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(54) **Strengthened stackable pallet**

Verstärkte, stapelbare Palette

Palette renforcée gerbable

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**WO-A-02/34631**

- **PATENT ABSTRACTS OF JAPAN vol. 1998, no. 04, 31 March 1998 (1998-03-31) -& JP 09 323727 A (GIFU PLAST IND CO LTD), 16 December 1997 (1997-12-16)**

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## Description

**[0001]** The present invention relates to a strengthened stackable pallet, of the type as defined in the precharacterizing portion of the appended claim 1, and as disclosed in WO 02/34631, EP-A-1 306 311, and EP-A-1 323 636.

**[0002]** As is known, several kinds of pallets are already commercially available which are made of plastics and are generally constituted by a plate-like body made of plastic material, whereto supporting feet are connected; such feet may also be of the stackable type and are formed monolithically.

**[0003]** These widely used embodiments in some cases suffer problems that arise from a loading capacity that is not always optimum, since the plate-like body may tend to undergo deformation when loaded.

**[0004]** Another problem that can be ascribed to the solutions of the background art arises from the fact that often there are difficulties in providing precise centering of the load, which may tend to shift on the surface and protrude from the plate-like body.

**[0005]** The aim of the invention is to solve the problems noted above by providing a strengthened stackable pallet that allows to considerably increase the loading capacity of the plate-like body without thereby running the risk of structural failures.

**[0006]** Within this aim, an object of the invention is to provide a pallet that has modest dimensions and further allows correct retention of the load, preventing such load from protruding with respect to the plate-like body.

**[0007]** Another object of the present invention is to provide a stackable pallet, which thanks to its particular constructive characteristics is capable of giving the greatest assurances of reliability and safety in use.

**[0008]** Another object of the present invention is to provide a strengthened stackable pallet that can be easily obtained starting from commonly commercially available elements and materials and is also competitive from a merely economical standpoint.

**[0009]** In accordance with the invention, there is provided a strengthened stackable pallet as defined in the appended claims.

**[0010]** Further characteristics and advantages of the present invention will become better apparent from the following detailed description of a strengthened stackable pallet, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a schematic elevation perspective view of the pallet according to the invention;

Figure 2 is a perspective view, taken from below, of the pallet according to the invention;

Figure 3 is a plan view of the pallet;

Figure 4 is a sectional view, taken along the line IV-IV of Figure 3;

Figure 5 is a sectional view, taken along the line V-V of Figure 3.

**[0011]** With reference to the figures, the strengthened stackable pallet according to the invention, generally designated by the reference numeral 1, comprises a plate-like body 2, which is made of plastic material and is provided with nine supporting feet 3, which are distributed in rows and columns and affect the outer sides and the central portion.

**[0012]** The stackable supporting feet 3 are shaped like a truncated pyramid and are provided with drain holes 4, which prevent accumulation of liquids inside them.

**[0013]** The truncated pyramid-like shape allows to provide easy stacking of the pallets, as shown in Figure 4.

**[0014]** The feet 3 are arranged so as to provide the typical channels for the passage of the forks of a conventional fork-lift truck.

**[0015]** For example, the pallets are provided in the size of 800 x 600 mm, accordingly providing a size that is half the size of standard pallets, which typically measure 800 x 1200 mm, so that two pallets arranged side by side may occupy the same space as a standard pallet; it is of course possible to use any sizes deemed appropriate.

**[0016]** A peculiarity of the invention consists in that the plate-like body 2 is provided as an hexagonal grid, which is obtained by means of a plurality of hexagonal cells 5, which are arranged side by side and are provided by means of walls 10, thickness whereof, in a transverse cross-section and along a vertical plane, decreases starting from the central portion both toward the upper face and toward the lower face of the grid.

**[0017]** The walls accordingly define a plate-like body having a plurality of cells 5, which in practice are through openings.

**[0018]** This aspect, besides allowing easy extraction from the mold, also has the considerable advantage of increasing the structural strength, which discharges stresses also at the peripheral region of the supporting feet, thus obtaining a structure that has a considerably higher load capacity than conventional solutions.

**[0019]** Another peculiarity of the invention consists in that at the lateral edges of the plate-like body containment lips 20 are provided, which rise from the plate-like body 2 and are designed to contain the load, preventing it from protruding with respect to the pallet.

**[0020]** The presence of the containment lips, besides providing a further stiffening element, allows to improve stability with particularly simple means.

**[0021]** To complete the description, it is noted that the perimetric edges of the plate-like body are of the folded type, with an outer border 21 with an outer fold that is directed toward the face from which the supporting feet protrude.

**[0022]** From what has been described above, it is thus evident that the invention achieves the proposed aim and objects, and in particular the fact is stressed that a strengthened stackable pallet is provided which comprises a plate-like body provided by means of an hexagonal grid, which in addition to giving a particular appearance to the pallet also achieves a structural improvement.

**[0023]** It should also be noted that the differentiated thickness of the pattern allows better stress distribution, accordingly allowing better load transmission of the assembly.

**[0024]** In practice, the materials used, although the best results have been achieved by using plastic material, as well as the contingent shapes and dimensions, may be any according to requirements.

**[0025]** 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 strengthened stackable pallet, comprising a plate-like body (2) provided with stackable supporting feet (3) that form fork passage channels, said plate-like body (2) being formed by a hexagonal grid obtained by a plurality of side by side arranged hexagonal cells (5) **characterized in that** the walls (10) of said cells (5) have a thickness, in a transverse cross-section, decreases starting from the central portion thereof both toward the upper face and toward the lower face of the grid.
2. The strengthened stackable pallet according to claim 1, **characterized in that** said supporting feet (3) are shaped substantially like a truncated pyramid.
3. The strengthened stackable pallet according to claim 1 or 2, **characterized in that** said walls (10) form cells (5) that provide through openings on said plate-like body (2).
4. The strengthened stackable pallet according to one or more of the preceding claims, **characterized in that** said plate-like body (2) has an outer border (21) with an outer fold that is directed toward the face of the grid from which said supporting feet (3) protrude.
5. The strengthened stackable pallet according to the preceding claims, **characterized in that** it comprises, on the plate-like body (2), containment lips (20) that protrude from said plate-like body (2).

### Patentansprüche

1. Verstärkte stapelbare Palette, welche einen plattenartigen Körper (2) mit stapelbaren Stützfüßen (3) umfasst, welche Gabel-Durchgangskanäle formen, wobei der plattenartige Körper (2) durch ein hexagonales Gitter geformt ist, welches durch eine Viel-

zahl von nebeneinander angeordneten hexagonalen Zellen (5) erhalten wird, **dadurch gekennzeichnet, dass** die Wände (10) dieser Zellen (5) in einem transversalen Querschnitt eine Dicke aufweisen, welche sich im Mittelbereich beginnend sowohl zur oberen Fläche als auch zur unteren Fläche des Gitters hin vermindert.

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2. Verstärkte stapelbare Palette nach dem Anspruch 1, **dadurch gekennzeichnet dass** die Stützfüße (3) im Wesentlichen wie eine abgeflachte Pyramide geformt sind.

3. Verstärkte stapelbare Palette nach einem der Ansprüche 1 oder 2, **dadurch gekennzeichnet, dass** die Wände (10) Zellen (5) formen, welche Durchgangsöffnungen auf dem plattenartigen Körper (2) bilden.

4. Verstärkte stapelbare Palette nach einem oder mehreren der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** der plattenartige Körper (2) einen äusseren Rand (21) mit einem äusseren Falt aufweist, welcher sich zu der Seite des Gitters richtet, von welcher die Stützfüße (3) hervorste-  
hen.

5. Verstärkte stapelbare Palette nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** die Palette auf dem plattenartigen Körper (2) Begrenzungslasche (20) umfasst, welche von dem plattenartigen Körper (2) hervorste-  
hen.

### Revendications

1. Palette renforcée gerbable, comprenant un corps en forme de plaque (2) muni de pieds de support gerbables (3) qui forment des canaux de passage en fourche, ledit corps en forme de plaque (2) étant formé par une grille hexagonale obtenue par une pluralité de cellules hexagonales (5) agencées l'une à côté de l'autre, **caractérisée en ce que** les parois (10) desdites cellules (5) présentent une épaisseur, dans une section transversale, qui décroît à partir de la partie centrale de celles-ci vers la face supérieure et vers la face inférieure de la grille.

2. Palette renforcée gerbable selon la revendication 1, **caractérisée en ce que** les pieds de support (3) sont conformés sensiblement comme une pyramide tronquée.

3. Palette renforcée gerbable selon la revendication 1 ou 2, **caractérisée en ce que** les parois (10) forment des cellules (5) qui prévoient des ouvertures passantes sur ledit corps en forme de plaque (2).

4. Palette renforcée gerbable selon une ou plusieurs

des revendications précédentes, **caractérisée en ce que** ledit corps en forme de plaque (2) présente un bord externe (21) avec un pli externe qui est dirigé vers la face de la grille depuis laquelle lesdits pieds de support (3) font saillie.

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5. Palette renforcée gerbable selon les revendications précédentes, **caractérisée en ce qu'**elle comprend, sur le corps en forme de plaque (2), des bords de retenue (20) qui font saillie depuis ledit corps en forme de plaque (2).

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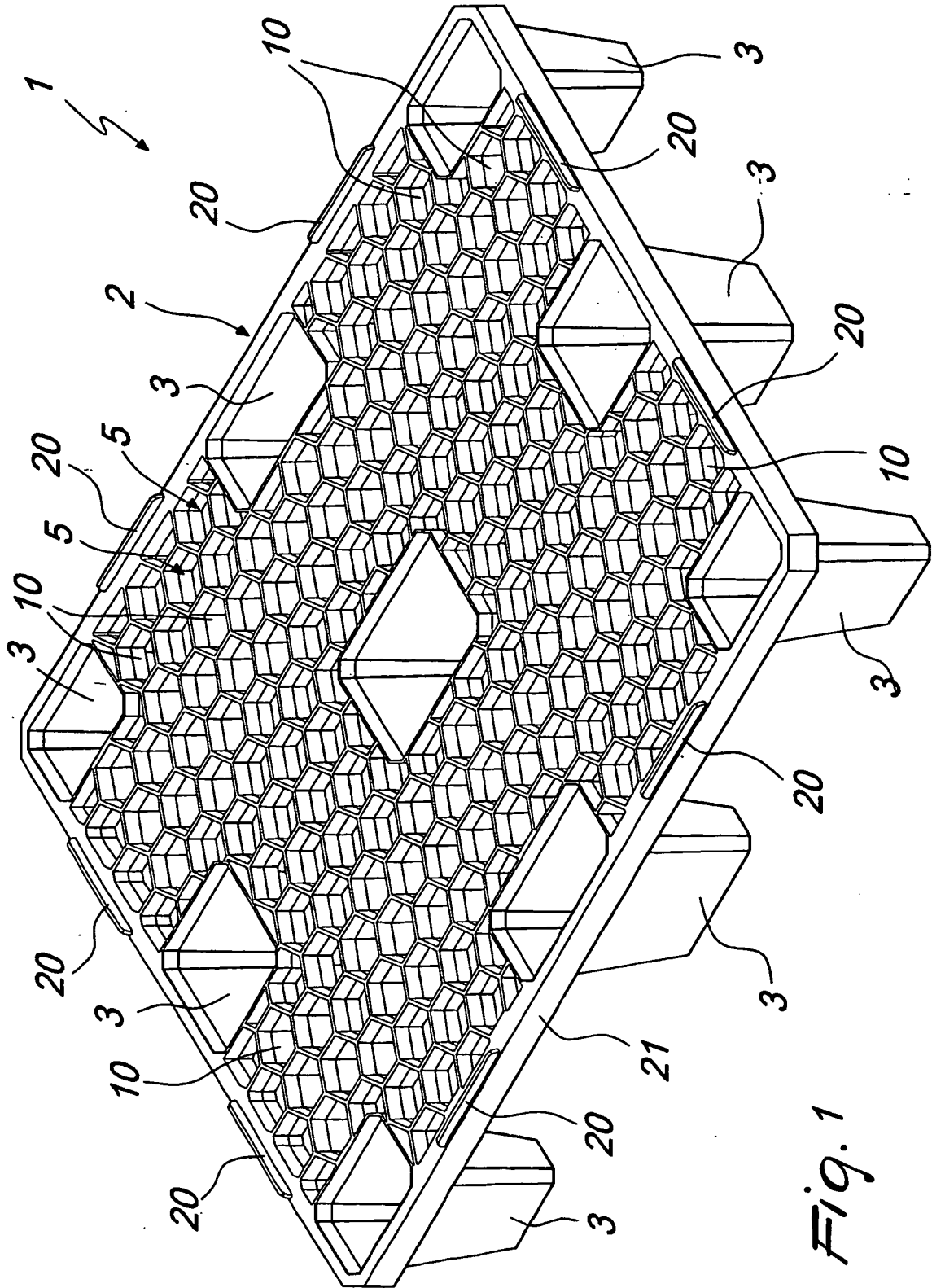
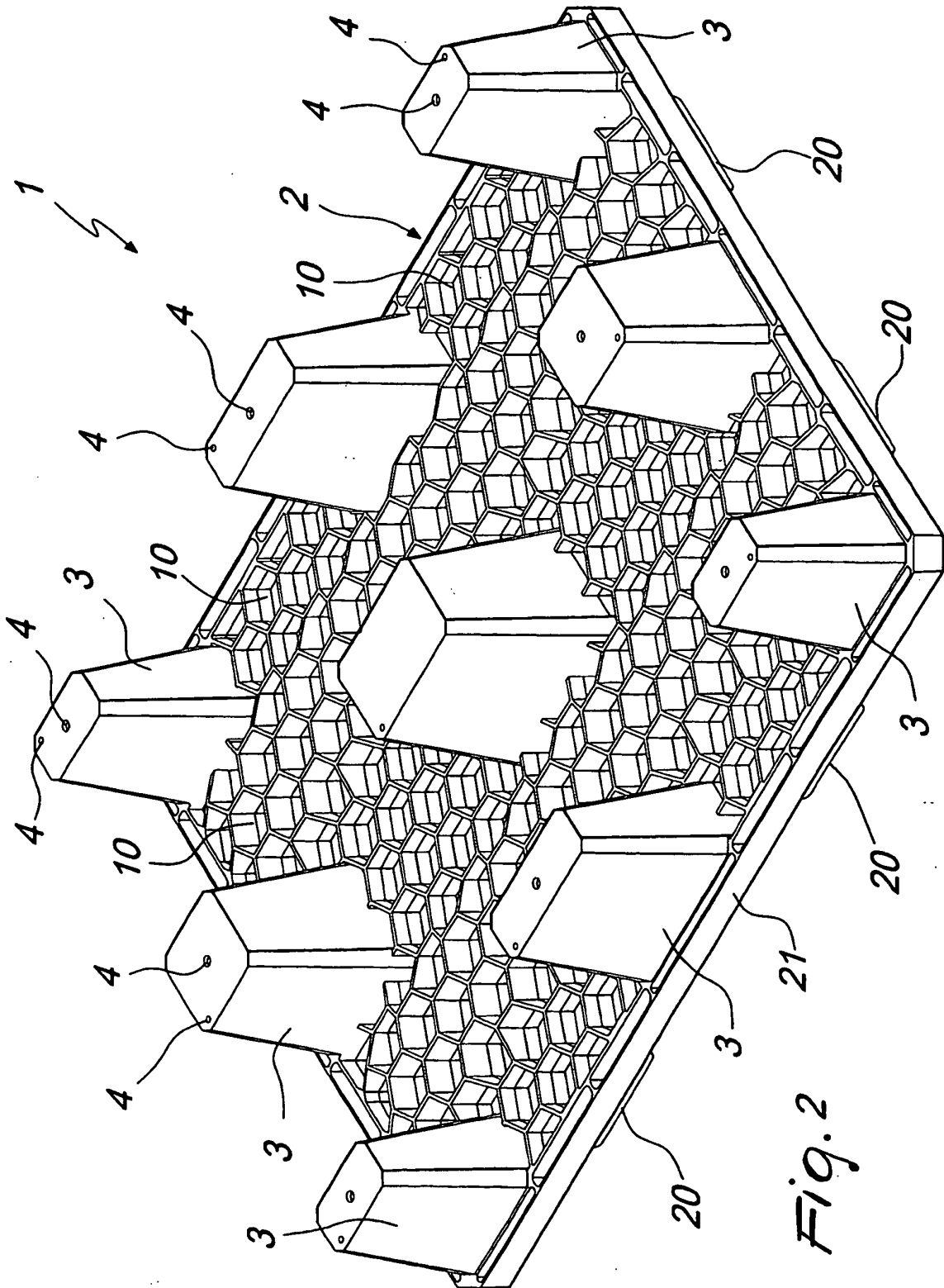
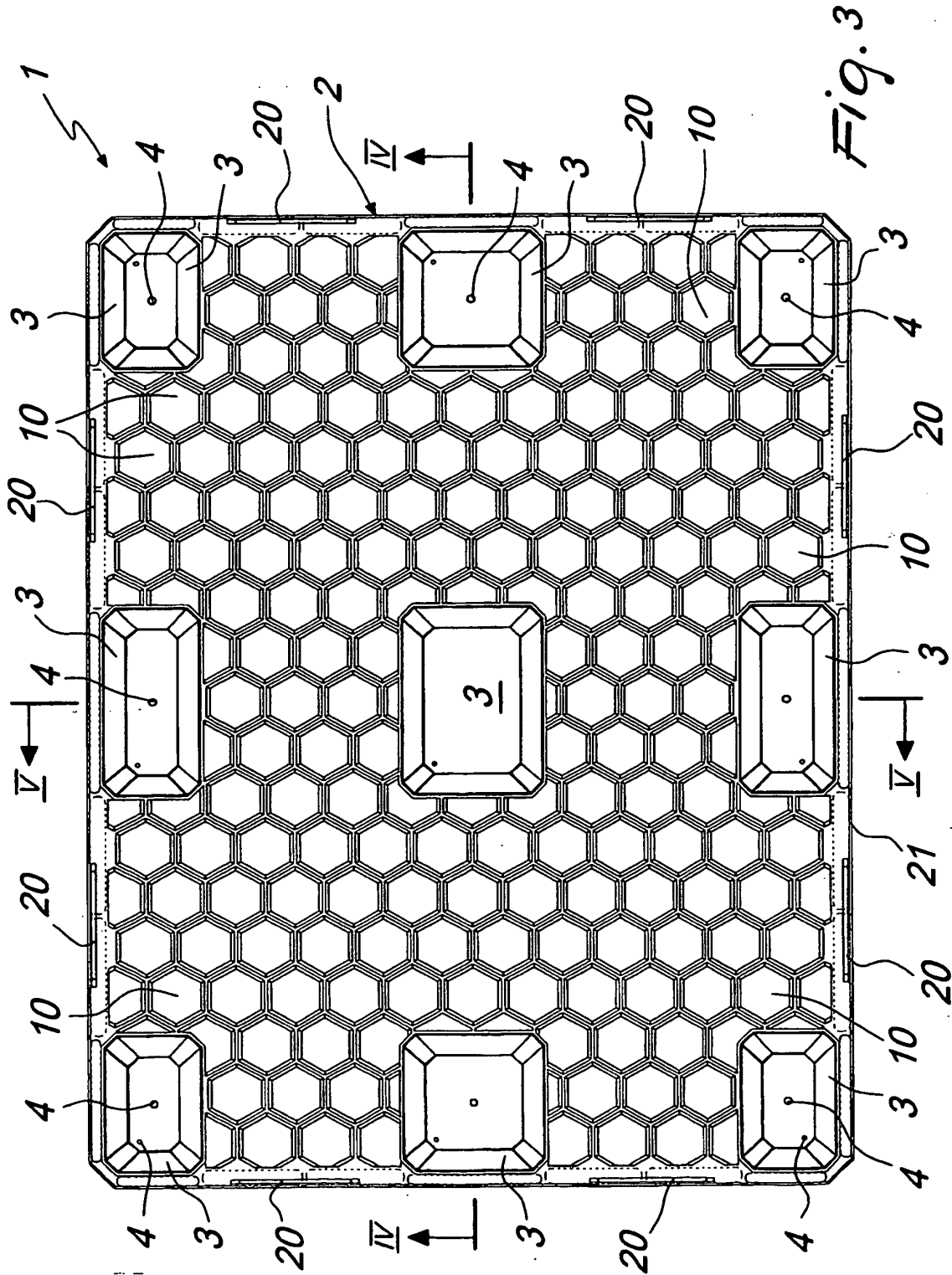


Fig. 1





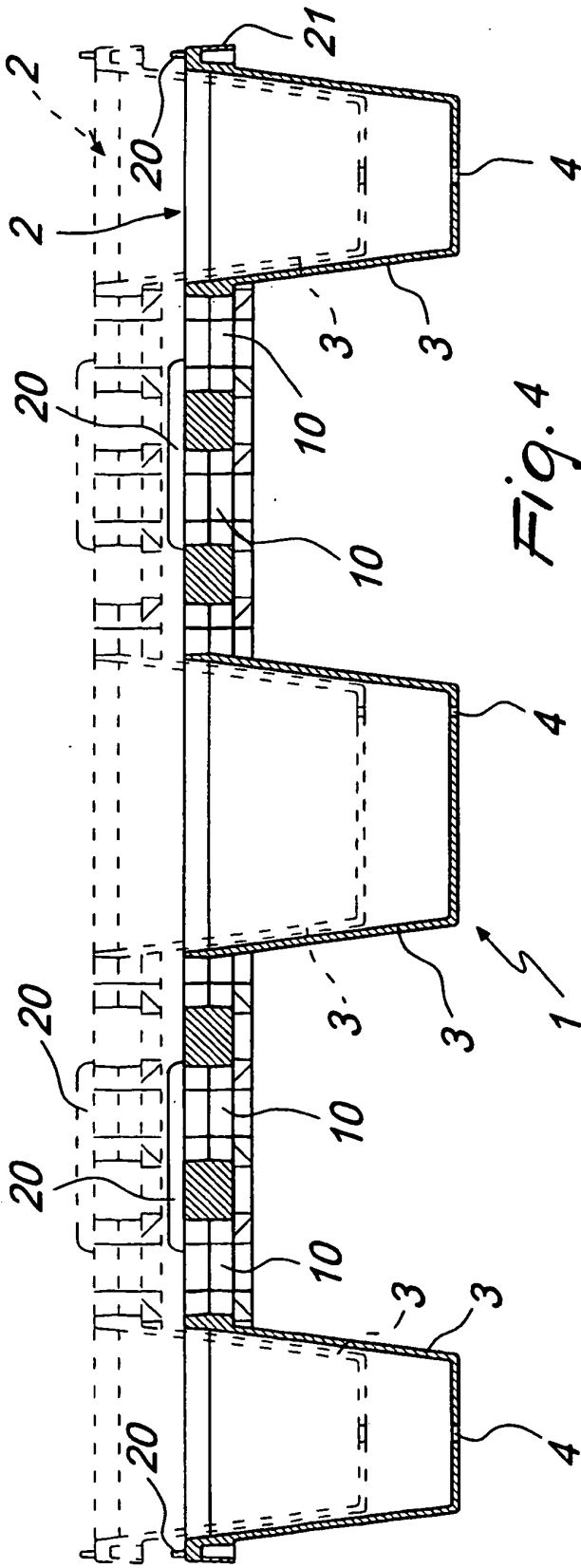


Fig. 4

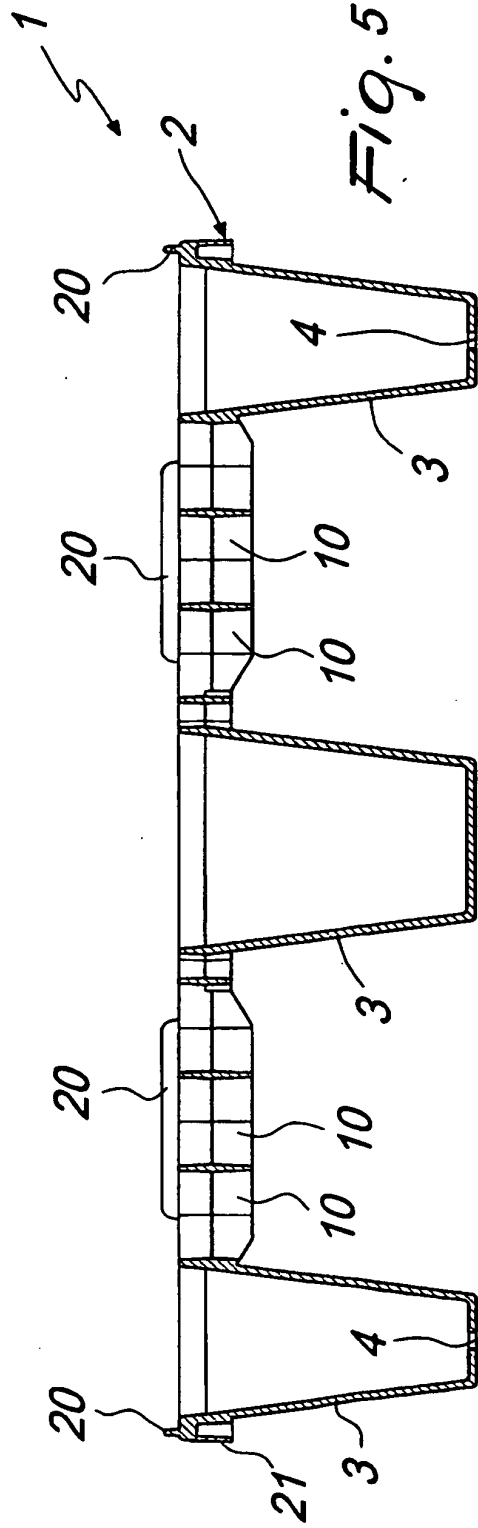


Fig. 5

**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

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- EP 1306311 A [0001]
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