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(71) Applicant: **Scholte's Metaalbewerking B.V.**
9528 PN Buinen (NL)

(72) Inventor: **WIND, TJADE**
9561 CM Ter Apel (NL)

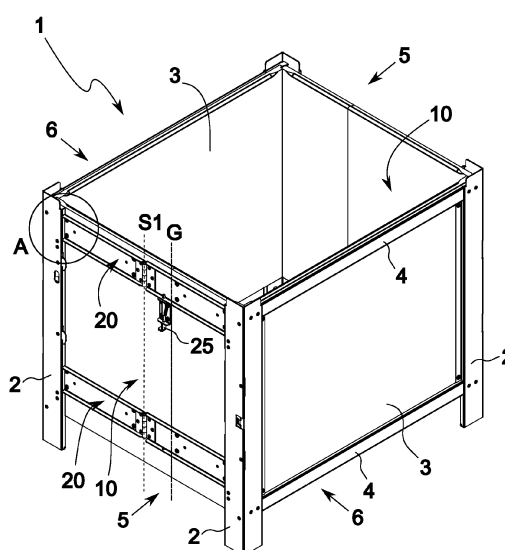
(74) Representative: **Mink-Lindenburg, Charlotte Hildegard**
Octrooibureau Mink B.V.
P.O. Box 85658
2508 CJ The Hague (NL)

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(54) **FOLDABLE BOX MOULD**

(57) The invention refers to a box (1) arranged for placing on a detachable bottom, for example a pallet, wherein the box is provided with four walls (5, 6) and comprises a frame, wherein a number of side panels (3, 10) are provided, which cover the frame on the inner sides and in a position of use enclose an interior space for the reception of goods. The walls comprise a pair of first walls (5), which are positioned opposite of each other, and comprise a pair of second walls (6), which are positioned opposite of each other. The first walls (5) are arranged hinging and are moveable between the position of use, wherein the first walls (5) are substantially plane, and a transport position, wherein the first walls (5) are folded in.

FIG. 1



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Description

[0001] The invention refers to a box arranged for placing on a detachable bottom, for example a pallet, wherein the box is provided with four walls and comprises a frame, wherein a number of side panels is provided, which cover the frame on the inner sides and in an position of use enclose an interior space for the reception of goods, wherein the walls comprise a pair of first walls, which are positioned opposite of each other, and comprise a pair of second walls, which are positioned opposite of each other.

[0002] Such a box is known as box mould, wherein the side panels can form soft goods, such as cheeses. In practice these box moulds are known for the curing of young cheese which is wrapped in foil. It is common to stack the foil cheeses for example 8 layers high with 8 pieces per layer on a pallet. The total mass of the cheese is then 1024 kilos. Because of the foil cheese being very soft and only slightly being kept in shape by the vacuum sealed foil a support is needed, which is referred to as box mould.

[0003] A box mould is for example known from the European patent EP2177442 of the same applicant.

[0004] The known box mould has an innovative construction of a frame and detachable side panels, which completely shield off the interior space. The known box mould can be demounted to a transport position after the unloading of the goods, wherein it takes up less space than in the position of use.

[0005] The present invention aims to provide a box of the kind mentioned in the preamble, which can be put into the transport position in a quicker and easier manner.

[0006] The box according to the invention furthermore has the characteristic, that the first walls are arranged hingable and are moveable between the position of use, wherein the first walls are substantially plane, and a transport position wherein the first walls are folded in. The side panels do not have to be demounted now, because the first walls can be hinged to the transport position, which can take place quicker and is easier to carry out.

[0007] In a box according to the preamble of claim 1, the frame comprises angle profiles and transverse profiles, which interconnect the angle profiles, wherein the side panels are fastened on the transverse profiles. The angle profiles can contribute to a fitting placement of the box over the pallet and also serve as uprights. The box has a minimal number of parts.

[0008] In the box according to the preamble of claim 1, each first wall comprises one or more transverse profiles, which are attached hingable in the frame, and each first wall comprises a first side panel that is arranged in two parts. The bipartite first side panel will fold inwards when moving to the transport position, causing the box to be folded in very compactly in the transport position. Furthermore the first side panel consists of two panel parts and each first transverse profile comprises two transverse profile parts.

[0009] A box according to the preamble of claim 1 is known from WO2011/049494.

[0010] The box according to the invention distinguishes over the known box in that the panel parts are of unequal size and the transverse profile parts are interconnected by means of a first hinge, which is fastened on the largest panel part. The box hereby secures itself in position of use and can endure the pressure of the cheeses against the inner wall. By choosing the two transverse profile parts to be substantially of equal length, both first walls hinge halfway and the most compact transport position can be achieved, wherein the second walls get as close as possible and clamp the first walls.

[0011] In a practical preferred embodiment, each first wall comprises a lower first transverse profile with a lower first hinge and an upper first transverse profile with an upper first hinge.

[0012] In a further preferred embodiment of the box according to the present invention, the angle profiles are each provided with at least one bent edge and the first transverse profiles are each provided with a groove for the receival of the bent edge of the angle profiles. The cooperating edges and grooves ensure a correct positioning of the first walls when returning to the position of use. These also contribute to the stability of the box in the position of use.

[0013] In a practical preferred embodiment, each second wall comprises a second side panel that is made from one piece and an upper and lower second transverse profile whereon the second side panel is arranged.

[0014] In a profitable preferred embodiment, the box according to the present invention is provided with first locking means, which are arranged for the pairwise locking of the angle profiles in the transport position.

[0015] Preferably, the box is further provided with a lid, which is arranged for placing on the frame in the position of use. The lid facilitates the stacking of the boxes in the position of use.

[0016] In another preferred embodiment of the box according to the present invention, the side panels are closed and provided with smooth inner sides. With that, the box is suitable for use as box mould.

[0017] In an alternative preferred embodiment, the box is further provided with a detachable bottom.

[0018] The invention will now be further explained using a number of figures, wherein

Figure 1 shows a schematic view of a preferred embodiment of the box according to the invention in position of use;

Figure 2 shows a schematic view of the preferred embodiment of figure 1 in an intermediate position; Figure 3 shows a schematic view of the preferred embodiment of figure 1 in transport position;

Figure 4 shows section A of the preferred embodiment of figure 1 in more detail and partly cut-away; and

Figure 5 shows a schematic view of the preferred

embodiment of figure 1 with a pallet and optional lid.

[0019] Figure 1 shows a schematic view of a preferred embodiment of the box according to the invention in the position of use.

[0020] The box 1 comprises four walls 5, 6 and is arranged for placing on a detachable bottom, for example a pallet 100, as shown in figure 5. In the shown preferred embodiment, the walls are formed by a four-sided frame 2, 4, 20, wherein a number of side panels 3, 10 are provided, which cover the frame on the inner sides and in a position of use enclose an interior space for the receipt of goods. The walls comprise a first pair of walls 5, which are positioned opposite of each other in the position of use, and a second pair of walls 6, which are positioned opposite of each other in the position of use.

[0021] According to the spirit of the invention, the box 1 is moveable between the position of use and a transport position. The first walls 5 are therefore hingably connected to the second walls 6. The first walls 5 are therefore also arranged collapsible. Figure 2 shows a schematic view of the box 1 in an intermediate position, wherein the first walls are partly folded in.

[0022] Both first walls 5 each comprise two first transverse profiles 20, which are substantially arranged hingably. Each first transverse profile 20 comprises two transverse profile parts 21, 22, which are interconnected by means of a first hinge 23. The hinge axes of the first hinges 23 lay substantially on one line S1 (the first hinge line).

[0023] First side panels 10 are fastened on the first transverse profiles 20. Each first side panel 10 is arranged bipartite. The two panel parts 11, 12 of each first side panel 10 are of unequal size. The largest panel part 11 and the smallest panel part 12 adjoin each other at the location of a borderline G. At each first side panel 10 the hinge line S1 runs substantially vertical over the largest panel part 11 in the position of use. Preferably the two transverse profiles 21, 22 are substantially of equal length. The hinge line S1 then runs over the centre of the first wall 5. The borderline G and the hinge axis S1 run alongside each other and do not coincide. This ensures that the first walls 5 can only fold inwards and not outwards. This way a mechanical lock is created.

[0024] Both second walls 6 each comprise two second transverse profiles 4. Each second wall 6 comprises a second side panel 3, that is made from one piece and is mounted on the second transverse profiles 4. In the shown preferred embodiment, the two transverse profiles 4 are located on the upper edge respectively on the lower edge of each second side panel 3.

[0025] Figure 3 shows a schematic view of the preferred embodiment of figure 1 in the transport position, wherein the first walls 5 are folded in and the second walls 6 clamp the collapsed first walls 5.

[0026] The frame of the box 1 further comprises four angle profiles 2, which are interconnected by the first transverse profiles 20 and the second transverse profiles

4.

[0027] The second transverse profiles 4 are rigidly connected with the angle profiles 2.

[0028] The first walls 5 are hingably connected with the angle profiles 2, preferably at the location of the transverse profiles 20. This is further explained using figure 4, which shows section A from figure 1 in more detail.

[0029] In the shown preferred embodiment both transverse profiles 21, 22 of each first transverse profile are hingably connected with the angle profiles 2 by means of second hinges. The transverse profile parts 21 also hinge around the hinge axes that lay on the second hinge line S2. The transverse profile parts 22 also hinge around the hinge axes that lay on the third hinge line S3 in a similar way.

[0030] The second hinges consist of an upper second hinge part 24 and a lower second hinge part 26. The upper second hinge part 24 is mounted on the respective transverse profile part (21 in figure 4). The lower second hinge part 26 is mounted on the respective angle profile 2.

[0031] Each angle profile 2 is provided with at least one bent edge 2A. The transverse profile parts 21, respectively 22, are each provided with a groove for the receipt of the bent edge 2A of one of the angle profiles 2. The groove 21A in the transverse profile part 21 is visible in the figures. The transverse profile part 22 has a similar groove, which is not shown.

[0032] In the preferred embodiment, the box 1 is provided with first locking means 27, which are arranged for the pairwise locking of the angle profiles 2 in the transport position. Preferably the first locking means comprise a sliding lock 27, which is mounted on one or more angle profiles 2.

[0033] Both first walls 5 are each on the outside optionally provided with a locking element 25 for the locking of the first walls 5 in the position of use and the unlocking of the first walls 5 prior to the movement to the transport position.

[0034] The box according to the invention is, provided that it is provided with closed side panels with a smooth inner side, particularly suitable for use as a box mould for cheese but is explicitly not limited thereto. The box according to the invention is suitable for each other type of usage wherein products must be stored for some time.

[0035] The box 1 is further optionally provided with a lid, which is arranged for placing on the frame in the position of use, for example a lid edge 30, as shown in figure 5.

[0036] Suitable material for the first and second side panels is wood, preferably concrete plywood. This is compressed wood with a layer of film. Suitable material for the angle profiles and the first and second transverse profiles is steel. Eventually other materials are usable, including plastic or aluminium.

[0037] In the shown preferred embodiment, the frame is suitable for cooperation with a pallet. Preferably the frame is arranged for placing over a pallet, whereby the angle profiles 2 are placed around the corners of the pal-

let and the top of the pallet forms the bottom of the interior space. As an alternative, the box can further be provided with a detachable bottom panel, which is arranged for receival in the frame.

[0038] In the shown preferred embodiment, the box has four walls. The frame comprises four angle profiles and the total number of transverse profiles currently amounts to eight, whereby four of them are near the top and four are near the bottom of the box. The number of transverse profiles can eventually be expanded if an even more firm construction is desirable.

[0039] The invention is lastly explicitly not limited to the described and shown embodiment, but generally extends to any embodiment that falls within the scope of the attached claims, viewed in light of the preceding description and drawings.

Claims

1. Box arranged for placing on a detachable bottom, for example a pallet, wherein the box is provided with four walls and comprises a frame, wherein a number of side panels are provided, which cover the frame on the inner sides and in an position of use enclose an interior space for the reception of goods, wherein the walls comprise a pair of first walls, which are positioned opposite of each other, and comprise a pair of second walls, which are positioned opposite of each other, wherein the first walls are arranged hingable and are moveable between the position of use, wherein the first walls are substantially plane, and a transport position, wherein the first walls are folded in, wherein the frame comprises angle profiles and transverse profiles, which interconnect the angle profiles, wherein the side panels are fastened on the transverse profiles, wherein each first wall comprises one or more first transverse profiles, which are fastened hingable in the frame, and wherein each first wall comprises a first side panel that is arranged in two parts, wherein the first side panel consists of two panel parts, and each first transverse profile comprises two transverse profile parts, **characterized, in that** the panel parts are of unequal size and the transverse profile parts are interconnected by means of a first hinge, which is fastened on the largest panel part.
2. Box according to claim 1, wherein each first wall comprises a lower first transverse profile with a lower first hinge and comprises an upper first transverse profile with an upper first hinge.
3. Box according to claim 1 or 2, wherein the first two transverse profiles are substantially of equal length.
4. Box according to one of the preceding claims, wherein the first transverse profiles are connected with the

angle profiles by means of two hinges.

5. Box according to claim 4, wherein the angle profiles are each provided with at least one bent edge and wherein the first transverse profiles are each provided with a groove for the receival of the bent edge of the angle profiles.
6. Box according to one of the preceding claims, wherein the box is provided with first locking means, which are arranged for the pairwise locking of the angle profiles in the transport position.
7. Box according to one of the preceding claims, wherein each second wall comprises a second side panel that is made from one piece.
8. Box according to claim 7, wherein each second wall comprises an upper and lower second transverse profile.
9. Box according to one of the preceding claims, wherein the box is further provided with a lid, which is arranged for placing on the frame in the position of use.
10. Box according to one of the preceding claims, wherein the side panels are closed and provided with smooth inner sides.
11. Box according to one of the preceding claims, wherein the box is provided with a detachable bottom.

FIG. 1

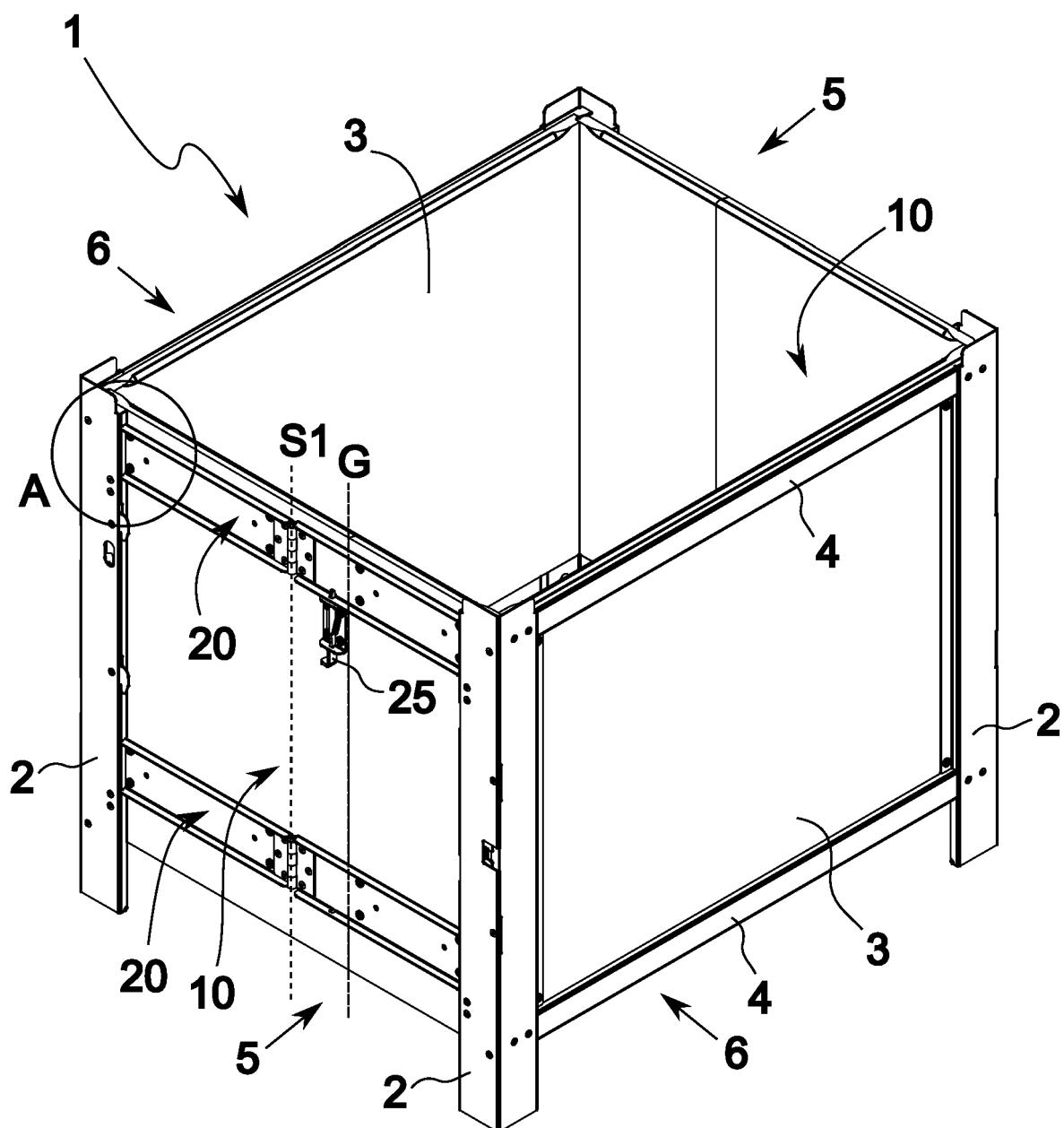
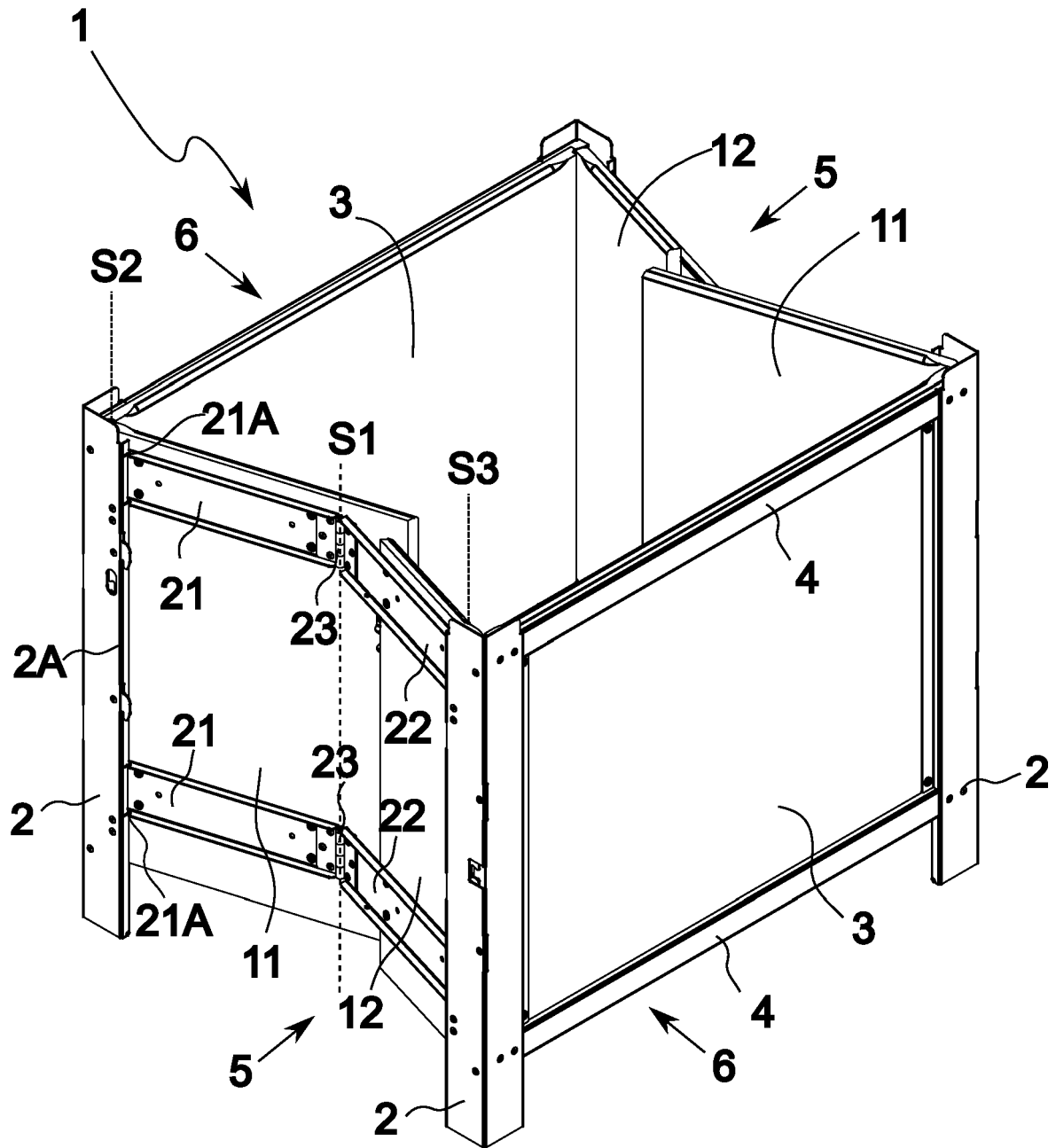


FIG. 2



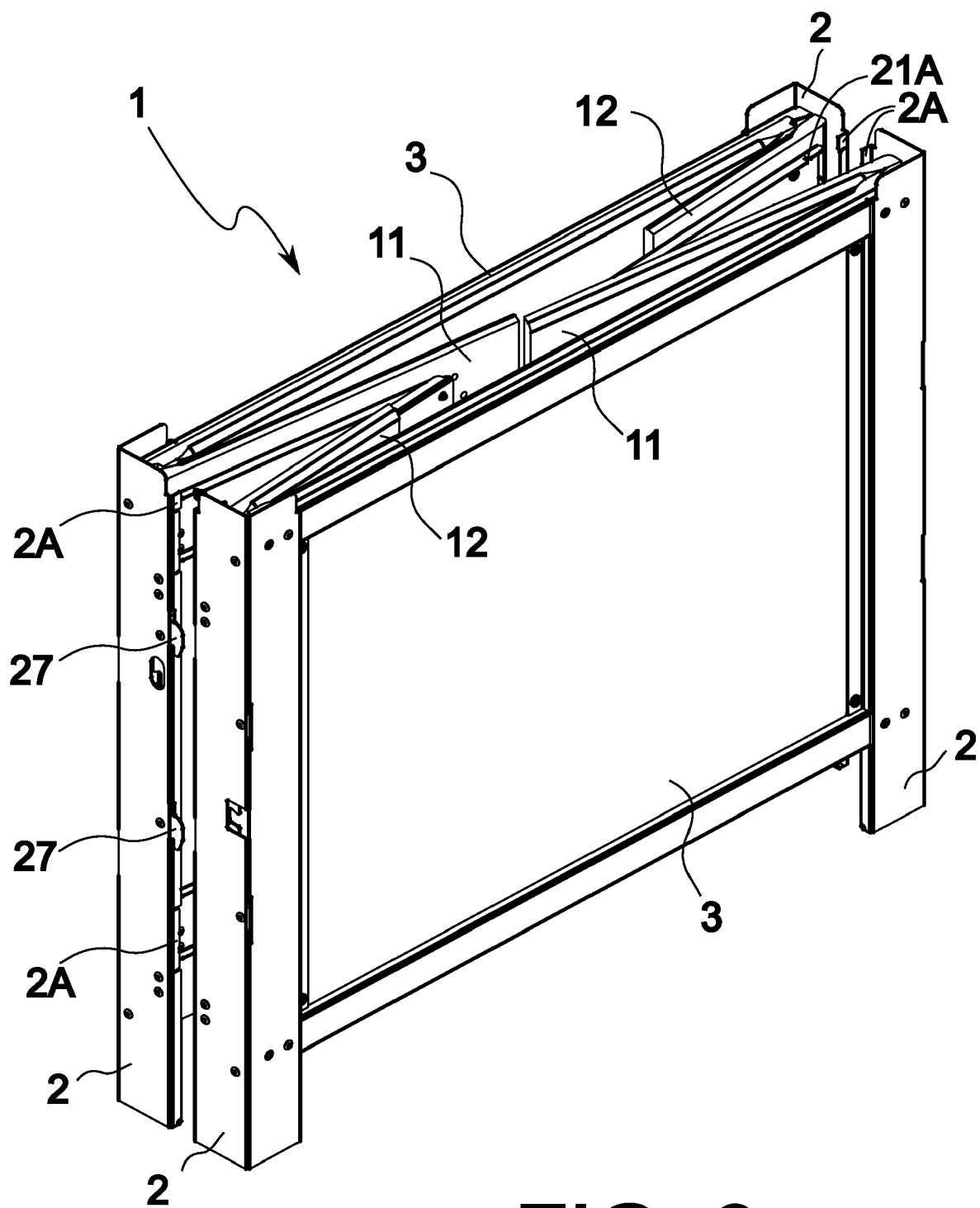


FIG. 3

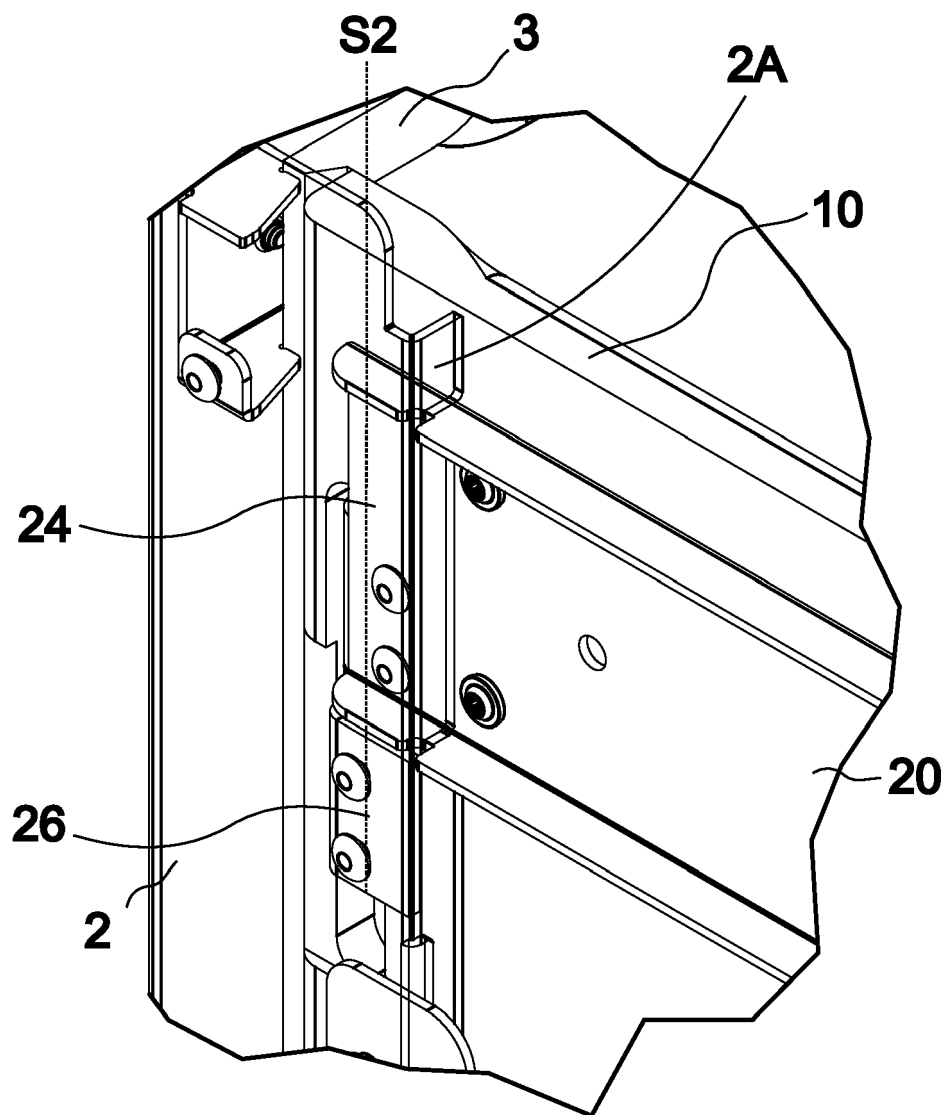


FIG. 4

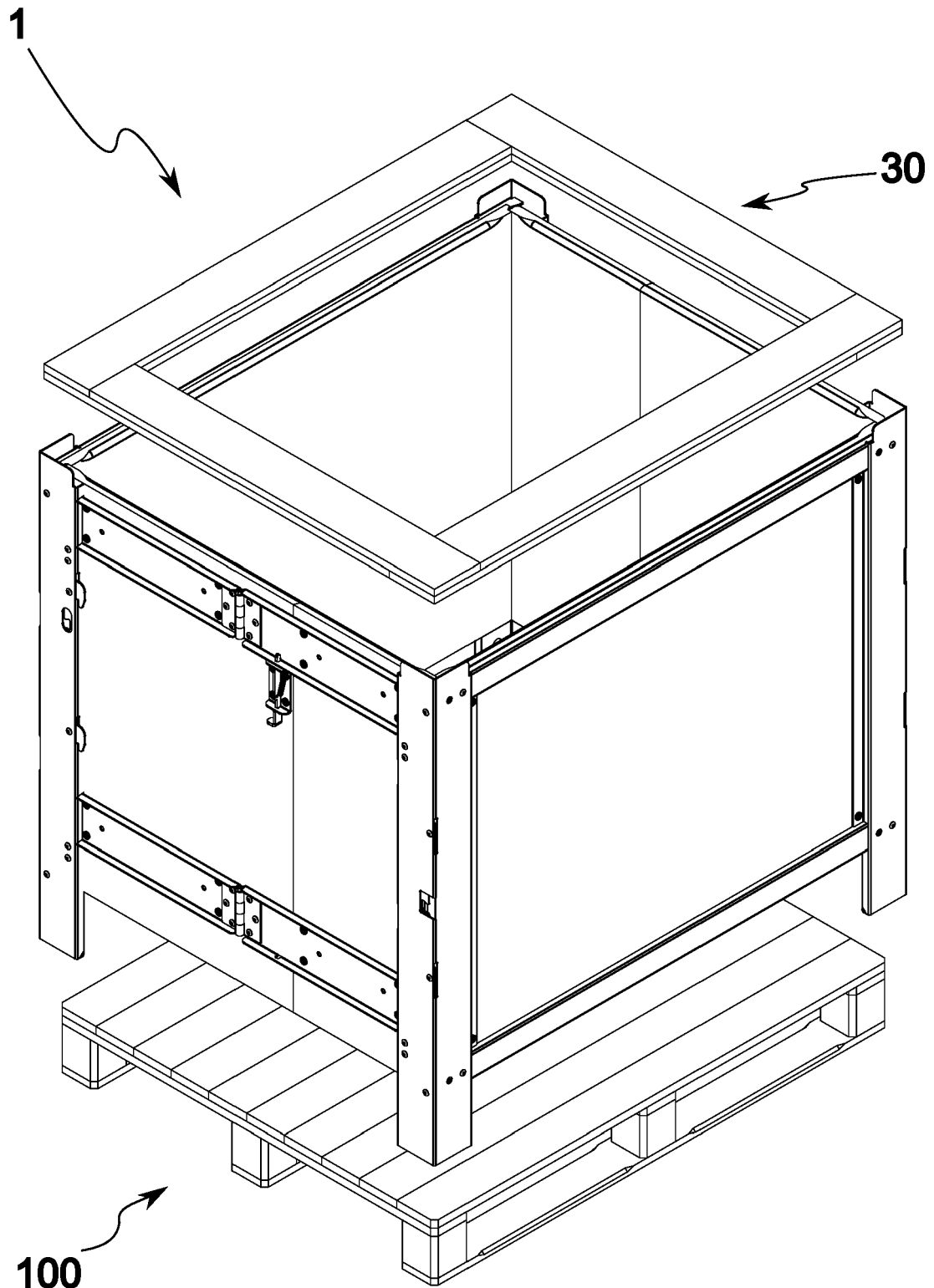


FIG. 5



EUROPEAN SEARCH REPORT

Application Number

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EPO FORM 1503 03.82 (P04C01)

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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 11 May 2022	Examiner Fitterer, Johann
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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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11-05-2022

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