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(54) **Pallet-like carrier body for stacked insulating boards**

(57) In a carrier body (1) for insulating boards in a stack, especially insulating boards made of mineral wool, the carrier body is constituted by an insulating board in which there are provided recesses (4) for the insertion of the prongs of a forklift truck or on the under-

side of which there are arranged or attached elements of insulating material (5) at such a distance from each other as to make the elements of insulating material delimit pick-up recesses between them for the insertion of a forklift truck or the insertion of some other lifting means.

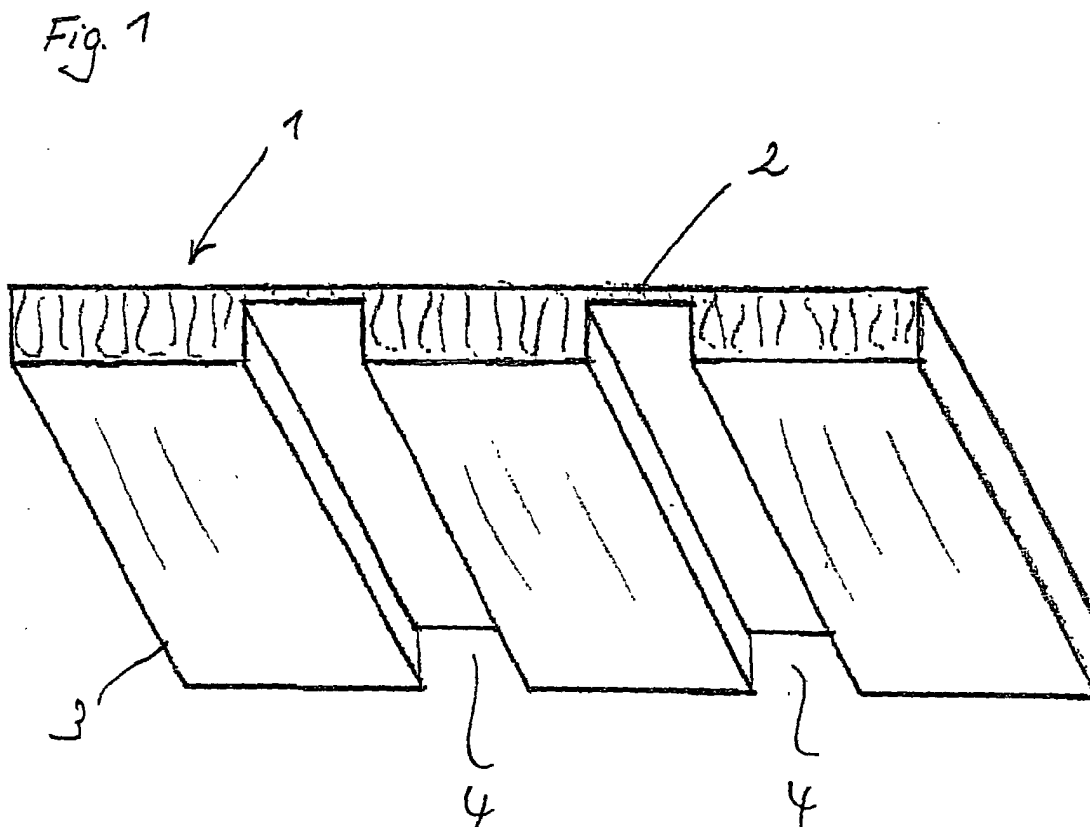
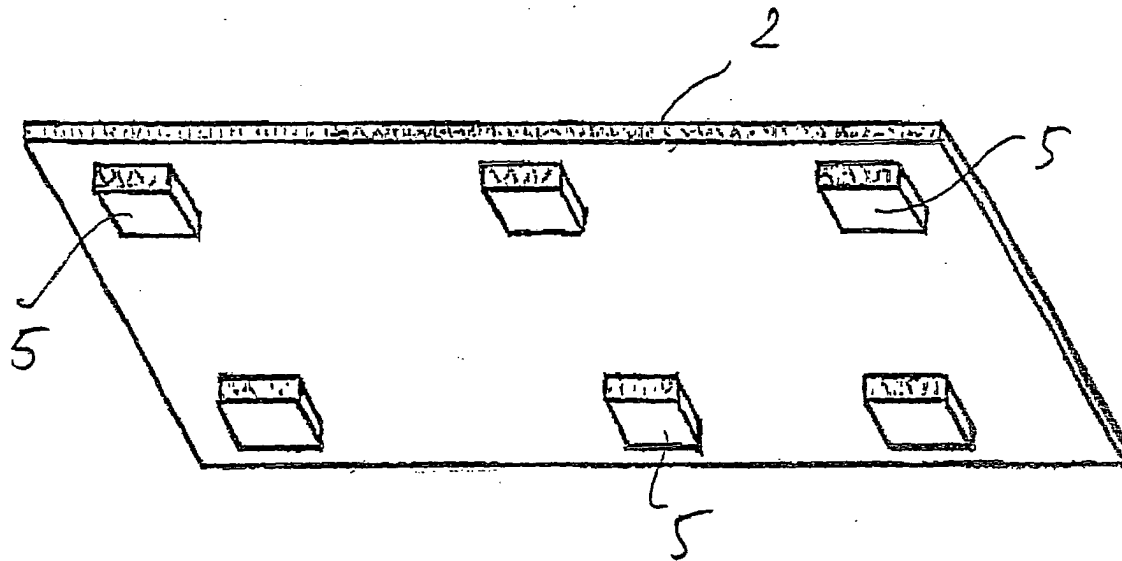


Fig. 2



Description

[0001] The invention concerns in particular a carrier body for picking up boards of insulating material arranged in stacks, where the insulating boards are placed on top of each other.

[0002] Given the associated logistic advantages, insulating materials (boards or rolls of felt) are nowadays delivered to dealers or direct to building sites for the most part on pallets. This renders possible rapid transfer processes on the occasion of storage and processing, and also considerable savings of labor time as compared with delivery in individual packages.

[0003] As a general rule, wooden pallets are employed as the means of transport for such insulating materials as glass and mineral wool. But the elimination of disposable pallets and the return of reusable pallets is associated with considerable costs.

[0004] When the materials in question are large-size insulating boards for flat roofs, the use of strips of insulating material under the boards to be transported has proved particularly advantageous in recent years, because these strips can either be disposed of at a small cost or, when they are in a proper condition, can be incorporated in the insulating layer to be created in the building project. This eliminates the disposal and transport costs associated with wooden pallets and the user may even enjoy a cost advantage. The drawback associated with this procedure is that it can only be used for transporting large-size boards.

[0005] One is therefore induced to look for a solution that will eliminate the use of carrier elements made of materials other than the elements that have to be transported and will make possible the at least partial use of the carrier element as insulating material in building construction.

[0006] It is therefore suggested that use should be made of a carrier element of insulating material such that, given an element in normal conditions, at least parts of it can be employed as insulating board in building works.

Variant 1

[0007] Given pressure-resisting insulating boards of largish thickness (for example, insulating boards for flat roofs from 100 mm upwards), this carrier element can be made from a full-size insulating board on the underside of which there are formed two rectangular recesses extending over the entire width of the board and choosing the dimensions and spacing of the recesses in such a manner as to render them suitable for accommodating the appropriate pick-up devices of lifting equipment (forklift trucks, for example).

[0008] In this way one forms a carrier element that can discharge the task of a wooden pallet and of which the full-thickness parts between the recesses can be used as insulating board after appropriate cutting to size.

[0009] This solution is preferably not based on the idea of creating hollows between the ground and the stack of boards by placing strips of insulating material under the stack, thus rendering transport possible by enabling lifting equipment to grip under the stack, but rather creating these hollows by appropriately shaping the bottom board of the stack.

[0010] The advantage is that small-size insulating boards can also be transported on such a carrier body.

Variant 2

[0011] A further possibility for transporting insulating boards is the use of pallet-like structures made of insulating material and consisting of several parts.

[0012] To this end strips or blocks of insulating material are attached to the underside of individual insulating boards in such a manner as to create an independent structure as carrier body. The space thus created between the ground and the insulating board makes it possible for lifting equipment to pick up the carrier body from underneath. Insulating boards can then be stored and transported on this carrier body.

[0013] It is important that an independent carrier body consisting of a cover board and foot elements, which may have different shapes (strip-like, cubic, cylindrical), should be formed before any insulating boards are stacked thereon.

[0014] It is particularly advantageous when the cover plate of the carrier body is exactly the same as the boards to be transported. In that case it can subsequently be used as insulating board.

[0015] Use possibilities can be envisaged, for example, in connection with partition wall boards, i.e. large-size boards that do not necessarily have to be capable of resisting compression.

Advantages of the indicated solutions

[0016] Variant 1:

- a) Insulating boards can be transported without wooden pallets on carrier elements that can be used as insulating material.
- b) Even small-size boards can be transported.
- c) No costs have to be sustained for disposal or return.

[0017] Variant 2:

- a) The cover plate of such a pallet does not come into contact with the ground is therefore fit for use as insulating board.
- b) No wooden pallets are needed.
- c) No costs have to be sustained for disposal or return.
- d) Lifting equipment can get a grip under the stack from both sides (length and width) of the board,

which is important when trucks have to be unloaded.

[0018] Some preferred embodiments of the invention will now be described with the help of the drawings, of which:

Figure 1 shows a perspective view of a pallet-like carrier body in accordance with Variant 1 of the invention

Figure 2 shows another embodiment of a pallet-like carrier body in accordance with Variant 2 of the invention.

[0019] The carrier body, which in Figure is generally indicated by the reference number 1, is made up of a plane, floor-like carrying surface 2 and carrier elements 3 arranged on the underside of the carrying surface 2 that project downwards from the carrying surface 2 and constitute supporting feet of the carrier body 1. The carrier body 1 in accordance with Figure 1, of which the carrying surface 2 is continuous, comprises three carrier elements 3, of which two carrier elements are arranged at the opposite shorter sides of the carrying surface 2 and preferably terminate flush with it. The further carrier element 3 is arranged at the center. All three carrier elements are aligned parallel with each other and extend advantageously over the entire width of the carrying surface 2. The carrier elements can be seen to be shaped in the manner of strips, though this is not to be understood as limitative in any way. The arrangement and / or the shape of the carrier elements is in any case such that between adjacent carrier elements 3 there are delimited pick-up recesses or insertion slots 4 that serve for the insertion of the prongs of forklift trucks or other pick-up devices of lifting equipment. In the illustrated embodiment the insertion slots 4 are formed from the carrier body 1 by means of milling, the insertion slots 4 having the shape of grooves.

[0020] The embodiment in accordance with Figure 4, on the other hand, is provided with insular carrier elements 5 that are arranged on the underside of the carrying surface 2 in such a manner as to terminate either flush with the adjacent edge faces of the carrying surface 2 or, as shown in Figure 2, are arranged at a certain distance inwards of the adjacent edge faces of the carrying surface 2. These carrier elements once again constitute supporting feet of the carrier body 1. In the illustrated embodiment the insular carrier elements are constituted by blocks having a square cross section, but such carrier elements may also be constituted by supporting feet having a rectangular or cylindrical cross section or, indeed, any other suitable cross section. These carrier elements 5 are once again arranged at a lateral distance from each other in such a manner as to constitute appropriate recesses or insertion slots for the lifting equipment or the prongs of a forklift truck. Two rows of carrier elements 5 are provided, and each row consists

of three carrier elements 5. The rows are in each case arranged adjacent to, but at a small distance from the appropriate edge of the carrying surface 2. The insular carrier elements 5 may also be shaped in the manner of strips similar to the carrier elements shown in Figure 1, and in an embodiment analogous to that of Figure 2 they will advantageously have a width smaller than the width of the carrying surface 2 and, consequently, be arranged at a distance from the adjacent edge sides of the carrying surface 2 so as to be displaced inwards.

[0021] The carrier body 1, inclusive of the carrying surface 2 and the carrier elements 3 and / or 5, is made of insulating material and, more particularly, of pressure-resisting insulating material. Mineral wool is particularly suitable for this purpose. In particular, it is preferred that the carrier body 1, which serves as support for the stacked insulating boards, should be made of the same material as the insulating boards it is to sustain. In a further embodiment the carrier body 1 can be a direct component of the lowermost insulating board in the stack, in which case the insertion slots for the lifting equipment or the forklift truck are produced by means of milling. This can be done during the phase in which the insulating board is produced or given its form, and especially downstream of the hardening furnace. This operation can be performed as part of an on-line process if, for example, every ninth board is simply separated from the other boards in the production line in order to carry out the milling passage during and in step with the line speed. In that case the milled board will merely have to be turned through 180° in order to have the insertion grooves on the underside of the board.

[0022] But the lowermost boards can be given their form also in any other way, for example, by means of pressing in appropriate moulds.

[0023] The carrier body can be produced as a single piece respectively one-piece part and, more particularly, constitute the lowermost board of the stack even in the case of the embodiment in accordance with Figure 2. In the case of either embodiment, however, the strips or blocks or similar carrier elements of insulating material can also be arranged on the underside of a carrying surface of insulating material by means of, for example, gluing or clipping, so that the stack of insulating boards supported on the carrying surface 2 can be picked up and transported by appropriate lifting equipment, especially forklift trucks. The carrier body thus constitutes a pallet-like component that serves for the transport of stacked insulating boards. Of course, the carrier body with the insulating boards supported thereon may be enveloped by a foil or several foil strips in the customary manner.

Summarization of features of the invention

[0024]

1) A carrier body for stacked insulating boards that is made of insulating material, especially mineral

wool.

2) An arrangement of carrier elements on the underside of the stack of insulating boards.

3) Formation of the carrier elements in the lowermost insulating board of the stack.

4) Single-piece formation of the carrier elements in the lowermost insulating board of the stack or single-piece formation of the carrier element as lowermost insulating board of the stack.

5) Preparation of the lowermost insulating board of the stack as an insulating board capable of being picked up by a forklift truck.

6) Formation of insertion slots or insertion recesses in the lowermost insulating board for the prongs of forklift trucks or in keeping with the pick-up devices of other lifting equipment.

7) Continuous formation of the insertion slots or pick-up recesses over the width of the insulating boards of the stack.

8) Formation of the insertion slots by means of milling / cutting of the insulating board, especially over the width of the board.

8a) Formation of the insertion slots by means of pressing the insulating board (important, for example, in the case of Styropor or styrofoam).

9) Formation of an insulating board with a preferably continuous and plane carrying surface with carrier elements that project downwards from the carrying surface and delimit pick-up recesses between them for the insertion of the prongs of forklift trucks or the insertion of some other lifting means.

10) Formation of an insulating board as in 9) with strip-like carrier elements (3).

11) Formation of an insulating board as in 9) or 10) with strip-like carrier elements (3) [extending] over the width of the carrying surface (2).

12) Formation of the carrying surface corresponding to the length and width of the insulating board of the stack.

13) Formation of the carrying surface (2) with three carrier elements (3), of which two are arranged on the shorter sides of the carrying surface (2) and one carrier element is arranged at the center thereof.

14) Formation of the insertion slots (4) between the carrier elements to the width of the prongs of the forklift truck with a small clearance.

15) Formation of the carrier elements as insular carrier elements (5).

16) Arrangement of the insular carrier elements laterally spaced with respect to each other so as to form pick-up recesses or insertion slots (4) for a forklift truck or some other lifting means.

17) Arrangement of at least two insular carrier elements (5) over the length of the lowermost insulating board in the stack or of the carrying surface (2).

18) Arrangement of at least two rows of insular carrier elements (5).

19) Arrangement of three insular carrier elements

in each row with reference to Features 17) and 18).

20) Arrangement of two rows of carrier elements (5).

21) Arrangement of the rows as in 20) and in such a manner that the insular carrier elements are displaced inwards with respect to the adjacent edge of the insulating board or the carrying surface.

22) Formation of the insular carrier elements with a rectangular, square or cylindrical cross section.

23) Formation of the insular carrier elements (5) a strips of insulating material having a smaller width of the width of the insulating board in the stack or the carrying surface (2).

24) Formation of the carrier elements (3, 5) from the same insulating material as the insulating board of the stack.

25) Formation of the carrier elements (3, 5) from pressure-resisting insulating material.

26) Use of the carrier body with carrier elements for the transport and / or the storage of large-size insulating boards for flat roof.

27) Stack with the carrier elements and/or the carrier body and at least one foil covering for the carrier elements and/or carrier body and the insulating boards in the stack to envelop the stack.

Claims

1. A carrier body for insulating boards in a stack, especially insulating boards made of mineral wool, **characterized in that** the carrier body is constituted by an insulating board in which there are provided recesses for the insertion of the prongs of a forklift truck or on the underside of which there are arranged or attached elements of insulating material at such a distance from each other as to make the elements of insulating material delimit pick-up recesses between them for the insertion of a forklift truck or the insertion of some other lifting means.
2. Carrier boards in accordance with Claim 1, **characterized in that** the carrier body is constituted by the insulating board that constitutes the underside of the stack of insulating boards.
3. A carrier body in accordance with Claim 1 or Claim 2, **characterized in that** the insertion slots or pick-up recesses extend over the entire width of the insulating board.
4. A carrier body in accordance with any one of the preceding claims, **characterized in that** the insertion slots are formed by means of milling or cutting the insulating board or by pressing the insulating board.
5. A carrier body according to one of the preceding

claims **characterized in that** the insulation board which is constituting the carrier body is made as a one-piece element.

6. A carrier body in accordance with Claim 1, **characterized in that** the elements of insulating material provided on the underside of the insulating board are constituted by strip-like elements of insulating material. 5
- 10
7. A carrier body in accordance with Claim 1, **characterized in that** the elements of insulating material on the underside of the insulating board are constituted by insular elements of insulating material. 15
8. A carrier body in accordance with Claim 6 or Claim 7, **characterized in that** the elements of insulating material on the underside of the insulating board are arranged so as to be displaced inwards with respect to the edge of the insulating board. 20
9. A carrier body in accordance with any one of Claims 6 to 8, **characterized in that** the insular elements of insulating material have rectangular, square or cylindrical cross sections. 25
10. A carrier body in accordance with any one of the preceding claims, **characterized in that** the carrier elements formed on the insulating board are made of the same material as the insulating board of the stack, especially of pressure-resisting insulating material. 30

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Fig. 1

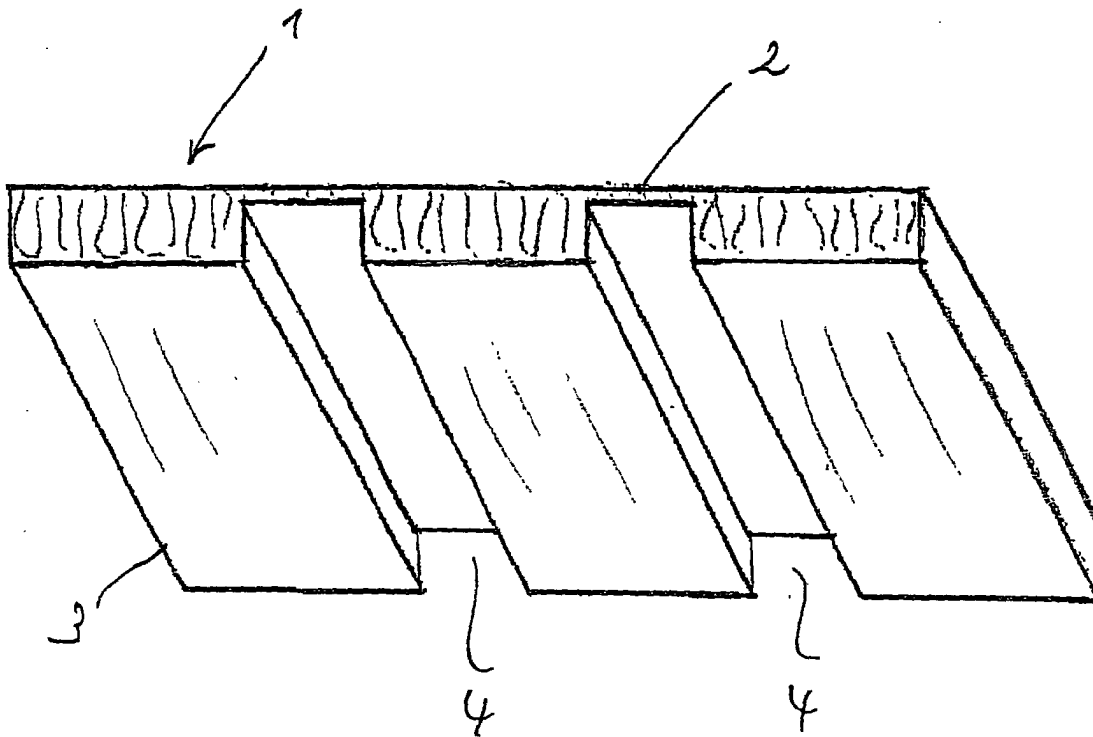
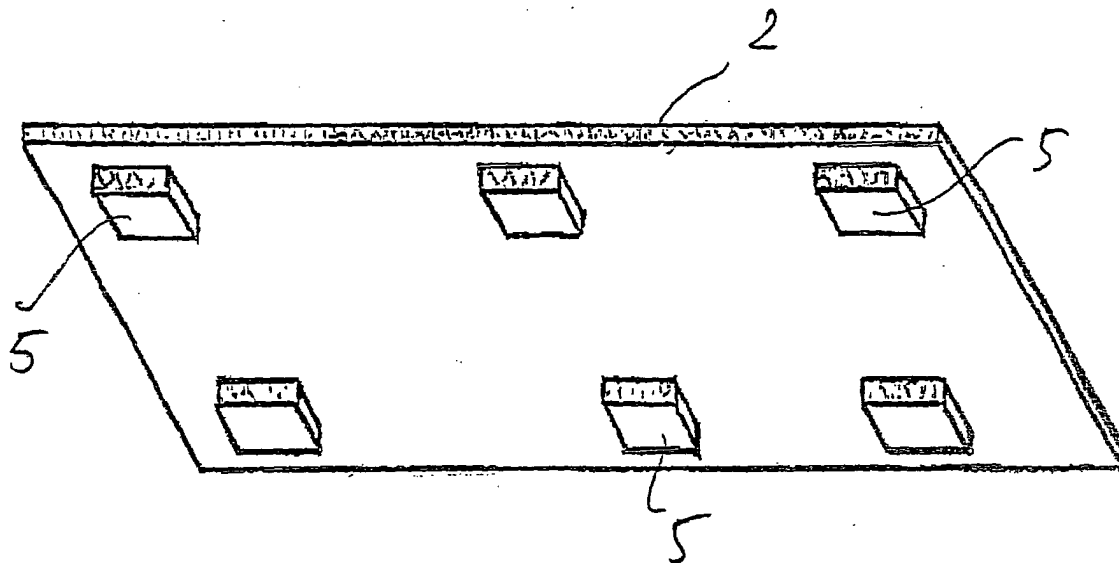


Fig. 2





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Application Number
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