A pallet for transporting and storing preforms of plastic containers is composed of a frame (1) with a grill inside (2), fitted with hoop-shaped elements (3), which are interconnected to stands (4) holding preforms (8). The side walls of the stands (4) are formed in the shape of a truncated cone. The outer and inner diameters of the stand (4) are, at the point the stand (4) is interconnected to the hoop (3), appropriately smaller or equal to the outer and inner diameters of the hoop (3). The side walls of the stands (4) are lattice work in structure. The hoops (3) are interconnected to the stands (4) by way of a ring-shaped shelf (5) on which the preform (8) flange rests. In variant one the stacked pallets rest on supports (9) protruding above the upper edge of the frame (1), and in variant two they rest on the frame (1) edges.
The present invention concerns a pallet for transporting and storing preforms of plastic containers.

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.

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 pin on top and a hole matching the pinacle 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.

The solutions are unsuitable for transporting or storing cylindrically 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.

The present invention solves the issue of protecting cylindrically 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.

According to the present invention a pallet for transporting and storing preforms of plastic containers, equipped with preform stands, is characterised in that it has a frame with a grill inside, fitted with hoop-shaped elements interconnected to the stands, the latter's outer and inner side walls formed into a truncated cone, where the outer and inner diameters are, at the point of interconnecting with the hoop, appropriately smaller or equal to the outer and inner diameters of the hoop.

Preferably, the stands have lattice side walls, which reduces the pallet weight and saves the material.

The outer and inner surfaces of the hoop are preferably conically inclined, and the stands are interconnected to the hoops on the smaller diameter side.

The hoops are interconnected to the stands by way of a shelf formed into a ring on which the preform flange rests.

The grill is further fitted with centering elements which facilitate stacking the pallets and prevent their relative displacement when in transport.

To enable handling the pallet with a sucks the grill is fitted with at least two flat elements.

The grooves formed in the opposite outer surfaces of the frame facilitate gripping the pallet.

According to variant one, the stacked pallets rest on their frames.

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

Preferably, the supports are cylindrical in shape.

To enable handling the pallet with a sucks, at least two supports are flat at the top.

In order to facilitate stacking the pallets, at least two supports are fitted with centering elements. These elements also prevent the shifting and displacement of the stacked pallets in transport.

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.

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

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.

Variant two of the invention is presented on FIG. 8-11.

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.

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.

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

1. A pallet for transporting and storing preforms of plastic containers, equipped with preform stands, characterised in that it has 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 are, at the point the stand is interconnected to the hoop (3), appropriately smaller or equal to the outer and inner diameters of the hoop (3).

2. The pallet, as claimed in claim 1, is characterised in that the side walls of the stands (4) are lattice work in structure.

3. The pallet, as claimed in claim 1, is characterised in that the outer and inner walls of the hoop (3) are conically inclined, and the stands (4) are interconnected to the hoop (3) on the side of the smaller diameter.

4. The pallet, as claimed in claim 1, is characterised in that the hoops (3) are interconnected to the stands (4) by way of a ring-shaped shelf (5).

5. The pallet, as claimed in claim 1, is characterised in that the grill (2) is fitted with centering elements (6) which facilitate the stacking of the pallets.

6. The pallet, as claimed in claim 1, is characterised in that the grill (2) is fitted with at least two flat elements (11) to enable gripping the pallet with sucks.

7. The pallet, as claimed in claim 1, is characterised in that grooves (7) are formed in the opposite outer surfaces of the frame (1).

8. The pallet, as claimed in claim 1, is 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.

9. The pallet as claimed in claim 8, characterised in that the supports (9) constitute cylindrical shape elements.

10. The pallet, as claimed in claim 8, is characterised in that at least two supports (9) are flat at the top (10) to enable gripping the pallet with sucks.

11. The pallet, as claimed in claim 8, is characterised in that at least two supports (9) are fitted with centering elements (12), which facilitate the stacking of the pallets.

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