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(54) Packaging for rigid articles

(57) The packs cover only peripherally, and over a parital area of border (5), two or three sides of stacked packs of rigid bodies such as tiles,. The packaging can be L-shaped, covering two sides, or U-shaped, covering three sides, with or without end flaps (8). The packaging can be overlaid and glued and may include safety straps, and can be glued between overlaid peripheral corners and bottom surfaces of a bottom-most tile of the stack of tiles.

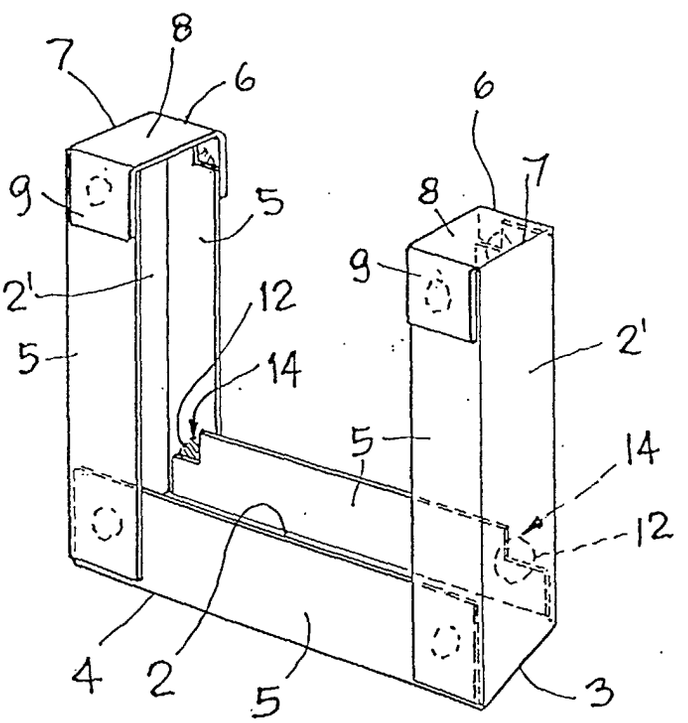

Fig. 6

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Description

[0001] The packaging of the invention is particularly useful for packing ceramic tiles or flat elements in general, in a way in which a partial view of the tiles when packaged is afforded.

[0002] The prior art teaches packaging of the above-described type, especially suitable for packaging limited series of tiles. The structure of these packagings is so designed as to make their structure less complex and less expensive, while at the same time exposing part of a top surface of the top tile in the stack and a part of the lower surface of a last tile in the pack. It has been seen, however, that the cost of this type of packaging, as well as their functionality in the light of the fact that they leave a part of the tiles in view, impacts considerably on the final cost of the packaged products.

[0003] A further drawback is the fact that the assembly of some packages of the above-described type about the tiles, or flat elements in general, requires modifications and adjustments to the packaging machines used, with obvious loss of time as well as extra costs.

[0004] The main aim of the present industrial invention is to obviate the above-cited drawbacks. The invention, as it is characterised in the accompanying claims, provides a packaging for rigid bodies in which the following results are obtained: the packaging is made of a single pre-cut sheet, substantially rectangular, with partial peripheral cuts and transversal and longitudinal score-lines; starting from a same basic configuration, the packaging sheets can assume a final L-shape (two sides) or U-shape (three sides, with partial peripheral borders and with or without folded, superposed and glued end flaps, with or without peripheral straps, with or without glue points between the peripheral covering sides and the lower surfaces of the tiles or the flat elements packaged.

[0005] The advantages of the present invention essentially consist in the fact that the linear configuration of the pre-cut sheets, very simple and easy and cheap to produce, enable the packagings to be formed using known packaging machines already in use, without having to make any adjustments thereto, but using only normal parameter calibrations for height and length, according to the proportions of the packaging sizes to be made; the pre-cut sheets, in the various L or U conformations, with partial peripheral edges and with or without foldable blocking end flaps, all derive from a single simplified basic model, with a maximised saving of raw materials. In the terminal zones of the peripheral flaps of the packagings, folded towards the lower surface of each bottom-most tile, cuts, slots or partial removal of materials can be present, through which part of the glue, destined to unite the superposed flaps of the packaging, engages and glues onto the lower surface of the tiles; the final packs can be bound using tape, though this is not necessary.

[0006] The invention is described in detail herein below, in two embodiments which are here illustrated purely in the form of non-limiting examples, with reference to the accompanying figures of the drawings, in which:

figures 1a, 1b and 1c show plan views of the pre-cut sheets relative to the various packaging solutions, with shapes having two perpendicular L-shaped sides with foldable end flaps, three perpendicular U-shaped sides with no end flaps and for various stack heights, and with three perpendicular U-shaped sides with foldable end flaps;

figure 2 shows a perspective view of an example of a first stage of packaging using glue, of flat elements (tiles), obtained using the pre-cut sheet with three U-shaped perpendicular sides with foldable end corner flaps;

figure 3 shows a perspective view of the intermediate stage of packaging with glue, following the stage illustrated in figure 2;

figure 4 is a perspective view of a completed packaging, obtained using a pre-cut sheet, with only two perpendicular sides, giving an L-shaped packaging with foldable end corner flaps;

figure 5 is a perspective view of a completed packaging, obtained using a pre-cut sheet with three perpendicular sides, giving a U-shaped packaging with open ends; and

figure 6 is a perspective view of a completed packaging, obtained using a pre-cut sheet with three perpendicular sides, giving a U-shaped packaging with foldable end comer flaps, being the final stage of the packaging sequence with glue of figures 2 and 3.

[0007] The figures illustrate various shapes of packaging for ceramic tiles or flat elements in general. They are obtained from single pre-cut sheets, all derived from a same simplified basic model, shown in figures 1a, 1b and 1c.

[0008] The first configuration 1a comprises only two sequential lateral surfaces 2, joined along a common transversal side constituted by a score line 3. During assembly the lateral surfaces 2 are arranged at right angles about line 3. Along the longitudinal sides, constituted by peripheral pre-scored lines 4, the surfaces are coupled to lateral borders 5, separated by partial transversal cuts 20, which borders fold perpendicularly towards the lateral surfaces 2, superpose in proximity of the ends of the lower edge corresponding to the line 3 and are engaged one to the other by gluing.

[0009] End flaps 8 are perpendicularly foldable in the same direction as the lateral surfaces 2 about pre-scored lines 7 present at the ends of the external transversal sides of the lateral surfaces 2. Comer flaps 9, lateral to the end flaps 8 and aligned to the borders 5 but separate there-from by partial cuts 20, are also foldable along pre-scored lines 6 so as to overlay the borders 5 and be constrained thereto by glueing near the ends of

the corners formed along the lines 7. The packaging 1a, configured in the above-described way, assumes an L shape in which the packed elements, i.e. a stacked plurality of tiles 10, are peripherally closed between the surfaces 2 and the end flaps 8, perpendicularly folded, and are constrained in this position between the lateral borders 5 overlaid and glued to each other at the corner 3, and the corner flaps 9 which overlay and are glued at the lateral borders 5 by the corners 7.

[0010] Effectively the tiles 10 are constrained by three of their corners which are enclosed by the corners 3 and 7 formed by the surfaces 2 and the end flaps 8 and the borders 5 and the corner flaps 9, overlaid and glued at the ends. A safety strap 11 can be applied between a packaged side and the parallel and opposite side of the tiles.

[0011] Gluing is done during the composition of the package about the tiles 10 by injection of points of adhesive fluid 12 between the above-mentioned overlaid parts.

[0012] For a further guarantee of stability and containment of the tiles, cuts 14 (or slots or partial removals of material) can be made on the ends of the borders 5 which contact with the bottom surface 13 of the bottom-most tiles of each pack. Thus the corresponding points of glue 12 do not only place in adhering contact the overlaid parts as described above, but also cause the overlaid parts to adhere to the bottom surface 13 of the tile.

[0013] The pack of figure 1b is made in the same way as the pack of figure 1a, but comprises three sequential peripheral surfaces 2, 2', which can be combined in a U shape on three sides of the tile pack. The central surface 2 is of the same length as the sides of the tiles 10 along which it extends, while the lateral sides 2' can also be shorter than the other sides inasmuch as the ends destined to engage on the comers are not present; they can, however be made with lengths l1, l2 and l3 as desired. Safety straps may be considered necessary, as with the previous embodiment.

[0014] The pack of figure 1c also comprises three sequential peripheral surfaces 2, 2', which can make up a U shape, but is similar to the pack of figure 1a inasmuch as it totally closes in three sides of the tile pack, at the ends of the lateral surfaces 2' with the end flaps 8 provided with corner flaps 9 which engage on the corresponding borders 5.

[0015] The packages 1b and 1c can comprises cuts 14, (or slots or partial removal of material) on the ends of the borders 5, for enabling points of adhesive 12 to adhere to the bottom surface 13 of the bottom-most tile in each pack.

Claims

1. Packaging for rigid bodies (1a, 1b, 1c) **characterised in that** the packaging peripherally covers with partial-area borders (5) only two or three sides (2, 2') of stacked packs of tiles (10); the packagings being either L or U shaped, with or without folded end flaps (8), overlaid and glued; being with or without glue points (12) between overlaid peripheral corners opf the packaging and bottom surfaces of the tiles (10); being with or without peripheral safety straps (11).

2. The packaging for rigid bodies of claim 1, **characterised in that** it is constituted by rectangular single pre-cut sheets, with partial peripheral cuts (20) and transversal and longitudinal pre-scored lines (3, 7 and 4, 6); from a single basic configuration the packaging being conformable in an L-shape, with two sides, and a U-shape, with three sides.

3. The packaging for rigid bodies of claim 1 or 2, **characterised in that** in the L-shaped configuration only two sequential lateral surfaces are comprised, which totally cover two contiguous sides of a resulting pack of stacked tiles (10); the lateral surfaces being engaged one to another along a common transversal side constituted by a pre-scored line (3); the packaging comprising, along longitudinal sides thereof, peripheral pre-scored lines (4, 6) to which foldable lateral borders (5) are constrained, corner flaps (9) also being constrained thereto, which corner flaps (9) are separated by partial peripheral cuts (20), which corner flaps (9) can be overlaid in proximity of ends of corners corresponding to the line (3) and the pre-scored lines (7) and glued thereto.

4. The packaging for rigid bodies of claim 1 or 2, **characterised in that** the U-shaped configuration comprises three sequential lateral surfaces: a central side and two open sides which engage on three contiguous sides of packs of tiles, which surfaces are engaged to one another along common transversal sides constituted by a pre-scored line (3), and comprise, along longitudinal sides, pre-scored peripheral lines (4) to which foldable lateral borders (5) are constrained, separated by partial peripheral cuts (20), which can be overlaid in proximity of the ends of the corners corresponding to the lines (3), with a reciprocal constraint by gluing; the lateral surfaces (2') being possibly of different lengths.

5. The packaging for rigid bodies of claim 1 or 2, **characterised in that** the U-shaped configuration comprises three sequential lateral surfaces: a central surface and two open lateral surfaces which engage on three contiguous sides of packs of tiles, which surfaces are engaged to one another along common transversal sides constituted by pre-scored line (3), and comprise, along longitudinal sides, pre-scored peripheral lines (4, 6) to which foldable lateral borders (5) and foldable corner flaps (9) are constrained, separated by partial peripheral

cuts (20), which can be overlaid in proximity of the ends of the corners corresponding to the lines (3) and the lines (7), with a reciprocal constraint by gluing.

6. The packaging for rigid bodies of any one of claims from 1 to 5, **characterised in that** in terminal zones of the peripheral borders (5) of the packs, folded along the pre-scored lines (4) towards the bottom surface of each bottom-most tile in a stack, there can be cuts, slots or partial removals of material (14) through which a part of glue (12) used for gluing the overlaid borders of the packaging pass and create a grip between the bottom surface and the packaging.

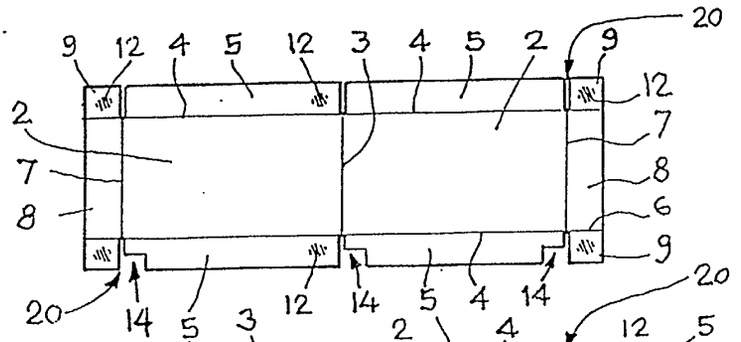


Fig. 1a

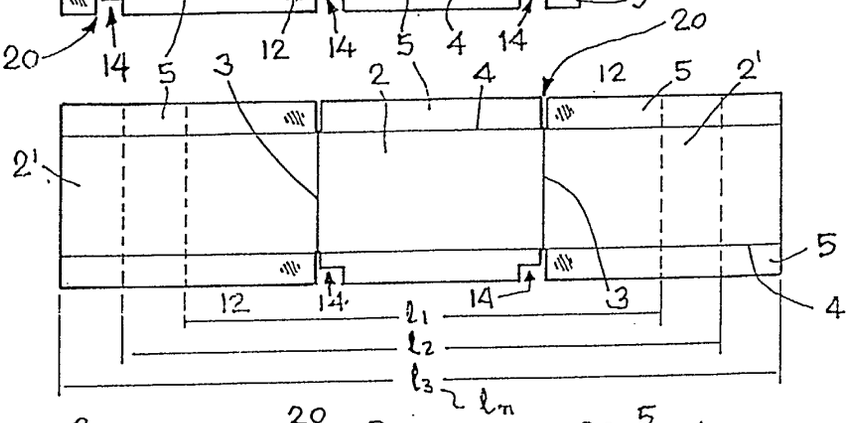


Fig. 1b

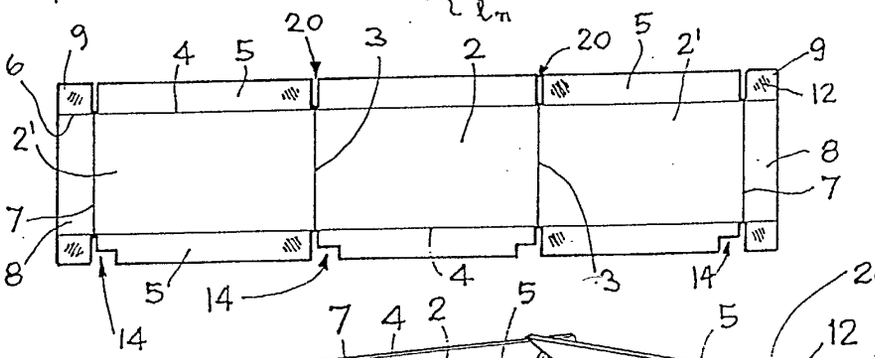
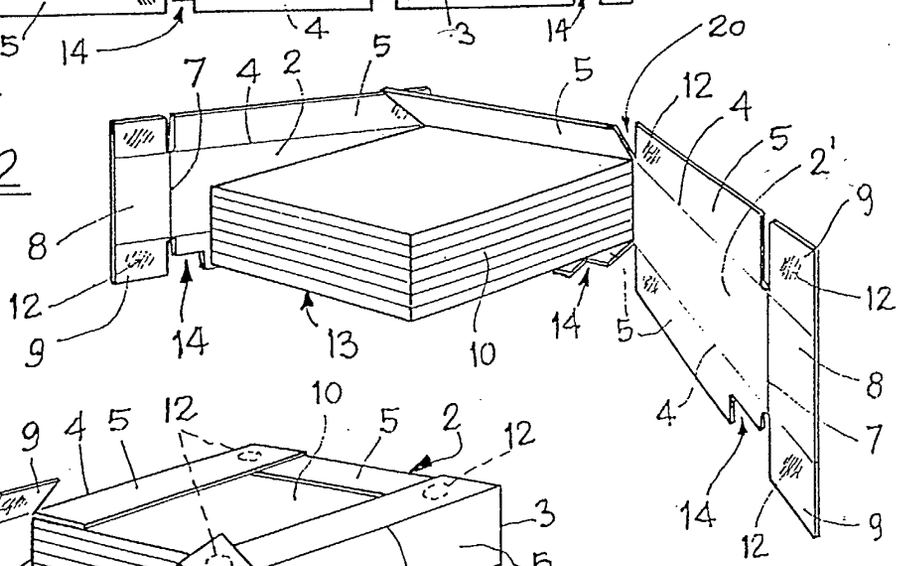


Fig. 1c

Fig. 2



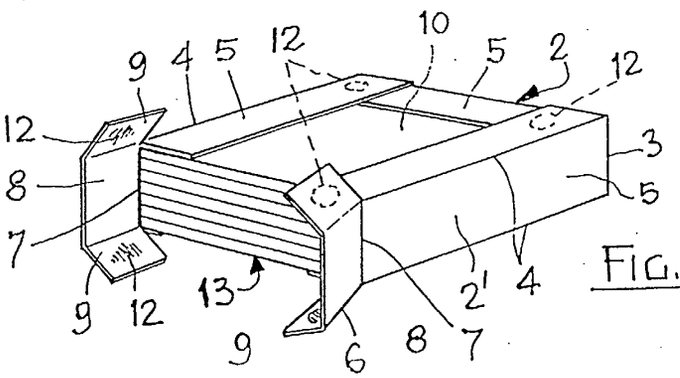


Fig. 3

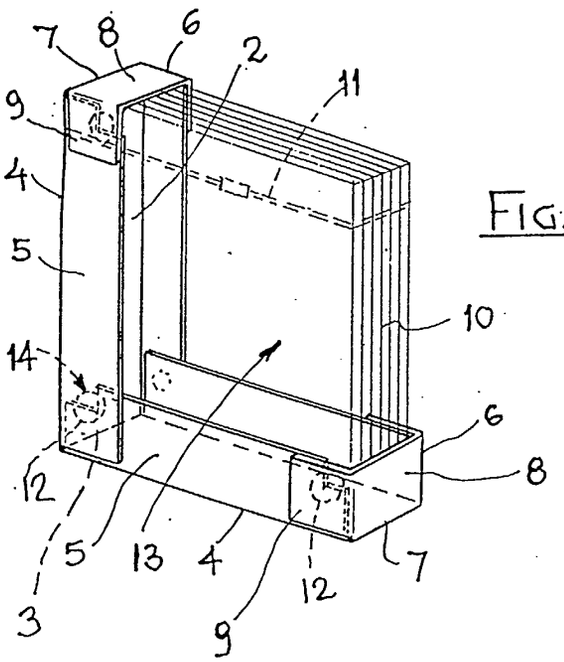


FIG.4

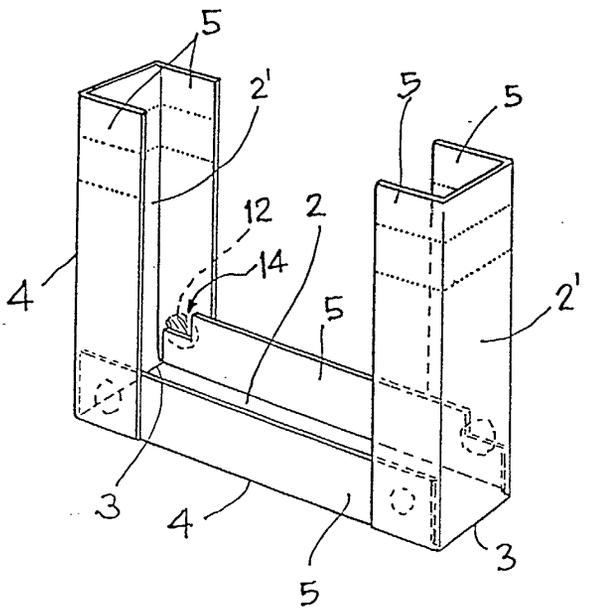


FIG.5

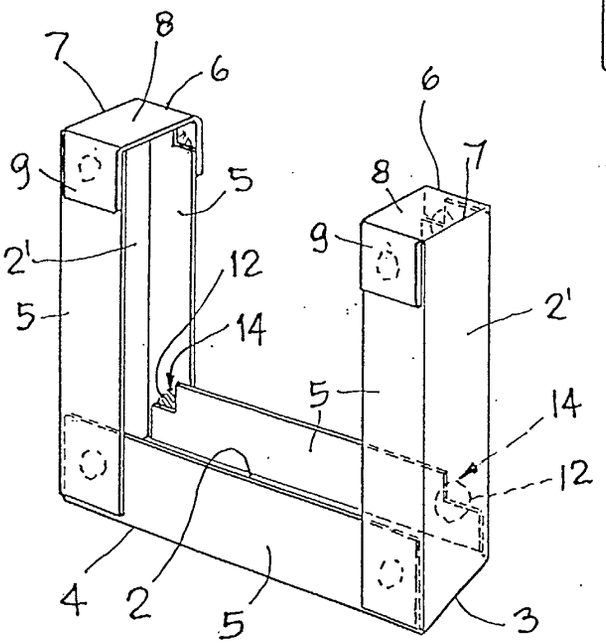


FIG.6