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(54) **PALLET FOR TRANSPORTING AND STORING PREFORMS OF PLASTIC CONTAINERS**

PALETTE FÜR DEN TRANSPORT UND DIE LAGERUNG VON ROHLINGEN FÜR KUNSTSTOFFBEHÄLTER

PALLETTE DESTINÉE AU TRANSPORT ET AU STOCKAGE DE PRÉFORMES DE CONTENANTS EN PLASTIQUE

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(73) Proprietor: **Invento Sp. z o.o.**
00-695 Warszawa (PL)

(72) Inventors:
- **MILKOWSKI, Bogumil**
  80-119 Gdansk (PL)
- **LEWANDOWSKI, Dariusz**
  02-123 Warszawa (PL)
- **TOBOROWICZ, Andrzej**
  PL-00-681 Warszawa (PL)

(74) Representative: **Pomianek, Grazyna et al**
Kancelaria Patentowo-Prawna
Pomianek Sp.j.
ul. Subislawa 23 C lok. 7
80-354 Gdansk (PL)

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Description

[0001] The present invention concerns a pallet for transporting and storing preforms of plastic containers.

[0002] Today, preforms for producing plastic containers are transported and stored in large bags of the "Big-Bag" type, or large cardboard boxes where the preforms are arranged at random touching or overlapping one another.

[0003] Patent JP 8103945 disclosed a pad for transporting cylindrically shaped preforms, consisting of a flat body and numerous preform holders formed on the body surface. On the reverse hollows fitting the preform bottom are formed in the pad body which allows stacking the pads with the preforms on them in multilayer piles.

[0004] Patent JP 8103945 also disclosed a pad for transporting cylindrically shaped preforms. The pad consists of a rectangular frame fitted with supports in its four corners, each support ending in a conical pinnacle on top and a hole matching the pinnacle in the bottom, which enables their stacking in layers. Arranged at regular distances within the frame are comb-like elements whose numerous pins stand pointing upright to hold the preforms slipped onto them.

[0005] WO 98/42609 discloses a holding plate for bobbin or the like, composed of a frame body by partition crosspieces in both longitudinal and lateral directions so that the support crosspieces cross diagonally with each other respectively, protruding at a crossing portion a holding tool in which a short cylinder having a larger diameter than a side end part having a large diameter is connected to the side end part of a tapered - off conical cap.

[0006] EP-A-0 853 053 discloses a stacking tray for bottles. This invention relates to a bottle package for placing the said bottles in a plurality of superposed layers in which the bottles are upright.

[0007] EP-A-0210 712 discloses a bottle crate which includes an upper part which is upwardly open; lower part including a floor, the lower part of the crate being receivable in an upper part of an identical subjacent crate; separating means extending upwardly away from the floor at least partially to define upwardly opening primary sockets in which at least lower portions of bottles are receivable; supporting means above the floor at a height less than that of the separating means to provide each primary socket with a seat on which a lower part of a bottle received in the primary socket is supportable; and downwardly opening secondary sockets within with neck portions of bottles in a subjacent crate are receivable in use.

[0008] GB-A-2 032 866 discloses packing trays for cartons which moulded from pulp fibre for supporting cartons of frusto-conical configuration includes carton receiving pockets. The packing trays are intended for liquid products, particularly yoghurt.

[0009] EP-A-0 604 175 relates to pallet for receiving and transporting ophthalmic lens containers. The pallet comprises wells that are constructed to receive a lens container such as package.

[0010] US-A-4899 874 relates to a stackable low depth bottle case including pockets for bottles.

[0011] The solutions are unsuitable for transporting or storing conically shaped preforms with an easily damaged, thin outer flange which requires special protection to avoid damage. A damaged outer flange disqualifies the preform as being defective.

[0012] The present invention solves the issue of protecting conically shaped preforms with a thin outer flange whilst in transport and storage, and the problem of reducing both the space required for storing preforms on the pallets, and the size of the pallets themselves.

[0013] The present invention provides a pallet in accordance with claim 1. The pallet has a frame with a grill inside, fitted with hoop-shaped elements which are interconnected to the stands whose side walls are formed in the shape of a truncated cone both on the outside and inside, and the outer and inner diameters of the stands are, at the point the stand is interconnected to the hoop, appropriately smaller than the outer and inner diameters of the hoop, where the hoops are interconnected to the stands by way of a shelf formed into a ring on which the perform flange rests. The stands have lattice side walls, which reduces the pallet weight and saves the material.

[0014] The outer and inner surfaces of the hoop are conically inclined, and the stands are interconnected to the hoops on the smaller diameter side of the hoops, so that a conical chamber, open on both ends, is formed inside each stand and the hoop interconnected to it to accommodate a preform put on a stand of the lower pallet in a stack.

[0015] Preferably, the grill further fitted with centering elements which facilitate stacking the pallets and prevent their relative displacement when in transport To enable handling the pallet with sucks the grill is preferably fitted with at least two flat elements, and/or grooves formed in the opposite outer surfaces of the frame to facilitate gripping the pallet.

[0016] According to variant one, stacked pallets rest on their frames

[0017] In variant two mounted on the grill are supports which protrude above the upper edge of the frame fitting into a pallet stacked on top.

[0018] Preferably, the supports are cylindrical in shape

[0019] According to the invention, the pallet ensures protection of the preforms transported on it from damage, and facilitates both the collection of preforms from the injection moulding machine, and their transfer to the blow moulding machine.

[0020] The structure of the stands enables stacking the pallets, whether empty or loaded with preforms.

[0021] The drawings show the invention in two variants. Variant one is presented on Fig. 1-7. Fig. 1 shows the pallet in its axonometric projection, Fig.2- a view of the pallet from above, Fig.3 - a side view of the pallet, Fig.4 - a side view of two pallets in a stack, Fig. 5 - the supports of the stacked pallets in the axial section, Fig.

6 - the stands of the stacked pallets containing a preform, in the axial section, Fig. 7 - the supports of the stacked pallets with the centering elements, in the axial section.

[0022] Variant two of the invention is presented on Fig. 8 - 11.

[0023] Fig. 8 shows the pallet in its axonometric projection, Fig. 9 - a side view of the pallet loaded with preforms, Fig. 10 - the stands of the stacked pallets containing a preform, in the axial section, Fig.11 - the centering elements of the stacked pallets, in the axial section.

[0024] According to variant one of the invention, the pallet has a frame 1 with a grill 2 fitted with hoop-shaped elements 3. Each hoop 3 is interconnected to a stand 4 by way of a shelf 5 formed as a ring on which the preform flange rests. The outer and inner surfaces of the stand side walls 4 are shaped to form a truncated cone and are lattice work in structure. Fixed on the grill 2 are supports 9, cylindrical in shape and protruding above the upper edge of the frame 1, on which stacked pallets rest. At least two of the supports 9 are fitted with centering elements 12, which facilitate stacking the pallets, and at least two supports 9 have a flat top 10 so that the pallet can be gripped with sucks.

[0025] According to variant two of the invention the pallet has a frame 1 with a grill 2 fitted with hoop-shaped elements 3 whose side walls are conically inclined on the outer and inner sides. Each hoop 3 is, on the side of the smaller diameter, interconnected to the stand 4 by way of a shelf 5 formed as a ring. The side walls of the stand form a truncated cone and are lattice work in structure. Fixed on the grill 2 are centering elements 6, which facilitate stacking the pallets and prevent their shifting and relative displacement whilst in transport, and at least two flat elements 11, which allow gripping the pallet with sucks.

[0026] The grooves 7 formed in the opposite outer surfaces of the frame 1 facilitate gripping the pallet. When stacked, the pallets rest on the frame 1 edges.

Claims

1. A pallet for transporting and storing conical preforms (8) of plastic containers having a frame (1) with a grill (2) fitted with hoop-shaped elements (3) which are interconnected to stands (4) whose side walls are formed in the shape of a truncated cone both on the outside and inside, and the outer and inner diameters of the stands (4) are, at the point the stand is interconnected to the hoop (3), appropriately smaller than the outer and inner diameters of the hoop (3), where the hoops (3) are interconnected to the stands (4) by way of a ring-shaped shelf (5), **characterised in that** the side walls of the stands (4) are lattice work in structure, the stands (4) are open at the top base of the truncated cone, the outer and inner walls of the hoops (3) are conically inclined, and the stands (4) are interconnected to the hoops (3) on the side of the smaller diameter of the hoops, so that a conical chamber, open on both ends, is formed inside each stand (4) and the hoop (3) interconnected to it, wherein, when two pallets are stacked one on top of the other either by means of their frames (1) or by means of supports (9), a space is created between rested stands (4) of the stacked pallets to accommodate a preform (8) put on a stand (4) of the lower pallet in the stack, a flange of the preform (8) resting on the corresponding shelf (5) of said lower pallet.

2. The pallet, as claimed in Claims 1, **characterised in that** the grill (2) is fitted with supports (9) protruding above the upper edge of the frame (1), on which the stacked pallets rest.

3. The pallet, as claimed in Claims 1 or 2, **characterised in that** the grill (2) is fitted with centering elements (6, 12) which facilitate the stacking of the pallets and prevent their relative displacement when in transport.

4. The pallet, as claimed in Claims 1 or 2, **characterised in that** the grill (2) is fitted with at least two flat elements (10,11) to enable gripping the pallet with sucks, and/or grooves (7) are formed in the opposite outer surfaces of the frame (1) to facilitate gripping the pallet.

Patentansprüche

1. Palette für den Transport und die Lagerung von kegelförmigen Rohlingen (8) für Kunststoffbehälter, mit einem Rahmen (1) in Rippenbauweise (2), die reifenförmige Teile (3) enthält, die mit Ständern (4) verbunden sind, deren äußere und innere Seitenfläche ein Kegelstumpfprofil aufweisen sowie der Außen- und Innendurchmesser der Ständer (4) an der Verbindungsstelle mit dem Reifen (3) jeweils kleiner ist als der Außen- und Innendurchmesser des Reifens (3), wobei die Reifen (3) mittels eines ringförmigen Bodens (5) mit den Ständern (4) verbunden sind, **dadurch gekennzeichnet, dass** die Seitenflächen der Ständer (4) eine durchbrochene Struktur aufweisen sowie im Bereich der oberen Grundfläche des Kegelstumpfs offen und die Außen- und Innenflächen des Reifens (3) kegelförmig sind, wobei die Ständer (4) von der Seite des kleineren Durchmessers eines Reifens mit den Reifen (3) so verbunden sind, dass innerhalb des jeweiligen Ständers (4) und eines damit verbundenen Reifens (3) eine durchgehend geöffnete, kegelförmige Kammer geformt wird, wobei wenn zwei Paletten aufeinander gestapelt werden und sich dabei auf den Rahmen (1) oder die Stützen (9) zwischen den Ständern (4) der gestapelten Paletten stützen, ein Raum für einen auf den Ständer (4) der unteren Palette aufgesetzten Roh-

ling (8) entsteht und der Flansch eines Rohlings (8) auf einem entsprechenden Boden (5) der unteren Palette ruht.

2. Palette nach Anspruch 1, **dadurch gekennzeichnet, dass** die Rippenbauweise (2) Stützen (9) aufweist, die über den oberen Rand des Rahmens (1) hinausragen, auf welchen die gestapelten Paletten aufliegen.

3. Palette nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die Rippenbauweise (2) Zentrierteile (6, 12) für eine leichtere Palettenstapelung und eine Sicherung gegen gegenseitiges Verschieben der Paletten beim Transport aufweist.

4. Palette nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die Rippenbauweise (2) mindestens zwei Flachteile (10, 11) zum Anfassen von Paletten mit Saugvorrichtungen aufweist und/oder der Rahmen (1) mit Aussparungen (7) versehen ist, die ein leichteres Anfassen der Paletten an den gegenüberliegenden äußeren Seitenflächen ermöglichen sollen.

Revendications

1. Palette destinée au transport et au stockage des préformes coniques (8) pour la fabrication des contenants en plastique, équipée d'un châssis (1) avec une construction nervurée (2) contenant des éléments en forme de colliers (3) raccordés aux portants (4) dont la surface latérale externe et interne a un contour d'un cône tronqué et le diamètre externe et interne des portants (4) à l'endroit de raccordement avec le collier (3) est adéquatement plus petit par rapport au diamètre externe et interne du collier (3), les colliers (3) étant raccordés aux portants (4) au moyen d'une aile (5) en forme d'anneau, **caractérisée en ce que** les surfaces latérales des portants (4) ont une structure ajourée et sont ouvertes à l'endroit de la base supérieure du cône tronqué, et les parois externes et internes des colliers (3) ont une forme conique, les portants (4) étant raccordés aux colliers (3) du côté du diamètre plus petit du collier (3) de façon à ce qu'à l'intérieur de chaque portant (4) et du collier raccordé (3) est formée une chambre conique ouverte de part en part, et quand deux palettes sont empilées en s'appuyant sur les châssis (1) ou les portants (9), entre les portants (4) des palettes empilées est créé un espace pour la préforme (8) posée sur le portant (4) de la palette inférieure et la bride de la préforme (8) repose sur l'aile correspondante (5) de la palette inférieure.

2. Palette selon la revendication 1, **caractérisée en ce que** la construction nervurée (2) contient des supports (9), en saillie au-dessus du bord supérieur du châssis (1), sur lesquels les palettes sont empilées.

3. Palette selon la revendication 1 ou 2, **caractérisée en ce que** la construction nervurée (2) est équipée d'éléments de centrage (6, 12) facilitant l'empilage et préservant les palettes contre leur déplacement réciproque pendant le transport.

4. Palette selon la revendication 1 ou 2, **caractérisée en ce que** la construction nervurée (2) contient au moins deux éléments plats (10, 11) pour saisir les palettes par des ventouses et/ou le châssis (1) possède des évidements (7) sur les surfaces latérales, opposées, externes, facilitant le saisissement de la palette.

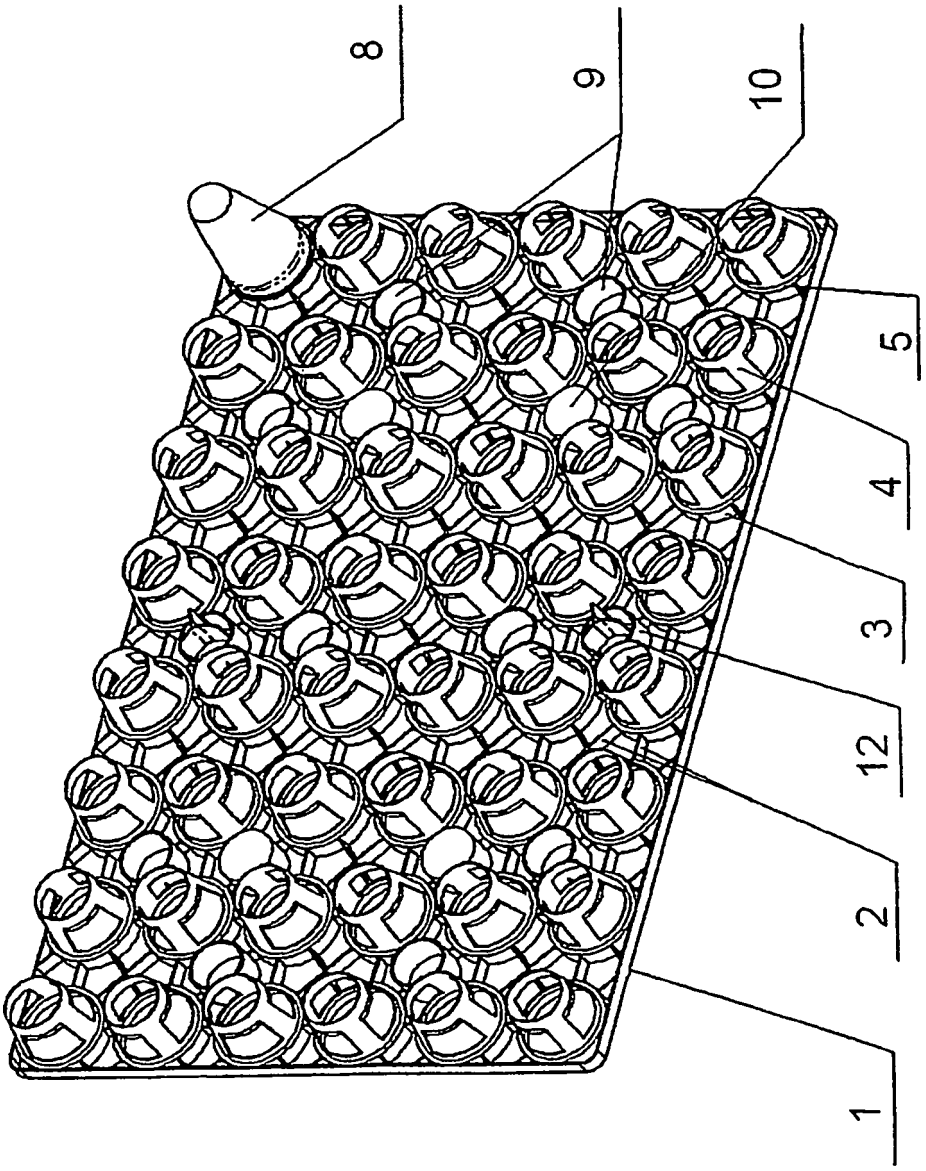

FIG.1

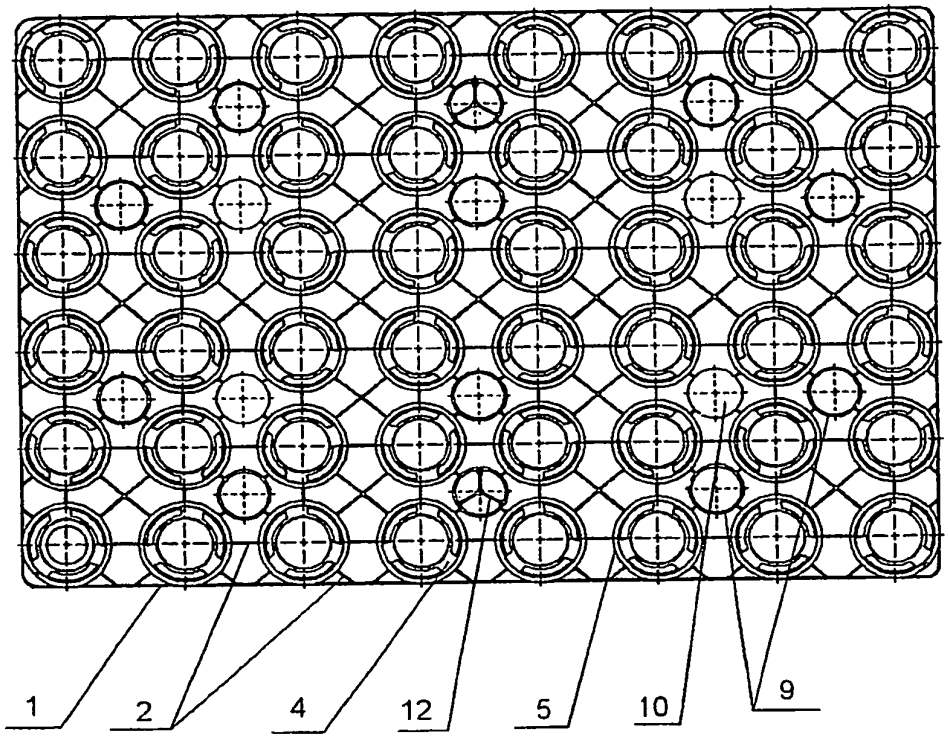

FIG.2

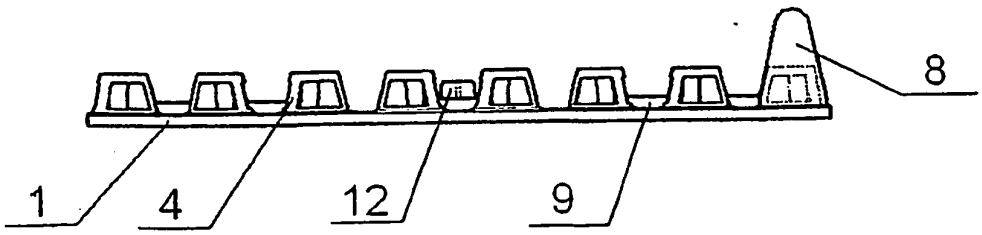

FIG.3

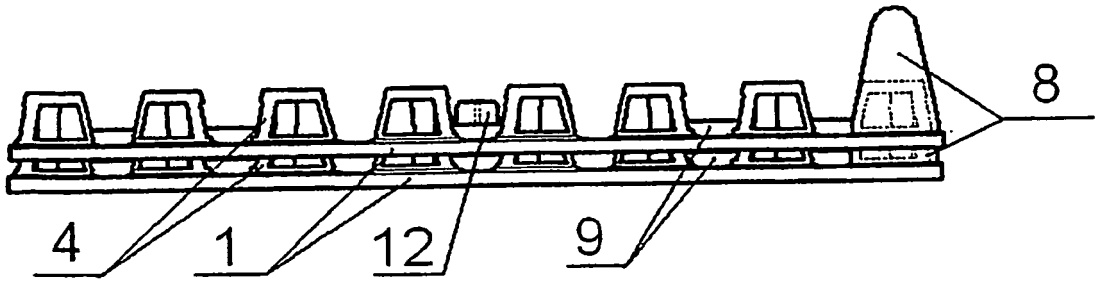

FIG.4

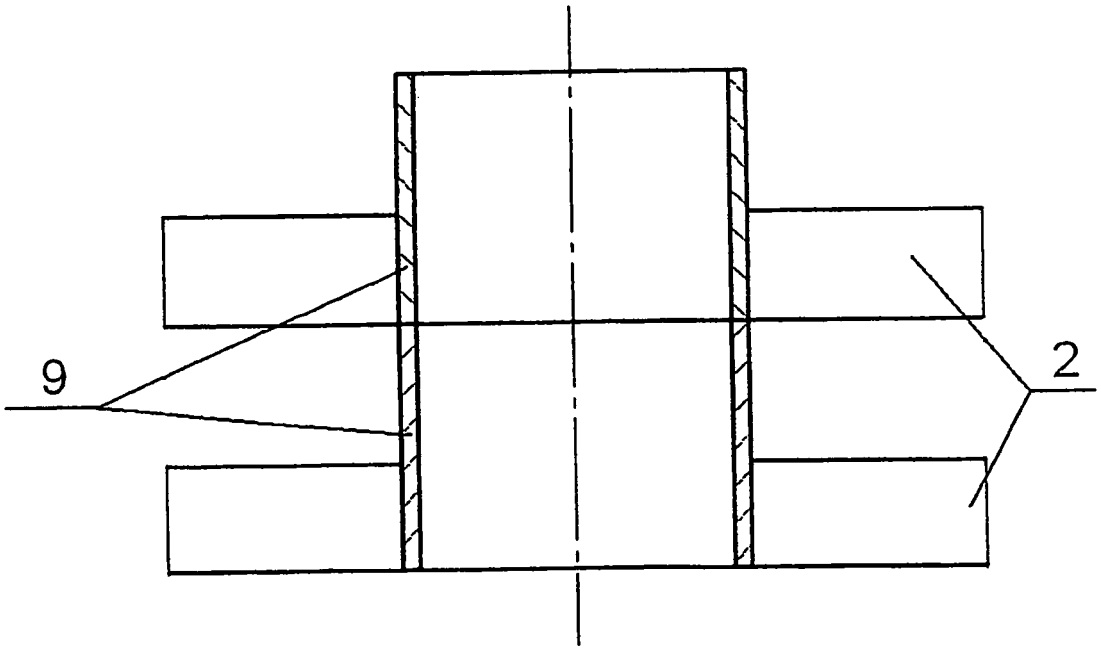

FIG.5

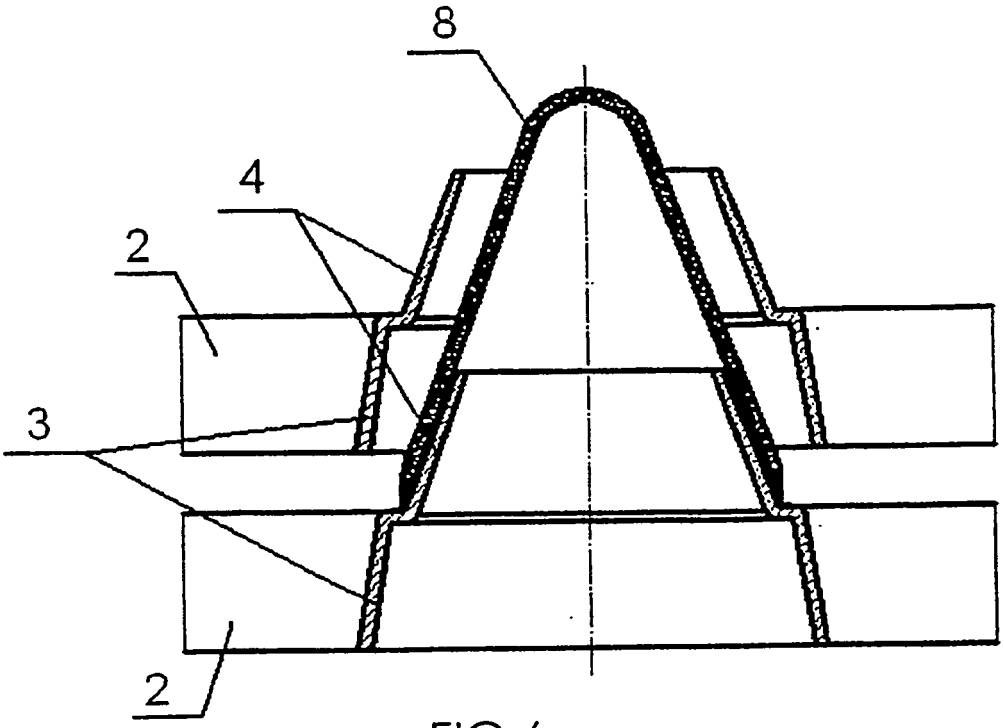

FIG.6

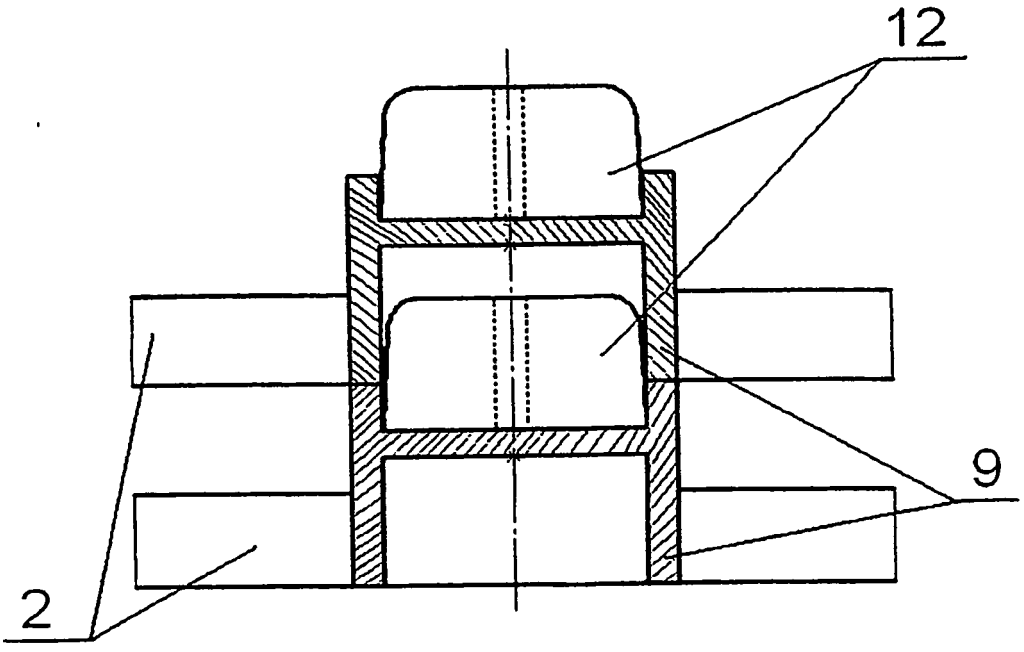

FIG.7

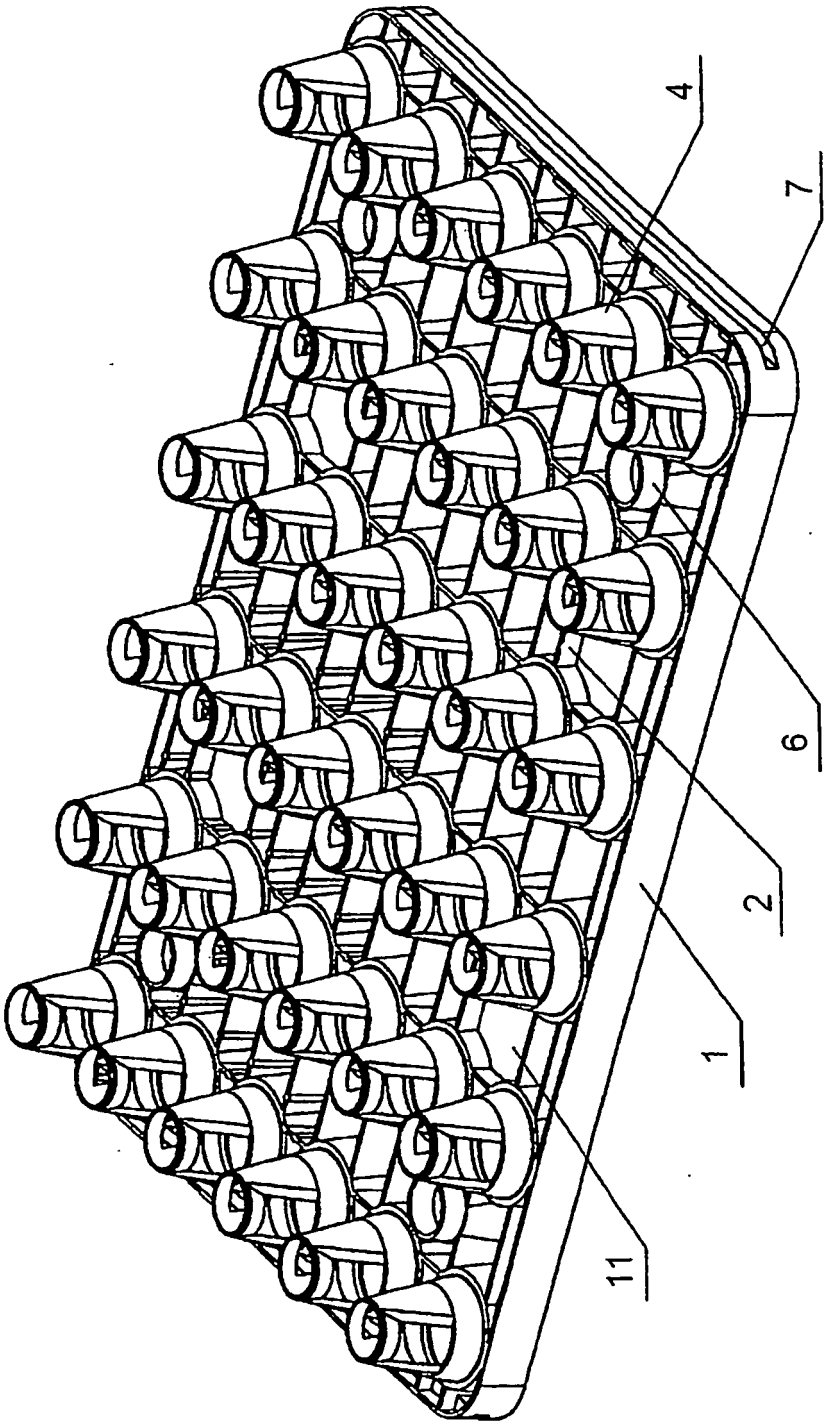

FIG.8

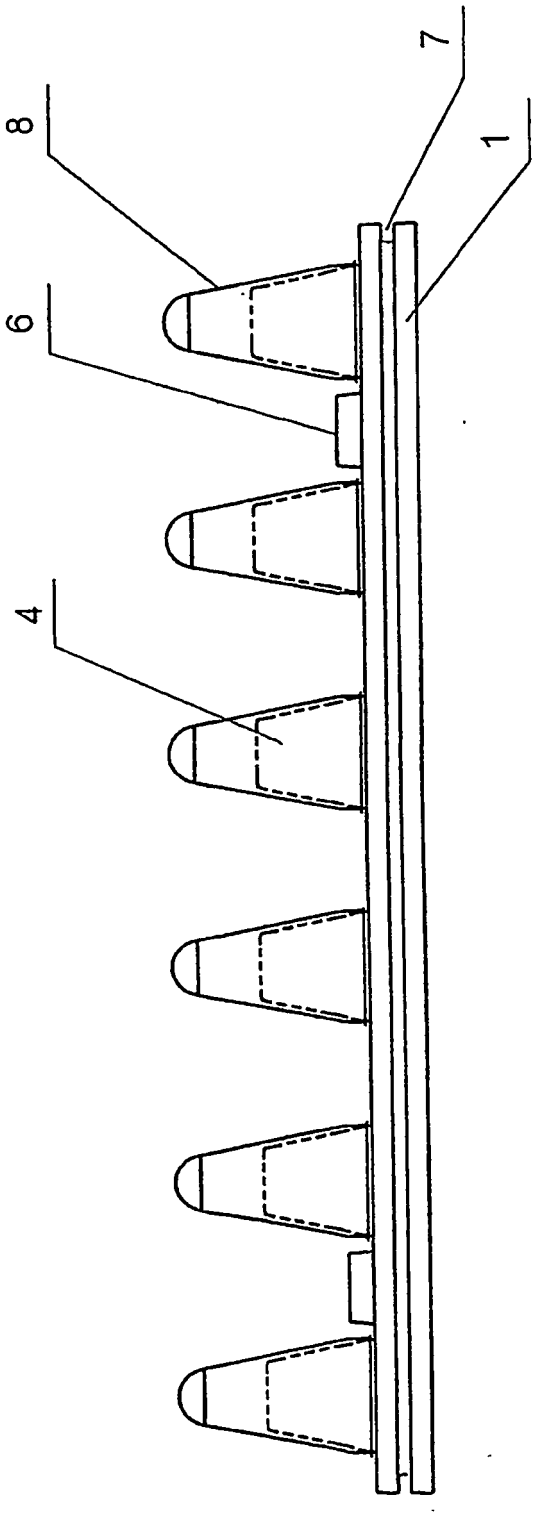

FIG.9

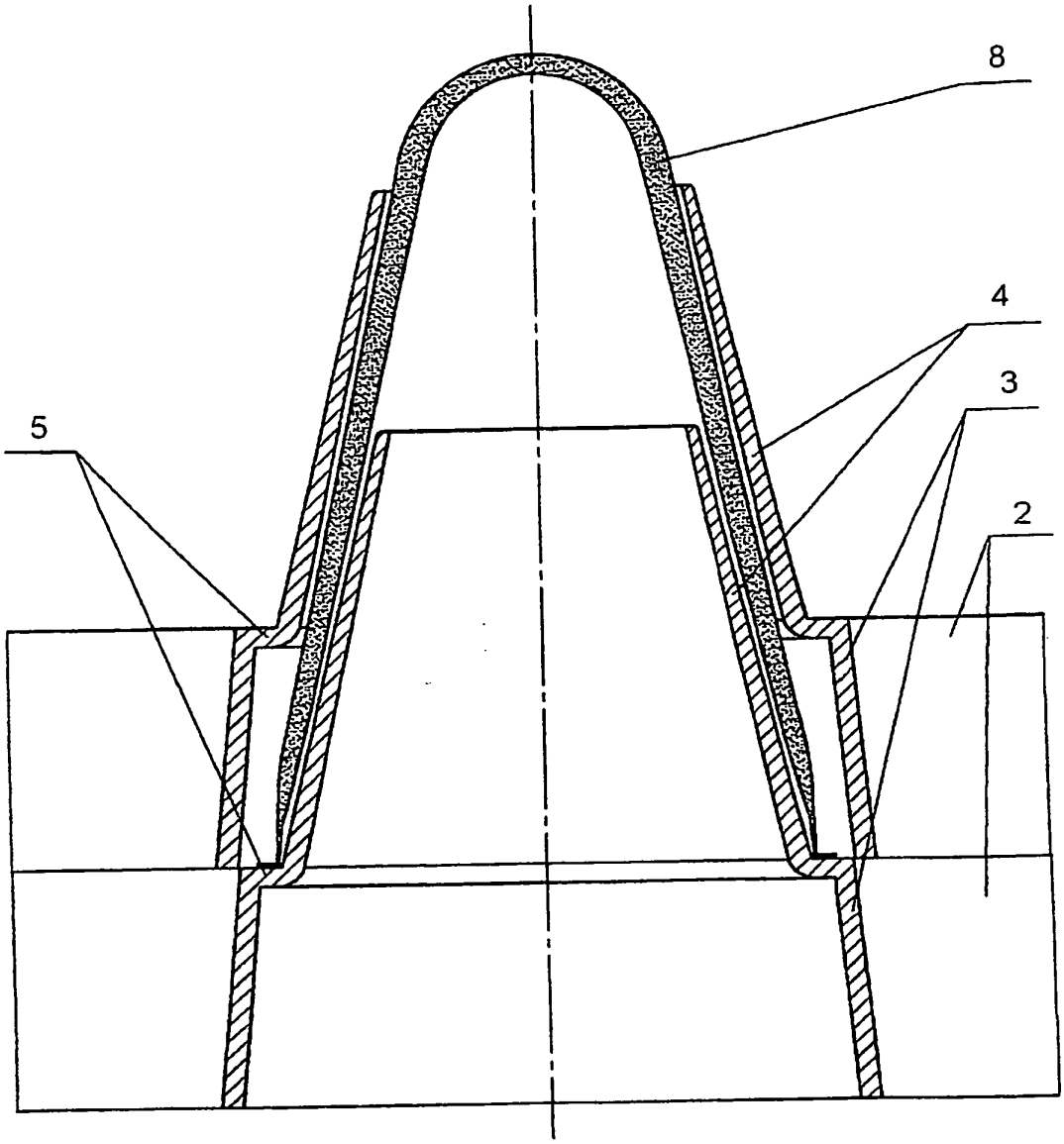

FIG.10

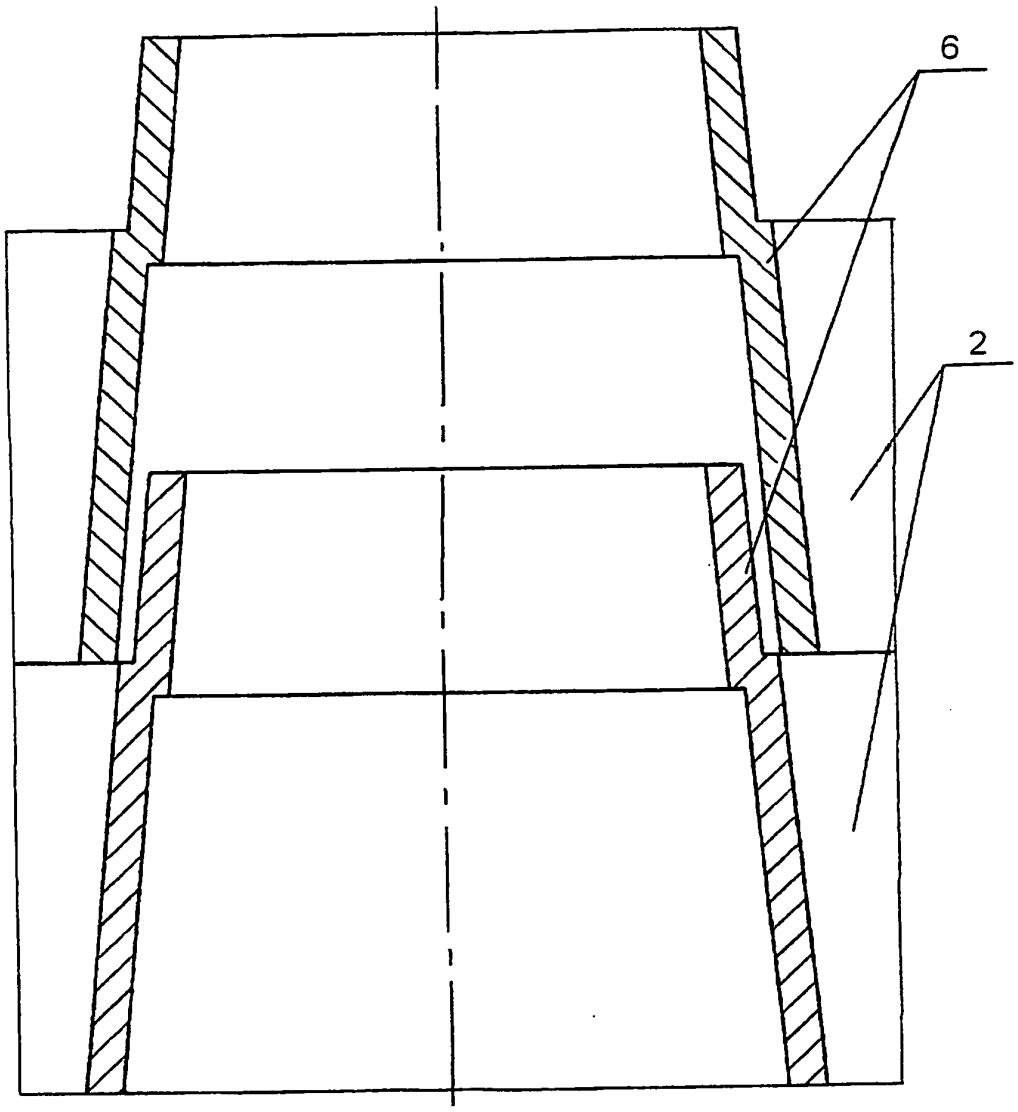

FIG.11

REFERENCES CITED IN THE DESCRIPTION

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