim TR, as measured perpendicularly to a plane of the angled leg member 120 (see Figure 1C), preferably does not exceed 5 mm. In the illustrated example, the width w_1 of the trim TR is of about 3.4 mm. The thickness d_1 of the trim TR, as measured within the plane of the angled leg member 120, preferably does not exceed 2 mm. In the illustrated example, the thickness d_1 of the trim TR is of about 1.6 mm. The angle, designated β , is of substantially 90° in the illustrated example, although slightly wider or shallower angles could be contemplated.

[0036] Each of the spacer members 150, 160 may exhibit a width w_2 of the order of 1 mm, in the illustrated example, and a length d_2 of the order to 1.5 mm. By way of preference, the spacer members 150, 160 are located at a distance h_2 with respect to the outer, extreme edge of the trim TR that is comprised between 4 mm and 6 mm.

[0037] The overall height H of the edge trimming profile 100, as measured with respect to the upper surface 110a of the base leg member 110, perpendicularly to a plane of the base leg member 110, as shown in Figure 1C, is preferably comprised between approximately 4 mm and 22 mm. From a practical perspective, the edge trimming profile 100 may be produced in distinct standard heights H of e.g. 4.5 mm, 7 mm, 9 mm, 11 mm and 12.5 mm, or more.

[0038] The overall length L of the edge trimming profile 100, as measured along the longitudinal direction (see Figures 1D and 1E), is preferably comprised between approximately 100 mm and 3'000 mm. From a practical perspective, the edge trimming profile 100 may likewise be produced in distinct standard lengths L of e.g. 100 mm, 2'500 mm and 2'700 mm.

[0039] By way of illustration, the edge trimming profile 100 shown in Figures 1A-E and 2A-B corresponds to a standard overall height H of 12.5 mm and a standard overall length L of 100 mm. The width W of the base leg member 110 is, by way of illustration, of approximately 20 mm.

[0040] As shown in Figures 1D and 1E, the spacer members 150, 160 preferably have a length l_2 in the longitudinal direction of the order of 5 mm and are spaced apart from one another in the longitudinal direction by a spacing s_2 of the order of 5 mm. Considering an overall

length L of 100 mm, one will therefore appreciate that a series of ten spacer members 150, 160 is provided on either side of the angled leg member 120 in the illustrated example.

[0041] Referring again to Figures 2A-B, one may note that the peripheral edge Tp of each adjacent tile T that comes in abutment with the spacer members 150, resp. 160 is provided with a bevelled supporting surface Ts, namely a supporting surface Ts that is angled at 45° with respect to the upper side of the tile T and 135° with respect to the lower side of the tile T. Upon positioning and adjusting the edge trimming profile 100 and the adjacent tiles T, the trim TR is aligned so that the outer surfaces thereof are coterminous and substantially flush with the upper, exposed surface of the adjacent tiles T, both horizontally and vertically.

[0042] Figures 3A-E illustrate an edge trimming profile, designated globally by reference numeral 200, in accordance with a second embodiment of the invention. The edge trimming profile 200 is specifically designed to allow edge trimming of two adjacent sets of one or more tiles positioned on respective receiving surfaces forming an angle of substantially 90°, as in the case of a corner joining two perpendicular walls or a corner joining a step and riser of a staircase. In that regard, one will appreciate that the edge trimming profile 200 can be arranged indifferently on a vertically or horizontally oriented receiving surface.

[0043] In a manner similar to the first embodiment, the edge trimming profile 200 comprises a base leg member 210 to secure the edge trimming profile 200 to a receiving surface to be covered by a first set of one or more tiles, such as the receiving surface of a step of a staircase. The edge trimming profile 200 is secured to the relevant receiving surface, along with the associated tiles, by means of a suitable mortar, the base leg member 210 being provided with suitable through-openings 210A allowing mortar to penetrate and protrude through the base leg member 210 to favour securement of the overlying tile(s), as is typical in the art. The through-openings 210A may once again take any desired shape, including but not limited to the shape shown in Figures 3A-B and 3D-E. The base leg member 210 is preferably substantially planar, but variations could similarly be contemplated. One will understand that the upper surface 210a of the base leg member 210 is oriented towards one or more overlying tiles, while the lower surface 210b of the base leg member 210 is oriented towards the receiving surface that is to be covered by the relevant tiles.

[0044] The edge trimming profile 200 further comprises an angled leg member 220 extending at an angle from a longitudinal end of the base leg member 210, as shown. In the illustrated example, the angled leg member 220 includes a border portion 220A that projects inwardly so as to form the trim TR into an angled corner comprising a connecting section connected to the base leg member 210, which connecting section forms an angle of substantially 90° with respect to the base leg member 210,

and a terminal section extending away from the connecting section along a direction that is substantially parallel to a plane of the base leg member 210. The connecting section and terminal section of the trim TR are here joined to form the angled corner, as shown.

[0045] The angled leg member 220 includes a spacer structure 250 that extends along a longitudinal direction and projects away from a first surface of the angled leg member 220, namely, the inner surface 220a of the connecting section. Much like the first embodiment, the spacer structure 250 is comprised of a plurality of spacer members 250 that are distributed in the longitudinal direction along the first surface 220a of the connecting section of the angled leg member 220 and that are spaced apart from one another. As shown, the spacer members 250 provided on the angled leg member 220 project from the connecting section of the trim TR along a direction that is substantially parallel to the plane of the base leg member 210 and protrude beyond the distal end of the terminal section of the trim TR. Thanks to this arrangement of the spacer members 250, grout applied to fill and seal gaps between the angled leg member 220 and the peripheral edge of the set of one or more tiles is allowed to pass through without being blocked by the spacer structure 250, thereby achieving the same benefits as discussed above in connection with the first embodiment.

[0046] In the context of this second embodiment (as well as the third and fourth embodiments to be discussed hereafter), and in contrast to the first embodiment that has previously been discussed, one will appreciate that the relevant supporting surface provided on the peripheral edge of the adjacent, abutting tile(s) is substantially vertical in this case, similar to what is disclosed e.g. in British Patent No. GB 2 203 996 B.

[0047] In the illustrated example, the base leg member 210 includes a supplemental spacer structure 260 extending along the longitudinal direction and projecting away from the lower surface 210b of the base leg member 210, opposite the angled leg member 220. This supplemental spacer structure 260 is similarly designed to come in abutment with a supporting surface provided along the peripheral edge of another, adjacent set of one or more tiles (such as tile(s) that would be provided on the receiving surface of a riser adjacent the aforementioned step) to maintain a spacing between the trim TR and the peripheral edge of the adjacent set of one or more tiles. In this case, the relevant spacing with respect to the trim TR is in effect maintained with the lower surface 210b of the base leg member 210. The supplemental spacer structure 260 is likewise comprised of a plurality of spacer members 260 that are distributed in the longitudinal direction along the lower surface 210b of the base leg member 210 and that are spaced apart from one another. By the same token, grout applied to fill and seal gaps between the base leg member 210 and the peripheral edge of the adjacent set of one or more tiles is allowed to pass through without being blocked by the spacer structure 260.

[0048] In the illustrated example, the border portion 220A forming the trim TR in effect consists of the outer surfaces of the angled leg member 220, including the outer surface of the connecting section (designated by reference sign 220b) and the outer surface of the terminal section, which outer surfaces are ultimately exposed and remain visible. The width w_1 of the trim TR, as measured within the plane of the base leg member 210 (see Figure 3C), preferably does not exceed 5 mm. In the illustrated example, the width w_1 of the trim TR is of about 3 mm. The thickness d_1 of the terminal section of the trim TR, as measured perpendicularly to the plane of the base leg member 210, preferably does not exceed 2 mm. In the illustrated example, the thickness d_1 of the terminal section of the trim TR is of about 1.5 mm.

[0049] Each of the spacer members 250, 260 may exhibit a width that is comparable to that of the spacer members 150, 160 of the first embodiment, namely, a width of the order of 1 mm. A length d_2 of the spacer members 250 may for instance be of the order to 3 mm, which, along with the aforementioned width w_1 of the trim TR, defines the resulting spacing e between the trim TR and the adjacent, abutting tile(s). In the illustrated example, the spacer members 260 may be slightly shorter, with a length d_3 of the order of 2 mm or less.

[0050] By way of preference, the spacer members 250 are located at a distance h_2 with respect to the outer, upper edge of the trim TR that is comprised between 4 mm and 6 mm, e.g. of 4.5 mm in the illustrated example.

[0051] The overall height H of the edge trimming profile 200, as measured with respect to the upper surface 210a of the base leg member 210, perpendicularly to a plane of the base leg member 210, as shown in Figure 3C, is once again preferably comprised between approximately 4 mm and 22 mm. From a practical perspective, the edge trimming profile 200 may be produced in distinct standard heights H of e.g. 7 mm, 9 mm, 11 mm and 12.5 mm, or more.

[0052] The overall length L of the edge trimming profile 200, as measured along the longitudinal direction (see Figures 3D and 3E), is likewise preferably comprised between approximately 100 mm and 3'000 mm. From a practical perspective, the edge trimming profile 200 may similarly be produced in distinct standard lengths L of e.g. 100 mm, 2'500 mm and 2'700 mm.

[0053] By way of illustration, the edge trimming profile 200 shown in Figures 3A-E corresponds to a standard overall height H of 12.5 mm and a standard overall length L of 100 mm. The width W of the base leg member 210 is, by way of illustration, of approximately 20 to 25 mm.

[0054] The aforementioned considerations with regard to the length and spacing, in the longitudinal direction, of the spacer members 150, 160 of the first embodiment apply by analogy to the spacer members 250, 260.

[0055] Figures 4A-E illustrate an edge trimming profile, designated globally by reference numeral 300, in accordance with a third embodiment of the invention. The edge trimming profile 300 is specifically designed to allow edge

trimming of two adjacent sets of one or more tiles positioned on respective receiving surfaces forming an angle of substantially 90° , as in the case of a corner joining two perpendicular walls or a corner joining a step and riser of a staircase. In that regard, one will appreciate that the edge trimming profile 300 can be arranged indifferently on a vertically or horizontally oriented receiving surface.

[0056] In a manner similar to the first and second embodiments, the edge trimming profile 300 comprises a base leg member 310 to secure the edge trimming profile 300 to a receiving surface to be covered by a first set of one or more tiles, such as the receiving surface of a step of staircase. The edge trimming profile 300 is secured to the relevant receiving surface, along with the associated tiles, by means of a suitable mortar, the base leg member 310 being provided with suitable through-openings 310A allowing mortar to penetrate and protrude through the base leg member 310 to favour securement of the overlying tile(s), as is typical in the art. The through-openings 310A may once again take any desired shape, including but not limited to the shape shown in Figures 4A-B and 4D-E. The base leg member 310 is preferably substantially planar, but variations could similarly be contemplated. One will understand that the upper surface 310a of the base leg member 310 is oriented towards one or more overlying tiles, while the lower surface 310b of the base leg member 310 is oriented towards the receiving surface that is to be covered by the relevant tiles.

[0057] The edge trimming profile 300 further comprises an angled leg member 320 extending at an angle from a longitudinal end of the base leg member 310, as shown. In the illustrated example, the angled leg member 320 includes a border portion 320A that projects inwardly so as to form the trim TR into an angled corner comprising a connecting section connected to the base leg member 310, which connecting section forms an angle of substantially 90° with respect to the base leg member 310, and a terminal section extending away from the connecting section along a direction that is substantially parallel to a plane of the base leg member 310. The connecting section and terminal section of the trim TR are here joined to form the angled corner, as shown.

[0058] The angled leg member 320 includes a spacer structure 350 that extends along a longitudinal direction and projects away from a first surface of the angled leg member 320, namely, the inner, upper surface 320a of the terminal section of the trim TR. Much like the first and second embodiments, the spacer structure 350 is comprised of a plurality of spacer members 350 that are distributed in the longitudinal direction along the first surface 320a of the terminal section of the angled leg member 320 and that are spaced apart from one another. As shown, the spacer members 350 provided on the angled leg member 320 project at an angle, designated θ in Figure 4C, from the terminal section of the trim TR toward the base leg member 310 and protrude beyond the distal end of the terminal section of the trim TR. The angle θ is preferably chosen to be of approximately 135° , but other

angles could be contemplated. Thanks to this arrangement of the spacer members 350, grout applied to fill and seal gaps between the angled leg member 320 and the peripheral edge of the set of one or more tiles is allowed to pass through without being blocked by the spacer structure 350, thereby achieving the same benefits as discussed above in connection with the first and second embodiments.

[0059] In the illustrated example, and much like the second embodiment of Figures 3A-E, the base leg member 310 includes a supplemental spacer structure 360 extending along the longitudinal direction and projecting away from the lower surface 310b of the base leg member 310, opposite the angled leg member 320. This supplemental spacer structure 360 fulfils the same purpose as the supplemental spacer structure 260 and is likewise comprised of a plurality of spacer members 360 that are distributed in the longitudinal direction along the lower surface 310b of the base leg member 310 and that are spaced apart from one another. By the same token, grout applied to fill and seal gaps between the base leg member 310 and the peripheral edge of the adjacent set of one or more tiles is allowed to pass through without being blocked by the spacer structure 360.

[0060] In the illustrated example, the border portion 320A forming the trim TR in effect consists of the outer surfaces of the angled leg member 320, including the outer surface of the connecting section (designated by reference sign 320b) and the outer surface of the terminal section, which outer surfaces are ultimately exposed and remain visible. The width w_1 of the trim TR, as measured within the plane of the base leg member 310 (see Figure 4C), preferably does not exceed 15 mm. In the illustrated example, the width w_1 of the trim TR is of about 10 mm. The thickness d_1 of the terminal section of the trim TR, as measured perpendicularly to the plane of the base leg member 310, preferably does not exceed 2 mm. In the illustrated example, the thickness d_1 of the terminal section of the trim TR is of about 1 mm.

[0061] Each of the spacer members 350, 360 may exhibit a width that is comparable to that of the spacer members 150, 160 of the first embodiment or the spacer members 250, 260 of the second embodiment, namely, a width of the order of 1 mm. A height d_2 of the spacer members 350, as measured perpendicularly to the plane of the terminal section of trim TR, may for instance be of the order to 3 mm, which, along with the fact that the spacer members 350 are made to protrude beyond the distal end of the terminal section of the trim TR, defines the resulting spacing e between the trim TR and the adjacent, abutting tile(s). In the illustrated example, the spacer members 360 may exhibit a similar length d_3 of the order of 2 mm (or less) as the spacer members 260 of the second embodiment.

[0062] The overall height H of the edge trimming profile 300, as measured with respect to the upper surface 310a of the base leg member 310, perpendicularly to a plane of the base leg member 310, as shown in Figure 4C, is

once again preferably comprised between approximately 4 mm and 22 mm. From a practical perspective, the edge trimming profile 300 may be produced in distinct standard heights H of e.g. 7 mm, 9 mm, 11 mm and 12.5 mm, or more.

[0063] The overall length L of the edge trimming profile 300, as measured along the longitudinal direction (see Figures 4D and 4E), is likewise preferably comprised between approximately 100 mm and 3'000 mm. From a practical perspective, the edge trimming profile 300 may similarly be produced in distinct standard lengths L of e.g. 100 mm, 2'500 mm and 2'700 mm.

[0064] By way of illustration, the edge trimming profile 300 shown in Figures 4A-E corresponds to a standard overall height H of 12.5 mm and a standard overall length L of 100 mm. The width W of the base leg member 310 is, by way of illustration, of approximately 30 mm.

[0065] The aforementioned considerations with regard to the length and spacing, in the longitudinal direction, of the spacer members 150, 160, 250, 260 of the first and second embodiments apply by analogy to the spacer members 350, 360.

[0066] Figures 5A-E illustrate an edge trimming profile, designated globally by reference numeral 400, in accordance with a fourth embodiment of the invention. This edge trimming profile 400 is basically similar to the edge trimming profile 300 of the third embodiment, with the main difference residing in the shape of the border portion 420A of the angled leg member 420 and resulting trim TR that is shaped to form a rounded corner rather than an angled corner. Other than that, the base leg member 410, angled leg member 420, spacer structure 450, and supplemental spacer structure 460 are substantially equivalent to the base leg member 310, angled leg member 320, spacer structure 350, and supplemental spacer structure 360 of the third embodiment, and the relevant considerations made in connection with the third embodiment of Figures 3A-E apply by analogy to the fourth embodiment shown in Figures 4A-E.

[0067] One will appreciate that the tip of the spacer members 150, 160, 250, 260, 350, 360, 450, 460 may take any desired shape ensuring adequate abutting of the adjacent tile(s). The tip may especially be square-shaped as shown e.g. in Figures 1A-C, 2B, rounded as shown e.g. in Figures 3A-C and 5A-C, or angled as shown e.g. in Figures 4A-C.

[0068] The edge trimming profile of the invention may be made of a variety of materials, including a metal, such as stainless steel, anodized aluminium, or chrome-plated brass, a polymer, such as PVC, or a composite material.

[0069] Various modifications and/or improvements may be made to the above-described embodiments without departing from the scope of the invention as defined by the appended claims.

[0070] For instance, while not specifically shown, more than one base leg members could be contemplated to provide additional support for the edge trimming profile. In particular, two base leg members oriented at e.g. 90°

from one another may for instance be contemplated in the context of the first embodiment discussed with reference to Figures 1A-E and 2A-B to provide support along the two receiving surfaces of the corner, as taught for instance in British Patent No. GB 2 203 996 B or French Utility Model No. FR 2 912 445 B3.

[0071] Only one spacer structure could furthermore be contemplated, especially if the edge trimming profile is only designed to finish the peripheral edge of a single set of tiles. Referring for instance to the second to fourth embodiments of Figures 3A-E to 5A-E, the supplemental spacer structure 260, 360, resp. 460 that is provided on the lower surface 210b, 310b, resp. 410b of the base leg member 210, 310, resp. 410 could simply be omitted.

[0072] Furthermore, while the drawings show embodiments wherein the spacer members are aligned in the longitudinal direction, such spacer members could potentially be arranged in a staggered manner about the longitudinal direction.

[0073] It is also worth noting that that the spacer members per se could exhibit any desired shape and do not necessarily need to be rectilinear as shown to provide for the desired spacing. The spacer members could for instance be angled or curved, while achieving the same benefits as discussed above.

LIST OF REFERENCE NUMERALS AND SIGNS USED THEREIN

[0074]

100 edge trimming profile (first embodiment)
 110 base leg member of edge trimming profile 100
 110a upper surface of base leg member 110
 110b lower surface of base leg member 110
 110A through-openings formed through base leg member 110
 120 angled leg member of edge trimming profile 100
 120a first (upper) surface of angled leg member 120
 120b second (lower) surface of angled leg member 120
 120A border portion of angled leg member 120 designed to be exposed and form visible trim TR along the peripheral edge of the abutting tiles T
 150 spacer members provided on first surface 120a
 160 spacer members provided on second surface 120b
 200 edge trimming profile (second embodiment)
 210 base leg member of edge trimming profile 200
 210a upper surface of base leg member 210
 210b lower surface of base leg member 210
 210A through-openings formed through base leg member 210
 220 angled leg member of edge trimming profile 200
 220a first (inner) surface of connecting section of angled leg member 220
 220b second (outer) surface of connecting section of angled leg member 220 (exposed surface of

trim TR)
 220A border portion of angled leg member 220 (including connecting and terminal sections) designed to be exposed and form visible trim TR along the peripheral edge of the abutting tiles T / angled corner
 250 spacer members provided on first surface 220a
 260 spacer members provided on lower surface 210b
 300 edge trimming profile (third embodiment)
 310 base leg member of edge trimming profile 300
 310a upper surface of base leg member 310
 310b lower surface of base leg member 310
 310A through-openings formed through base leg member 310
 320 angled leg member of edge trimming profile 300
 320a inner surface of terminal section of angled leg member 320 / first surface of angled leg member 320
 320b outer surface of connecting section of angled leg member 320 (exposed surface of trim TR)
 320A border portion of angled leg member 320 (including connecting and terminal sections) designed to be exposed and form visible trim TR along the peripheral edge of the abutting tiles T / angled corner
 350 spacer members provided on inner surface 320a
 360 spacer members provided on lower surface 310b
 400 edge trimming profile (fourth embodiment)
 410 base leg member of edge trimming profile 400
 410a upper surface of base leg member 410
 410b lower surface of base leg member 410
 410A through-openings formed through base leg member 410
 420 angled leg member of edge trimming profile 400
 420a inner surface of terminal section of angled leg member 420 / first surface of angled leg member 420
 420b outer surface of connecting section of angled leg member 420 (exposed surface of trim TR)
 420A border portion of angled leg member 420 (including connecting and terminal sections) designed to be exposed and form visible trim TR along the peripheral edge of the abutting tiles T / rounded corner
 450 spacer members provided on inner surface 420a
 460 spacer members provided on lower surface 410b
 TR visible trim formed along the peripheral edge Tp of the abutting tiles T
 T tiles (e.g. ceramic tiles)
 Tp peripheral edge of tile(s) T
 Ts supporting surface provided along the peripheral edge Tp
 e spacing between trim TR and peripheral edge

	Tp	
α	angle formed between base leg member 110 and angled leg member 120 (first embodiment)	
β	angle formed by trim TR at distal end of angled leg member 120 (first embodiment)	5
θ	angle formed by spacer member 350, resp. 450 with respect to inner surface 320a, resp. 420a of terminal section of angled leg member 320, resp. 420	
w_1	width of trim TR as measured perpendicularly to plane of angled member 120 (first embodiment) / width of trim TR as measured within plane of base leg member 210, 310, resp. 410 (second to fourth embodiments)	10
w_2	width of spacer members 150, 160, 250, 260, 350, 360, 450, resp. 460	15
h_2	distance between outer edge of trim TR and spacer members 150, 160, resp. 250 (first and second embodiments)	
d_1	thickness of trim TR (first embodiment) / thickness of terminal section of trim TR (second to fourth embodiments)	20
d_2	length of spacer members 150, 160, resp. 250 (first and second embodiments) / height of spacer members 350, resp. 450 (third and fourth embodiments) as measured perpendicularly to plane of terminal section of trim TR	25
d_3	length of spacer members 260, 360, resp. 460 (second to fourth embodiments)	
l_2	length of the spacer members 150, 160, 250, 260, 350, 360, 450, resp. 460 in the longitudinal direction	30
s_2	spacing separating the spacer members 150, 160, 250, 260, 350, 360, 450, resp. 460 in the longitudinal direction	35
H	overall height of edge trimming profile 100, 200, 300, resp. 400 as measured with respect to upper surface 110a, 210a, 310a, resp. 410a of base leg member 110, 210, 310, resp. 410, perpendicularly to plane of base leg member 110, 210, 310, resp. 410	40
L	overall length of edge trimming profile 100, 200, 300, resp. 400 as measured along the longitudinal direction	
W	overall width of the base leg member 110, 210, 310, resp. 410 as measured perpendicularly to the longitudinal direction	45

Claims

1. An edge trimming profile (100; 200; 300; 400) for finishing of a peripheral edge (Tp) of at least one set of one or more tiles (T) of a floor or wall covering, comprising:

a base leg member (110; 210; 310; 410) provided with through-openings (110A; 210A; 310A;

410A) to secure the edge trimming profile (100; 200; 300; 400) to a receiving surface to be covered by the set of one or more tiles (T); and an angled leg member (120; 220; 320; 420) extending at an angle from a longitudinal end of the base leg member (110; 210; 310; 410), which angled leg member (120; 220; 320; 420) includes a border portion (120A; 220A; 320A; 420A) that is destined to be exposed and form a visible trim (TR) along the peripheral edge (Tp) of the set of one or more tiles (T), wherein the angled leg member (120; 220; 320; 420) further includes a spacer structure (150; 250; 350; 450) extending along a longitudinal direction and projecting away from a first surface (120a; 220a; 320a; 420a) of the angled leg member (120; 220; 320; 420), which spacer structure (150; 250; 350; 450) is designed to come in abutment with a supporting surface (Ts) provided along the peripheral edge (Tp) of the set of one or more tiles (T) to maintain a spacing (e) between the trim (TR) and the peripheral edge (Tp) of the set of one or more tiles (T),

characterized in that the spacer structure (150; 250; 350; 450) is comprised of a plurality of spacer members (150; 250; 350; 450) that are distributed in the longitudinal direction along the first surface (120a; 220a; 320a; 420a) of the angled leg member (120; 220; 320; 420) and that are spaced apart from one another to allow passage of grout applied to fill and seal gaps between the angled leg member (120; 220; 320; 420) and the peripheral edge (Tp) of the set of one or more tiles (T).

2. The edge trimming profile (100) according to claim 1, wherein the angled leg member (120) further includes an additional spacer structure (160) extending along the longitudinal direction and projecting away from a second surface (120b) of the angled leg member (120), opposite the first surface (120a), which additional spacer structure (160) is designed to come in abutment with a supporting surface (Ts) provided along a peripheral edge (Tp) of another, adjacent set of one or more tiles (T) to maintain a spacing (e) between the trim (TR) and the peripheral edge (Tp) of the adjacent set of one or more tiles (T), and wherein the additional spacer structure (160) is likewise comprised of a plurality of spacer members (160) that are distributed in the longitudinal direction along the second surface (120b) of the angled leg member (120) and that are spaced apart from one another to allow passage of grout applied to fill and seal gaps between the angled leg member (120) and the peripheral edge (Tp) of the adjacent set of one or more tiles (T).

3. The edge trimming profile (100) according to claim

- 2, wherein the angled leg member (120) forms an angle (α) of substantially 135° with respect to the base leg member (110), thereby allowing edge trimming of two adjacent sets of one or more tiles (T) positioned on respective receiving surfaces forming an angle of substantially 90° .
4. The edge trimming profile (100) according to claim 2 or 3, wherein the border portion (120A) of the angled leg member (120) is formed at a distal end of the angled leg member (120) such that the trim (TR) projects on both sides of the angled leg member (120) away from the first and second surfaces (120a, 120b), wherein a width (w_1) of the trim (TR), as measured perpendicularly to a plane of the angled leg member (120), preferably does not exceed 5 mm and/or wherein a thickness (d_1) of the trim (TR), as measured within the plane of the angled leg member (120), preferably does not exceed 2 mm.
 5. The edge trimming profile (200; 300; 400) according to claim 1, wherein the base leg member (210; 310; 410) includes a supplemental spacer structure (260; 360; 460) extending along the longitudinal direction and projecting away from a lower surface (210b; 310b; 410b) of the base leg member (210; 310; 410), opposite the angled leg member (220; 320; 420), which supplemental spacer structure (260; 360; 460) is designed to come in abutment with a supporting surface (Ts) provided along a peripheral edge (Tp) of another, adjacent set of one or more tiles (T) to maintain a spacing (e) between the trim (TR) and the peripheral edge (Tp) of the adjacent set of one or more tiles (T), and wherein the supplemental spacer structure (260; 360; 460) is likewise comprised of a plurality of spacer members (260; 360; 460) that are distributed in the longitudinal direction along the lower surface (210b; 310b; 410b) of the base leg member (210; 310; 410) and that are spaced apart from one another to allow passage of grout applied to fill and seal gaps between the base leg member (210; 310; 410) and the peripheral edge (Tp) of the adjacent set of one or more tiles (T).
 6. The edge trimming profile (200; 300; 400) according to claim 5, wherein the border portion (220A; 320A; 420A) of the angled leg member (220; 320; 420) projects inwardly so as to form the trim (TR) into an angled or rounded corner comprising a connecting section connected to the base leg member (210; 310; 410), forming an angle of substantially 90° with respect to the base leg member (210; 310; 410), and a terminal section extending away from the connecting section along a direction that is substantially parallel to a plane of the base leg member (210; 310; 410), thereby allowing edge trimming of two adjacent sets of one or more tiles (T) positioned on respective receiving surfaces forming an angle of substantially 90° .
 7. The edge trimming profile (200) according to claim 6, wherein the spacer members (250) provided on the angled leg member (220) project from the connecting section of the trim (TR) along the direction that is substantially parallel to the plane of the base leg member (210) and protrude beyond a distal end of the terminal section of the trim (TR), wherein a width (w_1) of the trim (TR), as measured within the plane of the base leg member (210), preferably does not exceed 5 mm and/or wherein a thickness (d_1) of the terminal section of the trim (TR), as measured perpendicularly to the plane of the base leg member (210), preferably does not exceed 2 mm.
 8. The edge trimming profile (300; 400) according to claim 6, wherein the spacer members (350; 450) provided on the angled leg member (320; 420) project at an angle (θ) from the terminal section of the trim (TR) toward the base leg member (310; 410) and protrude beyond a distal end of the terminal section of the trim (TR), wherein a width (w_1) of the trim (TR), as measured within the plane of the base leg member (310; 410), preferably does not exceed 15 mm and/or wherein a thickness (d_1) of the terminal section of the trim (TR), as measured perpendicularly to the plane of the base leg member (310; 410), preferably does not exceed 2 mm.
 9. The edge trimming profile (300; 400) according to claim 8, wherein the spacer members (350; 450) provided on the angled leg member (320; 420) project at an angle (θ) of approximately 135° with respect to the terminal section of the trim (TR).
 10. The edge trimming profile (100; 200) according to any one of claims 1 to 7, wherein the spacer members (150, 160; 250) provided on the angled leg member (120; 220) are located at a distance (h_2) with respect to an outer edge of the trim (TR) that is comprised between approximately 4 mm and 6 mm.
 11. The edge trimming profile (100; 200; 300; 400) according to any one of the preceding claims, wherein the spacer members (150, 160; 250, 260; 350, 360; 450, 460) are dimensioned to maintain a spacing (e) of approximately 1 mm to 3 mm between the trim (TR) and the peripheral edge (Tp) of each set of one or more tiles (T).
 12. The edge trimming profile (100; 200; 300; 400) according to any one of the preceding claims, wherein the spacer members (150, 160; 250, 260; 350, 360; 450, 460) have a length (l_2) in the longitudinal direc-

tion of the order of 5 mm, and/or wherein the spacer members (150, 160; 250, 260; 350, 360; 450, 460) are spaced apart from one another in the longitudinal direction by a spacing (s_2) of the order of 5 mm.

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13. The edge trimming profile (100; 200; 300; 400) according to any one of the preceding claims, wherein the spacer members (150, 160; 250, 260; 350, 360; 450, 460) are aligned in the longitudinal direction or are arranged in a staggered manner about the longitudinal direction. 10
14. The edge trimming profile (100; 200; 300; 400) according to any one of the preceding claims, wherein an overall height (H) of the edge trimming profile (100; 200; 300; 400), as measured with respect to an upper surface (110a; 210a; 310a; 410a) of the base leg member (110; 210; 310; 410), perpendicularly to a plane of the base leg member (110; 210; 310; 410), is comprised between approximately 4 mm and 22 mm, 20
and/or wherein an overall length (L) of the edge trimming profile (100; 200; 300; 400), as measured along the longitudinal direction, is comprised between approximately 100 mm and 3'000 mm. 25
15. The edge trimming profile (100; 200; 300; 400) according to any one of the preceding claims, wherein the edge trimming profile (100; 200; 300; 400) are made of a metal, such as stainless steel, anodized aluminium, or chrome-plated brass, of a polymer, such as PVC, or of a composite material. 30

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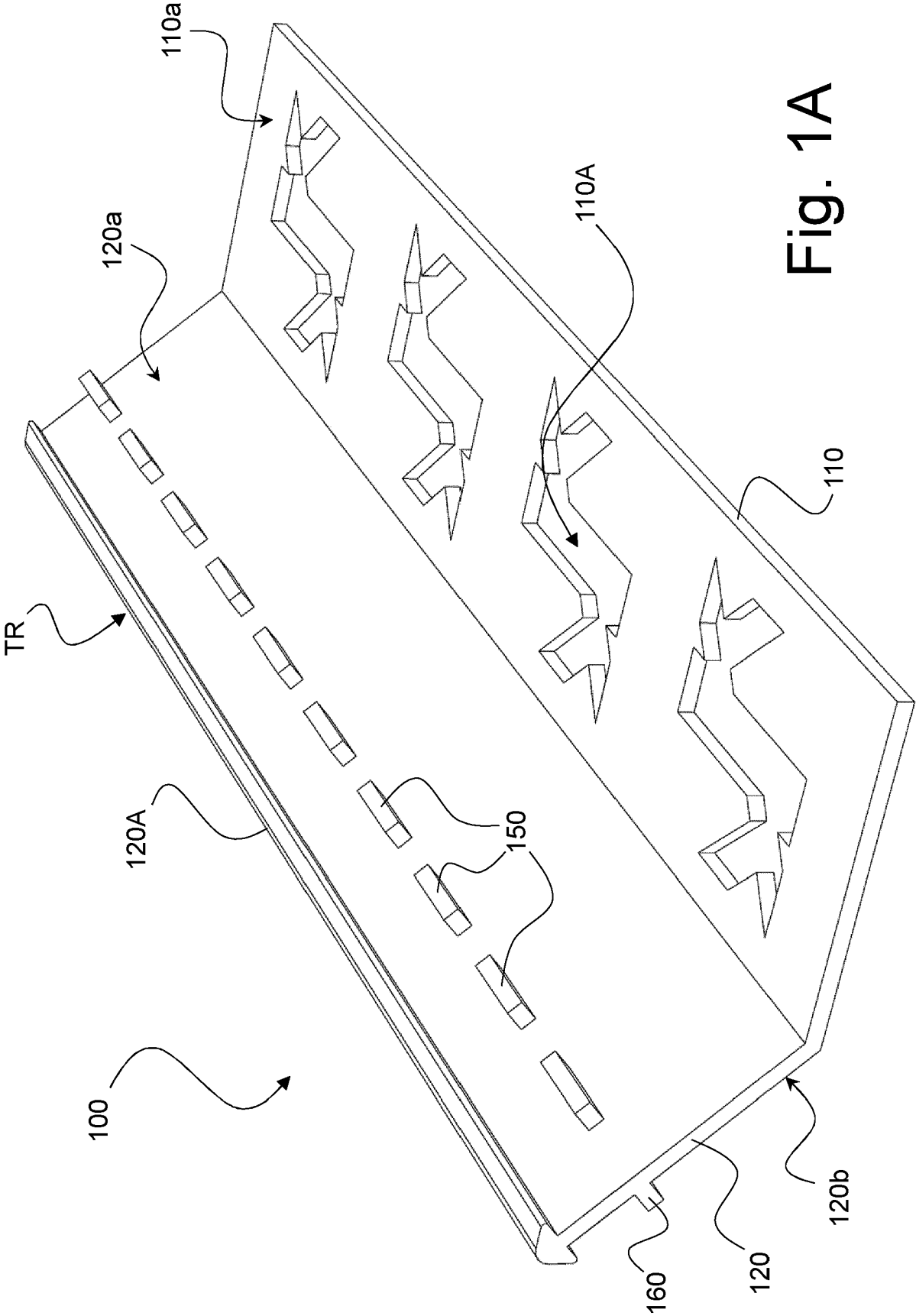


Fig. 1A

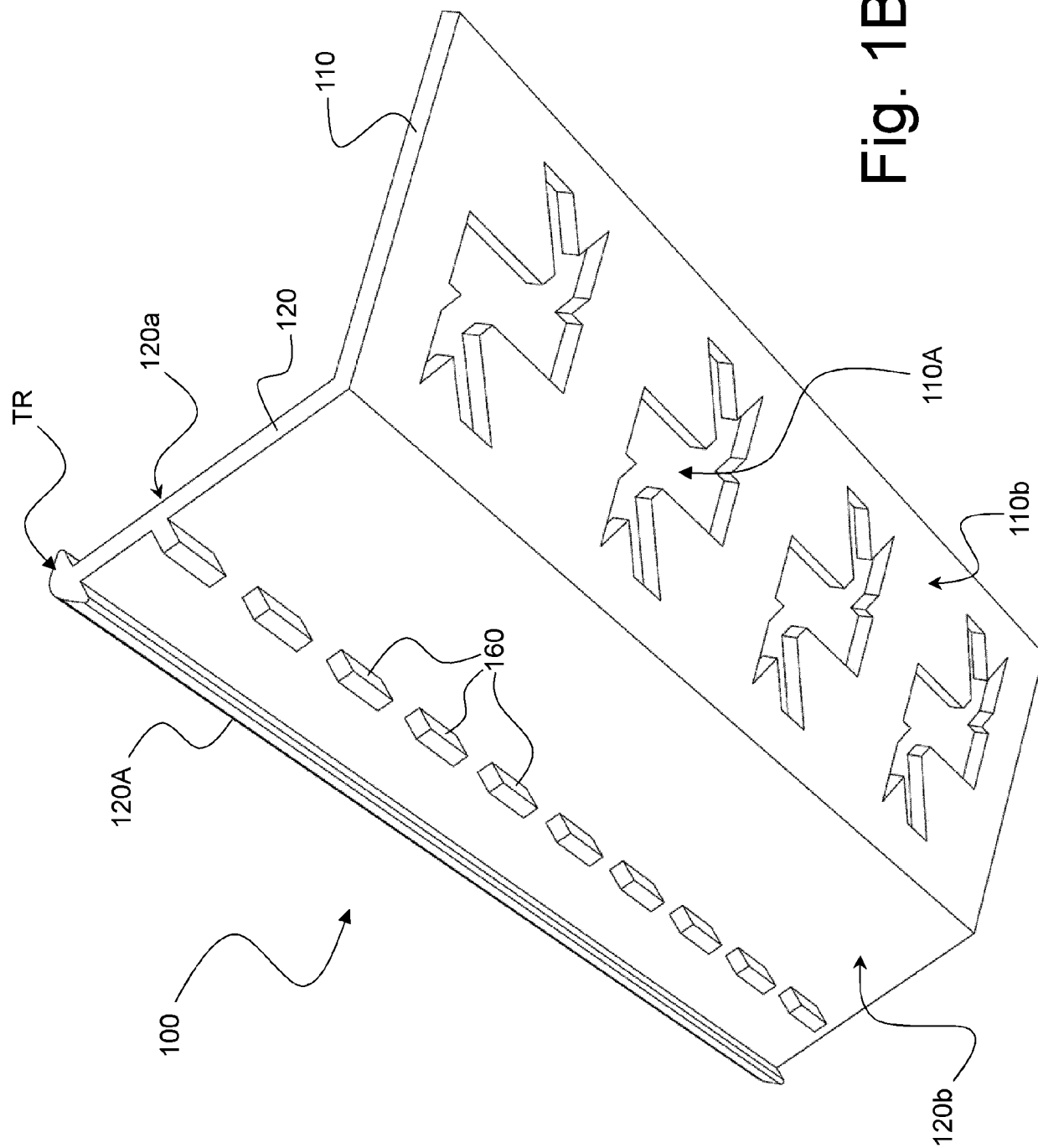


Fig. 1B

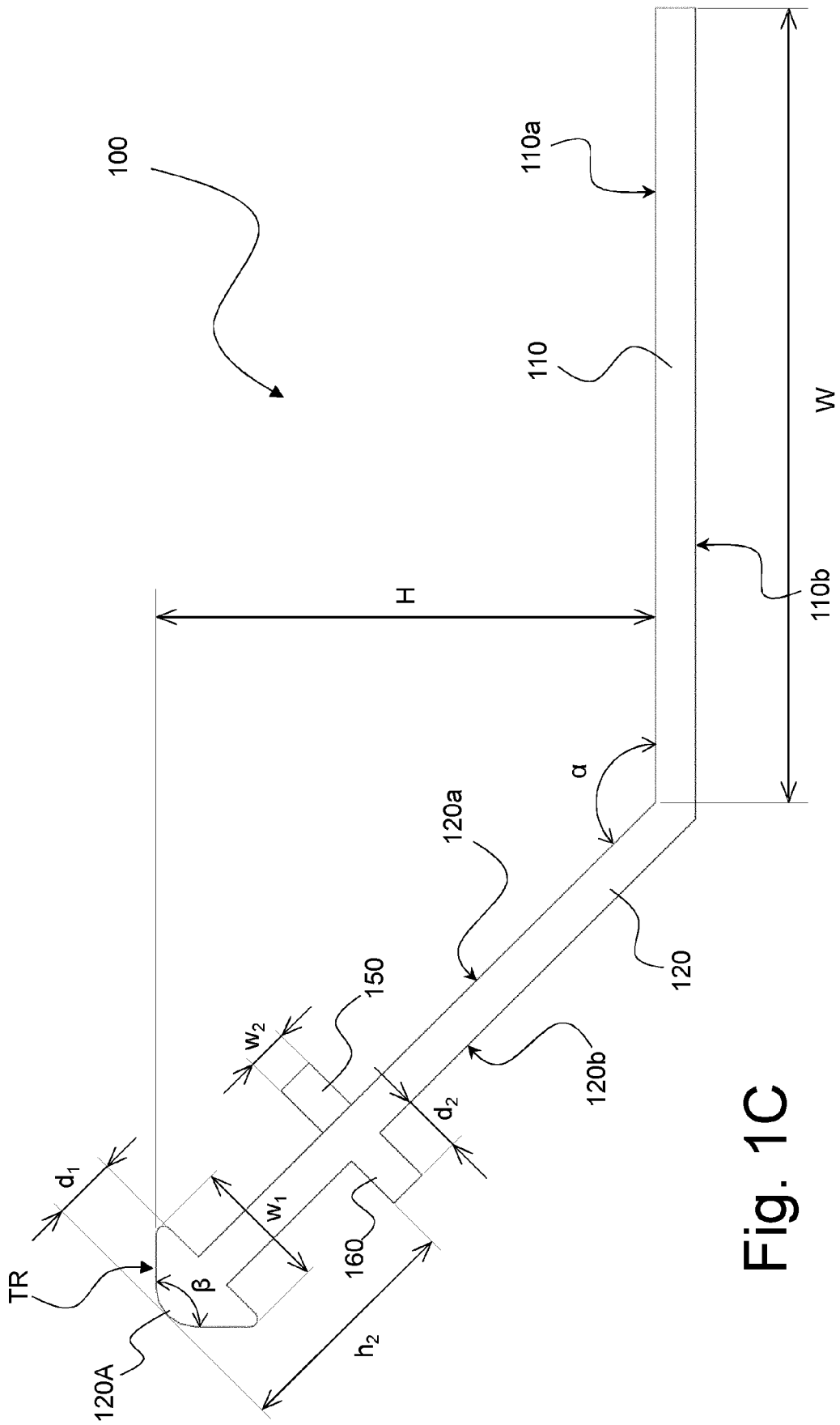


Fig. 1C

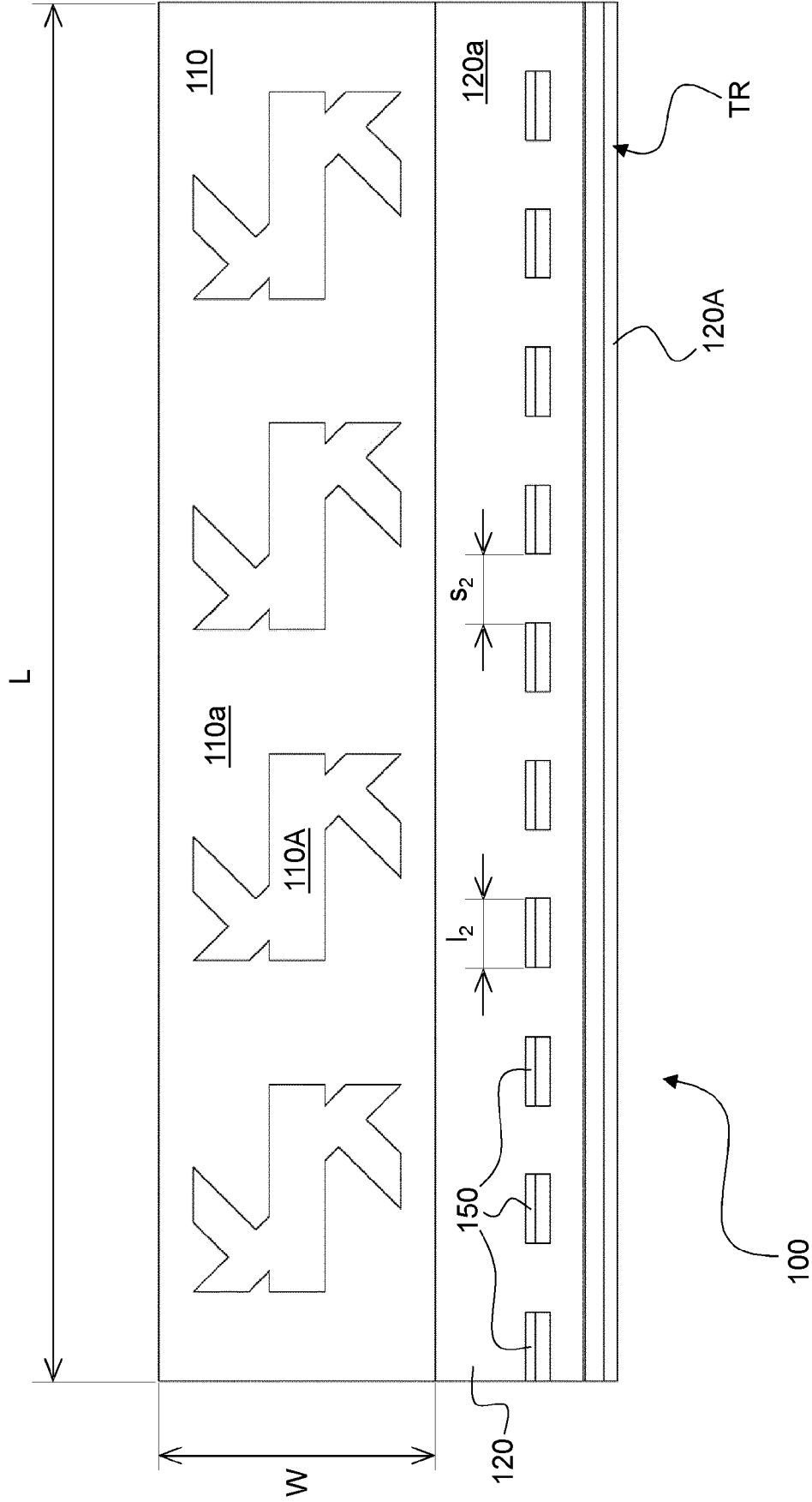


Fig. 1D

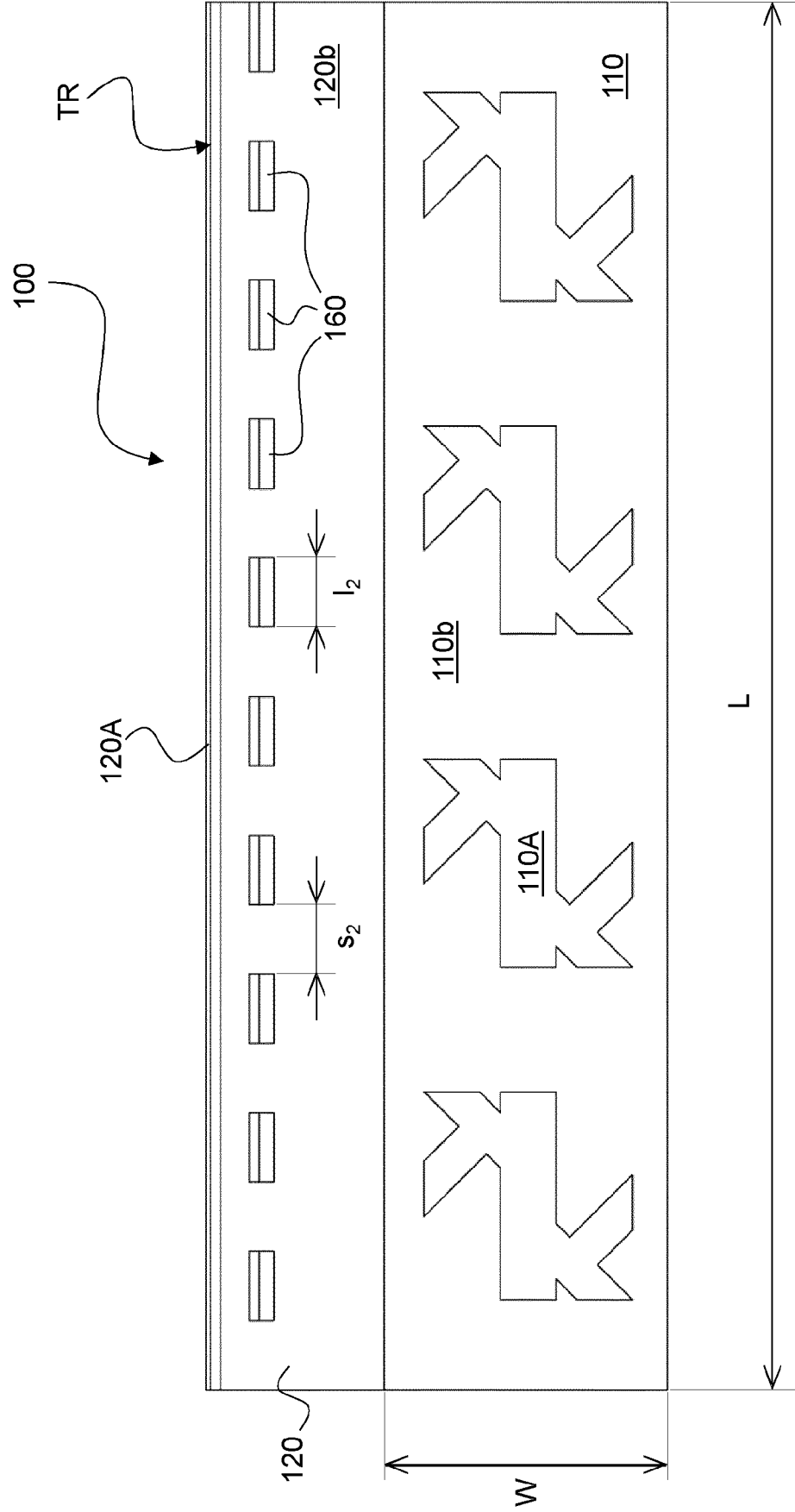


Fig. 1E

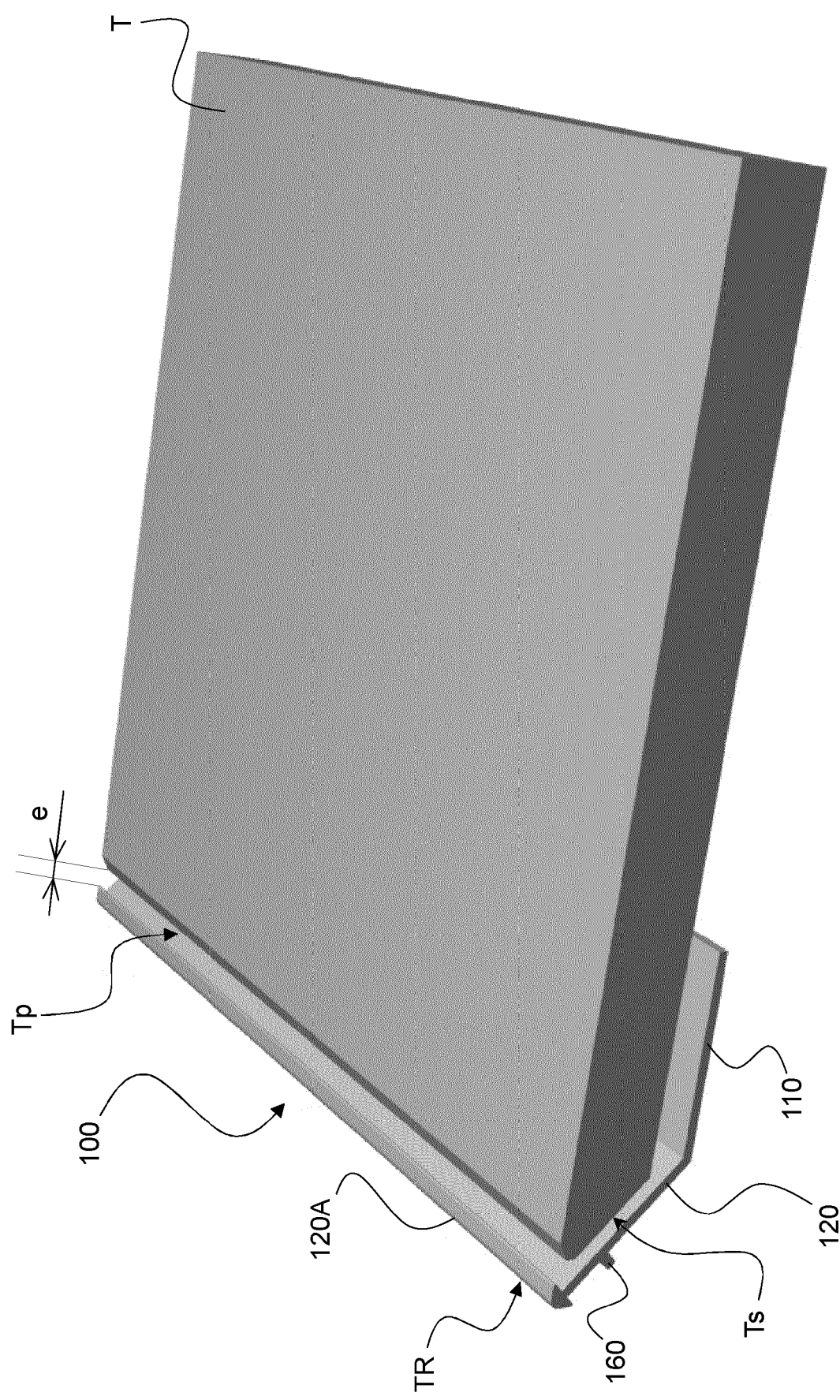


Fig. 2A

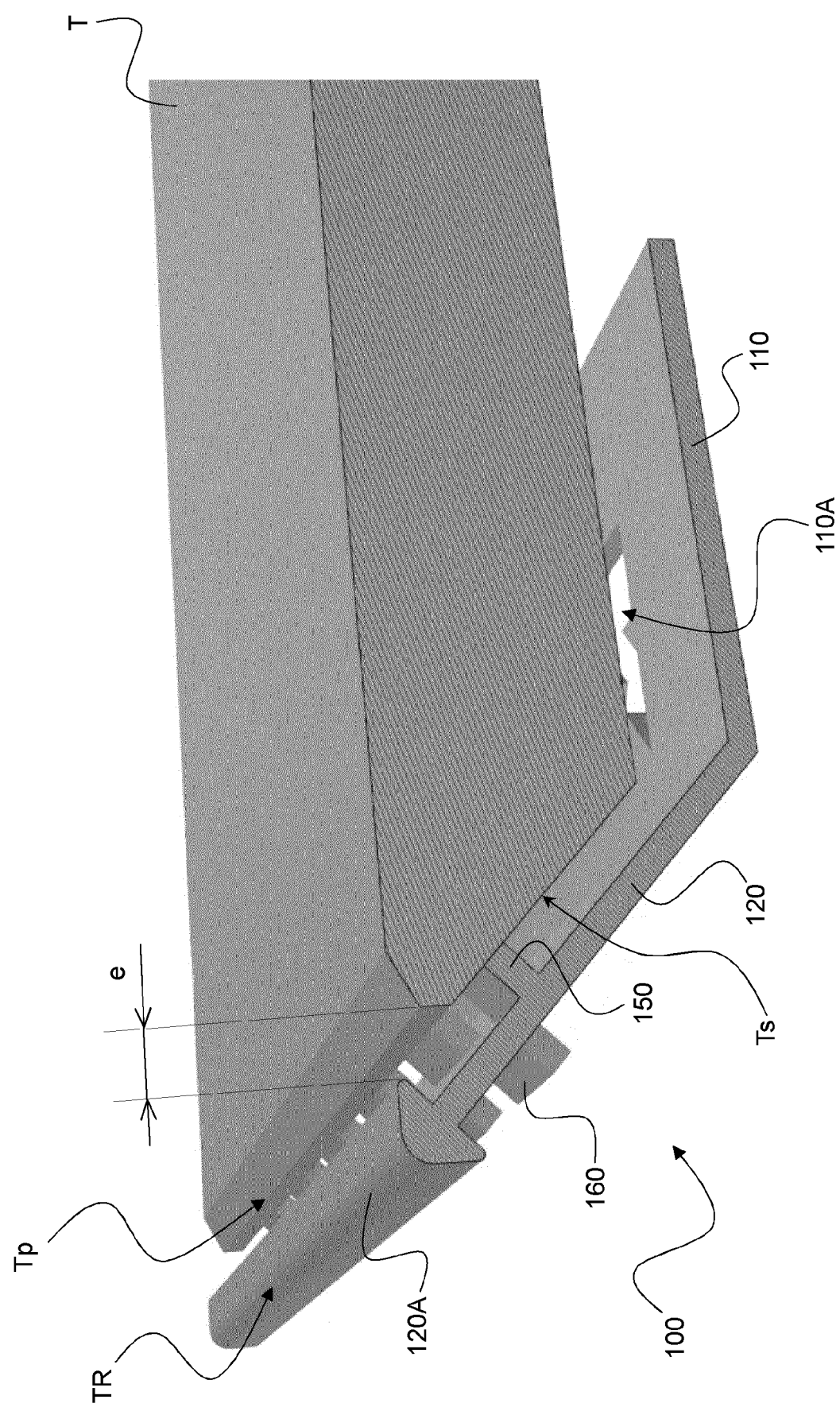


Fig. 2B

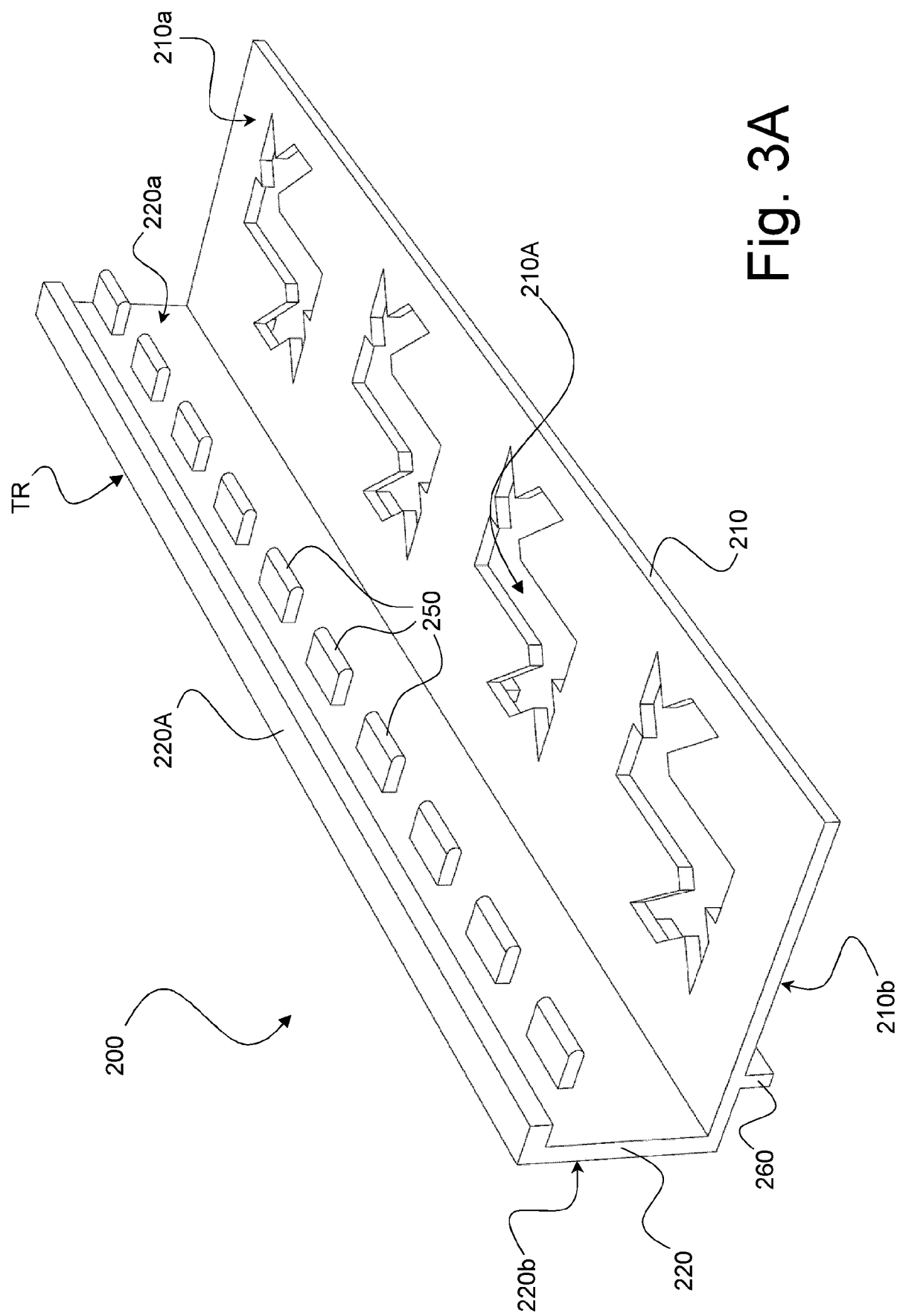


Fig. 3A

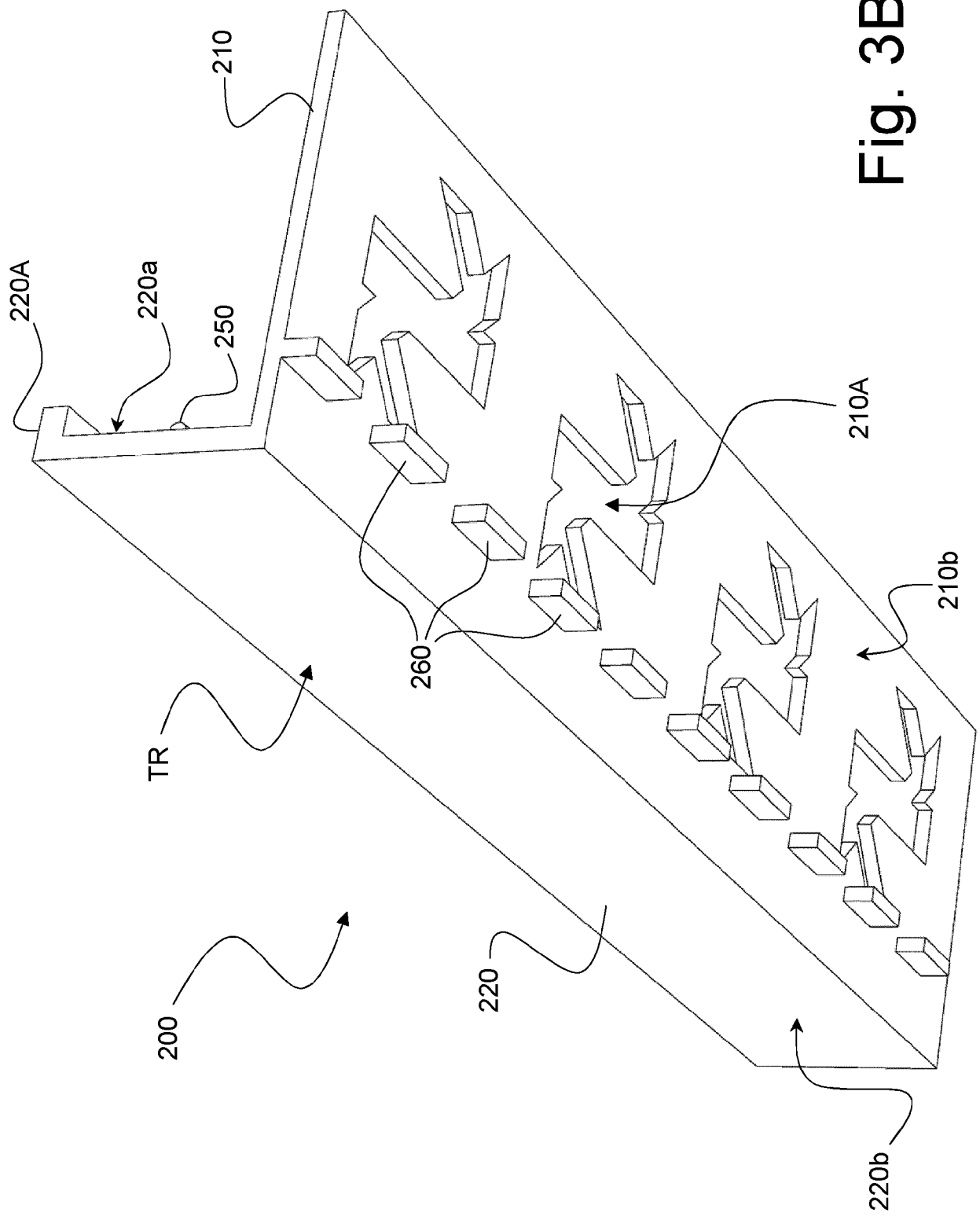
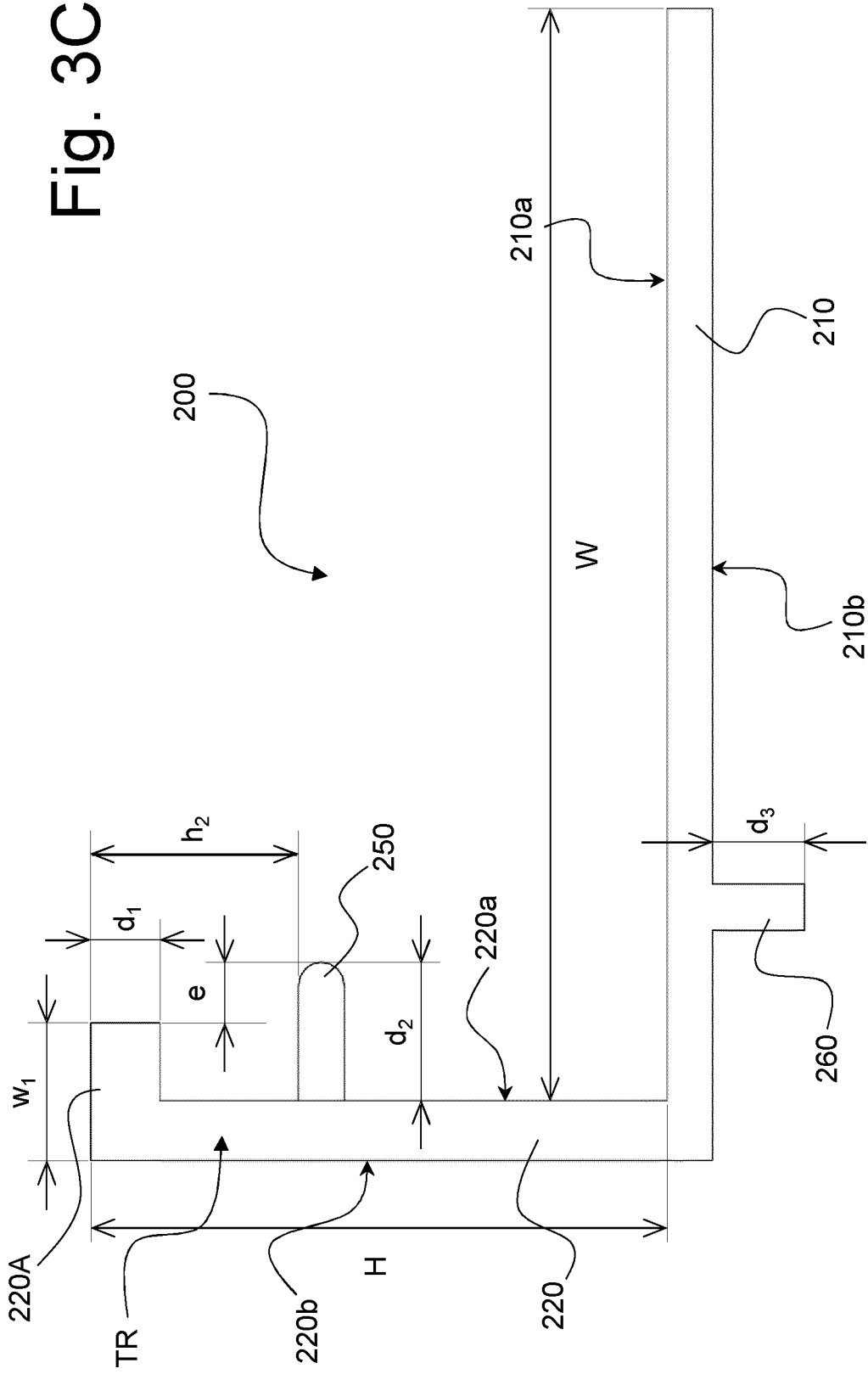
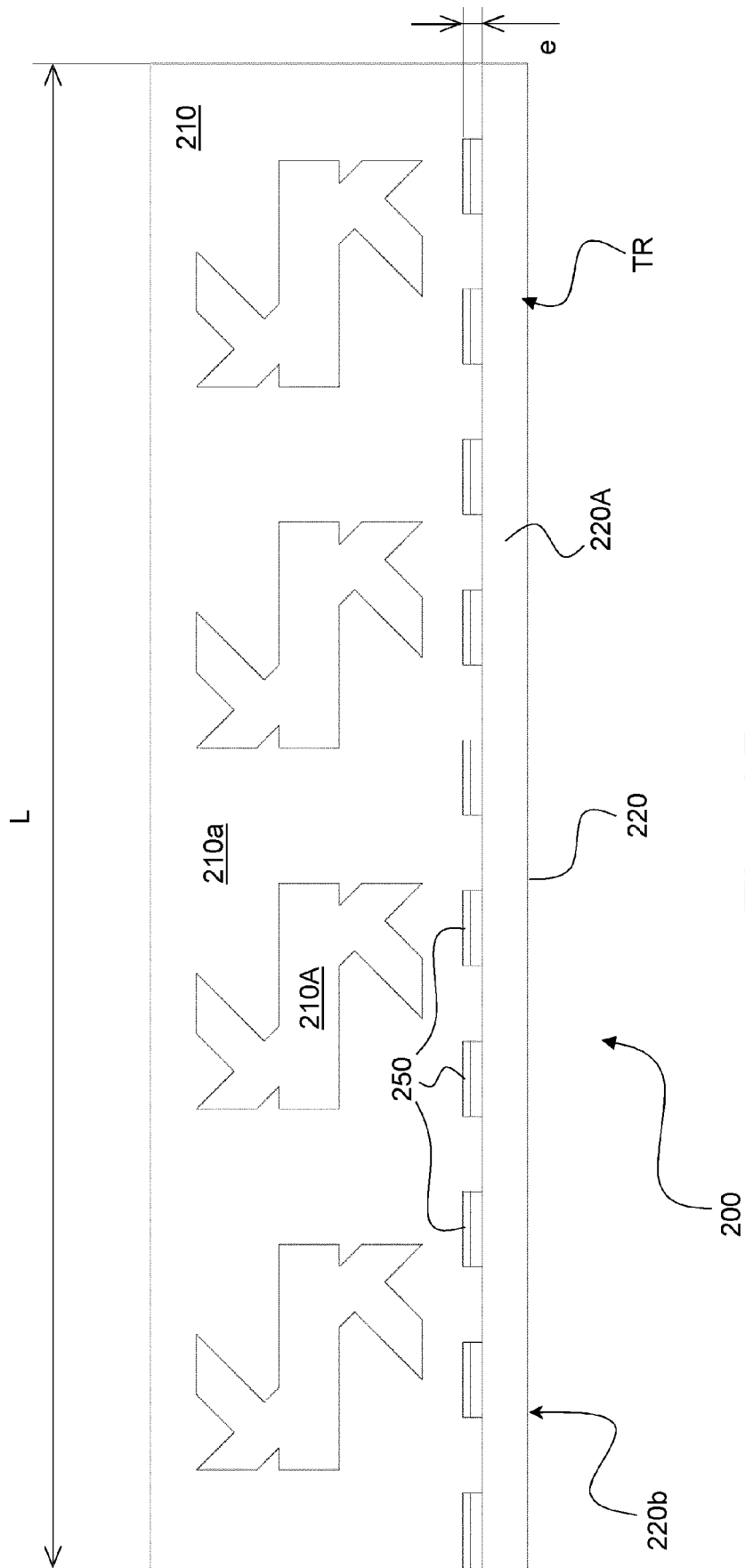


Fig. 3B





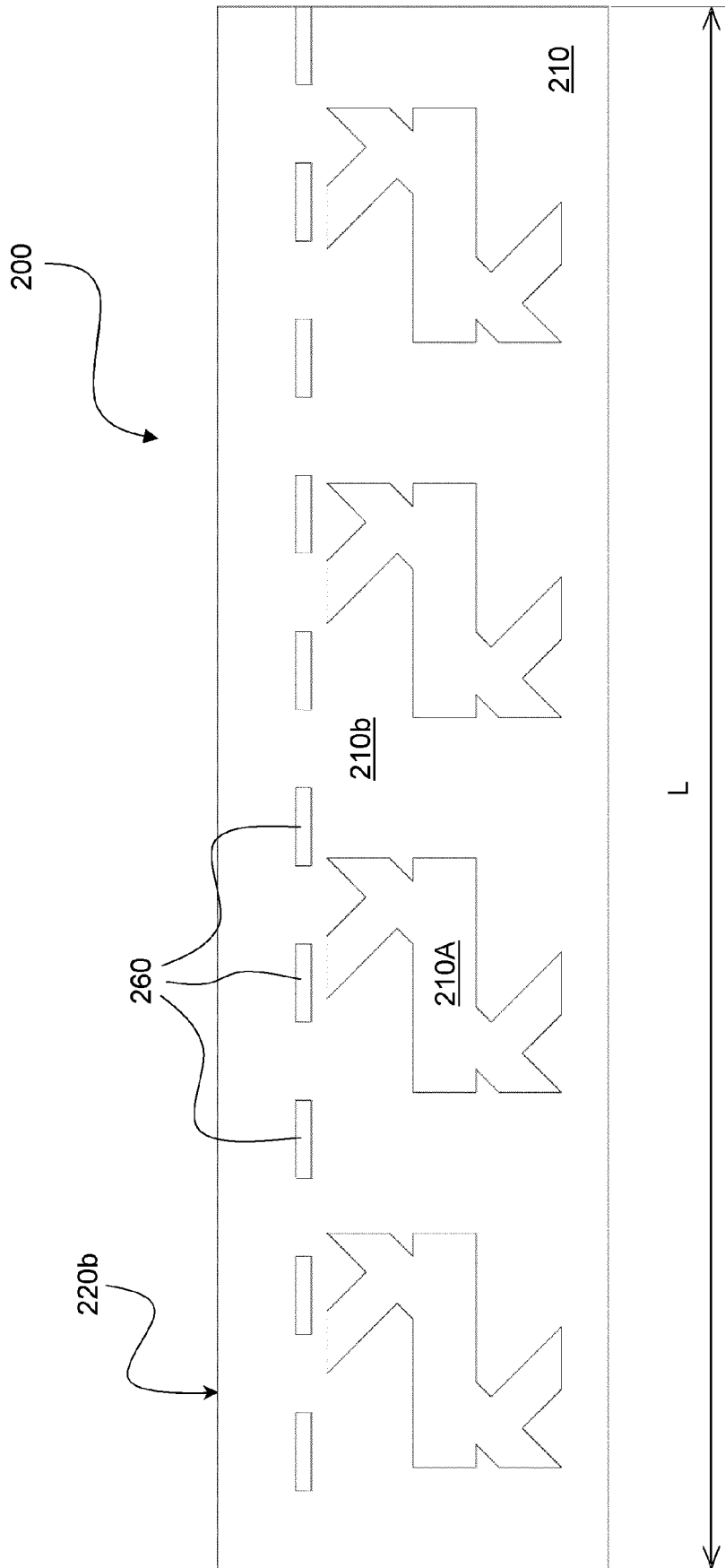


Fig. 3E

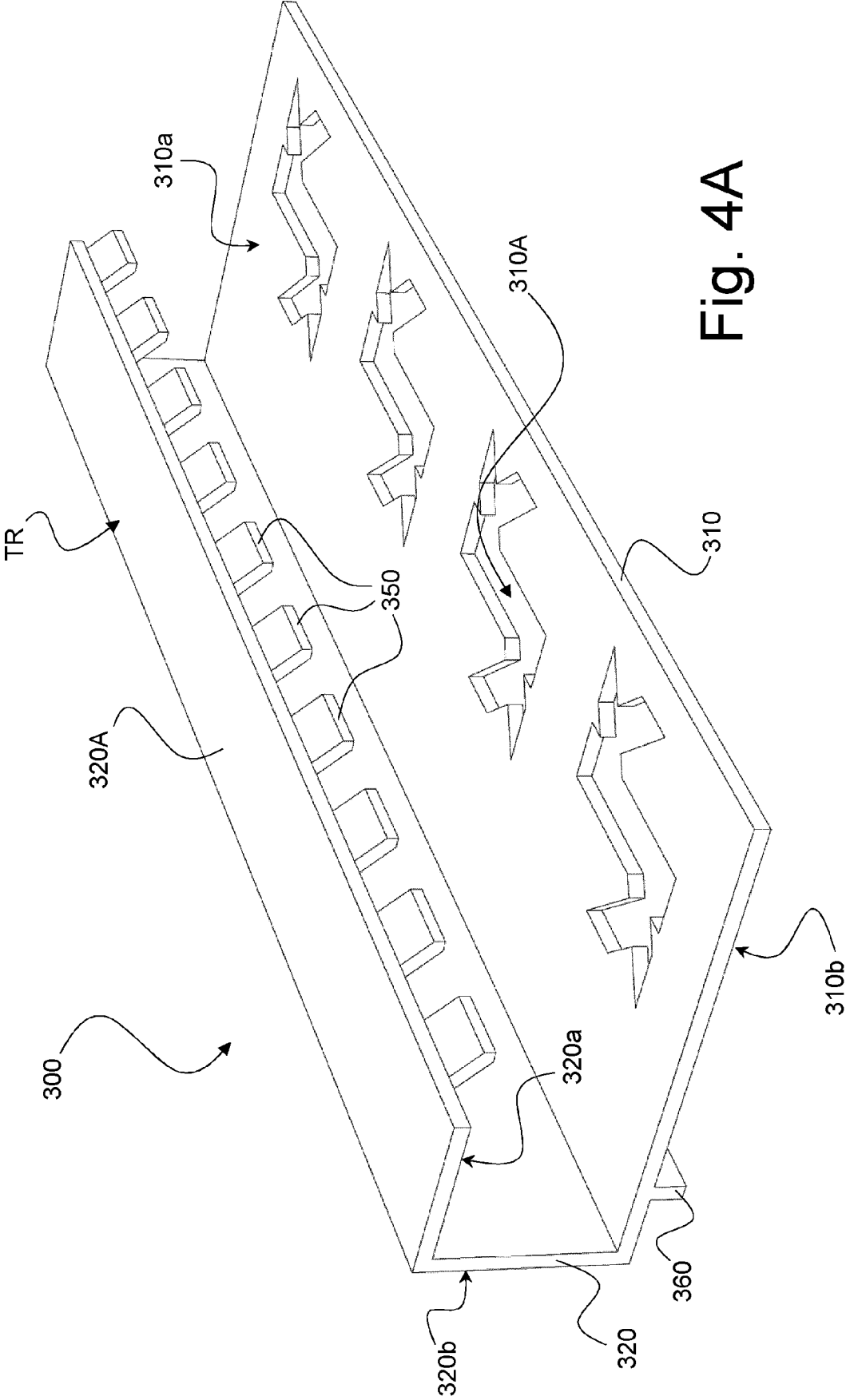


Fig. 4A

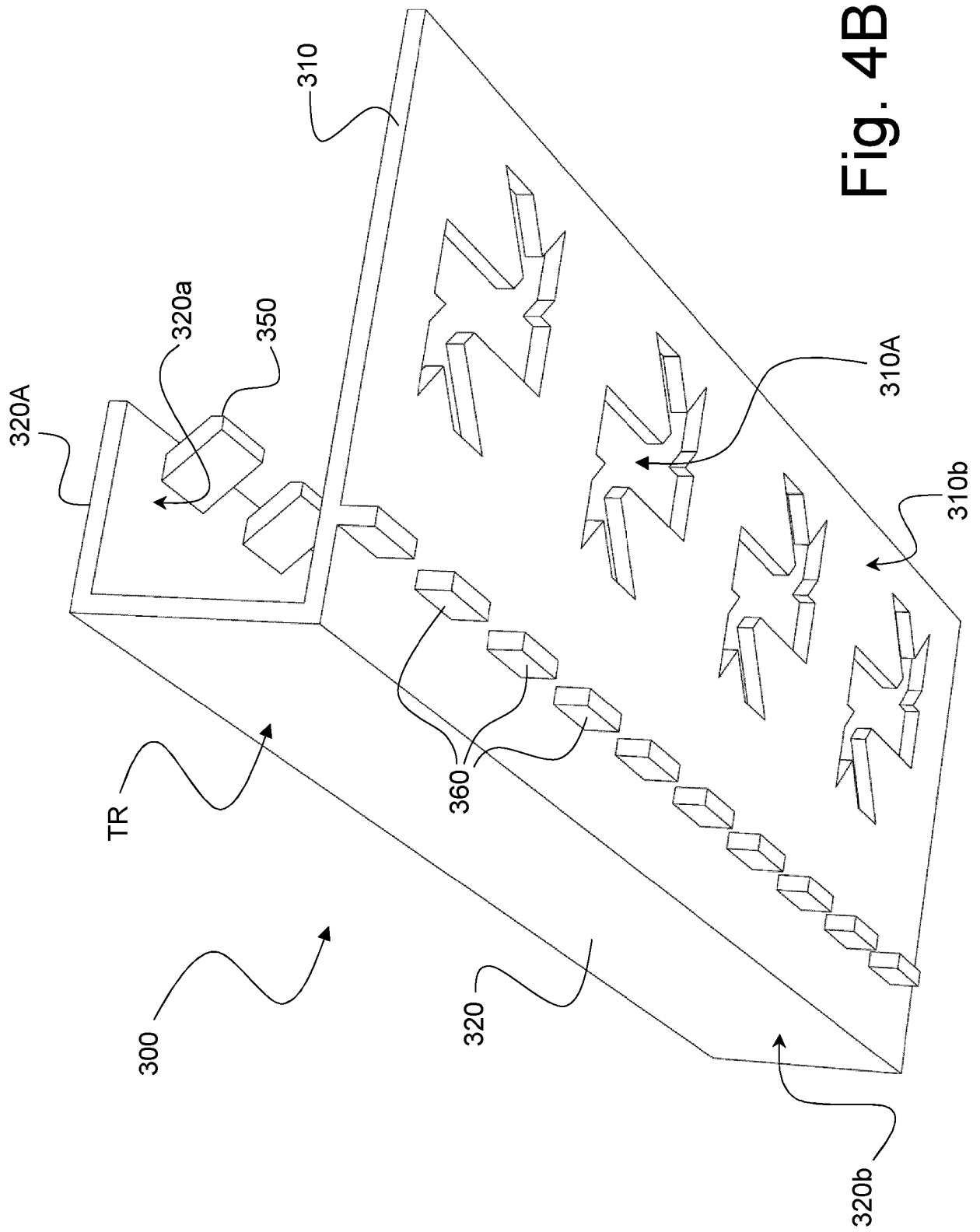
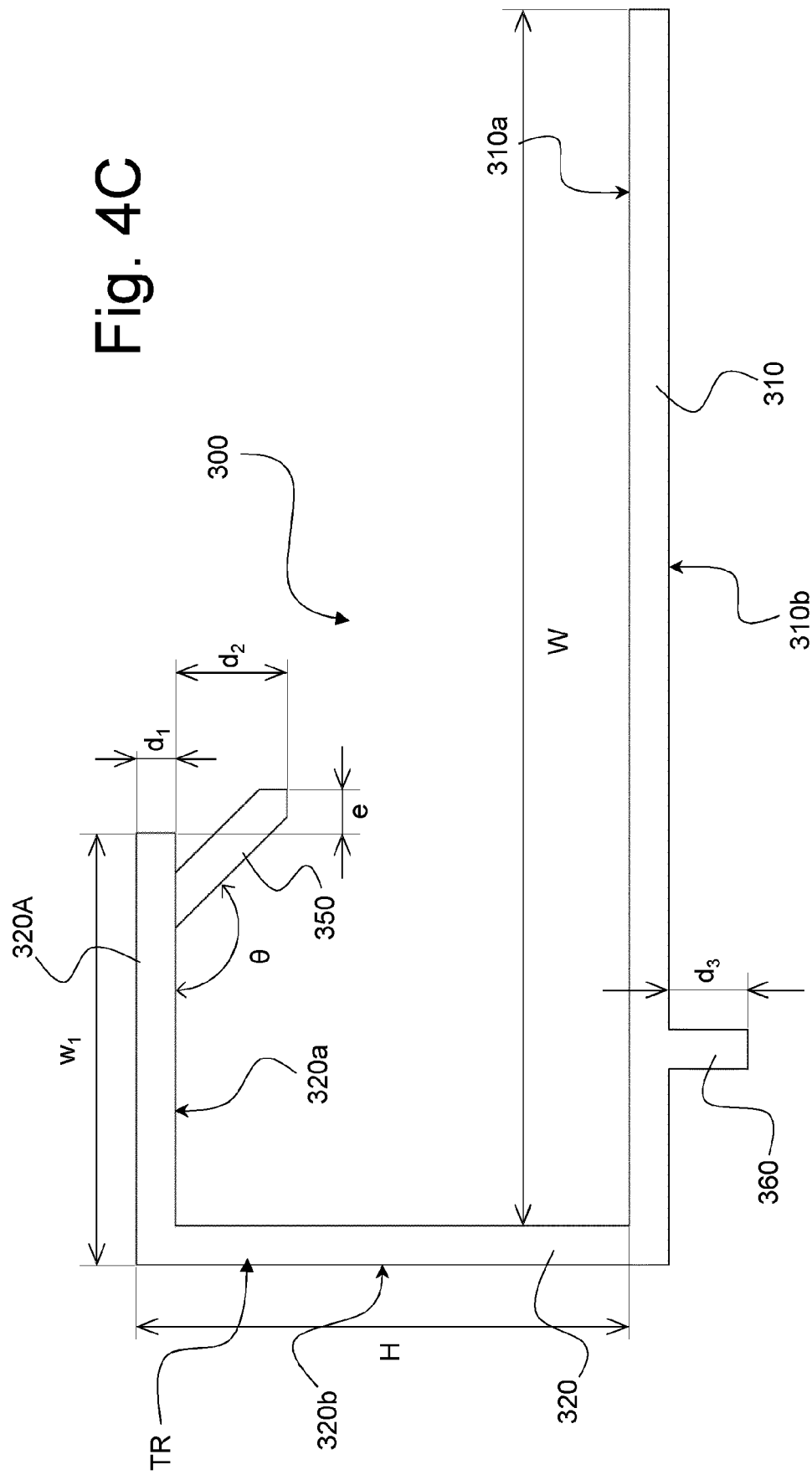
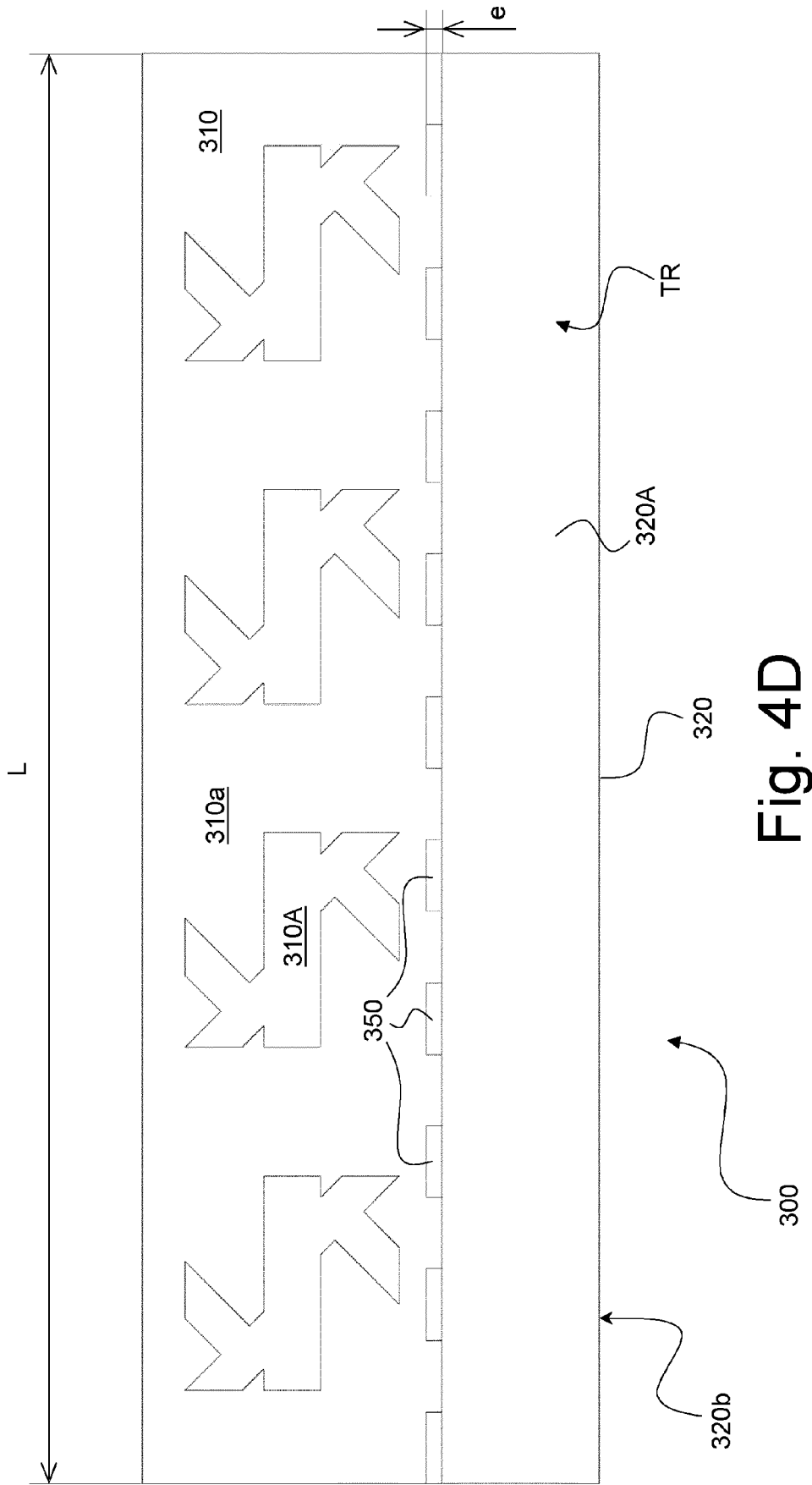


Fig. 4B

Fig. 4C





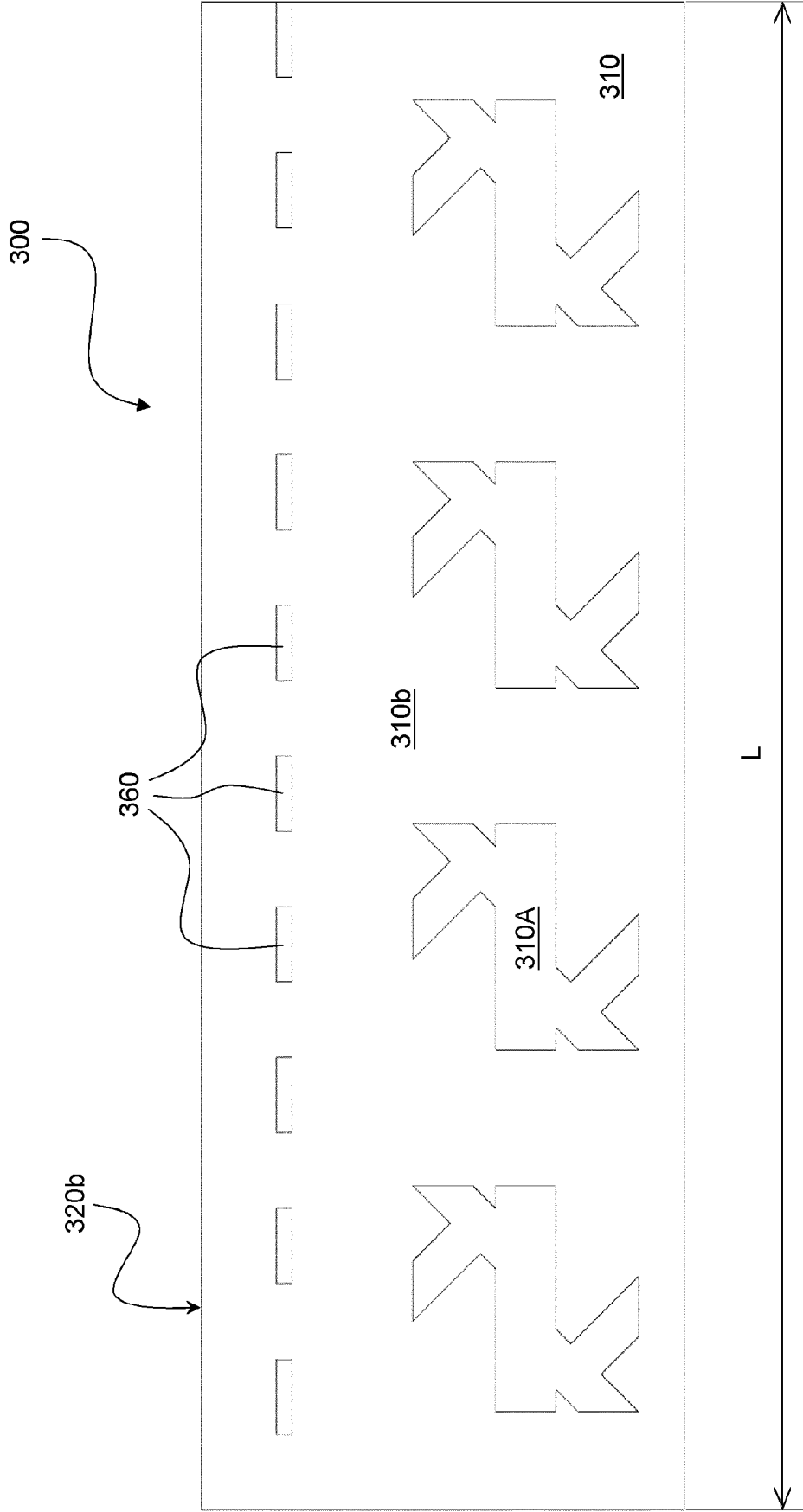


Fig. 4E

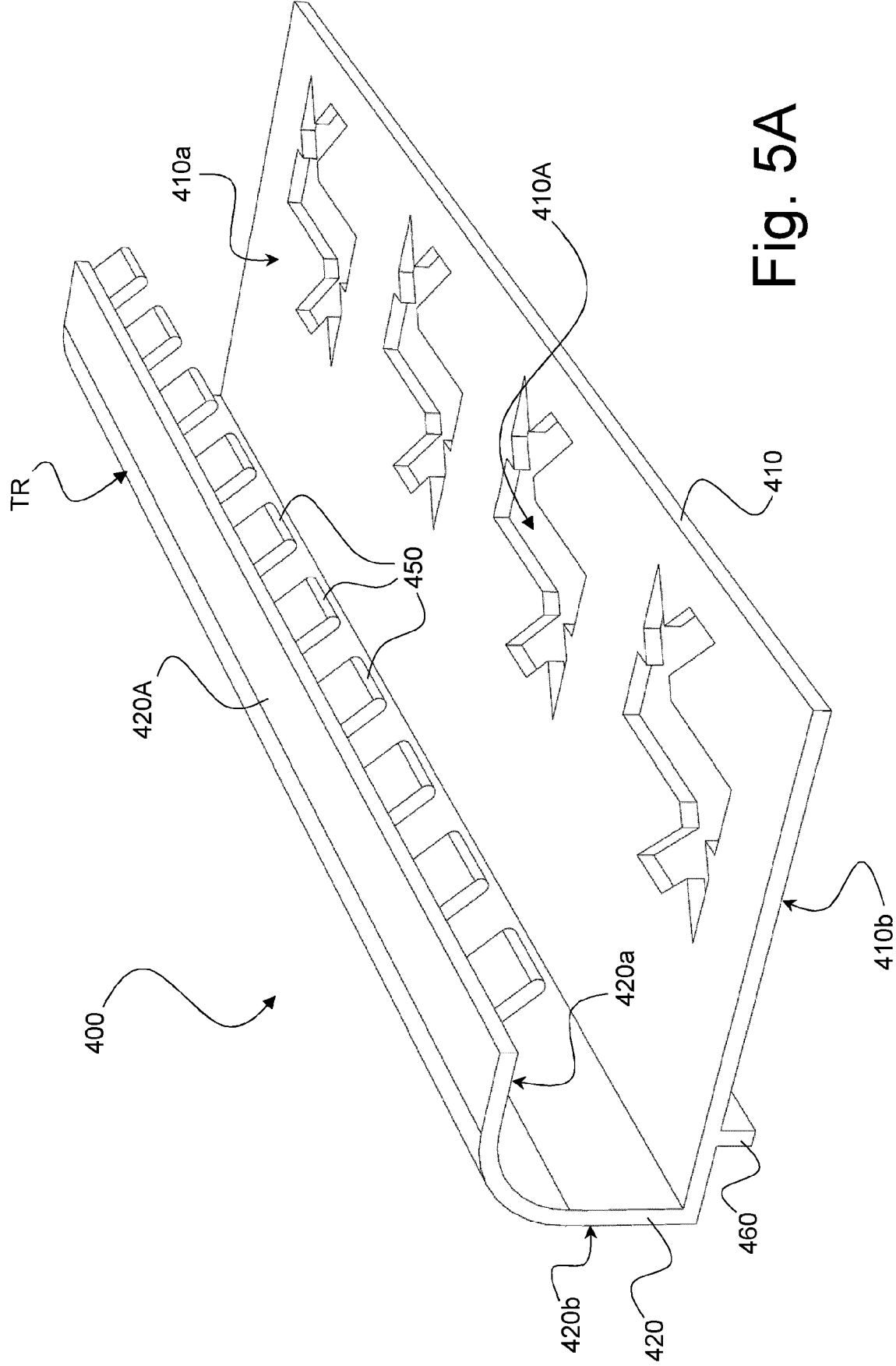


Fig. 5A

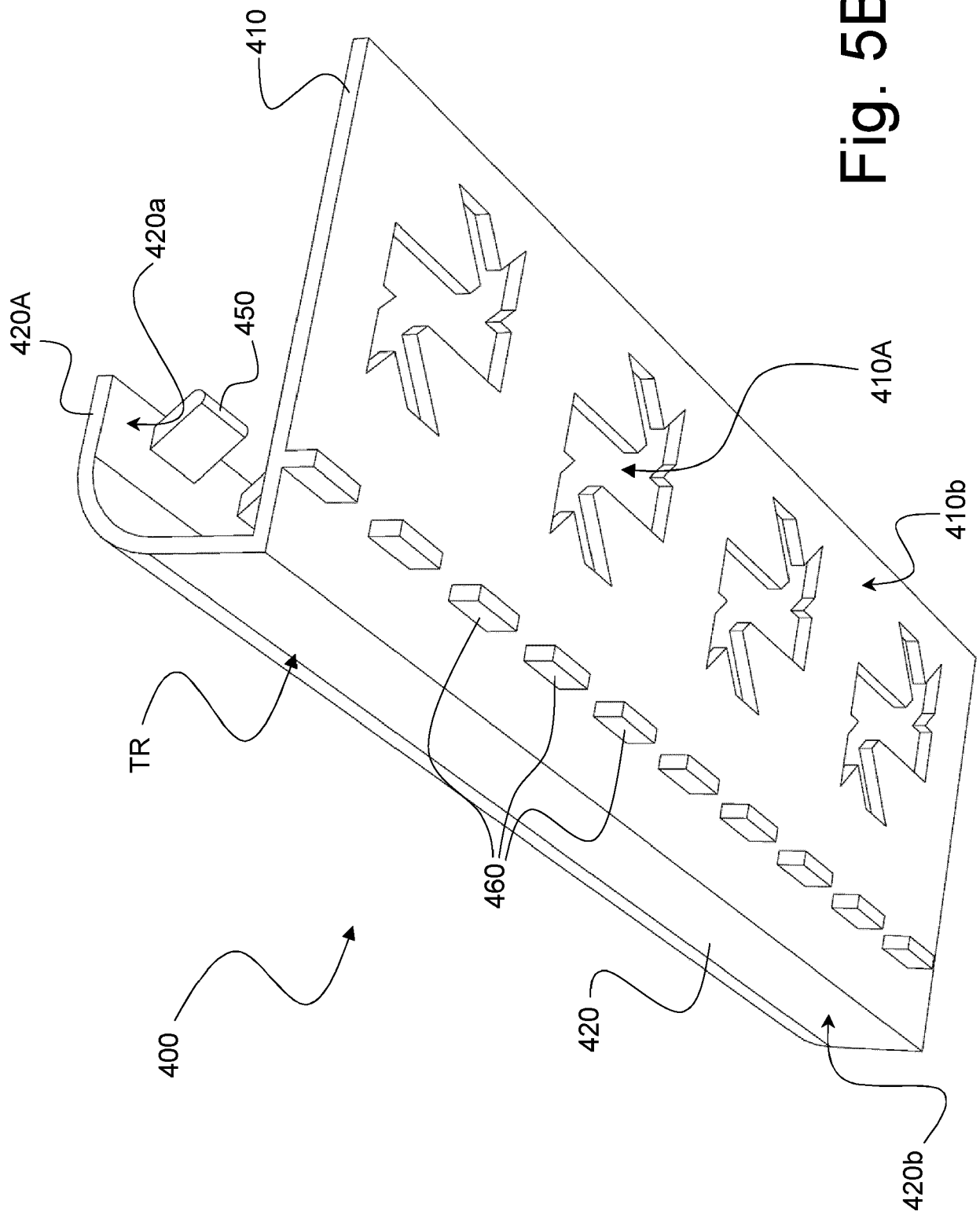
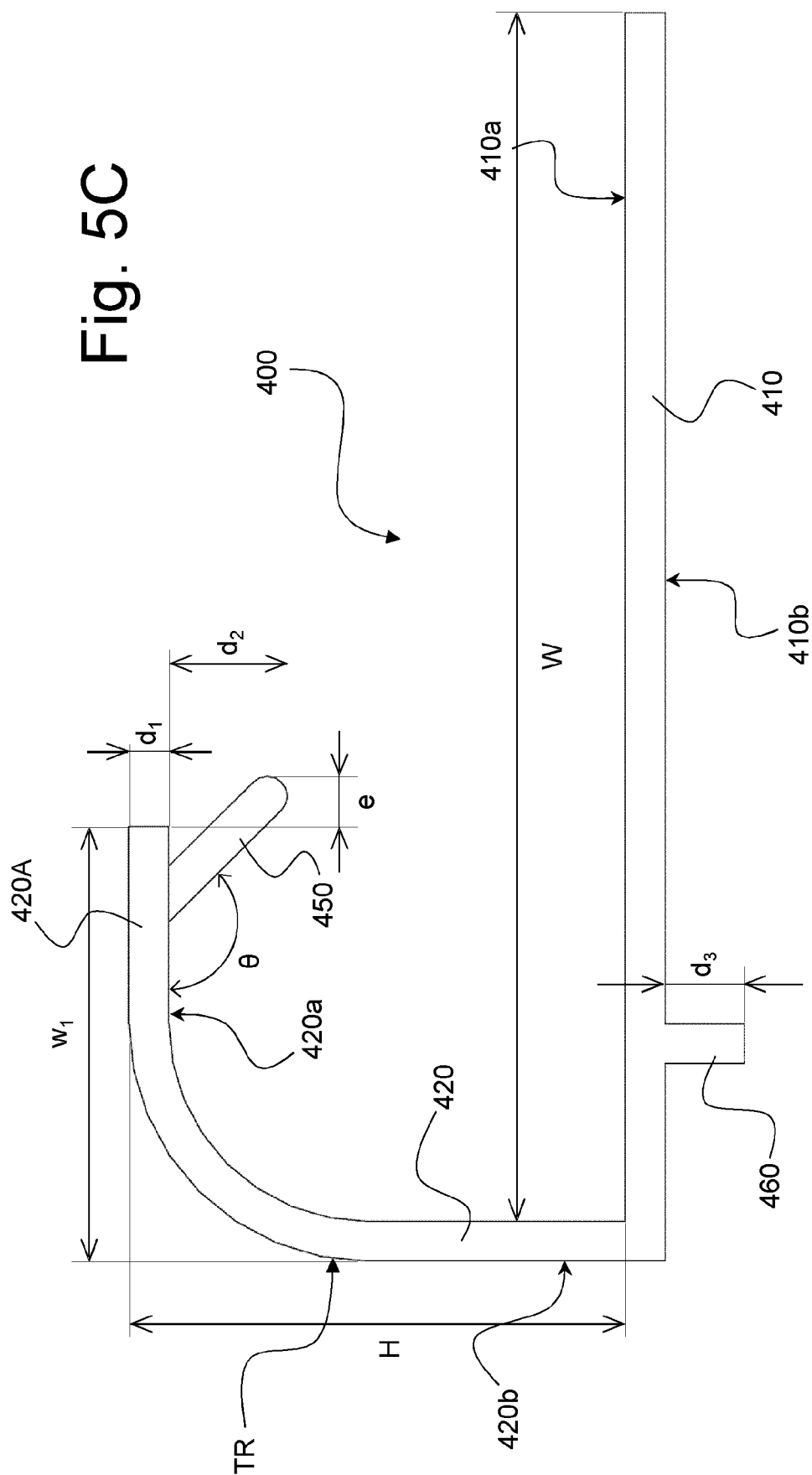


Fig. 5B

Fig. 5C



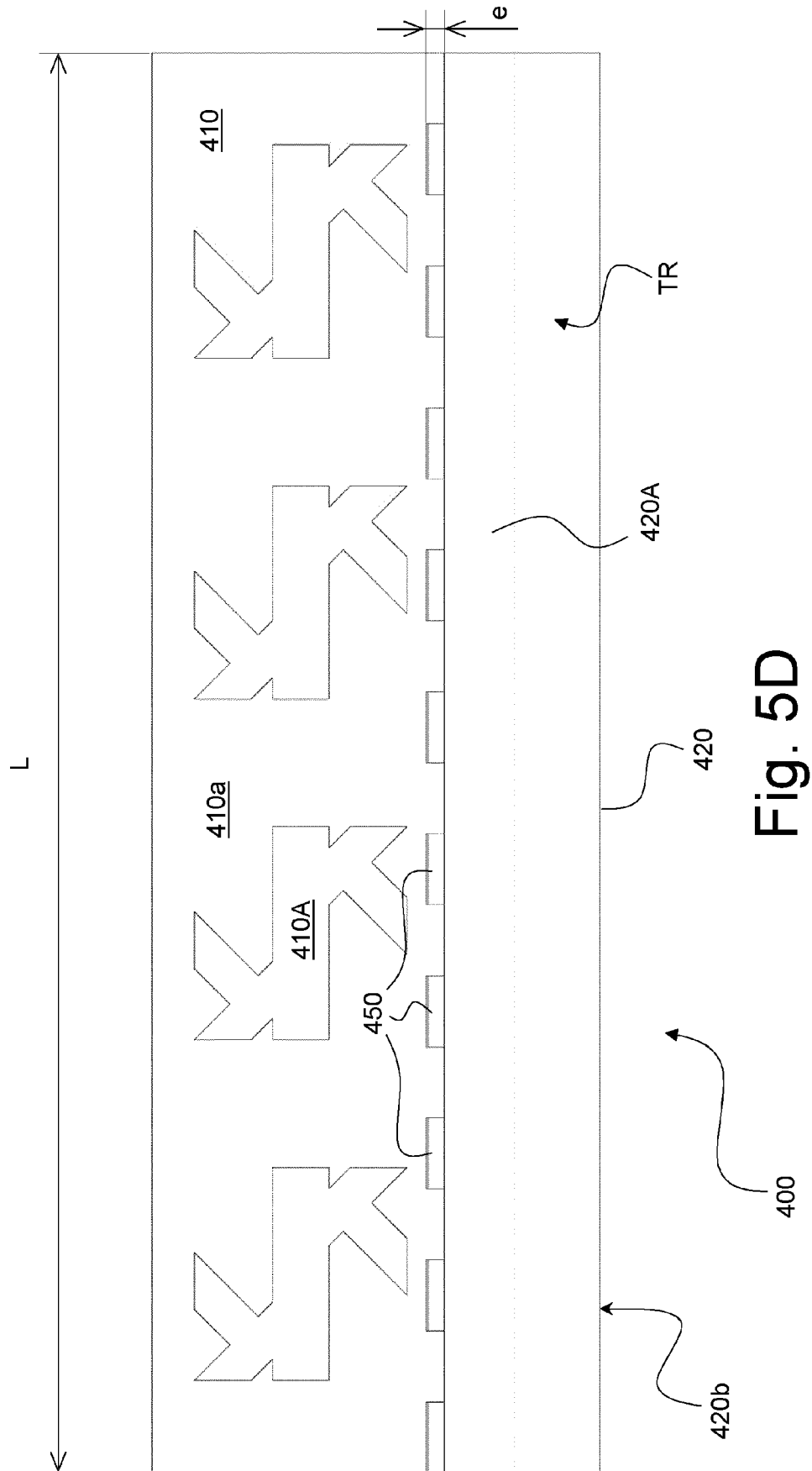


Fig. 5D

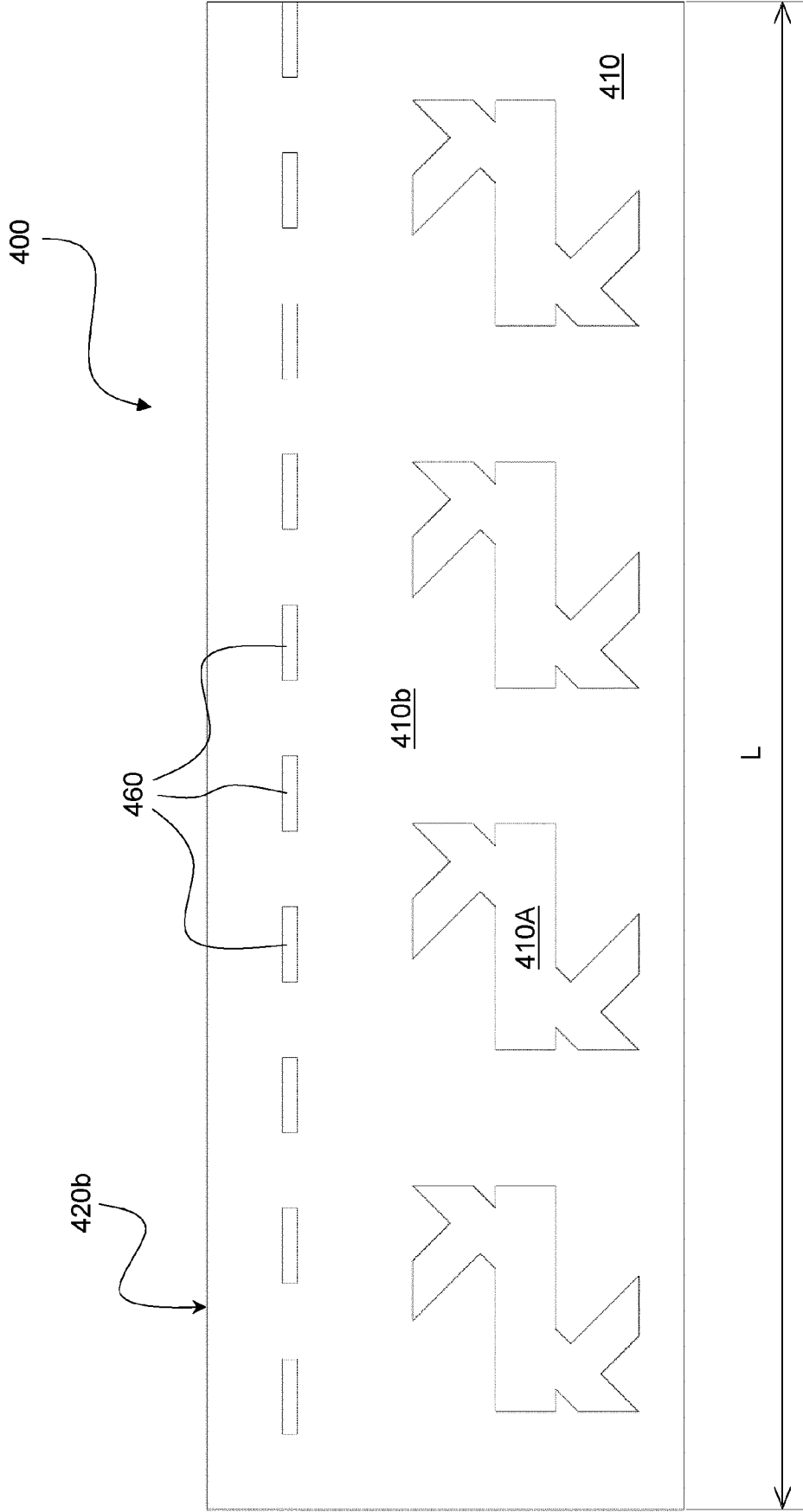


Fig. 5E



EUROPEAN SEARCH REPORT

Application Number

EP 22 18 1647

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EPO FORM 1503 03.82 (P04C01)

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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A	US 6 357 192 B1 (SCHLUETER WERNER [DE]) 19 March 2002 (2002-03-19) * page 2, line 34 - page 3, line 6 * * figure 1 *	1-15	
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