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(54) **PALLET MADE OF RECYCLED HETEROGENEOUS PLASTICS PARTICULARLY FOR CONVEYING GOODS**

(57) A pallet (10) made of recycled heterogeneous plastics, particularly for conveying goods, which comprises:

- a deck (11) configured to support the goods and comprising a plurality of feet of the female type (28), which are adapted to accommodate respective feet of the male type (24);
- a plurality of longitudinally extended crossmembers (14) which comprise the respective feet of the male type (24),

the plurality of crossmembers (14) being adapted to be in direct contact with the ground;

- a plurality of stabilizers (16) which are arranged on an upper face (12) of the deck (11) and are configured to secure the goods on the upper face (12);
- locking means which are configured to connect the respective feet of the male type (24) to the plurality of feet of the female type (28).

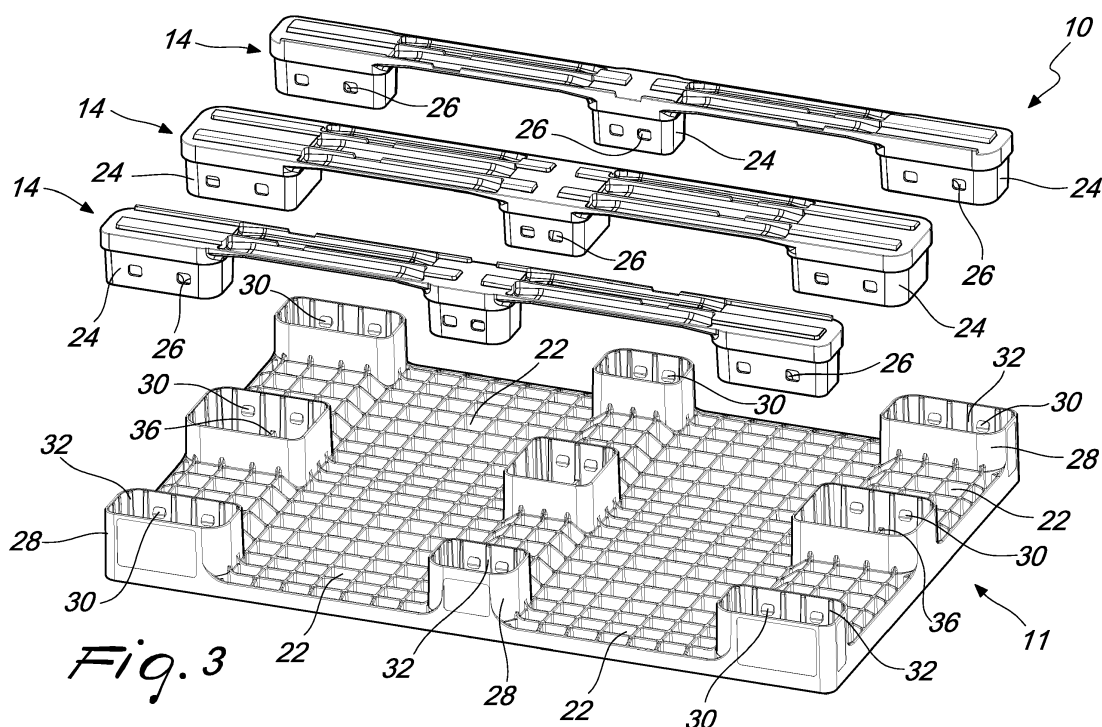


Fig. 3

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Description

[0001] The present invention relates to a pallet made of recycled heterogeneous plastics, particularly for conveying goods. The pallet described herein is particularly, although not exclusively, useful and practical in the conveyance of goods that have to be stored in depots in every field of industry.

[0002] The use of pallets, also called step boards, beds, or load boards, has become increasingly widespread in the last few decades, speeding up the handling of enormous quantities of goods and/or loads from one area to another. Pallets have become an essential tool in distribution logistics, providing the support for simple and effective management of transport flows of any type of good and material.

[0003] Nowadays various types of pallets are known which are made of materials like, for example, wood or plastic, according to the shape and strength that it is desired to obtain. Furthermore, based on their use, a distinction is made between "disposable pallets", i.e. pallets adapted to be used for a single use cycle, and "reusable pallets", i.e. pallets that are adapted for performing multiple use cycles.

[0004] However, the conventional solutions are not free from drawbacks, which include the impossibility of cleaning and sanitizing pallets made of wood.

[0005] Another drawback of such conventional solutions is the variation in tare weight and/or the presence of mildew owing to the absorption of water or of damp, in the case of pallets made of wood.

[0006] A further drawback of such conventional solutions consists in the problems of rust on screws or the like, in the case of pallets made of wood.

[0007] Another drawback of such conventional solutions consists in the lack of effective traceability of the pallet by way of, for example, RFID (Radio Frequency Identification) technology.

[0008] The aim of the present invention is to overcome the limitations of the known art described above, by providing a pallet made of recycled heterogeneous plastics particularly for conveying goods, which makes it possible to satisfy all product market.

[0009] Within this aim, an object of the present invention is to provide a pallet made of recycled heterogeneous plastics particularly for conveying goods which is easy to clean and sanitize without causing variations of tare weight.

[0010] Another object of the present invention is to provide a pallet made of recycled heterogeneous plastics particularly for conveying goods which has a shape structure with no sharp edges and a structure designed to ensure a safe use for the user.

[0011] Another object of the present invention is to provide a pallet made of recycled heterogeneous plastics particularly for conveying goods which prevents the absorption of liquids or of damp.

[0012] Another object of the present invention is to pro-

vide a pallet made of recycled heterogeneous plastics particularly for conveying goods which has a structure that is scalable as a function of requirements.

[0013] Another object of the present invention is to provide a pallet made of recycled heterogeneous plastics particularly for conveying goods which is highly reliable, easily and practically implemented, and at low cost when compared to the known art.

[0014] This aim and these and other objects which will become better apparent hereinafter are achieved by a pallet made of recycled heterogeneous plastics, particularly for conveying goods, which comprises:

- a deck configured to support said goods and comprising a plurality of feet of the female type, which are adapted to accommodate respective feet of the male type;
- a plurality of longitudinally extended crossmembers which comprise said respective feet of the male type, said plurality of crossmembers being adapted to be in direct contact with the ground;
- a plurality of stabilizers which are arranged on an upper face of said deck and are configured to secure said goods on said upper face; and
- locking means which are configured to connect said respective feet of the male type to said plurality of feet of the female type.

[0015] Further characteristics and advantages of the invention will become better apparent from the detailed description of a preferred, but not exclusive, embodiment of the pallet made of recycled heterogeneous plastics particularly for conveying goods according to the invention, which is illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a perspective view from above of an embodiment of the pallet made of recycled heterogeneous plastics particularly for conveying goods, according to the present invention;

Figure 2 is a perspective view from below of an embodiment of the pallet made of recycled heterogeneous plastics particularly for conveying goods, according to the present invention;

Figure 3 is an exploded perspective view of an embodiment of the pallet made of recycled heterogeneous plastics particularly for conveying goods, according to the present invention;

Figure 4 is a perspective view of the crossmembers of an embodiment of the pallet made of recycled heterogeneous plastics particularly for conveying goods, according to the present invention;

Figure 5 is a plan view from above of an embodiment of the pallet made of recycled heterogeneous plastics particularly for conveying goods, according to the present invention;

Figure 6 is a cross-sectional view of an embodiment

of the pallet made of recycled heterogeneous plastics particularly for conveying goods, according to the present invention.

[0016] With reference to the figures, the pallet made of recycled heterogeneous plastics particularly for conveying goods according to the invention, generally designated by the reference numeral 10, comprises substantially a deck 11, a plurality of crossmembers 14, a plurality of stabilizers 16 associated with the deck 11, and means for locking which are associated with the deck 11 and with the plurality of crossmembers 14.

[0017] The deck 11 of the pallet 10 according to the invention is hollow, i.e. it comprises a plurality of hollow cells, and preferably is quadrangular in plan. The deck 11 can be made for example of plastic, using recycled heterogeneous plastics. The deck 11 is configured to support goods to be stored or to be transported from one area to another.

[0018] In an embodiment of the pallet made of recycled heterogeneous plastics particularly for conveying goods according to the invention, the deck 11 comprises a traceability system which is provided with adhesive labels that comprise, for example, ID or 2D barcodes or electronic tags such as, for example, R-FID transponders (or tags). Such technologies make it possible to identify and/or to store information about, for example, the producer, the production cycle, the materials used and so on.

[0019] The deck 11 comprises an upper face 12 and a lower face 22. The upper face 12 is preferably smooth and free from gaps.

[0020] With particular reference to Figure 1, in an embodiment of the pallet made of recycled heterogeneous plastics particularly for conveying goods according to the invention, the upper face 12 comprises a plurality of stabilizers 16 which are arranged along the ends of the deck 11.

[0021] The plurality of stabilizers 16 is preferably made of heterogeneous plastics. In an embodiment of the pallet made of recycled heterogeneous plastics particularly for conveying goods according to the invention, the plurality of stabilizers 16 is characterized by a removable configuration. Such stabilizers 16 arranged along the ends of the deck 11 can be removed according to operational requirements.

[0022] The plurality of stabilizers 16 is configured to secure the goods on the upper face 12 of the deck 11. By way of example, the plurality of stabilizers 16 makes it possible to overlap the pallet 10 without losing out in terms of stability.

[0023] With particular reference to Figures 2 and 3, the lower face 22 of the deck 11 comprises a grid-like structure. Advantageously, the lower face 22 is adapted to facilitate the insertion of anti-slip elements such as, for example, blocks of anti-slip rubber. By way of example, the blocks of anti-slip rubber make it possible to improve the stability of the pallet 10 with respect to slipping of the forks of forklift trucks.

[0024] The deck 11 furthermore comprises a plurality of feet of the female type 28 which are arranged along the lower face 22. The feet of the female type 28 are adapted to receive respective feet of the male type 24 of crossmembers 14. Advantageously, the feet of the female type 28 are hollow and are not connected to each other.

[0025] In an embodiment of the pallet made of recycled heterogeneous plastics particularly for conveying goods according to the invention, each foot of the female type 28 comprises first reinforcement ribs 32 which are adapted to distribute the pressure applied by goods on the pallet 10.

[0026] In an embodiment of the pallet made of recycled heterogeneous plastics particularly for conveying goods according to the invention, each foot of the female type 28 comprises snap-fitting pins 30 which are configured to fasten the deck 11 to the plurality of crossmembers 14. Advantageously, each foot of the female type 28 of the deck 11 furthermore comprises first cross-ribs 36 which are configured to join up with the second cross-ribs 38 that are comprised in each foot of the male type 24 of the crossmembers 14.

[0027] The crossmembers 14 of the pallet 10 according to the invention are preferably longitudinally extended. The crossmembers 14 comprise a lower portion which is in direct contact with the ground. By way of example, the structure of the crossmembers 14 allows the pallet 10 to be positioned on plastic cases, be they open or closed, in the standard formats 300x400 mm and 600x400 mm.

[0028] The crossmembers 14 comprise a plurality of feet of the male type 24 which are configured for insertion into the respective feet of the female type 28 of the deck 11. Advantageously, the feet of the male type 24 are hollow and are not connected to each other.

[0029] In an embodiment of the pallet made of recycled heterogeneous plastics particularly for conveying goods according to the invention, each foot of the male type 24 comprises seats 26 which are adapted to accommodate the respective snap-fitting pins 30 that are comprised in the feet of the female type 28 of the deck 11. Advantageously, each foot of the male type 24 of the crossmembers 14 comprises second reinforcement ribs 34 which are adapted to distribute the pressure applied by goods on the pallet 10.

[0030] In an embodiment of the pallet made of recycled heterogeneous plastics particularly for conveying goods according to the invention, each foot of the male type 24 furthermore comprises second cross-ribs 38 which are configured to join up with the first cross-ribs 36 that are comprised in each foot of the female type 28 of the deck 11.

[0031] The locking means for locking the pallet 10 according to the invention comprise the snap-fitting pins 30 arranged inside each foot of the female type 28 of the deck 11 and the respective seats 26 arranged in each foot of the male type 24 of the crossmembers 14. The

locking means are configured to connect the feet of the male type 24 of the crossmembers to the feet of the female type 28 of the deck 11. The locking means make it possible to clean and sanitize the pallet 10 according to the invention without any modification of the tare weight.

[0032] With particular reference to Figures 1 and 2, the first fork insertion seats 18 and the second fork insertion seats 20 are adapted to accommodate respective forks of forklift trucks or pallet jacks which are necessary to lift and move the pallet 10.

[0033] In practice it has been found that the invention fully achieves the set aim and objects. In particular, it has been seen that the pallet made of recycled heterogeneous plastics particularly for conveying goods thus conceived makes it possible to overcome the qualitative limitations of the known art, in that it makes it possible to satisfy all product market.

[0034] Another advantage of the pallet made of recycled heterogeneous plastics particularly for conveying goods consists in that it is easy to clean and sanitize without causing any variation of the tare weight.

[0035] Another advantage of the pallet made of recycled heterogeneous plastics particularly for conveying goods consists in that it a shape structure with no sharp edges and a structure designed to ensure a safe use for the user.

[0036] Another advantage of the pallet made of recycled heterogeneous plastics particularly for conveying goods consists in that it prevents the absorption of liquids or of damp.

[0037] Another advantage of the pallet made of recycled heterogeneous plastics particularly for conveying goods consists in that it has a structure that is scalable as a function of requirements.

[0038] Although the pallet made of recycled heterogeneous plastics particularly for conveying goods according to the invention is adapted in particular for conveying and moving goods and/or loads from one area to another, it can also be used, more generally, for collecting and storing goods and/or loads.

[0039] The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims. Moreover, all the details may be substituted by other, technically equivalent elements.

[0040] In practice the materials employed, provided they are compatible with the specific use, and the contingent dimensions and shapes, may be any according to requirements and to the state of the art.

[0041] In conclusion, the scope of protection of the claims shall not be limited by the explanations or by the preferred embodiments illustrated in the description by way of examples, but rather the claims shall comprise all the patentable characteristics of novelty that reside in the present invention, including all the characteristics that would be considered as equivalent by the person skilled in the art.

[0042] The disclosures in Italian Patent Application No.

102017000148834 from which this application claims priority are incorporated herein by reference.

[0043] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A pallet (10) made of recycled heterogeneous plastics, particularly for conveying goods, which comprises:

- a deck (11) configured to support said goods and comprising a plurality of feet of the female type (28), which are adapted to accommodate respective feet of the male type (24);
- a plurality of longitudinally extended crossmembers (14) which comprise said respective feet of the male type (24), said plurality of crossmembers (14) being adapted to be in direct contact with the ground;
- a plurality of stabilizers (16) which are arranged on an upper face (12) of said deck (11) and are configured to secure said goods on said upper face (12); and
- locking means which are configured to connect said respective feet of the male type (24) to said plurality of feet of the female type (28).

2. The pallet (10) made of recycled heterogeneous plastics particularly for conveying goods according to claim 1, **characterized in that** said locking means comprise a plurality of snap-fitting pins (30) which are comprised in said feet of the female type (28) of said deck (11) and respective seats (26) which are comprised in said feet of the male type (24) of said plurality of crossmembers (14).

3. The pallet (10) made of recycled heterogeneous plastics particularly for conveying goods according to any one of the preceding claims, **characterized in that** said plurality of feet of the female type (28) of said deck (11) comprise first reinforcement ribs (32) which are adapted to distribute a pressure applied by said goods on said pallet (10).

4. The pallet (10) made of recycled heterogeneous plastics particularly for conveying goods according to any one of the preceding claims, **characterized in that** said deck (11) further comprises a lower face (22) which is adapted to facilitate an insertion of anti-slip elements.

5. The pallet (10) made of recycled heterogeneous plastics particularly for conveying goods according to any one of the preceding claims, **characterized in that** it comprises at least two first fork insertion seats (18) which are adapted to accommodate respective forks of forklift trucks. 5

6. The pallet (10) made of recycled heterogeneous plastics particularly for conveying goods according to any one of the preceding claims, **characterized in that** it comprises at least two second fork insertion seats (20) which are adapted to accommodate respective forks of forklift trucks. 10

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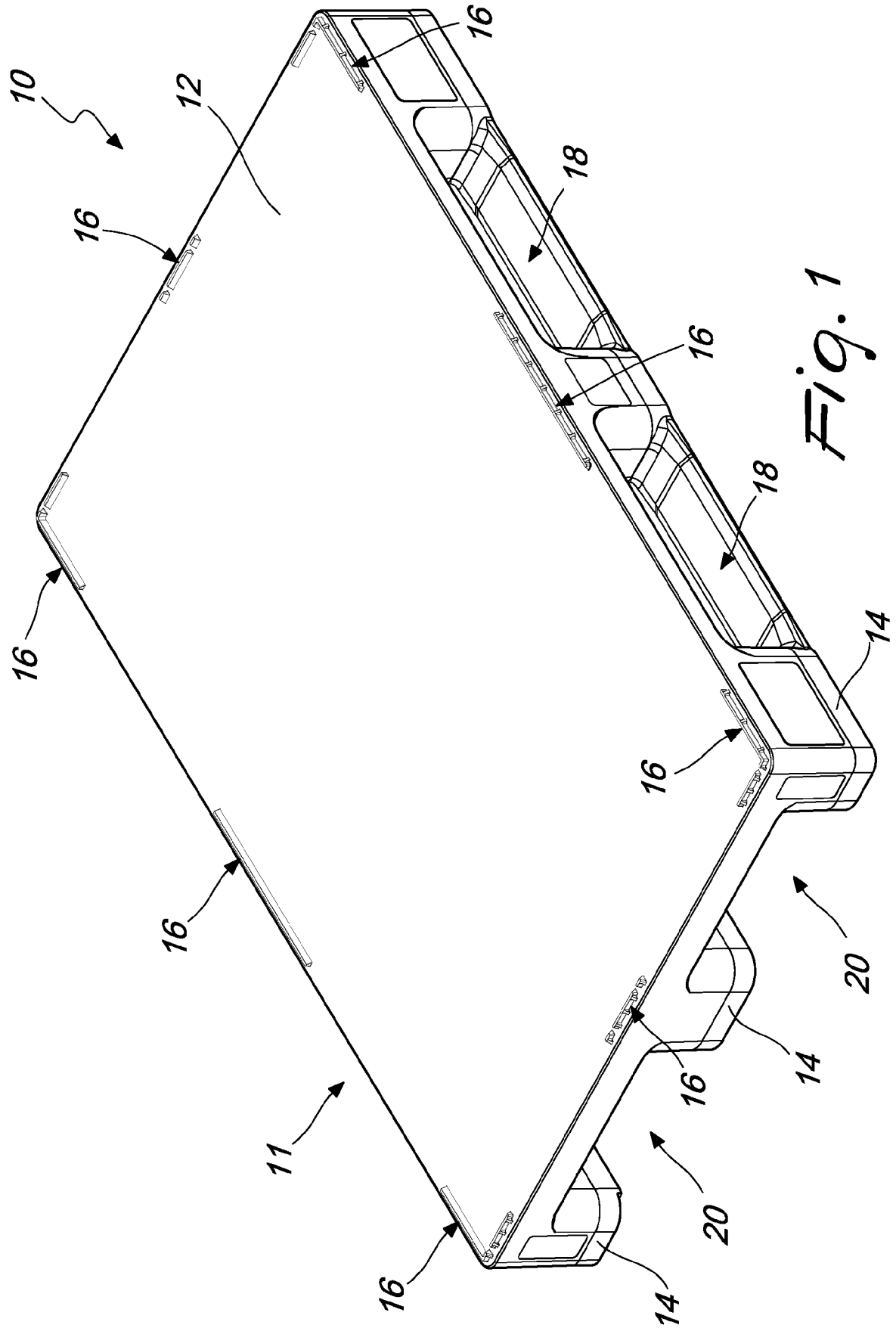
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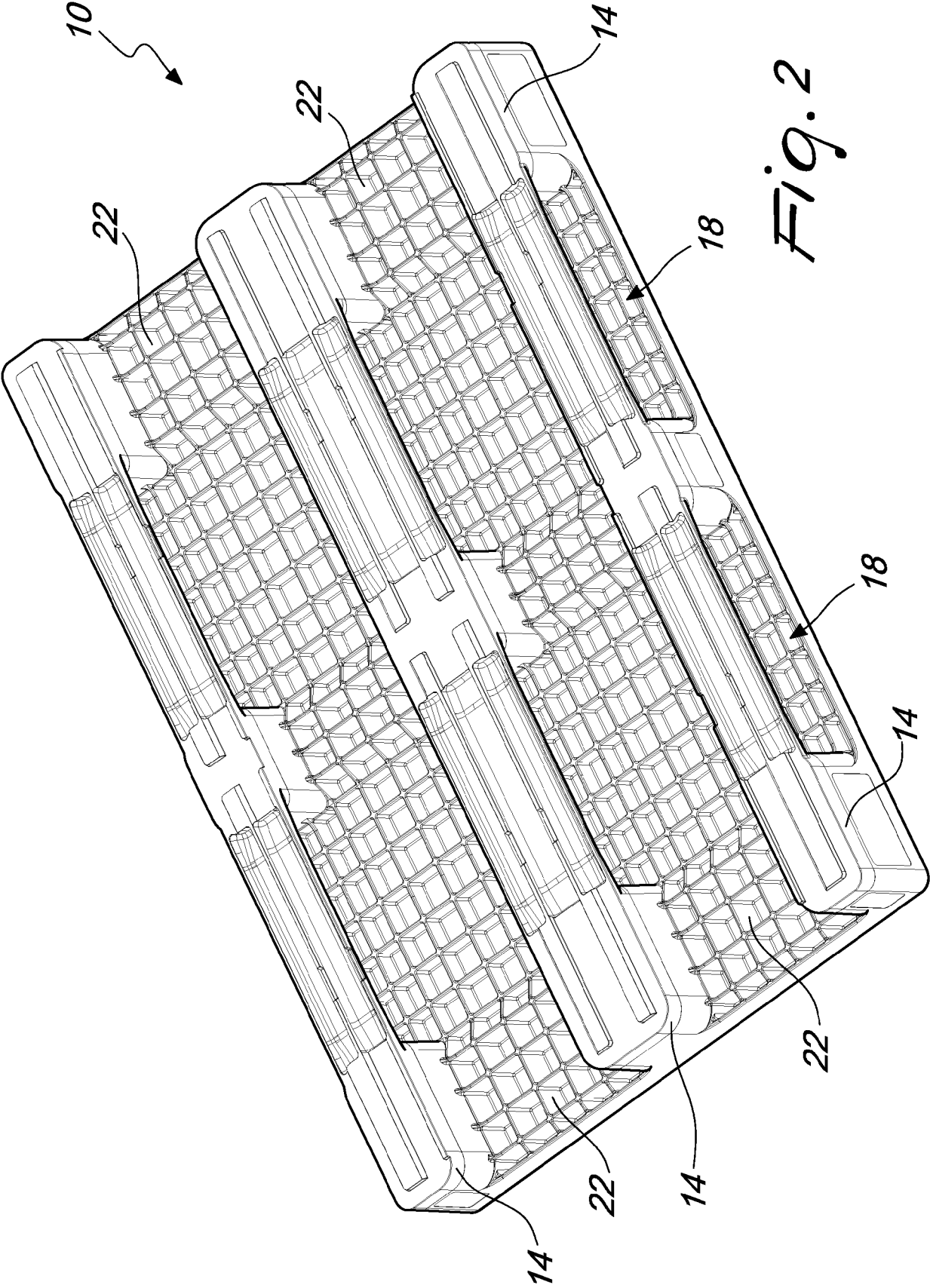


Fig. 2

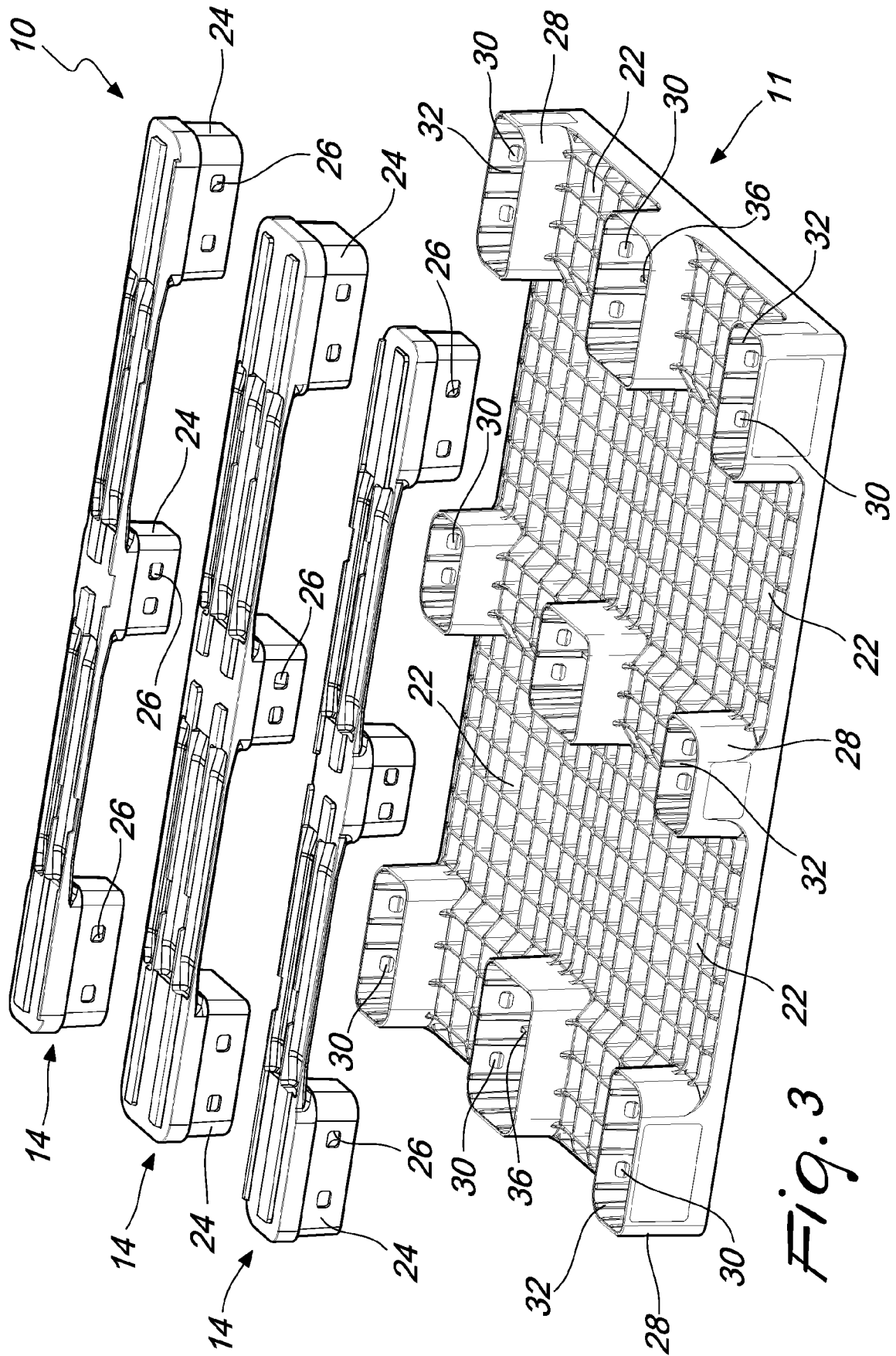


Fig. 3

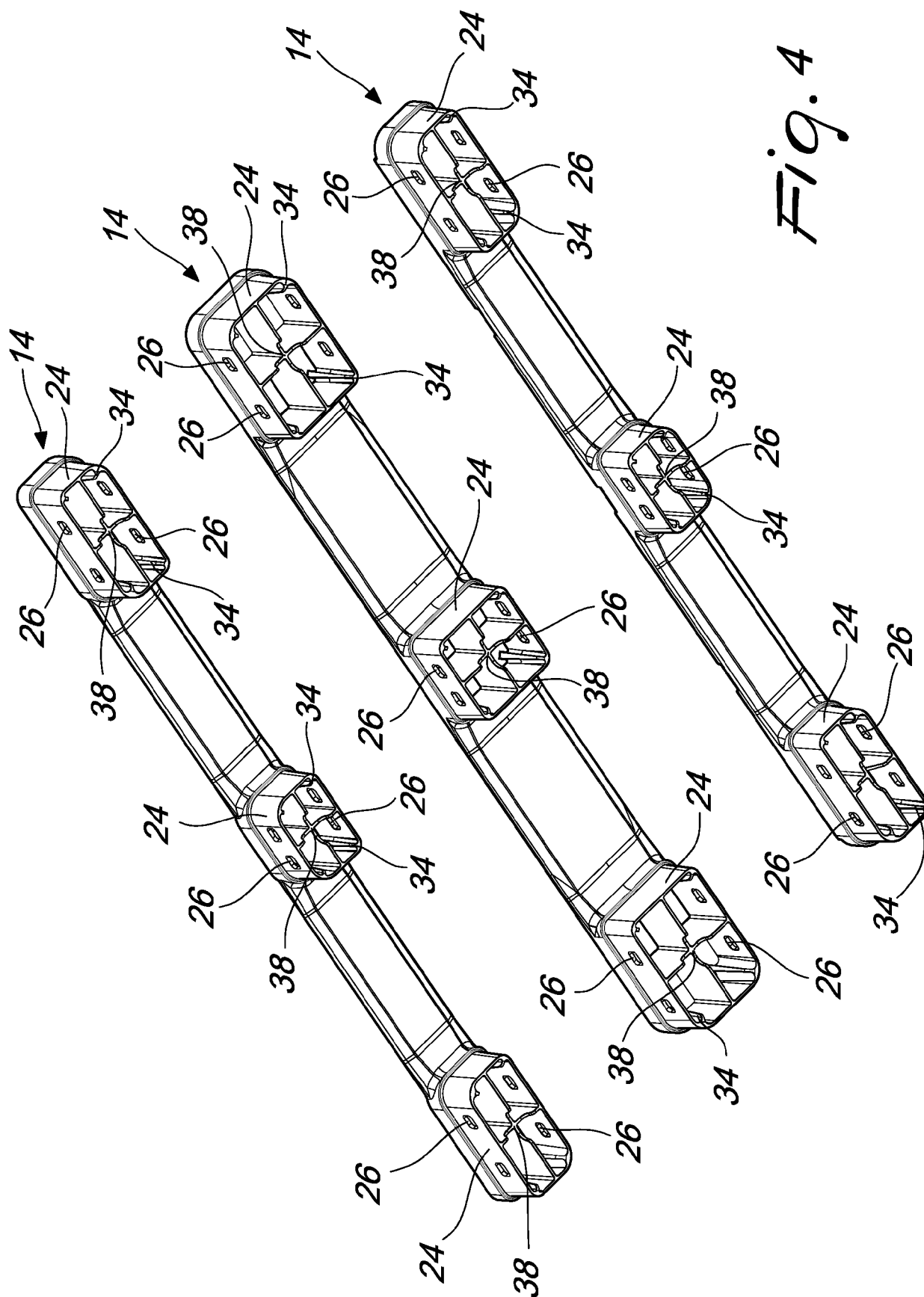
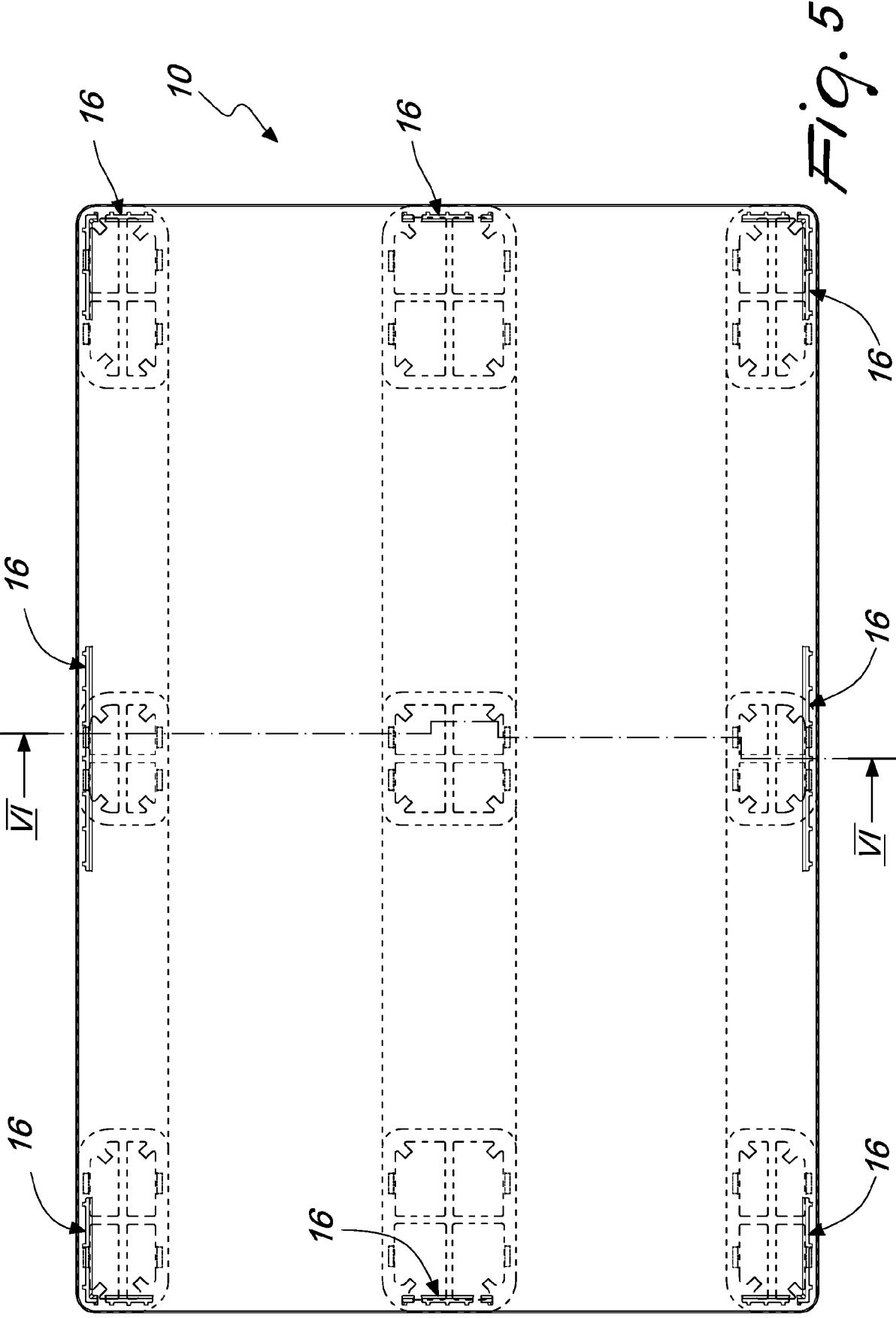


Fig. 4



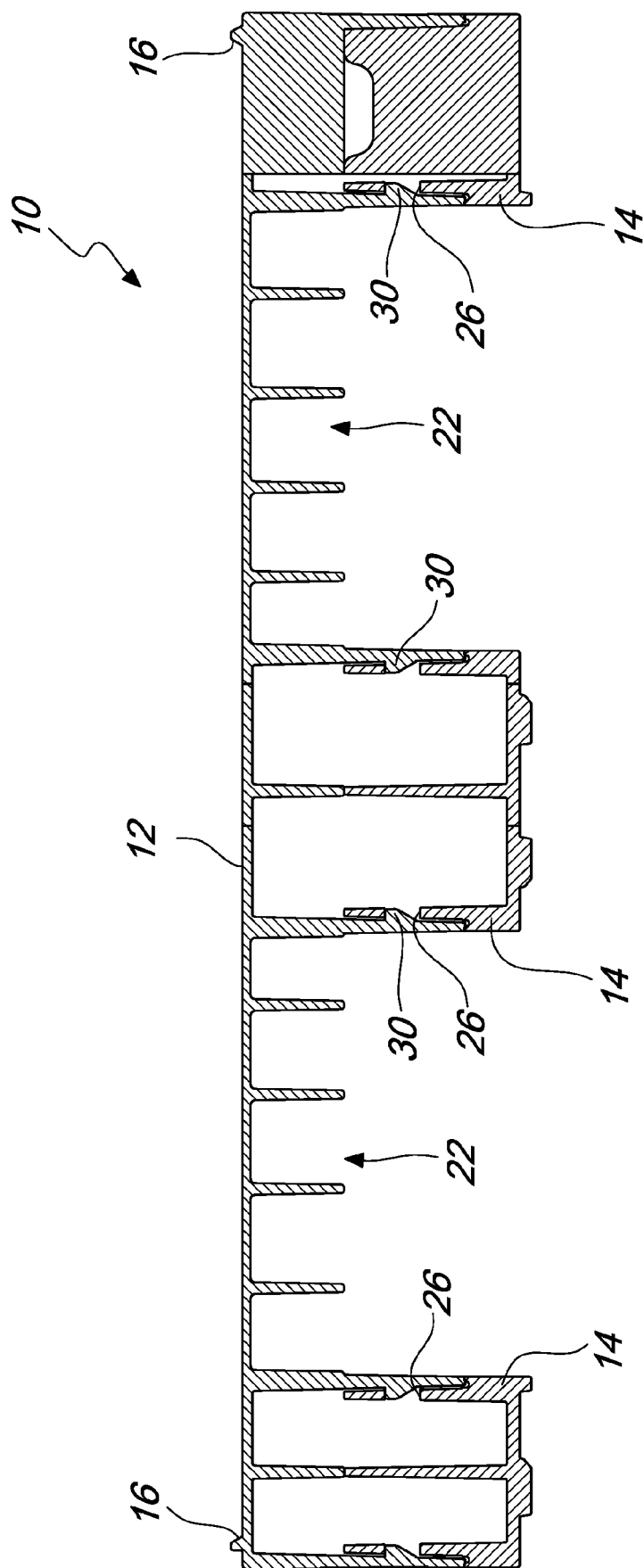


Fig. 6



EUROPEAN SEARCH REPORT

Application Number
EP 18 21 2735

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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	ES 2 333 840 A1 (RIBAWOOD SA [ES]) 1 March 2010 (2010-03-01) * page 3, line 42 - page 4, last paragraph; figures 1, 2, 4 *	1-3,5,6	INV. B65D19/00 B65D19/44
X	WO 99/35042 A1 (REHRIG PACIFIC CO [US]) 15 July 1999 (1999-07-15) * page 7, line 1 - page 9, line 16; figures 1, 6, 7, 9, 10, 13, 17, 18 *	1-6	
X	US 2003/061974 A1 (SMYERS JUSTIN M [US]) 3 April 2003 (2003-04-03) * paragraph [0031] - paragraph [0045]; figures 1, 7-11 *	1-3,5,6	
X	EP 3 050 816 A1 (NORTHPALET FABRICA S L [ES]) 3 August 2016 (2016-08-03) * paragraph [0007] * * paragraph [0022] - paragraph [0025] * * paragraph [0034]; figures 1, 4, 7a, 7b, 7c *	1,2,4-6	
X	US 6 029 583 A (LETRUDET STEPHANE F [US]) 29 February 2000 (2000-02-29) * column 2, line 45 - line 67; figures 1-3 *	1,2,5,6 3,4	B65D
X	DE 89 06 801 U1 (REMAPLAN GMBH) 5 October 1989 (1989-10-05) * page 7, last paragraph; figures 1, 4, 5 *	1,3,5,6	
A	DE 92 00 290 U1 (R. GOLDAU) 23 July 1992 (1992-07-23) * the whole document *	1	
		-/--	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 9 May 2019	Examiner Mans-Kamerbeek, M
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EUROPEAN SEARCH REPORT

Application Number
EP 18 21 2735

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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 5 868 080 A (WYLER CRAIG STEVEN [US] ET AL) 9 February 1999 (1999-02-09) * column 3, line 56 - line 61; figures 1-12 *	1	
A	----- US 6 216 608 B1 (WOODS MARTIN E [US] ET AL) 17 April 2001 (2001-04-17) * the whole document *	1	
			TECHNICAL FIELDS SEARCHED (IPC)
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 9 May 2019	Examiner Mans-Kamerbeek, M
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date 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)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 18 21 2735

5

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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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
ES 2333840	A1	01-03-2010	NONE	
WO 9935042	A1	15-07-1999	AR 014283 A1 AU 759367 B2 BR 9813720 A CA 2316923 A1 CN 1286666 A DE 69836350 T2 EP 1075430 A1 HK 1034944 A1 JP 2002500136 A KR 20010033924 A PL 341734 A1 TR 200001917 T2 US 6006677 A US 2003106470 A1 WO 9935042 A1	07-02-2001 10-04-2003 10-10-2000 15-07-1999 07-03-2001 14-06-2007 14-02-2001 24-12-2003 08-01-2002 25-04-2001 07-05-2001 21-12-2000 28-12-1999 12-06-2003 15-07-1999
US 2003061974	A1	03-04-2003	AT 492481 T AU 2002362456 B2 CA 2461554 A1 EP 1432620 A2 MX PA04003050 A US 2003061974 A1 US 2004069190 A1 WO 03028431 A2	15-01-2011 19-06-2008 10-04-2003 30-06-2004 05-07-2004 03-04-2003 15-04-2004 10-04-2003
EP 3050816	A1	03-08-2016	EP 3050816 A1 ES 2657300 T3	03-08-2016 02-03-2018
US 6029583	A	29-02-2000	NONE	
DE 8906801	U1	05-10-1989	DE 8906801 U1 EP 0400640 A1	05-10-1989 05-12-1990
DE 9200290	U1	23-07-1992	DE 9200290 U1 EP 0620794 A1 ES 2084382 T3 WO 9313997 A1	23-07-1992 26-10-1994 01-05-1996 22-07-1993
US 5868080	A	09-02-1999	NONE	
US 6216608	B1	17-04-2001	US 6216608 B1 US 6352039 B1	17-04-2001 05-03-2002

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- IT 102017000148834 [0042]