UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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ENVIROTAINER AB

Petitioner

v.

DOUBLEDAY ACQUISITIONS, LLC,

Patent Owner

_____

Case: IPR2022-00292

U.S. Patent No. 7,263,855

_____

PETITION FOR *INTER PARTES* REVIEW

UNDER 35 U.S.C. §312 AND 37 C.F.R. §42.104

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Ex. 1002	’855 File History	File History of U.S. Patent No. 7,263,855
Ex. 1003	Jobin Declaration	Declaration of Michael Jobin, under 37 C.F.R. §1.68
Ex. 1004	Jobin CV	*Curriculum Vitae* of Michael Jobin
Ex. 1005	Kuhn	WO 2004/104498
Ex. 1006	Loeffler	WO 2004/045987
Ex. 1007	Sinclair	GB 1,117,899
Ex. 1008	Ekerot	U.S. Patent Publication 2003/0019870
Ex. 1009	Cur	U.S. Patent No. 5,082,335
Ex. 1010	Day	U.S. Patent No. 6,740,381
Ex. 1011	Wynne	U.S. Patent No. 6,623,413
Ex. 1012	Broussard	U.S. Patent Publication 2004/0226309
Ex. 1013	’786 EP	European Patent Specification EP 1 896 786
Ex. 1014	’786 EP File History	File History of European Patent Specification EP 1 896 786
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Ex. 1018	Jobin	U.S. Patent No. 9,279,821
Ex. 1019	McLean	U.S. Patent No. 2,853,968

Exhibit	Short Name	Description
Ex. 1020	Tantlinger	U.S. Patent No. 3,027,025
Ex. 1021	Bodenheimer	U.S. Patent No. 3,294,034
Ex. 1022	Taft	U.S. Patent No. 3,861,541
Ex. 1023	Meller	U.S. Patent No. 3,907,148
Ex. 1024	Matsumoto	U.S. Patent Publication 2011/0056236
Ex. 1025	Simmons	U.S. Patent No. 3,865,517
Ex. 1026	Sutherland	U.S. Patent No. 71,423
Ex. 1027	Ayerst	U.S. Patent No. 1,174,800
Ex. 1028	Numero	U.S. Patent No. 2,303,857
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Ex. 1035	Castelle	U.S. Patent No. 9,771,714
Ex. 1036	’326 EP	European Patent Specification EP 2 031 326
Ex. 1037	’326 EP File History	File History of European Patent Specification EP 2 031 326
Ex. 1038	AirWatch Order	*AirWatch LLC v. Good Tech. Corp.*, No. 1:14-cv-02281-SCJ (N.D. Ga. Feb. 13, 2015), ECF No. 45

Exhibit	Short Name	Description
Ex. 1039	N.D. Ga. L.R.	Northern District of Georgia Civil Local Rules
Ex. 1040	N.D. Ga. L.P.R.	Northern District of Georgia Patent Local Rules

Envirotainer AB ("Petitioner") seeks IPR under 35 U.S.C. §§311–319 and 37 C.F.R. §42 of Claims 19–21, 23, 26–31, 33, 35–37, and 41 ("the Challenged Claims") of Patent No. 7,263,855 ("the '855 Patent"). Petitioner requests cancellation of the Challenged Claims.

I. STANDING UNDER 37 C.F.R. §42.104(a)

Petitioner certifies that the '855 Patent is available for IPR and that Petitioner is not barred or estopped from requesting IPR.

II. PAYMENT OF FEES

Petitioner authorizes Account No. 16-0605 to be charged.

III. OVERVIEW OF CHALLENGES AND RELIEF REQUESTED

Pursuant to 42.22(a)(1) and 42.104(b)(1)–(2), Petitioner requests cancellation of the Challenged Claims pursuant to the grounds below. Additional support is provided in the Declaration of Michael Jobin (Ex. 1003).

Ground 1: Claims 19, 20, 23, and 28 are unpatentable under pre-AIA 35 U.S.C. §102(a) over Kuhn.

Ground 2: Claims 19–21, 23, 26–30 are unpatentable under pre-AIA 35 U.S.C. §103(a) over Loeffler in view of Kuhn.

Ground 3: Claims 19–21, 23, 26–28, 31, 33, 35–37, and 41 are unpatentable under pre-AIA 35 U.S.C. §103(a) over Sinclair in view of Kuhn.

Ground 4: Claims 19–21, 28, 31, and 35–37 are unpatentable under pre-AIA 35 U.S.C. §103(a) over Ekerot in view of Cur.

Ground 5: Claims 19–21 and 29–31 are unpatentable under pre-AIA 35 U.S.C. §103(a) over Broussard in view of Cur.

IV. BACKGROUND

The ’855 Patent describes thermally insulated cargo containers and methods to make them. Ex. 1001, Abstract; Ex. 1003, ¶¶68-75. That thermal insulation material includes vacuum insulated panels (“VIPs”) confined in corresponding outer and inner shells of the containers. *Id*.

As shown below, the ’855 Patent’s cargo containers have three main structural components: (1) an inner shell (blue); (2) an outer shell (red); and (3) a housing (purple). *Id.*, Fig. 6, 3:14-42. “[T]he housing receives a shell sub-assembly 50 which includes a molded composite box-like outer shell 54 (FIGS. 5 & 6) and a molded composite box-like inner shell 56, shown exploded in FIG. 5.” *Id.*, 3:30-33. The Challenged Claims, however, recite only inner and outer shell limitations; they do not require the housing.

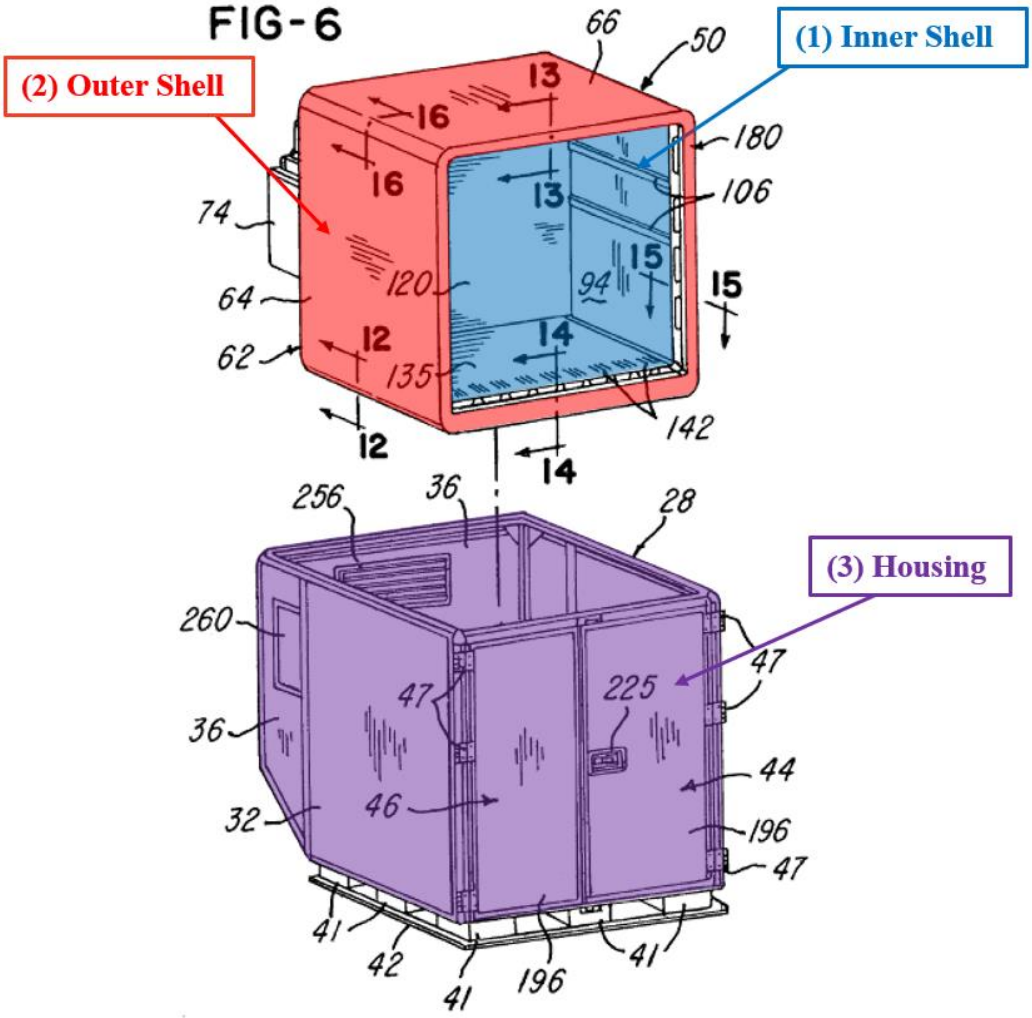


FIG-6
(2) Outer Shell
(1) Inner Shell
(3) Housing
66
50
13
16
180
106
74
120
94
15
64
12
14
62
135
142
256
36
28
260
47
225
44
32
46
196
41
42

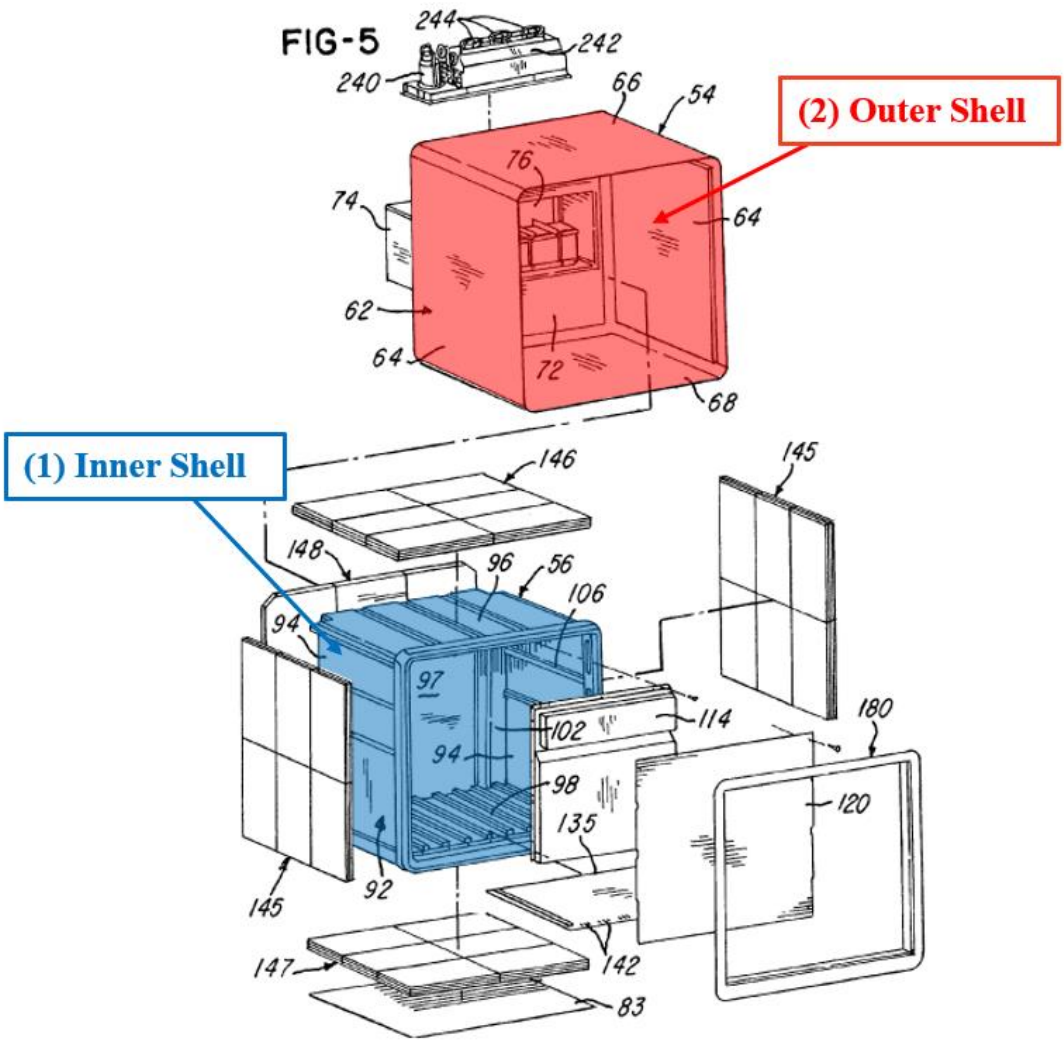
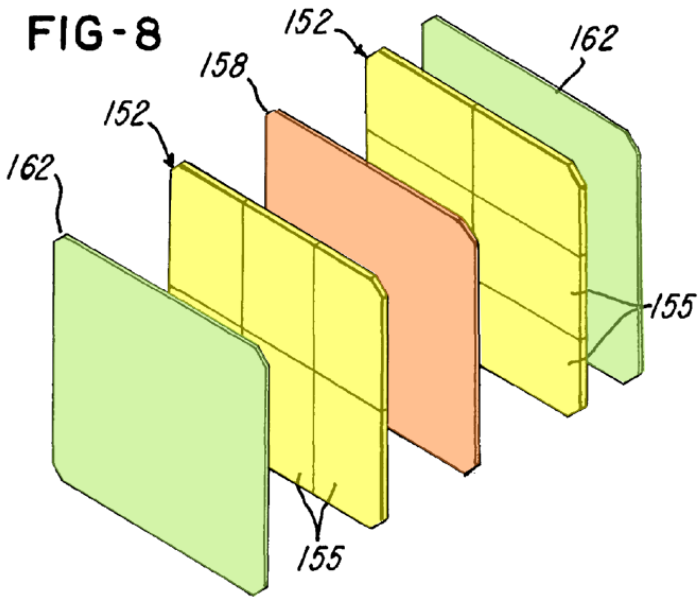


Figure 5 above depicts the inner and outer shells, which are fiber reinforced molded composite shells. *Id.*, Fig. 5, 2:10-14, 3:29-4:9. The shell walls can be reinforced by techniques the ’855 Patent acknowledges were already known, e.g., molding the composite outer shell through “vacuum assisted resin transfer molding (RTM).” *Id.*, 3:43–56 (citing U.S. Patent 6,740,381 (Ex. 1010)).

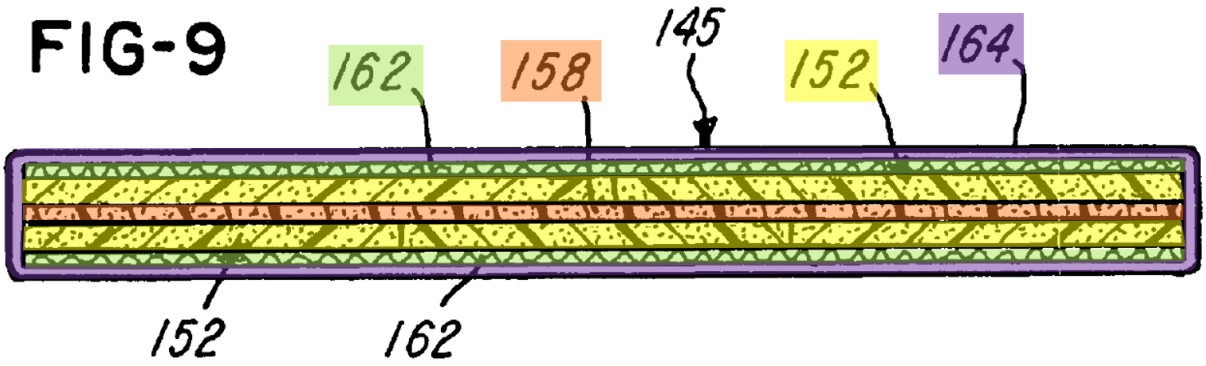
The ’855 Patent states that “flat panel insulation cartridges or cassettes” are located between the “inner and outer shells.” *Id.*, 2:5-21. “Each cassette includes two

or more layers of vacuum insulation panels … sandwiched between protective plastic sheets … [and] wrapped within a plastic film." *Id.*, 2:5–21, 4:54–57. Each VIP "is constructed substantially as disclosed in U.S. Pat. No. 6,623,413." *Id.*

Cassettes have "at least two panels or layers 152" of VIPs (yellow), "each including a plurality of six vacuum insulation panels 155." *Id.*, 451-54, Fig. 8. The cassette's VIP layers are separated by "a sheet 158 of expanded polystyrene foam" (orange). *Id.*, 4:62-65, Fig. 8. Each VIP layer is "protected by and sandwiched between two outer sheets 162 of extruded plastic" (green). *Id.*, 4:65-5:1, Fig. 8.



The Figure 8 cassette cross-section is shown below, where "all of the assembled layers 152 and sheets 158 and 162 are wrapped with a flexible film 164 [purple] of fire retardant plastics material." *Id.*, 5:1–4, Fig. 9.



The cargo container can also include refrigeration. *Id.*, 2:22–37. To assist with cooling, the container can include air flow passages, channels, and blowers to circulate air within the container. *Id.*, 4:42-47, 6:13-37, 7:2-8.

A. Prosecution History

The ’855 Patent experienced no meaningful prosecution. The Examiner allowed Claims 1–41 from the onset; no rejection was provided. Ex. 1002, 6.

Patent Owner prosecuted two related European Patents that are relevant to this petition. EP 1 896 786 (“’786 EP”) is the corollary to the ’855 Patent. Ex. 1013. EP 2 031 326 (“’326 EP”) is the corollary to the ’511 Patent. Ex. 1036.

’786 EP shares a specification with, and claims priority to, the ’855 Patent. Ex. 1013. While U.S. prosecution of the ’855 Patent did not address or provide rejections based on prior art, the prosecution of the ’786 EP did—and in a way that is meaningful to this IPR. During prosecution, the EPO rejected ’786 EP claims over Broussard (Ex. 1012, cited in Ground 5) and a European Patent (Ex. 1015 (“EP

Cur")) that is substantively interchangeable with Cur (Ex. 1009, cited in Grounds 4–5). Ex. 1014, 229.

The EPO determined Broussard's cargo container assembly (600) had a box-like composite inner shell (215) within a box-like composite outer shell (210), vacuum panel assemblies (220) confined between them, as well as a refrigeration system (670, 671). *Id*. (citing Broussard, Fig. 10). While the EPO noted a lone distinction between the '786 EP and Broussard—the "walls of the inner and outer shells include resin impregnated fibers" (Ex. 1014, 230)—the EPO found EP Cur taught the resin impregnated fibers limitation. *Id.* ("the implementation of fibers has the effect to strengthen the material of a core or a layer leading to the advantage of being able to reduce the thickness of the walls.").

In response, Patent Owner amended its claims to require that the "outer shell and inner shell are of molded composite materials," and added an "outer housing . . . [that] enclose[es] the outer shell"—both limitations that are not found in the Challenged Claims of the '855 Patent. Ex. 1014, 223. Patent Owner acknowledged these amendments were made to overcome prior art, and argued neither Broussard nor EP Cur taught those limitations. *Id*., at 2. Patent Owner also highlighted the outer housing would "further increase the strength of the cargo container assembly." *Id*., at 2.

On May 15, 2017, a third party filed an observation to note a disparity: while "there is a rigid outer housing in addition to the inner cargo container with outer shell and inner shell," the claims placed the door assembly inconsistently with either the rigid outer housing or the distinct outer shell. Ex. 1014, 153. In response, the EPO recognized that "the movable door assembly is clearly and solely associated with the rigid outer housing." Ex. 1014, 147. All claims were amended to include door assemblies on the outer housing rather than the outer shell. Ex. 1014, 123-27. Afterwards, the EPO decided to allow the '786 EP. Ex. 1014, 75.

B. Priority Date

The '855 Patent was filed on June 8, 2005. For purposes of this proceeding only, Petitioner contends the priority date should be June 8, 2005.

C. Claim Construction (37 C.F.R. §42.104(b)(3))

Claims are interpreted with their ordinary and customary meaning as understood from the perspective of PHOSITA. *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005).

V. PRIOR ART REFERENCES

A. WO2004/104498 ("Kuhn")

Kuhn published as WO2004/104498 on December 4, 2004. Kuhn is prior art under pre-AIA 35 U.S.C. §102(a). A certified translation and original German language document are provided. Ex. 1005.[1]

B. WO2004/045987 ("Loeffler")

Loeffler published as WO2004/045987 on June 3, 2004. Loeffler is prior art under pre-AIA 35 U.S.C. §102(b). A certified translation and original German language document are provided. Ex. 1006.

C. GB 1,117,899 ("Sinclair")

Sinclair is a United Kingdom patent specification, published on June 26, 1968. Sinclair is prior art under pre-AIA 35 U.S.C. §102(b).

D. U.S. Patent 5,082,335 ("Cur")

Cur issued as a U.S. Patent on January 21, 1992. Cur is prior art under pre-AIA 35 U.S.C. §102(b).

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[1] Exhibits 1005–1006 each include a certified translation and the original document in the same exhibit. 37 C.F.R. §42.63(b); 35 U.S.C. §312(a)(5); *Ninebot Tech. Co. v. Inventist, Inc.*, IPR2018-00134, Paper 11 at 10-11 (P.T.A.B. April 23, 2018).

E. U.S. Patent Publication 2003/0019870 ("Ekerot")

Ekerot is a January 30, 2003 U.S. Patent publication. Ekerot is prior art under pre-AIA 35 U.S.C. §102(b).

F. U.S. Patent Publication 2004/0226309 ("Broussard")

Broussard is a November 18, 2004 U.S. Patent publication. Broussard is prior art under pre-AIA 35 U.S.C. §102(a).

VI. LEVEL OF ORDINARY SKILL IN THE ART

PHOSITA would have at least a Bachelor's degree in mechanical or structural engineering, or a related field, and two years of experience designing structures with comparable mechanical and/or structural elements to the subject matter of the '855 Patent. Ex. 1003, ¶¶22-25. Additional experience may compensate for less education. *Id.*

VII. THE CHALLENGED CLAIMS ARE UNPATENTABLE

A. Ground 1: Claims 19-20, 23, and 28 are Unpatentable Under 35 U.S.C. §102 over Kuhn

1. Overview of Ground 1

i. Kuhn

Kuhn teaches thermally insulated shipping containers with outer (red) and inner (blue) shells. Ex. 1005, Abstract, Figs. 1, 3.

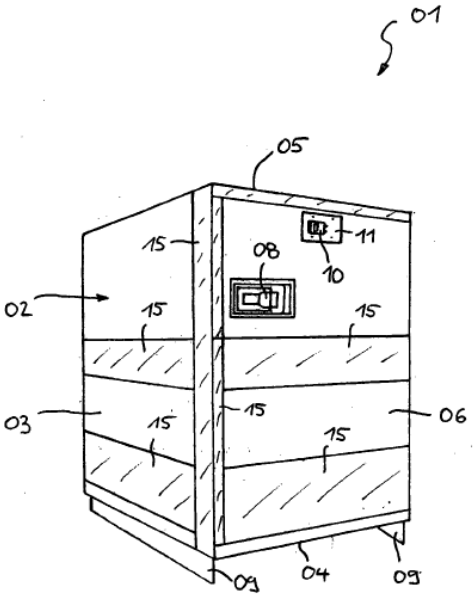


Fig. 1

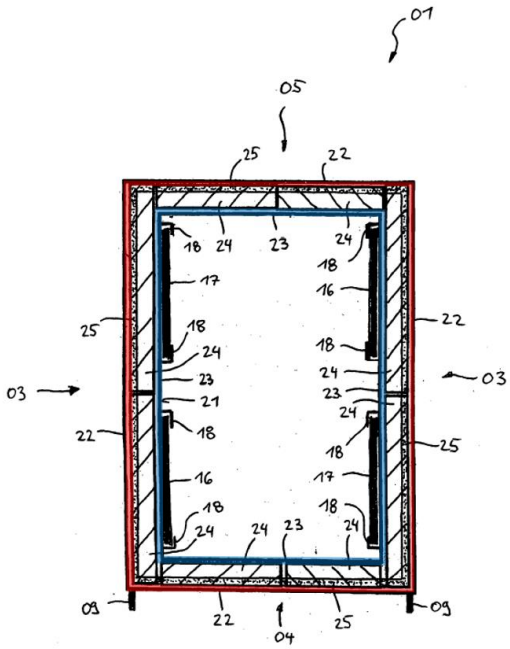


Fig. 3

Kuhn's shells have a composite, layered, construction, referred to as a "sandwich." *Id.*, 10:1-6. Each of inner shell 23 and outer shell 22 consist of "an inner core layer 26 of plywood [purple] and an inner core layer 27 of foamed plastic" (green) covered by layers of fiber-reinforced plastic 28 (orange). *Id.*, 10:1-6, Fig. 4. Pictured between Kuhn's inner shell 23 and outer shell 22 are insulating elements 24 (also known as VIPs) and shock protection elements 25. *Id.*, 9:19-25.

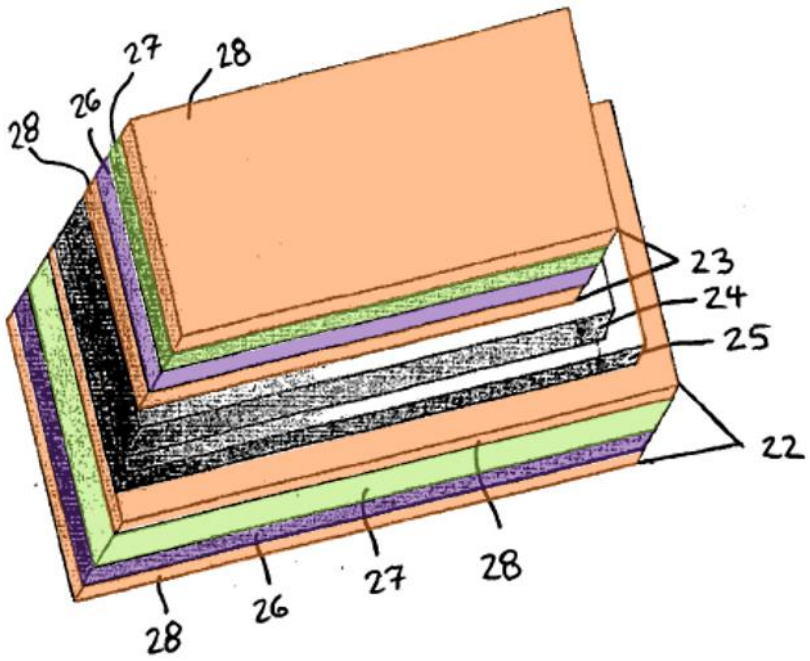


Fig. 4

Kuhn teaches its containers are used to ship temperature-sensitive products "within the specified temperature tolerances over very great distances and long transport times." *Id.*, 5:20-24. Kuhn contemplates multiple layers of VIPs for enhanced insulation and damage redundancy. *Id.*, 10:12-27. Kuhn also teaches refrigeration to maintain the temperature of the container. *Id.*, 2:22-3:3.

2. Claim 19

i. Claim 19: [19.Pre] A cargo container assembly adapted for transporting a temperature sensitive cargo supported by a pallet,

The preamble of Claim 1 is not limiting; it merely states an intended use—transporting temperature sensitive cargo supported by a pallet. *TomTom, Inc. v. Adolph*, 790 F.3d 1315, 1323 (Fed. Cir. 2015). Claim 1 is structurally complete without the preamble.

Even if the preamble of Claim 1 is limiting, however, Kuhn discloses its cargo container is adapted "so that temperature-sensitive goods within the internal space of the container 07 are effectively protected." Ex. 1005, 13:1-9; *see also id.*, 1:27-33, Claim 1. PHOSITA understood Kuhn discloses its temperature sensitive cargo is supported by a pallet, since "[t]he base area of the container 01 corresponds to the area of a standard pallet." *Id.*, 7:26-29. Ex. 1003, ¶¶102-104.

ii. Claim 19: [19.A] said assembly comprising a box-like composite outer shell having side, top and bottom walls of resin impregnated fibers and having a front opening and a moveable door assembly for closing said front opening,

Kuhn discloses this limitation with its outer wall 22. Kuhn teaches "container wall 02 . . . consists of three rectangular side wall elements 03, a rectangular floor element 04, a rectangular cover element 05, and a pivotably mounted door element 06." *Id.*, 8:1-4, Fig. 3 (red).

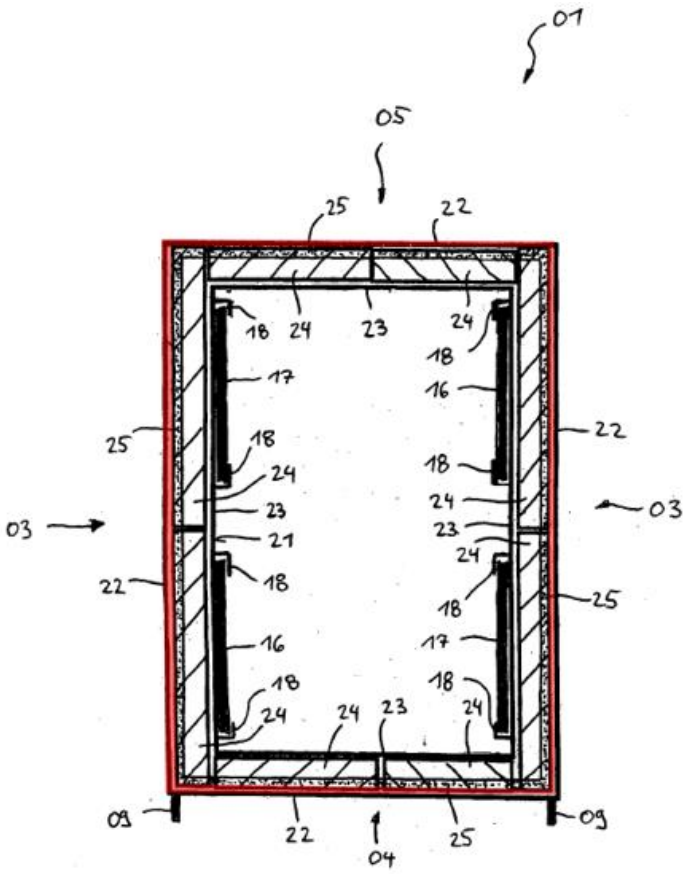


Fig. 3

Just like the outer shell of the ’855 Patent, Kuhn’s container wall 02 is constructed with a “dimensionally stable outer wall 22” that has side, top, and bottom walls with a movable door assembly. *Id.*, 9:19-29. Kuhn’s outer shell is “manufactured from a sandwich material” where “an inner core layer 26 consisting of plywood and an inner core layer 27 consisting of foamed plastic are each covered on the outside by cover layers 28 made of fiber-reinforced plastic.” *Id.*, 10:1-6.

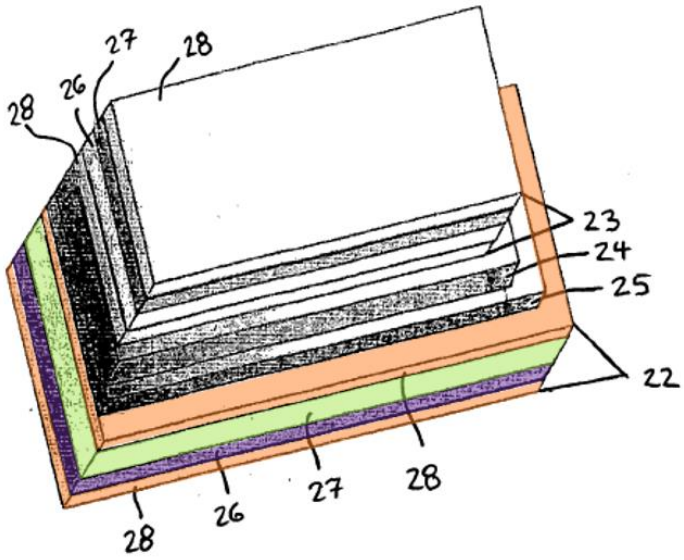


Fig. 4

Kuhn's composite shell "sandwich" includes cover layers 28 of fiber-reinforced plastic (orange). *Id*. PHOSITA understood the "fiber-reinforced plastic" of Kuhn—a composite material made of a resin matrix and reinforced with fibers—to disclose the claimed "resin impregnated fibers." Ex. 1003, ¶¶105-110. The '855 Patent itself is consistent that fiber-reinforced plastic was known. Ex. 1001, 3:43–51 (citing Ex. 1010).

iii. Claim 19: [19.B] a box-like composite inner shell within said outer shell and having side, top and bottom walls disposed inwardly from the corresponding said walls of said outer shell and defining a cargo receiving chamber;

Kuhn discloses this limitation with its inner wall 23. Kuhn discloses "[t]he three side wall elements 03, the floor element 04 and the cover element 05 are fixedly connected to one another, forming a rectangular internal space 07." Ex. 1005, 8:1-8:1-9, *see also* 9:19-29. The cubical interior space 07 is a cargo receiving chamber

that is defined by inner wall 23. *Id.*, 8:1-9. Much like outer wall 22, inner wall 23 is a composite "manufactured from a sandwich material" where "an inner core layer 26 [purple] consisting of plywood and an inner core layer 27 [green] consisting of foamed plastic are each covered on the outside by cover layers 28 [orange] made of fiber-reinforced plastic." *Id.*, 10:1-6.

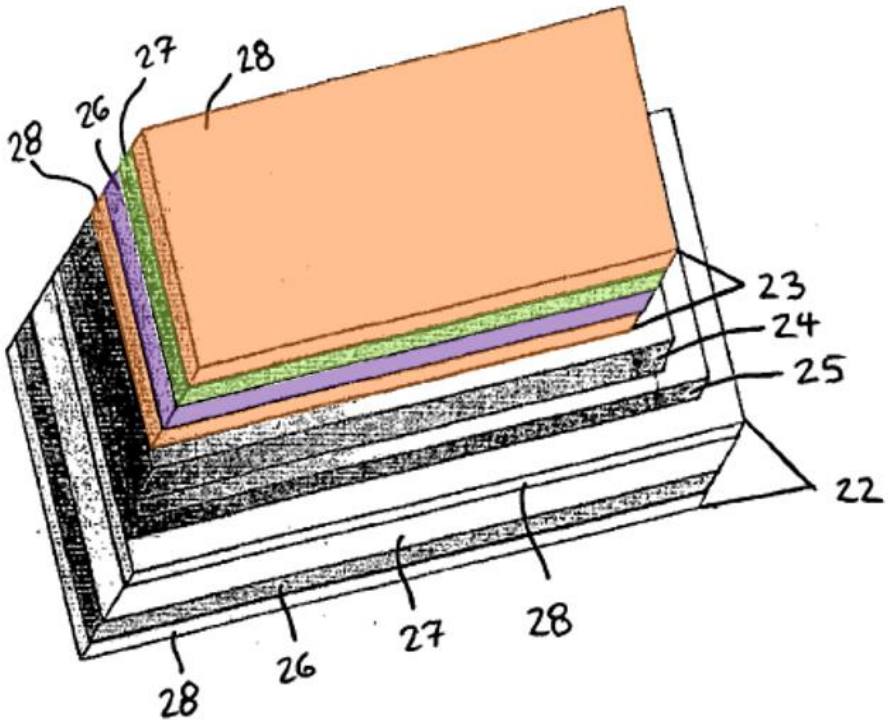


Fig. 4

As shown by annotated Figure 3, Kuhn's inner shell (blue) is disposed inwardly from its outer shell (red).

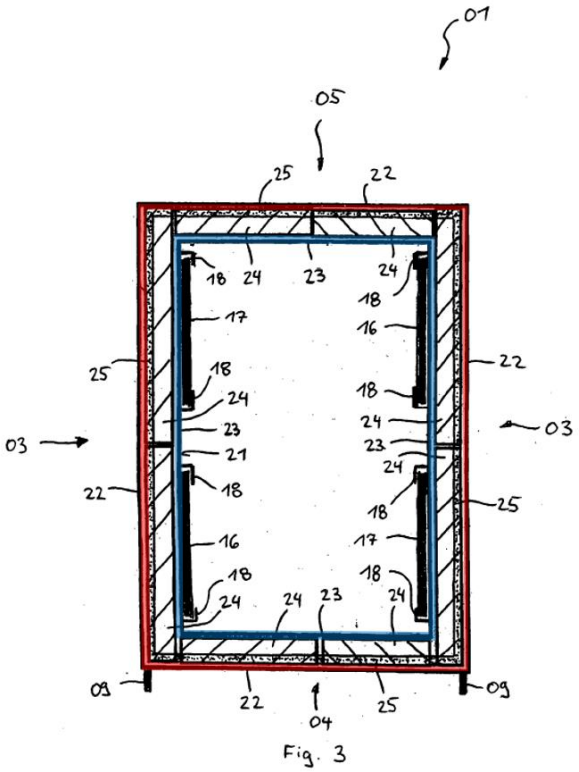


Fig. 3

As shown for Limitation [19.A] above, Kuhn's composite shell "sandwich" includes cover layers of fiber-reinforced plastic, which PHOSITA understood disclosed the claimed "resin impregnated fibers." Ex. 1003, ¶¶111-117; Ex. 1005, 10:1-6; *see also* Ex. 1001, 4:4-9 (citing Ex. 1010) ('855 Patent confirming fiber-reinforced plastic was known).

iv. Claim 19: [19.C] vacuum insulated panel assemblies confined between the corresponding said side, top and bottom walls of said inner and outer shells, and;

Kuhn discloses this limitation with its vacuum insulating elements 24. "The vacuum insulating elements [24, yellow] provided for insulation are arranged"

between the "mechanically stable double wall consisting of an outer wall 22 and an inner wall 23." Ex. 1005, 9:19-29, Figs. 3–4.

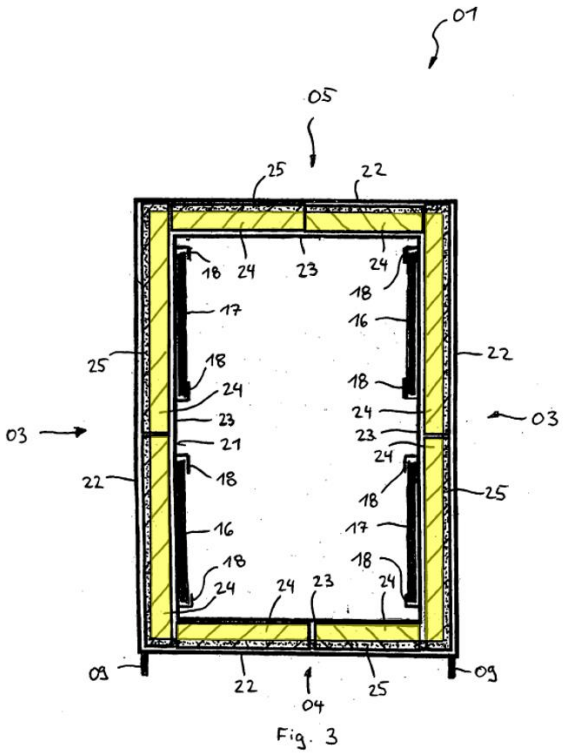


Fig. 3

The vacuum insulation elements are provided "in all side wall elements 03 and correspondingly also in the floor element 04, in the cover element 05 and in the door element 06." *Id.*, 10:12-27; Ex. 1003, ¶¶118-123.

v. Claim 19: [19.D] a refrigeration system connected to cool said chamber;

Limitation 19.D recites "a refrigeration system." PHOSITA understood that a "refrigeration system" at the relevant time included a broad range of active and passive systems designed to cool the chamber, including for example iceboxes, dry

ice, or other chemicals to chill, or maintain a cool temperature in, the container. Ex. 1003, ¶125.

Kuhn describes refrigeration through "melting storage elements filled with a suitable melting storage material." Ex. 1005, 2:22-3:3. These "melting storage materials" absorb thermal energy so there is not an increase in temperature. *Id*.; *see also id.*, 8:27-9:8. Thus, like other refrigeration systems, "the melting storage elements buffer the thermal flow until reaching the capacity limits." *Id*.; *see also* Ex. 1003, ¶126. Kuhn describes different forms of "melting storage materials" with salt solution materials that allow "the thermal flow [to] be buffered in the temperature range below 0^{O} C." Ex. 1005, 3:5-9. PHOSITA understood Kuhn taught its cargo would be cooled as required by Limitation 19.D. Ex. 1003, ¶¶124-127. Further, although Kuhn describes its melting storage solution as an improvement on active cooling systems, Kuhn acknowledges other systems, such as electric air conditioning, were obvious. *Id.*, 2:10-13.

3. Claim 20: A cargo container assembly as defined in claim 19 wherein said vacuum insulated panel assemblies comprise parallel substantially flat insulation layers each having a plurality of vacuum insulated panels, and each of said panels including a core of porous material confined within an evacuated sealed bag of flexible gas impermeable film.

Kuhn discloses VIPs. Ex. 1003, ¶128; §VII.A.2iv. Kuhn also discloses multiple layers of "flat vacuum insulating elements." Ex. 1005, 5:15-18, 6:13-14, 10:12-27. Each layer can comprise a plurality of VIPs: "four vacuum insulating

elements 24 [yellow] are arranged adjacent to one another" in the side walls, cover element (top wall), floor (bottom wall), and door. *Id.*, 10:12-27, Fig. 6, Claims 21, 32.

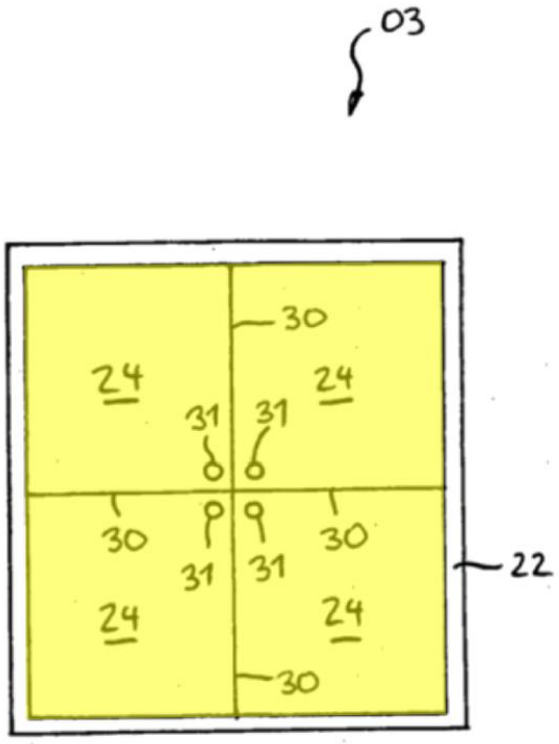


Fig. 6

More specifically, Kuhn discloses "film-enclosed vacuum insulating elements" that have "an open-pored base body 33, which is enclosed by a film 34 in a gas-tight manner." *Id.*, 4:10-12, 11:15-24. The "base body" is described as "open-pored," which confirms each sheathed vacuum insulation element includes a porous material core. *Id.*, 11:15-24, Fig. 8.

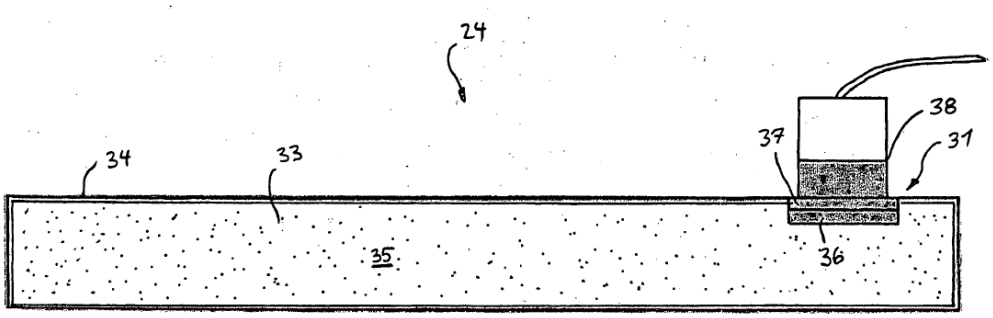


Fig. 8

Once wrapped, "[t]he gas-tight internal space 35 formed by the film 34 is evacuated in order to provide the vacuum insulating element 24 with the desired insulation properties." *Id.*, 11:15-27, Fig. 8. PHOSITA understood Kuhn's film-wrapped open-pored base bodies to be a "sealed bag of flexible gas impermeable film" as claimed. Ex. 1003, ¶¶128-133.

4. Claim 23: A cargo container assembly as defined in claim 20 wherein said vacuum insulated panels in one said layer have abutting joints crossing abutting joints of said vacuum insulated panels in a second said layer.

Kuhn discloses this limitation. Ex. 1005, 5:15-18, 10:12-27. Kuhn discloses multiple layers of panels. *Id.*, 5:18-18. "[T]o increase the thermal flow resistance, the vacuum insulating elements can also be arranged in a plurality of layers above or behind one another." *Id.*, 5:15-18, 10:12-27. Kuhn's Figure 3 discloses its VIPs are arranged with abutting joints (red). *Id.*, Fig. 3.

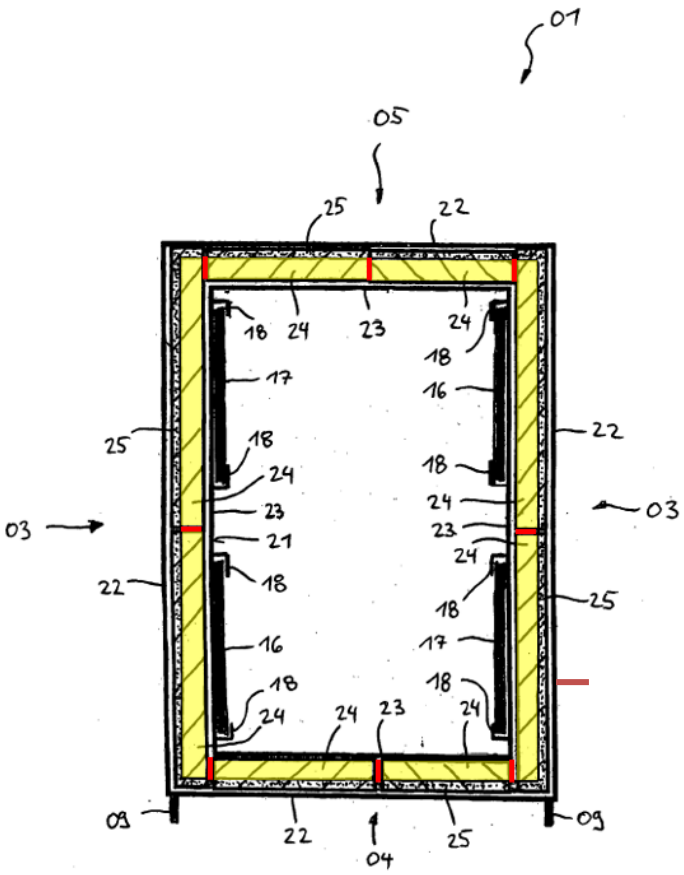


Fig. 3

Kuhn discloses that "in the case of a plurality of layers, the butt joints 30 should be offset from one another." *Id.*, 10:12-27. Modified Figure 6, below, shows how Kuhn's multiple VIP layers can be offset with a first layer of abutting joints (red) crossing abutting joints in a second layer (purple). Ex. 1003, ¶¶134-136.

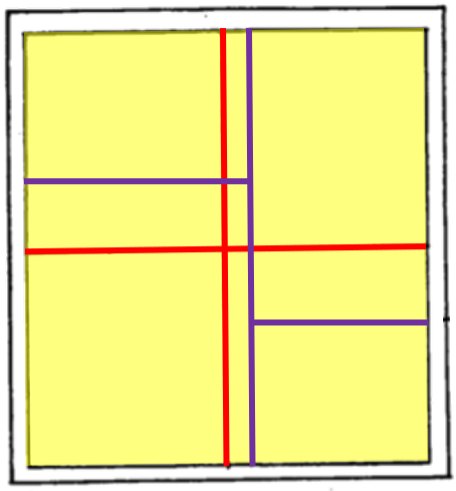


Fig. 6

5. ***Claim 28: A cargo container assembly as defined in claim 19 wherein each of said inner shell and said outer shell has integrally connected side, top, bottom and rear walls to form a one-piece unit, insulation cassettes between corresponding said walls, and each said cassette including a plurality of insulation layers each having a plurality of vacuum insulated panels each including a core of porous material confined within an evacuated sealed bag of flexible gas impermeable film.***

Kuhn discloses this claim. "The three side wall elements 03, the floor element 04 and the cover element 05 are fixedly connected to one another, forming a rectangular internal space 07." Ex. 1005, 8:1-9. PHOSITA understood fixedly joined elements disclose the claimed "integrally connected . . . walls to form a one-piece unit." Ex. 1003, ¶137.

Claim 28's "insulation cassettes" require a plurality of insulation layers where each cassette has a plurality of VIPs. Ex. 1001, Claim 28. Kuhn discloses these

cassettes. Kuhn teaches multiple VIPs arranged with "shock protection elements 25 made of foamed plastic" (pink) for protection "between the [VIPs (yellow)] and the outer wall." Ex. 1005, 9:19-29.

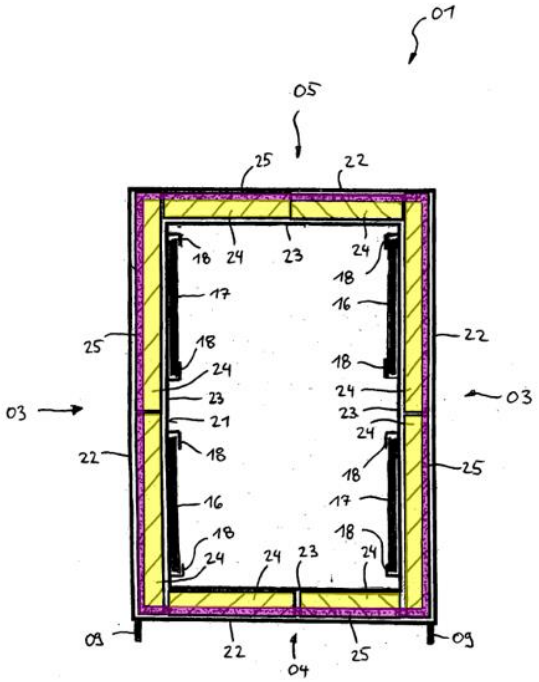


Fig. 3

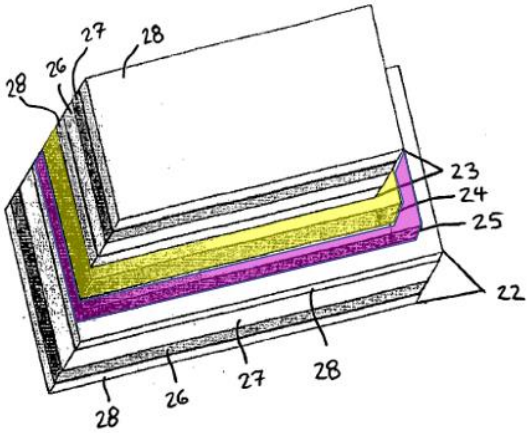


Fig. 4

Kuhn teaches to install multiple VIPs in container walls so that "in case of damage to one vacuum insulating element … the entire insulation of the container wall in question does not fail." Ex. 1005, 10:12-27. Figure 6 of Kuhn arranges four VIPs adjacently to cover an entire wall. *Id.*, Fig. 6, 10:12-27.

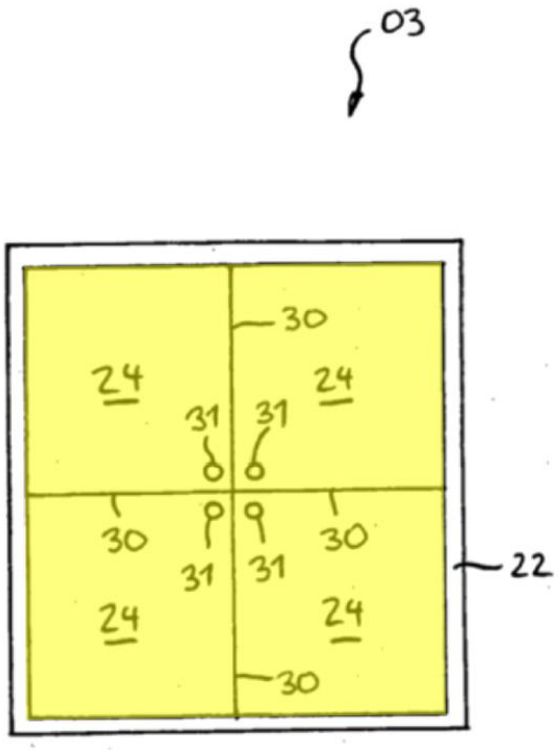


Fig. 6

Kuhn also teaches stacking multiple VIP layers and shock protection elements to "increase the thermal flow resistance" (i.e., to increase insulation). Ex. 1005, 5:15-18, 10:12-27. Each Kuhn VIP has a porous material core within an evacuated sealed bag of flexible gas impermeable film. *Id.*, 4:1-8. It would have been obvious to PHOSITA to enclose this multiple VIP layer sub-assembly in an envelope or bag of flexible multi-layer barrier film to increase resiliency. Ex. 1003, ¶¶137-140; Ex. 1001, 4:54-57 (citing U.S. Patent 6,623,413 (Ex. 1010)).

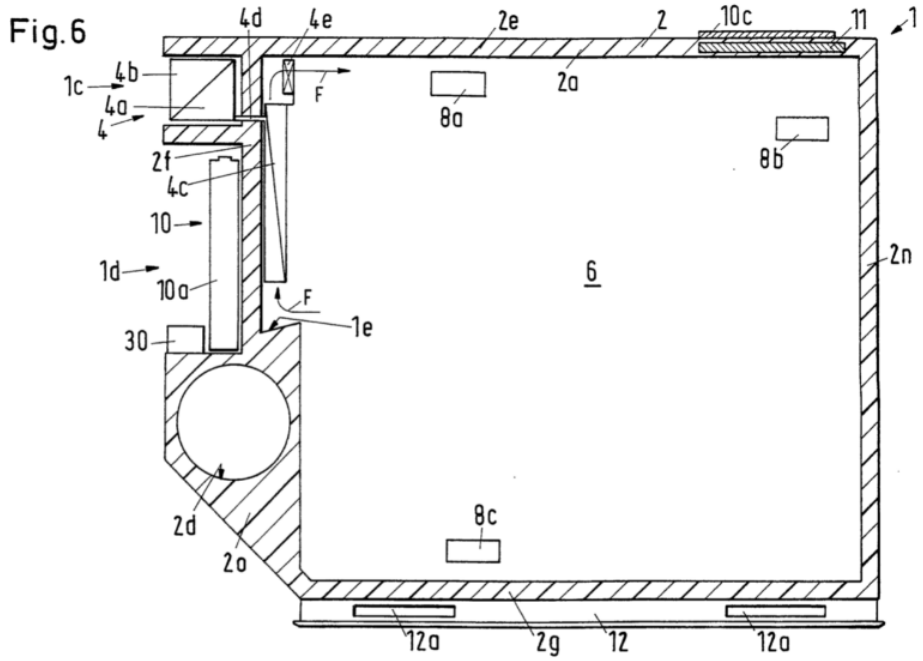
B. Ground 2: Claims 19–21, 23, and 26–30 are Unpatentable Under 35 U.S.C. §103 over Loeffler in view of Kuhn

1. Overview of Ground 2

i. Overview of Loeffler and Kuhn

Kuhn is described above. §VII.A.1.

Loeffler describes a refrigerated and insulated air freight container. Ex. 1006, 1:3-5, 1:22-2:5, Fig. 6.



Loeffler discloses a highly insulated housing 2 and an air conditioning device 4. *Id.*, 3:19-24. The container also includes a battery 10a to supply and operate the cooling unit with electrical energy. *Id.*, 4:17-26.

ii. Reasons to Combine

Both Kuhn and Loeffler describe shipping containers for use with temperature sensitive cargo in aircraft. Ex. 1005, 5:20-24; Ex. 1006, 1:3-5. Kuhn and Loeffler also teach insulation between inner and outer components of the container. Ex. 1005, 9:19-29; Ex. 1006, 7:15-32. And, like Kuhn, Loeffler discloses "vacuum insulation elements 11 containing a partial vacuum." Ex. 1006, 4:28-5:15, 13:26-29.

Kuhn and Loeffler, however, use different methods to cool their respective shipping containers. Kuhn primarily relies on "melting storage elements filled with a suitable melting storage material," though it also mentions active cooling systems. Ex. 1005, 2:22-31. Loeffler teaches an air conditioning device monitored by a control system to actively cool the interior. Ex. 1006, 3:19-23. As shown in Loeffler Figure 6, the "air conditioning system is designed as a refrigeration unit comprising a compressor, a condenser, and an evaporator unit, allowing the air cargo container to be operated in a manner analogous to a refrigerator." Ex. 1006, 4:5-15.

PHOSITA would have reason to combine the Kuhn container with Loeffler's active cooling system to derive enhanced cooling performance able to maintain a specific, desired temperature over an extended time. Ex. 1003, ¶148. Specifically, PHOSITA understood that Loeffler's active cooling system was designed "for transporting high-value and ultra-high-value goods with strictly defined climatic parameters." Ex. 1006, 2:32-36. Loeffler discloses that its solution results in "low

cost and reliable air-conditioned transportation of cargo." *Id.*, 3:4-6. Taken together, the active cooling system of Loeffler increases both the variety of goods that may be transported in Kuhn's container, as well as the distance and duration of feasible transportation. *Id.*, 10:9-31. Moreover, Loeffler's active cooling system permits more precise temperatures, which are needed for some cargo. *Id.*

While Kuhn states its container solves a specific disadvantage with active-cooling containers (reliance on electric power that could be disrupted), Kuhn does not teach away from Loeffler's cooling system. Ex. 1003, ¶149. In particular, some cargo may require a constantly maintained temperature for an extended period of time, which PHOSITA understood is more aligned with Loeffler's controlled system. *Id*.

Further, Loeffler discloses that its refrigeration system is specifically designed to overcome the same loss of energy supply issue mentioned in Kuhn. Ex. 1006, 4:5-26. Specifically, Loeffler teaches that "it may be sufficient to connect the air cargo container to the electrical network before and after the flight in order to cool the interior with the help of the refrigeration unit, whereas no cooling is required during the flight due to the optimal insulation properties of the air cargo container." Ex. 1006, 4:5-15. And Loeffler's proposed battery and fuel cell may provide energy to its refrigeration unit for up to 90 hours without disruption. *Id.*, 4:17-26. If that were not enough, Loeffler also discloses solar panels. *Id.*, 4:23-26.

Finally, PHOSITA understood Loeffler's active cooling system does not require removal of Kuhn's melting storage elements. Indeed, Loeffler also discloses an alternative passive refrigeration embodiment (Ex. 1006, 4:28-36), as does Kuhn, which shows Loeffler's container is suitable for Kuhn's specific layered shell and VIP solution. Ex. 1003, ¶150.

PHOSITA would have reasonably expected success to combine Loeffler with Kuhn given they are both directed to shipping containers and use insulation to protect temperature-sensitive cargo. *Id.*, ¶151. Kuhn and Loeffler both dispose an insulating layer between their inner and outer shells; thus PHOSITA would have reasonably expected success if they configured Loeffler's space to receive Kuhn's VIP layers. Ex. 1003, ¶¶146-151. Indeed, Loeffler uses multiple insulation layers, including VIPs, within the space between its inner and outer shells. Ex. 1006, 7:15-32, 13:26-29.

2. Claim 19

i. Claim 19: [19.Pre],

As shown in Ground 1, the preamble is not limiting. §VII.A.2.i. Kuhn discloses the preamble. *Id*.

ii. Claim 19: [19.A],

As shown in Ground 1, Kuhn discloses Limitation 19.A. §VII.A.2.ii.

iii. Claim 19: [19.B];

As shown in Ground 1, Kuhn discloses Limitation 19.B. §VII.A.2.iii.

iv. Claim 19: [19.C];

As shown in Ground 1, Kuhn discloses Limitation 19.C. §VII.A.2.iv.

v. Claim 19: [19.D];

As shown in Ground 1, Kuhn discloses Limitation 19.D. §VII.A.2.v. Should Patent Owner argue that its claimed refrigeration system requires an active cooling system, however, the combination of Kuhn and Loeffler teaches this limitation. *See* Reasons to Combine, §VII.B.1.ii.

Loeffler teaches an active air conditioning device monitored by a control system to cool its container's interior. Ex. 1006, 3:19-23. As shown in Loeffler Figure 6, the "air conditioning system is designed as a refrigeration unit comprising a compressor, a condenser, and an evaporator unit, allowing the air cargo container to be operated in a manner analogous to a refrigerator." Ex. *Id.*, 4:5-8. PHOSITA therefore understood that Loeffler's air cargo container combined with Kuhn's layered shell and VIP structure would teach Limitation 19.D. Ex. 1003, ¶¶156-159.

3. Claim 20.

As shown in Ground 1, Kuhn discloses Claim 20. §VII.A.3.

4. ***Claim 21: A cargo container assembly as defined in claim 20 wherein said layers of vacuum insulated panels are separated by an insulation panel, and said layers and insulation panel are surrounded by a flexible film of plastics material to form a vacuum insulated cassette.***

PHOSITA understood Kuhn teaches this limitation. Kuhn teaches multiple VIPs arranged with "shock protection elements 25 made of foamed plastic" (pink) for protection "between the [VIPs (yellow)] and the outer wall." Ex. 1005, 9:19-29.

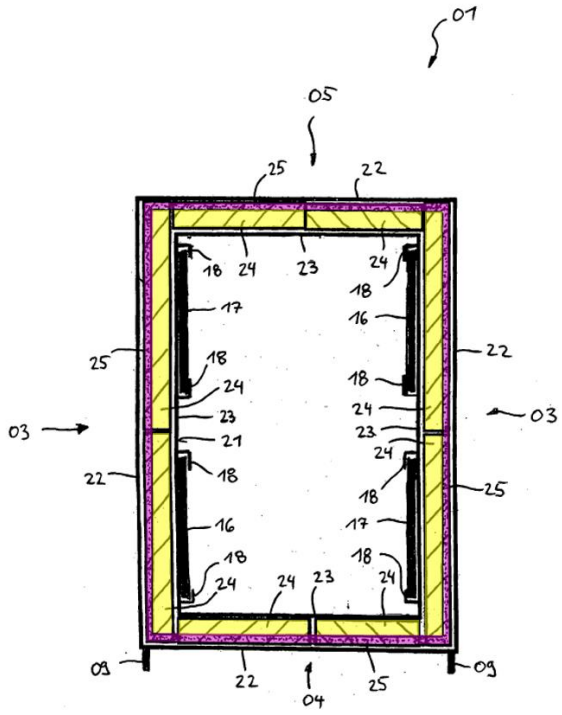


Fig. 3

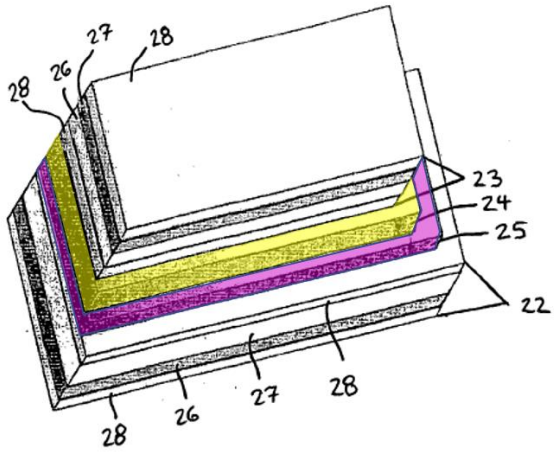


Fig. 4

Kuhn also teaches stacking multiple layers of its VIP and shock protection elements in order to "increase the thermal flow resistance," or insulation. Ex. 1005, 5:15-18, 10:12-27. Thus, when layering VIPs, PHOSITA understood Kuhn teaches a foamed plastic impact prevention element in between, to maintain the

contemplated structural integrity and damage reduction. Ex. 1005, 10:1-6, 12-27. Ex. 1003, ¶162.

Kuhn ensures the VIPs' butt joints are as tight as possible so the least possible amount of heat is transmitted. Ex. 1005, 10:12-27. Applying this teaching, PHOSITA understood to minimize heat transmission by enclosing the VIP panels in a bag or barrier film. Ex. 1003, ¶163. This film would be applied surrounding the sub-assembly multi-layer cassette of Kuhn's VIPs and insulation to configure the butt joints as tightly as possible. *Id*. PHOSITA would have reasonably expected success because enclosing the bags to minimize heat transfer is analogous to the barrier film used to wrap the base body of the vacuum panels in Kuhn. Ex. 1005, 4:1-8; Ex. 1003, ¶¶161-164. Indeed, as the '855 Patent acknowledges, wrapping and/or enclosing VIPs was known at the time. Ex. 1001, 4:54–57 (citing Ex. 1011, 5:62–7:47, 7:5–20).

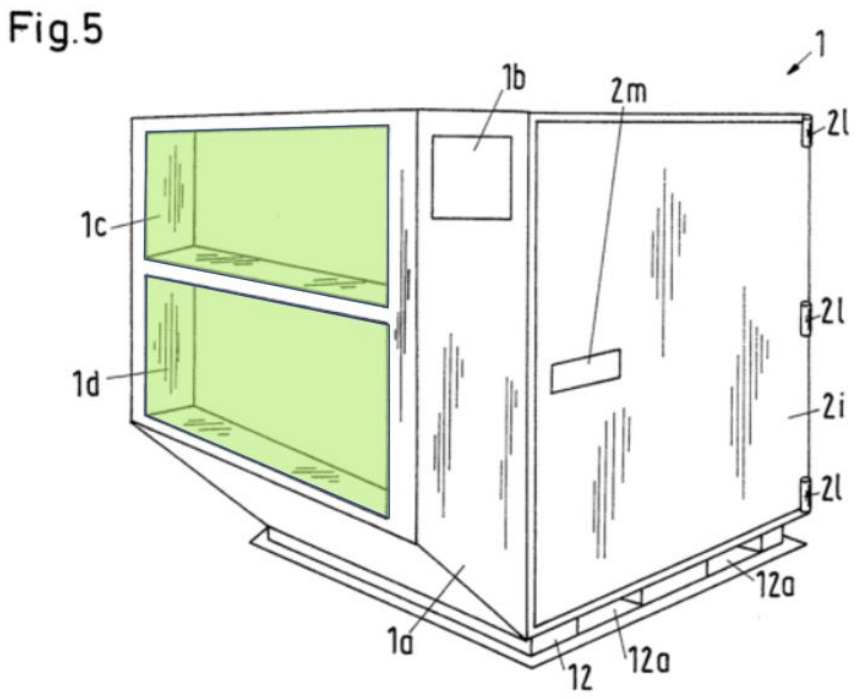
5. Claim 23.

As in Ground 1, Kuhn discloses this claim. §VII.A.4.

6. Claim 26: A cargo container assembly as defined in claim 19 wherein said outer shell includes a rear wall integral with said side wall, top and bottom walls of said outer shell, one of said walls including a projecting support integral with said one wall, and a housing member enclosing said tubular support of said outer shell.[2]

Loeffler teaches a projecting support integral with the rear wall of the outer shell, shown below in Figure 5. Ex. 1006, Fig. 5. The rear wall is integral with the side, top, and bottom walls. *Id*. For avoidance of doubt, Kuhn likewise discloses the claimed rear wall integral with the side, top, and bottom walls. *See* Ground 1, Claim 28 (§VII.A.5).

[2] The limitation "said tubular support" has no antecedent basis. Petitioner therefore interprets this limitation to encompass any "projecting support integral with said one wall" as required by the claim. At best, this term derives its basis from "projecting support," which further supports Petitioner's interpretation.

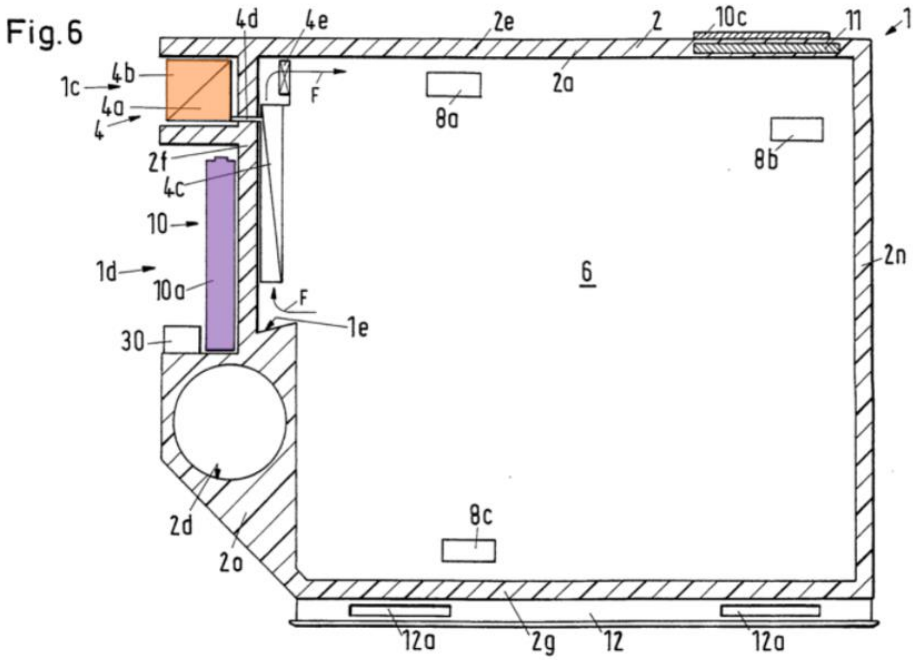


Loeffler's projection defines cavities (green), 1c and 1d. Ex 1006, Fig. 5–Fig. 6. PHOSITA understood that Loeffler's recessed cavities 1c and 1d would be a projecting support integral with said one wall, and thus would be the claimed tubular support. Ex. 1006, 12:17-29; Ex. 1003, ¶¶166-170. A housing encloses the disclosed support. Ex. 1006, Fig. 5.

7. Claim 27: A cargo container assembly as defined in claim 26 and including a refrigeration compressor and a set of storage batteries mounted on said projecting support of said outer shell.

As described with respect to Limitation 19.D, the combination of Kuhn and Loeffler discloses a refrigeration system. §VII.B.2v. Loeffler teaches that its refrigeration "compressor 4a with condenser 4b is arranged in the cavity 1c" as shown in Figure 6. Ex. 1006, 13:18-24, Fig. 6. Loeffler further explains that "[i]n

the cavity 1d in the illustrated embodiment, a battery 10a [purple] is arranged for supplying power to the refrigeration unit 4 [orange]." *Id*., Fig. 6, 12:24-26. PHOSITA understood Loeffler's cavities 1c and 1d, which respectively support the refrigeration compressor and battery, teach this claim. Ex. 1003, ¶¶171-174.



8. Claim 28.

As in Ground 1, Kuhn discloses this claim. §VII.A.5.

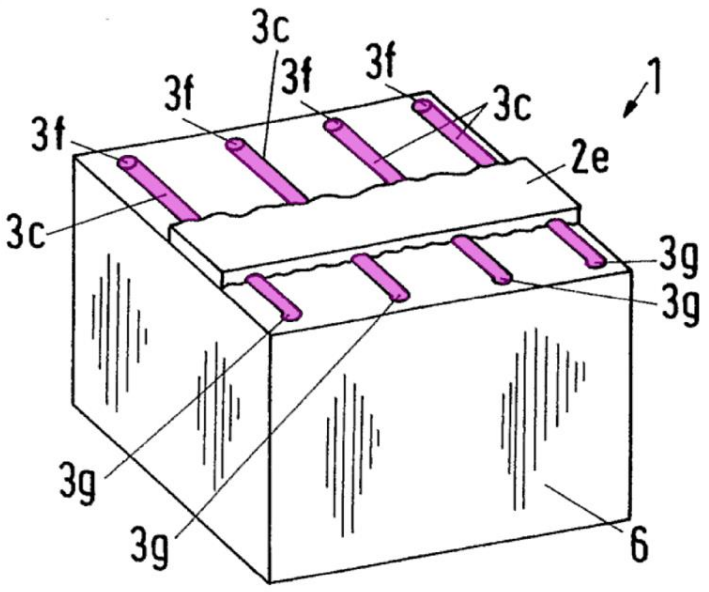
9. Claim 29: A cargo container assembly as defined in claim 19 wherein said bottom wall of said inner shell includes a plurality of parallel spaced members defining air flow passages therebetween, and a rigid floor panel mounted on said spaced members.

As described with respect to Limitation 1.D, the combination of Loeffler with Kuhn teaches a refrigeration system. Ex. 1003, ¶176.

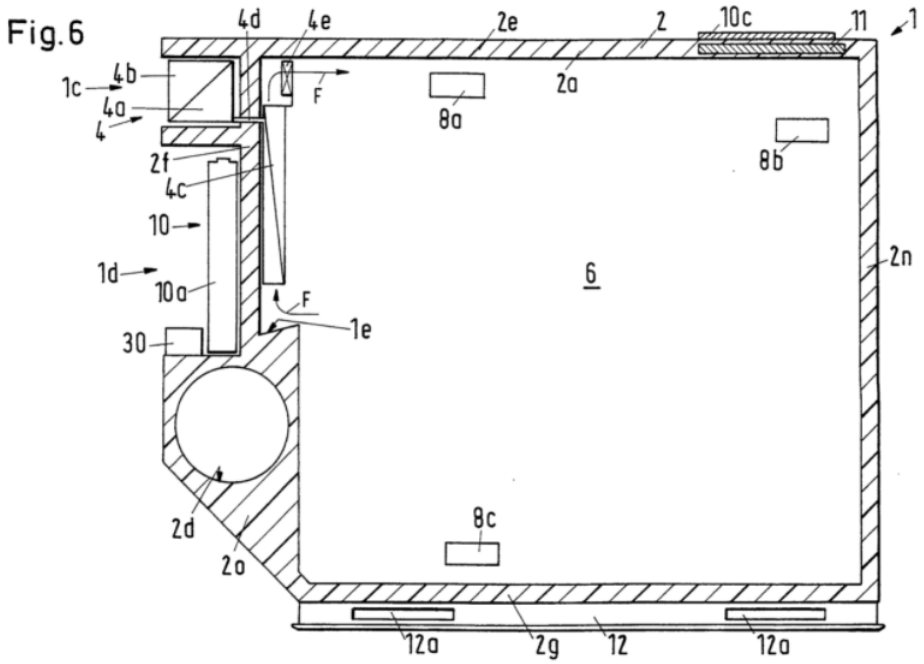
When adding Loeffler's refrigeration system, PHOSITA would include parallel passages to enable uniform temperature distribution. Ex. 1003, ¶177. PHOSITA understood that uniform temperature distribution was a well-known, desirable, and necessary, property of refrigerated units. *Id*. Loeffler discloses this. Ex. 1006, 9:18-34, Figs. 6–7.

For example, Loeffler teaches "U-shaped recesses" 3c (pink, below) between parallel spaced members within the roof or floor which are fluid guide channels. Ex. 1006, 9:18-34. PHOSITA understood the floor sections between the pink recesses constitute a plurality of parallel spaced members, while Loeffler's fluid guide channels (the pink recesses) define air flow passages between those members. Ex. 1003, ¶178; Ex. 1006, Fig. 7.

Fig.7

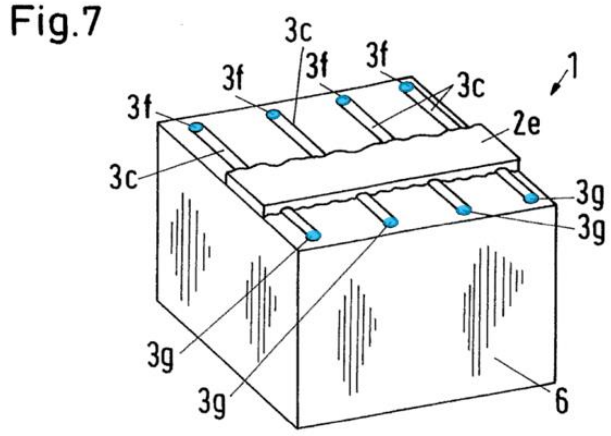


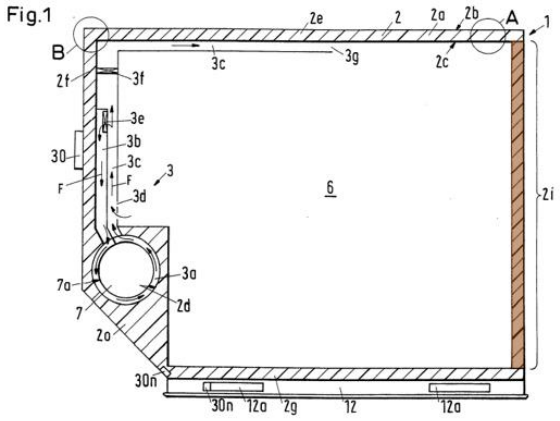
PHOSITA understood that air is a fluid, and likewise understood Loeffler's fluid guide channels between the parallel spaced members disclose the claimed air flow passages. Ex. 1003, ¶179. Loeffler explicitly describes a "gaseous fluid" which is "conveyed via the fluid conveying channel 3c." Ex. 1006, 8:28-9:7. Loeffler's guide channels are located in the roof wall (*id.*, Fig. 6), "in the area of . . . the bottom wall 2g," and "on the floor of the interior 6." *Id.*, 9:29-34. In the latter embodiment, Loeffler teaches a rigid floor panel mounted on the passages. *Id.*, Fig. 6; Ex. 1003, ¶¶176-181.



10. Claim 30: A cargo container assembly as defined in claim 29 wherein said floor panel includes a plurality of laterally spaced openings adjacent said door assembly and providing for air flow through said passages from said cargo receiving chamber.

Loeffler teaches air flow passages to ensure uniform temperature distribution within the interior space. §VII.B.9. These air flow passages, or "fluid conveying channel 3c can have additional outlet opening 3g, through which the fluid is discharged in larger quantities." Ex. 1006, 9:24-25. Loeffler teaches that these "outlet openings 3g are at different locations" including "on the floor of the interior." *Id.*, 9:29-34. PHOSITA understood these openings to be laterally spaced. Ex. 1003, ¶¶182-183. Loeffler's Figure 7 shows the openings (bright blue) adjacent to the perimeter of interior 6, while Figure discloses loading opening 2i (brown) is similarly located on the perimeter of interior 6. Ex. 1007, Fig. 7, Fig. 1.





C. Ground 3: Claims 19–21, 23, 26–28, 31, 33, 35-37, and 41 are Unpatentable Under 35 U.S.C. §103 over Sinclair in view of Kuhn

1. Overview of Ground 3

i. Overview of Sinclair and Kuhn

Sinclair discloses thermally insulated containers with inner and outer "skins." Ex. 1007, 1:13–15, 1:33-36, Fig. 1.

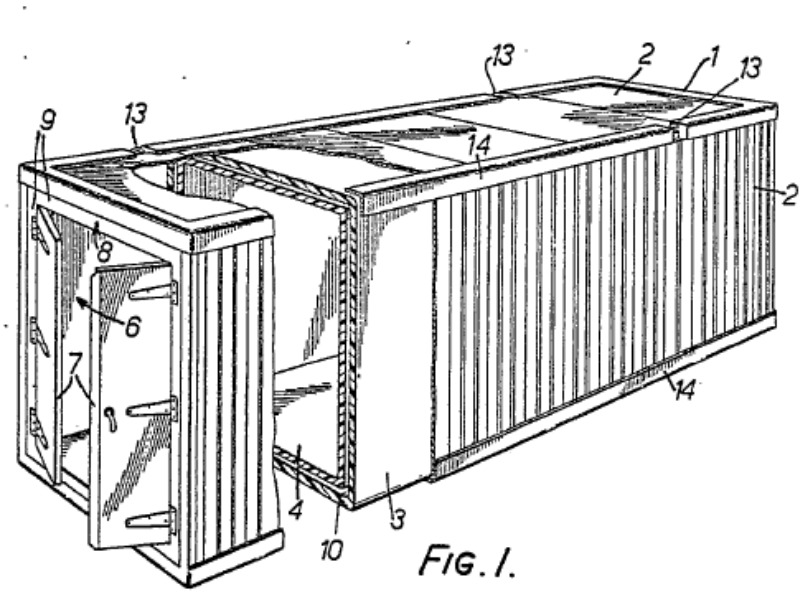


FIG. 1.

Sinclair also teaches "laminated glass-fibre reinforced synthetic resin which provides a high degree of thermal insulation" for its shells (which it calls "casings"). *Id.*, 1:49–56. Sinclair's "box-like" exterior and interior casings are both insulated. *Id.*, 2:19–30, 81–92.

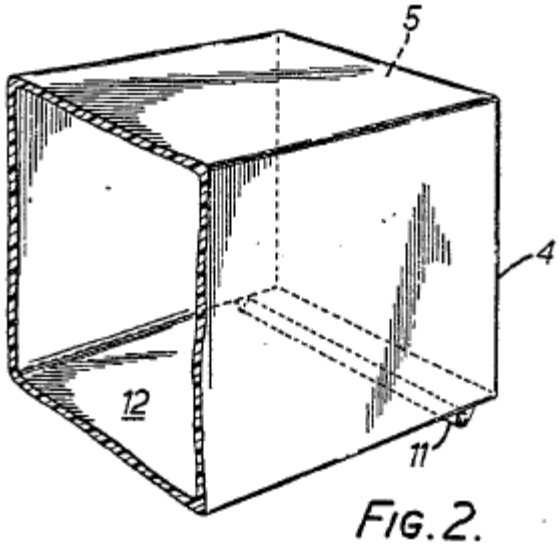


FIG. 2.

The two Sinclair casings are spaced so there is a "clearance" between them that "provides an air space which itself provides thermal insulation." *Id.*, 1:64–66. Sinclair also teaches refrigeration: its container may be "used in conjunction with a refrigeration plant to maintain a desired low temperature within the interior casing." *Id.*, 1:79–82. The refrigeration plant is located on the exterior casing. *Id.*, 1:82–2:6.

Kuhn is described above. §VII.A.1.

ii. Reasons to Combine

Sinclair teaches a shell-in-shell container configuration that employs an air gap between its shells for thermal insulation. Ex. 1007, 1:64–66. It also discloses synthetic material, such as a sprayed-on synthetic material, used as thermal insulation between the containers. *Id.*, 1:43-56. PHOSITA understood Kuhn's VIP panels to further enhance the thermal insulation of the container. Ex. 1003, ¶191. Indeed, adding Kuhn's VIP layering to Sinclair's container would enhance its

thermal insulation but avoid piercing the VIPs since Kuhn uses layers of shock protection elements to protect the VIPs and mitigate damage. Ex. 1005, 6:13-14, 9:19-29.

The ’855 Patent acknowledges that VIPs, including as insulation in containers, were known. Ex. 1001, 4:54-57 (citing U.S. Patent 6,623,413 (Ex. 1011)). PHOSITA understood VIPs to provide enhanced thermal insulation for a fraction of the weight and thickness of foam insulation. Ex. 1003, ¶¶192. These advantages reduced shipping costs and allowed for larger interior spaces and/or smaller overall total volumes for the container. *Id*. VIPs, especially with several layers on all six sides of a container, increase thermal flow resistance. Ex. 1005, 10:12-27. Each of these reasons would motivate PHOSITA to combine Kuhn with Sinclair.

PHOSITA would appreciate Kuhn’s enhanced thermal insulation technique could be applied to Sinclair and confine Kuhn’s VIPs in the existing clearance in between Sinclair’s inner and outer casings. Ex. 1003, ¶193. Indeed, Sinclair contemplates this clearance is sized for “an adjacent lining of synthetic material in sheet form” for enhanced insulation. Ex. 1007, 2:24–29. Sinclair’s lining of synthetic material could be exchanged for Kuhn’s VIP layers. PHOSITA therefore reasonably would have expected success to combine Sinclair with Kuhn and arrive at an improved insulated container. Ex. 1003, ¶¶191-193.

2. Claim 19

i. Claim 19: [19.Pre]

The preamble is not limiting. §VII.B.2.i. Regardless, Sinclair teaches a cargo container that is designed for transporting refrigerated goods. Ex. 1007, 1:9–12. PHOSITA understood Sinclair's teaching of loading and unloading the container with goods to disclose that the container is designed for cargo supported by a pallet. Ex. 1003, ¶¶194-196. To the extent Patent Owner argues that Sinclair does not teach or suggest transporting a temperature sensitive cargo supported by a pallet, that is disclosed by Kuhn. §VII.A.2.i.

ii. Claim 19: [19.A]

Sinclair teaches "an exterior casing 1 of box-like form" (red, below) that includes side, top and bottom walls, as well as a front opening. Ex. 1007, 2:19–24. Sinclair discloses that its exterior casing can be comprised of "laminated glass-fibre reinforced synthetic resin." *Id.*, 1:49–56; Ex. 1003, ¶197. Laminated fiber reinforced resin is considered fiberglass, a composite structure with a combination of plastic resin and glass fibers. Ex. 1003, ¶197. The fibers are impregnated with resin which forms a fiber reinforced resin. *Id.* The '855 Patent acknowledges fiber reinforced shell walls were known. Ex. 1001, 3:43–51 (citing Ex. 1010).

Sinclair also teaches moveable side doors 7 to seal the front opening. Ex. 1007, 1:36–40, Fig. 1.

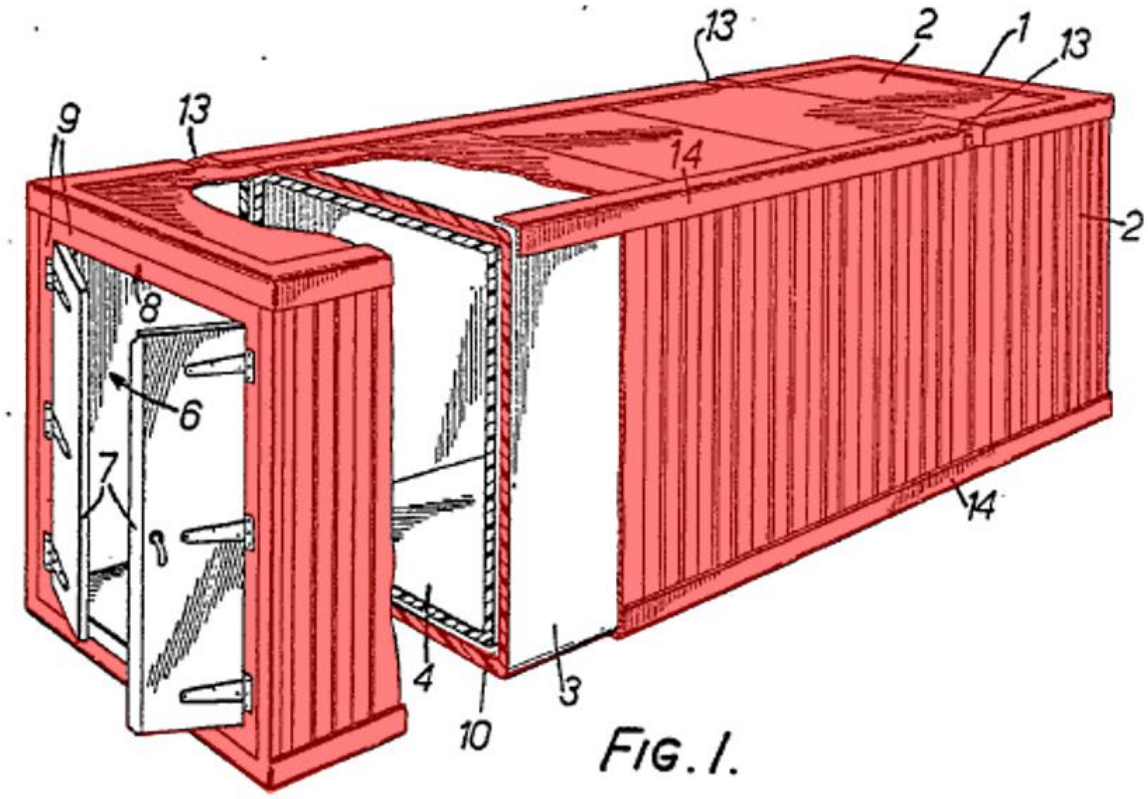


FIG. 1.

iii. Claim 19: [19.B]

Sinclair discloses an interior casing (blue, below) made of composite: a "laminated glass-fibre reinforced synthetic resin," which is a resin impregnated fiber. Ex. 1007, 1:49–56, 2:66–87; §VII.C.2ii.

Sinclair teaches that the "removable interior casing 4 [is] of similar shape to the exterior casing 1 [and] is dimensioned to fit within the latter." Ex. 1007, 2:31–32, Fig. 2.

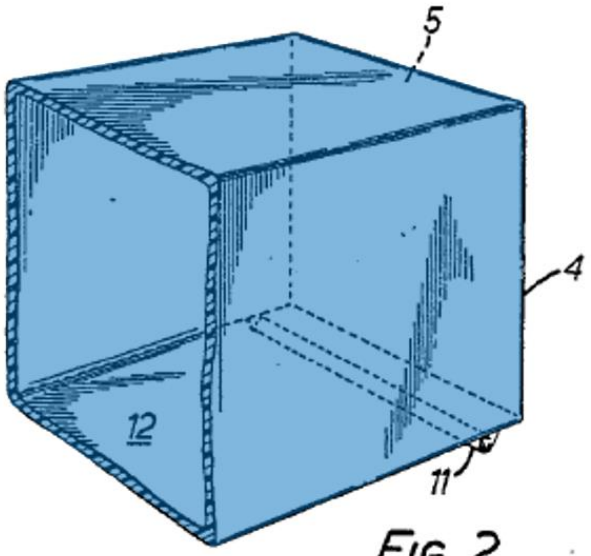


FIG. 2.

Sinclair's interior casing defines a cargo receiving chamber with side, top and bottom walls, since goods are loaded into it. *Id.*, 1:31–40. Ex. 1003, ¶¶199-202

iv. Claim 19: [19.C]

Sinclair teaches a shell-in-shell configuration that employs an air gap between its shells for thermal insulation. *Id.*, 1:64–66. PHOSITA understood to place Kuhn's VIPs in the air gap between its shells for thermal insulation. *See* Reasons to Combine, §VII.C.1.ii. Kuhn discloses Limitation 19.C. §VII.A.2.iv.

The combination of Sinclair in view of Kuhn teaches VIP assemblies confined in the clearance between interior and exterior shells. Ex. 1003, ¶205; Ex. 1007, 1:64–66. Both Kuhn and Sinclair teach multiple layers of insulation, and thus PHOSITA understood this combination discloses multiple VIP layers in an assembly. Ex. 1003, ¶¶203-206; §VII.A.2.iv. PHOSITA understood this combination locates Kuhn's VIP

assemblies between the corresponding side, top, and bottom walls of Sinclair's inner and outer casings (shells) in view of Kuhn's insulation of all six sides of the container. Ex. 1005, 10:12-27.

v. Claim 19: [19.D]

Sinclair teaches a refrigeration unit to cool refrigerated goods within the interior casing. Ex. 1007, 1:79–3:3; *see also id.*, 1:9–12.

3. Claim 20.

As described with respect to limitation 19.C, Sinclair teaches the use of multiple insulation layers, one on the interior casing. (Ex. 1007, 1:49–56), another on the exterior casing (*id.*, 3:24–30), and the clearance air gap. *Id.*, 2:64–70, 3:42–47. Kuhn's VIP assemblies, which PHOSITA would include in Sinclair's clearance air gap, also teach this limitation. Ex. 1003, ¶¶209-210; §VII.B.4; Ground 3, Reasons to Combine (§VII.C.1.ii).

4. Claim 21.

As described with respect to Limitation 19.C, the combination of Sinclair and Kuhn discloses Kuhn's vacuum insulated panel assemblies located in Sinclair's air gap. *See* Ground 3, Reasons to Combine (§VII.C.1.ii); §VII.C.2.iv. As explained for Ground 2, Claim 21, Kuhn discloses "said layers of vacuum insulated panels are separated by an insulation panel." §VII.B.4. As in Ground 2, Kuhn's vacuum insulated panel assemblies disclose this claim. *Id.* Ex. 1003, ¶¶211-213.

5. Claim 23.

As in Ground 1, Kuhn discloses this claim. §VII.A.4.

6. Claim 26.[3]

Sinclair discloses a refrigeration plant to cool within the interior casing. Ex. 1007, 1:79–3:3; *see also id.*, 1:9–12. The plant is connected to the interior casing through conduits with couplings "at the closed end of the exterior casing" that allow the interior casing to be removed. Ex. 1007, 1:82–2:3. PHOSITA understood a refrigeration plant is mounted on this rear wall or closed end of the exterior casing. *Id*. Sinclair teaches the dole plates associated with the plant are mounted on the roof of the interior casing, thus PHOSITA understood Sinclair to likewise mount the refrigeration plant near the roof of the exterior casing to minimize the complexity and length of the conduits. Ex. 1003, ¶217. As such, PHOSITA understood the plant to be mounted using a support integral to a wall of the outer casing enclosed by a housing. *Id.*, ¶¶216-218. Sinclair's shells are comprised of integrally connected side, top, bottom and rear walls. Ex. 1007, Figs. 1, 2.

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[3] As explained above for Ground 2, Claim 26, "said tubular support" is not defined by the claim. This term is interpreted to encompass any "projecting support integral with said one wall." *See* Ground 2, Claim 26 (§VII.B.6).

7. Claim 27.

As explained for Claim 26, PHOSITA understood Sinclair discloses mounting the claimed refrigeration unit to the outer casing or shell through a projecting support. §VII.C.6.

Sinclair is silent as to the specific components of its "refrigeration plant" aside from the use of dole plates mounted inside the interior casing and conduits. Ex. 1007, 1:82–2:3.

Though Sinclair does not expressly address additional components of its "refrigeration plant," it would have been obvious to PHOSITA that a compressor would be included. Ex. 1007, 1:82–2:3; Ex. 1003, ¶220. Moreover, because Sinclair's container is designed for shipping and transport, it would need a source of stored energy for the disclosed refrigeration plant when the unit cannot be connected to power (e.g., while waiting in port). Ex. 1003, ¶¶219-222; Ex. 1007, 2:80–82. Indeed, the '855 Patent acknowledges portable, battery-operated temperature-controlled containers were known. Ex. 1001, 7:8–12 (citing U.S. Patent Publication 2004/0226309 (Ex. 1012)).

8. Claim 28.

This combination discloses this claim. Sinclair teaches that its inner and outer casings are each manufactured, separately, on jigs for component assembly. Ex. 1007, 2:31-80. As can be seen in Figures 1–2, Sinclair's shells are integrally

connected side, top, bottom and rear walls to form a one-piece unit. Ex. 1003, ¶223; Ex. 1007, Figs. 1, 2.

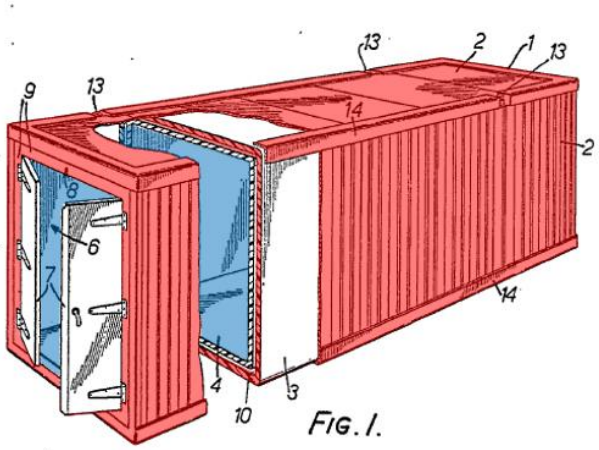

FIG. 1.

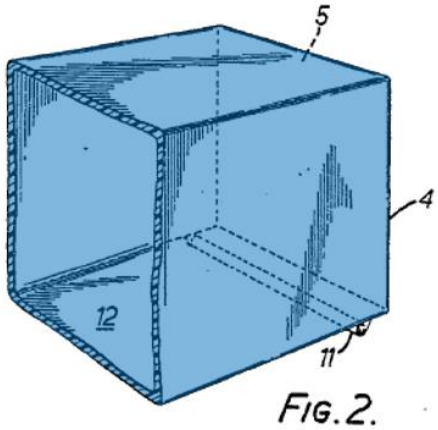

FIG. 2.

Kuhn discloses insulation cassettes comprised of multiple layers of VIPs, each with a core of porous material within a film. §VII.A.5. As described with respect to claim limitation 19.C, it would have been obvious to locate Kuhn's insulation cassettes between the corresponding walls of Sinclair's inner and outer casings. Ex. 1003, ¶¶223-226; §VII.C.4.

> ***9. Claim 31: A cargo container assembly as defined in claim 19 wherein said door assembly comprises a rigid outer door panel, a formed sheet of plastics material connected to said door panel and defining a space therebetween, a vacuum insulated panel assembly disposed between said sheet of plastics material and said outer door panel, and said vacuum insulated panel assembly comprising parallel layers each having a plurality of vacuum insulated panels each including a core of porous material confined within a sealed bag of flexible gas impermeable film.***

Sinclair discloses two insulated doors on the open end of the inner and outer casings. Ex. 1007, 1:37–42, 2:75–79; Ex. 1003, ¶227. For at least the reasons

described in Limitation 19.C, it would have been obvious to PHOSITA to include Kuhn's vacuum panel assemblies between Sinclair's door panels. Ex. 1003, ¶227; §VII.C.2.iv.

Sinclair teaches that insulation is applied between its outer and inner shells. Kuhn explicitly teaches that vacuum insulation elements are provided "in the door element 06." Ex. 1005, 10:12-27. It would have been obvious to PHOSITA to place Kuhn's VIP assemblies (which, as shown in Ground 2, Claim 21, are comprised of parallel layers of VIPs) between Sinclair's door panel and another layer to protect and secure the VIP. Ex. 1007, 1:19–25; Ex. 1003, ¶230; §VII.B.4.

Thus, PHOSITA understood this structure as applied to the door assemblies to disclose a formed sheet of plastics material that defines a space between where Kuhn's VIP assembly would be disposed. Ex. 1003, ¶¶227-232. Kuhn discloses vacuum panel assemblies with a core of porous material evacuated within a sealed film. §VII.A.2.iv.

10. Claim 33: A cargo container assembly as defined in claim 31 and including a second said door assembly, and said door assemblies having overlapping insulated center portions.

Sinclair expressly discloses two door assemblies (green). Ex. 1007, 2:31-50, Fig. 1; §VII.C.9.

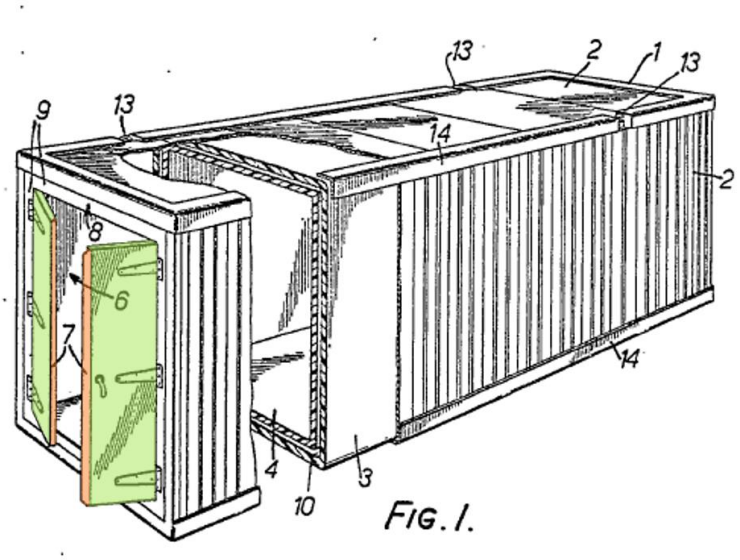

FIG. 1.

PHOSITA understood Sinclair's disclosure teaches overlapping center portions because Sinclair teaches overlapping center portions in the form of "flanges [orange] which effectively seal the open end of the exterior casing." Ex. 1007, 1:75–79. Ex. 1003, ¶¶233-235.

11. Claim 35:

i. Claim 35: [35.Pre] A method of making a cargo container assembly adapted for transporting a temperature sensitive cargo supported by a pallet, said method comprising the steps of:

The preamble of Claim 35 is not limiting. §VII.A.2.i. Regardless, Sinclair discloses the claimed cargo container assembly. §VII.C.2.i. Sinclair further discloses a method of manufacture where its interior and exterior casings are manufactured on

jigs for component assembly, which teaches the claimed method.[4] Ex. 1007, 2:3–6, 66–76; Ex. 1003, ¶¶236-238.

ii. Claim 35: [35.A] forming a box-like composite outer shell including side, top, rear and bottom walls of resin impregnated fibers and defining a front opening with a moveable door assembly for closing the front opening;

Sinclair teaches this step by separately manufacturing (i.e., forming) a box-like composite outer shell having the claimed resin impregnated fibers and front opening. Ex. 1008, 2:70–76; §VII.C.2.ii; Ex. 1003, ¶¶239-240.

iii. Claim 35: [35.B] forming a box-like composite inner shell including side, top, rear and bottom walls of resin impregnated fibers and defining a cargo receiving chamber;

Sinclair teaches this step by separately manufacturing (i.e., forming) a box-like composite inner shell having the claimed resin impregnated fibers. §VII.C.2.iii; Ex. 1008, 2:70–76; Ex. 1003, ¶¶241-242.

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[4] The combination teaches each of the claimed steps, however, the claim language does not require that the claimed steps be performed in the order written. *See Baldwin Graphic Sys., Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1345 (Fed. Cir. 2008) (citing *Interactive Gift Express, Inc. v. Compuserve Inc*., 256 F.3d 1323, 1343 (Fed. Cir. 2001)).

iv. Claim 35: [35.C] locating vacuum insulated panel assemblies adjacent the side, top, rear and bottom walls of the inner shell;

Sinclair teaches locating thermal insulation material between the side, top, rear, and bottom walls of the inner and outer shells. Specifically, Sinclair teaches "sprayed-on synthetic foam" insulation (green) which expands to fill a cavity and is located between the inner and outer shells. Ex. 1007, 2:24–28, Fig. 1.

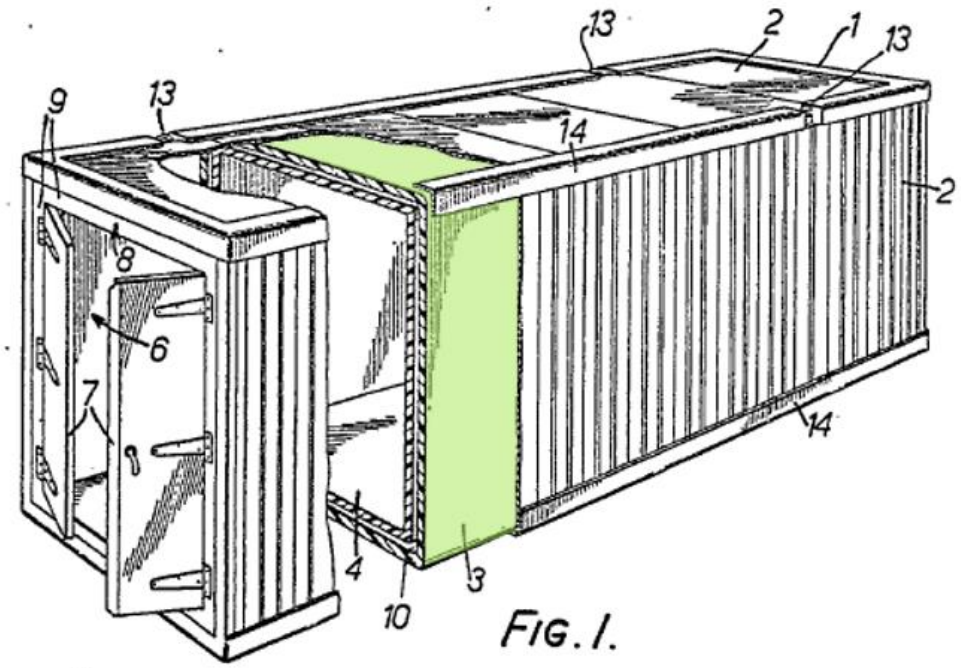


FIG. 1.

As explained above with respect to Claim 19.C, PHOSITA understood to replace the thermal insulation of Sinclair with the VIPs of Kuhn. §VII.C.2.iv; Reasons to Combine, §VII.C.1.ii. Sinclair teaches that Kuhn's VIP assemblies

would be located on the inner shell. Sinclair teaches a packing block 15, on the inner shell, which serves as an insulating air space. Ex. 1007, 2:93-101, Fig. 4.

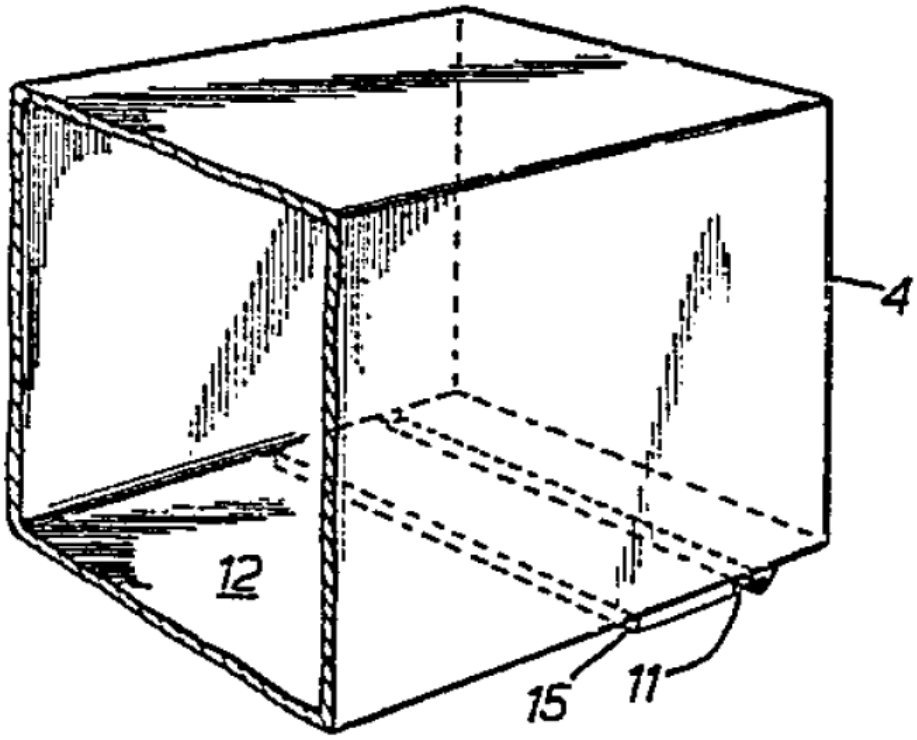


FIG. 4.

As described with respect to claim limitation 19.C, PHOSITA understood it would have been obvious to locate Kuhn's insulation cassettes between the corresponding walls of Sinclair's inner and outer casings. Ex. 1003, ¶245; §VII.C.2.iv. Specifically, PHOSITA understood locating Kuhn's VIPs in or around Sinclair's packing block, which is attached to the interior casing, 4. Ex. 1003, ¶245; Ex. 1007, 1:31–36; §VII.C.2.iv. The combination therefore teaches this limitation. Ex. 1003, ¶¶243-246.

v. Claim 35: [35.D] inserting the inner shell and vacuum insulated panel assemblies into the outer shell, and;

The combination teaches this step. Sinclair manufactures the inner casing separate from the outer casing as explained above, and Kuhn's VIPs would be added to the inner casing before insertion. §VII.C.2.iv. After the inner and outer casings have been formed, Sinclair teaches to insert the inner casing into the outer casing. Ex. 1008, 1:57-74; Ex. 1003, ¶¶247-249.

vi. Claim 35: [35.E] installing a power operated refrigeration unit with an evaporator within the inner shell and connected to a motor driven compressor outside of the outer shell.

Sinclair teaches to install the claimed power operated refrigeration unit and motor driven compressor on the outside of the outer shell. §§VII.C.6–7; Ex. 1003, ¶250. Sinclair discloses the claimed evaporator because it teaches that "dole plates [are] mounted below the roof of the interior casing." Ex. 1007, 1:79–84; Ex. 1003, ¶250. PHOSITA would understand that a dole plate is an evaporator. Ex. 1003, ¶¶250-252. Sinclair installs its refrigeration unit after insertion of the inner shell so the breakable couplings could be connected to complete the refrigeration system, including the motor driven compressor located outside of the outer shell. *Id.*, 2:3–6.

12. Claim 36: A method as defined in claim 35 including the steps of: forming each of the vacuum insulated panel assemblies with substantially flat and parallel insulation layers each having a plurality of vacuum insulated panels including a core of porous material confined within an evacuated sealed bag of flexible gas impermeable film.

As shown for Claim 20, Kuhn discloses forming the claimed vacuum panel assemblies. §VII.C.3; Ex. 1003, ¶¶253-254.

13. Claim 37: A method as defined in claim 36 including the step of: surrounding the layers of vacuum insulated panels and the insulation panel of each of the vacuum insulated panel assemblies with a flexible film of plastics material to form a vacuum insulated cassette.

Kuhn discloses this step. As shown for Claim 21, Kuhn discloses forming the claimed vacuum insulated cassettes comprised of VIPs surrounded by a flexible film of plastics material. §VII.C.4; Ex. 1003, ¶¶255-256.

14. Claim 41: A method as defined in claim 35 including the step of overlapping edge portions of the vacuum insulated panel assemblies within the side, top and bottom walls.

The combination discloses this step. Ex. 1003, ¶¶257-260. As seen in Figure 1, the clearance between the inner and outer casings results in overlapping edge portions. Ex. 1007, Fig. 1; Ex. 1003, ¶257.

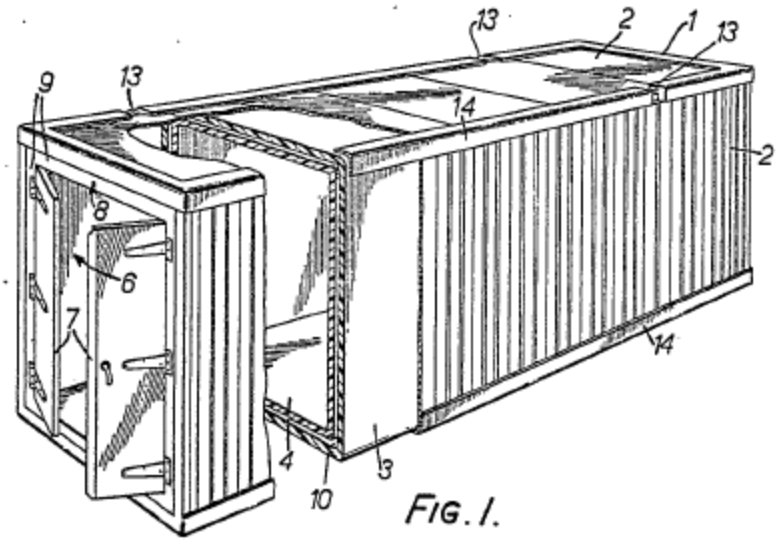


FIG. 1.

When the VIP assemblies of Kuhn are "arranged between" the shells of Sinclair, they are arranged so the edge portions overlap, as taught by Kuhn. Ex. 1005, Figs. 3, 6 (exemplified by the red lines); Ex. 1003, ¶258. Kuhn discloses that when several VIP layers are used, "the butt joints 30 should be offset with respect to one another." Ex. 1005, 10:12-27; *see* Ground 1, Claim 23 (§VII.A.4).

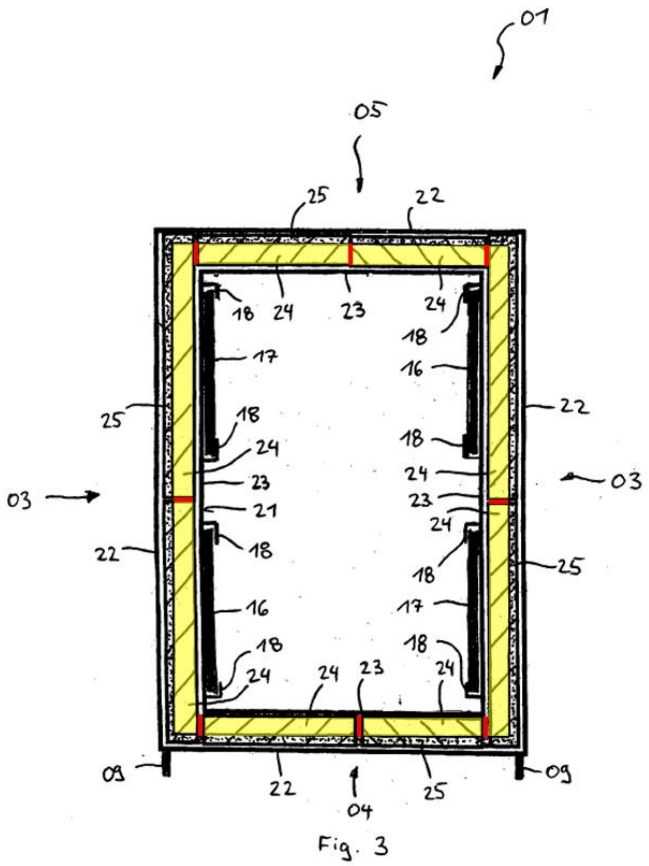


Fig. 3

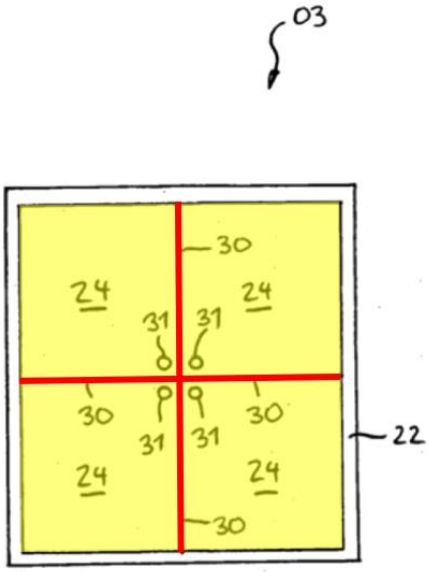


Fig. 6

Both Kuhn and Sinclair teach to avoid gaps in insulation to ensure optimal thermal insulation, which would be obvious to PHOSITA. Ex. 1005, 10:12-27, Claims 38, 39; Ex. 1007, 1:36–42. PHOSITA understood the combination of Sinclair in view of Kuhn to disclose this step. Ex. 1003, ¶¶257-260.

D. Ground 4: Claims 19–21, 28, 31, and 35–37 are Unpatentable Under 35 U.S.C. §103 over Ekerot in view of Cur

1. Overview of Ground 4

i. Overview of Ekerot

Ekerot teaches a temperature-controlled freight container made of an outer shell (red), an inner shell (blue), and an insulating material in the "interspace between the shells" (yellow). Ex. 1008, Abstract, [0026].

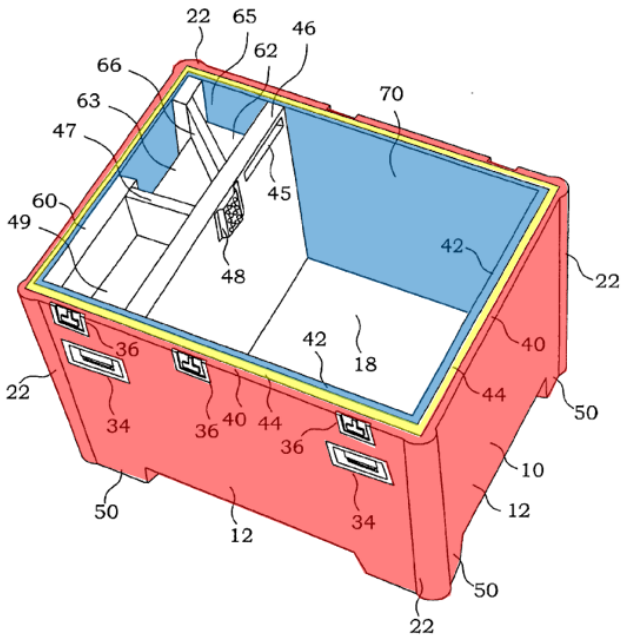


Fig. 2

The shells are cast molded separately and the inner shell is inserted into the outer shell. *Id.*, [0011]–[0012], Fig. 3.

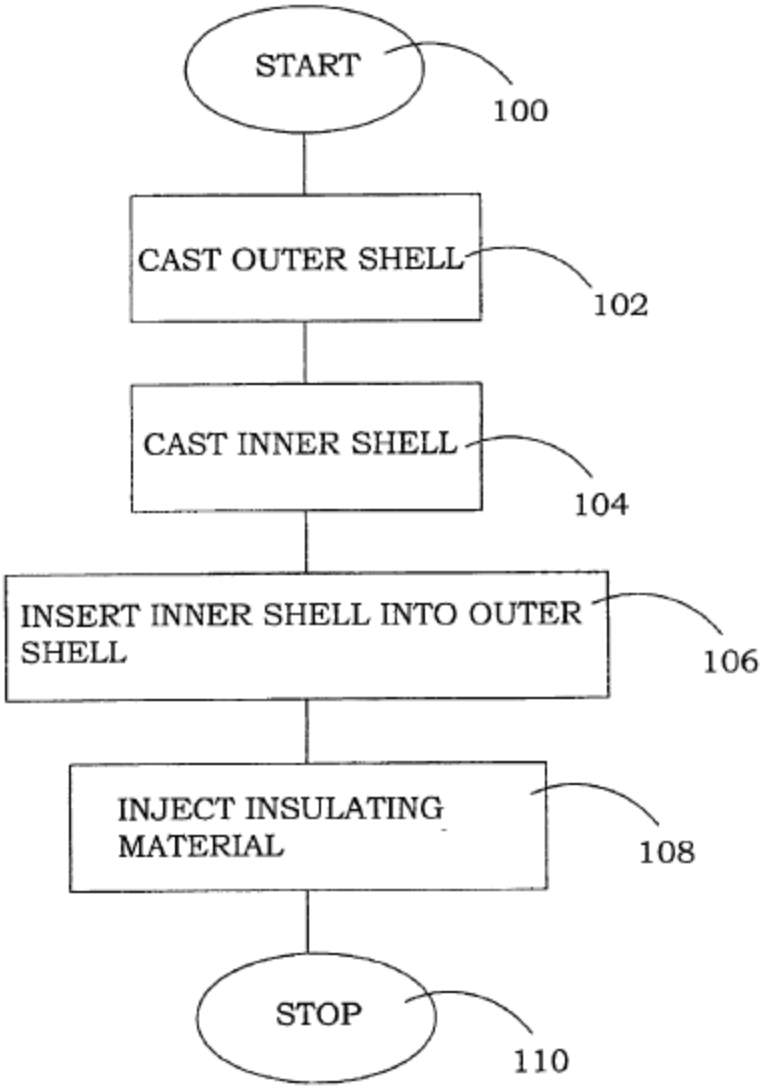


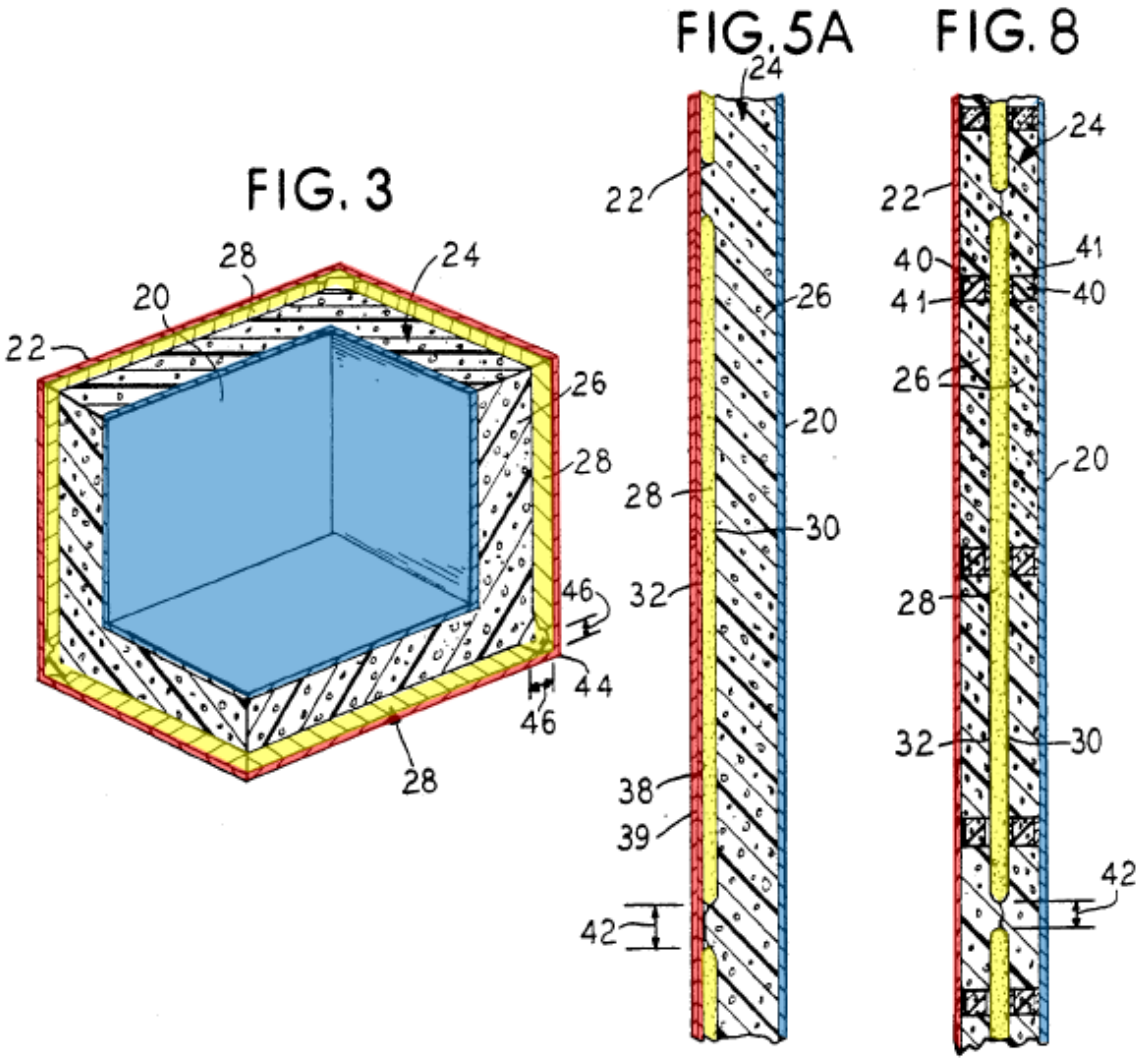
Fig. 3

Ekerot teaches both its inner and outer shells can made from reinforced polymer materials. *Id.*, [0027]. Ekerot also discloses VIPs. *Id.*, [0040]–[0041].

ii. Overview of Cur

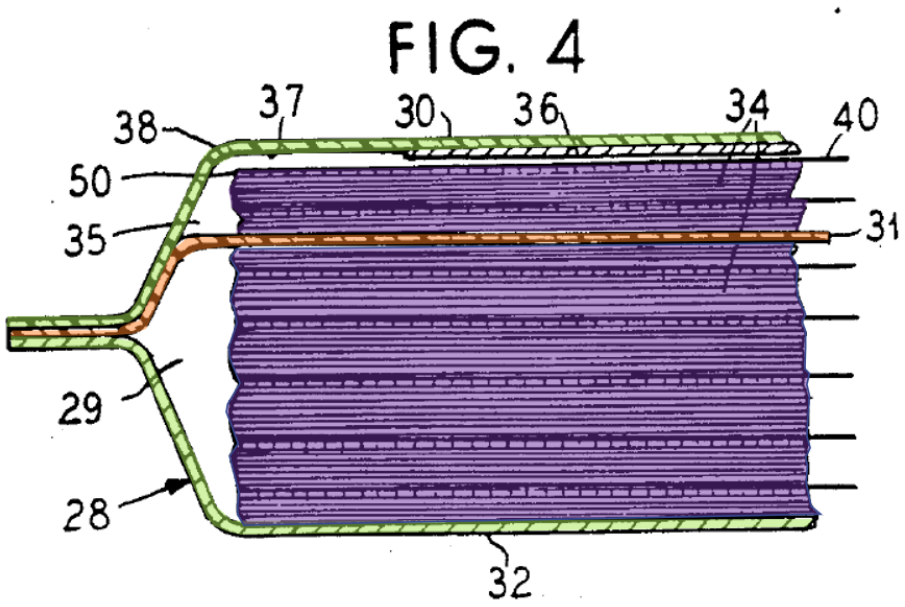
Cur teaches a refrigerated container with multiple VIPs 28 (yellow) spaced within its walls. Ex. 1009, 1:60–64, 2:59–63, 4:16–24. Specifically, the VIPs are

inserted into the space between the "interior liner wall 20 [blue]" and "exterior outer wrapper 22 [red]." *Id.*, 4:3–21. Cur further teaches one or more layers of "insulation material 26 [uncolored] such as polyurethane foam." *Id.*, Figs. 3, 5A, 8.



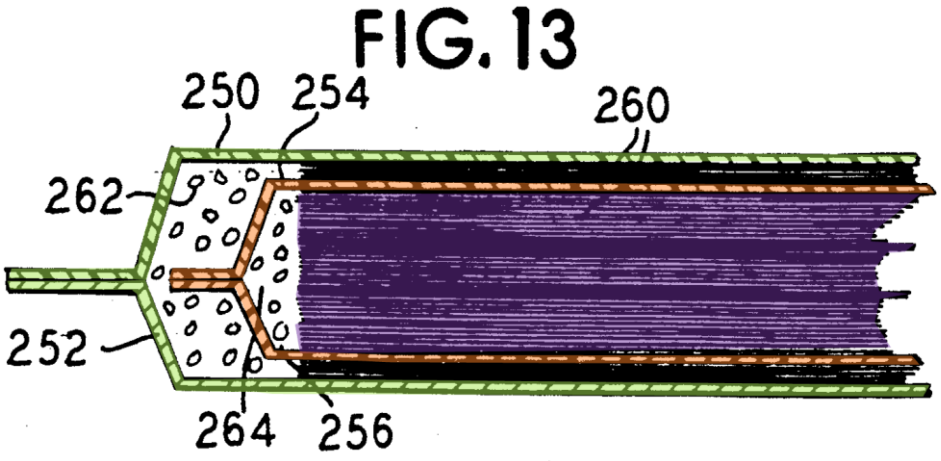
Cur describes "multicompartment vacuum insulation panels," each of which "is preferably constructed with a pair of gas impermeable outer film walls 30, 32" (green). *Id.*, 4:38-52. Located between the outer film walls is "at least one gas impermeable inner wall 31" (orange) which "form[s] at least two adjacent

compartments." *Id.* Inside each compartment is "microporous filler insulation materials 34 [purple] that support the barrier film walls 30, 31, 32 of the panel when atmospheric gases are evacuated from the interior compartments." *Id*. Alternatively, Cur also teaches the use of "conventional single compartment" VIPs. *Id*., 4:52:55.



Cur's multicompartment embodiment is described in additional detail in its "copending patent application," issued as U.S. Patent 5,018,328. *Id.*, 1:64–2:3 (citing Ex. 1016), 4:38–52. PHOSITA understood Cur incorporates '328 Cur by reference and therefore each of '328 Cur's teachings are also disclosed by Cur. *See Husky Injection Molding Sys. Ltd. v. Athena Automation Ltd*., 838 F.3d 1236, 1248 (Fed. Cir. 2016) ("The incorporation standard relies only on the reasonably skilled artisan and his or her ability to deduce from language, however imprecise, what a host document aims to incorporate.").

'328 Cur teaches a vacuum insulation panel structure "wherein four separate layers … comprise two completely independent sealed bags." Ex. 1016, 9:30-38, Fig. 13. Specifically, '328 Cur discloses "an outer bag . . . which completely encapsulates and surrounds an internal bag." *Id.* Specifically, '328 Cur notes that the VIP structure includes "a main [outer] vacuum insulation compartment" and "[o]ne or more coextensive secondary [inner] vacuum insulation compartments." *Id.*, 3:39-47.



iii. Reasons to Combine

Ekerot minimizes heat transfer by removing aluminum framework around insulation. Ex. 1008, [0003]. Ekerot additionally discloses that "interspace 44 between the shells 40, 42 is filled with an insulating material." Ex. 1008, [0026]. Ekerot discloses that the insulating material may be insulating panels or polyurethane and, in some examples, VIPs. Ex. 1008, [0027], [0035], [0041].

Ekerot only explicitly discloses vacuum panels between "the ice box opening 49 and the adjacent inner shell 42 wall" and not specifically in the interspace. *Id.* PHOSITA, however, would have had reason to use VIPs as insulating material throughout interspace 44 as taught by Cur. Ex. 1003, ¶274. Cur discloses that VIPs are well known for use in refrigerator cabinets. Ex. 1009, 1:6-8. Indeed, Cur teaches that its VIPs can be used in conjunction with polyurethane foam insulation "to maximize the thermal efficiency and structural rigidity of the cabinet." Ex. 1009, 1:60-64. Polyurethane as a form of insulation is taught by Ekerot. Ex. 1008 [0027].

Moreover, Cur's panels are designed with barrier films having a thermal break. *Id.*, 2:35–48. Finally, PHOSITA understood Cur's thinner panels achieve Ekerot's goals of lighter-weight containers with attenuated heat transfer, which provides further reason to select Cur's panels. Ex. 1003, ¶274; Ex. 1008, [0002], [0011]. The addition of Cur's panels to Ekerot's interspace would improve the thermal efficiency of Ekerot. Ex. 1003, ¶274.

PHOSITA also understood that Ekerot's structure would permit Cur's VIPs without the need for foam to secure and protect the panels. Ex. 1003, ¶275. Ekerot's composite shells maintain structural rigidity without metal reinforcement. Ex. 1008, [0027]. Locating Cur's panels in the interspace defined by Ekerot would remove the need for insulating foam, as the panels would be buttressed between Ekerot's shells.

Ex. 1003, ¶275. Without needing foam, PHOSITA could leverage additional layers of Cur's thin vacuum panel assemblies in the interspace for greater insulation. *Id*.

PHOSITA would have reasonably expected success to combine both references because they insulate their walls. Ekerot's interspace is specifically designed for insulation, such as insulation panels. Ex. 1003, ¶¶273-276. Cur's panels are specifically designed for use in refrigeration. Ex. 1009, 1:6-8.

2. Claim 19

i. Claim 19: [19.Pre]

The preamble of Claim 19 is not limiting. §VII.A.2.i. Regardless, Ekerot's cargo container is designed to transport temperature sensitive goods by freight or by air. Ex. 1008, [0002], [0005]. PHOSITA would appreciate a freight or air-based transportation cargo container would be designed to receive cargo supported by a pallet. Ex. 1003, ¶277. Indeed, it would be obvious that containers to ship goods would be sized to receive a pallet to avoid unnecessary loading and unloading. *Id*. The '855 Patent acknowledges containers adapted to ship cargo supported by a pallet were known. Ex. 1001, 1:19–30 (citing U.S. Pat. Nos. 5,187,947; 6,860,115 and Ex. 1012).

ii. Claim 19: [19.A]

Ekerot teaches a box-like composite outer shell 40 (red) having side, top and bottom walls. Ex. 1008, [0027], Fig. 2. The outer shell is a polymer such as vinyl

ester reinforced by "glass fibre, Kevlar, and carbon fibre." *Id.*, [0027], [0034]. "Glass fibre, Kevlar, and carbon fibre" are all examples of resin impregnated fibers. Ex. 1003, ¶280.

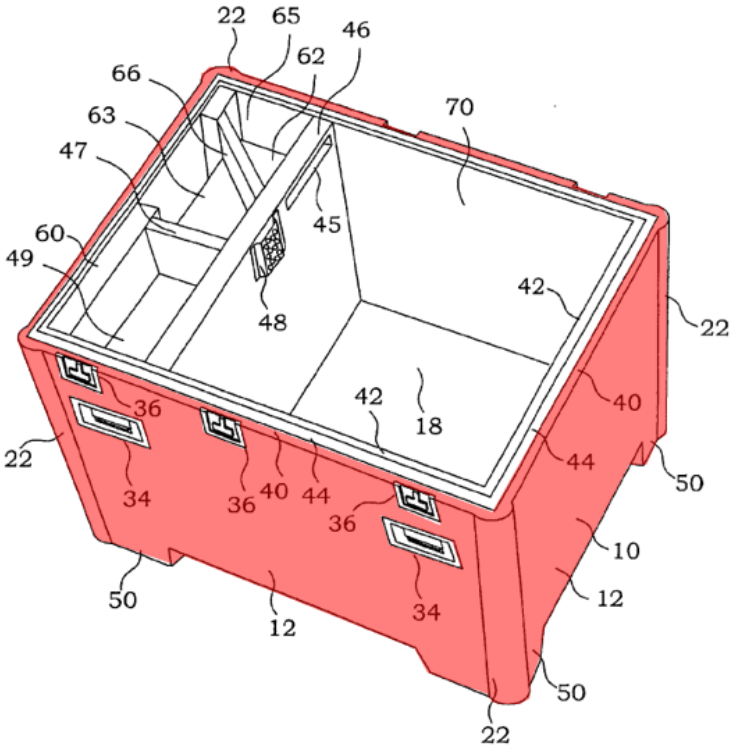


Fig. 2

While Ekerot's figures show the door assembly on the top, locating the opening on another container wall, such as the front wall, is disclosed. Ex. 1008, [0037]. PHOSITA understood this to teach a front opening (with a door) in the outer shell. Ex. 1003, ¶¶280-282.

iii. Claim 19: [19.B]

Ekerot teaches a box-like composite inner shell 42 (blue). Ex. 1008, [0027], Fig. 2. The inner shell is polyester reinforced by a composite that is made up of glass

fibre and carbon fibre. Ex. 1008, [0027]. Further, "at least one shell 40, 42, at least partly comprising polyester, polyvinyl ester, glass fibre, carbon fibre or kevlar or another polyestric or non-metallic material." Ex. 1008, [0028]. As noted in Limitation 19.A, glass fibre and carbon fibre are resin impregnated fibers.

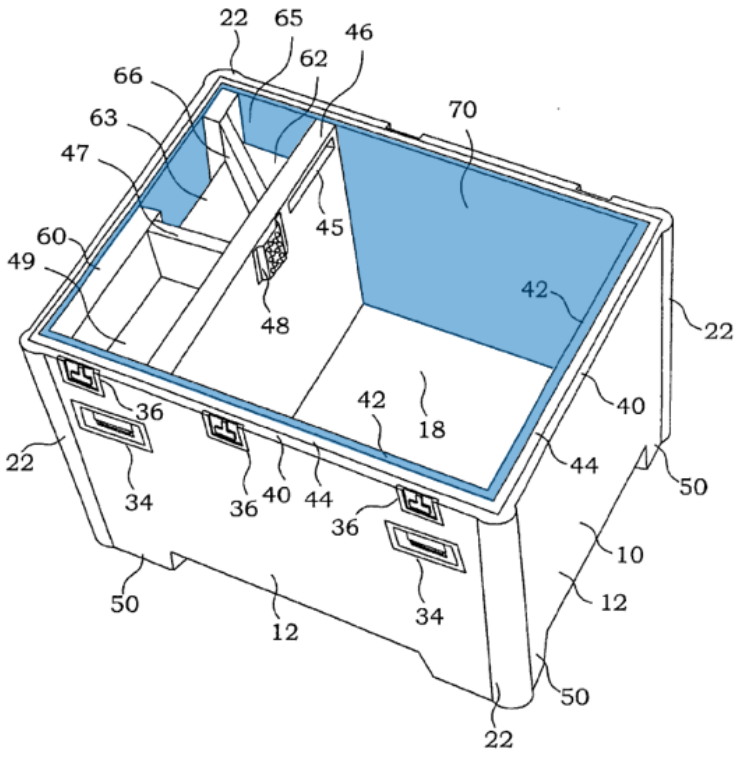


Fig. 2

An "interspace 44" is taught between the inner and outer shell, with the inner shell disposed inwardly from the walls of the outer shell. Ex. 1008, [0027]; Ex. 1003, ¶¶283-285.

iv. Claim 19: [19.C]

Ekerot discloses "[a]n interspace 44 between the shells 40, 42 [which] is filled with an insulating material [yellow]." Ex. 1008, [0026], Fig. 2.

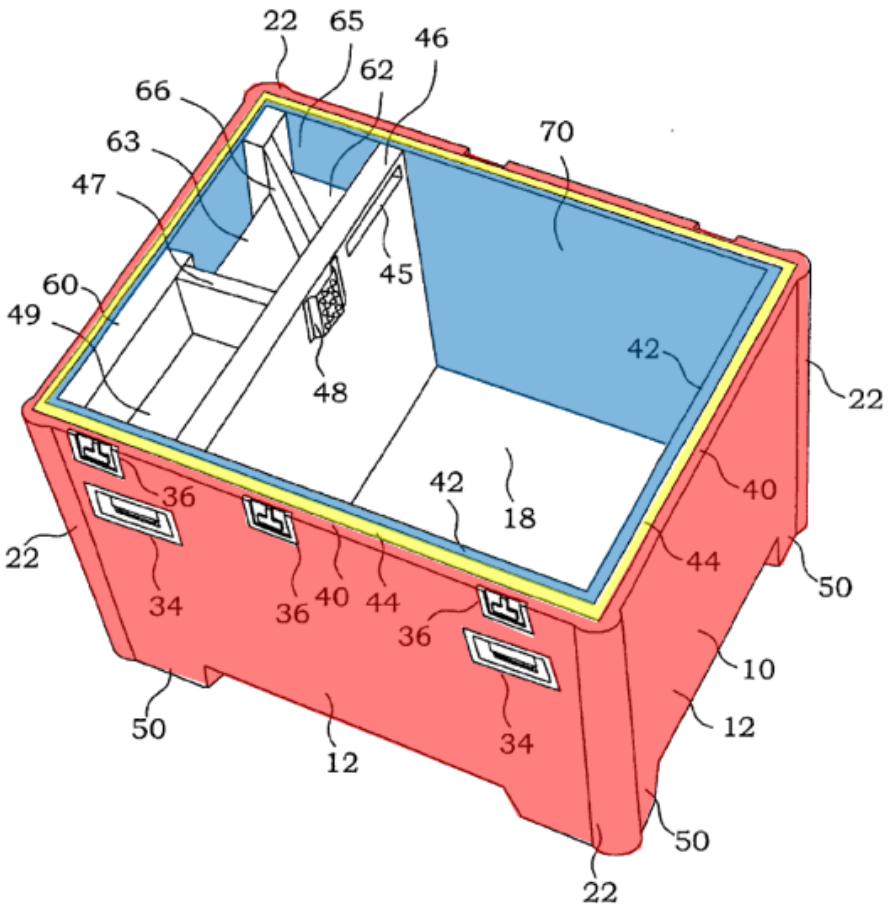


Fig. 2

Ekerot teaches that vacuum panels are suitable insulation material. Ex. 1008, [0040]. Based on Ekerot's suggestion, it would be obvious for a PHOSITA to use Cur's vacuum panel assemblies as insulation between the shells. Ex. 1003, ¶¶286-288. Cur discloses VIPs that use microporous filler insulating material surrounded by gas-impermeable outer film walls. Ex. 1009, 4:38–47, Claim 1.

v. Claim 19: [19.D]

PHOSITA understood a "refrigeration system" would include a broad range of systems designed to cool the chamber, including active and passive cooling

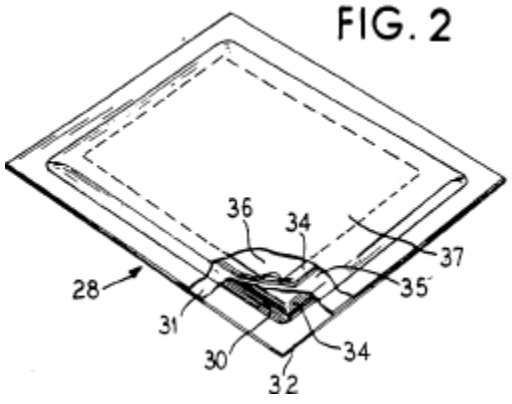
systems that may use dry ice or other chemicals to cool or maintain a cool temperature in a space. Ex. 1003, ¶289.

Ekerot discloses refrigeration of the container with an ice box. Ex. 1008, [0041]. A fan distributes the cool air into the goods compartment. *Id.*, [0042].

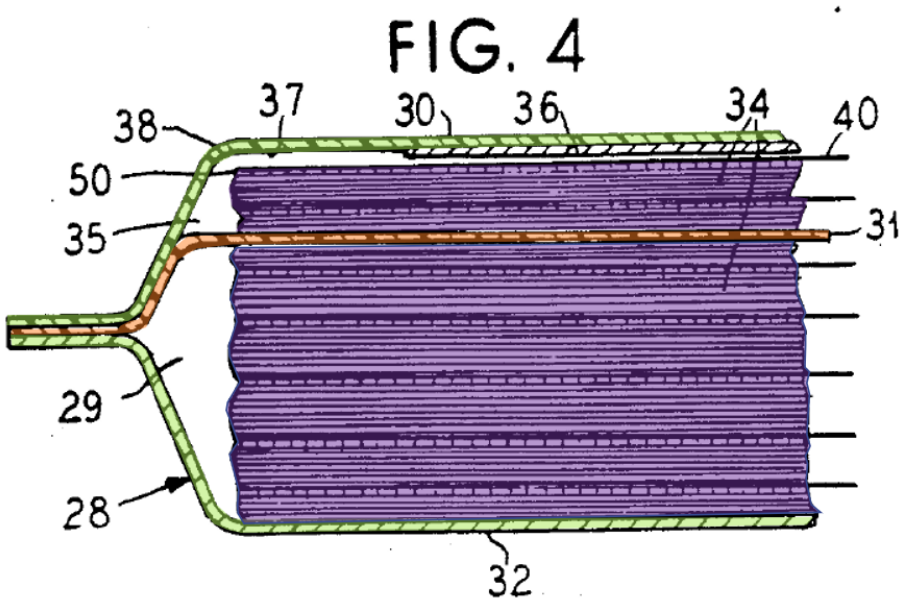
Moreover, Cur teaches active refrigeration. Ex. 1009, 1:53–57. Thus, even if Patent Owner argues the claimed refrigeration system requires an active cooling system, PHOSITA understood this combination to teach refrigeration. Ex. 1003, ¶¶289-292.

3. Claim 20.

As is described with respect to Claim 19.C, the combination discloses VIPs. Ex. 1003, ¶293. Cur discloses substantially flat VIPs including "one or more microporous filler insulation materials." Ex. 1009, 4:37–47. Figure 2 depicts a vacuum panel assembly. *Id.*, Fig. 2. Each assembly is sealed by a gas-impermeable barrier film laminate, which PHOSITA understood would be flexible and evacuated. Ex. 1009, 4:55–64, 5:2–17, Claim 1, Fig. 2; Ex. 1003, ¶294.

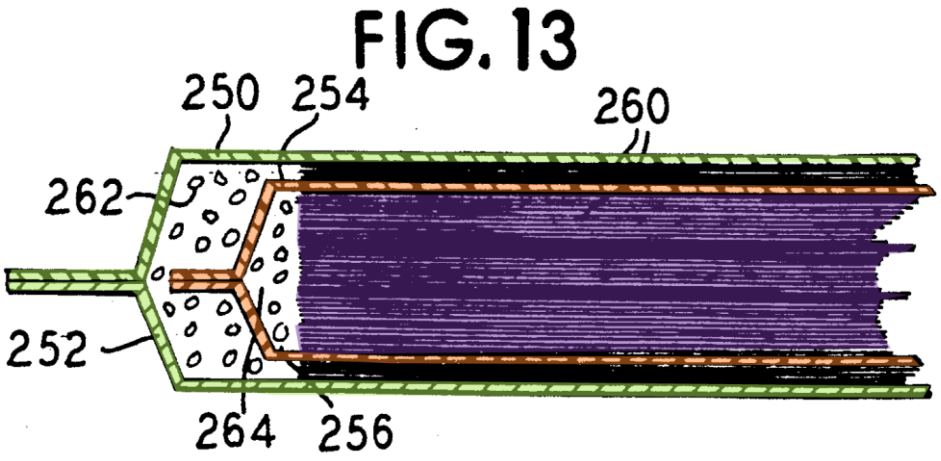


Cur's assemblies have more than one vacuum panel. Ex. 1003, ¶295. Cur discloses vacuum panel assemblies with "at least two vacuum sealed compartments" that "are hermetically sealed to each other about their outer edges [green] to define at least two vacuum sealed compartments [29, 35] . . . or more." Ex. 1009, 4:48–52, Fig. 4.

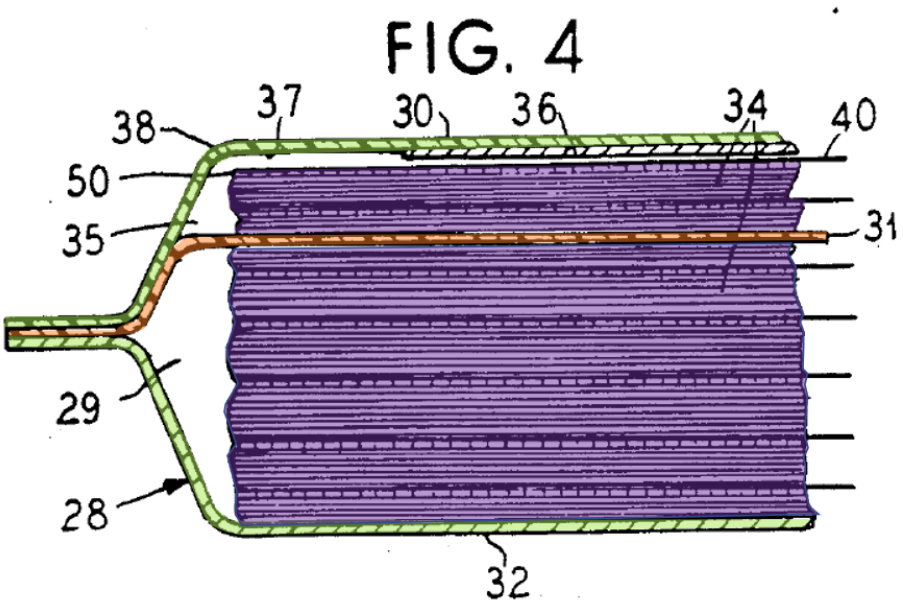


Cur's "at least two" compartments, shown as 29 and 35 above, teach the claimed "each of said insulation cassettes including a plurality of vacuum insulated panels" limitation. Ex. 1003, ¶296. Moreover, '328 Cur (incorporated by reference) teaches a vacuum insulation panel structure "wherein four separate layers … comprise two completely independent sealed bags." Ex. 1016, 9:30-38, Fig. 13. Specifically, '328 Cur discloses "an outer bag … which completely encapsulates and

surrounds an internal bag." *Id.* '328 Cur also teaches that its VIP structure includes "a main [outer] vacuum insulation compartment" and "[o]ne or more coextensive secondary [inner] vacuum insulation compartments." *Id.*, 3:39-47.



'328 Cur explains "multiple compartments greatly enhances the effective insulation lifetime" due to the slowed permeation rate caused by the marginal pressure differential between the inner and outer vacuum compartments. Ex. 1016, 5:66–6:2, 8:54–64. Cur expressly recites '328 Cur's multicompartment embodiment. Ex. 1009, 4:38–48. In that embodiment, sub-compartments 34 would each comprise a sealed VIP, each within compartments 29 or 35, as confirmed by the black line encircling each sub-compartment shown in purple on annotated Figure 4 of Cur below:

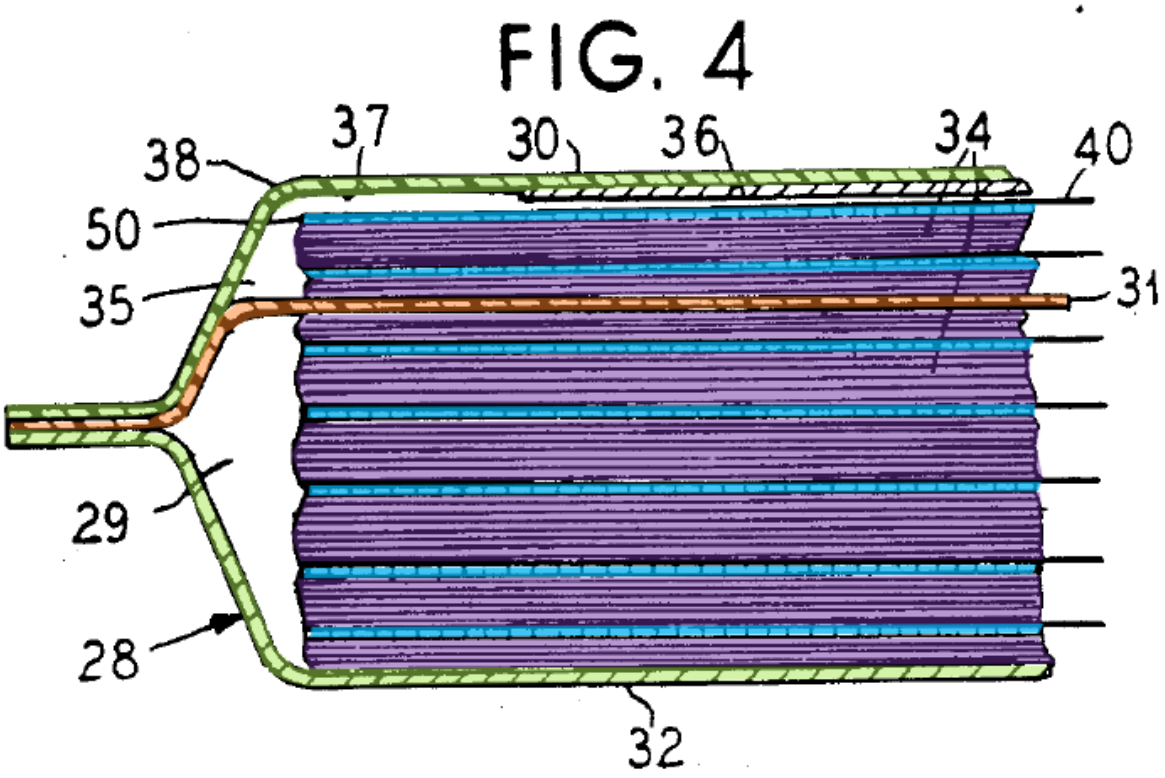


Each sub-compartment is filled with a microporous insulating material (34, above), sealed as shown in Figure 13 of '328 Cur, and evacuated. Ex. 1009, 4:38–47; Ex. 1016, Fig. 13. Cur's structure thus employs multiple VIPs within parallel insulation layers to achieve its thin design. Ex. 1003, ¶299. Moreover, Cur teaches multiple vacuum panel assemblies (as in Figure 4) inserted between the liner and the wrapper of its walls. Ex. 1003, ¶300; Ex. 1009, 4:16–24.

If Patent Owner argues Cur's VIP assembly does not itself disclose the claimed assemblies, the combination of multiple layers of Cur's VIP assembly between Ekerot's shells would teach the claim. Ex. 1003, ¶300. Ekerot discloses that vacuum panels are suitable insulation material. Ex. 1008, [0040]. Thus, PHOSITA would have had reason to use Cur's vacuum panel assemblies as the insulation between the shells. Ex. 1003, ¶¶293-301.

4. Claim 21.

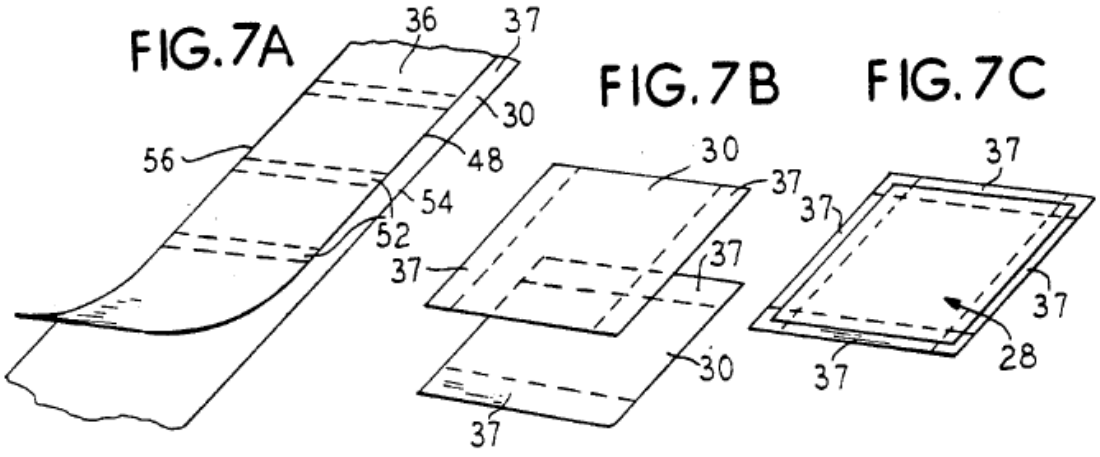
The combination teaches this claim. Ex. 1003, ¶302. Figure 4 of Cur depicts a vacuum insulated panel assembly that includes a cassette. Ex. 1009, Fig. 4. As explained above, Cur discloses a "multicompartment" VIP assembly and PHOSITA would have understood each sub-compartment 34 to be its own sealed VIP or arrangement of VIPs within each insulation layer. Ex. 1009, Fig. 4; Ex. 1003, ¶302.



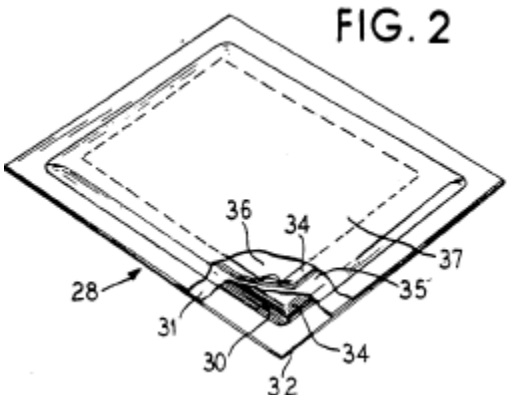
Each sub-compartment (consisting of one or more VIPs) is separated by an insulation panel. Specifically, each sub-compartment of microporous core material 34 (purple) is separated by a layer 50 (bright blue) that consists of a metal foil layer.

Ex. 1009, 4:44–5:29; Ex. 1016, 7:7–21. These foil layers, as taught in '328 Cur, serve as radiation shields, hamper convective transfer by forcing air around them, and impinge conductive heat transfer through thermal breaks. Ex. 1003, ¶303; Ex. 1016, 6:61–7:6. Thus, PHOSITA understood the blue inner layers disclose a metal foil layer (insulation panel) which separates VIPs (i.e., compartments (purple)). Ex. 1003, ¶303.

Both the sub-compartments (consisting of one or more VIPs) and the foil insulation panels are surrounded by the barrier film 30 and 32 (green) to form a vacuum insulated cassette. Ex. 1009, 2:49–58, Fig. 4. Cur explains its barrier film surrounds the VIP structure described above and provides a thermal break to prevent transmission of heat. Ex. 1009, 4:64–5:2, Figs. 7A–C.



This barrier film discloses the flexible film of plastics material surrounding the cassette of the claim. Ex. 1003, ¶¶305-306; *see also* Ex. 1009, Fig. 2.



As in Claim 20, the combination discloses applying multiple layers of Cur's vacuum panels to Ekerot. §VII.D.3. Ex. 1003, ¶¶302-308.

5. Claim 28.

Ekerot discloses this claim. Ekerot teaches its inner and outer shells are each separately "formed together as one integrated part." Ex. 1008, [0011]; [0027] ("As mentioned, the casting of polymer material enables a container 1 to be formed as substantially one integrated part"). Specifically, Ekerot discloses casting the outer shell and the inner shell as separate components. Ex. 1008, [0030]-[0031]. PHOSITA would have understood this discloses the claimed "integrally connected . . . walls to form a one-piece unit." Ex. 1003, ¶¶309-311.

The claimed insulation cassettes are taught by the combination. §VII.D.4.

6. Claim 31.

Ekerot teaches that its "main lid 30" comprises "top wall 16" which is comprised of a reinforced polymer material. Ex. 1008, [0011], [0037]. Alternatively, Ekerot discloses the container lid on another container wall. *Id*. PHOSITA

understood Ekerot's main lid comprised of a reinforced polymer material and located on a side wall would constitute a rigid outer door panel. Ex. 1003, ¶¶312-313. Ex. 1008, [0037]. As the '855 Patent acknowledges in its background section, it is desirable for a container to have all walls and doors insulated. Ex. 1001, 1:31–40; *see also* Ex. 1003, ¶¶312-313. Ekerot teaches that its insulation is applied between the outer shell and the inner shell, which is plastic, and thus PHOSITA understood this structure (as applied to the lid) to disclose a formed sheet of plastics material with a space between where Cur's VIP assembly could be disposed. Ex. 1003, ¶¶312-313; §VII.D.3.

7. Claim 35:

i. Claim 35: [35.Pre] A method of making a cargo container assembly adapted for transporting a temperature sensitive cargo supported by a pallet, said method comprising the steps of:

The preamble of Claim 35 is not limiting. §VII.A.2.i. Regardless, Ekerot teaches the claimed cargo container assembly. §VII.D.2. Ekerot likewise discloses the claimed method of making a container. Ex. 1009, Figure 3, [0029]; Ex. 1003, ¶¶314-315. As noted above, the claims do not require the steps be performed in the order written. §VII.C.11.

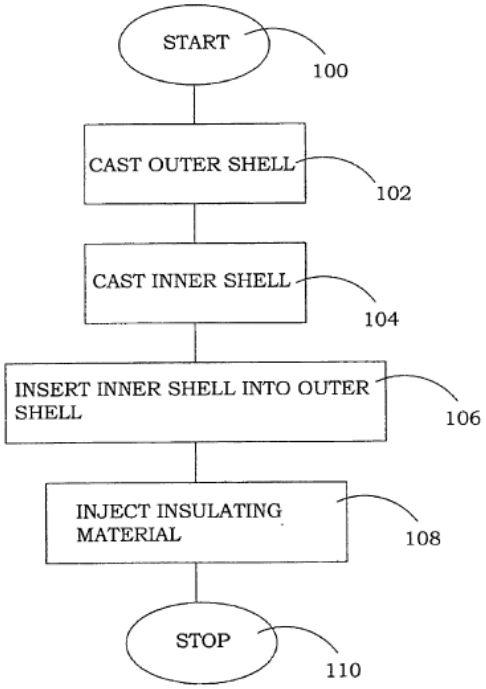


Fig. 3

ii. Claim 35: [35.A] forming a box-like composite outer shell including side, top, rear and bottom walls of resin impregnated fibers and defining a front opening with a moveable door assembly for closing the front opening;

Ekerot teaches this step. Ekerot teaches separately casting (i.e., forming) a box-like composite outer shell as Step 102 of its method of making the container. Ex. 1009, Figure 3, [0029]–[0034]; Ex. 1003, ¶¶316-318.

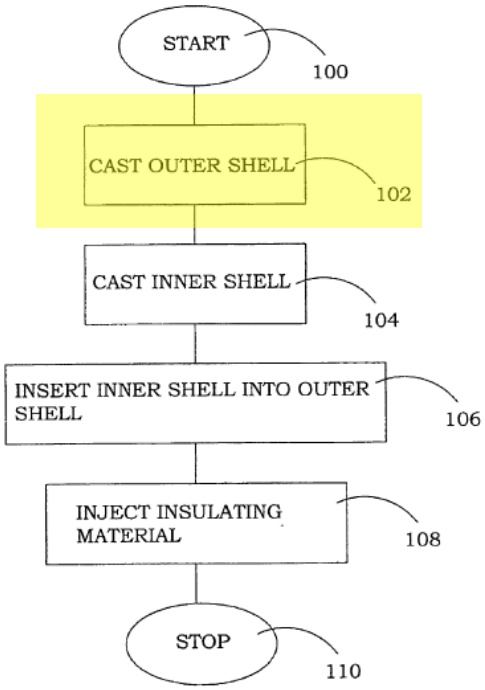


Fig. 3

Ekerot teaches the composite outer shell and moveable door assembly of the claims. §VII.D.2.ii.

iii. Claim 35: [35.B] forming a box-like composite inner shell including side, top, rear and bottom walls of resin impregnated fibers and defining a cargo receiving chamber;

Ekerot teaches this step. Before the inner shell is inserted into the outer shell, Ekerot teaches separately casting (i.e., forming) a box-like composite inner shell as Step 104. Ex. 1009, Figure 3; Ex. 1003, ¶¶319-321.

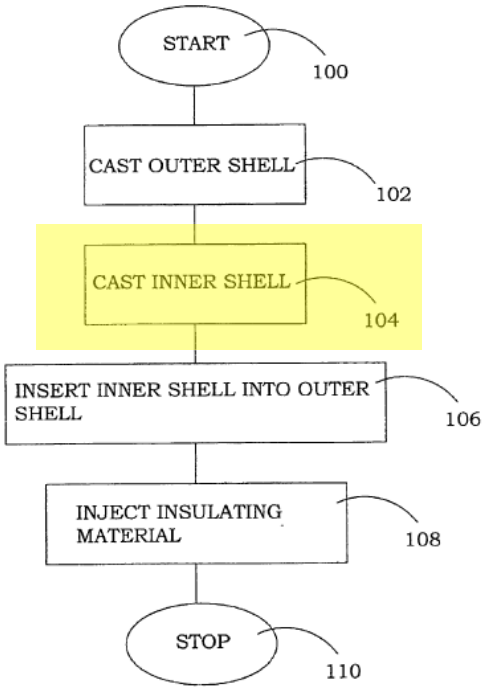


Fig. 3

Ekerot teaches the composite inner shell of the claims. §VII.D.2.iii.

iv. Claim 35: [35.C] locating vacuum insulated panel assemblies adjacent the side, top, rear and bottom walls of the inner shell;

The combination teaches this step. While Ekerot adds insulation after the inner shell is inserted into the outer shell, PHOSITA would have understood this is

because Ekerot's chosen insulation is foam that fills the interspace. Ex. 1003, ¶¶322-324. As described above, the combination teaches Cur's vacuum panel assemblies confined within Ekerot's shells instead of Ekerot's injected foam insulation material. §VII.D.2.iv.

For this combination, PHOSITA understood that Ekerot's disclosed order could be modified in light of the addition of VIP insulation. Because foam was not used, Cur's VIP assemblies could be located on the inner shell prior to insertion into the outer shell. Ex. 1003, ¶¶322-324.

v. Claim 35: [35.D] inserting the inner shell and vacuum insulated panel assemblies into the outer shell, and;

The combination teaches this step. After the inner and outer shells have been formed, Ekerot teaches to insert the inner shell into the outer shell. Ex. 1009, Figure 3; Ex. 1003, ¶¶325-328.

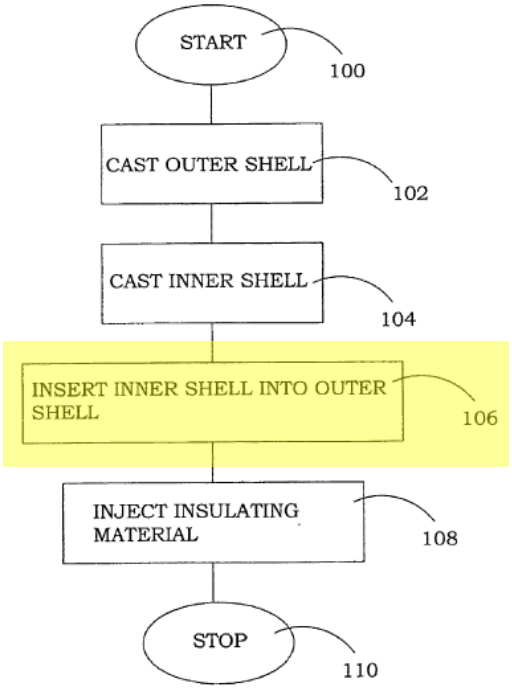


Fig. 3

As described above for Claim 35.C, the combination teaches Cur's VIP assemblies located adjacent the inner shell before insertion. §VII.D.7.iv. Therefore, Ekerot's insertion step teaches that the inner shell and VIP assemblies are inserted into the outer shell. Ex. 1003, ¶¶325-328.

vi. Claim 35: [35.E] installing a power operated refrigeration unit with an evaporator within the inner shell and connected to a motor driven compressor outside of the outer shell.

Ekerot teaches the refrigeration unit of the claims. §VII.D.2.v. If Patent Owner argues the claimed refrigeration system requires an active cooling system, PHOSITA understood the combination to teach this limitation. Ex. 1003, ¶329. Cur teaches active refrigeration, in which an internal evaporator and motor driven

compressor are necessary components. Ex. 1009, 1:53–57; Ex. 1003 ¶329. PHOSITA understood to install the refrigeration unit after the shell-in-shell structure had been assembled. Ex. 1003, ¶¶329-330.

8. Claim 36: A method as defined in claim 35 including the steps of: forming each of the vacuum insulated panel assemblies with substantially flat and parallel insulation layers each having a plurality of vacuum insulated panels including a core of porous material confined within an evacuated sealed bag of flexible gas impermeable film.

Cur teaches this step. As shown for Claim 20, Cur discloses forming the claimed vacuum panel assemblies. §VII.D.3; Ex. 1003, ¶¶331-332.

9. Claim 37: A method as defined in claim 36 including the step of: surrounding the layers of vacuum insulated panels and the insulation panel of each of the vacuum insulated panel assemblies with a flexible film of plastics material to form a vacuum insulated cassette.

Cur teaches this step. As shown for Claim 21, Cur discloses forming the claimed vacuum insulated cassette surrounded by the flexible film of plastics material. §VII.D.4; Ex. 1003, ¶¶333-334.

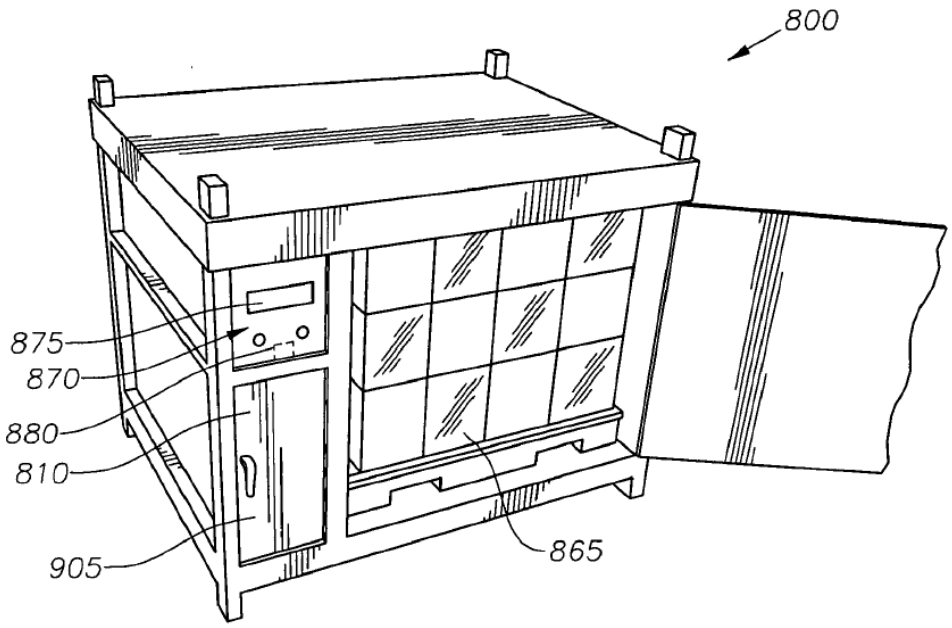
E. Ground 5: Claims 19–21, and 29–31 are Unpatentable Under 35 U.S.C. §103 over Broussard in view of Cur

1. Overview of Ground 5

During the prosecution of ’786 EP, the EPO determined that Broussard and EP Cur were nearly identical to the Challenged Claims at issue here. §IV.A

i. Overview of Broussard and Cur

Broussard teaches "[a] portable, temperature-controlled container for storing and transporting temperature-sensitive materials" with "a bottom wall, four sides walls, and a top wall defining a cargo space." Ex. 1012, Abstract. Broussard also includes a refrigeration unit and power supply. *Id*; *see also* Ex. 1013, [0003].



Broussard teaches walls that are made of a high impact reinforced plastic. Ex. 1012, [0033]. Inside the walls, Broussard relies on well-known insulated vacuum panels for insultation. *Id.*, [0035], [0011]–[0012]; [0026] (citing U.S. Patent Nos. 5,943,876; 5,950,450; and 6,192,703). Broussard's VIPs are covered with and protected by a hard plastic, metal, or other material sheet 225 (blue). Ex. 1012, [0027]. Figure 2 shows the structure of the walls: namely that inside surface 215 of wall 205 (red) is covered with VIP 220 (yellow).

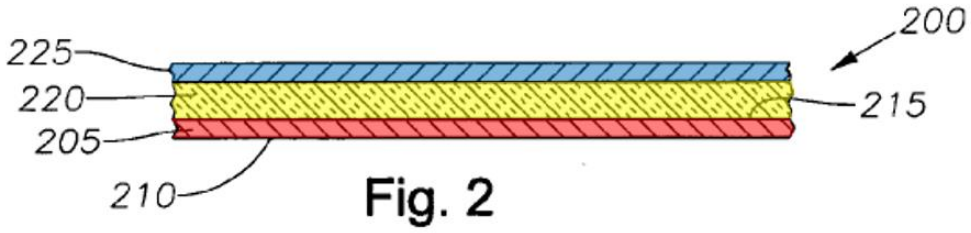


Fig. 2

Broussard also discloses a refrigeration unit. Ex. 1012, [0031]–[0032]. The refrigeration unit includes a compressor, condenser, and evaporator. Ex. 1012, [0032].

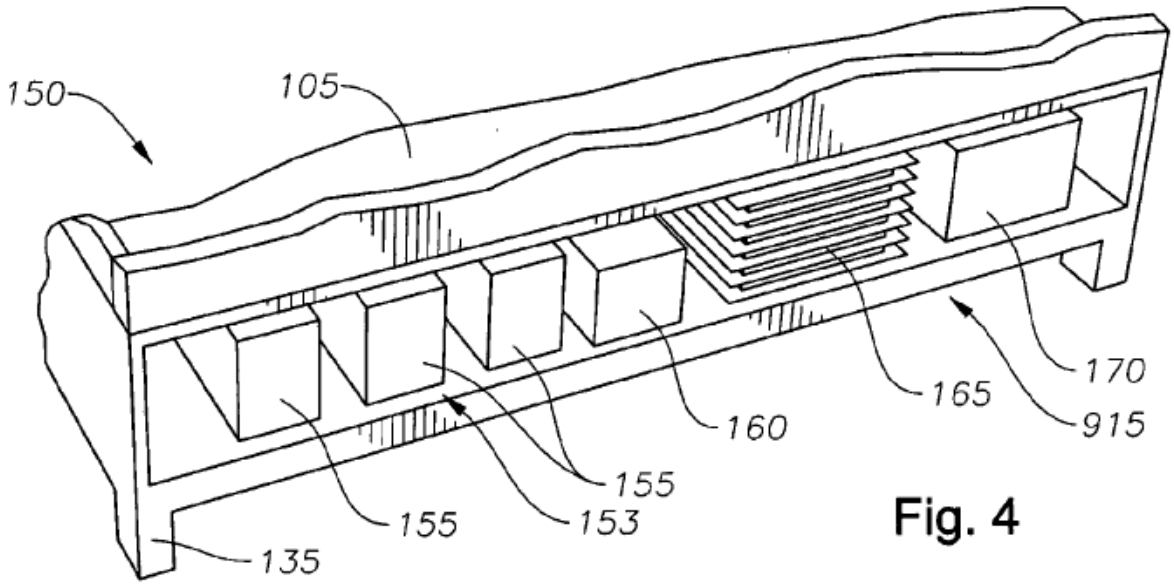


Fig. 4

Cur is described above. §VII.D.1.ii.

ii. Reasons to Combine

Broussard teaches VIPs confined within inner and outer shells "for high thermal efficiency, space efficiency, and long operating times on batteries," but does not explicitly disclose the composition of the panels. Ex. 1012, [0025]. Instead, Broussard discloses that it relies on conventional VIPs. Ex. 1012, [0026] (citing U.S.

Patent Nos. 5,943,876, 5,950,450, and 6,192,703). Moreover, Broussard explicitly suggests using "[o]ther insulated vacuum panels having an R value per inch of at least about 20." *Id*. Cur teaches the use of VIPs meeting Broussard's criteria as an insulation material. Ex. 1009, 1:6-8; Ex. 1003, ¶¶342-343. Because Broussard suggests using other VIPs so long as they meet the required R value criteria, PHOSITA would find it obvious to apply Cur's VIP design to Broussard's container, as Cur meets said criteria. Ex. 1003, ¶¶342-343.

While Cur employs polyurethane foam insulation "to maximize the thermal efficiency and structural rigidity of the cabinet," PHOSITA understood that the Broussard's structure would permit Cur's VIPs without foam to secure and protect the panels. Ex. 1003, ¶344.[5] Broussard's structure maintains rigidity without the need for foam. Ex. 1012, [0043]. Without needing foam support, it would be obvious for PHOSITA to leverage multiple layers of Cur's thin vacuum panel assemblies in the interspace to more effectively insulate the container. Ex. 1003, ¶344.

[5] As evidence of the state of the art, Broussard incorporates by reference the panels of 5,943,876, 5,950,450, and 6,192,703 which do not require support by polyurethane foam insulation.

Broussard discloses its bottom side can be insulated with foam. Ex. 1012, [0032]. Cur's thin VIPs allow eight-times thinner insulation with the same performance as foam. Ex. 1009, 2:3–19. PHOSITA understood using Cur's VIPs on the bottom promotes thermal efficiency while maintaining space efficiency. Ex. 1012, [0025]. The VIPs used in the sides, top, and bottom would therefore share the structure of Cur Figure 2. Ex. 1003, ¶345; Ex. 1009, Fig. 2.

PHOSITA would have reasonably expected success to combine these references because they both disclose insulated walls adapted for VIPs, and teach that VIPs provide more effective insulation than foam while using less space. Ex. 1003, ¶¶342-346. Moreover, Cur's VIPs are specifically designed for refrigeration applications. Ex. 1008, 1:6-8.

2. Claim 19

i. Claim 19: [19.Pre]

The preamble is not limiting. §VII.A.2.i. Regardless, Broussard teaches temperature-controlled containers to transport temperature-sensitive goods supported on pallets. Ex. 1012, Abstract, [0003]; Ex. 1013, [0003]; Ex. 1003, ¶¶347-349. Broussard's container is "designed to accommodate a standard . . . pallet." Ex. 1012, [0034], [0051].

ii. Claim 19: [19.A]

Broussard teaches a box-like outer shell that includes a bottom 105, four sides 110, 115, 120, 125, and a top (shown in Fig. 3) defining a cargo space. Ex. 1012, [0025], Fig. 3.

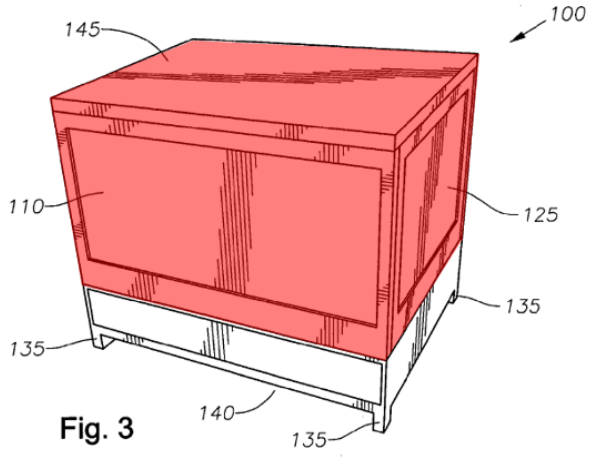


Fig. 3

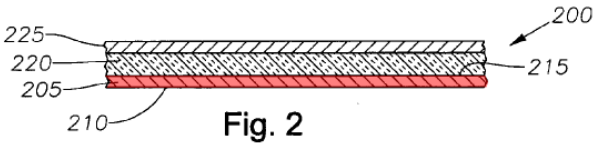


Fig. 2

Broussard's container is made of plastic. Ex. 1012, [0015]. The walls (red), floor, and top are made of "durable, high impact reinforced plastic" to "protect the insulated vacuum panels from damage." *Id.*, [0026], [0033], Fig. 2.

Broussard's plastic composition includes the bottom. Ex. 1003, ¶351. Reinforced plastic refers to a composite material made of a polymer or resin matrix reinforced with fibers. *Id.*, ¶¶350-354.

Broussard's container allows a side "to open to allow easy access to the cargo space." Ex. 1012, [0025]. The side door has a plurality of hinges that define a door. *Id.*, [0035].

iii. Claim 19: [19.B]

Broussard discloses an inner shell "protective sheet 225 . . . of hard plastic, metal, or other hard material" Ex. 1012, [0027], Fig. 2 (blue). This hard plastic sheet is spaced inwardly of the outer walls (red). Ex. 1012, Figs. 1-2.

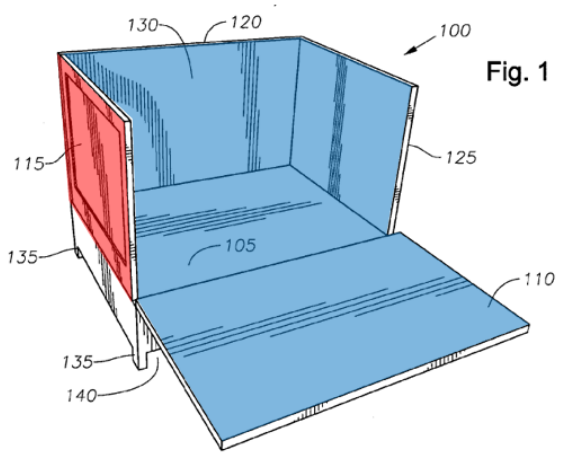


Fig. 1

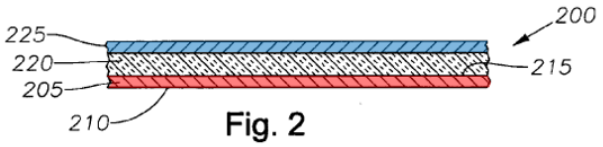


Fig. 2

Broussard's inner shell is disclosed as "hard plastic" which PHOSITA understood is a composite material made of a polymer or resin matrix reinforced with fibers. Ex. 1003, ¶356. This is supported by the fact that metal is also disclosed, and that the protective sheet is "to protect the insulated vacuum panels from damage during use." Ex. 1012, [0027]. Indeed, Broussard's entire container, including the bottom, can be made of a plastic material. Ex. 1012, [0015]; Ex. 1003, ¶356. The sides, top, and bottom would therefore share the structure of Figure 2. Ex. 1003, ¶¶355-357.

iv. Claim 19: [19.C]

Broussard teaches "a plurality of insulated vacuum panels" (yellow) confined between the inner and outer shells (blue and red, respectively). Ex. 1012, [0012], [0026]–[0027], Fig. 2. The panels are "positioned on the inside wall of each of the four sides, and the top of the container." *Id.*, [0012].

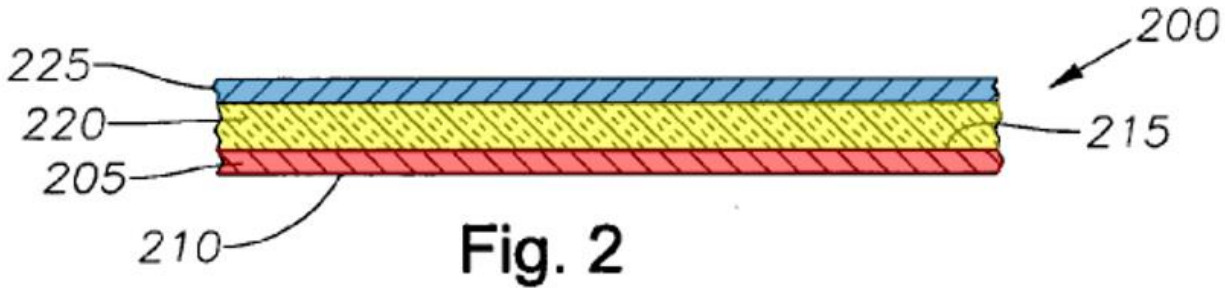


Fig. 2

Broussard is silent on the makeup of the panels other than noting that "[o]ther insulated vacuum panels having an R value per inch of at least about 20 can be used." Ex. 1012, [0026]. As explained above, PHOSITA would apply Cur's VIPs to Broussard. Ex. 1003, ¶359; Reasons to Combine, §VII.E.1.ii,. The combination thus discloses VIPs on all sides, including the bottom. Ex. 1003, ¶¶358-360.

v. Claim 19: [19.D]

Broussard teaches this limitation. Broussard includes a "refrigeration unit . . . in communication with the cargo space of the container" "[f]or cooling . . . any temperature-sensitive cargo." Ex. 1012, [0011], [0039]. Ex. 1003, ¶¶361-362.

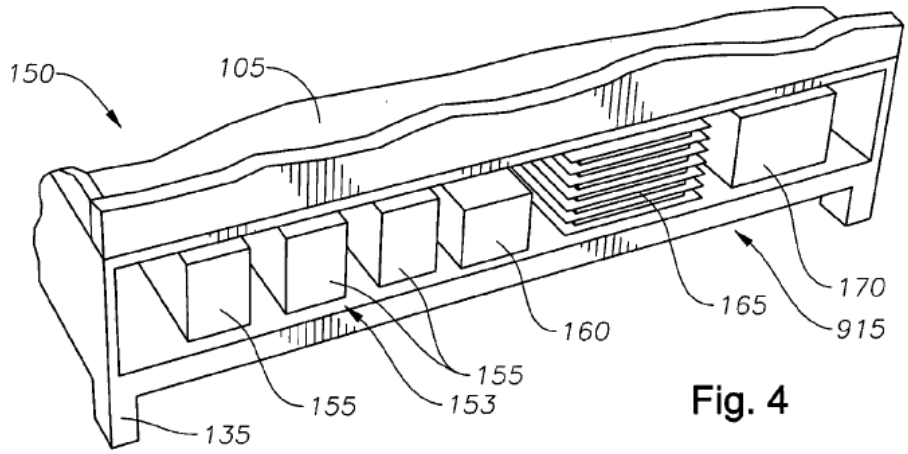


Fig. 4

3. Claim 20.

As is described with respect to Limitation 19.C, the combination teaches VIPs. Ex. 1003, ¶363. Moreover, as explained in Ground 4, Cur discloses substantially flat insulation layers each with a plurality of VIPs including "one or more microporous filler insulation materials" in an evacuated film. Ex. 1009, 4:37–47; *see* §VII.D.3.

To the extent Patent Owner argues Cur's VIP assembly does not disclose the claimed assemblies on its own, multiple layers of Cur's VIP assembly located between Broussard's shells teaches the claim, as Cur's thin VIPs permit multiple parallel panels to be disposed between the walls of Broussard. Ex. 1012, [0012]. [0025]; Ex. 1009, 4:16–24. This achieves Broussard's goals of greater thermal efficiency and space efficiency. Ex. 1012, [0012], [0025]; Ex. 1003, ¶¶363-365.

4. Claim 21.

The combination discloses this claim. Ex. 1003, ¶366. As in Ground 4, Cur discloses the claimed cassette with a film of plastics material surrounding it. *See* §VII.D.4.

5. Claim 29.

Broussard discloses this claim. Broussard teaches cooled air is circulated through an annulus 672 (pink) defined beneath the plenum 603 (orange) and floor 605 (green). Ex. 1012, [0038], Fig. 10.

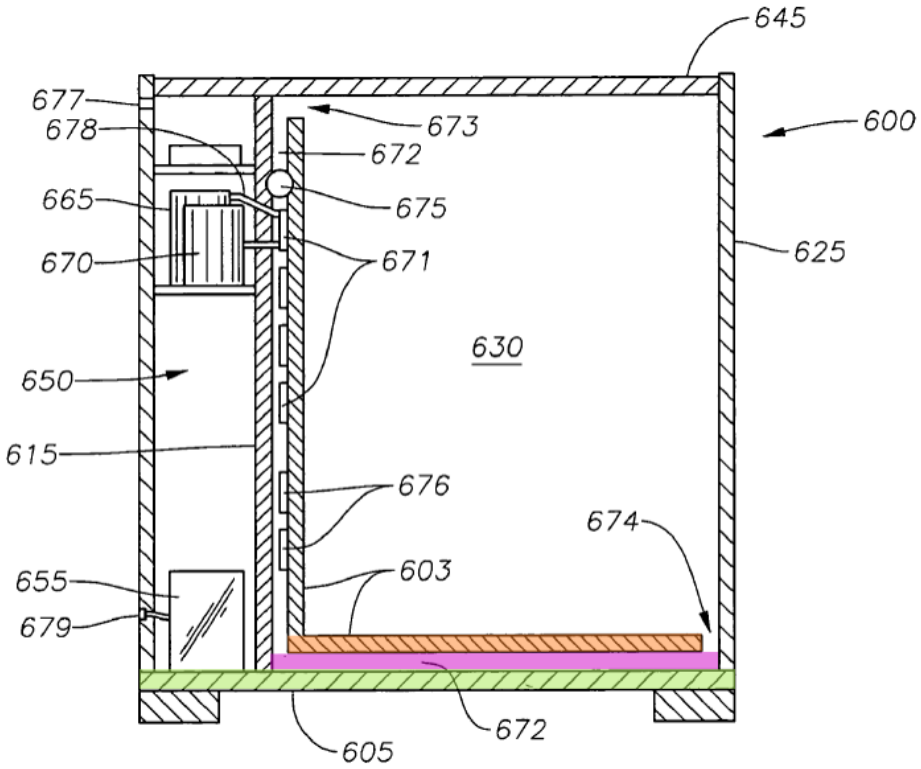


Fig. 10

Figure 10 is a section view, so the parallel spaced members that would be necessary to achieve the disclosed circulation of air through the plenum using fan

675 are not shown, however, a structure to support the plenum is necessarily inherent in the design. Ex. 1003, ¶¶368-369. Figure 8 is an alternative view of the embodiment depicted in Figure 10. Ex. 1012, [0038], Fig. 8.

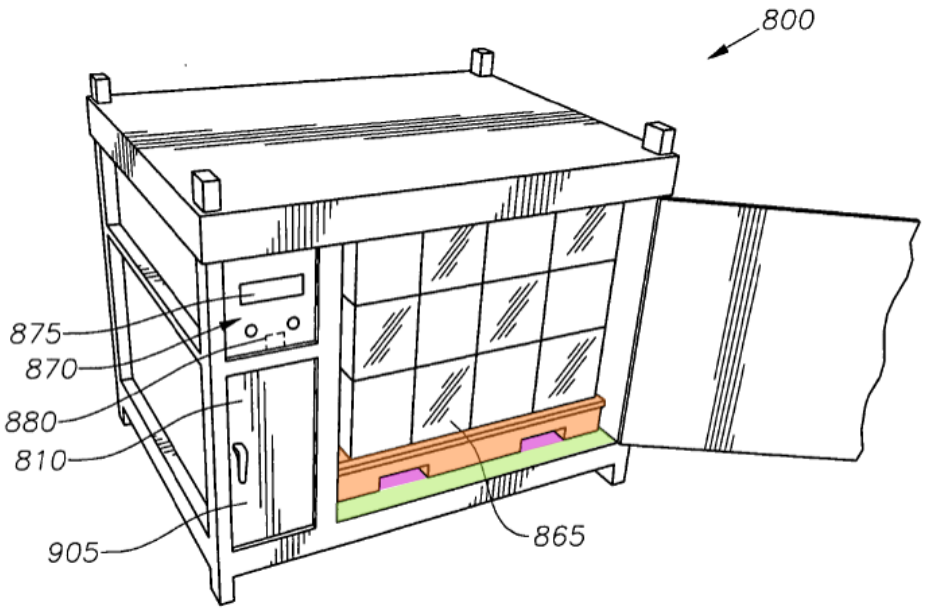


Fig. 8

PHOSITA understood that Figure 8 depicts a supporting member between the plenum (orange) and floor (green) that creates channels (pink). Ex. 1012, Fig. 8; Ex. 1003, ¶¶368-369. As depicted in Figure 8, these channels could be formed using parallel spaced members between the plenum and floor. Ex. 1003, ¶370. The plenum rests on top of these members and discloses the rigid floor panel, as the cargo would be placed on top of the plenum, rather than the floor. Ex. 1012, Fig. 8; Ex. 1003, ¶370.

6. Claim 30.

Broussard discloses this claim. As shown in Figure 10, an "opening 674 is preferably located between side 625 and plenum 603." Ex. 1012, [0038], Fig. 10.

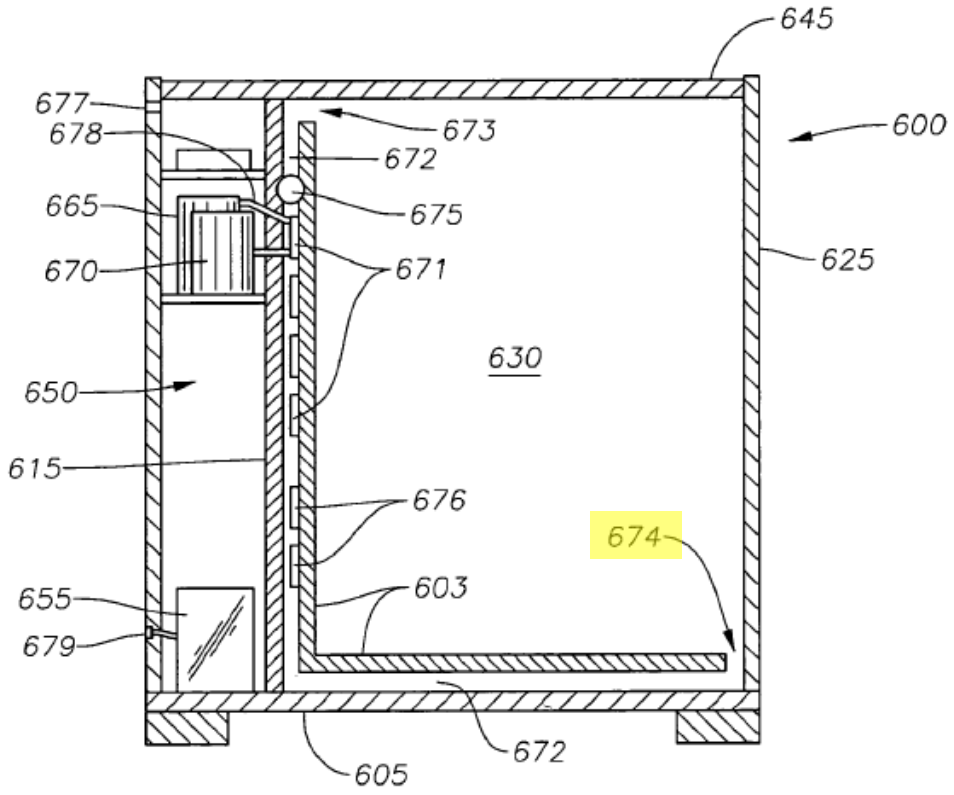


Fig. 10

Broussard's side 610 defines a door. Ex. 1012, [0035]. PHOSITA understood opening 674 as adjacent the door assembly. Ex. 1003, ¶¶372-374. Additionally, Figure 8 shows the plenum (orange), and plurality of openings (pink) are adjacent the door assembly. Ex. 1012, Fig. 8.

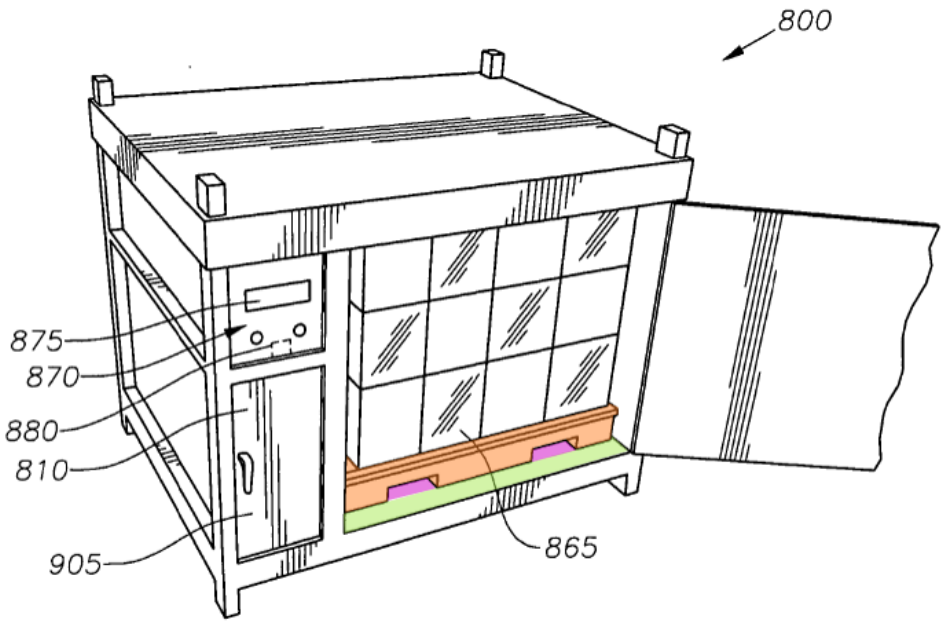


Fig. 8

7. Claim 31.

Broussard teaches a rigid outer door assembly on one of its sides. Ex. 1012, [0035], Fig. 8.

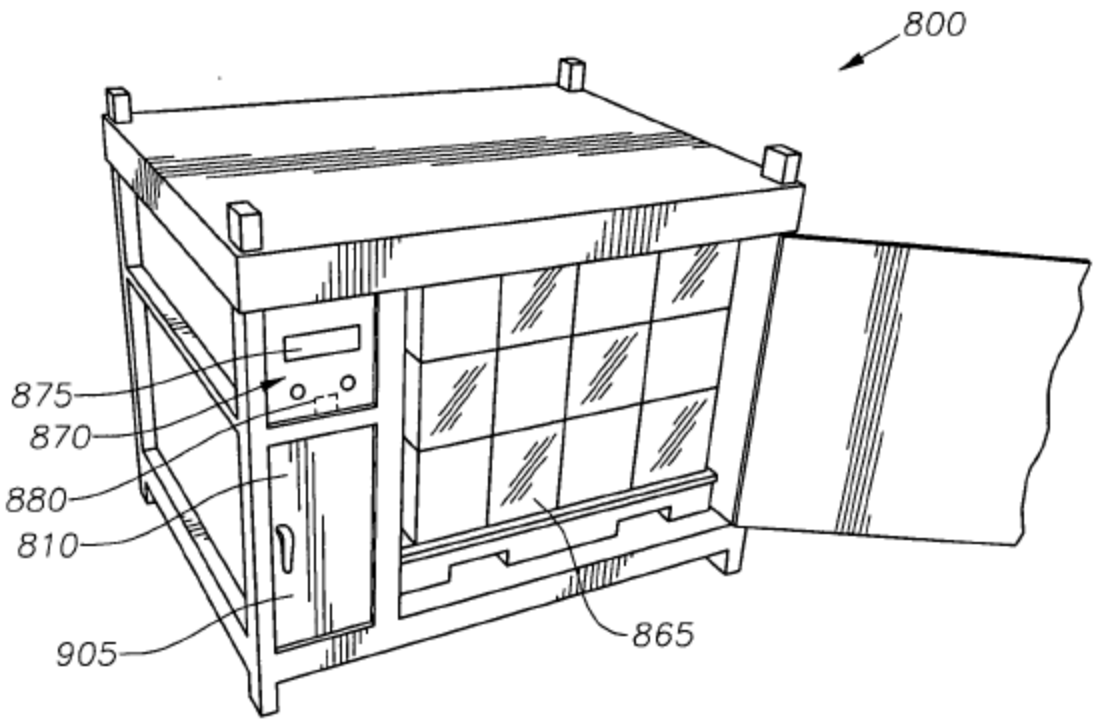


Fig. 8

Broussard teaches the door has a VIP layer, as "all four sides . . . would" have the structure shown in Figure 2 (which includes a VIP layer between the inner and outer shells). Ex. 1012, [0012], [0026]–[0027], Fig. 2. Broussard teaches the VIP layer is covered with plastic for protection. *Id.*, [0027]. As applied to the door, the sheet of plastic protection would be connected to the door to continue to protect the panel when the door is opened. *Id.*, Ex. 1003, ¶¶375-378. As in Claim 20, the combination discloses the claimed vacuum insulated panel assembly with a core of porous material within a sealed bag of flexible gas impermeable film. §VII.E.3.

VIII. PRIOR ART NOT PREVIOUSLY PRESENTED TO THE OFFICE

Much of the prior art here was not cited during original prosecution. *See* IV.A. Only Broussard appears on the face of the '855 Patent, however the Examiner apparently overlooked the importance of this reference, as it was not discussed during prosecution. Petitioner has demonstrated a material error by the Examiner by pointing out and explaining how the combination of Broussard and Cur teach the numerous limitations of the claims. Indeed and in related applications, the EPO rejected similar claims to those at issue here in light of Broussard and Cur. *See* §IV.A.

As a result, the majority of the grounds do not rely on the same or substantially the same prior art previously considered during prosecution, and, for the remaining ground, Petitioner has demonstrated a material error. *Progenity, Inc. v. Natera, Inc.*, IPR2021-00279, Paper 12 at 44 (PTAB June 11, 2021). Therefore, the Board should not exercise its discretion under 35 U.S.C. §325(d). *Adobe, Inc. v. Realtime Adaptive Streaming LLC*, IPR2019-00712, Paper 9 at 18 (PTAB Sept. 12, 2019).

IX. *NHK SPRING* IS INAPPLICABLE

The claims of the '855 Patent have never been tested in view of the most relevant prior art. In view of these strong challenges, lack of meaningful prosecution, and the nascent nature of the district court proceeding, the Board should refuse to entertain discretionary denial under §314(a). *See NHK Spring Co. v. Intri-Plex*

Techs., Inc., IPR2018-00752, Paper 8 at 19–20 (PTAB Sept. 12, 2018) (precedential); *Apple v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 13-14 (PTAB Mar. 20, 2020) (precedential).

Factor 1 (potential for stay) does not support discretionary denial. *See Sand Revolution II, LLC v. Cont'l Intermodal Grp. – Trucking LLC*, IPR2019-01393, Paper 24 at 7 (PTAB June 16, 2020) (informative) (declining to speculate about a district-court stay); *Cisco Sys., Inc., v. Ramot at Tel Aviv Univ. Ltd.*, IPR2020-00122, Paper 15 at 7 (PTAB May 15, 2020) ("we decline to speculate how the district court would rule on another stay request"); *Cisco Sys., Inc., v. Oyster Optics, LLC*, IPR2021-00238, Paper 10 at 11 (PTAB June 1, 2021) ("For cases in which a court has not considered a motion to stay, we decline to speculate as to how that court might decide."); *TA Instruments-Waters LLC and Waters Techs. Corp., v. Malvern Panalytical Inc.*, IPR2021-00213, Paper 8 at 11 (PTAB May 27, 2021) ("we will not speculate as to whether the district court will grant or deny a stay").

Moreover, Judge Jones, who is presiding over the North District of Georgia case, is likely to grant a stay of all case deadlines. In similar circumstances, Judge Jones has stayed cases pending the Board's institution decision. *AirWatch LLC v. Good Tech. Corp.*, No. 1:14-cv-02281-SCJ, (N.D. Ga. Feb. 13, 2015), ECF No. 45 (Ex. 1038) (holding that a stay was appropriate because, in part, "discovery in this case is not complete, and no trial date has been set.").

Factor 2 (timing of trial) does not support a discretionary denial because it is a practical impossibility that a trial would occur before the Final Written Decision. *See Apple Inc., v. Parus Holdings, Inc.*, IPR2020-00686, Paper 9 at 13 (PTAB Sept. 23, 2020) (recognizing the uncertainty of scheduled trial dates during the COVID-19 pandemic). This Petition is being filed mere days after the filing of Petitioner's Answer in the district court case (filed Dec. 6, 2021) and no date has been set for a scheduling conference—let alone trial. Moreover, the Northern of District of Georgia does not set a trial date at the outset of patent litigation; even under ***Plaintiffs'*** proposed schedule, claim construction ***briefing*** would not be complete until June 2022, fact discovery would not close until September 2022 at the earliest, and dispositive motions would not take place until 2023 at the earliest. Trial is unlikely to take place before Summer 2023, and even that expedited schedule is wishful thinking.

Moreover, because close of fact and expert discovery, dispositive motions, and trial are all ultimately keyed off of the Georgia Court's *Markman* Order, and because Plaintiffs' proposed schedule provides the Georgia Court only with six weeks to conduct a *Markman* hearing after the close of briefing ***and*** issue its ruling. Any period longer than six weeks would necessarily push back the Georgia Court's schedule pursuant to the local rules, which provide fact discovery closes forty-five days after a *Markman* order if it issues more than seven months after the start of fact

discovery. N.D. Ga. L.R. (Ex. 1039) at R. 26.2(a); N.D. Ga. L.P.R. (Ex. 1040) at R. 6.7. Notably, the local patent rules do not set a deadline for a claim construction hearing or order, instead leaving it "[s]ubject to the convenience of the Court's calendar." L.P.R. 6.6-6.7.

Factor 3 (litigation investment) strongly favors institution because the district court case is at the very outset. Discovery has not started; indeed, the parties have not even conducted their initial Rule 26(f) conference. There is no schedule for discovery, *Markman*, or trial. In short, Petitioner acted promptly in response to Patent Owner's filing of the Complaint.

Factor 4 (overlap of issues) also favors institution. At the time of filing this Petition, Patent Owner has not served infringement contentions. These Petitions nonetheless address all claims identified to date. In order to ensure there is no overlap of invalidity issues, if the Board institutes review, Petitioner agrees to not pursue the instituted grounds with respect to the Challenged Claims in the district court litigation. *See Sand Revolution II, LLC v. Continental Intermodal Grp – Trucking LLC*, IPR2019-01393, Paper 24 at 12 n.5 (PTAB June 16, 2020).

Factor 6 (other circumstances) favors institution because the grounds here provide a strong showing of obviousness. *Fintiv*, at 14-15 (collecting cases). As explained above, the European Patent Office required amendment of substantially similar claims in related patents to add limitations directed to an "outer housing" in

view of rejections based on prior art asserted in Grounds 4 and 5. The USPTO did not issue a rejection on this art or expressly consider it, which was error. §VIII; *Progenity*, at 44.

In addition, this case is one where the Patent Office should take an additional look at this patent to preserve "the economy [and] the integrity of the patent system." *Consolidated Trial Practice Guide* ("CTPG"), p.56 (quoting 35 U.S.C. §316(b)). As shown in §IV.A, the EPO's rejections on the basis of Broussard, EP Cur, Westling, and Cur resulted in narrowing amendments restricting the claims to containers with an outer housing. The Challenged Claims were allowed by the USPTO ***without*** the outer housing limitations which were required by the PTO, and despite the fact that non-housing configurations were disclosed in the prior art as shown above. §IV.A.

X. CONCLUSION

Petitioner respectfully requests cancellation of the Challenged Claims.

XI. MANDATORY NOTICES UNDER 37 C.F.R. §42.8

A. Real Party in Interest Under 37 C.F.R. §42.8(b)(1)

The real party-in-interest are Petitioner Envirotainer AB and Envirotainer Inc. Petitioner includes Envirotainer Inc. as a real party-in-interest out of an abundance of caution. Envirotainer Inc. was sued by Patent Owner on the same date as Envirotainer AB and as part of the same action. However, Envirotainer Inc. is a wholly owned subsidiary of Envirotainer AB, and does not have the ability to control, direct, or fund the IPR.

B. Related Matters Under 37 C.F.R. §42.8(b)(2)

A claim of infringement of the '855 Patent was asserted in *DoubleDay Acquisitions LLC d/b/a CSafe Global v. Envirotainer AB et al*, Case No. 1-21-cv-03749 (N.D. Ga.), filed on Sept. 10, 2021. Petitioner is simultaneously filing a petition for IPR of related U.S. Patent No. 7,913,511 under the case heading IPR2022-00293.

C. Designation of Counsel Under 37 C.F.R. §42.8(b)(3)

Petitioner provides the following designation of counsel.

Lead Counsel	Backup Counsel
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Pursuant to 37 C.F.R §42.10(b), a Power of Attorney is being submitted with this Petition.

D. Service Information

Please address all correspondence and service to the address listed above. Petitioner consents to electronic service directed to wes.achey@alston.com.

Date: December 17, 2021

By: /Wesley C. Achey/
Wesley C. Achey

CLAIMS APPENDIX

Claim	Recitation
19	A cargo container assembly adapted for transporting a temperature sensitive cargo supported by a pallet, said assembly comprising a box-like composite outer shell having side, top and bottom walls of resin impregnated fibers and having a front opening and a moveable door assembly for closing said front opening, a box-like composite inner shell within said outer shell and having side, top and bottom walls disposed inwardly from the corresponding said walls of said outer shell and defining a cargo receiving chamber, vacuum insulated panel assemblies confined between the corresponding said side, top and bottom walls of said inner and outer shells, and a refrigeration system connected to cool said chamber.
20	A cargo container assembly as defined in claim 19 wherein said vacuum insulated panel assemblies comprise parallel substantially flat insulation layers each having a plurality of vacuum insulated panels, and each of said panels including a core of porous material confined within an evacuated sealed bag of flexible gas impermeable film.
21	A cargo container assembly as defined in claim 20 wherein said layers of vacuum insulated panels are separated by an insulation panel, and said layers and insulation panel are surrounded by a flexible film of plastics material to form a vacuum insulated cassette.
23	A cargo container assembly as defined in claim 20 wherein said vacuum insulated panels in one said layer have abutting joints crossing abutting joints of said vacuum insulated panels in a second said layer.
26	A cargo container assembly as defined in claim 19 wherein said outer shell includes a rear wall integral with said side wall, top and bottom walls of said outer shell, one of said walls including a projecting support integral with said one wall, and a housing member enclosing said tubular support of said outer shell.
27	A cargo container assembly as defined in claim 26 and including a refrigeration compressor and a set of storage batteries mounted on said projecting support of said outer shell.

Claim	**Recitation**
28	A cargo container assembly as defined in claim 19 wherein each of said inner shell and said outer shell has integrally connected side, top, bottom and rear walls to form a one-piece unit, insulation cassettes between corresponding said walls, and each said cassette including a plurality of insulation layers each having a plurality of vacuum insulated panels each including a core of porous material confined within an evacuated sealed bag of flexible gas impermeable film.
29	A cargo container assembly as defined in claim 19 wherein said bottom wall of said inner shell includes a plurality of parallel spaced members defining air flow passages therebetween, and a rigid floor panel mounted on said spaced members.
30	A cargo container assembly as defined in claim 29 wherein said floor panel includes a plurality of laterally spaced openings adjacent said door assembly and providing for air flow through said passages from said cargo receiving chamber.
31	A cargo container assembly as defined in claim 19 wherein said door assembly comprises a rigid outer door panel, a formed sheet of plastics material connected to said door panel and defining a space therebetween, a vacuum insulated panel assembly disposed between said sheet of plastics material and said outer door panel, and said vacuum insulated panel assembly comprising parallel layers each having a plurality of vacuum insulated panels each including a core of porous material confined within a sealed bag of flexible gas impermeable film.
33	A cargo container assembly as defined in claim 31 and including a second said door assembly, and said door assemblies having overlapping insulated center portions.
35	A method of making a cargo container assembly adapted for transporting a temperature sensitive cargo supported by a pallet, said method comprising the steps of: forming a box-like composite outer shell including side, top, rear and bottom walls of resin impregnated fibers and defining a front opening with a moveable door assembly for closing the front opening; forming a box-like composite inner shell including side, top, rear and bottom walls of resin impregnated

Claim	**Recitation**
	fibers and defining a cargo receiving chamber; locating vacuum insulated panel assemblies adjacent the side, top, rear and bottom walls of the inner shell; inserting the inner shell and vacuum insulated panel assemblies into the outer shell; and installing a power operated refrigeration unit with an evaporator within the inner shell and connected to a motor driven compressor outside of the outer shell.
36	A method as defined in claim 35 including the steps of: forming each of the vacuum insulated panel assemblies with substantially flat and parallel insulation layers each having a plurality of vacuum insulated panels including a core of porous material confined within an evacuated sealed bag of flexible gas impermeable film.
37	A method as defined in claim 36 including the step of: surrounding the layers of vacuum insulated panels and the insulation panel of each of the vacuum insulated panel assemblies with a flexible film of plastics material to form a vacuum insulated cassette.
41	A method as defined in claim 35 including the step of overlapping edge portions of the vacuum insulated panel assemblies within the side, top and bottom walls.

CERTIFICATION UNDER 37 C.F.R. §42.24

Under the provisions of 37 CFR §42.24, the undersigned hereby certifies that the word count for the foregoing Petition for inter partes review totals 13,757 words (Sections I-X), which is less than the 14,000 allowed under 37 CFR §42.24(a)(i).

Date: December 17, 2021

By: /Wesley C. Achey/
Wesley C. Achey

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§42.6(e), 42.105, the undersigned hereby certifies that true and correct copies of the above-captioned PETITION FOR INTER PARTES REVIEW OF U.S. PATENT NO. 7,263,855, all associated exhibits, and Petitioner's Power of Attorney were served in their entireties on December 17, 2021, upon the following parties via UPS Next Day Air®:

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Service copies are also being sent via email to litigation counsel of record:

Henry R. Chalmers (henry.chalmers@agg.com);

Robert E. Counihan (rcounihan@fenwick.com);

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Date: December 17, 2021

By: /Wesley C. Achey/
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