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(54) MEMBER FOR ACCIDENT PROTECTION

(57) A member (10) for accident protection, applicable, or applied, in a corresponding structure, or frame, (11), at the rotation zone between a first component (13) and a second component (15) of the same structure, or frame, (11), which first and second components (13, 15) are connected with each other through corresponding mutually pivoting means (1416), rotatable in relation to each other according to a rotational, in particular longitudinal, axis (L), comprises means (12) that are adapted to interpose, in use, in the space that is defined between the opposite surfaces (131 and 151) of said first component, or stationary component, (13) and of said second component, or movable component, (15) and which comprise corresponding outermost interposition means (120) that are adapted to arrange, in use, longitudinally aligned with the, i.e., on the longitudinal extension of, said pivoting means (1416) between said first component, or stationary component, (13) and said second component, or movable component.

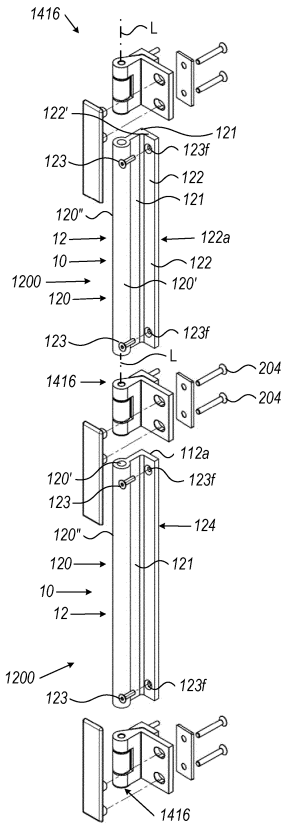

FIG. 3A

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Description

[0001] The present invention relates to a member for accident protection.

[0002] The present member is applicable, or applied, in a corresponding structure, or frame, at the rotation zone between a first component and a second component of the same structure, or frame.

[0003] Outer hinges for the rotation of a first component and of a second component in relation to each other in a corresponding structure, or frame, are known, in which said first component is preferably in the form of a stationary component of said structure, or frame, and has a respective surface that encircles and defines, in particular at a respective side, a respective zone, in particular a respective opening, of said structure, or frame, and said second component is preferably in the form of a movable component, i.e., of a door leaf or a door, preferably defined, by a corresponding transparent panel, which overlaps to or closes said zone or opening of said structure, or frame, with said second component, or movable component, having a respective surface which is opposite, in use, i.e., during the rotation, to said surface for encircling or defining said zone, or opening, of said first component, or stationary component.

[0004] In particular, said already-known hinges have a general application and are anyhow particularly applied to structures, or frames, which are part of an apparatus, a machine, a plant, an equipment, a construction, an installation, a prefabricated building, a dwelling unit, or other.

[0005] However, these already-known hinges have the drawback that an operators' fingers might insert themselves between said first component, or stationary component, of said structure, or frame, and said second component, or movable component, during the relative movement thereof, with possible crushing and injury of the same operator's fingers.

[0006] The need is further felt in the field to make members for accident protection or hinges that are easily and quickly installable on said respective structure, or frame.

[0007] The need is further felt in the field to make members for accident protection or hinges that are easily and quickly made, at a relatively low cost.

[0008] The need is further felt in the field to make members for accident protection or hinges that do not require undue processing for their installation.

[0009] Therefore, by the present invention aims to propose a new and alternative solution to the solutions known so far and, in particular, seeks to overcome one or more of the aforementioned drawbacks or problems and/or to meet one or more of the needs mentioned above, and/or in any case felt in the field, and in particular, evident from the above.

[0010] Therefore, a member for accident protection is provided, which is applicable, or applied, in a corresponding structure, or frame, at the rotation zone between a first component and a second component of the same structure, or frame, which first and second components are connected with each other through corresponding means mutually pivoting, rotatable in relation to each other according to a rotational, in particular longitudinal, axis; said first component being preferably in the form of a stationary component of said structure, or frame, and having a respective surface that encircles and defines, in particular at a respective side, a respective zone, in particular a respective opening, of said structure, or frame, and said second component being preferably in the form of a movable component, i.e., being a door leaf or a door, which overlaps to or closes said zone or opening of said structure, or frame; said second component, or movable component, having a respective surface which is opposite, in use, i.e., during the rotation, to said surface for encircling or defining said zone, or opening, of said first component, or stationary component; preferably said structure, or frame, being part of an apparatus, a machine, a plant, an equipment, a construction, an installation, a prefabricated building, a dwelling unit, or other; characterized in that the member comprises means that are adapted to interpose, in use, in the space that is defined between the opposite surfaces of said first component, or stationary component, and of said second component, or movable component; said interposition means comprising corresponding outermost interposition means that are adapted to arrange, in use, longitudinally aligned with the, i.e., on the longitudinal extension of, said pivoting means between said first component, or stationary component, and said second component, or movable component.

[0011] **In** this manner, it is avoided to the highest extent that an operator's fingers could insert themselves between said first component, or stationary component, of said structure, or frame, and said second component, or movable component, thus preventing any possible crushing and injury of the same operator's fingers.

[0012] This and other innovative aspects are, however, outlined in the attached claims, the specific technical characteristics of which can be found, along with the corresponding advantages achieved, in the following description, which illustrates in detail merely exemplary, non-limiting embodiments of the invention, and which is made with reference to the attached drawings, in which:

- Figure 1 illustrates a perspective, schematic view of a structure or frame of an apparatus where the member according to the present invention is used;
- Figure 2A illustrates a perspective, schematic view of a detail of the structure or frame of the apparatus in cui a first preferred implementation of a member according to the present invention is used;
- Figure 2B illustrates a schematic top view of a detail of the structure or frame of the apparatus where the first preferred implementation of a member according to the present invention is used;
- Figure 3A illustrates a perspective, schematic view

of the first preferred implementation of a member according to the present invention;

- Figure 3B illustrates a perspective, schematic view of the first preferred implementation of a member according to the present invention, with a dashed outline of a condition of use;
- Figure 4A illustrates a perspective, schematic view of a detail of the structure or frame of the apparatus where a second preferred implementation of a member according to the present invention is used;
- Figure 4B illustrates a schematic top view of a detail of the structure or frame of the second preferred implementation of a member according to the present invention;
- Figure 4C illustrates a schematic top view of a detail of the second preferred implementation of a member according to the present invention;
- Figure 4D illustrates a schematic, cross-sectional view of the second preferred implementation of a member according to the present invention;
- Figure 5A illustrates a perspective, schematic view of the door mounted on the second preferred implementation of a member according to the present invention;
- Figure 5B illustrates a schematic, front elevational view of the door mounted on the second preferred implementation of a member according to the present invention;
- Figure 5C illustrates a perspective, schematic exploded view of the door mounted on the second preferred implementation of a member according to the present invention;
- Figure 5D illustrates a schematic, sectional view of a detail of Figure 5B;
- Figure 5E illustrates a schematic view of a detail in exploded perspective of the second preferred implementation of a member according to the present invention;
- Figure 6A illustrates a perspective, schematic view of the second preferred implementation of a member according to the present invention;
- Figure 6B illustrates a schematic, front elevational view of the second preferred implementation of a member according to the present invention;
- Figure 6C illustrates a schematic view in rear elevation of an enlarged detail of the lower part of the second preferred implementation of a member according to the present invention;
- Figure 7A illustrates a schematic view in rear elevation of a detail of the member of the base plate for retaining the panel of the second preferred implementation of a member according to the present invention;
- Figure 7B illustrates a schematic side view of the base plate for retaining the panel of the second preferred implementation of a member according to the present invention;
- Figure 8A illustrates a perspective, schematic view of the door of a third preferred implementation of a member according to the present invention;
- Figure 8B illustrates a schematic, front elevational view of the door of the third preferred implementation of a member according to the present invention;
- Figure 8C illustrates a perspective, schematic exploded view of the door of the third preferred implementation of a member according to the present invention;
- Figure 9A illustrates a perspective, schematic view of the door mounted on a fourth preferred implementation of a member according to the present invention;
- Figure 9B illustrates a schematic, front elevational view of the door mounted on the fourth preferred implementation of a member according to the present invention;
- Figure 9C illustrates a perspective, schematic exploded view of the door mounted on the fourth preferred implementation of a member according to the present invention;
- Figure 9D illustrates a schematic, sectional view of a detail of Figure 9C;
- Figure 10A illustrates a perspective, schematic view of the door mounted on a fifth preferred implementation of a member according to the present invention;
- Figure 10B illustrates a schematic, front elevational view of the door mounted on the fifth preferred implementation of a member according to the present invention;
- Figure 10C illustrates a perspective, schematic exploded view of the door mounted on the fifth preferred implementation of a member according to the present invention;
- Figure 10D illustrates a schematic, sectional view of a detail of Figure 10C.

[0013] In the attached Figures 2A to 3B, a first preferred implementation 10 of a member for accident protection is illustrated, which member is applicable, or applied, in a corresponding structure, or frame, 11, for example, as the one depicted in Figure 1, at a rotation zone between a first component 13 and a second component 15 of the same structure, or frame, 11.

[0014] Preferably, as illustrated, said structure, or frame, 11 is part of an apparatus, and anyhow it could also be part of a machine, a plant, an equipment, a construction, an installation, a prefabricated building, a dwelling unit, or other.

[0015] As can be seen from the Figures, said first and second components 13 and 15 are connected with each other through corresponding mutually pivoting means 1416, rotatable in relation to each other according to a rotational, in particular longitudinal, axis L, i.e., directed according to the prevailing extension direction of the same member.

[0016] In particular, as can be seen from the Figures, said first component 13 is preferably in the form of a

stationary component of said structure, or frame, 11, and has a respective surface 131 that encircles and defines, in particular at a respective side, a respective zone, in particular a respective opening 17, of said structure, or frame, 11.

[0017] As can be seen from the Figures, in turn, said second component 15 is preferably in the form of a movable component, i.e., is in the form of a door leaf or a door, preferably defined, by a corresponding transparent panel, which overlaps to or closes said zone or opening 17 of said structure, or frame, 11. Said second component, or movable component, 15 has a respective surface 151 which is opposite, in use, i.e., during the rotation, to said surface 131 for encircling or defining said zone, or opening, 17 of said first component, or stationary component, 13.

[0018] As can be seen from the Figures, in particular, said encircling surface 131 of said first component, or stationary component, 13 is a frontally facing surface and said surface, opposite in use or in rotation, 151 is an outermost side surface of said second component, or movable component, 15.

[0019] In particular, said longitudinal rotational axis L is spaced apart from said front surface 131 of said first component, or stationary component, 13 and from said side surface 151 of said second component, or movable component, 15.

[0020] In particular, as can be seen from the Figures, the respective pivoting means 1416 between said first and second components 13, 15 are positioned, or mounted, frontally, or anteriorly, to the encircling surface 131 that faces frontally said first component, or stationary component, 13, and are spaced apart therefrom.

[0021] Furthermore, especially, as can be seen from the Figures, the respective pivoting means 1416 between said first and second components 13, 15 are positioned, or mounted, posteriorly to said outermost side surface 151 of said second component, or movable component, 15.

[0022] With advantage, as can be seen from said Figures, the member comprises means 12 that are adapted to interpose, in use, in the space that is defined between the opposite surfaces 131 and 151 of said first component, or stationary component, 13 and of said second component, or movable component, 15. With advantage, said interposition means 12 comprise corresponding outermost interposition means 120 that are adapted to arrange, in use, longitudinally aligned with the, i.e., on the longitudinal extension of, said pivoting means 1416 between said first component, or stationary component, 13 and said second component, or movable component.

[0023] In this manner, it is avoided to the highest extent that an operator's fingers could insert themselves between said first component, or stationary component, 13 of said structure, or frame, 11 and said second component, or movable component, 15, thus preventing any possible crushing and injury of the same operator's fingers.

[0024] With appreciable advantage, as can be seen from said Figures, said interposition means 12, which extend in the space that is defined between the opposite surfaces 131 and 151 of said first component, or stationary component, 13 and of said second component, or movable component, 15, extend longitudinally elongated along the entire length, or along substantially the entire length, corresponding to the longitudinal distance that is present between respective, or adjacent, pivoting means 1416, 1416 di said first and second components 13, 15.

[0025] As can be seen from said Figures, with appreciable advantage, said outermost interposition means 120 extend frontally from, in particular perpendicularly or substantially perpendicular to, said surface 131 for encircling or defining said zone, or opening, 17 of said first component, or stationary component, 13.

[0026] Advantageously, as can be seen from said Figures, said outermost interposition means 120 have, at least in part, i.e., at least in the part facing or being adjacent to said opposite, in use or rotation, surface 151, of said second component, or movable component, 15, an outer surface 120" rounded in shape, preferably convex towards the respective front and/or side part, i.e., towards the opposite surface 151 of the second component or movable component 15.

[0027] With advantage, as can be seen from said Figures, said outermost interposition means 120 have an outer surface 120" in a cylindrical shape, and in particular an inner surface 120', preferably also in a cylindrical shape.

[0028] As can be seen from said Figures, with advantage, said outermost interposition means 120 are coaxial, i.e., longitudinally aligned, with the corresponding pivoting means 1416, 1416 of said first and second components 13, 15.

[0029] With advantage, in practice, the transversal shape or section of said outermost interposition means 120 contains, or is contained in, the transversal shape or section of said pivoting means 1416, 1416 of said first and second components 13, 15.

[0030] In an advantageous manner, as can be seen from said Figures, the member 10 comprises means 121 for supporting said outermost interposition means 120.

[0031] Furthermore, as can be seen from said Figures, in an advantageous manner, said interposition means 12 also comprise means 121 that are adapted to interpose, in use, in the space that is defined between the opposite surfaces 131 and 151 of said first component, or stationary component, 13 and of said second component, or movable component, 15, and which are provided adjoining or in the proximity of said surface 131 for encircling or defining said zone, or opening, 17 of said first component, or stationary component, 13.

[0032] Advantageously, as can be seen from said Figures, said interposition means 121, which adjoin said surface 131 for encircling or defining said zone, or opening, 17 of said first component, or stationary component,

13, define said means for supporting said outermost interposition means 120.

[0033] In a particularly advantageous manner, as can be seen from said Figures, said outermost interposition means 120 extend from the end of the respective support means and/or of said interposition means 121 which adjoin said surface 131 for encircling or defining said zone, or opening, 17 of said first component, or stationary component, 13, i.e., from the end thereof which is opposite said surface 131 for encircling or defining said zone, or opening, 17 of said first component, or stationary component, 13.

[0034] As can be seen from said Figures, in a particularly advantageous manner, said means 121 for supporting said outermost interposition means 120 and/or said interposition means 121 which adjoin said surface 131 for encircling or defining said zone, or opening, 17 of said first component, or stationary component, 13, connect with said outermost interposition means 120 at the transversal centreline thereof, in particular at the face thereof that faces, in use, said surface 131 for encircling or defining said zone, or opening, 17 of said first component, or stationary component, 13.

[0035] Advantageously, as can be seen from said Figures, said means 121 for supporting said outermost interposition means 120 and/or said interposition means which adjoin said surface 131 for encircling or defining said zone, or opening, 17 of said first component, or stationary component, 13, are in the form of a respective and longitudinally elongated flat strip 121.

[0036] In an appreciably advantageous manner, as can be seen from said Figures, said means 121 for supporting said outermost interposition means 120 and/or said interposition means 121 which adjoin said surface 131 for encircling or defining said zone, or opening, 17 of said first component, or stationary component, 13, i.e., said elongated flat strip 121, extend, or extends, perpendicularly, or substantially perpendicularly, from said surface 131 for encircling or defining said zone, or opening, 17 of said first component, or stationary component, 13.

[0037] As can be seen from said Figures, in an appreciably advantageous manner, said means 121 for supporting said outermost interposition means 120 and/or said interposition means 121 which adjoin said surface 131 for encircling or defining said zone, or opening, 17 of said first component, or stationary component, 13, i.e., said elongated flat strip 121, extend, or extends, longitudinally, i.e., parallel to said rotational axis L.

[0038] Advantageously, as can be seen from said Figures, the same member 10 comprises means 122 for the attachment to said first component, or stationary component, 13 of said structure, or frame, 11, i.e., to said surface 131 of said first component, or stationary component, 13 for encircling or defining said zone, or opening, 17 of said structure, or frame, 11.

[0039] With appreciable advantage, as can be seen from said Figures, said means 122 for the attachment to said first component, or stationary component, 13 of said structure, or frame, 11 has a corresponding engagement surface 122a against said surface 131 of said first component, or stationary component, 13 for encircling or defining said zone, or opening, 17 of said structure, or frame, 11, in particular to which said means 122 for the attachment to said first component, or stationary component, 13 of said structure, or frame, 11, are secured through corresponding fastening means, preferably defined by screws 123 that insert in corresponding holes 123f provided for in said attachment means 122 and in corresponding threaded holes opening to said same front surface 131 of said first component, or stationary component, 13 for encircling or defining said zone, or opening, 17 of said structure, or frame, 11.

[0040] As can be seen from said Figures, with appreciable advantage, said means for the attachment to said first component, or stationary component, 13 of said structure, or frame, 11, are in the form of an elongated flat strip 122.

[0041] In particular, said attachment means, i.e., the respective elongated flat strip 122, extend, or extends, longitudinally, i.e., parallel to said rotational axis L.

[0042] Advantageously, as can be seen from said Figures, said means 121 for supporting said outermost interposition means 120 and/or said interposition means 121 which adjoin said surface 131 for encircling or defining said zone, or opening, 17 of said first component, or stationary component, 13, i.e., the respective elongated flat strip 121, extend, or extends, perpendicularly, or substantially perpendicularly, from said means 122 for the attachment to said first component, or stationary component, 13 of said structure, or frame, 11, i.e., to said surface 131 of said first component, or stationary component, 13 for encircling or defining said zone, or opening, 17 of said structure, or frame, 11, i.e., the respective elongated flat strip 122.

[0043] With advantage, as can be seen from said Figures, said means 122 for the attachment to said first component, or stationary component, 13 of said structure, or frame, 11, i.e., to said surface 131 of said first component, or stationary component, 13 for encircling or defining said zone, or opening, 17 of said structure, or frame, 11, i.e., the respective elongated flat strip 122, extend, or extends, longitudinally, i.e., or parallel to said rotational axis L.

[0044] As can be seen from said Figures, with advantage, said means 122 for the attachment to said first component, or stationary component, 13 of said structure, or frame, 11, i.e., to said surface 131 of said first component, or stationary component, 13 for encircling or defining said zone, or opening, 17 of said structure, or frame, 11, i.e., the respective elongated flat strip 122, extend, or extends, parallel to said surface 131 for encircling or defining said zone, or opening, 17 of said first component, or stationary component, 13.

[0045] Advantageously, as can be seen from said Figures, the perpendicular height of said interposition

means 12, in particular of said means 121 for supporting said outermost interposition means 120 and/or of said interposition means 121 which adjoin said surface 131 for encircling or defining said zone, or opening, 17 of said first component, or stationary component, 13, i.e., the respective elongated flat strip 121, and of said outermost interposition means 120, is greater than the transversal width of said means 122 for the attachment to said first component, or stationary component, 13 of said structure, or frame, 11, i.e., than the width of the respective elongated flat strip 122.

[0046] As can be seen from said Figures, in an advantageous manner, said interposition means 12 extend on the side of said means 122 for the attachment to said first component, or stationary component, 13 of said structure, or frame, 11, i.e., of the respective elongated flat strip 122, starting from the respective side and longitudinal edge 122' thereof, which, in use, is opposite the side facing the said zone, or opening, 17 defined or surrounded by the same first component, or stationary component, 13.

[0047] In an advantageous manner, as can be seen from said Figures, said means 121 for supporting said outermost interposition means 120 and/or said interposition means 121 which adjoin said surface 131 for encircling or defining said zone, or opening, 17 of said first component, or stationary component, 13, i.e., the respective elongated flat strip 121, extend, or extends, from a respective side and longitudinal edge 122' of said means 122 for the attachment to said first component, or stationary component, 13 of said structure, or frame, 11, i.e., to said surface 131 of said first component, or stationary component, 13 for encircling or defining said zone, or opening, 17 of said structure, or frame, 11, i.e., of the respective elongated flat strip 122.

[0048] Advantageously, as can be seen from said Figures, said means 122 for the attachment to said first component, or stationary component, 13 of said structure, or frame, 11, i.e., to said surface 131 of said first component, or stationary component, 13 for encircling or defining said zone, or opening, 17 of said structure, or frame, 11, i.e., the respective elongated flat strip 122, extend, or extends, transversally beyond the outermost transversal edge 120‴ of said outermost interposition means 120.

[0049] In a particularly advantageous manner, as can be seen from said Figures, the same member 10 comprises, or is defined by, an elongated profile1200, in particular a metallic one, preferably made of aluminium, possibly anodized, in particular defining said interposition means 12, especially including said outermost interposition means 120 and/or said adjoining interposition means 121, and/or said means 122 for the attachment to said first component, or stationary component, 13 of said structure, or frame, 11.

[0050] As can be seen from said Figures, in a particularly advantageous manner, said elongated profile 1200 has a general L shape.

[0051] Advantageously, as can be seen from said Figures, said elongated profile 1200 has opposite, longitudinally outermost, transversal faces, 1201, 1202, defining corresponding opposite outermost faces of said interposition means 12, i.e., of said outermost interposition means 120 and/or of said adjoining interposition means 121, and/or of said means 122 for the attachment to said first component, or stationary component, 13 of said structure, or frame, 11.

[0052] In an appreciably advantageous manner, as can be seen from said Figures, said opposite longitudinally outermost transversal faces 1201, 1202 of said elongated profile 1200, and/or said longitudinally outermost faces of said interposition means 12, i.e., of said outermost interposition means 120 and/or of said adjoining interposition means 121, and/or said means 122 for the attachment to said first component, or stationary component, 13 of said structure, or frame, 11, are arranged, in use, longitudinally at, or adjacent to, said pivoting means 1416, i.e., of the respective longitudinally outermost transversal face 1416', 1416" thereof.

[0053] In the subsequent Figures 4A to 7B, a second preferred implementation 100 of a member for accident protection, applicable, or applied, in a corresponding structure, or frame, 11 is illustrated. This second preferred implementation of a member 100 has components that are similar, or equivalent, to those of the preceding preferred implementation and which are marked by the same numeral references and, to avoid excessively burdening the present description, are not detailed again in depth. In an appreciably advantageous manner, said member 100, according to the present second preferred implementation, comprises means 146 for the articulation between said first component, or stationary component, 13 of said structure, or frame, 11 and said second component, or movable component, 15 of the same structure, or frame, 11, with said means 146, for the articulation between said first component, or stationary component, 13 and said second component, or movable component, 15, comprising first articulation means 14 which can be associated, or secured, to said first component, or stationary component, 13, of said structure, or frame, 11, and second articulation means 16 which can be associated, or secured, to said second component, or movable component, 15. Said first articulation means 14 and said second articulation means 16 defining corresponding pivoting means between said first component, or stationary component, 13 and said second component, or movable component, 15.

[0054] As can be seen from said Figures, advantageously, the elongated body 1200' of the member 100, in accordance with the second preferred implementation, which is securable, or secured, to said first component, or stationary component, 13, comprises, or defines, first articulation means 14 which can be associated, or secured, to said first component, or stationary component, 13.

[0055] Therefore, with appreciable advantage, as can

be seen from said Figures, also said elongated body 1200', securable, or secured, to said first component, or stationary component, 13, in accordance with the second preferred implementation, defines said interposition means 12, in particular said outermost interposition means 120 and/or said interposition means 121 which adjoin said surface 131 for encircling or defining said zone, or opening, 17 of said first component, or stationary component, 13 and/or said attachment means 122.

[0056] With appreciable advantage, as can be seen from said Figures, said first articulation means 14 which can be associated, or secured, to said first component, or stationary component, 13, comprise corresponding hinge pintle means 149.

[0057] As can be seen from said Figures, advantageously, said hinge pintle means 149, comprise one or more, preferably a plurality of, hinge pintles, in particular a first and a second, outermost, in particular upper and lower, hinge pintles 149', 149", longitudinally spaced apart from each other, as can be seen from the Figures da 8A a 8C, where a third preferred implementation 200 of a member according to the present invention is illustrated, and especially a third hinge pintle 149"', in particular longitudinally intermediate relative to said first and second hinge pintles 149', 149", and preferably longitudinally equidistant or centered thereto, as is instead provided for in the second preferred implementation of a member 100.

[0058] In particular, in the third preferred implementation 200 of a member, the components of which that are similar, or equivalent, to those of the preceding preferred implementation are marked by the same numeral references and, to avoid excessively burdening the present description, are not detailed again in depth, it is provided for the use of an elongated profile1200", which is distinguished from the one of the second preferred implementation, in that it has, or incorporates, only an upper upper hinge pintle and an upper hinge pintle 149', 149".

[0059] With advantage, as can be seen from said Figures, the respective hinge pintle is defined by a respective bushing 149', 149", 149"', in particular perpendicularly a through bushing.

[0060] In an advantageous manner, as can be seen from said Figures, the respective hinge pintle 149', 149", 149‴ has a reduced longitudinal extension and has opposite longitudinally outermost faces 149a, 149b.

[0061] As can be seen from said Figures, advantageously, the respective hinge pintle 149', 149", 149‴ is internally hollow, i.e., is tubular in shape, and in particular has a cylindrical inner surface 149i and/or a cylindrical outer surface 149e.

[0062] In an advantageous manner, as can be seen from said Figures, the respective hinge pintle 149', 149", 149‴ is on the longitudinal extension of said outermost interposition means 120, in particular being coaxial with the same outermost interposition means 120.

[0063] In a particularly advantageous manner, as can be seen from said Figures, in accordance with the second and third preferred implementations, the same member 100 or 200 comprises means 121' for supporting said hinge pintle means 149, i.e., of the respective hinge pintle 149', 149", and in particular 149"', in particular longitudinally aligned with said means 121 for supporting the interposition means 12 to said first component, or stationary component, 13 of said structure, or frame, 11, and preferably also in the form of a corresponding flat strip 121'.

[0064] In a particularly advantageous manner, as can be seen from said Figures, in accordance with the second and third preferred implementations, said means 121' for supporting said hinge pintle means 149, i.e., the respective hinge pintle 149', 149", 149"', are on the longitudinal extension of said interposition means 121 which adjoin said surface 131 for encircling or defining said zone, or opening, 17 of said first component, or stationary component, 13, i.e., of said means for supporting said outermost interposition means 120, and/or are part of a corresponding elongated flat strip 121p, defining said interposition means 121 which adjoin said surface 131 for encircling or defining said zone, or opening, 17 of said first component, or stationary component, 13, i.e., defining said means for supporting said outermost interposition means 120.

[0065] In a particularly advantageous manner, as can be seen from said Figures, in accordance with the second and third preferred implementations, the same member 100 or 200 comprises means 122' for attaching said hinge pintle means 149, i.e., the respective hinge pintle 149', 149" and in particular 149‴ to said first component, or stationary component, 13 of said structure, or frame, 11, in particular longitudinally aligned with said means 122 for attaching the interposition means 12 to said first component, or stationary component, 13 of said structure, or frame, 11, and preferably also in the form of a corresponding flat strip 122'.

[0066] In a particularly advantageous manner, as can be seen from said Figures, in accordance with the second and third preferred implementations, said means 122' for attaching said hinge pintle means 149, i.e., the respective hinge pintle 149', 149", 149"', are on the longitudinal extension of said means 122 for attaching the interposition means 120, 121, or for attaching the means 121 for supporting the outermost interposition means 120, to said first component, or stationary component, 13, and/or are part of a corresponding elongated flat strip 122p defining said means 122 for attaching the interposition means 120, 121, or for attaching the means 121 for supporting the outermost interposition means 120.

[0067] In a particularly advantageous manner, as can be seen from said Figures, said elongated body of the same member 100 or 200 is in the form of an elongated profile1200' or 1200", in particular a metallic one, preferably made of aluminium, possibly anodized, preferably defining said interposition means 12, especially including said outermost interposition means 120 and/or said adjoining interposition means 121, and/or said means 122

for the attachment to said first component, or stationary component, 13 of said structure, or frame, 11 and/or said first articulation means 14 which can be associated, or secured, to said first component, or stationary component, 13, especially comprising corresponding hinge pintle means 149 and/or means 121' for supporting said hinge pintle means 149 and/or said means 122' for attaching said hinge pintle means 149.

[0068] In an appreciably advantageous manner, as can be seen from said Figures, said first articulation means 14 which can be associated, or secured, to said first component, or stationary component, 13, comprise corresponding seat means 141 for receiving said second articulation means 16 which can be associated, or secured, to said second component, or movable component, 15.

[0069] As can be seen from said Figures, advantageously, said seat means 141 for receiving said second articulation means 14 which can be associated, or secured, to said second component, or movable component, 15 comprise one or more, preferably a plurality of, i.e., the first and the second outermost, in particular upper and lower, seat means, 141', 141", as can be seen from the Figures da 8A a 8C, where the third preferred implementation 200 of a member according to the present invention is illustrated, and especially third seat means 141", in particular longitudinally intermediate in relation to said first and second seat means 141', 141", and preferably longitudinally or centered thereto, as is instead provided for in the second preferred implementation 100.

[0070] In an appreciably advantageous manner, as can be seen from said Figures, said seat means 141 for receiving said second articulation means 16 which can be associated, or secured, to said second component, or movable component, 15, i.e., the respective seat 141', 141", 141‴, comprise, or comprises, corresponding slit means 147.

[0071] With appreciable advantage, as can be seen from said Figures, the respective seat 141', 141", 141‴ for receiving said second articulation means 16 which can be associated, or secured, to said second component, or movable component, 15, is defined by one or more, preferably by a pair of slits 147, 147, in particular longitudinally spaced apart from each other and between which the respective hinge pintle 149', 149", 149‴ is longitudinally interposed.

[0072] As can be seen from said Figures, advantageously, the respective slit 147, 147 of the seat 141', 141", 141‴ for receiving said second articulation means 16 which can be associated, or secured, to said second component, or movable component, 15, is provided for in said elongated profile 1200' or 1200", preferably being defined by corresponding opposite transversal faces 149a, and/or 149b of the respective hinge pintle 149', 149", 149‴ and by the transversal faces 120e and/or 120e of said outermost interposition means 120.

[0073] As can be seen from said Figures, referred to the second and third preferred implementations of a member 100 and 200, with appreciable advantage, said second articulation means 16 which can be associated, or secured, to said second component, or movable component, 15 comprise one or more, preferably a plurality of, articulation members 161 that can be associated or secured to said second component, or movable component, 15 of said structure, or frame, 11, in particular a first, a second and a third articulation members 161', 161", 161‴ being provided for, in particular respectively associable to said first, second, and third seats 141', 141", 141‴.

[0074] With advantage, as can be seen from said Figures, the respective articulation member 161, which can be associated or secured to said second component, or movable component, 15, of said structure, or frame, 11, comprises a part 162 for engaging said second component, or movable component, 15.

[0075] As can be seen from said Figures, advantageously, said part 162 for engaging said second component, or movable component, 15 comprises a base plate, in particular planar, 165 having a respective surface 165a for resting a corresponding edge surface of said second component, or movable component, 15.

[0076] As can be seen from said Figures, with advantage, said engaging base plate 165 has a surface 165b for the engagement on a front surface 122f of said means 122 for the attachment to said first component, or stationary component, 13 of said structure, or frame, 11, under a closed stop, or closed door, condition.

[0077] In an advantageous manner, as can be seen from said Figures, the respective articulation member 161 which can be associated or secured to said second component, or movable component, 15, of said structure, or frame, 11, has a part 163 defining insertion and articulation means relative to said seat means 141 of said first articulation means 14 which can be associated, or secured, to said first component, or stationary component, 13, of said structure, or frame, 11.

[0078] As can be seen from said Figures, advantageously, said part 163, defining insertion and articulation means relative to said seat means 141 of said first articulation means 14 which can be associated, or secured, to said first component, or stationary component, 13, of said structure, or frame, 11, has one or more, preferably a plurality of, in particular a first and a second annular portions 166, 166 for the insertion into the respective slit 147, 147 of the corresponding seat means 141 for receiving said second articulation means 16 which can be associated, or secured, to said second component, or movable component, 15.

[0079] As can be seen from said Figures, in an advantageous manner, the respective annular portion 166 for the insertion into the respective slit 147, 147 of the respective seat means 141 for receiving said second articulation means 16 which can be associated, or secured, to said second component, or movable component, 15, has a circular inner surface166' and/or a circular outer surface 166".

[0080] In a particularly advantageous manner, as can

be seen from said Figures, the respective articulation member 161 which can be associated or secured to said second component, or movable component, 15, of said structure, or frame, 11, has a part 164 for the connection between said part 162 for engaging said second component, or movable component, 15 and said part 163 defining insertion and articulation means relative to said seat means 141 of said first articulation means 14 which can be associated, or secured, to said first component, or stationary component, 13, of said structure, or frame, 11.

[0081] As can be seen from said Figures, advantageously, said part 164 for the connection between said part 162 for engaging said second component, or movable component, 15 and said part 163 defining insertion and articulation means relative to said seat means 141 of said first articulation means 14 which can be associated, or secured, to said first component, or stationary component, 13, of said structure, or frame, 11, comprises one or more, preferably a plurality of, in particular a first and second, oblique portions 167, 167 extending from said engaging base plate 165 and supporting the respective annular portion 166, 166 for the insertion into the respective slit 147, 147 of the respective seat means 141 for receiving said second articulation means 16 which can be associated, or secured, to said second component, or movable component, 15.

[0082] As can be seen from said Figures, in a particularly advantageous manner, the respective oblique portion 167, 167 extending from said engaging base plate 165 and supporting the respective annular portion 166, 166 for the insertion into the respective slit 147, 147 of the respective seat means 141 for receiving said second articulation means 16 which can be associated, or secured, to said second component, or movable component, 15 extends transversally beyond the side edge 165l of said engaging base plate 165 which faces outwardly of said second articulation means 16 which can be associated, or secured, to said second component, or movable component, 15.

[0083] In an appreciably advantageous manner, as can be seen from said Figures, said means 12 for the articulation between said first component, or stationary component, 13 of said structure, or frame, 11 and said second component, or movable component, 15 of the same structure, or frame, 11, comprise pin means 18, which are adapted to connect in a freely rotatable manner said second articulation means 16, which can be associated, or secured, to said second component, or movable component, 15, with said first articulation means 14 which can be associated, or secured, to said first component, or stationary component, 13, of said structure, or frame, 11.

[0084] As can be seen from said Figures, advantageously, said pin means 18, which are adapted to connect in a freely rotatable manner said second articulation means 16 which can be associated, or secured, to said second component, or movable component, 15, with said first articulation means 14, which can be associated, or secured, to said first component, or stationary component, 13, of said structure, or frame, 11, comprise one or more, preferably a plurality of, i.e., a first and a second in particular upper and lower, outermost pins, 181', 181", as can be seen from the Figures 8A to 8C, where said third preferred implementation 200 of a member according to the present invention is illustrated, and especially a third pin 181‴, in particular longitudinally intermediate to said first and second pins181', 181", and preferably longitudinally equidistant or centered thereto, as is instead provided for in the second preferred implementation 100. **In** particular said first, second, and possibly third, articulation pins 181', 181" and 181" are respectively adapted to connect in a freely rotatable manner, said first articulation means 14 which can be associated, or secured, to said first component, or stationary component, 13, with said second articulation means 16 which can be associated, or secured, to said second component, or movable component, 15.

[0085] Therefore, the respective pin 181', 181", 181‴ extends between the respective hinge pintle 149', 149", 149‴ of the first articulation means and the annular portions of the second articulation means 16, i.e., within the respective inner surfaces thereof.

[0086] In particular, the respective upper and lower pin 181' and/or 181" extends between the respective upper and/or lower hinge pintle 149', 149", of the first articulation means 14 and the corresponding annular portions of the second articulation means 16, i.e., within the respective inner surfaces thereof, while the third pin or intermediate pin 181‴ extends between the respective intermediate hinge pintle 149"', of the first articulation means and the corresponding annular portions of the second articulation means 16, especially with a further slight extension into the adjacent part of the outermost interposition means 120.

[0087] In the Figures, by the numeral reference 189, friction bushings for the corresponding pin 18 when this is inserted into the corresponding hinge pintle are marked.

[0088] In an appreciably advantageous manner, as can be seen from said Figures, locking means of said pin means 18 are provided for, which are adapted to connect in a freely rotatable manner said second articulation means 16 which can be associated, or secured, to said second component, or movable component, 15, with said first articulation means 14 which can be associated, or secured, to said first component, or stationary component, 13, of said structure, or frame, 11, within said first articulation means 14 which can be associated, or secured, to said first component, or stationary component, 13, of said structure, or frame, 11 and with said second articulation means 16 which can be associated, or secured, to said second component, or movable component, 15.

[0089] With appreciable advantage, said locking means of said pin means 18, comprise, in particular for said first and second upper and lower pins 181', 181", a respective knurling that is provided for on the outer sur-

face of the same pin 181', 181".

[0090] As can be seen from said Figures and in particular as is well understood from Figure 5D, advantageously, in particular as is understood from Figure 5D, said blocking means 182 of said pin means 18, in particular for said third intermediate pin 181‴, are adapted to retain the respective pin 181‴ on both perpendicular sides thereof.

[0091] With appreciable advantage, as can be seen from said Figures and in particular as is well understood from Figure 5D, said blocking means comprise corresponding small pin, or screw, means, i.e., corresponding small pins or screws, 182, 182, transversally, or horizontally, extending, which can be inserted into corresponding hole means 183, 183, which are provided for in said interposition means 120.

[0092] With advantage, as can be seen from said Figures, said small pin, or screw, blocking means 182, 182 extend within the inner space120s that is provided for in the part 120 of the profile, i.e., in the outermost interposition means 120.

[0093] As can be seen from said Figures, advantageously, said member 10 comprises means 20 for securing said second component, or movable component, 15 to the respective articulation member 161.

[0094] As can be seen from said Figures, with advantage, said means 20 for securing said second component, or movable component, 15 to the respective articulation member 161 comprise a small plate 201 that can be rested on the front side of said second component, or movable component, 15 and means 201 for assembling said small plate to the same second component, or movable component, 15 and a small counter-plate 202 that can be rested on the rear side of said engaging base plate 165 of said second component, or movable component, 15, and connected with said small plate 201 through corresponding mutual retaining means 203, 204.

[0095] In an advantageous manner, as can be seen from said Figures, said mutual retaining means comprise corresponding projecting means, in particular in the form of a first and a second projections 203, 203, extending perpendicularly, from the small plate 201 and inserting in corresponding hole means, in particular in a first and a second holes 15o, 15o, provided for in the second component, or movable component, 15, and in corresponding hole means, in particular a first and a second, holes 165o, 165o provided for in said engaging base plate 165.

[0096] As can be seen from said Figures, advantageously, said mutual retaining means comprise corresponding projecting means, in particular in the form of a first and a second projections 203, 203 which are internally hollow and threaded and are adapted to receive and corresponding screw means, in particular a first and a second screws, of the type of those denoted by 204, 204 in Figure 3A, and inserting on the side of the small counter-plate 202, through corresponding hole means 204', 204' obtained therein and that engage and retain said projecting means 203, 203.

[0097] In the subsequent Figures 9A to 9D and 10 to 10D, a fourth and a fifth preferred implementations 300 and 400 of a member according to the present invention are illustrated. In these fourth and fifth preferred implementations 300 and 400, the components that are similar or equivalent to those of the preceding preferred implementations are marked by the same numeral references that were used in the same preceding preferred implementations and however, to avoid excessively burdening the present description, are not detailed in depth again.

[0098] Advantageously, in these fourth and fifth preferred implementations 300 and 400, said pin means 18 comprise a respective elongated pin 1810 or 1811 that extends at the hinge pintle 149‴ and intermediate seat means 141‴.

[0099] In this manner, the elongated pin avoids the need for additional machining on the profile, in particular said holes for the corresponding small blocking pins of the corresponding rotation pin.

[0100] In a particularly advantageous manner, as is understood from the corresponding Figures 9A to 9D, in particular in the fourth preferred implementation 300, said elongated pin 1810 is retained in place by virtue of the fact that the same elongated pin 1810 is inferiorly rested on a corresponding pin, and in particular on the lower pin 181", and especially extends inside the outermost interposition means 120, i.e., inside the inner surface 120' thereof, until coming at and into said seat intermediate means or third seat means, i.e., the intermediate hinge pintle 149" of the first articulation means 14 and the corresponding annular portions 166, 166 of the second articulation means 16, and preferably even by a length beyond these.

[0101] As can be seen from said Figures da 10A a 10D, in the fifth preferred implementation 400, advantageously, the elongated pin 1811 is retained in place by a respective knurling that is provided for on the outer surface of the same elongated pin 1811, said elongated pin being adapted to extend between the respective outermost, in particular lower, hinge pintle, 149" of said outermost, in particular lower, seat means, 141" and at the intermediate hinge pintle 149‴ of the intermediate seat means 141‴, and preferably even by a length beyond these.

[0102] In this manner, the same elongated pin 1811 defines a pin that is adapted to articulate simultaneously outermost articulation means and intermediate articulation means, i.e., which extends between the respective outermost, in particular lower, hinge pintle 149" of the first articulation means 14 and the corresponding annular portions 166, 166 of the second articulation means 16, i.e., within the respective inner surfaces thereof, and the intermediate hinge pintle 149"', of the first articulation means 14, and the corresponding annular portions 166, 166 of the second articulation means 16.

[0103] Therefore, in particular, as is clear, said elongated pin 1811 clearly extends also inside the outermost interposition means 120, i.e., inside the inner surface

120' thereof that extends between said outermost, in particular lower, seat means, and said intermediate seat means.

[0104] In practice, advantageously, from a single elongated profile, obtained through a corresponding extrusion die, the profile 1200 of the first preferred implementation 10 of a member can be obtained, and, by arranging corresponding slits 147, said elongated profiles 1200' and 1200" of the other preferred implementations, in particular of said second and third preferred implementations of a member 100, 200 can also be obtained.

[0105] In practice, as is clear, the technical characteristics illustrated above allow, singularly or in a respective combination, to achieve one or more of the following advantageous results:

- it is avoided any possible crushing and injury of the respective operator's fingers;
- members or hinges that are easily and quickly made, in a relatively low cost are obtained;
- therefore, it is avoided to perform additional machining on the respective profile.

[0106] The present invention is clearly susceptible to industrial application. Those skilled in the art will be able to devise a number of modifications and/or variations to be made to the same invention, while falling within the scope of the inventive concept, as broadly set forth. Furthermore, those skilled in the art will be able to devise further preferred implementations of the invention that comprise one or more of the features illustrated above of the preferred implementation referred to above, in particular as set forth in the attached claims. Furthermore, it should also be understood that all details of the invention can be replaced by technically equivalent elements.

Claims

1. A member (10) for accident protection, applicable, or applied, in a corresponding structure, or frame, (11), at the rotation zone between a first component (13) and a second component (15) of the same structure, or frame, (11), which first and second components (13, 15) are connected with each other through corresponding means (1416) mutually pivoting, rotatable in relation to each other according to a rotational, in particular longitudinal, axis (L); said first component (13) being preferably in the form of a stationary component of said structure, or frame, (11) and having a respective surface (131) that encircles and defines, in particular at a respective side, a respective zone, in particular a respective opening (17), of said structure, or frame, (11), and said second component (15) being preferably in the form of a movable component, i.e., being a door leaf or a door, which overlaps to or closes said zone or opening (17) of said structure, or frame, (11), said second component, or movable component, (15) having a respective surface (151) which is opposite, in use, i.e., during the rotation, to said surface (131) for encircling or defining said zone, or opening, (17) of said first component, or stationary component, (13); preferably said structure, or frame, (11) being part of an apparatus, a machine, a plant, an equipment, a construction, an installation, a prefabricated building, a dwelling unit, or other; **characterized in that** the member (10) comprises means (12) that are adapted to interpose, in use, in the space that is defined between the opposite surfaces (131 and 151) of said first component, or stationary component, (13) and of said second component, or movable component, (15); said interposition means (12) comprising corresponding outermost interposition means (120) that are adapted to arrange, in use, longitudinally aligned with the, i.e., on the longitudinal extension of, said pivoting means (1416) between said first component, or stationary component, (13) and said second component, or movable component (15).

2. The member according to claim 1 or according to the pre-characterizing part of claim 1, **characterized in that** said interposition means (12), which extend in the space that is defined between the opposite surfaces (131, 151) of said first component, or stationary component, (13) and of said second component, or movable component, (15), extend longitudinally elongated along the entire length, or along substantially the entire length, corresponding to the longitudinal distance that is present between respective, or adjacent, pivoting means (1416, 1416) of said first and second components (13, 15).

3. The member according to any one of the preceding claims, **characterized in that** said outermost interposition means (120) extend frontally from, in particular perpendicularly or substantially perpendicular to, said surface (131) for encircling or defining said zone, or opening, (17) of said first component, or stationary component, (13).

4. The member according to any one of the preceding claims, **characterized in that** said outermost interposition means (120) have, at least in part, i.e., at least in the part facing or being adjacent to said opposite, in use or rotation, surface (151), of said second component, or movable component, (15), an outer surface (120") rounded in shape, preferably convex outwardly, in particular convex towards the respective front and/or side part, i.e., towards the opposite surface (151) of the second component or movable component (15).

5. The member according to any one of the preceding claims, **characterized in that** said outermost inter-

position means have an outer surface (120") in a cylindrical shape.

6. The member according to any one of the preceding claims, **characterized in that** said outermost interposition means (120) are coaxial, i.e., longitudinally aligned, with the corresponding pivoting means (1416) of said first and second components (13, 15).

7. The member according to any one of the preceding claims, **characterized in that** the transversal shape of said outermost interposition means (120) contains, or is contained in, the transversal shape of said pivoting means (1416) of said first and second components (13, 15).

8. The member according to any one of the preceding claims, **characterized in that** the same member (10) comprises means (121) for supporting said outermost interposition means (120).

9. The member according to any one of the preceding claims or according to the pre-characterizing part of claim 1, **characterized in that** said interposition means (12) comprise means (121) that are adapted to interpose, in use, in the space that is defined between the opposite surfaces (131, 151) of said first component, or stationary component, (13) and of said second component, or movable component, (15), and which are provided adjoining or in the proximity of said surface (131) for encircling or defining said zone, or opening, (17) of said first component, or stationary component, (13).

10. The member according to claim 9, **characterized in that** said interposition means (121), which adjoin said surface (131) for encircling or defining said zone, or opening, (17) of said first component, or stationary component, (13), define said means for supporting said outermost interposition means (120).

11. The member according to any one of the preceding claims 8 to 10, **characterized in that** said outermost interposition means (120) extend from the end of the respective support means and/or of said interposition means (121) which adjoin said surface (131) for encircling or defining said zone, or opening, (17) of said first component, or stationary component, (13), i.e., from the end thereof which is opposite said surface (131) for encircling or defining said zone, or opening, (17) of said first component, or stationary component, (13).

12. The member according to any one of the preceding claims 8 to 11, **characterized in that** said means (121) for supporting said outermost interposition means (120) and/or said interposition means (121) which adjoin said surface (131) for encircling or defining said zone, or opening, (17) of said first component, or stationary component, (13), connect with said outermost interposition means (120) at the transversal centreline thereof, in particular at the face thereof that faces, in use, said surface (131) for encircling or defining said zone, or opening, (17) of said first component, or stationary component, (13).

13. The member according to any one of the preceding claims 8 to 12, **characterized in that** said means (121) for supporting said outermost interposition means (120) and/or said interposition means (121) which adjoin said surface (131) for encircling or defining said zone, or opening, (17) of said first component, or stationary component, (13), are in the form of a respective and longitudinally elongated flat strip (121).

14. The member according to any one of the preceding claims 8 to 13, **characterized in that** said means (121) for supporting said outermost interposition means (120) and/or said interposition means (121) which adjoin said surface (131) for encircling or defining said zone, or opening, (17) of said first component, or stationary component, (13), i.e., said elongated flat strip (121), extend, or extends, perpendicularly, or substantially perpendicularly, from said surface (131) for encircling or defining said zone, or opening, (17) of said first component, or stationary component, (13).

15. The member according to any one of the preceding claims 8 to 14, **characterized in that** said means (121) for supporting said outermost interposition means (120) and/or said interposition means (121) which adjoin said surface (131) for encircling or defining said zone, or opening, (17) of said first component, or stationary component, (13), i.e., said elongated flat strip (121), extend, or extends, longitudinally, i.e., parallel to said rotational axis (L).

16. The member according to any one of the preceding claims or according to the pre-characterizing part of claim 1, **characterized in that** the same member (10) comprises means (122) for the attachment to said first component, or stationary component, (13) of said structure, or frame, (11), i.e., to said surface (131) of said first component, or stationary component, (13) for encircling or defining said zone, or opening, (17) of said structure, or frame, (11).

17. The member according to claim 16, **characterized in that** said means (122) for the attachment to said first component, or stationary component, (13) of said structure, or frame, (11) has a corresponding engagement surface (122a) against said surface

(131) of said first component, or stationary component, (13) for encircling or defining said zone, or opening, (17) of said structure, or frame, (11), in particular to which said means (122) for the attachment to said first component, or stationary component, (13) of said structure, or frame, (11), are secured through corresponding fastening means, preferably defined by screws (123) that insert in corresponding holes (123f) provided for in said attachment means (122) and in corresponding threaded holes opening to said same front surface (131) of said first component, or stationary component, (13) for encircling or defining said zone, or opening, (17) of said structure, or frame, (11).

18. The member according to any one of the preceding claims 16 and 17, **characterized in that** said means for the attachment to said first component, or stationary component, (13) of said structure, or frame, (11), are in the form of an elongated flat strip (122).

19. The member according to any one of the preceding claims 16 to 18, **characterized in that** said means (121) for supporting said outermost interposition means (120) and/or said interposition means (121) which adjoin said surface (131) for encircling or defining said zone, or opening, (17) of said first component, or stationary component, (13), i.e., the respective elongated flat strip (121), extend, or extends, perpendicularly, or substantially perpendicularly, from said means (122) for the attachment to said first component, or stationary component, (13) of said structure, or frame, (11), i.e., to said surface (131) of said first component, or stationary component, (13) for encircling or defining said zone, or opening, (17) of said structure, or frame, (11), i.e., the respective elongated flat strip (122).

20. The member according to any one of the preceding claims 16 to 19, **characterized in that** said means (122) for the attachment to said first component, or stationary component, (13) of said structure, or frame, (11), i.e., to said surface (131) of said first component, or stationary component, (13) for encircling or defining said zone, or opening, (17) of said structure, or frame, (11), i.e., the respective elongated flat strip (122), extend, or extends, longitudinally, i.e., parallel to said rotational axis (L).

21. The member according to any one of the preceding claims 16 to 20, **characterized in that** said means (122) for the attachment to said first component, or stationary component, (13) of said structure, or frame, (11), i.e., to said surface (131) of said first component, or stationary component, (13) for encircling or defining said zone, or opening, (17) of said structure, or frame, (11), i.e., the respective elongated flat strip (122), extend, or extends, parallel to said surface (131) for encircling or defining said zone, or opening, (17) of said first component, or stationary component, (13).

22. The member according to any one of the preceding claims 16 to 21, **characterized in that** the perpendicular height of said interposition means (12), in particular of said means (121) for supporting said outermost interposition means (120) and/or of said interposition means (121) which adjoin said surface (131) for encircling or defining said zone, or opening, (17) of said first component, or stationary component, (13), i.e., the respective elongated flat strip (121), and of said outermost interposition means (120), is greater than the transversal width of said means (122) for the attachment to said first component, or stationary component, (13) of said structure, or frame, (11), i.e., than the width of the respective elongated flat strip (122).

23. The member according to any one of the preceding claims 16 to 22, **characterized in that** said interposition means (12) extend on the side of said means (122) for the attachment to said first component, or stationary component, (13) of said structure, or frame, (11), i.e., of the respective elongated flat strip (122), starting from the respective side and longitudinal edge (122') thereof which, in use, is opposite the side facing the said zone, or opening, (17) defined or surrounded by the same first component, or stationary component, (13).

24. The member according to any one of the preceding claims 16 to 23, **characterized in that** said means (121) for supporting said outermost interposition means (120) and/or said interposition means (121) which adjoin said surface (131) for encircling or defining said zone, or opening, (17) of said first component, or stationary component, (13), i.e., the respective elongated flat strip (121), extend, or extends, from a respective side and longitudinal edge (122') of said means (122) for the attachment to said first component, or stationary component, (13) of said structure, or frame, (11), in particular which side and longitudinal edge (122') is, in use, on the side opposite the zone, or opening, (17) which is defined or surrounded by the same first component, or stationary component, (13).

25. The member according to any one of the preceding claims 16 to 24, **characterized in that** said means (122) for the attachment to said first component, or stationary component, (13) of said structure, or frame, (11), i.e., to said surface (131) of said first component, or stationary component, (13) for encircling or defining said zone, or opening, (17) of said structure, or frame, (11), i.e., the respective elongated flat strip (122), extend, or extends, transver-

sally beyond the outermost transversal edge (120‴) of said outermost interposition means (120).

26. The member according to any one of the preceding claims or according to the pre-characterizing part of claim 1, **characterized in that** the same member (10) comprises, or is defined by, an elongated profile (1200), in particular a metallic one, preferably made of aluminium, possibly anodized, in particular defining said interposition means (12), especially including said outermost interposition means (120) and/or said adjoining interposition means (121), and/or said means (122) for the attachment to said first component, or stationary component, (13) of said structure, or frame, (11).

27. The member according to claim 26, **characterized in that** said elongated profile (1200) has a general L shape.

28. The member according to any one of the preceding claims 26 and 27, **characterized in that** said elongated profile (1200) has opposite, longitudinally outermost, transversal outermost faces, (1201, 1202) defining corresponding opposite outermost faces of said interposition means (12), i.e., of said outermost interposition means (120) and/or of said adjoining interposition means (121), and/or of said means (122) for the attachment to said first component, or stationary component, (13) of said structure, or frame, (11).

29. The member according to claim 28, **characterized in that** said opposite longitudinally outermost transversal faces (1201, 1202) of said elongated profile (1200), and/or said longitudinally outermost faces of said interposition means (12), i.e., of said outermost interposition means (120) and/or of said adjoining interposition means (121), and/or said means (122) for the attachment to said first component, or stationary component, (13) of said structure, or frame, (11), are arranged, in use, longitudinally at, or adjacent to, said pivoting means (1416), i.e., the respective longitudinally outermost transversal face (1416', 1416") thereof.

30. The member according to any one of the preceding claims or according to the pre-characterizing part of claim 1, **characterized in that** the same member (100) comprises means (146) for the articulation between said first component, or stationary component, (13) of said structure, or frame, (11) and said second component, or movable component, (15) of the same structure, or frame, (11), said articulation means (146) between said first component, or stationary component, (13) and said second component, or movable component, (15) comprising first articulation means (14) which can be associated, or secured, to said first component, or stationary component, (13), of said structure, or frame, (11), and second articulation means (16) which can be associated, or secured, to said second component, or movable component, (15); said first articulation means (14) and said second articulation means (16) defining pivoting means between said first component, or stationary component, (13) and said second component, or movable component, (15).

31. The member according to any one of the preceding claims 26 to 30, **characterized in that** the elongated body (1200') of the member (100), securable, or secured, to said first component, or stationary component, (13), comprises, or defines, first articulation means (14) which can be associated, or secured, to said first component, or stationary component, (13).

32. The member according to any one of the preceding claims 30 and 31, **characterized in that** said first articulation means (14) which can be associated, or secured, to said first component, or stationary component, (13), comprise corresponding hinge pintle means (149).

33. The member according to claim 32, **characterized in that** said hinge pintle means (149), comprise one or more, preferably a plurality of, hinge pintles, i.e., a first and a second outermost, in particular upper and lower, hinge pintles, (149', 149") longitudinally spaced apart from each other, and especially a third hinge pintle (149"), in particular longitudinally intermediate relative to said first and second hinge pintles (149', 149"), and preferably longitudinally equidistant or centered thereto.

34. The member according to any one of the preceding claims 32 and 33, **characterized in that** the respective hinge pintle is defined by a respective bushing (149', 149", 149"'), in particular perpendicularly a through bushing.

35. The member according to any one of the preceding claims 32 to 34, **characterized in that** the respective hinge pintle (149', 149", 149‴) has a reduced longitudinal extension and has opposite longitudinally outermost faces (149a, 149b).

36. The member according to any one of the preceding claims 32 to 35, **characterized in that** the respective hinge pintle (149', 149", 149‴) is internally hollow, i.e., is tubular in shape, and in particular has a cylindrical inner surface (149i) and/or a cylindrical outer surface (149e).

37. The member according to any one of the preceding claims 32 to 36, **characterized in that** the respective hinge pintle (149', 149", 149‴) is on the longitudinal

extension of said outermost interposition means (120), in particular being coaxial with the same outermost interposition means (120).

38. The member according to any one of the preceding claims 32 to 37, **characterized in that** the same member (100 or 200) comprises means (121') for supporting said hinge pintle means (149), i.e., the respective hinge pintle (149', 149", 149"'), in particular longitudinally aligned with said means (121) for supporting the interposition means (12) al said first component, or stationary component, (13) of said structure, or frame, (11), and preferably also in the form of a corresponding flat strip (121').

39. The member according to claim 38, **characterized in that** said means (121') for supporting said hinge pintle means (149), i.e., the respective hinge pintle (149', 149", 149"'), are on the longitudinal extension of said interposition means (121) which adjoin said surface (131) for encircling or defining said zone, or opening, (17) of said first component, or stationary component, (13), i.e., of said means for supporting said outermost interposition means (120), and/or are part of a corresponding elongated flat strip (121p), defining said interposition means (121) which adjoin said surface (131) for encircling or defining said zone, or opening, (17) of said first component, or stationary component, (13), i.e., defining said means for supporting said outermost interposition means (120).

40. The member according to any one of the preceding claims 32 to 39, **characterized in that** the same member (100 or 200) comprises means (122') for attaching said hinge pintle means (149), i.e., the respective hinge pintle (149', 149") and in particular (149‴) to said first component, or stationary component, (13) of said structure, or frame, (11), in particular longitudinally aligned with said means (122) for attaching the interposition means (12) to said first component, or stationary component, (13) of said structure, or frame, (11), and preferably also in the form of a corresponding flat strip (122').

41. The member according to claim 40, **characterized in that** said means (122') for attaching said hinge pintle means (149), i.e., the respective hinge pintle (149', 149", 149"'), are on the longitudinal extension of said means (122) for attaching the interposition means (120, 121), or for attaching the support means of the outermost interposition means (120), to said first component, or stationary component, (13), and/or are part of a corresponding elongated flat strip (122p) defining said means (122) for attaching the interposition means (120, 121), or for attaching the support means of the outermost interposition means (120).

42. The member according to any one of the preceding claims 31 to 41, **characterized in that** said elongated body of the same member (100 or 200) is in the form of an elongated profile (1200' or 1200"), in particular a metallic one, preferably made of aluminium, possibly anodized, preferably defining said interposition means (12), especially including said outermost interposition means (120) and/or said adjoining interposition means (121), and/or said means (122) for the attachment to said first component, or stationary component, (13) of said structure, or frame, (11) and/or said first articulation means (14) which can be associated, or secured, to said first component, or stationary component, (13), especially comprising corresponding hinge pintle means (149) and/or means (121') for supporting said hinge pintle means (149) and/or said means (122') for attaching said hinge pintle means (149).

43. The member according to any one of the preceding claims 30 to 42, **characterized in that** said first articulation means (14) which can be associated, or secured, to said first component, or stationary component, (13), comprise corresponding seat means (141) for receiving said second articulation means (16) which can be associated, or secured, to said second component, or movable component, (15).

44. The member according to claim 43, **characterized in that** said seat means (141) for receiving said second articulation means (14) which can be associated, or secured, to said second component, or movable component, (15) comprise one or more, preferably a plurality of, i.e., the first and the second outermost, in particular upper and lower, seat means, (141', 141"), and especially third seat means (141"), in particular longitudinally intermediate in relation to said first and second seat means (141', 141"), and preferably longitudinally or centered thereto.

45. The member according to any one of the preceding claims 43 and 44, **characterized in that** said seat means (141) for receiving said second articulation means (16) which can be associated, or secured, to said second component, or movable component, (15), i.e., the respective seat (141', 141", 141‴), comprise, or comprises, corresponding slit means (147).

46. The member according to claim 45, **characterized in that** the respective seat (141', 141", 141‴) for receiving said second articulation means (16) which can be associated, or secured, to said second component, or movable component, (15), is defined by one or more, preferably by a pair of slits (147, 147), in particular longitudinally spaced apart from each

other and between which the respective hinge pintle (149', 149", 149‴) is longitudinally interposed.

47. The member according to any one of the preceding claims 45 and 46, **characterized in that** the respective slit (147, 147) of the seat (141', 141", 141‴) for receiving said second articulation means (16) which can be associated, or secured, to said second component, or movable component, (15), is provided for in said elongated profile (1200'), preferably being defined by corresponding opposite transversal faces (149a and/or 149b) of the respective hinge pintle (149', 149", 149‴) and by the transversal faces (120e and/or 120e) of said outermost interposition means (120).

48. The member according to any one of the preceding claims or according to the pre-characterizing part of claim 1, **characterized in that** said means (12) for the articulation between said first component, or stationary component, (13) of said structure, or frame, (11) and said second component, or movable component, (15) of the same structure, or frame, (11), comprise pin means (18), which are adapted to connect in a freely rotatable manner said second articulation means (16), which can be associated, or secured, to said second component, or movable component, (15), with said first articulation means (14) which can be associated, or secured, to said first component, or stationary component, (13), of said structure, or frame, (11).

49. The member according to claim 48, **characterized in that** said pin means (18), which are adapted to connect in a freely rotatable manner said second articulation means (16) which can be associated, or secured, to said second component, or movable component, (15), with said first articulation means (14), which can be associated, or secured, to said first component, or stationary component, (13), of said structure, or frame, (11), comprise one or more, preferably a plurality of, i.e., a first and a second in particular upper and lower, outermost pins, (181', 181"), and especially a third pin (181"'), in particular longitudinally intermediate to said first and second pins(181', 181"), and preferably longitudinally equidistant or centered thereto.

50. The member according to any one of the preceding claims 48 and 49, **characterized in that** are locking means of said pin means (18) are provided for, which are adapted to connect in a freely rotatable manner said second articulation means (16) which can be associated, or secured, to said second component, or movable component, (15), with said first articulation means (14) which can be associated, or secured, to said first component, or stationary component, (13), of said structure, or frame, (11), within said first articulation means (14) which can be associated, or secured, to said first component, or stationary component, (13), of said structure, or frame, (11) and with said second articulation means (16) which can be associated, or secured, to said second component, or movable component, (15).

51. The member according to claim 50, **characterized in that** said locking means of said pin means (18), comprise, in particular for said first and second upper and lower pins (181', 181"), a respective knurling that is provided for on the outer surface of the same pin (181', 181").

52. The member according to claim 50, **characterized in that** said blocking means (182) of said pin means (18), in particular for said third intermediate pin (181‴), are adapted to retain the respective pin (181‴) on both perpendicular sides thereof.

53. The member according to claim 52, **characterized in that** said blocking means comprise corresponding small pin, or screw, means, (182, 182), transversally, or horizontally, extending, which can be inserted into corresponding hole means (183, 183), which are provided for in said interposition means (120).

54. The member according to claim 53, **characterized in that** said small pin, or screw, blocking means (182, 182) extend within the inner space (143s) of said interposition means (120).

55. The member according to any one of the preceding claims 48 to 54, **characterized in that** said pin means (18) comprise a respective elongated pin (1810 or 1811) that extends at the hinge pintle (149‴) and intermediate seat means (141‴).

56. The member according to any one of the preceding claims 48 to 55, **characterized in that** said elongated pin (1810) is retained in place by virtue of the fact that the same elongated pin (1810) is inferiorly rested on a corresponding pin, and in particular on the lower pin (181"), and especially extends inside the outermost interposition means (120), i.e., inside the inner surface (120') thereof, until coming at and into said seat intermediate means or third seat means, i.e., the intermediate hinge pintle (149") of the first articulation means (14) and the corresponding annular portions (166, 166) of the second articulation means (16).

57. The member according to any one of the preceding claims 48 to 55, **characterized in that** the elongated pin (1811) is retained in place by a respective knurling that is provided for on the outer surface of the same elongated pin (1811), said elongated pin being adapted to extend between the respective outer-

most, in particular lower, hinge pintle, (149") of said outermost, in particular lower, seat means, (141") and at the intermediate hinge pintle (149‴) of the intermediate seat means (141‴).

58. A structure, or frame, (11), **characterized in that** it comprises an accident protection member (10) according to any one of the preceding claims.

59. A member, structure, or frame, each being respectively **characterized in that** it is made according to any one of the preceding claims and/or as described and illustrated with reference to the attached drawings.

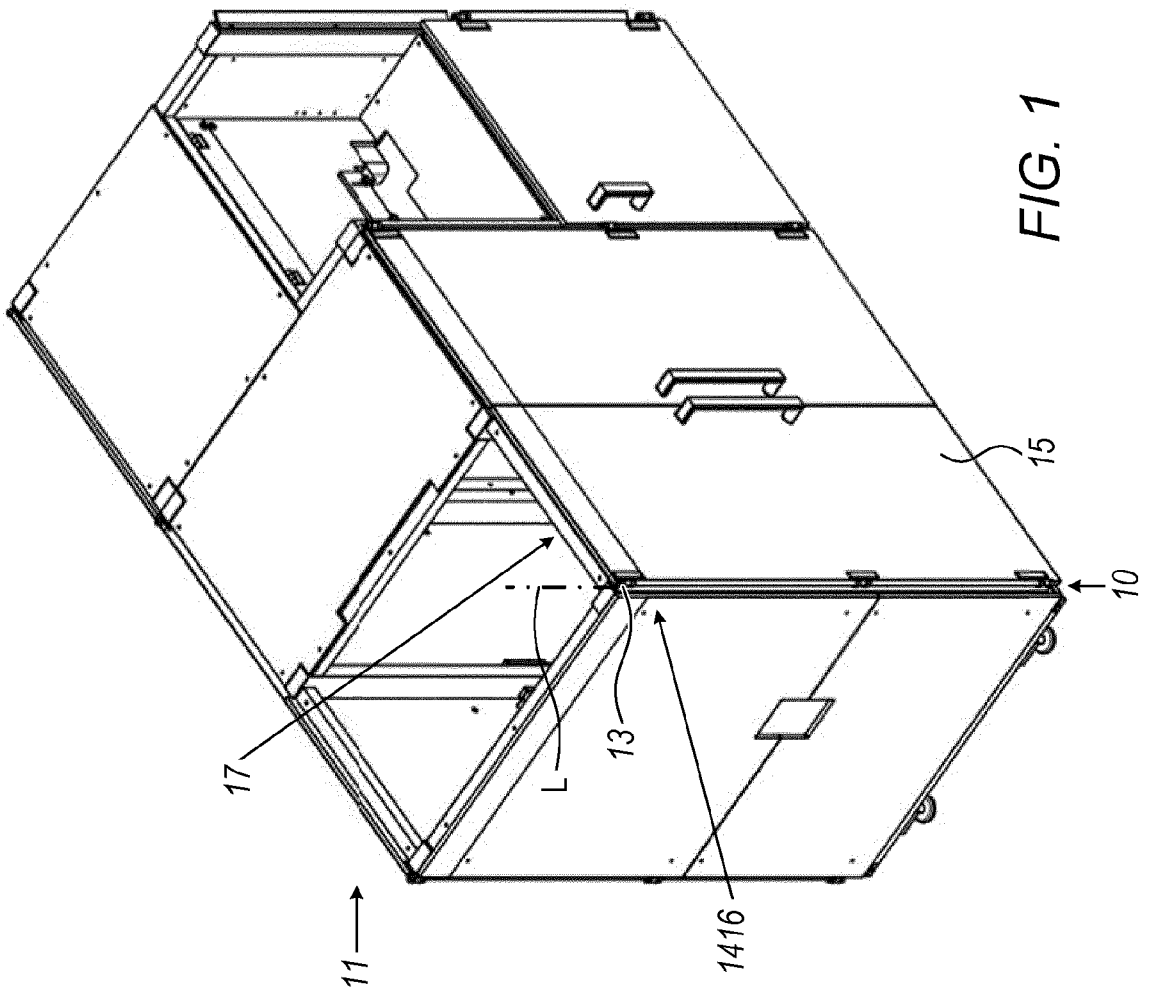

FIG. 1

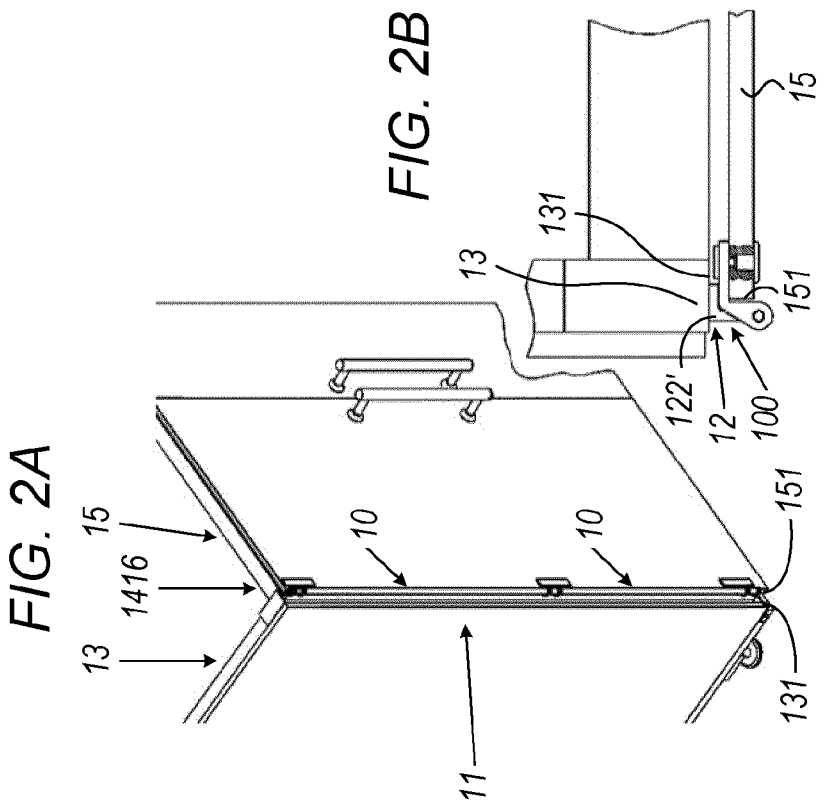

FIG. 2A

FIG. 2B

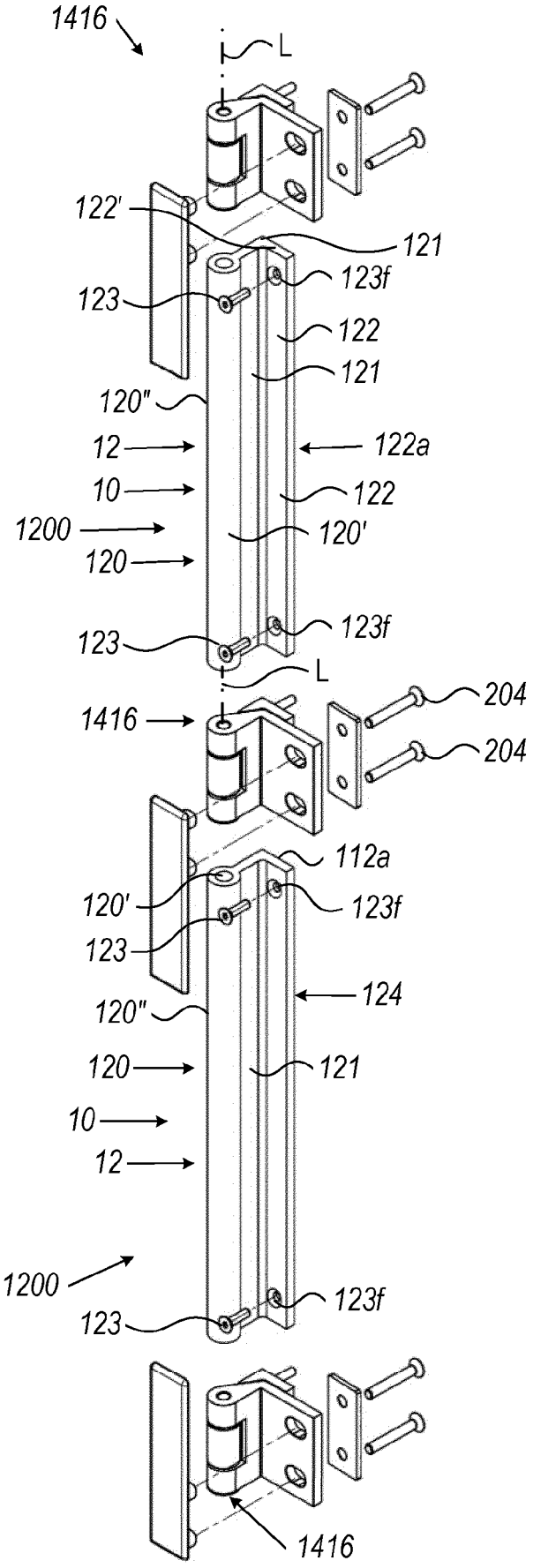
1416
L
122'
121
123f
123
122
121
120"
12
122a
10
122
1200
120'
120
123
123f
L
204
1416
204
112a
120'
123f
123
124
120"
120
121
10
12
1200
123f
123
1416

FIG. 3A

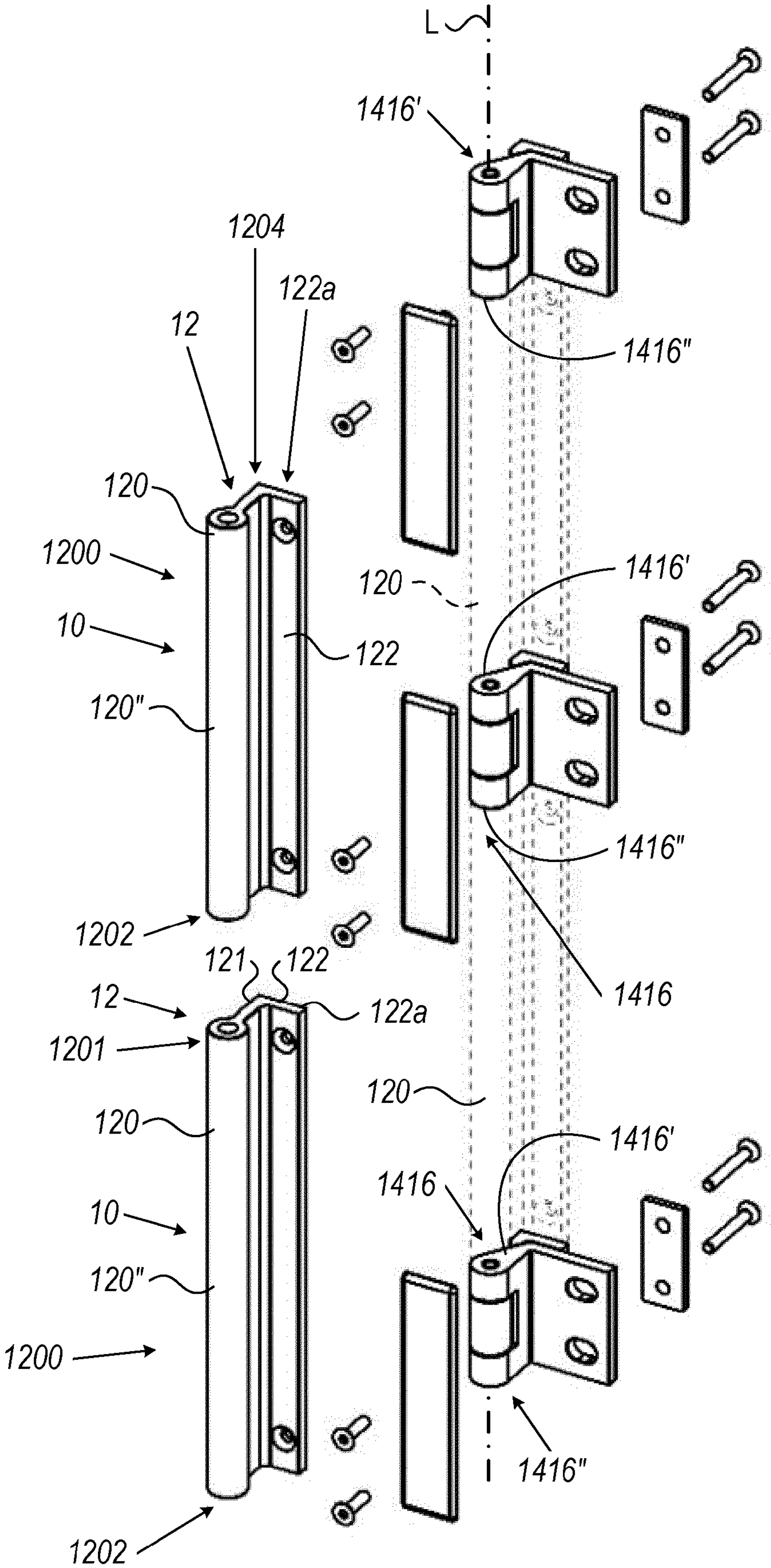
L
1416'
1204
122a
12
1416"
120
1200
120
1416'
10
122
120"
1416"
1202
121
122
1416
12
122a
1201
120
120
1416'
1416
10
120"
1200
1416"
1202

FIG. 3B

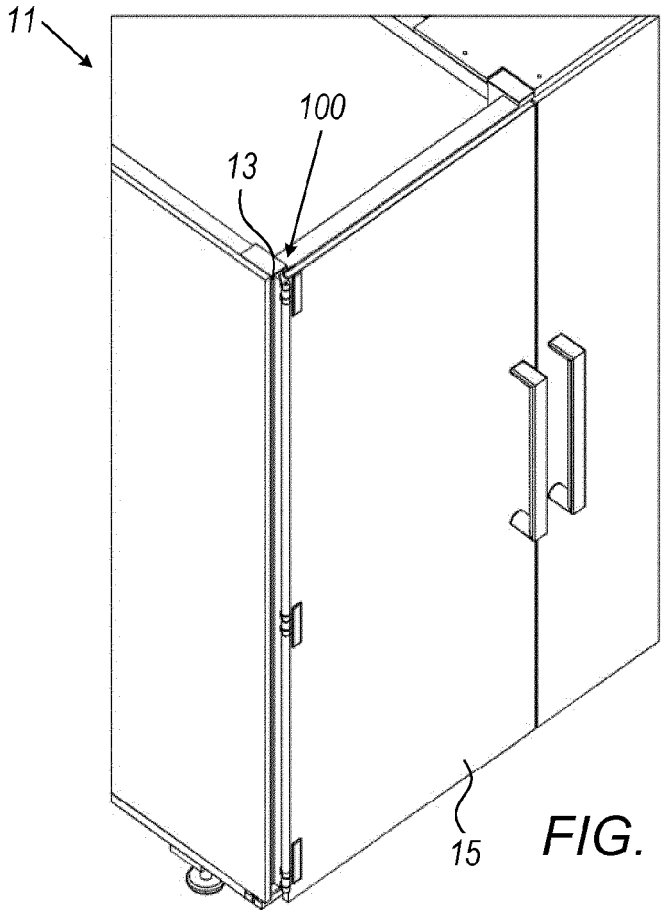
11
100
13
15

FIG. 4A

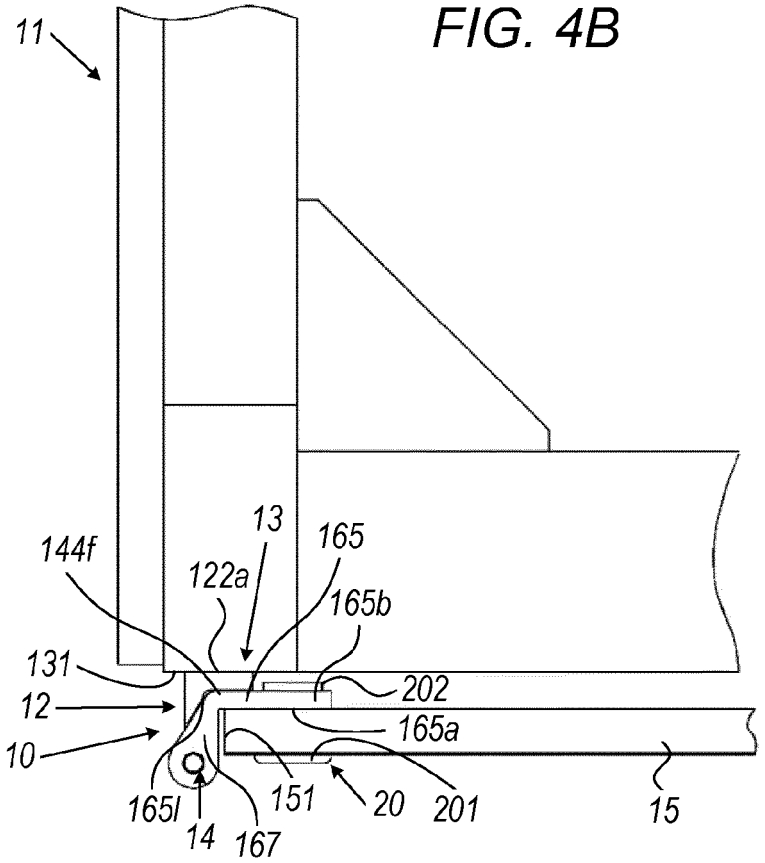
11
144f
13
165
122a
165b
131
12
10
202
165a
165l
14
167
151
20
201
15

FIG. 4B

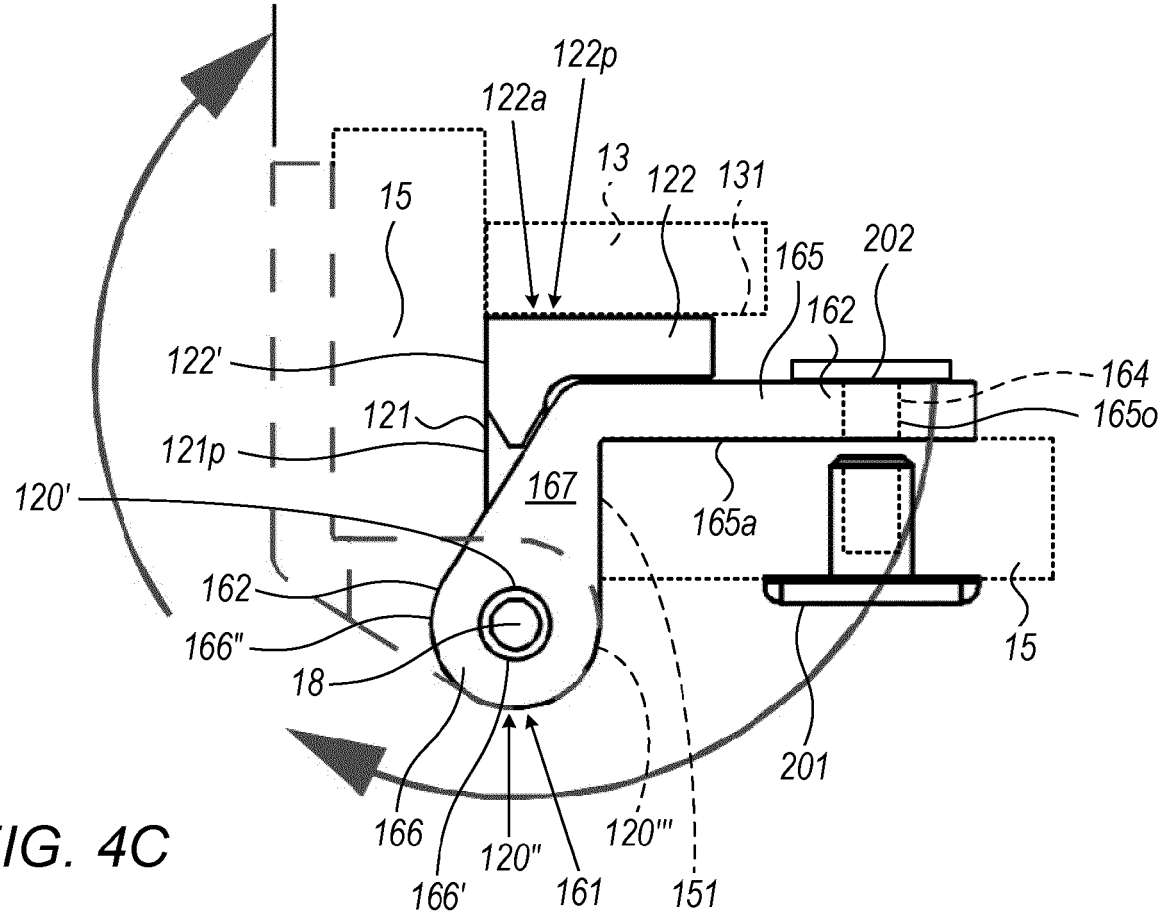
122p
122a
13
122
131
15
165
202
162
122'
164
121
165o
121p
167
165a
120'
162
166"
18
15
201
166
120"
120'''
166'
161
151

FIG. 4C

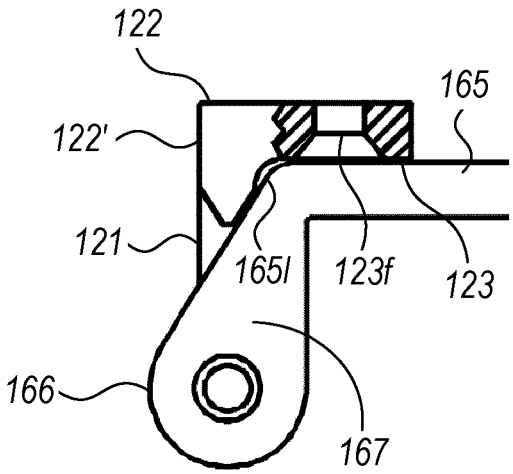
122
165
122'
121
165l
123f
123
166
167

FIG. 4D

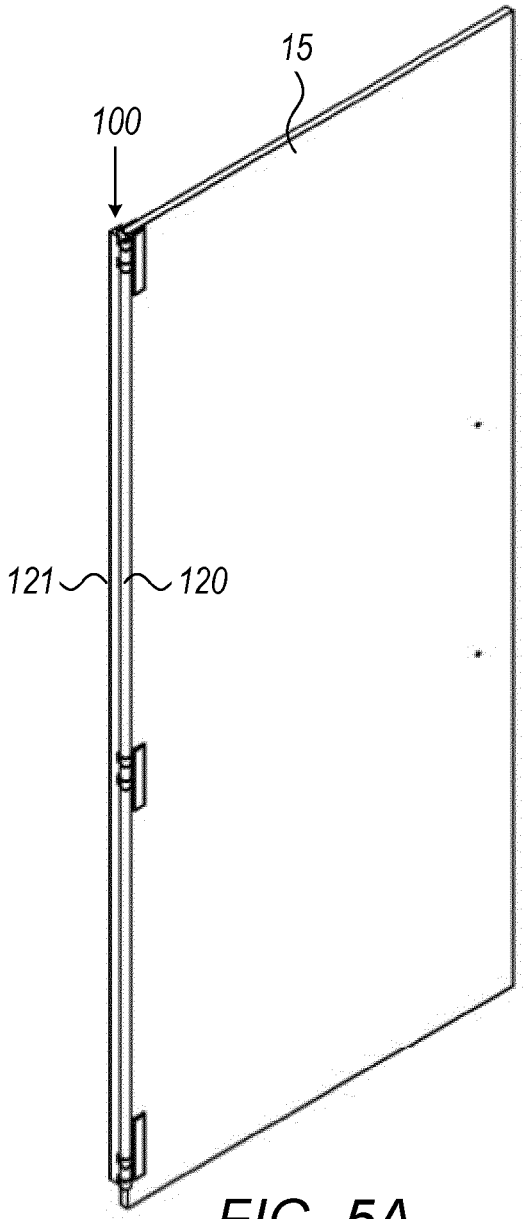

FIG. 5A

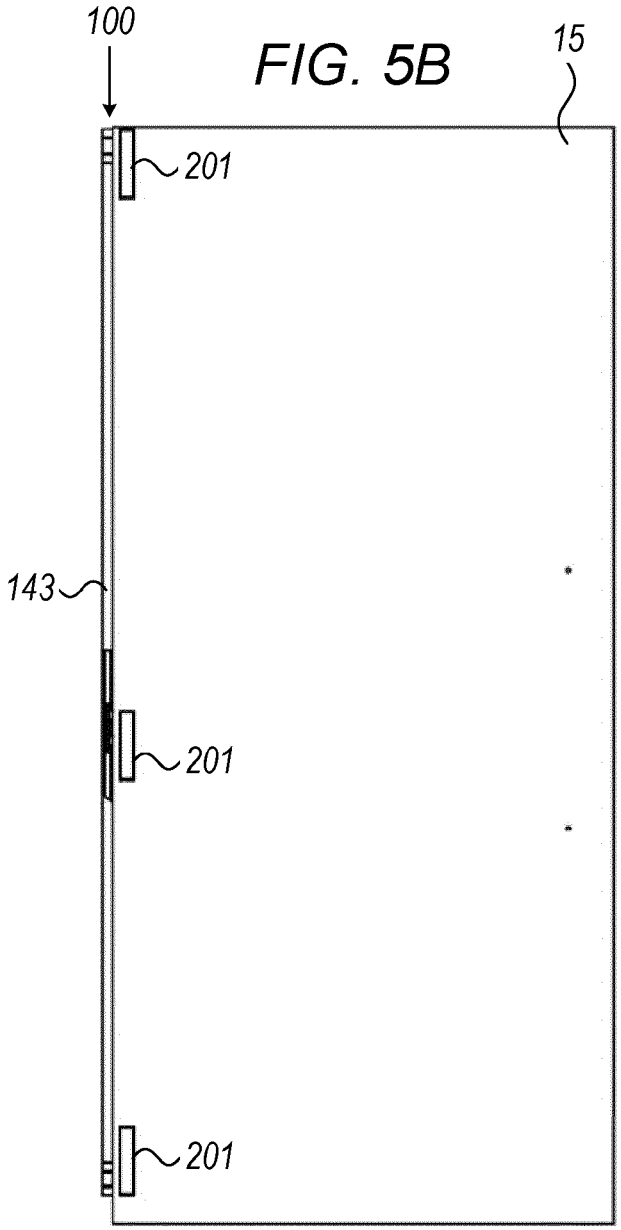

FIG. 5B

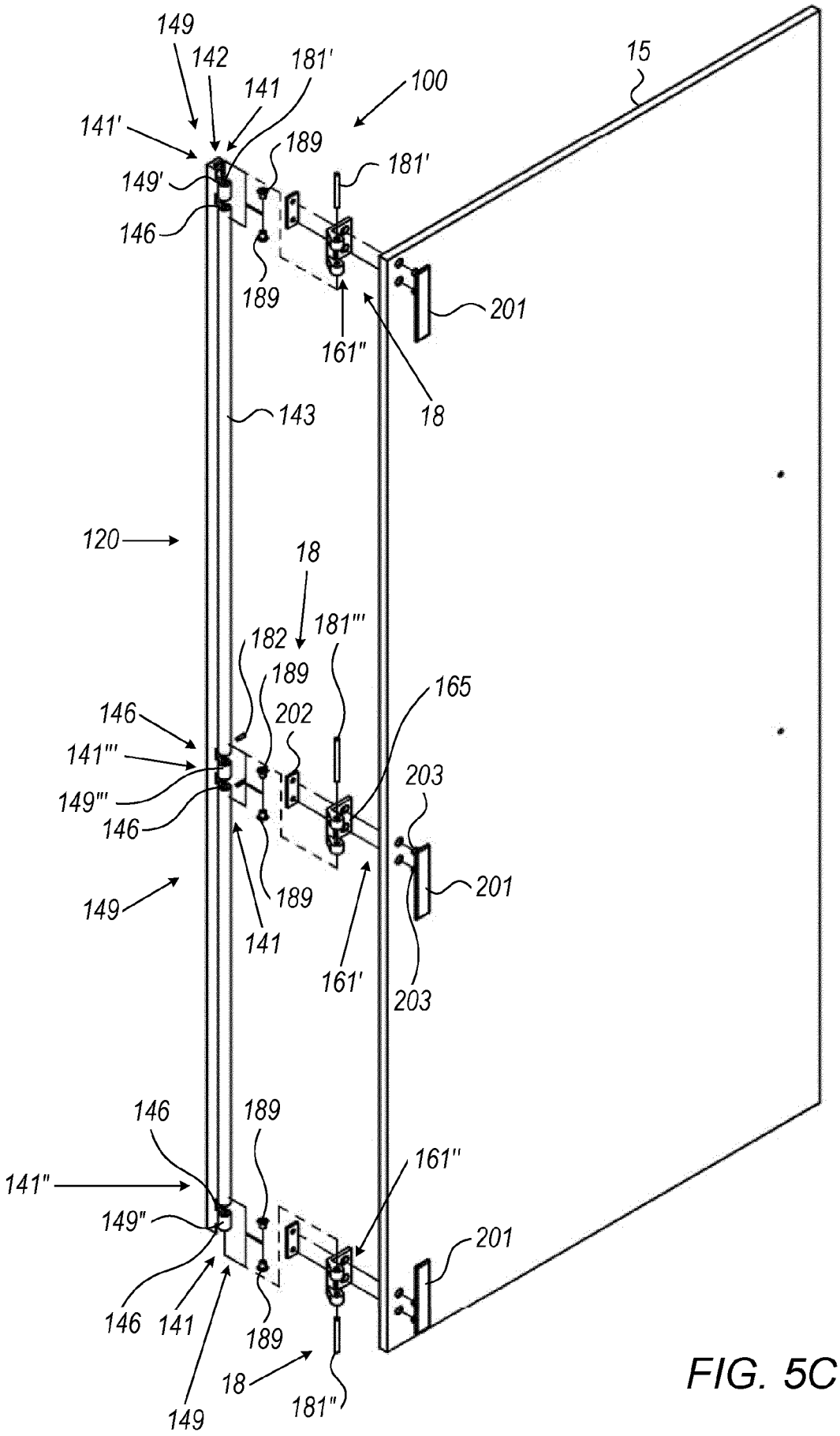
149
142
181'
141
100
15
141'
189
181'
149'
146
189
201
161"
18
143
120
18
182
181'''
189
165
146
202
141'''
203
149'''
146
201
149
189
141
161'
203
146
189
161"
141"
149"
201
146
141
189
18
181"
149

FIG. 5C

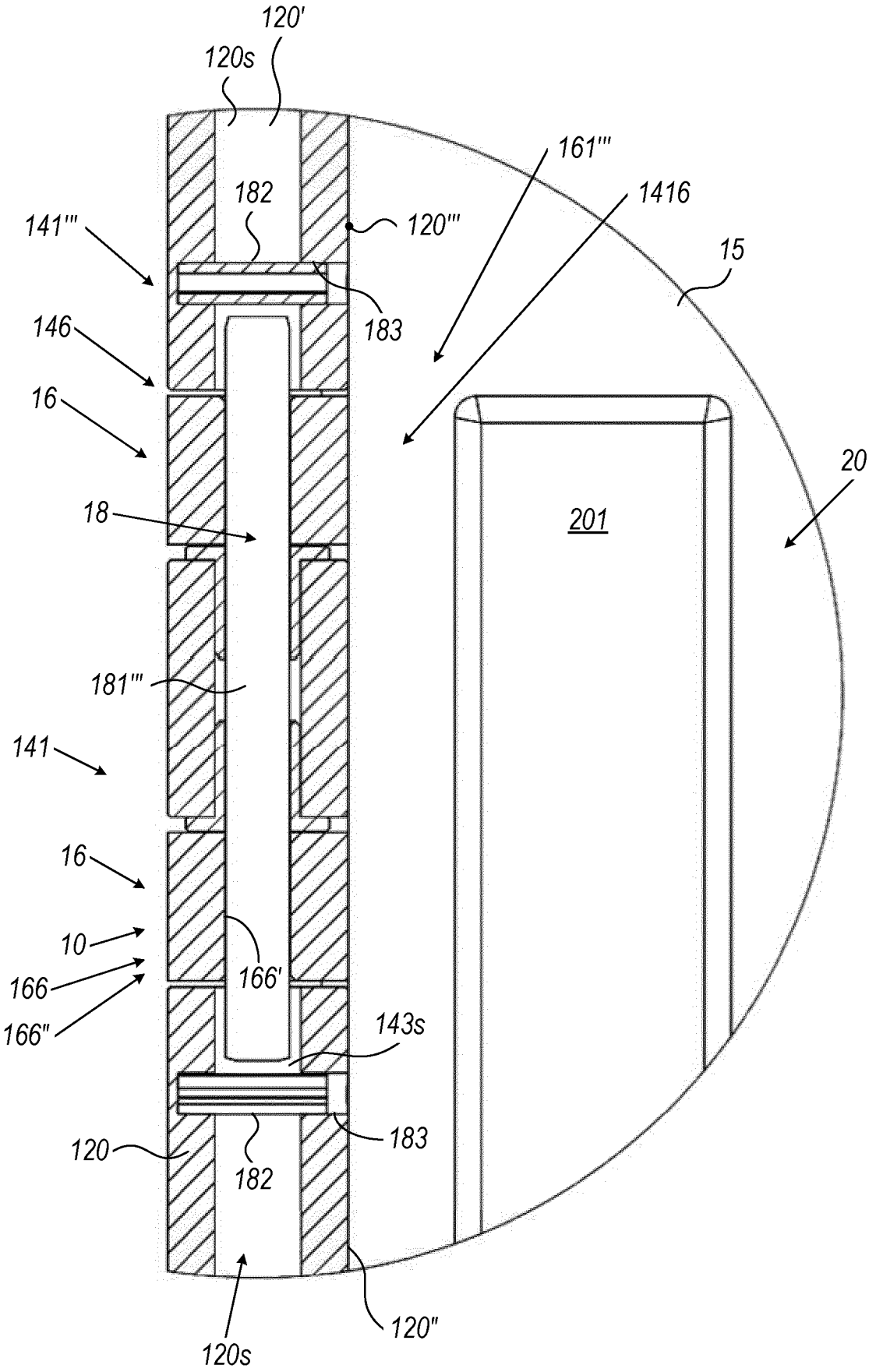
120'
120s
161'''
182
1416
141'''
120'''
15
183
146
16
20
18
201
181'''
141
16
10
166'
166
166''
143s
183
120
182
120''
120s

FIG. 5D

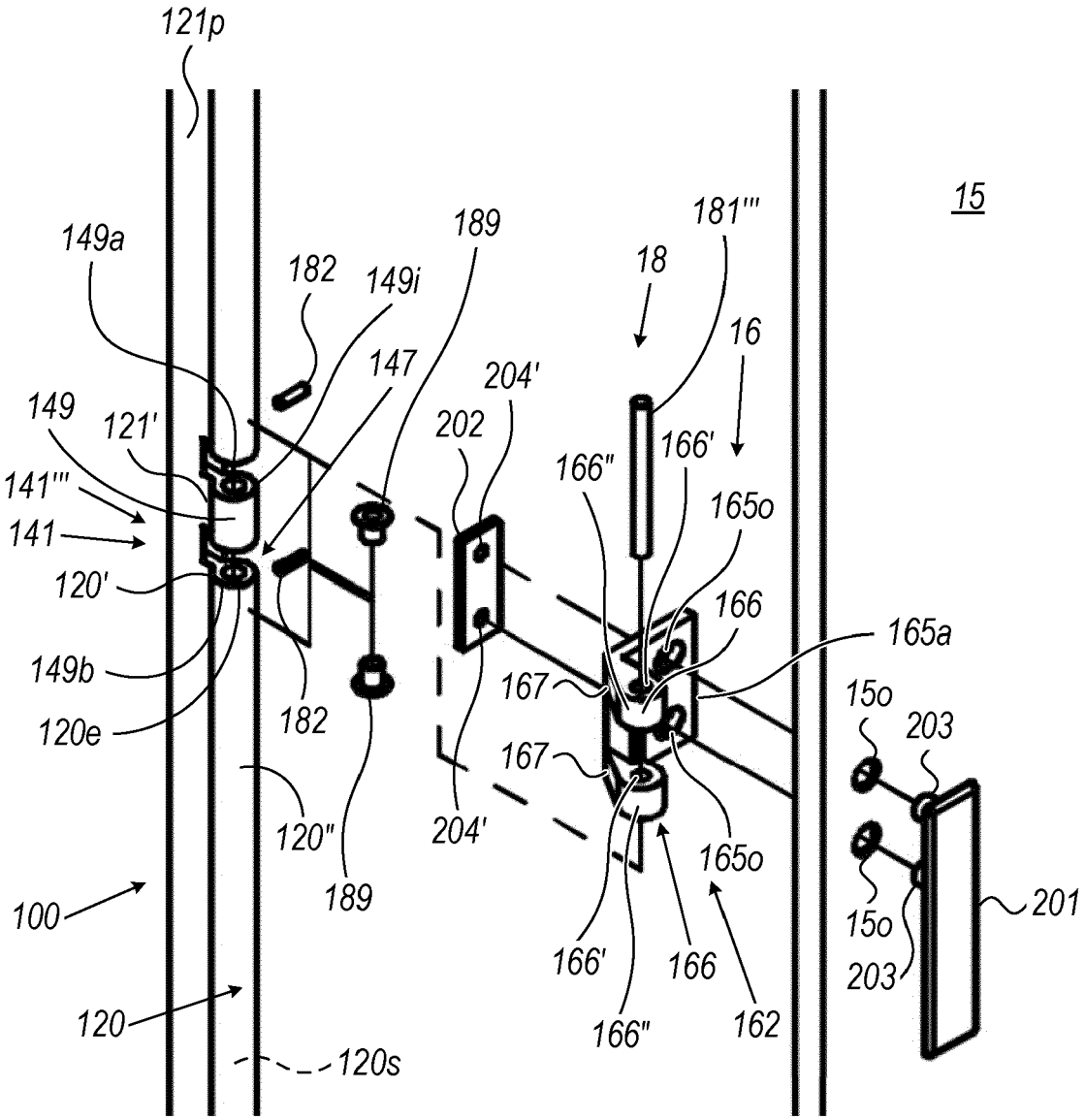
121p
15
149a
182
149i
189
181'''
18
16
147
204'
149
121'
202
166''
166'
141'''
165o
141
120'
166
165a
149b
167
15o
120e
182
167
203
120''
204'
165o
100
189
15o
201
166'
166
203
120
166''
162
120s

FIG. 5E

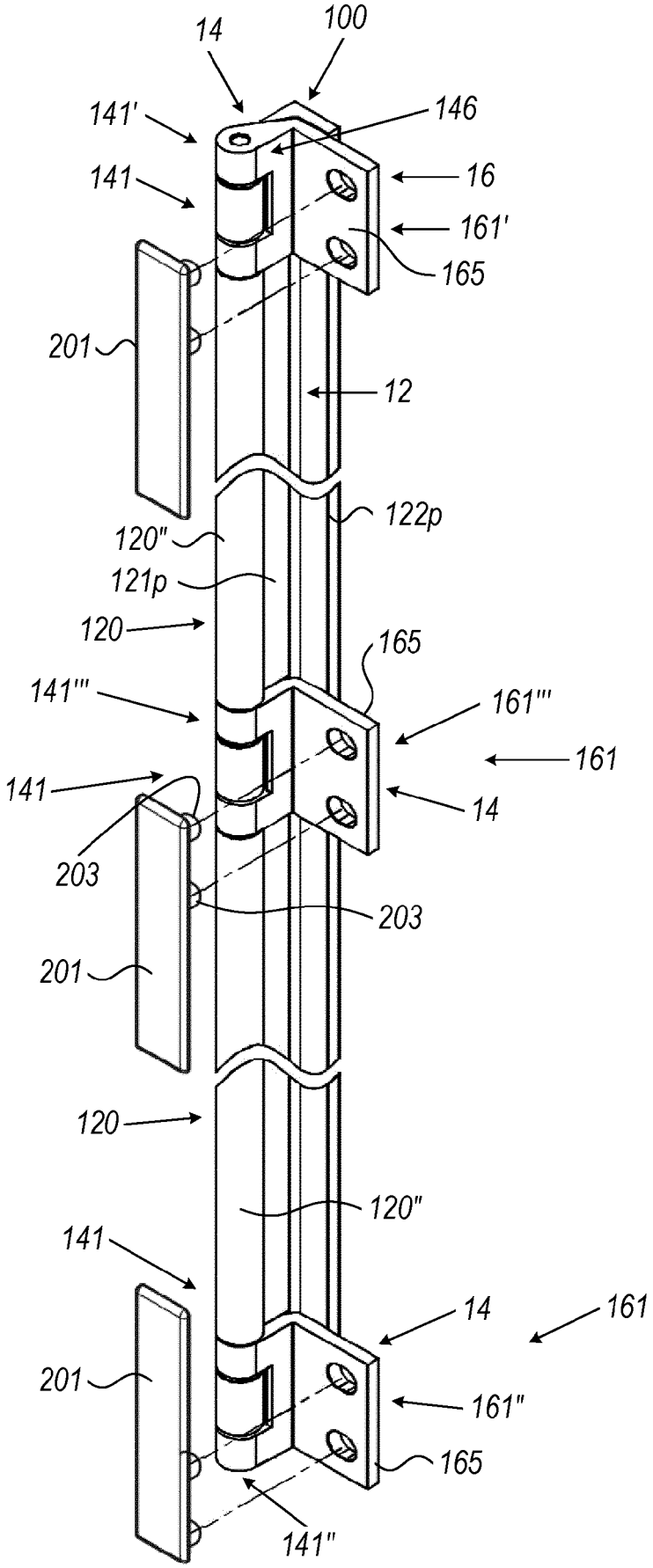
14
100
141'
146
141
16
161'
165
201
12
122p
120"
121p
120
165
141'''
161'''
161
141
14
203
203
201
120
120"
141
14
161
201
161"
165
141"

FIG. 6A

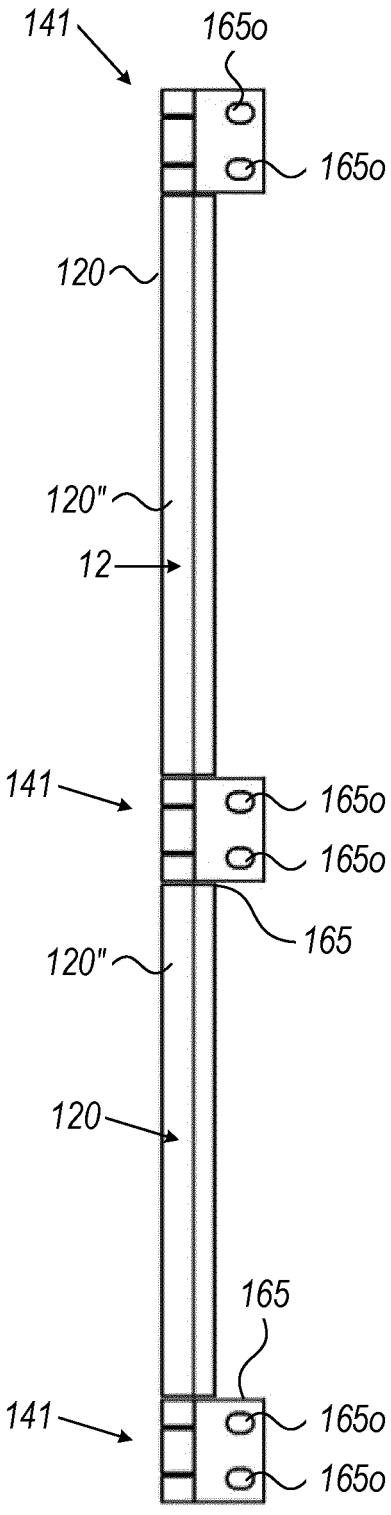

FIG. 6B

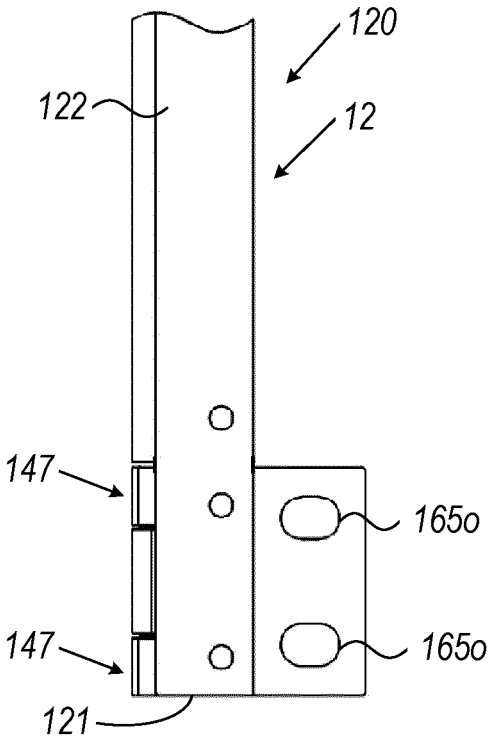

FIG. 6C

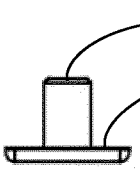

FIG. 7B

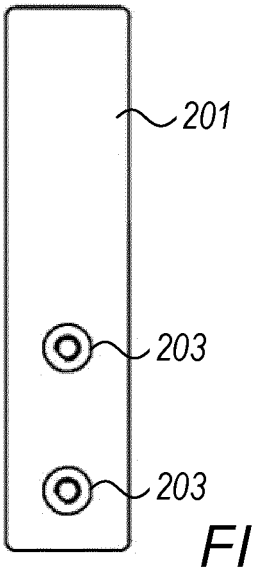

FIG. 7A

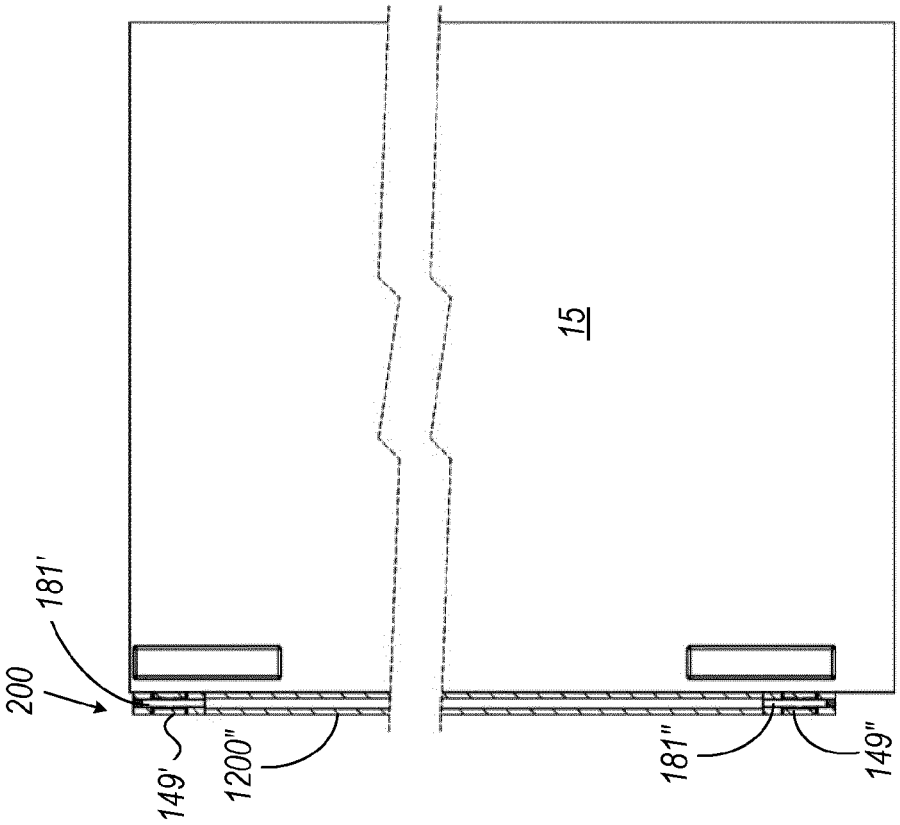

FIG. 8C

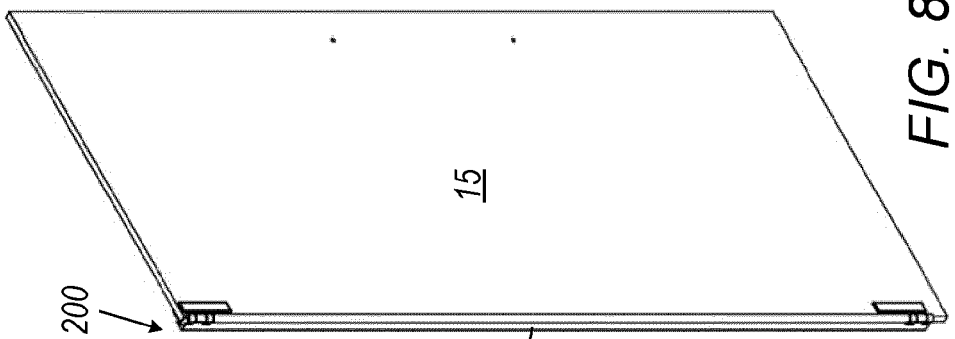

FIG. 8A

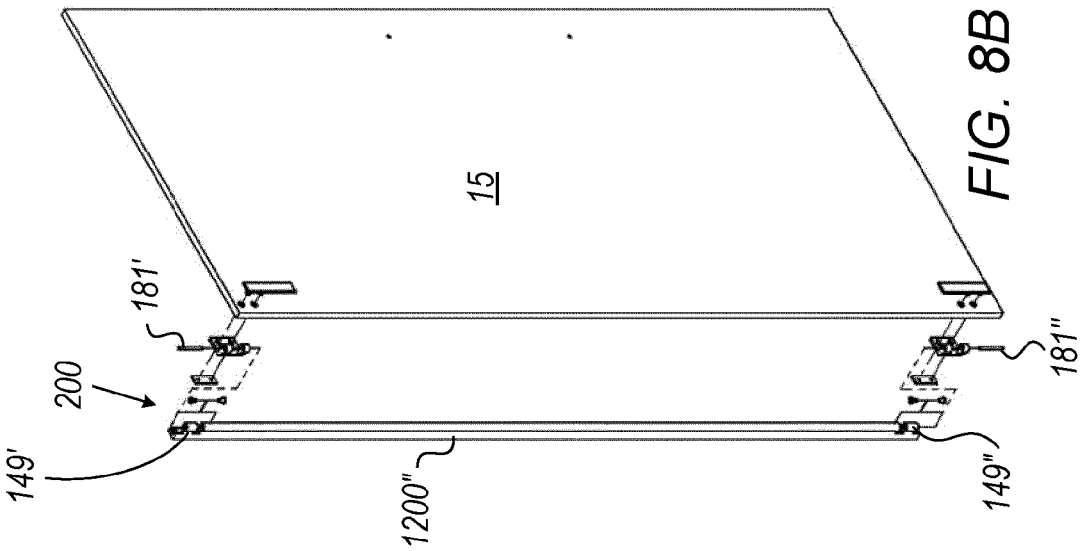

FIG. 8B

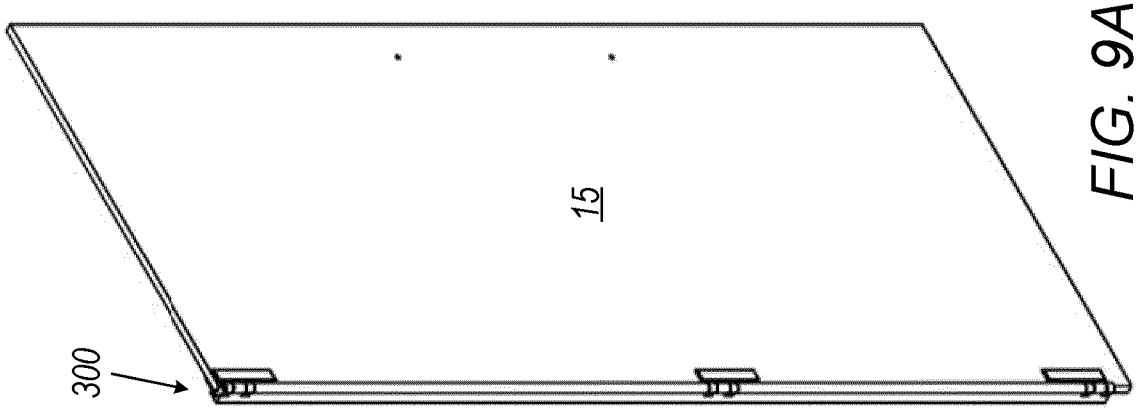

FIG. 9A

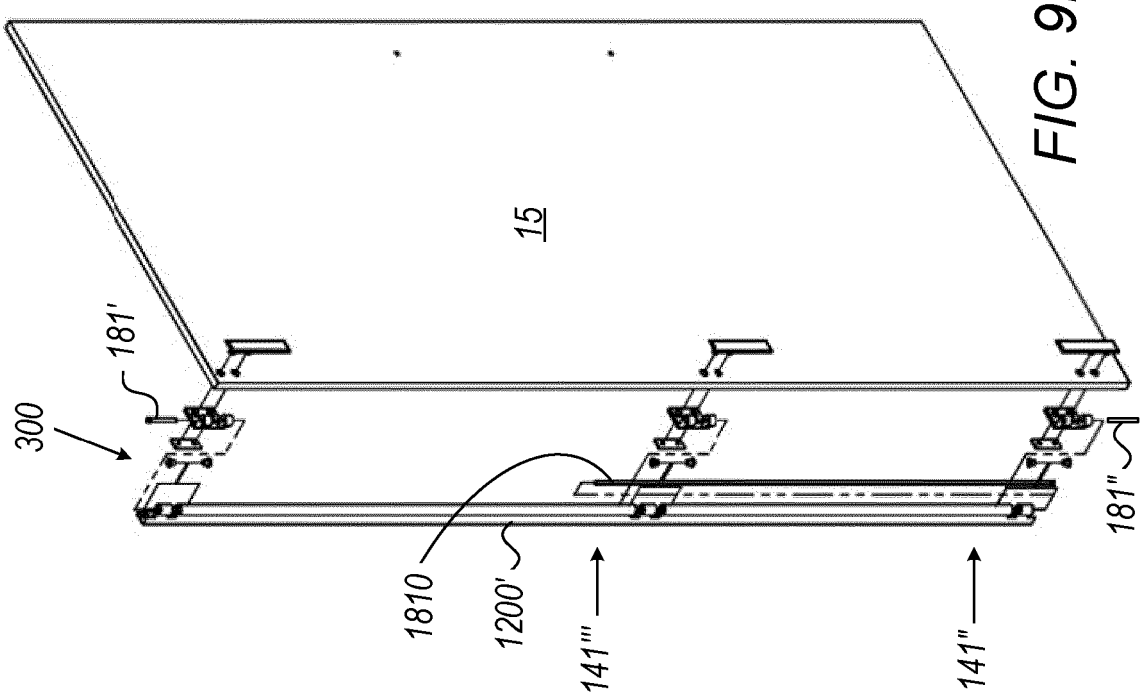

FIG. 9B

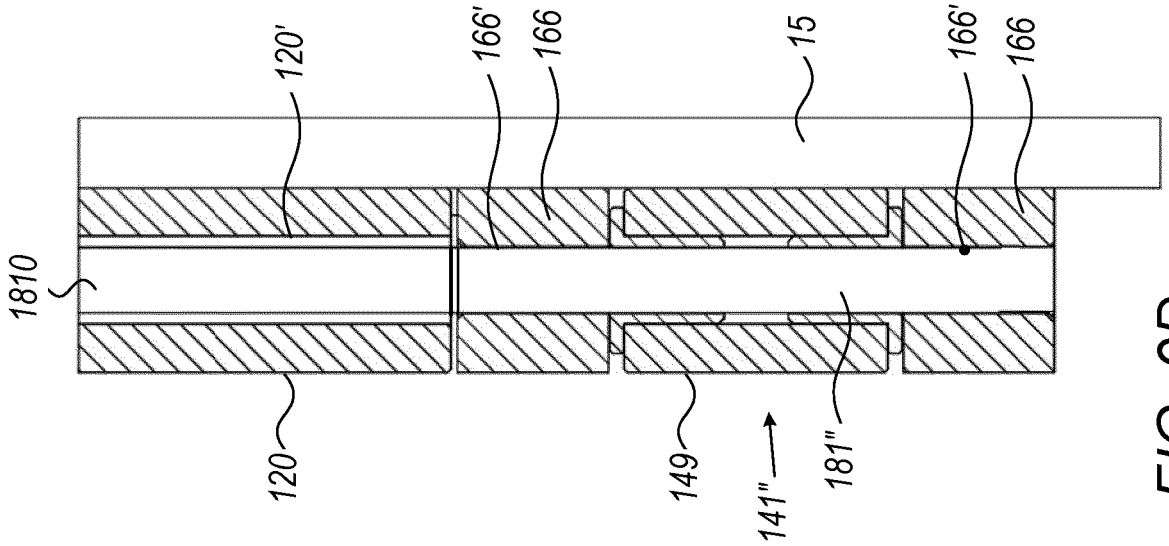
1810
120'
166'
166
15
166'
166
120
149
141"
181"

FIG. 9D

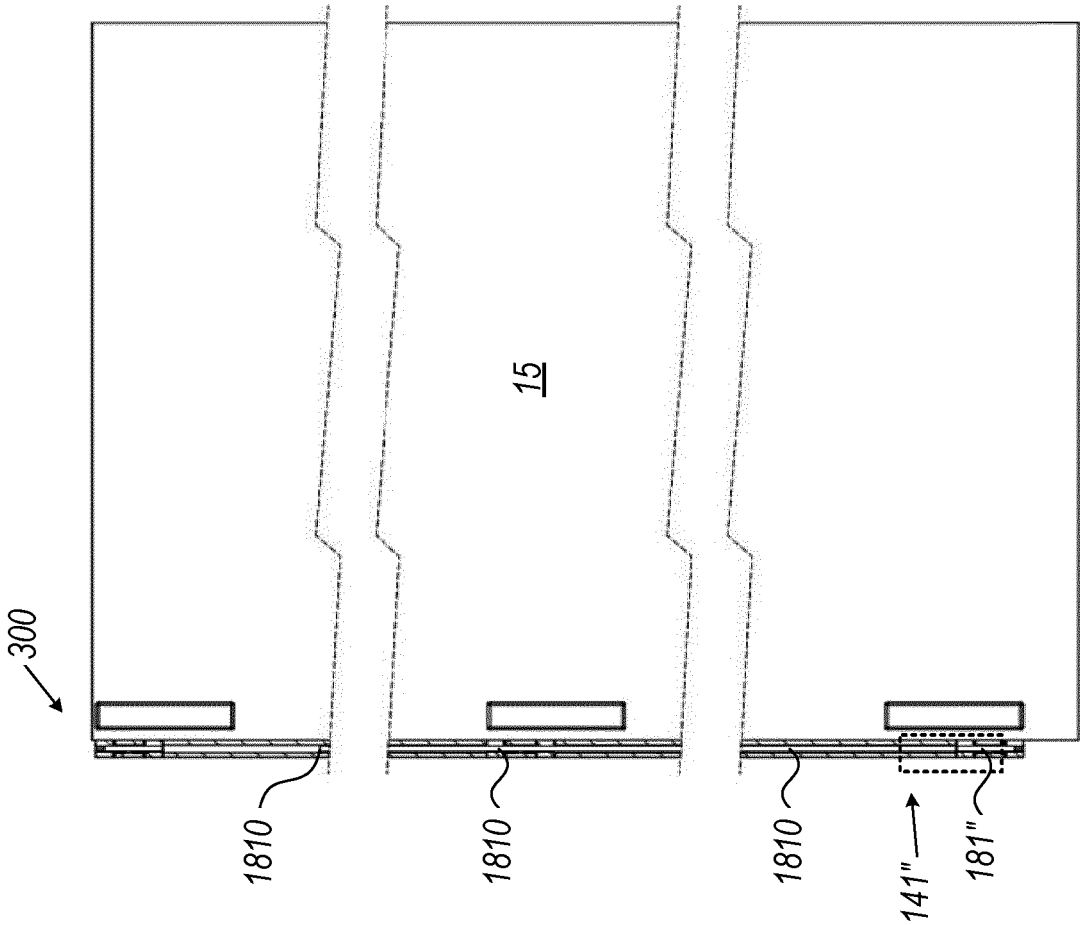
300
15
1810
1810
1810
141"
181"

FIG. 9C

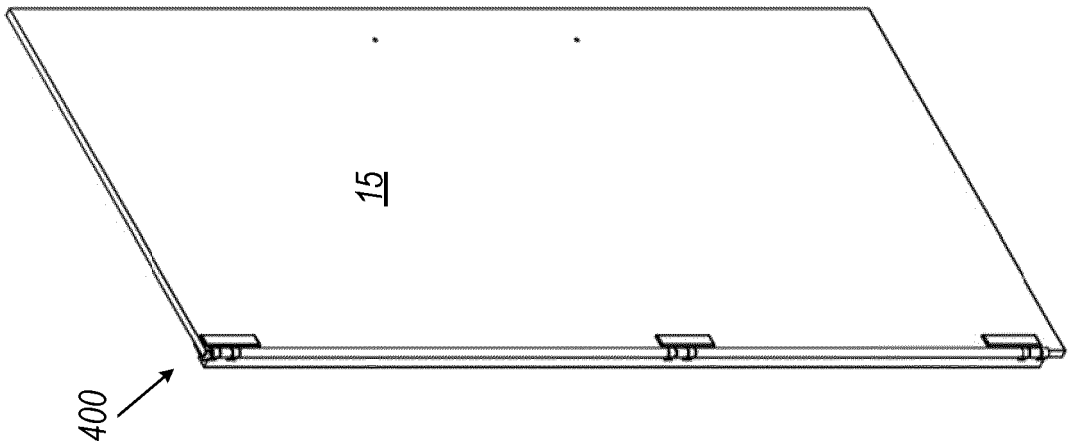

FIG. 10A

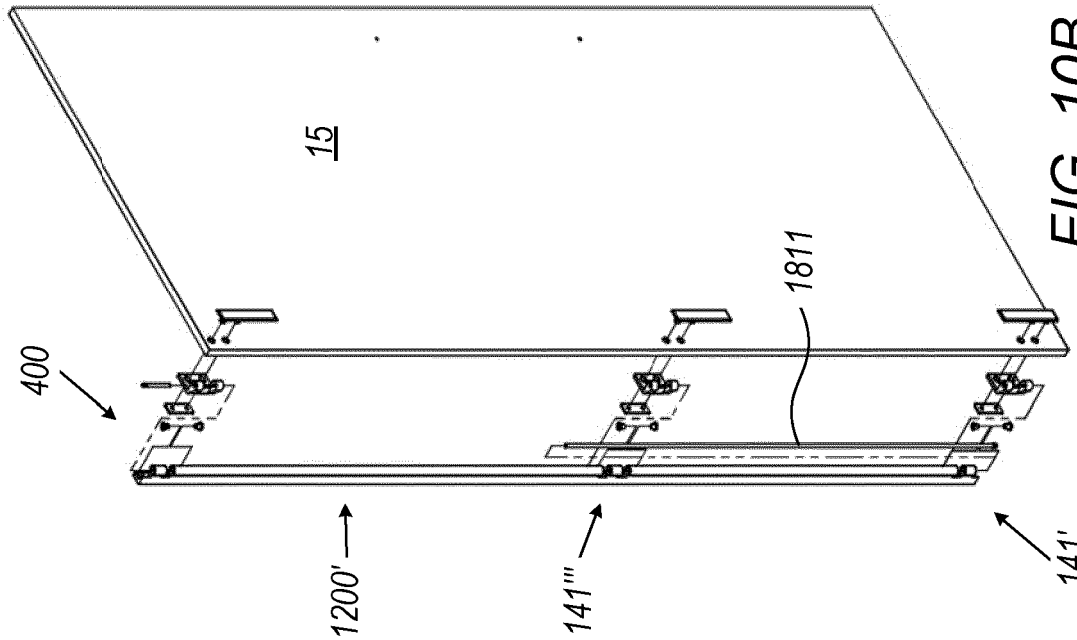

FIG. 10B

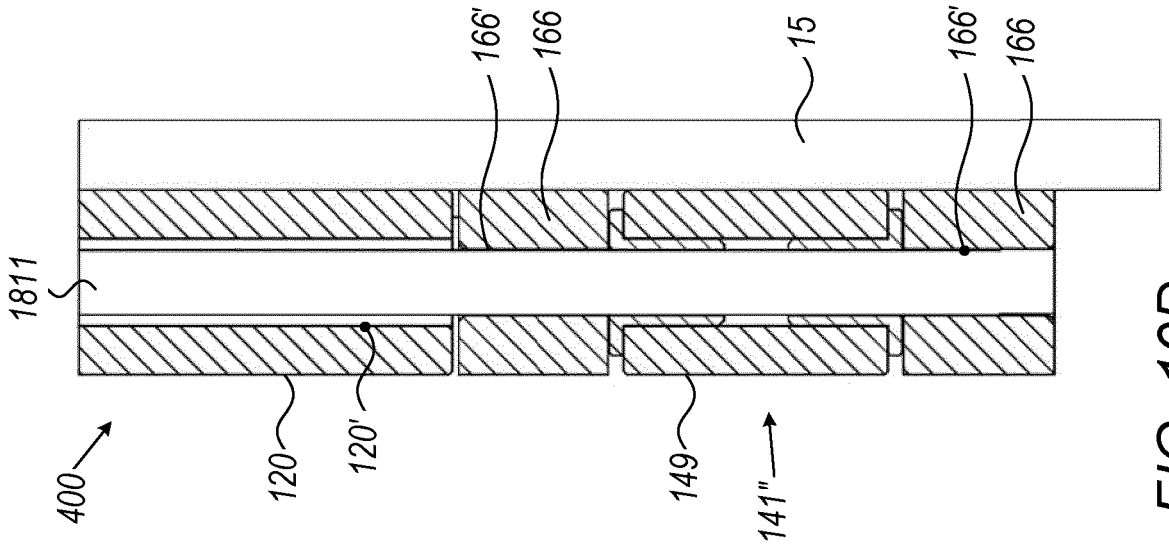

FIG. 10D

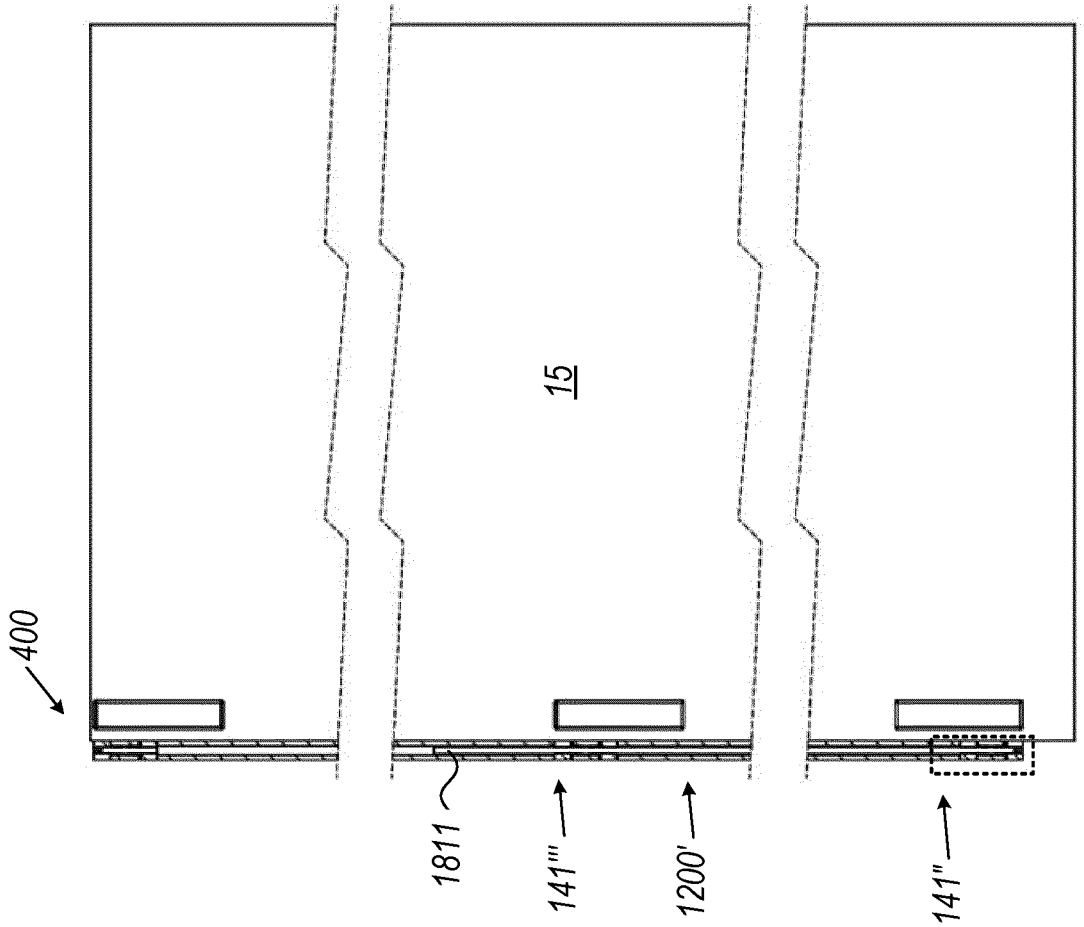

FIG. 10C

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EUROPEAN SEARCH REPORT

Application Number
EP 24 20 4517

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 6 298 605 B1 (DELEFOSSE BRUNO [FR] ET AL) 9 October 2001 (2001-10-09)	1,2, 4-16,26, 58	INV. E05D3/02 E05D5/06 E05D11/00 E06B7/36
Y	* column 2, lines 40-63; figures 1,3,4 *	3	

X	KR 2019 0108039 A (SEOWON SANGHYUP LTD [KR]; DAE DO TECH WIN CO LTD [KR]) 23 September 2019 (2019-09-23)	16,26, 30,48,58	ADD. E05D5/12
Y	* paragraphs [0020] - [0037]; figures 2-5,8-10 *	3	E05D7/00

X	WO 2017/095106 A1 (DEADO TECHWIN CO LTD [KR]) 8 June 2017 (2017-06-08) * paragraphs [0024] - [0046]; figures 3-8 *	16,26, 48,58	

TECHNICAL FIELDS SEARCHED (IPC)
E05D
E06B

The present search report has been drawn up for all claims

1

Place of search	Date of completion of the search	Examiner
The Hague	30 April 2025	Rémondot, Xavier

CATEGORY OF CITED DOCUMENTS

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D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

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Application Number
EP 24 20 4517

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

[X] Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

16, 26, 30, 48, 58

[ ] No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

[ ] All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

[ ] As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

[ ] Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

[ ] None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

[ ] The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 24 20 4517

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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30-04-2025

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