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(54) **REINFORCED PALLET**

(57) Reinforced pallet of the type comprising a deck (2) and feet (3) that extend below the deck (2) and that can be integrated with it or be independent elements attached thereto. It comprises at least one protective sleeve (4) arranged around a foot (3), and in addition the sleeve (4) is elastic and said elasticity is given by the material of which it is made, which is an elastomeric material, and/or by the internal geometry thereof that comprises a plurality of ribs (5) therein.

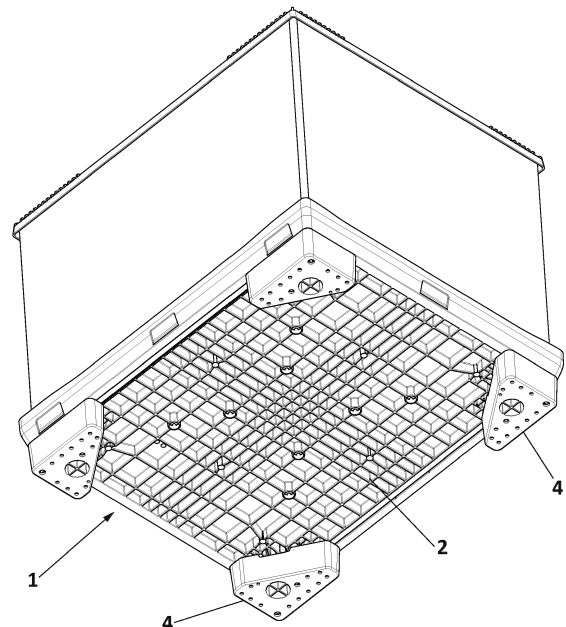


FIG. 1B

Description

Object of the invention

[0001] This invention falls within the field of logistics, storage and transport of goods. More specifically, a reinforced pallet is described that comprises at least one protective sleeve on one of the feet or skids thereof.

Background of the invention

[0002] Different types of pallets are known in the current state of the art. Generally, said pallets comprise at least one deck, on which the load to be moved and/or stored is placed, and feet or skids that extend below said deck. The feet or skids are the elements on which the pallet rests and between which the forks of the transport trolleys are inserted for moving the pallet.

[0003] The lower portion of the pallet (comprising the feet and/or the skids) is what defines the stability and scope of application of each pallet. Generally, pallets with feet can be nested together but allow less storage and transport volume and generally cannot be used in roller systems or high racks. Moreover, pallets with skids can be raised to different heights and are used in automated transport systems and high-rack storage.

[0004] The pallets deteriorate especially in the lower portion, i.e., in the area of the feet and/or the skids. In this sense, solutions have been developed intended for enabling deteriorated feet and/or skids to be exchanged. In other words, in many cases the feet and/or skids that break down can be changed for new ones to thus avoid having to change the entire pallet due to a breakage or deformation in the lower portion.

[0005] One of said solutions is described in document WO2020070077 which proposes a plastic pallet with a deck for the storage of objects to be transported, feet with first foot elements attached to a decked lower face and second foot elements moulded on skids that connect two feet to each other. It also has connection means to connect the first foot elements to the corresponding second foot elements and therefore the deck with the skids. The connection means are reversible and in at least some of the feet comprise a tongue-shaped plate that is integrally formed in one of the two foot elements, is elastically flexible around a bending axis, and has a longitudinal axis that is perpendicular to the bending axis. The tongue is connected to the respective foot element at a fixed end in relation to the longitudinal axis thereof, and comprises at least one hook formed at a free end in relation to the longitudinal axis thereof. Each of the corresponding connection means comprises a hook receptacle in the other of the two foot elements that is complementary to the hook and that receives said hook.

Description of the invention

[0006] As previously described, the most sensitive

parts of the pallets are the feet, which are the elements that suffer the most strikes during storage and/or transport operations. To solve the problems of the state of the art, the present invention proposes a reinforced pallet with at least one protective sleeve arranged around at least a portion of a foot of the pallet.

[0007] Preferably the pallet comprises a plurality of protective sleeves, as many as feet, and they are equipped with means for absorbing shocks and thus prevent the deterioration of the feet. Shock absorption is achieved thanks to the material of the sleeve and/or the geometric shape inside it. More specifically, the sleeves are made of elastic material and/or comprise an internal curved ribs structure.

[0008] These two technical features allow absorbing and dissipating the energy of possible strikes to the pallet feet to avoid the breakage thereof. The elastomeric material and/or the inner curved ribs structure absorb shock by deforming when stricken. The curved ribs absorb shocks very effectively by acting as a spring.

[0009] In some cases, the sleeves arranged on each of the feet may comprise two bodies, wherein one of them forms the pallet skid, attaching at least two feet together at the base thereof, forming skids.

Brief description of the figures

[0010] To complete the description, and for the purpose of helping to make the features of the invention more readily understandable, this description is accompanied by a set of drawings constituting an integral part of the same, which by way of illustration and not limitation represents the following:

Figure 1A shows a perspective view of an exemplary embodiment of the reinforced pallet, which in this case is integrated with a storage and/or transport container.

Figure 1B shows a view of the embodiment of Figure 1A from a different angle.

Figure 2A shows a perspective view of the lower portion of the pallet, in which the deck and a foot are observed.

Figure 2B shows a perspective view of the lower portion of the reinforced pallet with sleeves on each of the feet.

Figure 2C shows an exploded view of one end of the reinforced pallet in which the deck, the foot projecting from the deck, the sleeve and the means for attaching the sleeve to the deck are observed.

Figure 3A shows a perspective view of another exemplary embodiment of the sleeve, comprising two bodies attached together.

Figure 3B shows an exploded view of the embodiment of Figure 3A.

Figure 4 shows an exploded view of another exemplary embodiment in which the sleeve comprises two bodies attached together and, in this case, one of

them forms the pallet skid.

Detailed description of the invention

[0011] The present invention particularly features three preferred embodiments that are detailed below.

[0012] Figures 1A-B and 2A-C represent a first preferred embodiment while Figures 3A-B represent a second preferred embodiment. Likewise, Figure 4 exhibits a third preferred embodiment.

[0013] The reinforced pallet of the present invention is of the type comprising a deck (2), which can be a continuous surface or comprise through holes or grooves, and a plurality of feet (3) that extend below the deck (2) and that can be integrated with it or be independent elements attached thereto. The key to the reinforced pallet is that it comprises at least one protective sleeve (4) arranged around at least a portion of at least one foot (3). Said sleeve (4) is elastic and this elasticity is given by the material of which it is made and/or by the internal geometry thereof.

[0014] Figure 1A represents a reinforced pallet (1) in a perspective view. In this case a pallet comprising a storage/transport container can be observed. Figure 1B shows a perspective view of that same pallet (1) from the lower portion so that the sleeves (4) are clearly observed, which are in correspondence with the feet (3) of the pallet.

[0015] Figure 2A represents a detail of the foot (3) of the pallet and Figure 2B shows all the feet (3) of the pallet (1) covered with the sleeves (4). These figures represent the first preferred embodiment in which the sleeve (4) is a single body that covers the corresponding foot (3) around which it is placed.

[0016] An exploded view of this same embodiment is represented in Figure 2C. A corner of the pallet (1) can be seen therein and the deck (2), the foot (3), the sleeve (4) and attachment means are observed. In this case, the attachment means are configured to attach the sleeve (4) to the deck (2), the foot (3) being housed inside the sleeve (4). As can be seen in the figure, they are preferably tongue-and-groove attachment means. The deck (2) can comprise at least one through hole in correspondence with a male element (8) arranged in the sleeve (4) and intended to be housed inside the foot (3). Likewise, the attachment means comprise a female element (9) intended to be housed in the through hole, and to be attached to the male element (8) of the sleeve (4), inside the foot (3).

[0017] Said Figure 2C shows the inside of the sleeves (4) which in this case, in addition to being able to be made of an elastomeric material that absorbs the possible strikes that the pallet (1) may suffer, comprises a plurality of ribs (5) therein. Preferably, the ribs (5) have a curved shape, so that the shock absorption effect is increased.

[0018] The feet (3) of the pallet comprise a side perimeter and a base. In a second preferred embodiment, shown in Figures 3A-B, the sleeves (4) of the pallet (1) comprise a first body (6) that covers the side perimeter

of the corresponding foot (3) and a second body (7), removably attached to the first body (6) so that it covers the base of the foot (3). In a third embodiment, shown in Figure 4, the second body (7) forms the skid of the pallet (1), attaching together the bases of at least two feet (3).

[0019] In this second embodiment, the sleeves can also be elastic due to being made of elastic material, i.e., capable of absorbing strikes and deformities without breaking, or due to the internal geometry thereof (for example, with curved ribs).

[0020] The sleeves (4) comprise attachment means which, in this case, as can be seen in Figure 3B, are generally attached to the foot (3) and do not have to pass through the deck (2) although in some cases they could be directly attached to the deck (2). The means for attaching the sleeves (4) may comprise an attachment screw (11) configured to pass through the second body (7) and attach to the first body (6).

[0021] Figure 3B also shows an RFID-type device (10) that could be arranged on the pallet (1).

Claims

1. A reinforced pallet of the type comprising:

- a deck (2);
- feet (3) that extend below the deck (2) and that can be integrated with it or be independent elements attached thereto;
- and is **characterised in that** it comprises at least one protective sleeve (4) arranged around at least a portion of at least one foot (3), and wherein the sleeve (4) is elastic and said elasticity is given by the material of which it is made, which is an elastomeric material, and/or by the internal geometry thereof that comprises a plurality of ribs (5) therein.

2. The reinforced pallet according to claim 1, wherein the sleeve (4) is a single body that covers the corresponding foot (3) around which it is placed.

3. The reinforced pallet according to one of claims 1 to 2, wherein the foot (3) of the pallet comprises a side perimeter and a base and wherein the sleeve (4) comprises a first body (6) that covers the side perimeter of the corresponding foot (3) and a second body (7), removably attached to the first body (6) so that it covers the base of the foot (3).

4. The reinforced pallet according to claim 3, wherein the second body (7) forms a pallet skid, attaching together at least the bases of two feet (3).

5. The reinforced pallet according to claim 1, wherein the ribs (5) inside the sleeve (4) have a curved shape.

6. The reinforced pallet according to any one of the preceding claims, wherein the sleeves (4) comprise attachment means configured to enable said sleeves (4) to attach and separate with respect to the deck (2) and/or to the foot (3) of the pallet (1). 5
7. The reinforced pallet according to claim 6, wherein the attachment means are mechanical tongue-and-groove attachment means. 10
8. The reinforced pallet according to claim 7, wherein the deck (2) comprises at least one through hole in correspondence with a male element (8) arranged in the sleeve (4) and intended to be housed inside the foot (3), and the attachment means comprise a female element (9) intended to be housed in the through hole, and to be attached to the male element (8) of the sleeve (4), inside the foot (3). 15
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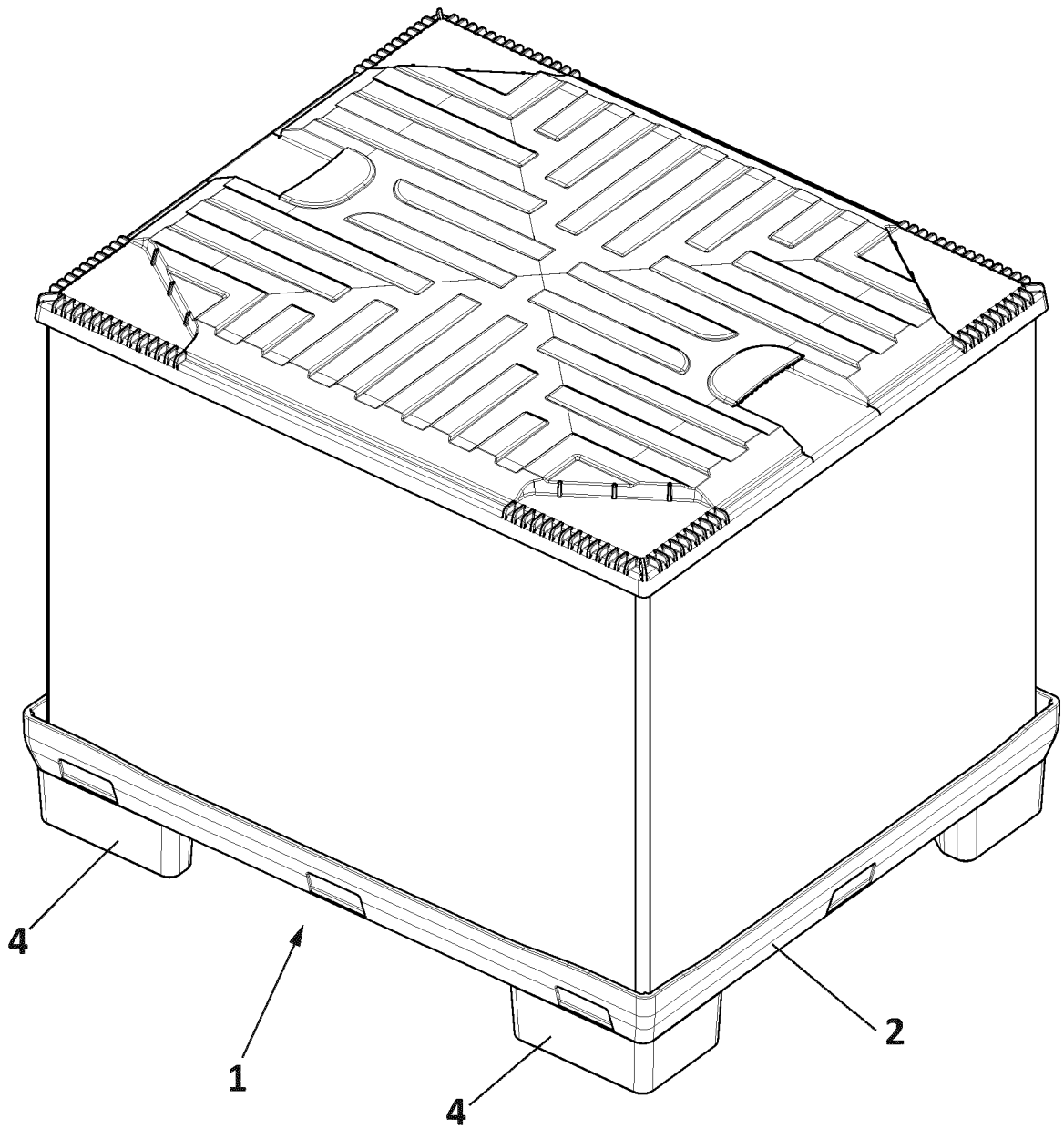


FIG. 1A

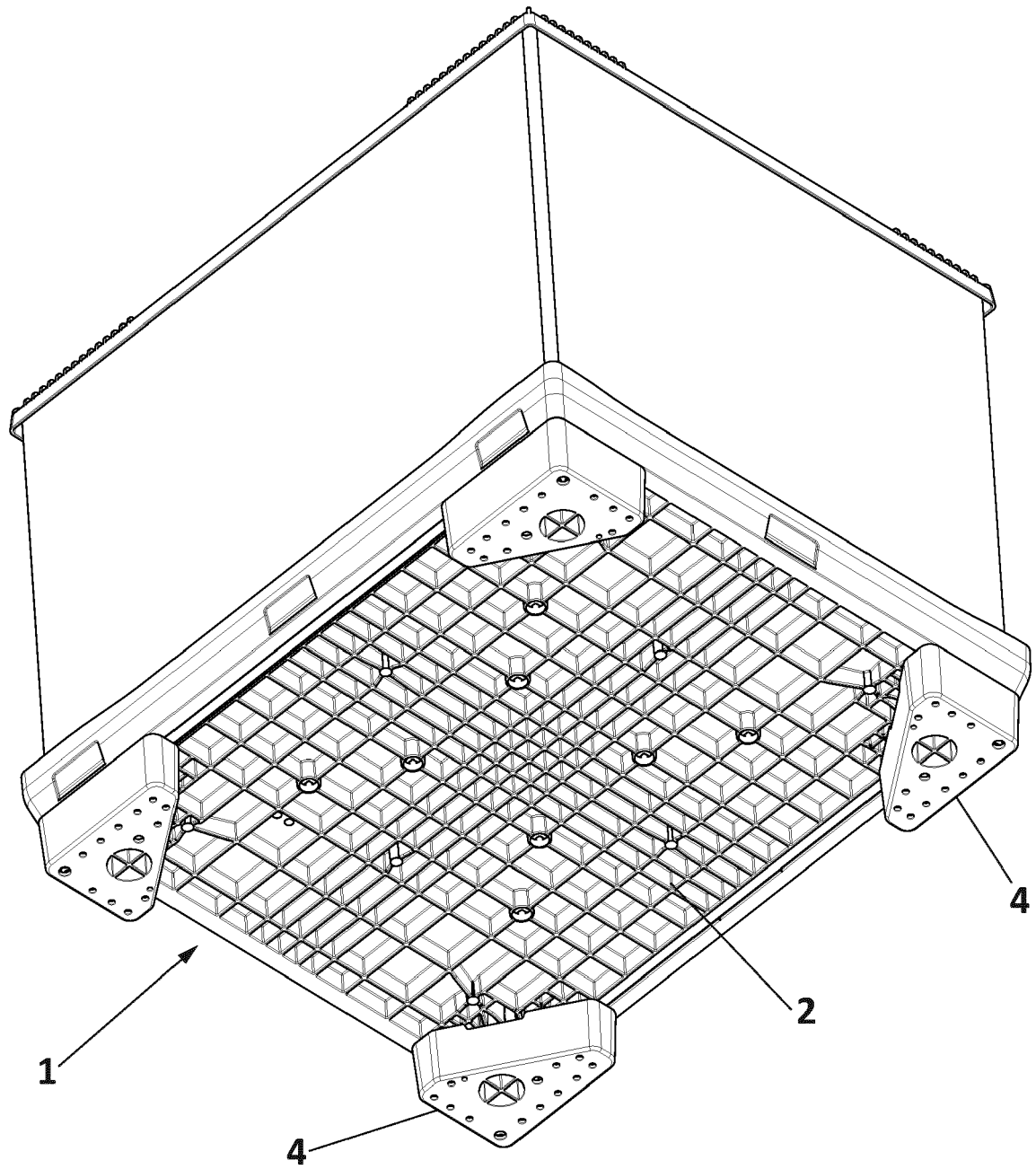
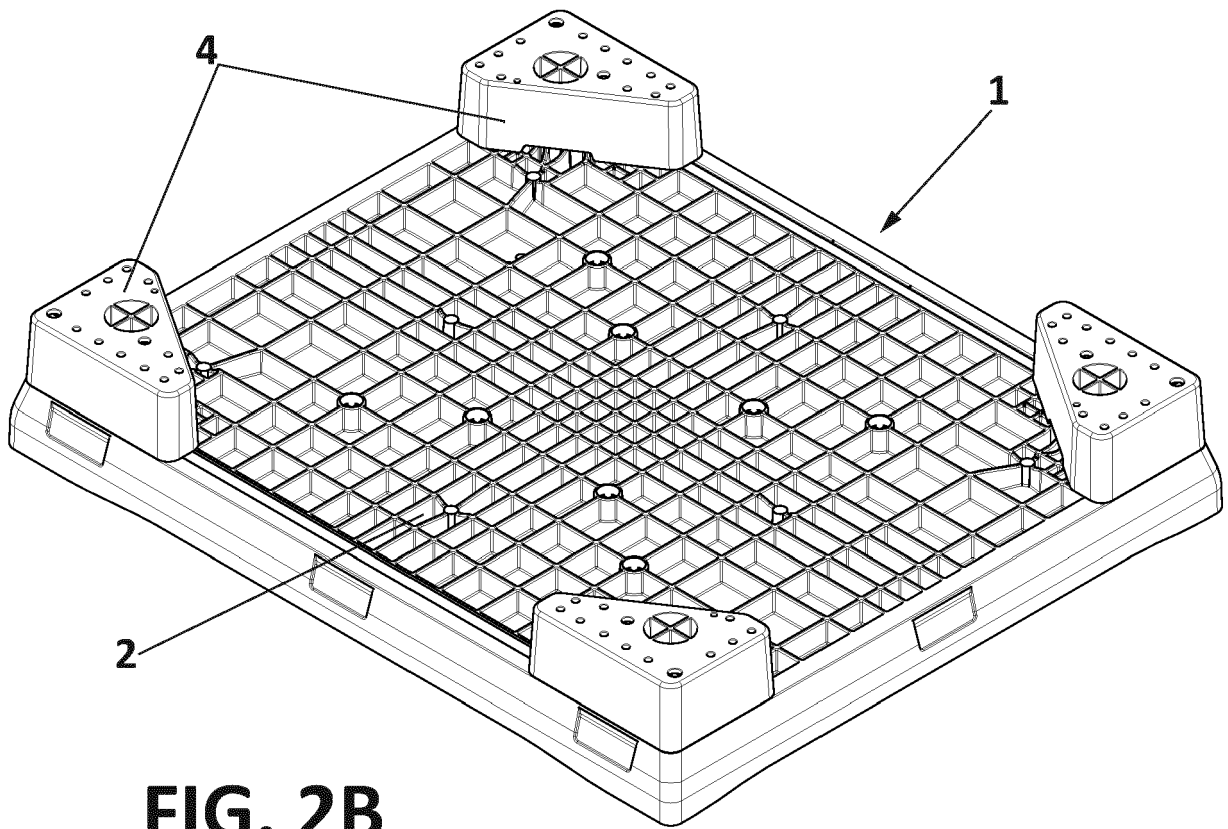
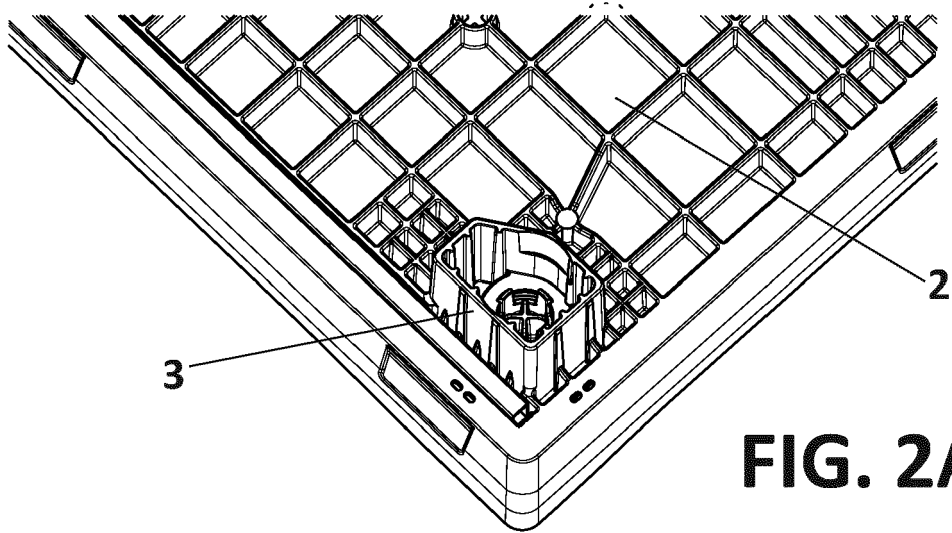


FIG. 1B



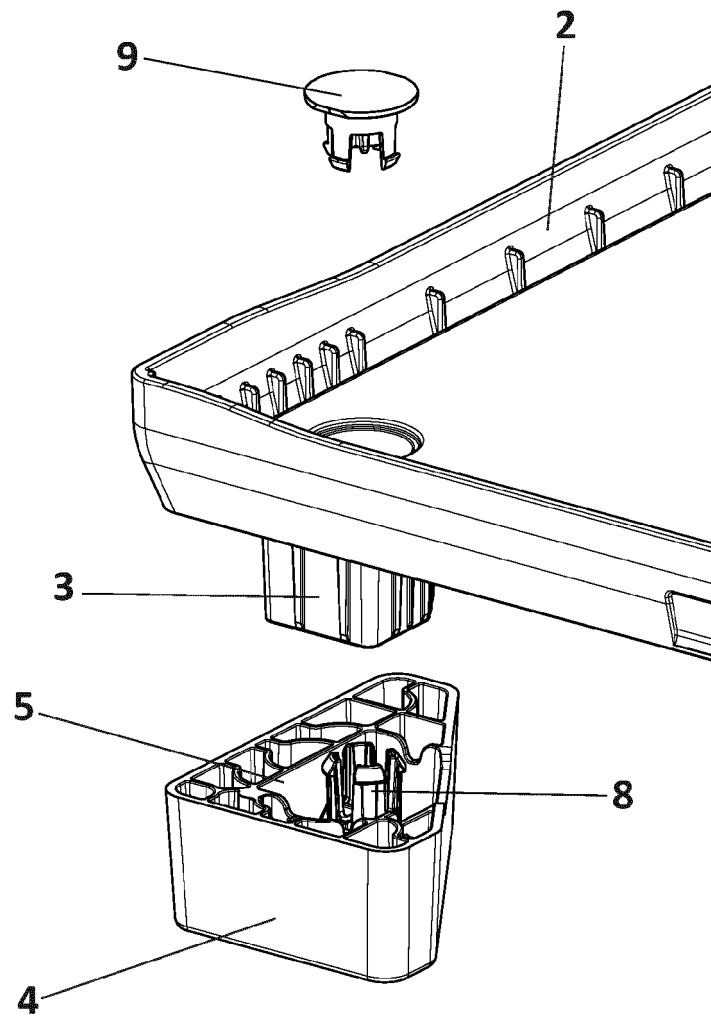


FIG. 2C

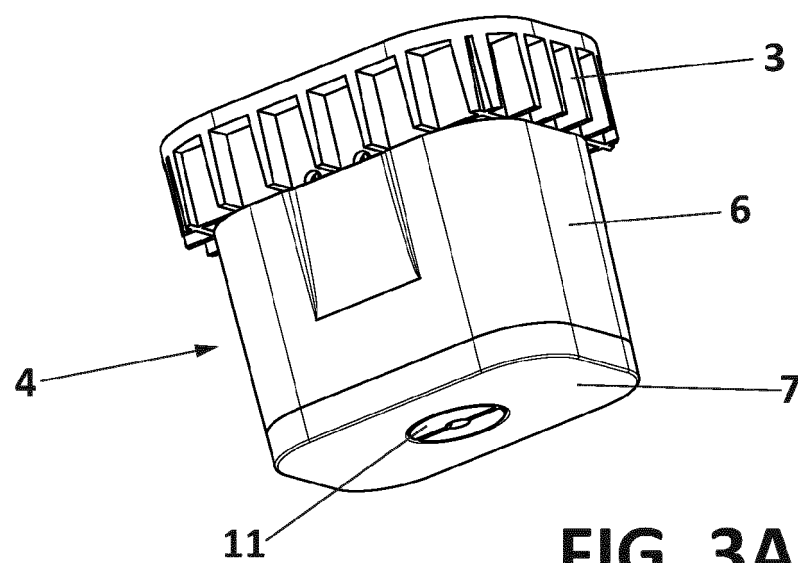


FIG. 3A

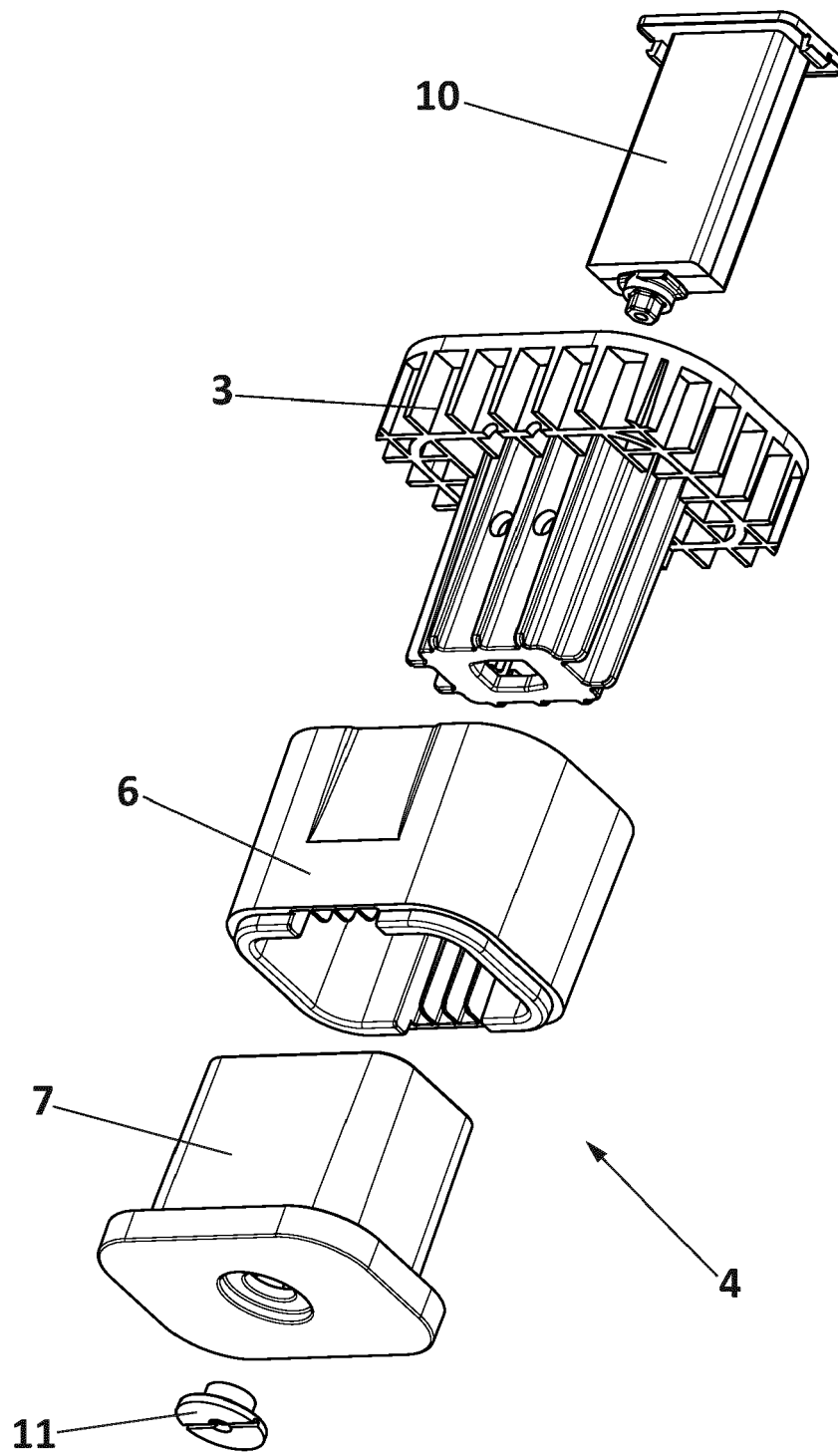


FIG. 3B

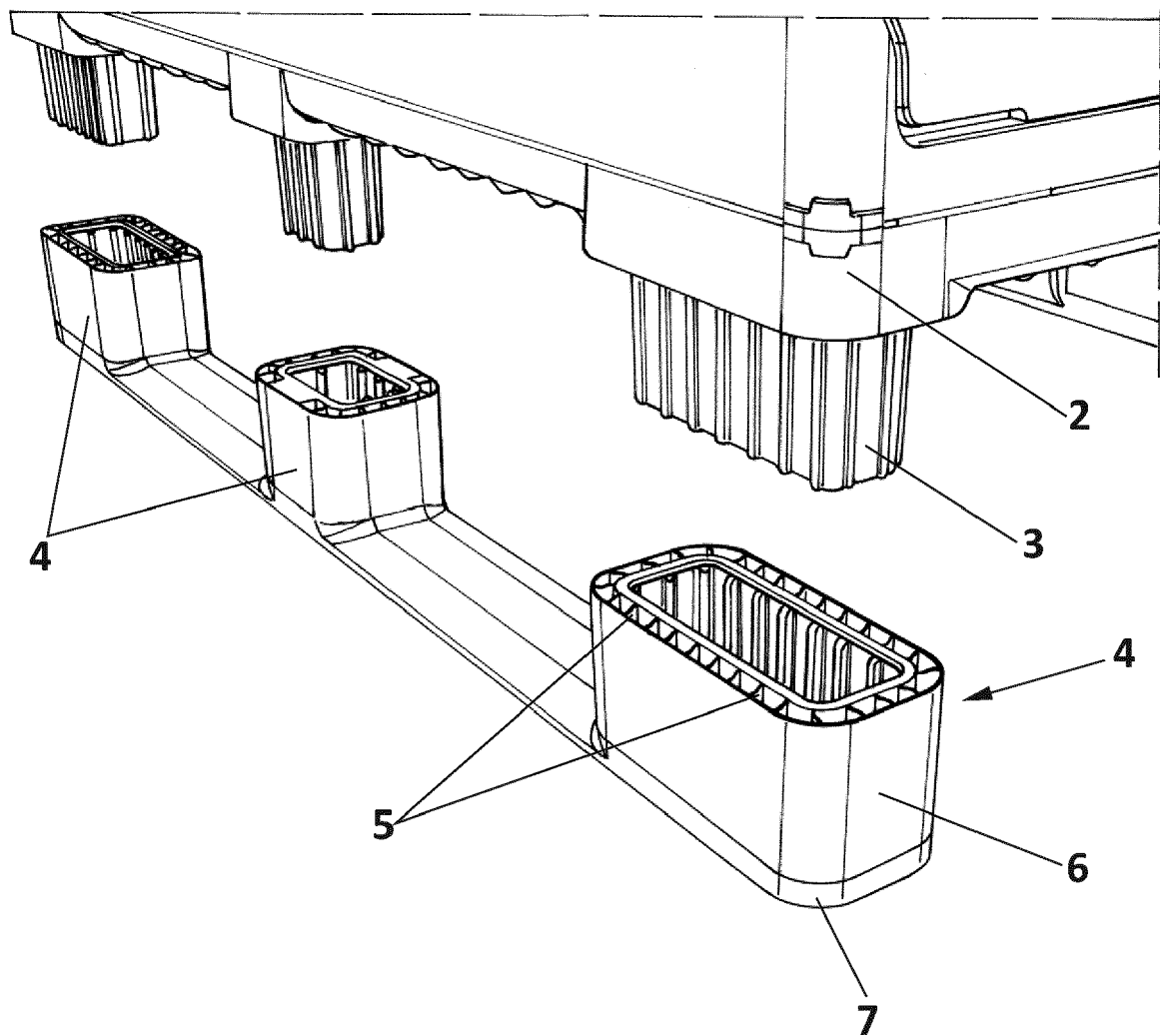


FIG. 4



EUROPEAN SEARCH REPORT

Application Number

EP 21 38 2863

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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 17 February 2022	Examiner Fitterer, Johann
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