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End panel for use in erecting a container.

The invention relates to an end part (1) for use in erecting a container for produce, comprising a body having spaced apart opposite surfaces (3, 4) having respective interengageable spigots (5) and recess (6) means whereby a container which is

erected using the panel may be stacked vertically with another similar container with the end parts (1) thereof interengaged to provide a stack which is stable laterally and longitudinally of the container.

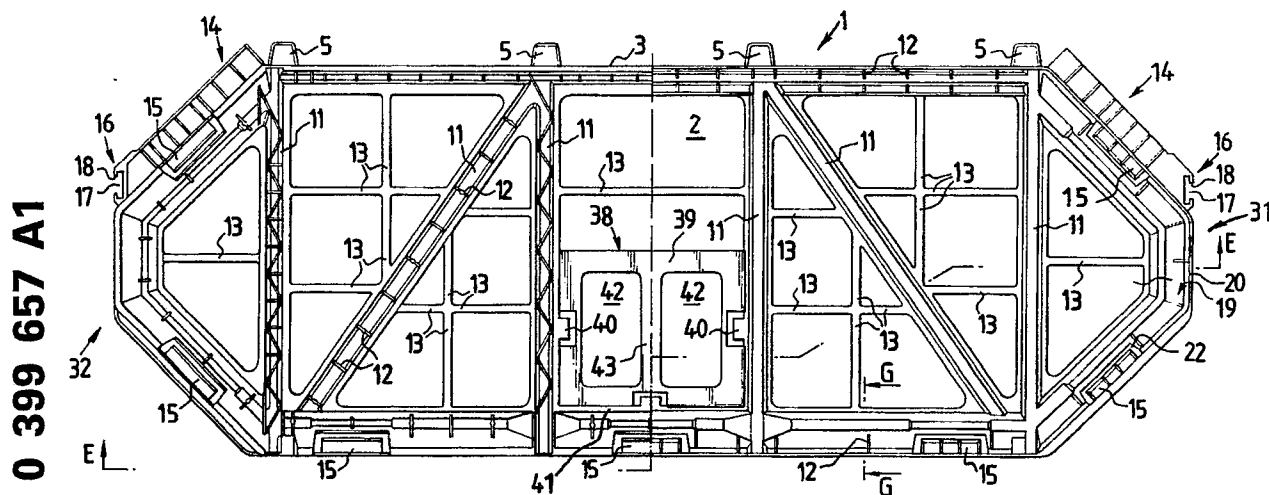


FIG. 1.

AN END PANEL

The invention relates to an end panel, particularly an end panel which with another similar one and a body part or blank may be erected to provide a container for produce such as vegetables.

It is necessary to transport vegetables in boxes or containers which allow ventilation and inspection of the produce, which can be stacked with another similar container and which can hold bulky such as cauliflowers without collapsing under applied tensile, compressive or torsional loads.

It is an object of the invention to seek to provide an end part which may be used to erect a container with these features.

According to the invention there is provided an end panel for use in erecting a container for produce, comprising a body having two spaced apart opposite surfaces having interlockable spigots and aligned orifices, the arrangement being such that a container erected using the panel may be stacked vertically with another similar container with the end panels thereof interengaged to provide a stack which is stable laterally and longitudinally of a container.

The complementary interlocking means may comprise projecting spigots on one surface and aligned orifices on the opposite surface.

The aligned orifices may comprise notches or recesses in the opposite surface.

The opposite surfaces may comprise elongate body parts which have opposite edges, and there may be two interlocking means adjacent one edge and two adjacent the opposing edge.

The interlocking means may be adjacent an outer, in use, surface of the end panel.

The spigots may each comprise a hollow body tapered towards the inner (in use) surface of the end panel.

The body may be a thin-walled plastic body comprising a lattice of generally open channel lattice members which have means to strengthen them against bowing under compression, tension or torsion.

The means may comprise ribs joining the base and side walls of the channel lattice members.

The body may comprise means for retaining a strap adapted in use to be passed round an erected container.

The body may comprise a holder for an indicator card or the like.

The end panel may include at opposite sides connecting means whereby an end panel may be connected with similar connecting means of another similar panel to make a stable array of panels.

Preferably, the connecting means may com-

prise complementary hooks.

According to a second aspect, the invention provides a set of parts for making a container, comprising two separate end parts as hereinbefore defined and a body part for defining at least a base of the container when erected by being interengaged with the end parts.

According to a third aspect of the invention, there is provided a container comprising an end part as hereinbefore defined or erected from a set of parts as also hereinbefore defined.

An end part for use in a set of parts for erecting a container is hereinafter described, by way of example, with reference to the accompanying drawings:-

Fig. 1 is an end elevational view of the end part, the part of the drawings to the right of the central line showing the end part from one side, the (inside in use) and the part of the drawing to the left of the central vertical showing the end part from the opposite side, (the outside in use);

Fig. 1A shows a plan view;

Fig. 2 shows a section on the line 'E'-E' of Fig. 1;

Fig. 3 shows a section on line G-G in Fig. 1;

Fig. 4 shows to an enlarged scale an embodiment of connection means incorporated on end parts like that of Fig. 1;

Fig. 5 shows the connection means of Fig. 4 interconnected; and

Fig. 6 shows a stack of individual containers according to the invention.

Referring to the drawings, the end part 1 shown is injection moulded to provide a thin wall plastic body having two spaced apart opposite surfaces 3 and 4 having respective interlockable means 5 and 6 so arranged that a container erected using the panel 1 may be stacked vertically with another similar end panel to provide a stack which is stable laterally and longitudinally of the container.

The opposite surfaces 3 and 4 are substantially planar strips and the interlockable means 5 and 6 comprise four integral upstanding spigots 5 on the upper (as viewed in and use) strip 3, and four vertically aligned orifices in the form of notches or recesses 6 formed in the opposite or lower (as viewed and in use) strip 4. As shown in Fig. 2, the notches or recesses 6 are spaced apart along the length of the strip 4, there being two at the ends 7, 7' of the strip 4 and two intermediate the length thereof. The two at the end are in one lateral edge 8, the intermediate two are in the opposite lateral edge 9 so that immediately adjacent notches or recesses 6 are laterally offset. It follows that the

spigots 5 are positioned identically as shown in Fig. 1A so that when stacked similar end parts cannot move to left or right in the plane of the paper or at 90° to the plane of the paper. Also, the upper strip 3 and lower strip 4 of vertically adjacent containers lie one on another, whilst being interengaged. Therefore, when a container is erected from a set of parts comprising two end parts identical to the one shown, and a blank of material such as fluted plastic material secured between them by respective interengaging means of the end parts and blanks, the stack of containers is stable as individual containers cannot move laterally or longitudinally of the stack.

The body 2 is a thin walled plastic body which comprises a lattice of elongate members 11 of generally channel shape in cross-section. The walls and base of most or all of the channels are tied together by ribs 12 transversed to the length of the channel 1 and formed integrally during the moulding process.

There are also generally flat grid-like ribs 13 which form a basket-like arrangement to prevent produce like sweetcorn or leeks falling through the ends in use of an erected container.

There are also inside and outside strengthening ribs at 14, adjacent upper interengaging 15 means for the end part 1 with a blank (not shown) to strengthen the interengagement.

The lattice arrangement provides ventilation, while the ribs 11, 13 maintain the integrity of the lattice structure so that there is no twisting or bowing of the body so that an erected container does not collapse under applied loads from without or within.

The body 2 also has retaining means 16 for a strap which is sometimes passed round an erected container, the retaining means 16 comprising two slots 17 defined by two facing hooks or noses 18 which have a gap between them less than the width of the strap so that the strap is retained in the slots 17. In use, erected containers are stacked adjacent one another and the straps (not shown), are passed round the outside of the stack being received in the outwardly facing slots 17 so that the edges of the straps are overlapped by the hooks or noses 18 so retaining the strap in place, and binding them together.

The end part 1 has a configuration comprising a groove 19 defined by sides 20 and 21 the groove 19 defining the configuration of the base and walls of an assembled container. In the grooves 19 are interengaging means in the form of spaced lugs, upstands or teeth 15 which project from side 20 towards the wall 21 and behind (or viewed to the right in Fig. 1) which means there is a cut-out or hole 22 in the wall 21. The blank has pairs of parallel slits, slots, or apertures, hereinafter called

slits, defined by a cut-out or flap which is not removed and is hinged to the sheet body part, which are spaced apart and define a width of material just wide enough to accommodate a lug, upstand or tongue 15. The lugs, upstands or tongues 15 and the slits 16 comprise the interengaging means for the end part and the blank.

The height of the groove 12 in each end part 4 is slightly narrower or just equal to the thickness of the sheet material.

The lugs, upstands or tongues 15 may be of wedge-shape to provide an inclined surface leading into the groove 19 to act as a guide for the leading edge of the material of the flank. The wedge shape in the groove comprises four spaced apart supports or struts 23 for wall 24 with a hook end 25 which butts against a boundary edge of the slit in the blank to secure the end wall and body part together, the body part riding over the supports or struts 23 to allow the parts 24, 25 to engage in and against the adjacent boundary of the blank defining the slit. As the leading edge of the body part is pushed into the groove 19, it rides up over the lug, upstand or tongue 15 and then as it progresses into the groove 19 strikes a rear, downwardly as viewed in Fig. 3, inclined boundary wall part 21A before entering hole 22 thereof so that the body part is positively forced downwardly so that the lug, upstand or tongue 15 enters the slit. Stated in another way when the slit is over the lug, upstand or tongue 15, continued movement of the body part into the groove 19 forces the body part down around the lug, upstand or tongue 15 positively to wedge it in position and to ensure a firm connection of the interengaging means provided by the lug, upstand or tongue 15 and the slit.

In use to assemble a container 27 using two end parts 1 and a blank 26, it is merely necessary to fold the blank to the configuration of the groove 19, and offer it up to and then push it into the groove 19 of one end part 1. This action forces the end of the blank 1 over the the lug, upstand or tongue 15 and into the groove. The lug, upstand or tongue 15 forces the material of the blank between the slits up so that it is locked in the material between parallel slits. A similar end part 4 is mounted on the opposite, free end of the blank in a similar manner, to provide an erected container 27 as shown in Fig. 6. Such a container 27 can then be stacked on a similar container, and so on, to provide a stack 28, and two such stacks 28 may be stacked side by side as shown at 29 in Fig. 6 where they are mounted on a pallet 30. The strap referred to hereinbefore can then be passed round the stacks 29 to provide horizontal (as viewed) bands.

Alternatively or in addition, the right hand and left hand sides or boundaries (as viewed in Fig. 1)

31 and 32 of the end part 1 may include integral connecting means 33 and 34 respectively, the former comprising a laterally projecting downwardly directed hook 35 and the latter an upwardly directed hook 36. These hooks 35 and 36 can then be connected together when like containers 27 are stacked side by side, the connection being achieved either by simple snap engagement when the containers 27 are pushed together laterally, or by sliding longitudinally. The engaged hooks 35 and 36 provide a locking system which maintains the stack stable. In yet another modification, the hooks 35 and 36 may be replaced by a peg or hook on one side, 31 say, and a loop of the other side 32. The pegs or hooks and loops on facing sides of adjacent containers can be engaged to form, as before, a stable array of stacked containers. The hooks 35 and 36, or pegs and loops then form a releasable fastening means on opposite sides of the container.

The notches or recesses 6 are formed in the lower (as viewed in Fig. 1) or outer side 20 of the groove 19.

The end part 1 also includes an integral holder 38 for an indicator card or the like comprising a panel 39 with spaced lugs 40. An indicator such as a price and/or name label can be slipped down between the panel 39 and the lugs to rest on a ledge 41, the panel 39, being apertured at 42, the apertures being spaced by a rib 43. The label is then held in place by the lugs 40 and supported by the panel, including the rib 43 and is nevertheless unobstructed from the viewing or reading purposes from the exterior of the end part 1 in use.

Claims

1. An end panel for use in erecting a container for produce, comprising a body having two spaced apart opposite surfaces having respective complementary interlockable means, characterised by the interlockable means (5, 6) comprising a respective spigot (5) and orifice (6) so that a container (27) erected using the panel (1) may be stacked vertically with another similar container with the end panels (1) thereof interengaged to provide a stack which is stable laterally and longitudinally of a container.

2. An end panel according to Claim 1, characterised by projecting spigots (5) on one surface (3) and aligned orifices (6) on the opposite surface (4).

3. An end panel according to Claim 2, characterised by the aligned orifices (6) comprising notches or recesses in the opposite surface (6).

4. An end panel according to any preceding Claim, characterised by the spigots (5) each comprising a hollow body tapered towards the inner (in

use) surface of the end panel (1).

5. An end panel according to any preceding Claim, characterised by the body (1) comprising a thin walled plastic body comprising a lattice of generally open channel lattice members (11) which have means (2) to strengthen them against bowing under compression, tension or torsion.

6. An end panel according to Claim 5, characterised by the means (12) comprising ribs joining the base and side walls of the channel lattice members (11).

7. An end panel according to any preceding Claim, characterised by the body (1) comprising means (16, 17, 18) for retaining a strap adapted in use to be passed round an erected container.

8. An end panel according to any preceding Claim, characterised by a holder (38) for an indicator card or the like.

9. An end panel according to any preceding Claim, characterised by opposite sides (31, 32) and by connecting means (33, 34) at said opposite sides (31, 32) whereby an end panel (1) may be connected with similar connecting means (33, 34) of another similar panel to make a stable array of panels.

10. An end panel according to Claim 9, characterised by the connecting means comprising complementary hooks (35, 36).

11. A set of parts for erection to provide a container, characterised by comprising two separate end parts (1) according to any preceding Claim and a body part (26) for defining at least a base of the container when erected by being interengaged with the end parts (1).

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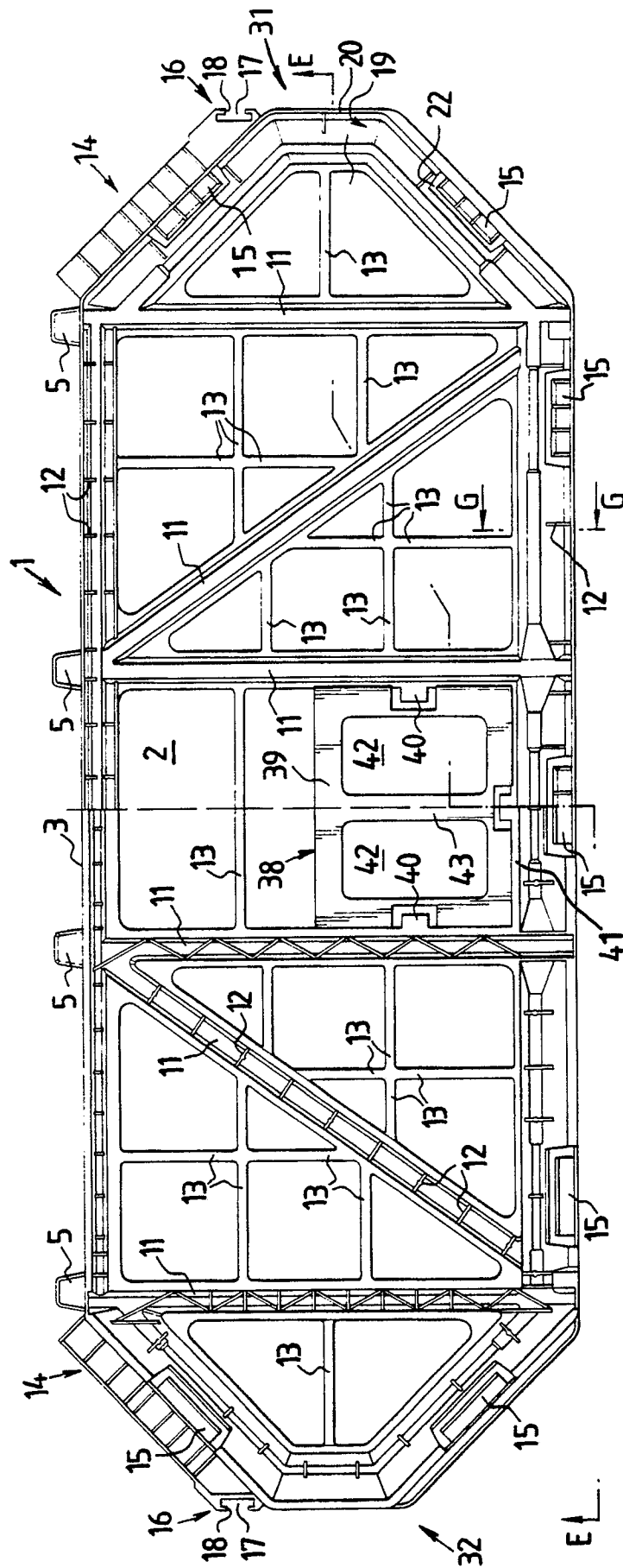


FIG.1.

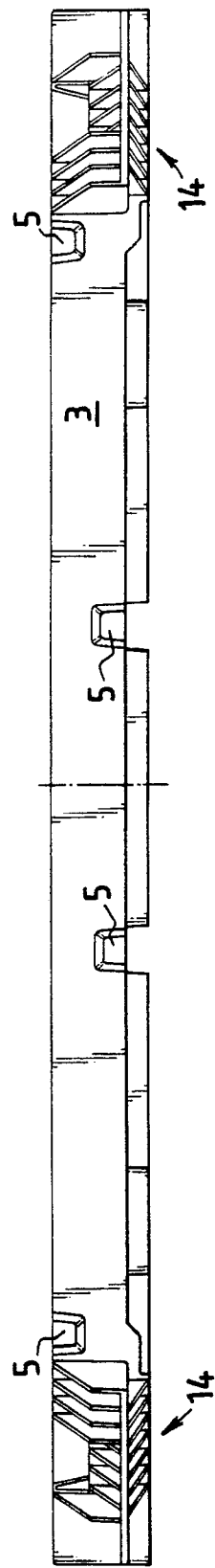


FIG. 1A

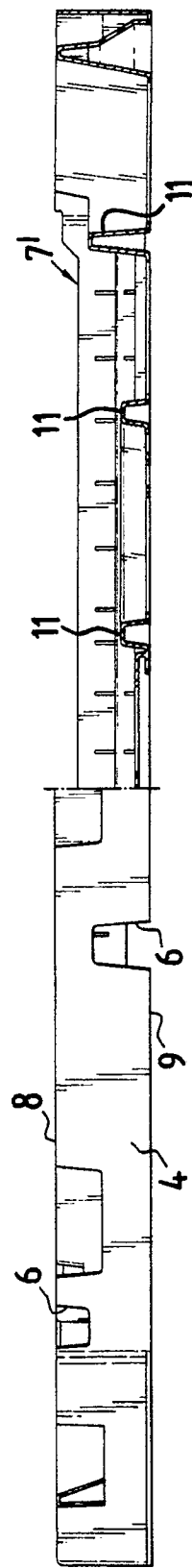


FIG. 2

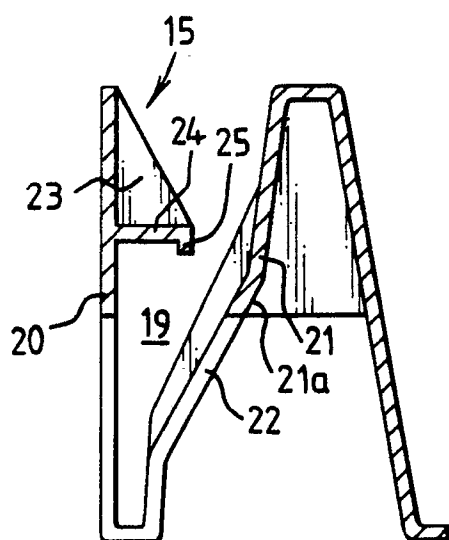


FIG. 3

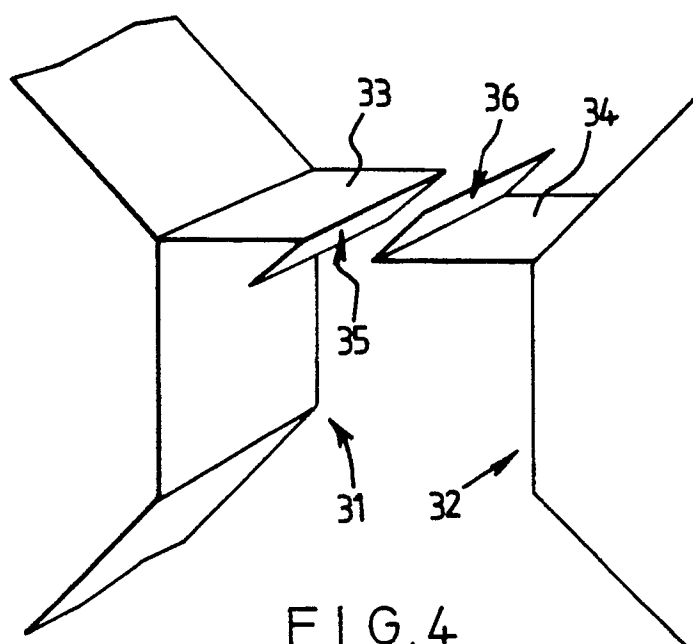


FIG. 4

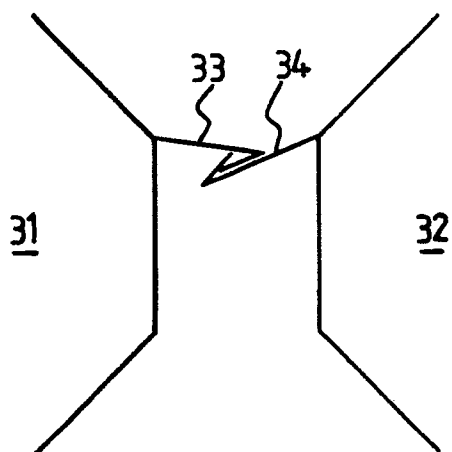


FIG. 5

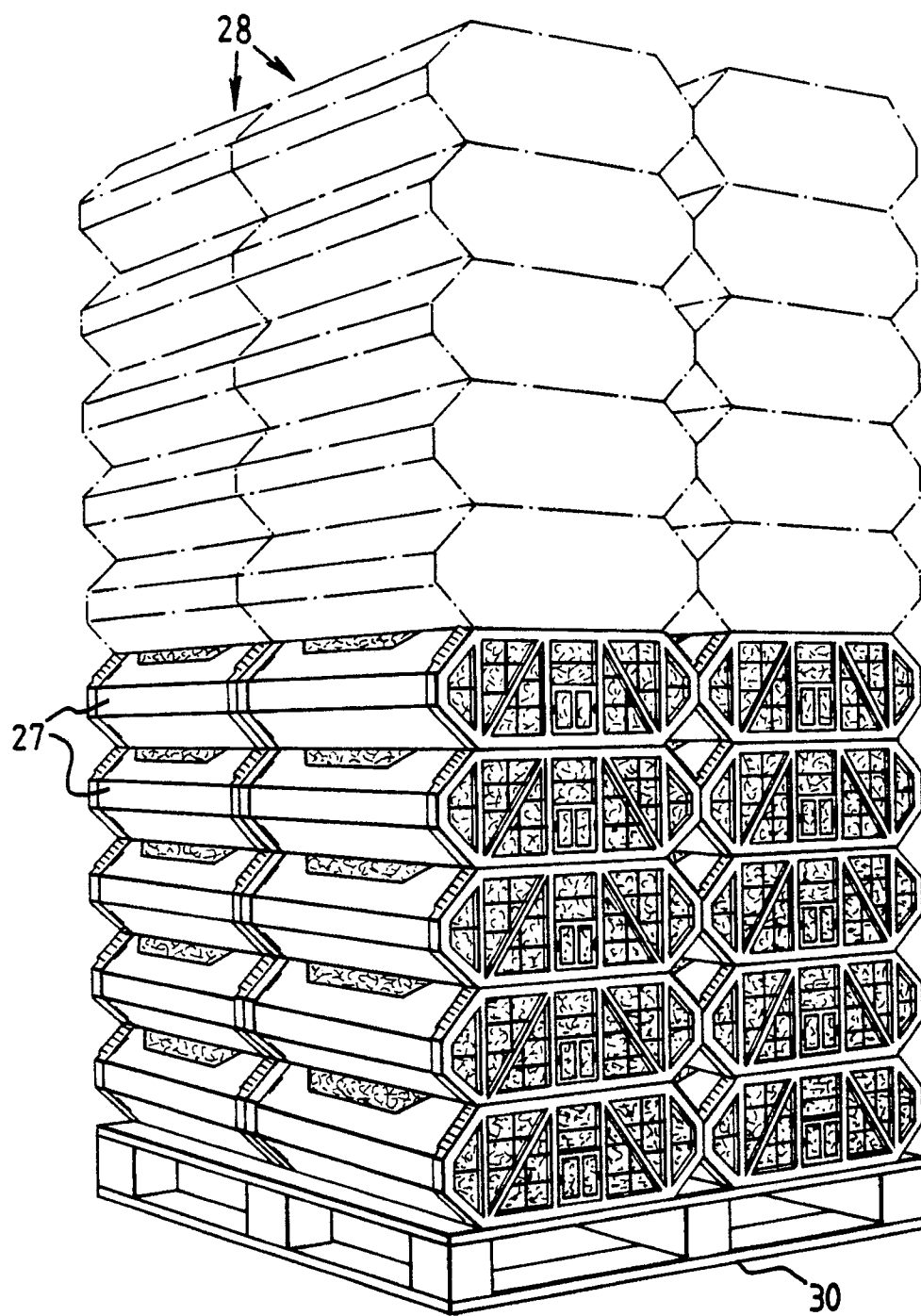


FIG. 6



European Patent
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EUROPEAN SEARCH REPORT

Application Number

EP 90 30 4341

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	US-A-4 147 289 (CRANE) * Column 2, line 64 - column 4, line 18; figures 1-5,9 *	1-7,11	B 65 D 21/02
A	EP-A-0 272 124 (CAIRWAY) * Column 3, lines 36-41; column 4, lines 16-30; column 4, claim 1; figures 1-4 *	5,6,11	
A	DE-A-2 549 306 (SCHOELLER) * Page 5, line 21 - page 6, line 4; figure 1 *	9,10	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B 65 D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 25-06-1990	Examiner BESSY M.J.F.M.G.
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		I : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	