

(19)



(11)

EP 2 289 811 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

02.03.2011 Bulletin 2011/09

(51) Int Cl.:

B65D 21/06 (2006.01)

B65D 6/16 (2006.01)

(21) Application number: **10174404.3**

(22) Date of filing: **27.08.2010**

(84) Designated Contracting States:

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR

Designated Extension States:

BA ME RS

• **Cavalcante, Mauricio D.**

Atlanta

Georgia 30319

(US)

(74) Representative: **Leckey, David Herbert et al**

Dehns

St Bride's House

10 Salisbury Square

London

EC4Y 8JD (GB)

(30) Priority: **27.08.2009 US 237668 P**

(71) Applicant: **Rehrig Pacific Company**

Los Angeles, CA 90058 (US)

(72) Inventors:

• **Koefeldt, Gerald R.**

Sunningdale, Ascot

Berkshire, SL5 9PW (GB)

(54) **Collapsible crate**

(57) A container includes a plurality of walls extending upwardly from a base. The walls are movable between an upright position and a collapsed position on the base. Supports are pivotably mounted to the end walls.

Ends of the supports are received in arcuate channels in the side walls. A tab or other projection downward from the base is aligned with arcuate channel to engage the spring-loaded fingers on a dolly.

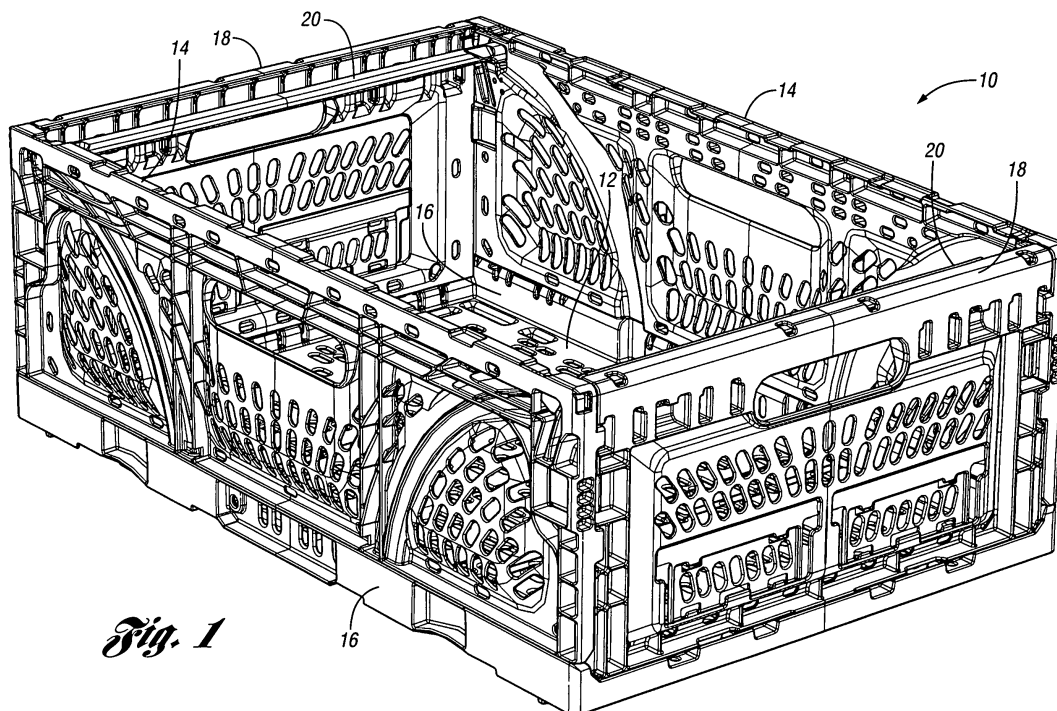


Fig. 1

EP 2 289 811 A1

Description

[0001] This application claims priority to U.S. Provisional Application Serial No. 61/237,668 filed August 27, 2009.

BACKGROUND OF THE INVENTION

[0002] Collapsible crates are well known. Four walls each connected via a hinge to a base are selectively movable about the hinge between a use position, in which the wall is generally perpendicular to the base, and a collapsed position onto the base. Various latch mechanisms have been provided to connect adjacent walls at the corner to selectively lock the crate in the use position.

[0003] Some collapsible crates also include retractable supports so that another, non-collapsible, nestable container can be supported thereon. One such collapsible crate includes end walls each having a support that is partially supported on the adjacent walls when in the support position. The nestable containers can be supported on the supports when the supports are in the support position. Ends of the supports are received in arcuate channels in the adjacent walls to permit the end walls to be collapsed.

[0004] The collapsible crates may be stacked on a dolly having spring-loaded locking fingers designed to interlock with recesses on some containers stacked thereon. On some dollies, the spring-loaded locking fingers are aligned with the collapsible crate in a location where a recess cannot be provided. In particular, the spring-loaded locking fingers are aligned with the arcuate channels in the adjacent walls.

SUMMARY OF THE INVENTION

[0005] The present invention provides a container having a end walls and side walls extending from a base. The walls are movable between an upright position and a collapsed position on the base. Supports are pivotably mounted to the end walls. Ends of the supports are received in arcuate channels in the side wall. A tab or other projection downward from the base is aligned with arcuate channel to engage the spring-loaded fingers on a dolly.

[0006] The container may further include at least one rib on an exterior of the side wall. The rib may include a recess formed therein to accommodate the downward projection of an identical container stacked thereon when the container is in a collapsed position with the plurality of walls collapsed on the base

BRIEF DESCRIPTION OF THE DRAWINGS

[0007]

Figure 1 is a perspective view of a container according to one embodiment of the present invention in

an assembled upright position.

Figure 2 shows the container of Figure 1 in a collapsed position.

Figure 3 is an interior perspective view of a quarter of the container of Figure 1.

Figure 4 is an interior view of one of the end walls.

Figure 5 is an exterior view of the quarter of the container of Figure 3.

Figure 6 is a view of a portion of Figure 5.

Figure 7 is a section view of the container of Figure 2 in a collapsed position with the base of an identical container stacked thereon.

Figure 8 is an enlarged view of a portion of Figure 7.

Figure 9 is a section view through a portion of the container of Figure 1 adjacent an alignment, finger on a dolly.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0008] A collapsible container 10 according to one embodiment of the present invention is shown in Figures 1. The collapsible container 10 includes a base 12, collapsible side walls 14 (or "long walls") and collapsible end walls 18 (or "short walls"). The side walls 14 are pivotably connected to upstanding side members 16, which are integrally molded the base 12 and extend upwardly along the side edges of the base 12. Each end wall 18 includes a support member 20 pivotably and slidably connected thereto by arms 24.

[0009] As shown in Figure 2, the end walls 18 and side wall 14 are collapsible onto the base 12 for convenient shipping and storage when empty.

[0010] A quarter view of the collapsible container 10 is shown in Figure 3. The collapsible container 10 would be symmetric about the section lines. Each of the support members 20 includes a support portion 21 extending between opposite ends 22, which protrude outwardly relative to the arms 24. Each side wall 14 includes an arcuate channel 30 adjacent each end wall 18. The end 22 of the support, member 20 is received in the associated channel 30. The channel 30 extends from an upper portion of the side wall 14 to a vertical channel 34 through the upstanding portion 16.

[0011] In Figure 3, the support member 20 is shown in the support position. In Figure 4, the support member 20 is shown pivoted to a retracted position.

[0012] Figure 5 is an exterior view of the container 10 showing the bottom of the base 12. As shown, the base 12 includes a plurality of feet 38 (or a drag rail) protruding downwardly. Aligned at least partially with the channel 34 through the upstanding portion 16 is a downward projection, such as an alignment rib or tab 40 projecting downwardly from the base 12. The alignment rib 40 is arranged to abut a spring-biased finger or button (which may be spring biased and retractable) on a dolly or other support surface, to prevent the container 10 from sliding relative to the dolly or support surface.

[0013] As shown in Figure 6, the side wall 14 includes some recesses to accommodate the alignment rib 40. For example, the exterior surface of the side wall 14 may include vertical ribs 42, 44 which overlap an exterior surface of the arcuate channel 30. An opening 46 is formed through the surface of the arcuate channel 30 and a recess 48 is formed through one of the vertical ribs 44.

[0014] Figures 7 and 8 show the collapsed container 10 with the base 12 of an identical container 10' stacked thereon (walls of the upper container 10' removed for clarity). As shown, when stacking collapsed containers 10, 10', the alignment rib 40' of the upper container 10 is received in the opening 46 through the surface of the arcuate channel 30 and the recess 48 through the rib 44. This permits the containers 10, 10' to stack stably when in the collapsed position.

[0015] Figure 9 is a section view through a portion of the container 10 on a dolly 60. The dolly 60 includes a plurality of alignment fingers 62 (one shown) each biased upwardly by a spring 64 to prevent the container 10 from sliding off the dolly 60. The base 12 of the container 10 partially compresses the finger 62 into the deck of the dolly 10 and the rib 40 abuts an inner surface of the finger 62 to help keep the container 10 in position on the dolly 10. The container 10 may include such a rib 40 aligned with each of the vertical channels 34 in the upstanding members 16, and the ribs 40 may each engage a different spring-loaded finger 62 in the manner shown in Figure 9.

[0016] In accordance with the provisions of the patent statutes and jurisprudence, exemplary configurations described above are considered to represent a preferred embodiment of the invention. However, it should be noted that the invention can be practiced otherwise than as specifically illustrated and described without departing from its spirit or scope.

Claims

1. A collapsible container comprising:

a base having a pair of opposed, upstanding side members, at least one of the side members including a vertical channel, the base including a downward projection aligned with the vertical channel;
a plurality of walls extending upward from the base, the plurality of walls movable between an upright position and a collapsed position onto the base, the plurality of walls including a first wall and an adjacent second wall; and
at least one support pivotably mounted to the first wall and movable from a retracted position toward an interior of the container to a support position, the support including an end received in the vertical channel as the first wall is collapsed onto the base.

2. The collapsible container of claim 1 wherein the downward projection is a tab or rib.

3. The collapsible container of claim 1 or claim 2 wherein the downward projection is spaced inwardly from the exterior periphery of the base.

4. The collapsible container of any one of the preceding claims further including a plurality of drag feet extending downward from the base.

5. The collapsible container of any one of the preceding claims wherein the second wall is pivotably mounted to the at least one of the side members, the container further including at least one rib on an exterior of the second wall, the rib including a recess formed therein to accommodate the downward projection of an identical container stacked thereon when the plurality of walls of the container are collapsed on the base.

6. The collapsible container of claim 5 wherein the second wall includes an arcuate recess on an interior surface thereof to accommodate the support when the first wall is moved to the collapsed position, the second wall including an opening formed through the arcuate channel to accommodate the downward projection of the identical container stacked thereon when the container is in the collapsed position.

7. the collapsible container of any one of the preceding claims on a dolly having a spring-biased finger projecting upward from a deck, the collapsible container supported on the deck and partially compressing the finger, the downward projection abutting the finger to prevent the container from sliding off the dolly.

8. A collapsible container comprising:

a base having a pair of opposed upstanding side members, the side members each including a pair of vertical channels, the base including a downward projection aligned with at least one of the vertical channels;

a plurality of walls extending upward from the base, the plurality of walls movable between an upright position and a collapsed position onto the base, the plurality of walls including a pair of opposed side walls pivotably mounted to the upstanding side members and a pair of opposed end walls; and

a support pivotably mounted to each of the end walls and movable from a retracted position toward an interior of the container to a support position, each opposing end of each support received in one of the vertical channels as the end wall is collapsed onto the base.

9. The collapsible container of claim 8 wherein the

downward projection is a tab or rib.

10. The collapsible container of claim 8 or claim 9 wherein the downward projection is spaced inwardly from the exterior periphery of the base. 5
11. The collapsible container of any one of claims 8 to 10 further including a plurality of drag feet extending downward from the base. 10
12. The collapsible container of any of claims 8 to 11 wherein each side wall includes at least one rib on an exterior surface, the rib including a recess formed therein to accommodate the downward projection of an identical container stacked thereon when the plurality of walls of the container are collapsed on the base. 15
13. The collapsible container of claim 12 wherein the side walls each includes an arcuate recess on an interior surface thereof to accommodate the ends of the supports when the end walls are moved to the collapsed position, the side walls including an opening formed through at least one arcuate channel to accommodate the downward projection of the identical container stacked thereon when the container is in the collapsed position. 20 25
14. The collapsible container of any of claims 8 to 13 on a dolly having a spring-biased finger projecting upward from a deck, the collapsible container supported on the deck and partially compressing the finger, the downward projection abutting the finger to prevent the container from sliding off the dolly. 30 35

40

45

50

55

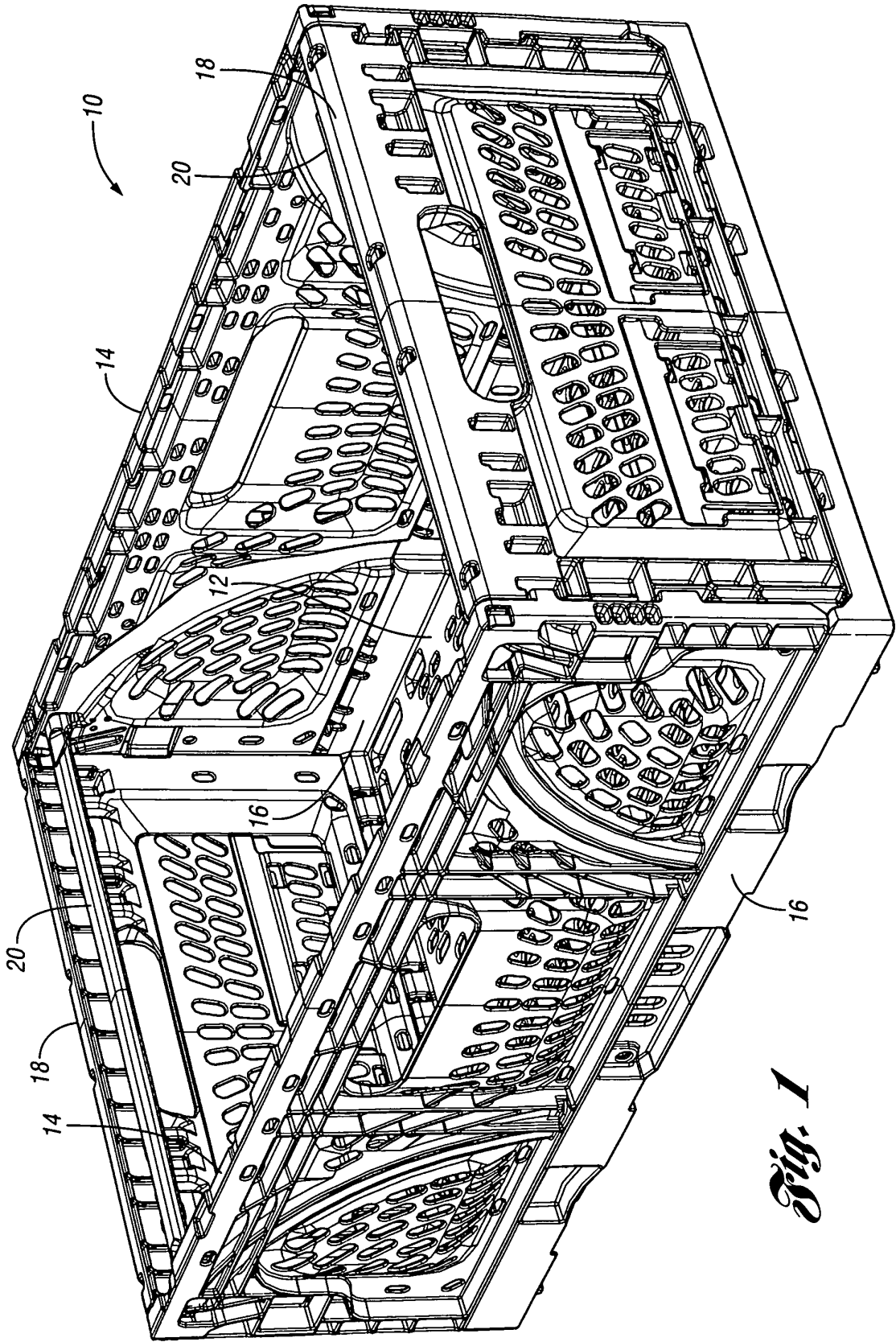


Fig. 1

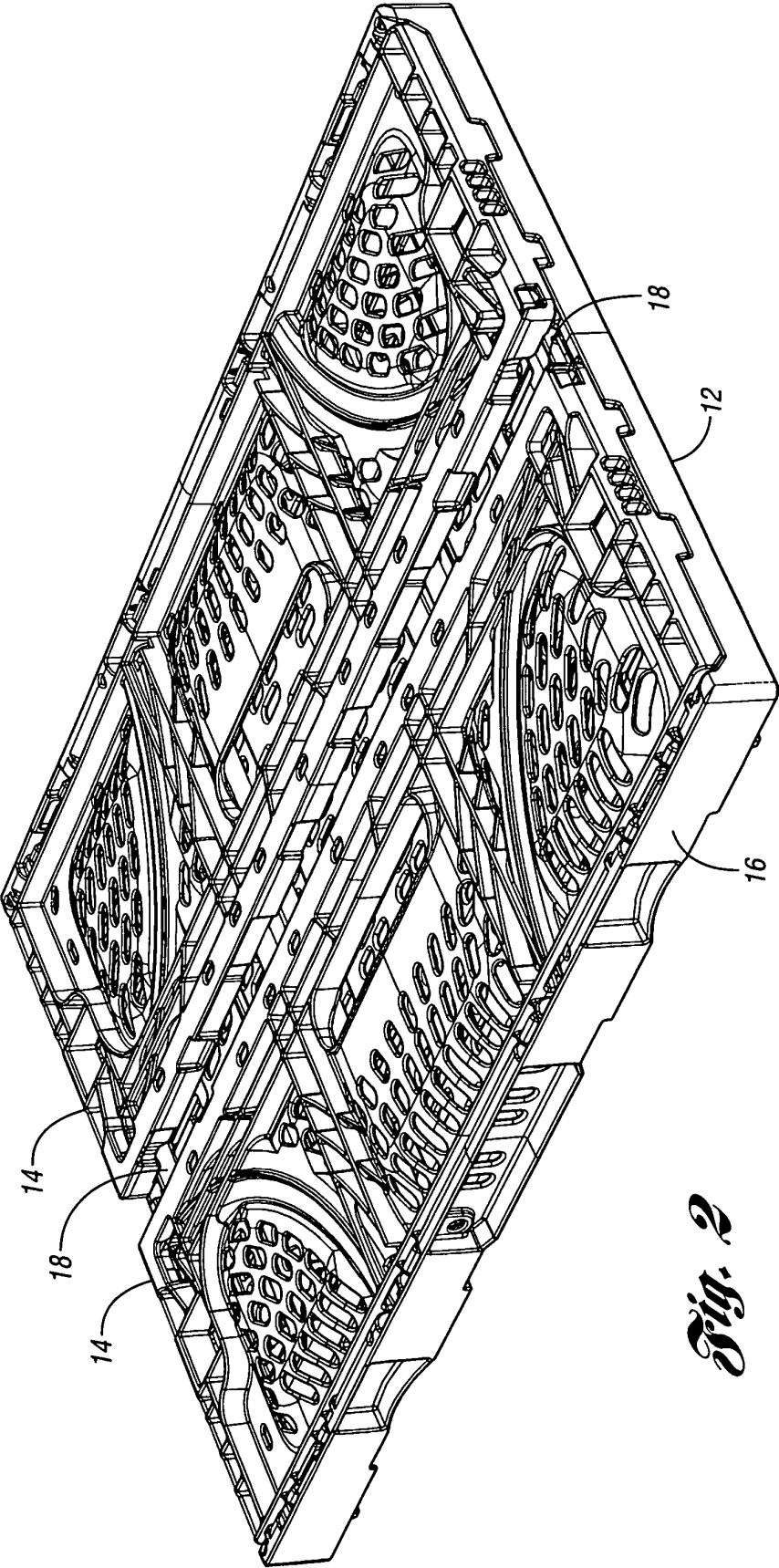


Fig. 2

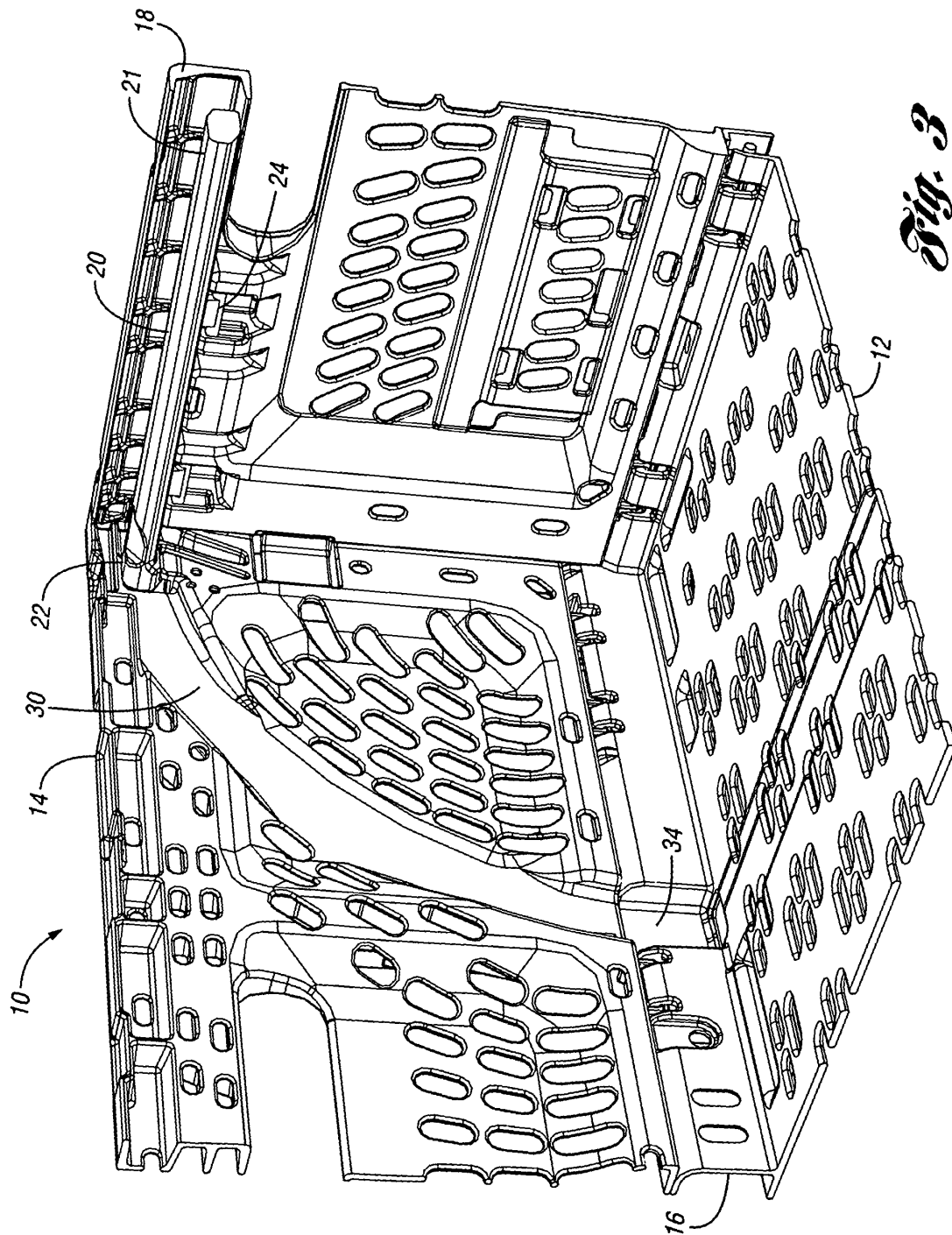


Fig. 3

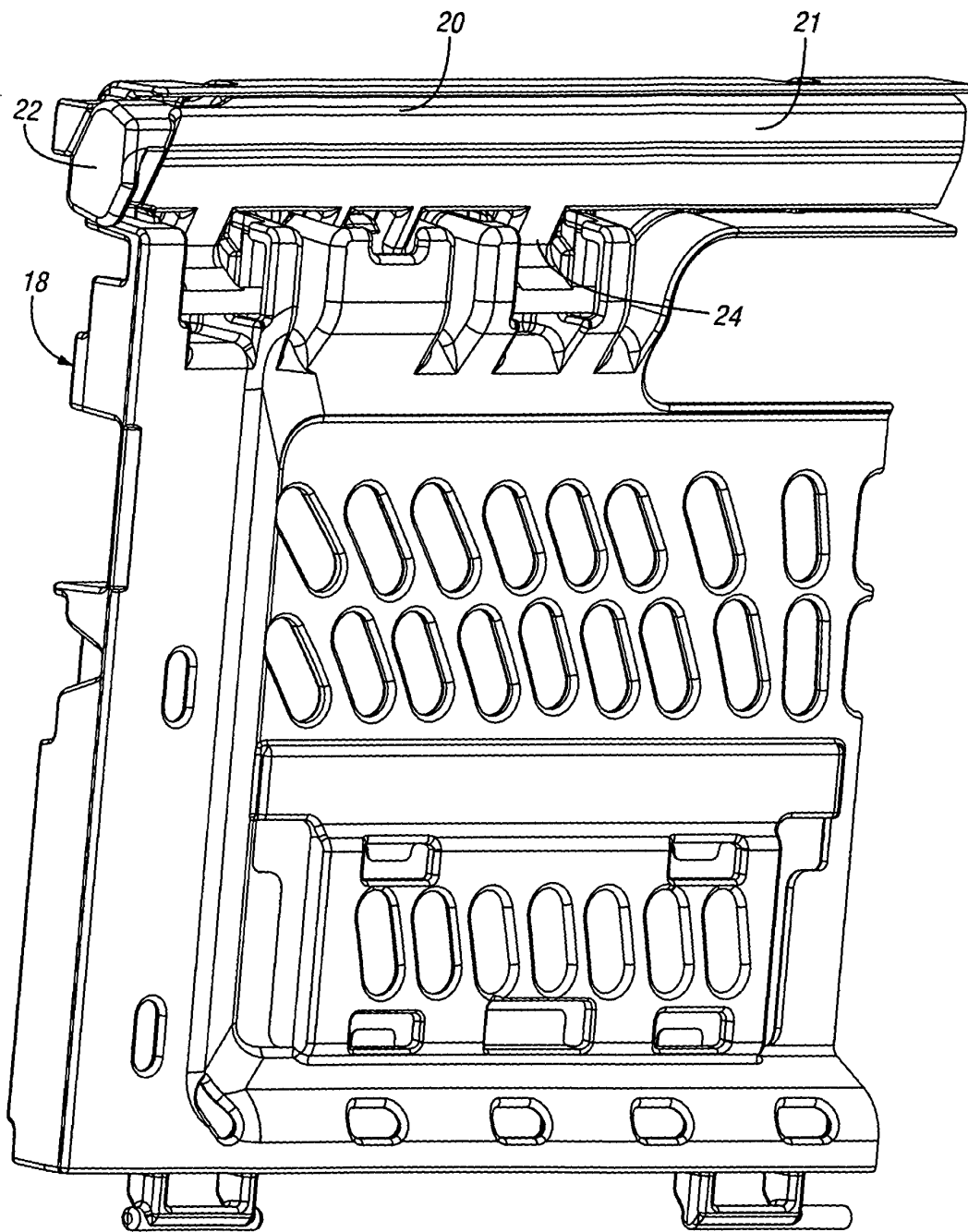


Fig. 4

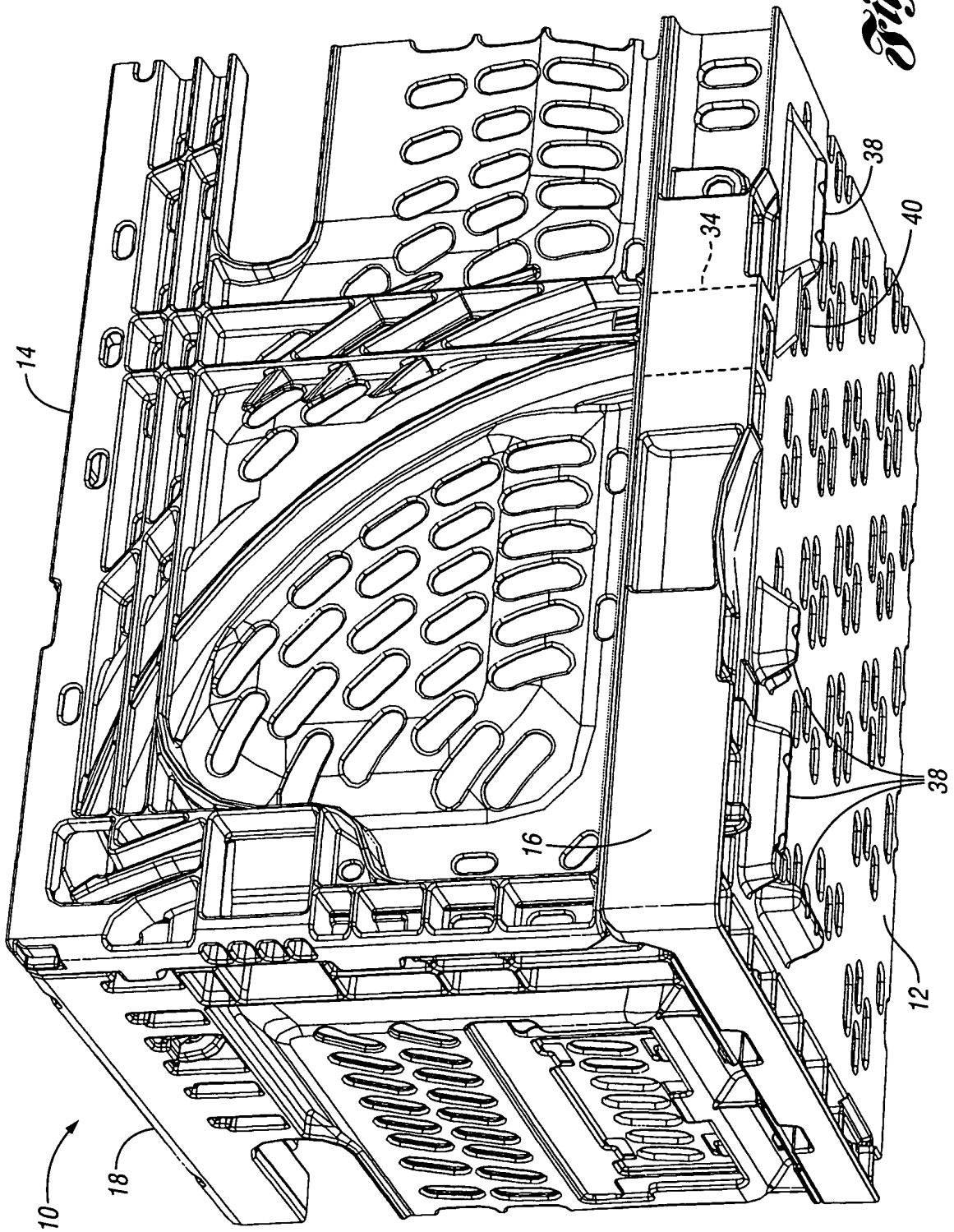


Fig. 5

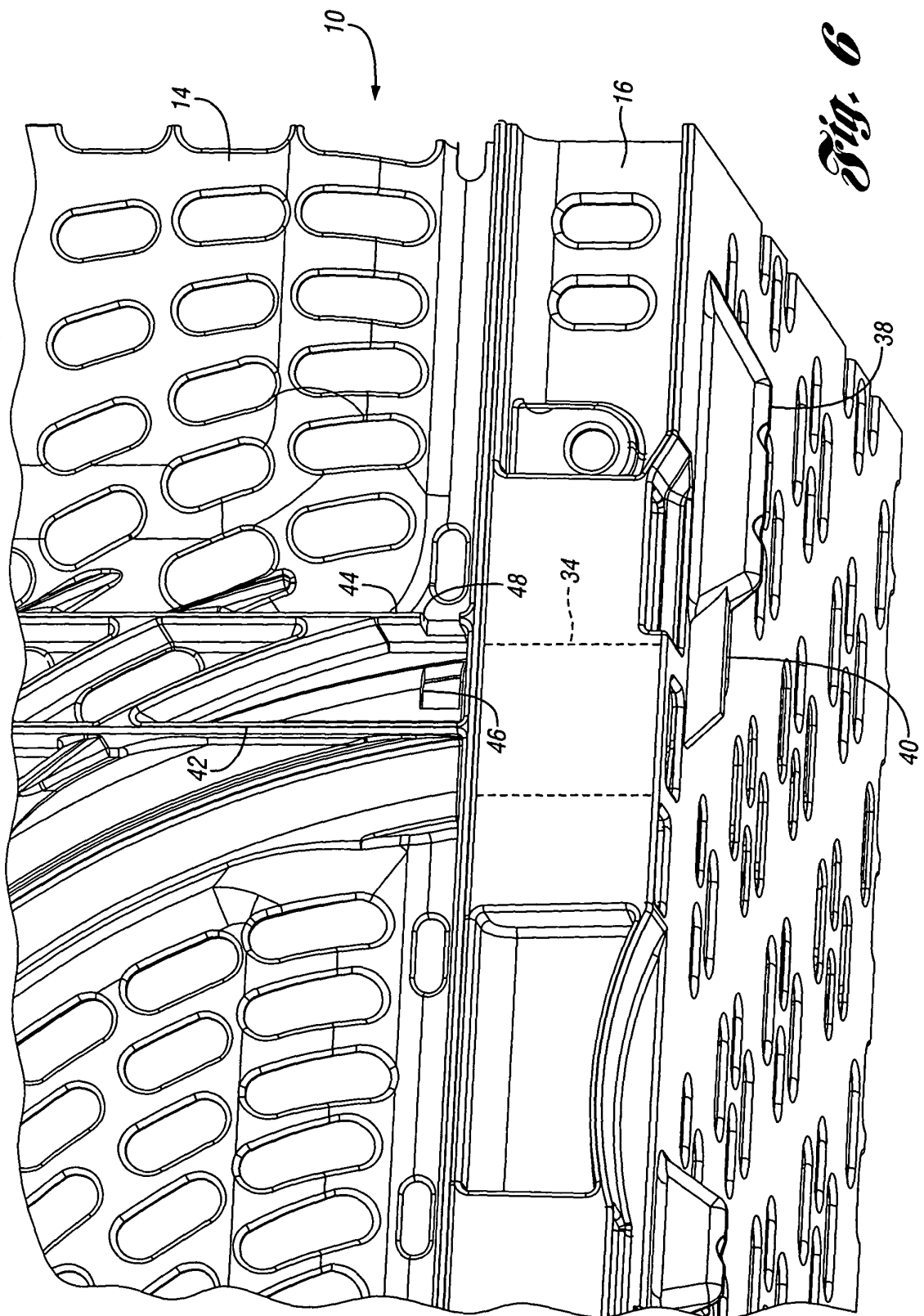


Fig. 6

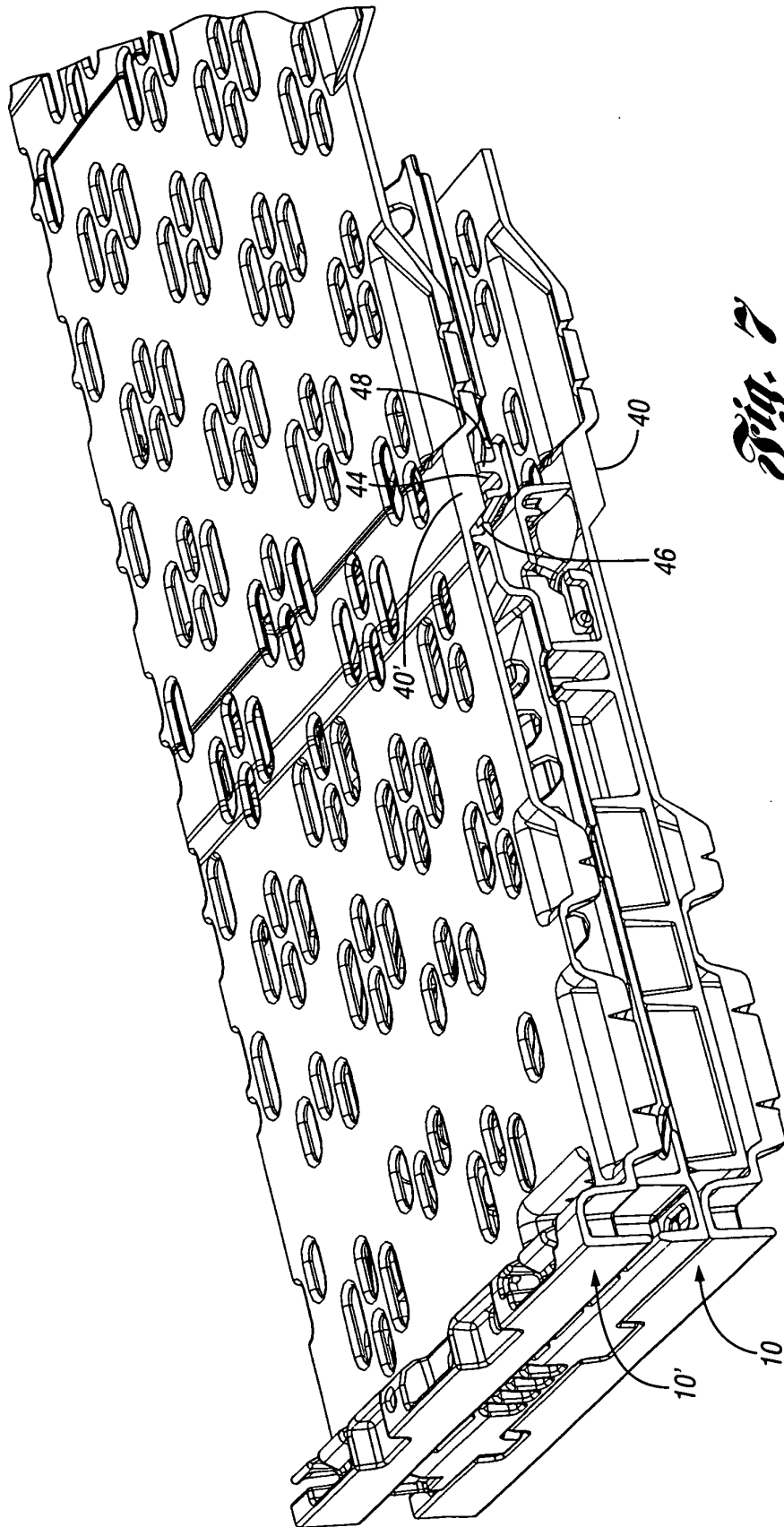


Fig. 7

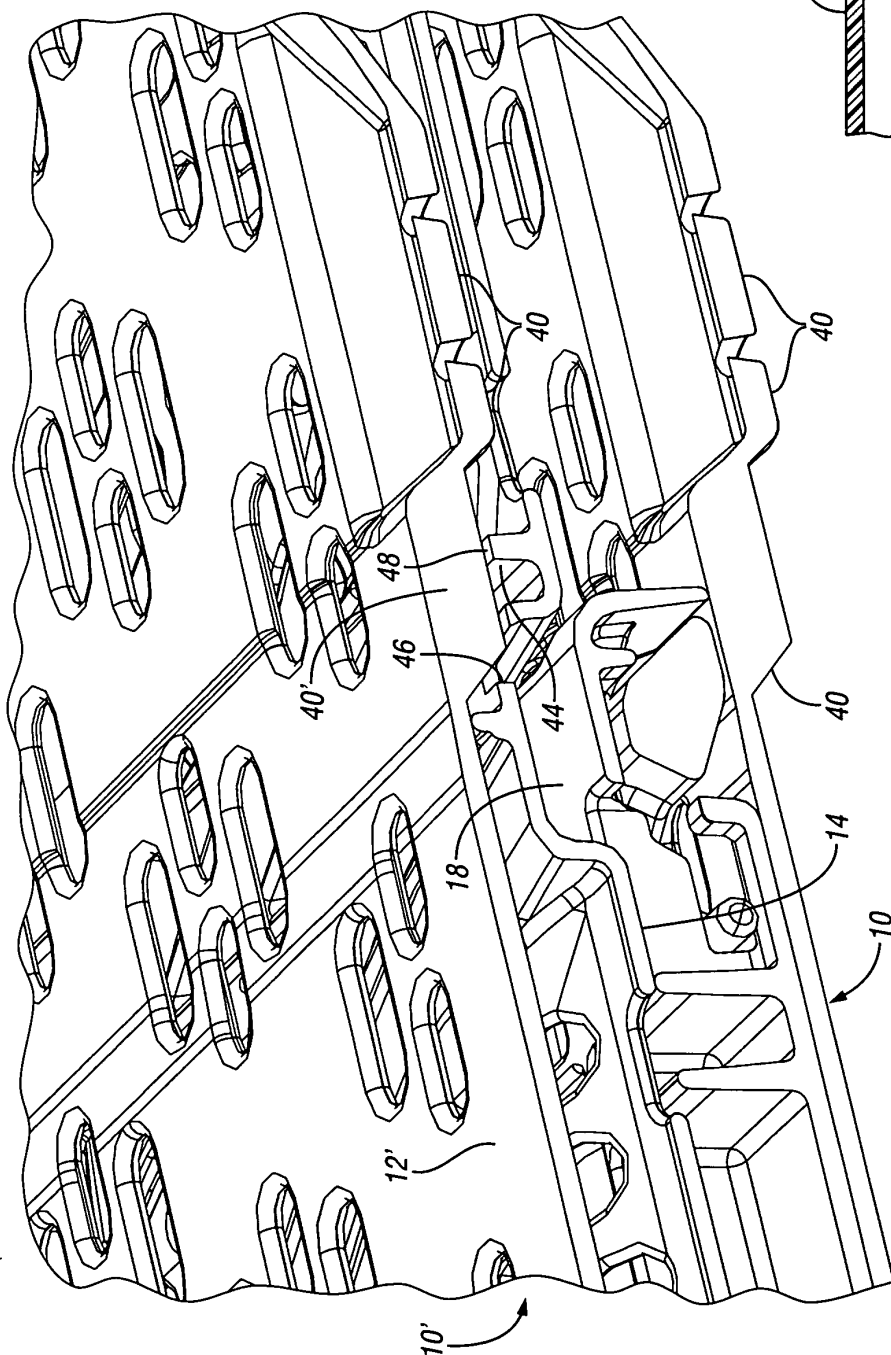


Fig. 8

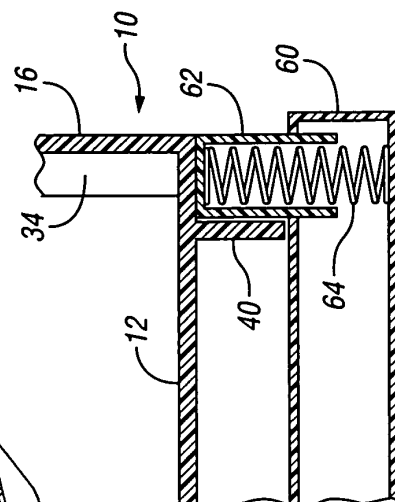


Fig. 9



EUROPEAN SEARCH REPORT

Application Number
EP 10 17 4404

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 2008/062494 A1 (TONTARELLI SERGIO [IT]) 29 May 2008 (2008-05-29) * figures 1-11 *	1-14	INV. B65D21/06 B65D6/16
A	EP 1 785 360 A1 (LIMPAC MATERIALS HANDLING LTD [GB] LIMPAC ALLIBERT LTD [GB]) 16 May 2007 (2007-05-16) * figures 38-41 *	1-14	
A	US 2007/095842 A1 (APPS WILLIAM P [US]) 3 May 2007 (2007-05-03) * figures 1-10 *	1-14	
A	EP 2 072 413 A2 (REHRIG PACIFIC CO [US]) 24 June 2009 (2009-06-24) * figures 1-3 *	1-14	
A	US 5 722 550 A (FICKER PAUL J [US]) 3 March 1998 (1998-03-03) * figures 7,7 *	1-14	
A	US 4 913 302 A (STONIER RUSS W [US]) 3 April 1990 (1990-04-03) * figure 21 *	1-14	TECHNICAL FIELDS SEARCHED (IPC) B65D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 21 October 2010	Examiner Jervelund, Niels
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 T : 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			

 1
EPO FORM 1503 (03.02 (P04C01))

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 10 17 4404

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

21-10-2010

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 2008062494	A1	29-05-2008	AT 462656 T	15-04-2010
			AU 2007322997 A1	29-05-2008
			EP 2091827 A1	26-08-2009
			US 2009289059 A1	26-11-2009

EP 1785360	A1	16-05-2007	US 2007125779 A1	07-06-2007

US 2007095842	A1	03-05-2007	GB 2431921 A	09-05-2007
			GB 2446969 A	27-08-2008
			GB 2452645 A	11-03-2009
			GB 2452646 A	11-03-2009
			GB 2452647 A	11-03-2009
			US 2007194023 A1	23-08-2007

EP 2072413	A2	24-06-2009	US 2009159593 A1	25-06-2009

US 5722550	A	03-03-1998	CA 2205474 A1	06-12-1997

US 4913302	A	03-04-1990	NONE	

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 61237668 A [0001]