

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CIXI CITY LIYUAN AUTO PARTS CO. LTD., TYGER AUTO, INC., AND
HONG KONG CAR START INDUSTRIAL CO. LTD.

Petitioner

v.

LAURMARK ENTERPRISES, INC.

(Record) Patent Owner

IPR2020-_____

Patent No. 8,061,758

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT 8,061,758**

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EXHIBIT LIST

Exhibit No.	Description
1001	U.S. Patent 8,061,758
1002	File History of U.S. Patent 8,061,758
1003	Declaration of Paul Hatch
1004	CV of Paul Hatch
1005	U.S. Patent No. 4,221,423 (“Stone”)
1006	U.S. Patent No. 5,595,417 (“Thoman”)
1007	U.S. Patent No. 6,352,296 (“Kooiker 296”)
1008	U.S. Patent No. 5,931,521 (“Kooiker 521”)
1009	U.S. Patent No. 6,767,051 (“Erlandsson”)
1010	U.S. Patent No. 6,422,635 (“Steffens”)
1011	U.S. Patent No. 6,899,372 (“Keller”)
1012	U.S. Patent No. 1,215, 223 (“Vanderpoel”)
1013	U.S. Patent No. 4,807,921 (“Champie”)
1014	U.S. Patent No. 4,532,973 (“DeFalco”)
1015	U.S. Patent No. 4,747, 441 (“Apolzer”)
1016	U.S. Patent No. 5,636,893 (“Wheatley”)
1017	April 3, 2020 Commission Investigative Staff’s Proposed Claim Constructions
1018	Declaration of Matthew Meyer

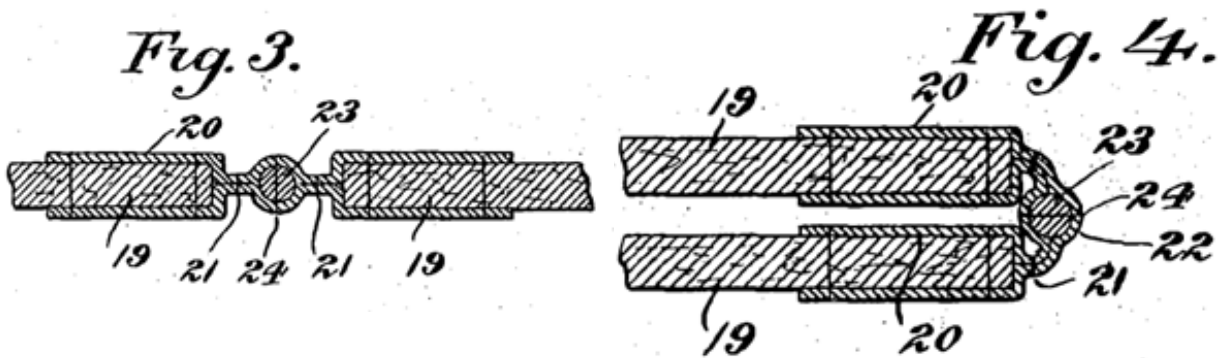
I. INTRODUCTION

Petitioners Cixi City Liyuan Auto Parts Co. Ltd., Tyger Auto, Inc., and Hong Kong Car Start Industrial Co. Ltd. (collectively, “Petitioners”) respectfully petition for *inter partes* review of claims 2, 3, and 4 of U.S. Patent No. 8,061,758 (“the ’758 patent”) of Laurmark Enterprises, Inc. (“Patent Owner”) in accordance with 35 U.S.C. §§ 311–319 and 37 C.F.R. § 42.100 et seq. (“Petition”).

II. OVERVIEW OF THE ’758 PATENT

A. Background

The challenge of folding boards made from rigid materials has led to numerous solutions through the centuries, many arising long before the need to cover a pickup truck bed. For example, in 1917, a mechanism resembling those employed in today’s truck bed covers was used in a folding mat as seen in U.S. Patent No. 1,215,223 (“Vanderpoel”). Ex. 1003, ¶ 20.



By the late 1980s, there was widespread application of such solutions in multi-panel covers for the open portion, or “tonneau,” of a pickup truck—covers

used for “converting the open body of a truck, such as a pickup truck, to a closed body to protect the cargo from adverse weather conditions and from theft” as described in U.S. Patent No. 4,807,921 (“Champie). Ex. 1013 at 1:67-2:3. As Champie further describes, the primary benefits of a tonneau cover were well known in the late 1980s, namely that “[w]hen such a cover is assembled and mounted on the cargo bed of a truck, it provides improved security, weather protection and aerodynamics.” Ex 1013 at 3:1-3; Ex. 1003, ¶ 21. And such covers preferably achieved “the desired qualities of high strength, light weight and low cost.” Ex. 1013 at 7:6-7; Ex. 1003, ¶ 22.

Maintaining access to the contents also was important. In the 1980s, three main alternatives existed to retract the truck cover and provide access to the truck bed. First, Champie shows a rigid slat-based cover (20) with lateral hinges that allows the slats to be retracted onto a roll at the front of the truck bed (under 28). Ex. 1003, ¶ 23; Ex. 1013 at 3:52-56.

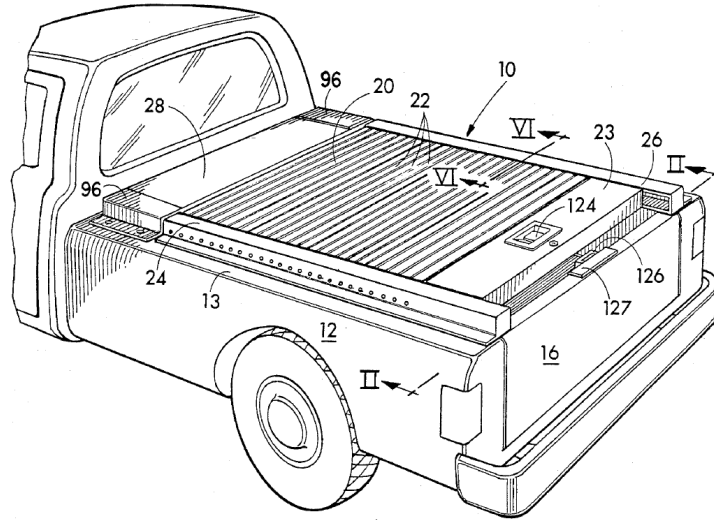


FIG. 1

A second alternative known in the late 1980s for truck bed access is shown in U.S. Patent No. 4,747,441 (“Apolzer”). Like Champie, Apolzer recognized the universal problems to be addressed by a pickup cover, namely, “the cargo area is an open box and is therefore subject to adverse weather while providing no security against theft” and “fuel economy is reduced due to the air drag effects on the open box.” Ex. 1015 at 1:11-15, Figure 1 (below); Ex. 1003, ¶ 24.

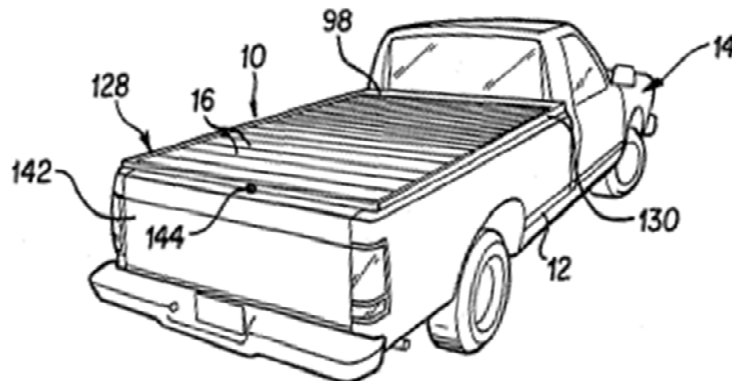
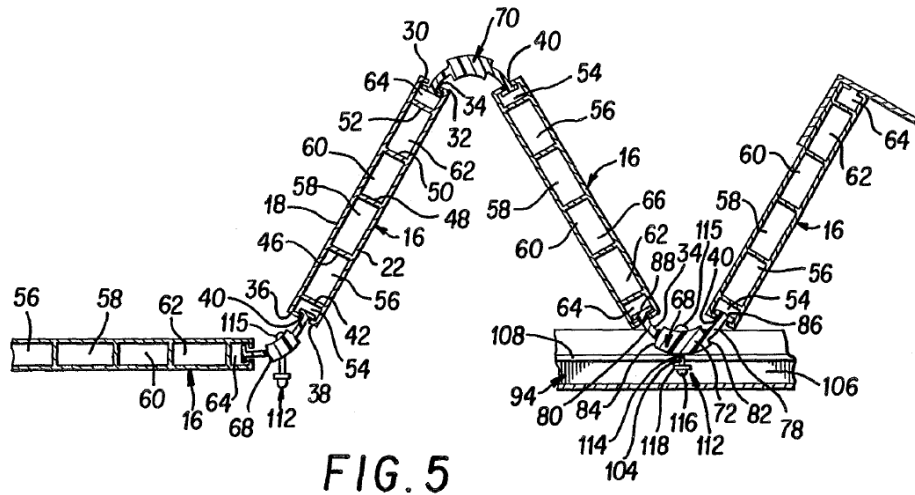


FIG. 1

As opposed to rolling, Apolzer uses flexible hinges (similar to Vanderpoel) where the panels fold accordion-style to allow access to the truck bed, as seen in Figure 5. Ex. 1015 at 5:45-47; Ex. 1003, ¶ 25.



A third alternative available in the 1980s is disclosed in U.S. Patent No. 4,221,423 (“Stone”)—a primary reference in this Petition that was not before the Patent Office during prosecution of the ’758 patent. Even at the time Stone was filed (November 1978), the “prior art include[ed] a variety of covers for vehicle boxes and the like.” Ex. 1005 at 1:15-16. Stone teaches that such covers shared certain objectives, namely “such a cover should cover effectively, that is, protect the contents of the box from the weather and from theft” (Ex. 1005 at 1:17-19), and “another object is to provide such a cover which minimizes air resistance due to movement of a vehicle on which the cover is mounted” (Ex. 1005 at 2:26-28). See Ex. 1003, ¶ 26.

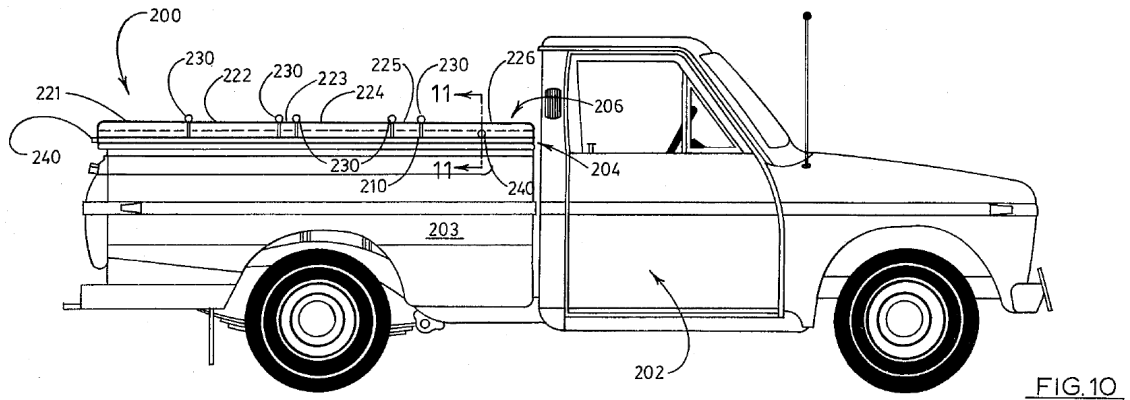
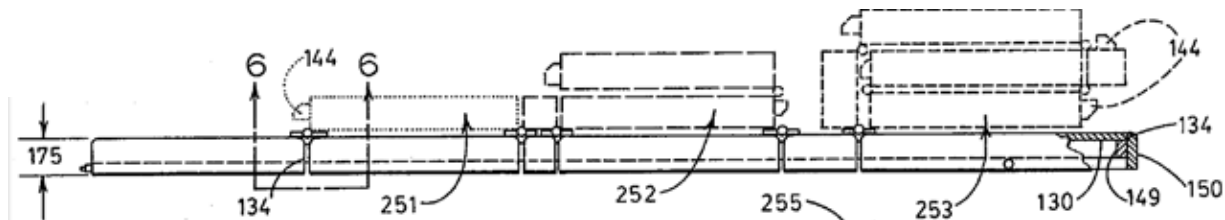


FIG. 10

Further, Stone instructs that “such a cover should open conveniently for access to all portions of the box.” Ex. 1005 at 1:19-21. To accomplish this, Stone uses hinged spacer bars of different widths between panels which allow the cover to fold “into a succession of stacks to provide access to increasingly larger portions of the box” (Ex. 1005 at 12:42-45) as seen in Figure 5 below:



The claims of the '758 Patent fall into this third category of pickup truck covers.

B. Summary of the '758 Patent

The truck cover market was thus highly mature when the '758 priority application was filed in 2006—28 years after Stone’s filing. Like the many patents before it, the '758 patent is directed to a “cover assembly for a pick-up truck cargo box.” Ex. 1001, Abstract. The '758 patent discloses a routine “foldable cover”

with first, second, and third (or more) panels that pivot or fold relative to one another. *Id.* at 1:49-57.

Figure 2 below is a plan view of the cover 100 disclosed in the '758 patent, depicting panels 102 connected by hinge joints 104 wherein second and third hinge joints 104B and 104C further include spacer bars 110 and 112. Like in Stone, the spacer bars are “dimensioned to allow the panels to fold flat onto each other, without stressing the hinge joints,” *i.e.*, joint 104A does not employ a spacer bar as it is the first to fold; joint 104B employs a spacer bar 110 to accommodate the next fold; and joint 104C employs a wider spacer bar 112 to accommodate folding over all the previous panels. *Id.* at 3:38-55.

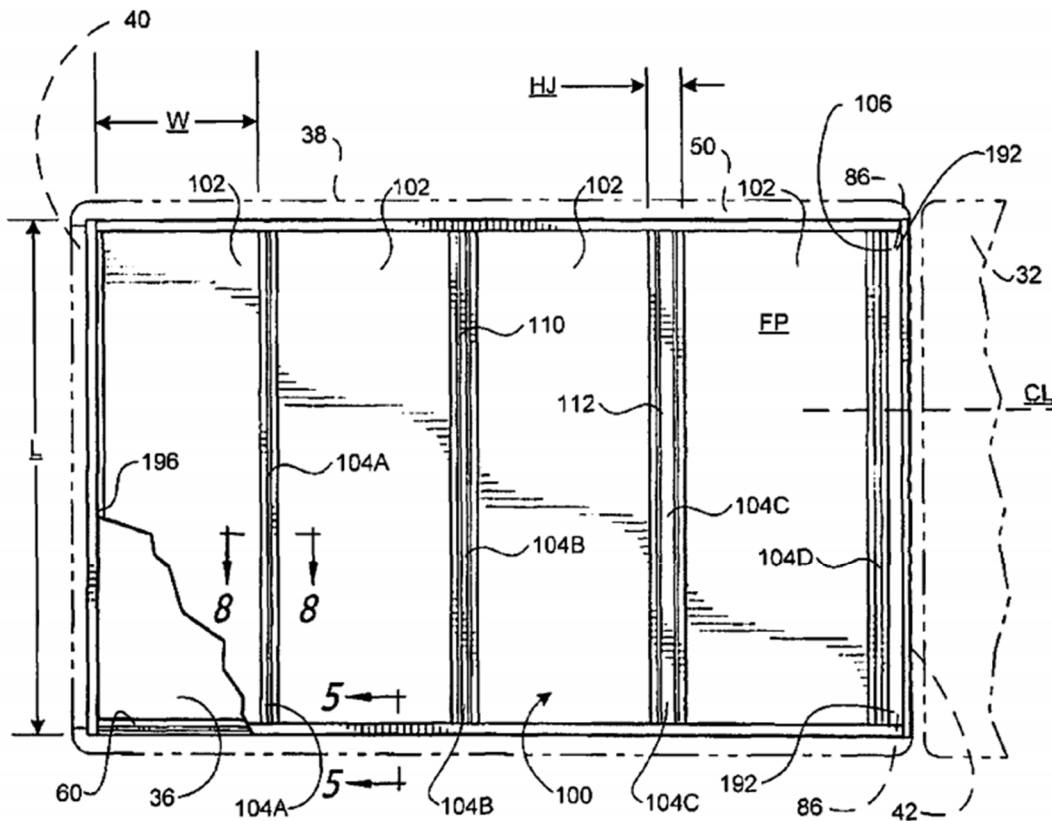
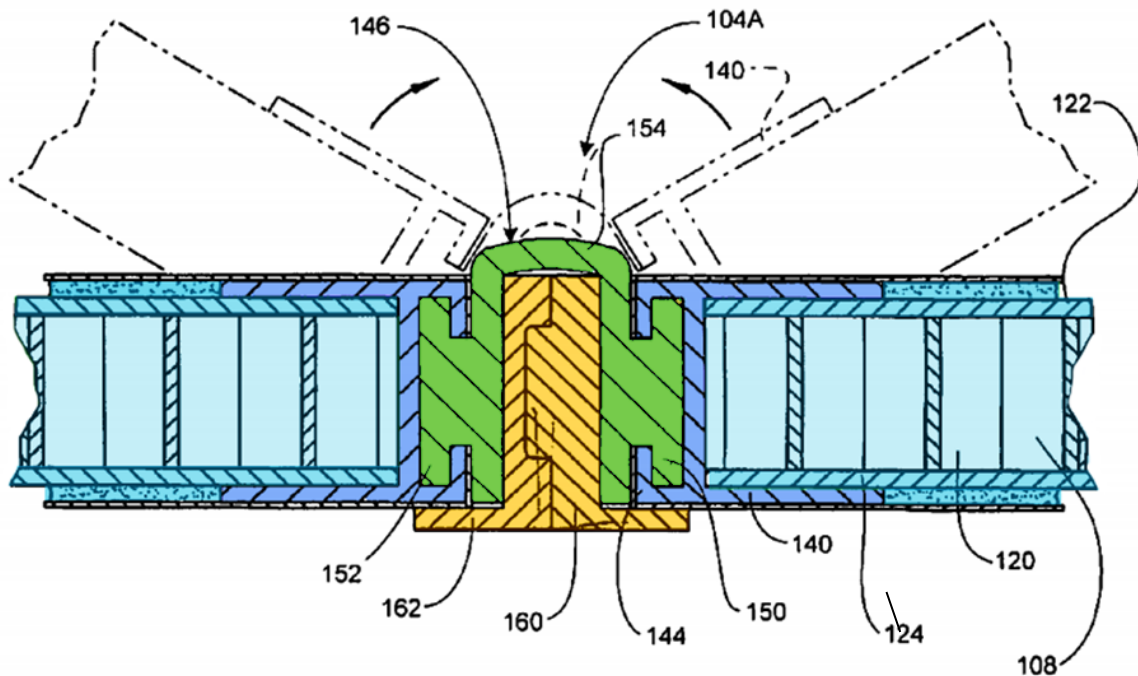


Figure 8 (reproduced below) is a section view showing an example connection between two “unfolded” panels—*e.g.*, hinge joint 104A, with no spacer bar—with the hinge strip 146 shown in green. *See id.* at 4:40-63. Hinge strip 146 is “typically made of rubber or other resilient or flexible material.” *Id.* at 4:40-43. As a result, “the hinge strip 146 forms a water resistant barrier with the adjoining panels 102” such that rainwater “cannot penetrate through the hinge joints 104” and, “when the cover 100 is closed . . . the contents of the cargo box 34 are secure and protected from rain.” *Id.* at 7:5-7. When joint 104 is in the “closed (unfolded) position shown in solid lines in Figure 8, the hinge strip is optionally slightly compressed.” *Id.* at 4:58-63.



Each panel may be formed as a “composite structure” including “core 120 sandwiched between a top sheet or plate 122 and a bottom sheet or plate 124.” Ex. 1001 at 4:20-25.

Figures 4 and 5 each depict features of cover 100 where the longitudinal sides of the cover interface with the truck bed. In particular, Figures 4 and 5 show side channel 128 [purple] attached to a panel [blue] and covered by side channel strip 130 [pink] “which may be provided as a strip of resilient material, such as rubber,” and having a tapered flap 136. *Id.* at 4:6-16.

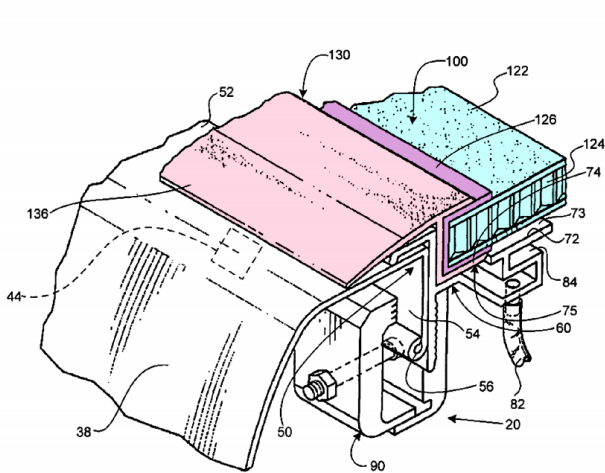


FIG. 4

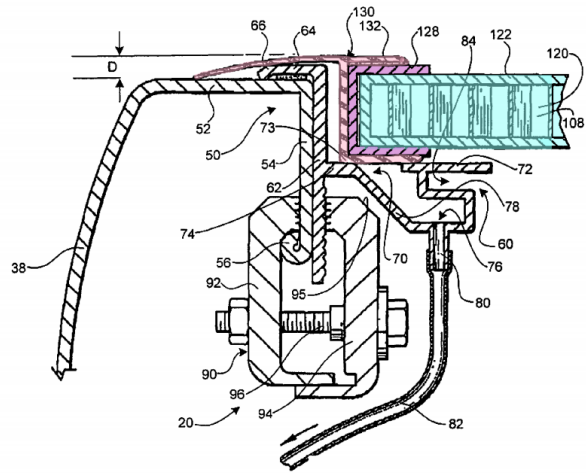


FIG. 5

C. Summary of Relevant Prosecution File History

The application that issued as the '758 Patent was filed on May 26, 2009, as a continuation of a 2006 priority application, and underwent a lengthy prosecution. After multiple rounds of prosecution, the Examiner indicated on January 5, 2011, that new dependent claim 19—which debuted the limitation “the first lateral member including an interlocking element interlocked with the first spacer bar”—was allowable if rewritten in independent form. The Examiner rejected all other claims under §103(a) as being unpatentable over Keller (Ex. 1011), either alone or in combination with, *inter alia*, Steffens (Ex. 1010). Ex. 1003, ¶¶ 32-39.

On February 1, 2011, Applicant rewrote claim 19 into independent form as new claim 22, added new claims 23-25, and amended or cancelled various other claims. On March 24, 2011, Applicant submitted a supplemental amendment in response to a telephone interview with the Examiner, amending claims 22 and 23. On April 5, 2011, the Examiner issued an Interview Summary indicating that claims 12, 18, 22 and 23 had been discussed, and that claims 22 and 23 “include the allowable subject matter from cancelled claim 19 which was indicated as allowable in pre[v]ious office action.” Ex. 1003, ¶¶ 36-38.

On August 10, 2011, the Examiner issued a Final Rejection against all claims except for 22-25 as being unpatentable over the combination of Steffens and Keller. The Applicant acquiesced to this rejection and cancelled all claims

except for 22-25. Claims 22-25 issued on October 12, 2011, as claims 1-4 of the '758 patent. Ex 1003, ¶ 39.

In the October 12, 2011 Reasons for Allowance, the Examiner reiterated: “Prior art of record fails to teach show or disclose the use of an interlock element interlocked with the spacer bar as found in independent claims 22 and 23 [issued claims 1 and 2].” Ex. 1002 at 274.

D. Person of Ordinary Skill in the Art

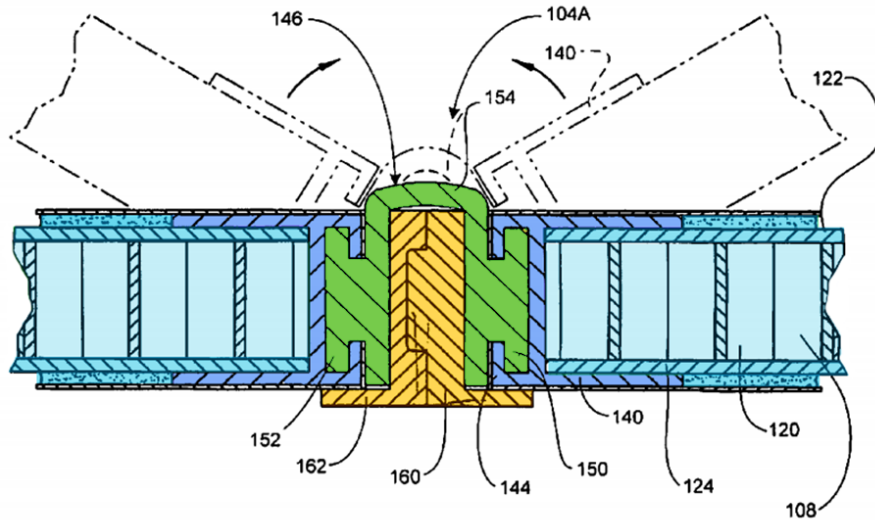
A POSITA at the time of the claimed invention would be a mechanical engineer or industrial designer with a degree in engineering, industrial design or a related specialization, with approximately two years of professional design experience, including product design. Alternatively, a designer without a degree may be a POSITA if they have approximately two to four years of experience designing automotive hardware, such as the cover at issue in this case. *See* Ex. 1003, ¶ 18-19.

III. CLAIM CONSTRUCTION

The terms of the '758 patent should be given their plain and ordinary meaning based on the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc)¹ except for two terms as noted below.

First, claim 2 of the '758 Patent includes four instances of a lateral member with an “interlocking element interlocked with” a lateral edge of a spacer bar. Ex. 1001 (claim 2). The specification of the '758 Patent defines “interlocking with each other,” specifically, “having features that engage each other.” Ex. 1001 at 5:1-2; Ex. 1003, ¶ 42. This definition is consistent with both the ordinary meaning and the sole figure in the '758 patent—Figure 8 shown below—that depicts elements “interlocked with each other,” namely, “[t]he backing bars 160 and 162 may be interlocking with each other, i.e., having features that engage each other.” Ex. 1001 at 5:1-2; Ex. 1003, ¶ 42.

¹ Petitioners address only the constructions relevant to this Petition, and make no admission regarding constructions in any other forum or that the claims conform to the requirements of 35 U.S.C. § 112.



The two interlocking elements above are highlighted in yellow, with the backing bar 160 having what is called in the industry a “male” interlocking feature that engages with a “female” interlocking feature in backing bar 162. Ex. 1003, ¶ 42. Thus, Petitioners propose that “interlocking” elements means those “having features that engage each other,” such as paired male and female elements.

Second, in the related ITC investigation, the parties (including Patent Owner) have agreed that the term “left and right” as used in claim 4 of the ’758 Patent means “adjacent to the left and right sidewalls of the truck cargo box.” Ex. 1017 at 3; Ex. 1018.

IV. STATEMENT OF THE PRECISE RELIEF REQUESTED AND THE REASONS FOR CANCELLATION (37 C.F.R. §§ 42.22(a) AND 42.104(b))

The Board is requested to find claims 2, 3, and 4 of the ’758 patent unpatentable in light of the teachings of the following references:

- U.S. Patent No. 4,221,423 (“Stone”), issued on September 9, 1980, Ex. 1005.
- U.S. Patent No. 5,595,417 (“Thoman”), issued on January 21, 1997, Ex. 1006.
- U.S. Patent No. 6,352,296 (“Kooiker 296”), issued on March 5, 2002, Ex. 1007.
- U.S. Patent No. 5,931,521 (“Kooiker 521”), issued on August 3, 1999, Ex. 1008.
- U.S. Patent No. 6,767,051 (“Erlandsson”), issued July 27, 2004, Ex. 1009.
- U.S. Patent No. 6,422,635 (“Steffens”), issued July 23, 2002, Ex. 1010.
- U.S. Patent No. 6,899,372 (“Keller”), issued May 31, 2005, Ex. 1011.

Each of these references was published more than one year before the presumptive ’758 priority date of September 26, 2006, and is therefore prior art under (pre-AIA) 35 U.S.C. section 102(b).

Specifically, Petitioner respectfully requests that the Board cancel the challenged claims of the ’758 patent based on the following four grounds:

Ground 1	Claims 2 and 3 are unpatentable under § 103 as obvious over Stone in view of Thoman
Ground 2	Claims 3 and 4 are unpatentable under § 103 as obvious over Stone in view of Thoman and Kooiker 296

Ground 3	Claims 2, 3, and 4 are unpatentable under § 103 as obvious over Stone in view of Thoman, Erlandsson, and Kooiker 296
Ground 4	Claims 2, 3, and 4 are unpatentable under §103 as obvious over Steffens in view of Keller and Erlandsson

None of the first three Grounds above involves any prior art reference considered by the Examiner during prosecution; thus, these Grounds raise no concerns under 35 U.S.C. § 325(d).

Ground 4 involves two references—Steffens and Keller—that the Examiner used in combination to reject numerous claims during prosecution. The Examiner also found that the combination of Steffens and Keller rendered obvious every claim element of issued claims 2 through 4 challenged here, with the exception of the “interlocking” elements of claim 2.

In particular, on August 10, 2011, the Examiner issued a Final Rejection rejecting all pending claims except for claims 22-25 as being unpatentable over the combination of Steffens and Keller. The “examiner’s statement of reasons for allowance” was, in whole, that the “[p]rior art of record fails to teach show or disclose the use of an interlock element interlocked with the spacer bar as found in independent claims 22 and 23 [issued claims 1 and 2].” Ex. 1002 at 274. As detailed in Section IV.D below, using such an “interlock element” between panels is taught in Erlandsson—a prior art patent not before the Examiner during

prosecution—and it would have been obvious to add such a feature to the truck cover disclosed in the combination of Steffens and Keller.

In *Oticon Medical AB v. Cochlear Limited*, the PTAB explained that even where all other references of a combination were previously considered, if a petition provides an additional reference that discloses the alleged point of novelty missing from a previously considered combination, then discretion under § 325(d) should not be exercised. Case IPR2019-00975, Paper 15 (Oct. 16, 2019) at 9-20 (precedential). Because Ground 4 presents a reference not previously considered by the Examiner (Erlandsson) that discloses the purported point of novelty in the claimed inventions (the “interlocking element”), Ground 4 also provides no basis for denial under § 325(d). *See id.*

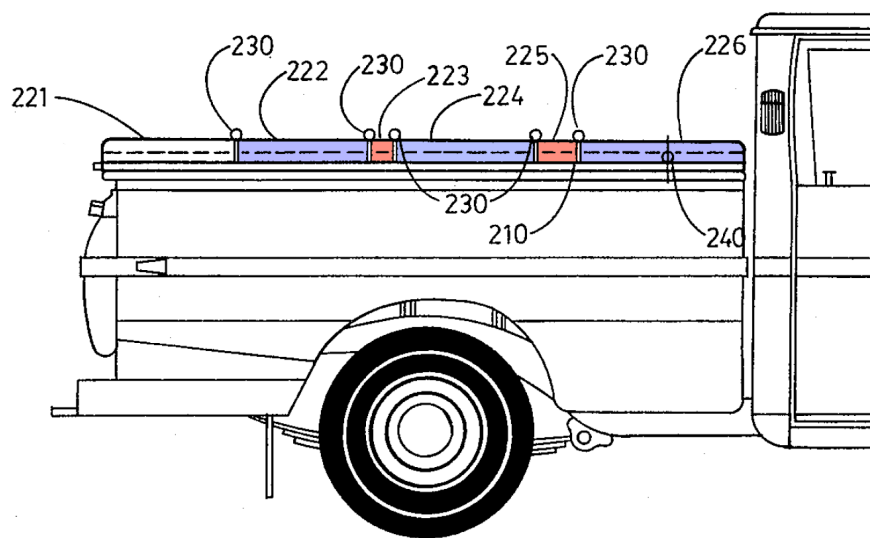
A. Ground 1: Claims 2 and 3 Are Unpatentable as Obvious Over Stone in View of Thoman

1. Stone

Stone is titled “Cover For a Vehicle Box,” and discloses a truck bed cover with two preferred embodiments: a “first form” 20 (*see* Ex. 1005 at 3:8-8:42; Figs. 1-9) and a “second form” 200 (*see id.* at 8:45-9:40; Figs. 10-11) wherein “the first form of cover 20 and the second form of cover 200 are substantially identical except that the first form includes [an] extension portion 61.” *Id.* at 9:46-48; *see also id.* at 9:49-64 (explaining that “a single description referring to the first form

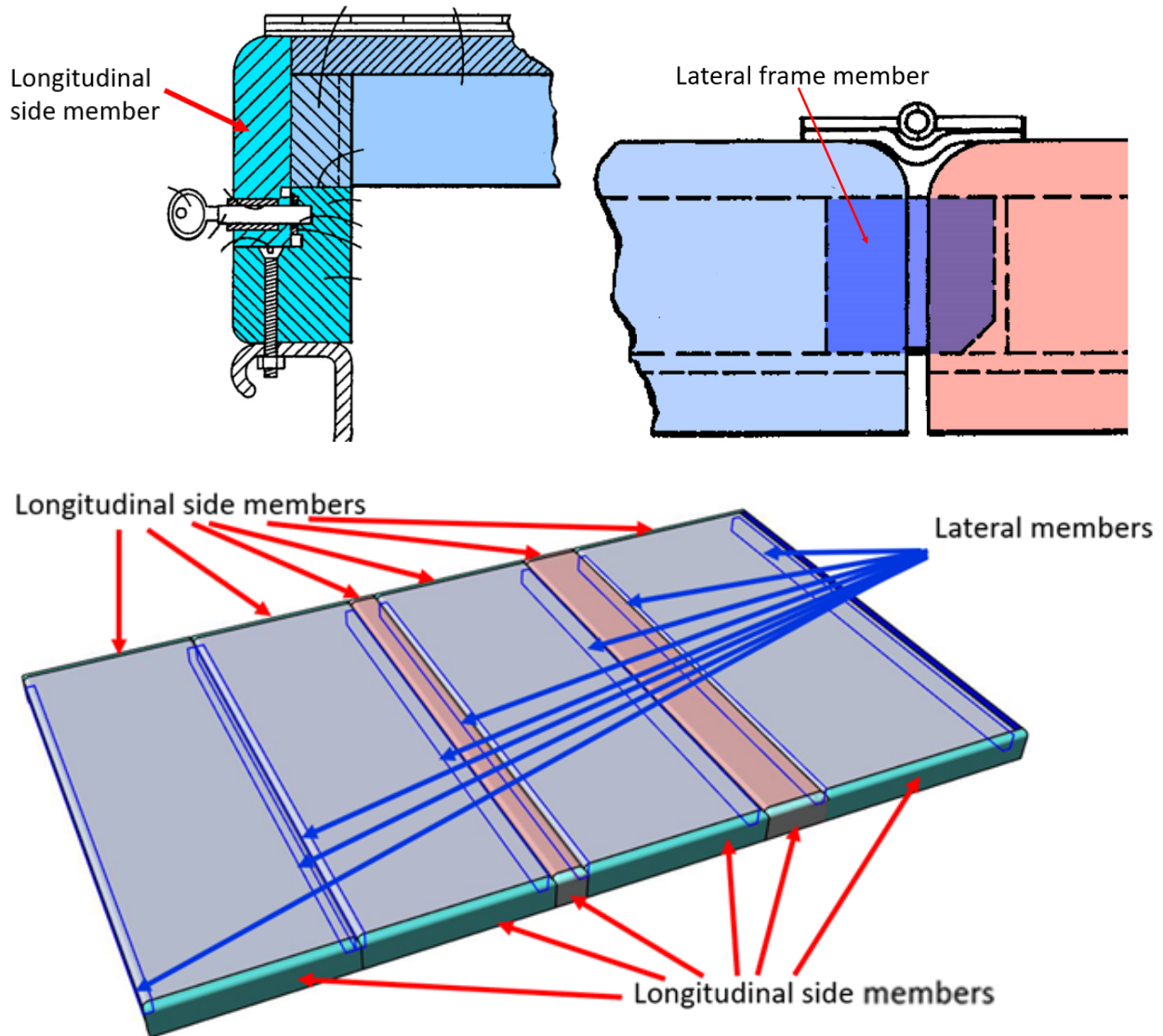
will suffice for both forms except where th[e extension] portion is specifically involved.”)

The Stone cover includes a series of six “panels” indicated by the numerals 221 through 226 in the second form (and 121 through 126 in the first form) wherein “[t]he panels are disposed in edge-to-edge relation with their juxtapositioned edges interconnected by hinge assemblies 230.” Ex. 1005 at 9:7-12. These panels can be seen in the detailed view of Figure 10 below where a first panel 222,² second panel 224, and third panel 226 have been colored purple, and “panels” 223 and 225 (pink) serve as spacer bars between the larger panels. *See also id.*, FIG. 1 (showing panels 121 through 126 arranged in an identical manner).

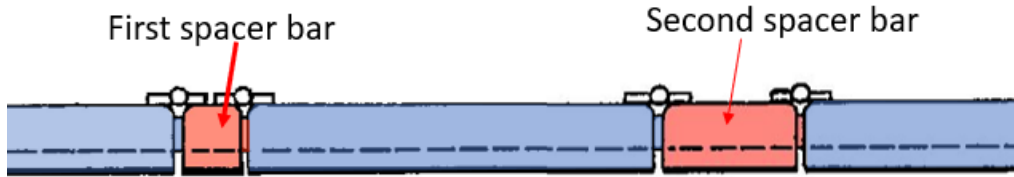


² Although panel 222 is the second panel from the back of the truck, it represents the first of the three panels according to the convention used in the '758 patent.

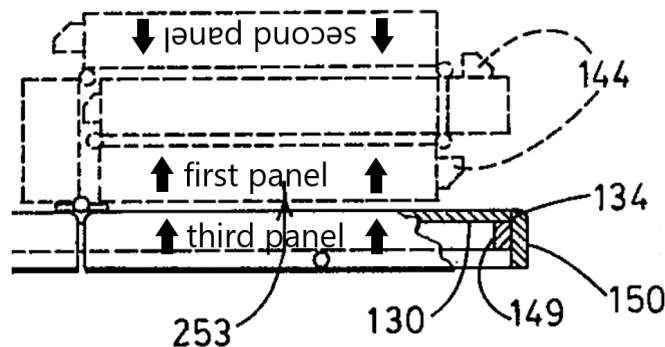
The panels of Stone are rigid and gain strength from longitudinal side walls and lateral walls (or “frame members”) which include additional features for water protection and channeling as seen in the below shaded excerpts from Figures 3 and 8, as well as the CAD rendering of the Stone cover (below those figures) prepared by expert Paul Hatch to provide a 3D perspective. See Ex. 1003, ¶ 45.



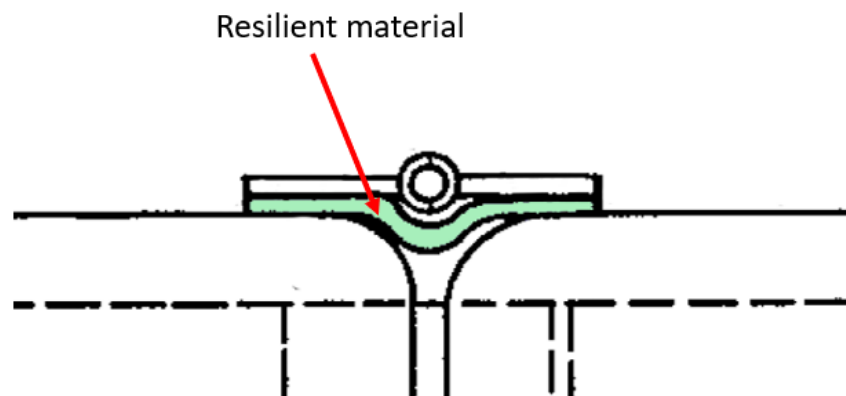
To facilitate folding the cover, Stone uses two sizes of spacer bar with “widths which increase successively” to provide space for the folding of the covers. Ex. 1005 at 12:63-13:9; Figures 4, 5, and 9. In the excerpt of Figure 5 below, the first and second spacer bars are shown in red. See Ex. 1003, ¶ 46.



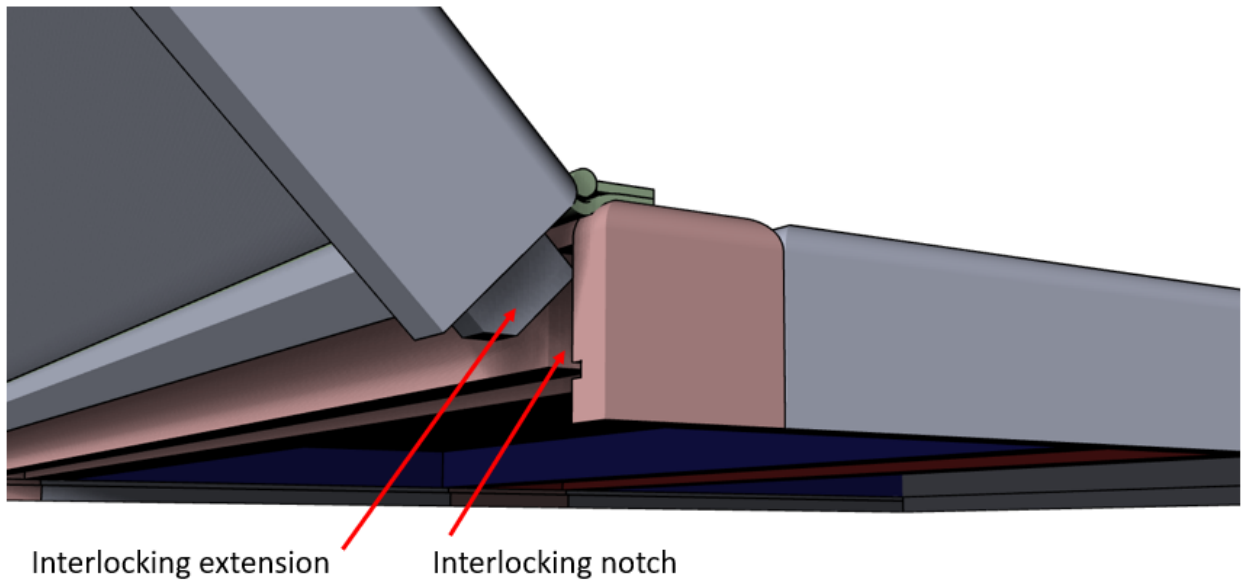
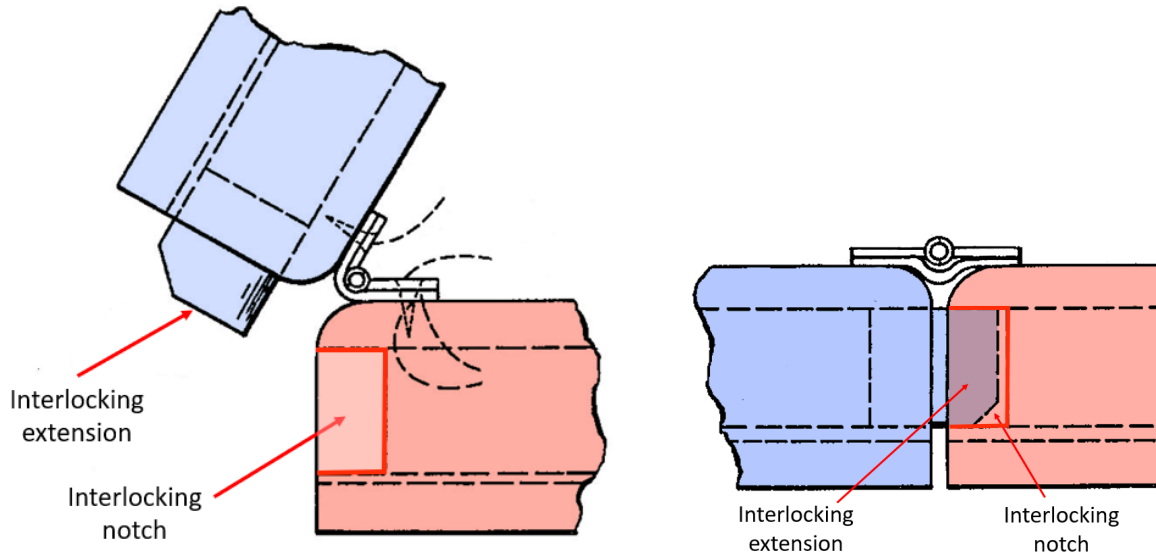
With regards to their sizes, Stone explains “[t]he width of the [spacer] panel 123 is substantially equal to its depth, or the first predetermined distance, and the width of the [second spacer] panel 125 is substantially equal to twice this distance.” Ex. 1005 at 8:39-42. By sizing the spacers in this way, the first panel (122, 222), second panel (124, 224), and third panel (126, 226) can be folded over and stacked substantially parallel to one another as shown in the annotated excerpt of Figure 5 below, where the panels have been labelled and their orientation noted by arrows pointing to the top of each panel.



One object of Stone is “to provide such a cover which prevents water leakage into the box when the cover is closed.” Ex. 1005 at 2:23-25. Thus, Stone teaches use of a water-protective seal “formed of a resilient material such as rubber” (Ex. 1005 at 7:55-56) that is compressed between panels (*e.g.*, between a panel and spacer bar panel) when the cover is in an unfolded position, as shown in the below excerpt from Figure 7. *See* Ex. 1003 at ¶ 47.



Stone also discloses that the lateral members of each panel and spacer bar include interlocking “extensions (144) and notches (146),” which interlock the panels and spacer bars together when unfolded, but still allow for upward hinging of the panels and spacer bars when folding up. Ex. 1005 at 10:58-61; Ex. 1003, ¶ 48. These are seen in the below shaded excerpts from Figures 7 and 8 of Stone, as well as the below CAD rendering of the Stone cover (prepared by expert Paul Hatch to illustrate this feature). *See* Ex. 1003 at ¶ 48.



Thus, as explained further below, Stone discloses nearly every element of independent claim 2 of the '758 patent, with the minor exception that Stone does not disclose panels having a core material between top and bottom plates.

2. Thoman

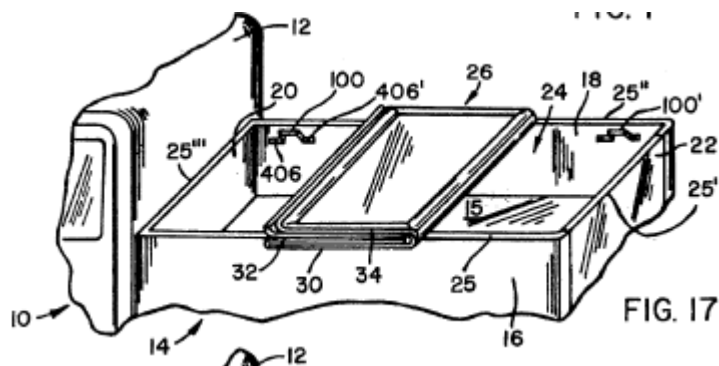
U.S. Patent No. 5,595,417 (“Thoman”) discloses a three-panel “tonneau cover for enclosing an open bed of a pick-up truck.” Ex. 1006 at 1:38-42; Figure 17. The cover has front,

center, and rear panels. *Id.*

Like Stone and the ’758 patent,

Thoman teaches using a

“spacer member” between the



center and rear panels, such that after the front panel is folded over onto the center panel, the “spacer member allow[s] said rear panel to rotate” on top of the already stacked front and center panels such that “said center panel along with the front panel and rear panel in said [folded] positions form[] a work surface substantially parallel with said bed.” Ex. 1006 at 7:40-59; Exhibit 1003, ¶ 49.

Most pertinent here, “[e]ach of the panel[s] is made up of a frame and a center composite made of a foam member 56 sandwiched between and bonded to top 52 and bottom 54 hard plastic sheets.” Ex. 1006 at 3:38-41.

3. The Combination of Stone in View of Thoman

A POSITA would have been motivated to modify Stone to use the panels of Thoman in order to reduce the weight of the cover, which would improve the fuel efficiency of the truck, facilitate folding of the panels by users, and also render the

cover easier to carry and transport when not attached to a truck bed. *See* Ex. 1003, ¶¶ 73, 78–79.

Like the '758 Patent, both Stone and Thoman disclose multi-panel folding covers for pickup truck beds. Both Stone and Thoman address issues of security and waterproofing for a truck bed through the pivotal folding of hinged panels, and, as such, both are analogous prior art. Ex. 1003, ¶¶ 74-75, 77-78.

Stone does not expressly discuss the use of top and bottom panel plates, or the use of some type of core material between the two. Ex. 1003, ¶ 77. Thoman, however, expressly teaches using panels “enclosing a composite core made up of a foam center sandwiched between sheets of plastic.” Ex. 1006 at 1:42-45; *also* 3:38-41 (“Each of the panel[s] is made up of a frame and a center composite made of a foam member 56 sandwiched between and bonded to top 52 and bottom 54 hard plastic sheets.”).

Since the 1980s, truck covers preferably achieved “the desired qualities of high strength, **light weight** and low cost.” Ex. 1013 (Champie) at 7:6-7 (emphasis added); Ex. 1003, ¶ 80. And at least as early as 1985 there was “a trend toward using lightweight hollow-core or foam-filled door sections” in the “transportation industry.” Ex. 1014 (DeFalco) at 1:62-68; Ex. 1003, ¶ 79–80. So it is no surprise that, by the 2006 priority date of the '758 patent, use of panels with core material between top and bottom plates was ubiquitous in the field of truck tonneau covers.

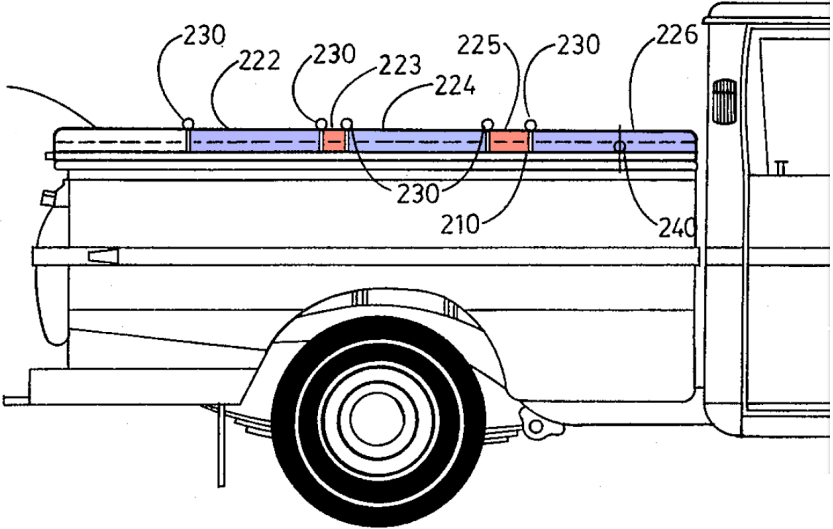
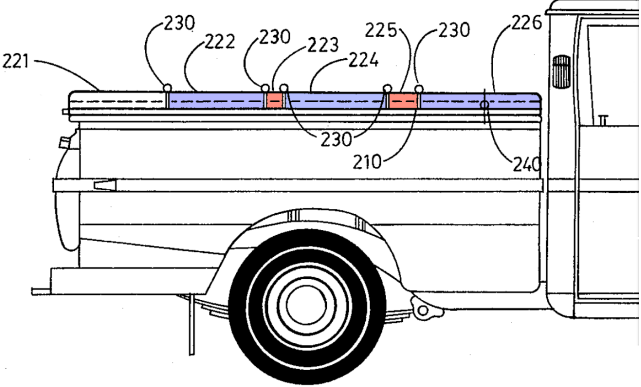
See, e.g., Ex. 1003, ¶ 81 (citing Ex. 1010 (Steffens) at 7:1-3 and Ex. 1016 (Wheatley) at 3:40-42); *Randall Mfg. v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013) (instructing that the Board must consider “additional record evidence [] cited to demonstrate the knowledge and perspective of one of ordinary skill in the art . . . to account for critical background information that could easily explain why an ordinarily skilled artisan would have been motivated to combine or modify the cited references to arrive at the claimed inventions.”).

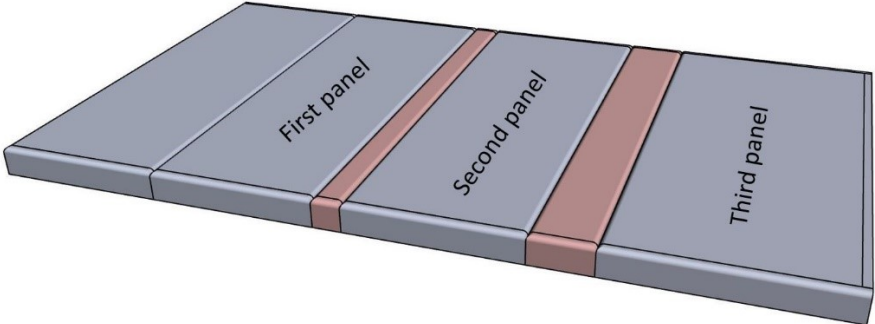
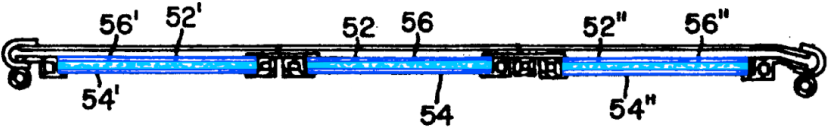
Because minimizing the weight of structural components was a known problem in the transportation industry, and using panels with core material between top and bottom plates was a well-known solution, a POSITA would have been motivated to substitute the panels of Stone with those described in Thoman to lower the weight of the Stone cover and thus improve it. Ex. 1003, ¶ 77-79; *ABT Systems, LLC v. Emerson Elec. Co.*, 797 F. 3d 1350, 1360 (Fed. Cir. 2015) (explaining that evidence of “any need or problem known in the field of endeavor at the time of invention is particularly relevant with simpler mechanical technologies”). And because doing so was prevalent in the industry, a POSITA would have been able to make this common substitution with the reasonable expectation of success. Ex. 1003, ¶¶ 80-83; *see Randall*, 733 F.3d at 1363 (“Once it is established that a prevalent, perhaps even predominant, method of stowing a bulkhead panel was to raise it to the ceiling, it is hard to see why one of skill in the

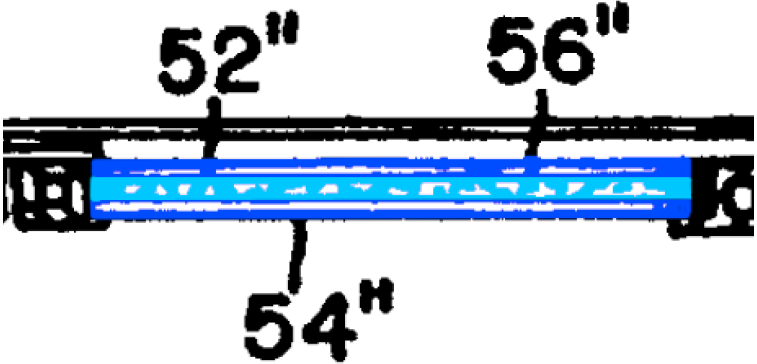
art would not have thought to modify Aquino to include this feature—doing so would allow the designer to achieve the other advantages of the Aquino assembly while using a stowage strategy that was very familiar in the industry”).

4. Applying Stone in View of Thoman to Claims 2 and 3

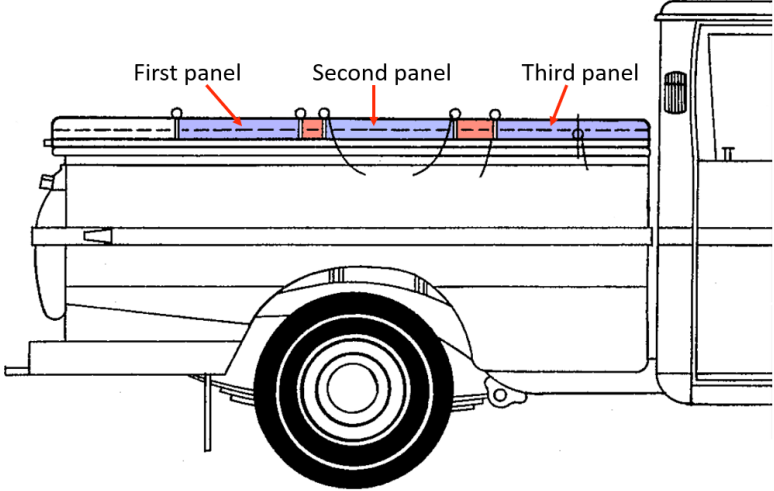
The combination of Stone and Thoman discloses every limitation of claims 2 and 3 of the '758 patent, as set forth in the following chart.

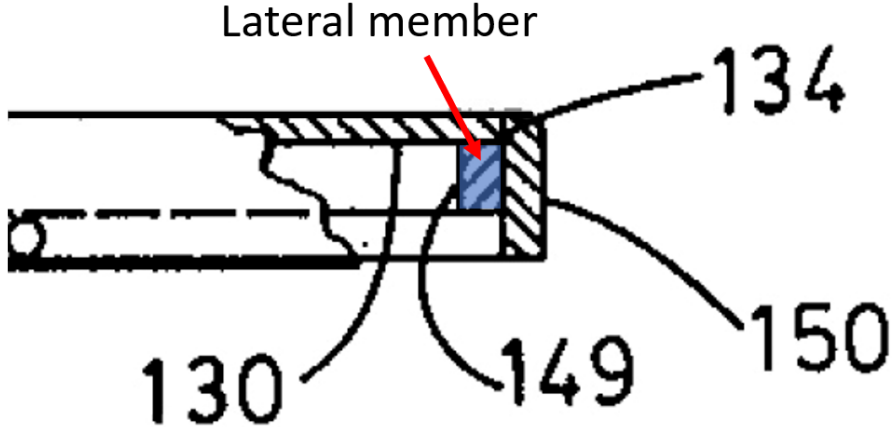
	Claim Language	Stone in view of Thoman
2.0	A cover for a pick-up truck cargo box, comprising:	 <p data-bbox="526 1339 1398 1444">As seen in the excerpt of Figure 10 above, Stone discloses a cover for a pick-up truck cargo box.</p>
2.1	a first panel, a second panel, and a third panel, with each panel having a core	

	Claim Language	Stone in view of Thoman
	<p>material between top and bottom plates;</p>	<p>As seen in Figure 10 above, Stone discloses a cover comprising a first panel (222), a second panel (224), and a third panel (226). Ex. 1005 at 9:7-12; <i>also</i> Ex. 1003, ¶ 84, Claim 2(i) (annotated CAD drawing shown below).</p>  <p>Thoman discloses a truck tonneau cover wherein each of the panels “is made up of a frame and a center composite made of a foam member 56 sandwiched between and bonded to top 52 and bottom 54 hard plastic sheets.” Ex. 1006 at 1:42-45; 3:38-43; <i>also</i> Ex. 1003, ¶ 84, Claim 2(ii) (providing annotated figures):</p> 

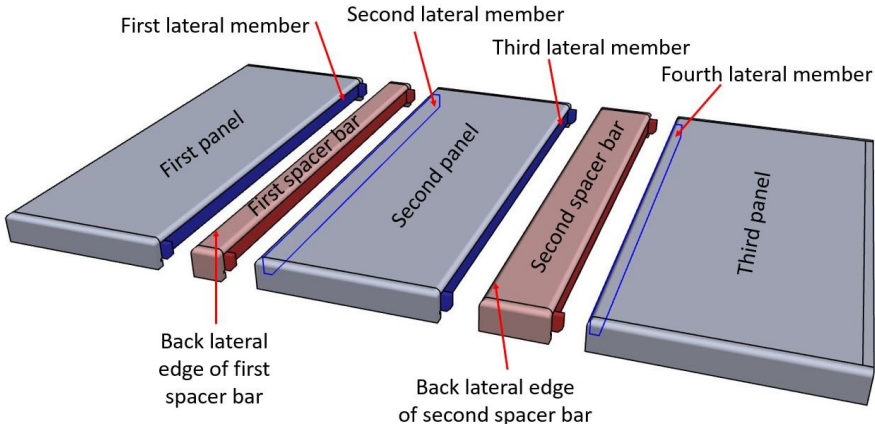
	Claim Language	Stone in view of Thoman
		 <p data-bbox="524 726 1401 1020">For the reasons explained above, it would have been obvious to construct the first panel (222), second panel (224), and third panel (226) of Stone with core material 56 sandwiched between top plate 52 and bottom plate 54 as taught in Thoman. <i>See also</i> Ex. 1003, ¶ 84, Claim 2(ii).</p>
2.2	a first lateral member attached to the front lateral edge of the first panel;	<p data-bbox="524 1066 1393 1167">Stone discloses a first lateral member attached to the front lateral edge of the first panel.</p> <p data-bbox="524 1209 1393 1566">With two immaterial exceptions³, each of the panels and spacer bars in Stone have the same composition—Stone even refers to them all as “panels,” although 223 and 225 serve the function of spacer bars—and panels 221 through 226 from Figure 10 have the same relevant features as panels 121 through 126 described in more detail in Stone.</p>

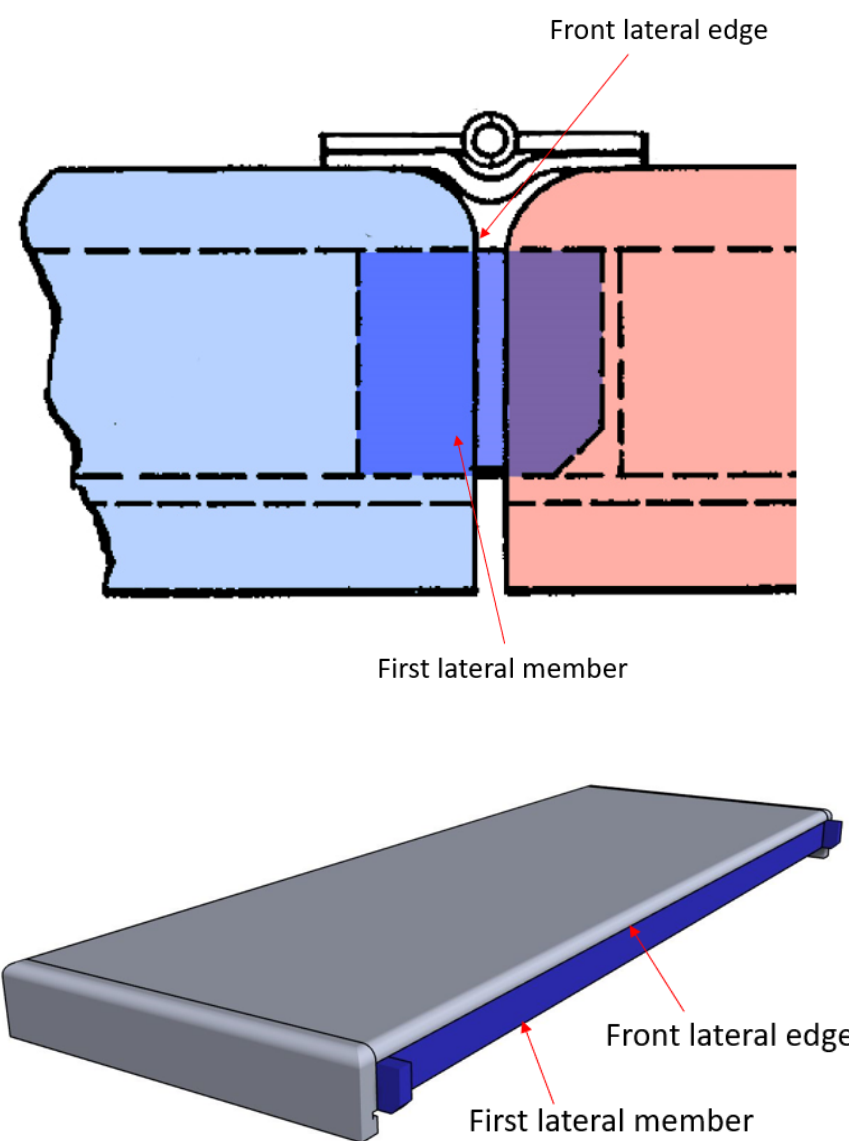
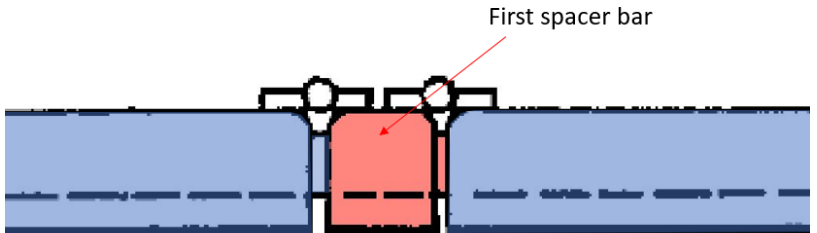
³ End panels 121/221 (near tailgate) and 126/226 (near truck cab) each have an edge not connected to another panel or spacer bar. Ex. 1005 at 6:55-57.

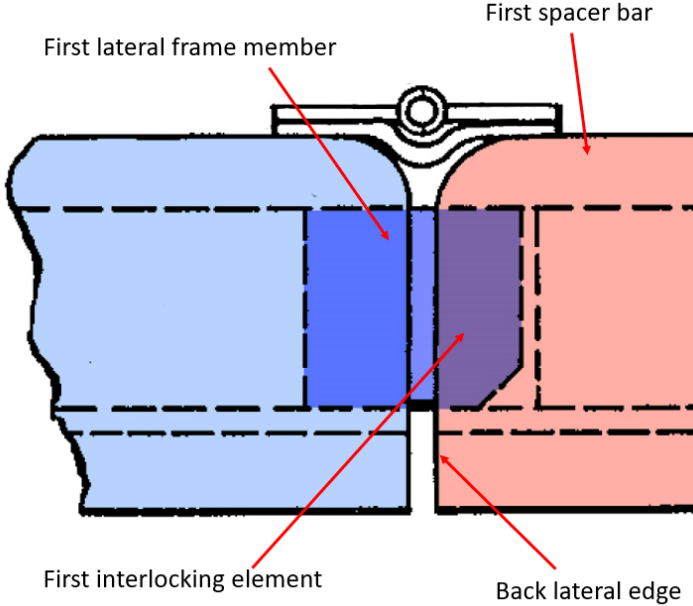
	Claim Language	Stone in view of Thoman
		<p data-bbox="524 285 1365 386"><i>See</i> Ex. 1005 at 9:7-10; <i>see also</i> Ex. 1003 at ¶ 84, Claim 2(iii).</p> <p data-bbox="524 430 1398 657">Each of the adjacent panels and spacer bars are “disposed in edge-to-edge relation with their juxtapositioned edges interconnected by hinge assemblies 230” as seen in Figure 10. Ex. 1005 at 9:10-13.</p>  <p data-bbox="524 1234 1406 1528">Further, Figure 5 shows a cut-out of the common internal structure of panels and spacers that shows the “second bars 149 which are parallel to the second edges 134 of its respective panel,” and constitute the claimed “lateral members” as seen in the following enlarged excerpt from</p>

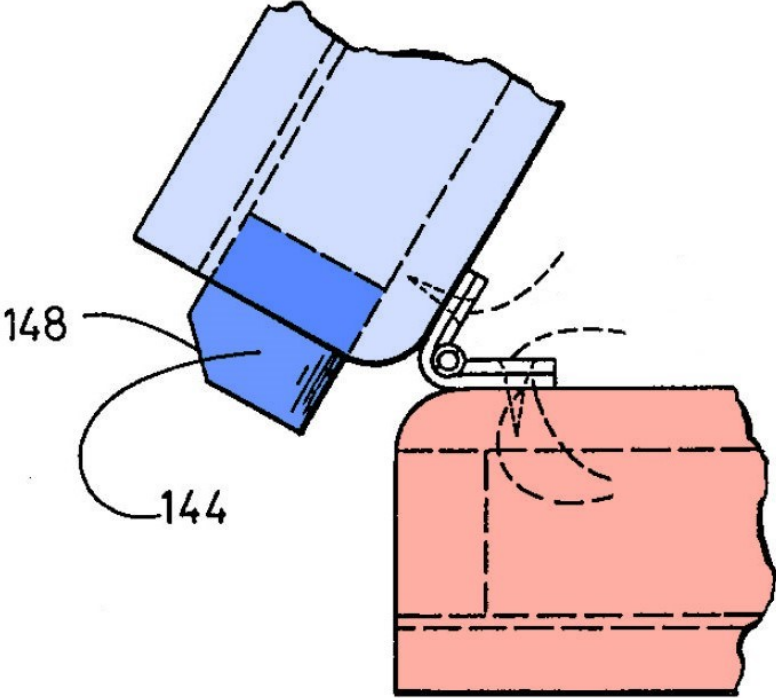
	Claim Language	Stone in view of Thoman
		<p data-bbox="524 285 1382 384">Figure 5. Ex. 1005 at 6:55-57; 7:24-29; Ex. 1003 at ¶ 84, Claim 2 (iii).⁴</p>  <p data-bbox="524 968 1424 1451">Thus, the first panel 222 of Stone (like all of the spacer bars and panels) includes a first lateral member (149) attached to its front lateral edge (134) (wherein “front” refers to the lateral end of the panel nearest the front of the truck). Ex. 1005 at 6:52-54 (“Each reinforcing frame 140 includes a pair of second bars 149 which are parallel to the second edges 134 of its respective panel.”) (emphasis added); <i>see also</i> Ex. 1003, ¶ 84, Claim 2 (iii).</p>

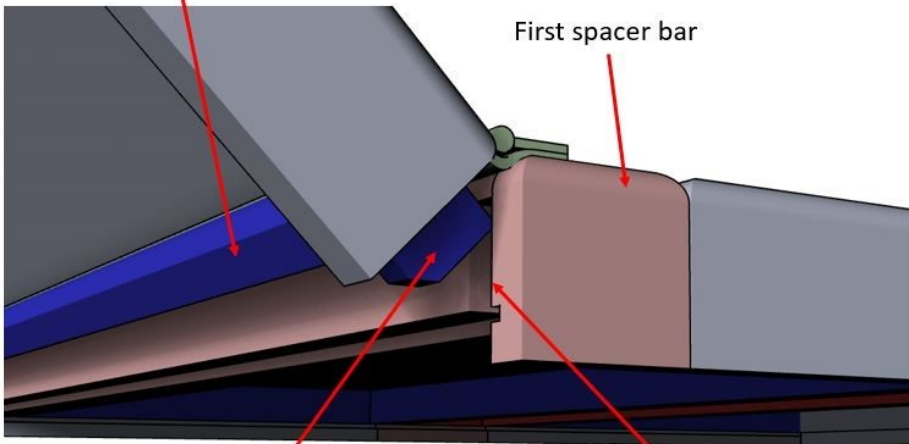
⁴ A “bar 150” shown in this excerpt from Figure 5 is only added to the rear edge of the back panel (121/221) and the front edge of the front panel (126/226), not the edges of internal panels. Ex. 1003 at ¶ 84, Claim 2 (iii).

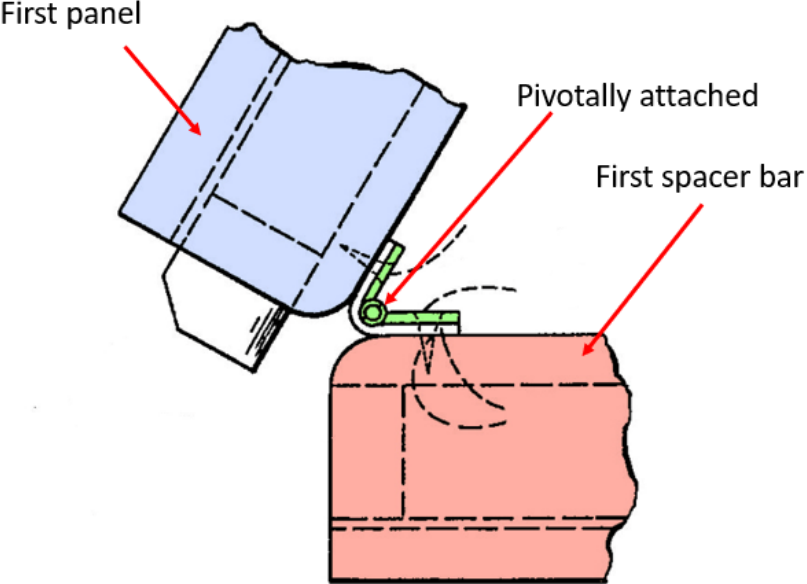
	Claim Language	Stone in view of Thoman
		<p>Further, because all panels (including spacer bars) use the same construction, the composition of elements from FIGS 5 through 9 of Stone are applicable to all adjacent elements, including panel-to-panel, panel-to-spacer-bar, and spacer-bar-to-panel connections. <i>See</i> Ex. 1003, ¶ 84, Claim 2 (iii). This is illustrated in the below CAD drawing of the relevant pieces of the Stone cover (Ex. 1003, ¶ 72):</p>  <p>Thus, while the annotated FIG. 7 and the additional CAD rendering below demonstrate the location of the first lateral member attached to the front lateral edge of the first panel, they also represent each of the other claimed connections as explained in detail later. <i>See</i> Ex. 1003, ¶ 84, Claim 2 (iii).</p>

	Claim Language	Stone in view of Thoman
		
2.3	a first spacer bar, with the first lateral frame member including a	

	Claim Language	Stone in view of Thoman
	<p>first interlocking element interlocked with a back lateral edge of the first spacer bar and with first panel pivotally attached to the first spacer bar;</p>	<p>Stone discloses a first spacer bar, as shown in the annotated excerpt from FIG. 5 above. Further, Stone discloses a first panel 222 with a first lateral frame member which includes a first interlocking (male) element interlocked with an interlocking element (female) on the back lateral edge of the first spacer bar 223. <i>See</i> Ex. 1003, ¶ 84, Claim 2 (iv). This is depicted in more detail in enlarged excerpts from Figures 7 and 8:</p>  <p>The diagram is a cross-sectional view of two components joined together. On the left is a blue-shaded component, and on the right is a red-shaded component. A purple-shaded component is positioned at the top center, bridging the two. Red arrows point from text labels to specific parts: 'First lateral frame member' points to the purple component; 'First spacer bar' points to the top of the red component; 'First interlocking element' points to a protrusion on the blue component; and 'Back lateral edge' points to the bottom edge of the red component. Dashed lines indicate internal features or boundaries within the components.</p>

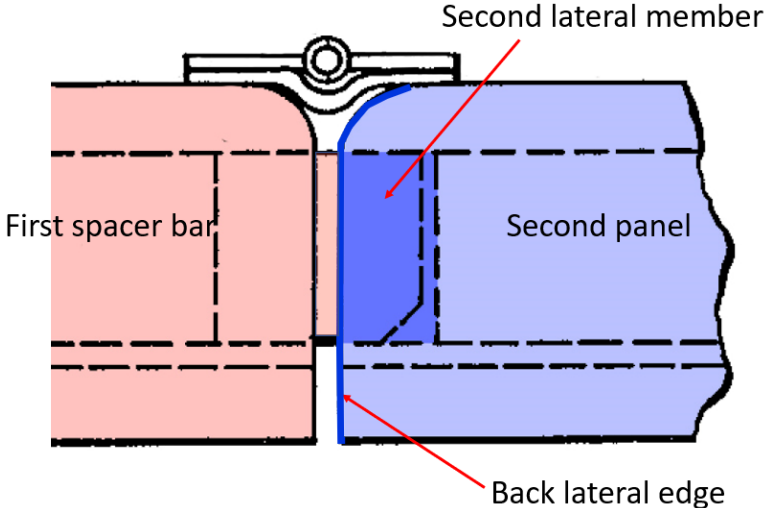
	Claim Language	Stone in view of Thoman
		 <p data-bbox="521 1045 1412 1848">Note, the excerpts above illustrate the connections between all panels and spacer bars, including the junction where the first panel is on the left and the first spacer bar is on the right. Ex. 1003, ¶ 84, Claim 2 (iv); Ex. 1005 at 6:41-50 (“The outwardly extending one of said ends thus forms an extension 144 mounted on and downwardly of the corresponding respective first edge of the panel. Said opposite end forms a notch 146 extending inwardly of the panel. Each notch extends inwardly from its respective panel substantially the same distance as the extension projects outwardly from the panel. Therefore, each notch is fitted to receive one of said extensions of another panel.”); <i>also id.</i> at 18:18-28.</p>

	Claim Language	Stone in view of Thoman
		<p>This interlocking of the interlocking (male) element (extension 144) of the first panel and the interlocking (female) element (notch 146) of the first spacer bar is also illustrated in the below CAD rendering of the Stone cover prepared by expert Paul Hatch. <i>See Ex. 1003, ¶ 84, Claim 2 (iv).</i></p>  <p>The CAD rendering shows a perspective view of the assembly. A grey panel is shown with a blue interlocking element extending from its bottom edge. This element fits into a notch on a red spacer bar. The spacer bar is attached to a blue back lateral edge. Labels with red arrows point to the 'First lateral frame member' (grey), 'First spacer bar' (red), 'First interlocking element' (blue), and 'Back lateral edge' (blue).</p> <p>Further, Stone discloses that the first panel 222 is pivotally attached to the first spacer bar 223. <i>Ex. 1005 at 7:38-43</i> (“Each second edge 134 of the juxtapositioned pairs thereof of the panels 121 through 126 is interconnected to the other of said edges by a hinge assembly 160 which defines a substantially horizontal pivotal axis 161 extending between and substantially parallel to said edges.”); <i>also 9:10-13</i> (describing how each of the adjacent panels and spacer bars</p>

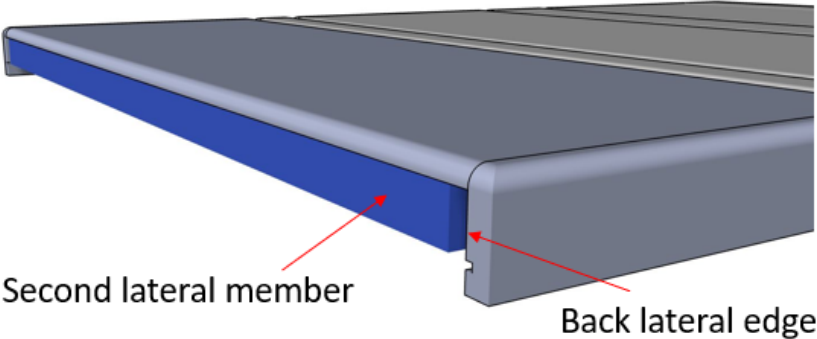
	Claim Language	Stone in view of Thoman
		<p>in Figure 10 are also “disposed in edge-to-edge relation with their juxtapositioned edges interconnected by hinge assemblies 230”); <i>See</i> Ex. 1003, ¶ 84, Claim 2 (v). This is illustrated in the annotated FIG. 8 below. <i>See</i> Ex. 1003, ¶ 84, Claim 2 (v).</p> 
2.4	<p>a second lateral member attached to a back lateral edge of the second panel, with the second lateral member</p>	<p>As explained in [2.2] above, each panel and spacer bar in Stone is identical except for its dimensions, such that second panel 224 has a second lateral member attached to its back lateral edge, and first spacer bar 223 has a front lateral edge with a male interlocking element. <i>See</i> Ex. 1005 at 9:7-12; FIG. 10.</p> <p>The second lateral member attached to a back lateral edge of the second panel 224, is represented in the excerpt from Figure 7 below. <i>See</i> Ex. 1003, ¶ 84, Claim 2 (vi).</p>

	Claim Language	Stone in view of Thoman
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including a second interlocking element interlocked with a front lateral edge of the first spacer bar;

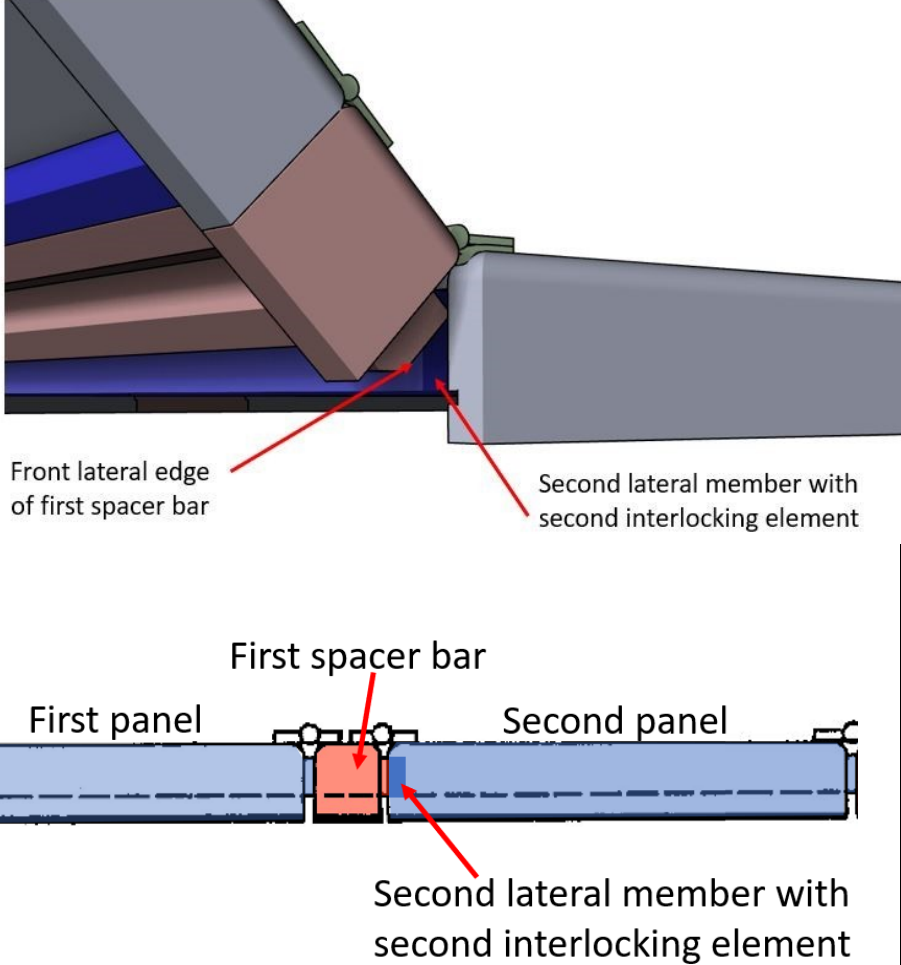
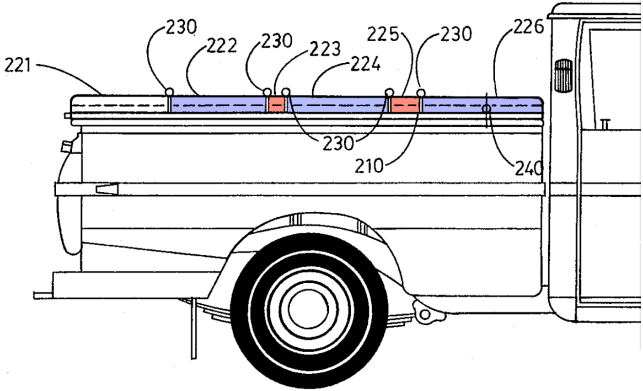


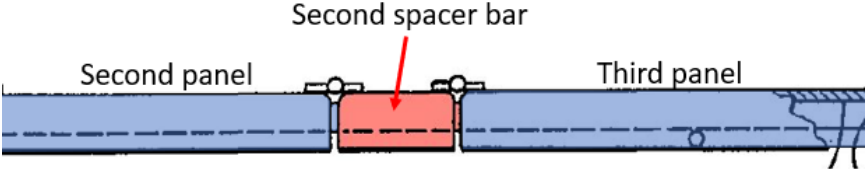
The second lateral member attached to the back lateral edge of the second panel of the Stone cover also is shown in blue in the CAD rendering below. See Ex. 1003, ¶ 84, Claim 2 (vi).

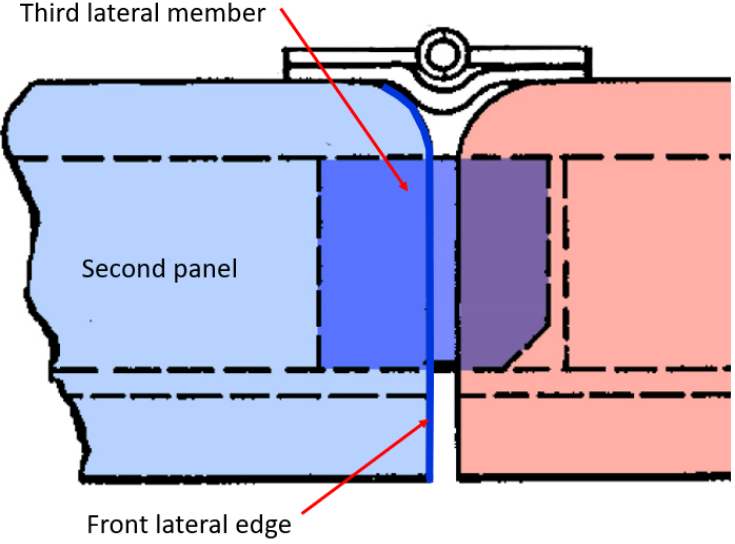


Here, the claimed second interlocking element is a female element (notch 146) of the second interlocking element of the second panel as depicted in the annotated excerpts from Figure 7 and Figure 6 below. See Ex. 1003, ¶ 84, Claim 2 (vii).

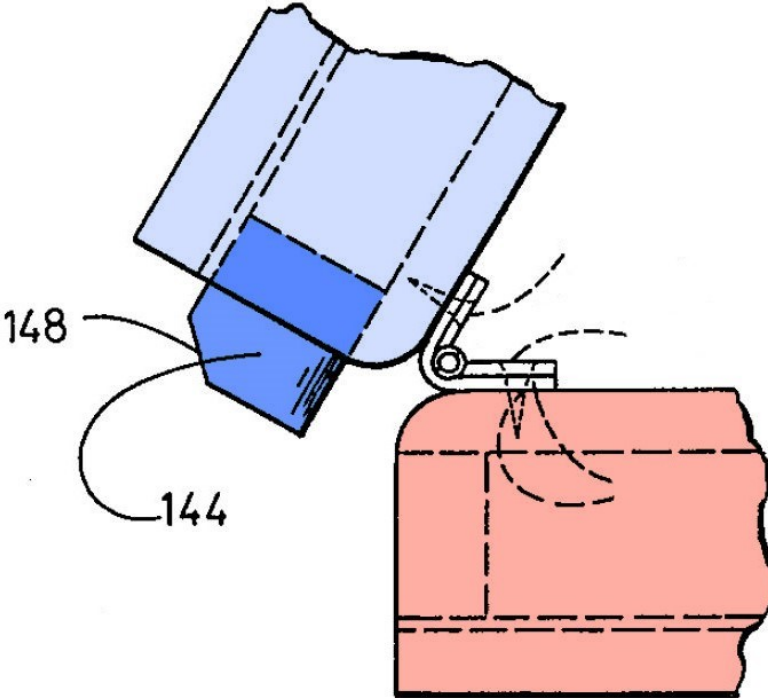
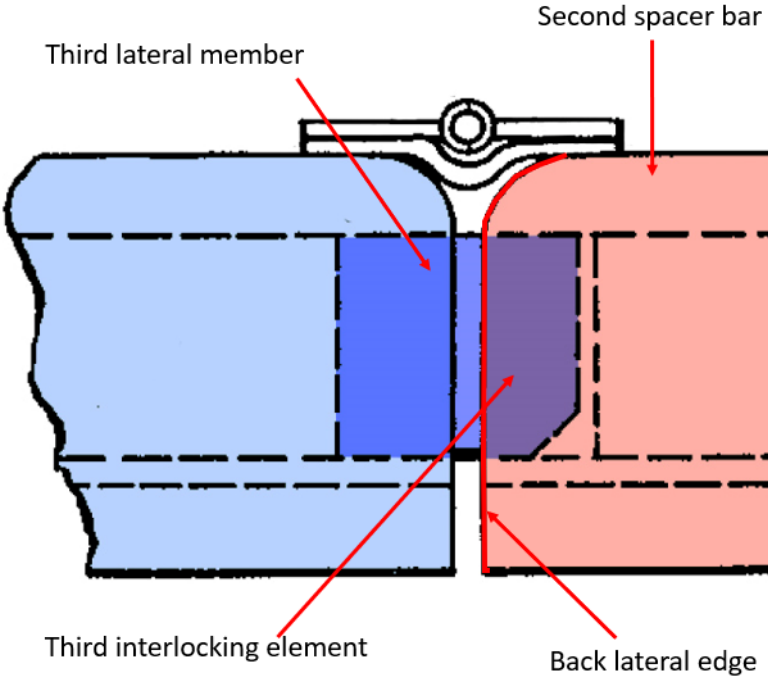
	Claim Language	Stone in view of Thoman
		<p data-bbox="1024 296 1260 327">Front lateral edge</p> <p data-bbox="1032 747 1344 779">Second lateral member</p> <p data-bbox="756 842 813 873">136</p> <p data-bbox="805 884 862 915">144</p> <p data-bbox="1049 842 1105 873">136</p> <p data-bbox="1000 884 1057 915">146</p> <p data-bbox="586 1041 643 1073">142</p> <p data-bbox="724 1167 781 1199">130</p> <p data-bbox="1049 1167 1105 1199">130</p> <p data-bbox="1308 1041 1365 1073">142</p> <p data-bbox="610 1293 829 1367">Front lateral edge of first spacer bar</p> <p data-bbox="1016 1272 1382 1346">Second lateral member with second interlocking element</p> <p data-bbox="524 1413 1406 1770"> In particular, the interlocking (male) element (extension 144) of the first spacer bar interlocks with the interlocking (female) element (notch 146) of the second lateral member of the second panel, as shown above and in the figure and CAD rendering of this section of the Stone cover below. <i>See Ex. 1003, ¶ 84, Claim 2 (vii).</i> </p>

	Claim Language	Stone in view of Thoman
		 <p>The top drawing is a perspective view showing a stone block with a blue interlocking element on its side, being inserted into a groove of another stone block. Red arrows point to the 'Front lateral edge of first spacer bar' and the 'Second lateral member with second interlocking element'.</p> <p>The middle drawing is a side cross-section of two panels, 'First panel' and 'Second panel', joined by a 'First spacer bar' (red) and a 'Second lateral member with second interlocking element' (blue).</p>
2.5	a second spacer bar;	 <p>A side view of a truck with a stone wall on its bed. The wall is constructed from stone blocks with interlocking elements. Numbered callouts include: 221 (top edge of wall), 230 (multiple points along the top edge), 222 (top edge of a block), 223 (top edge of a block), 224 (top edge of a block), 225 (top edge of a block), 226 (top edge of a block), 210 (bottom edge of wall), 240 (side of truck), and 244 (side of truck).</p>

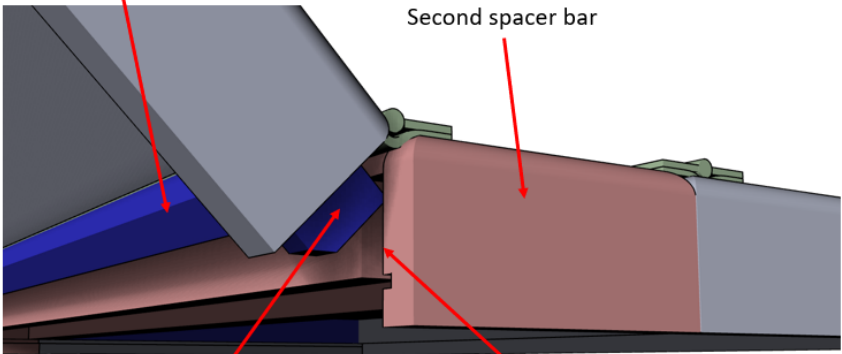
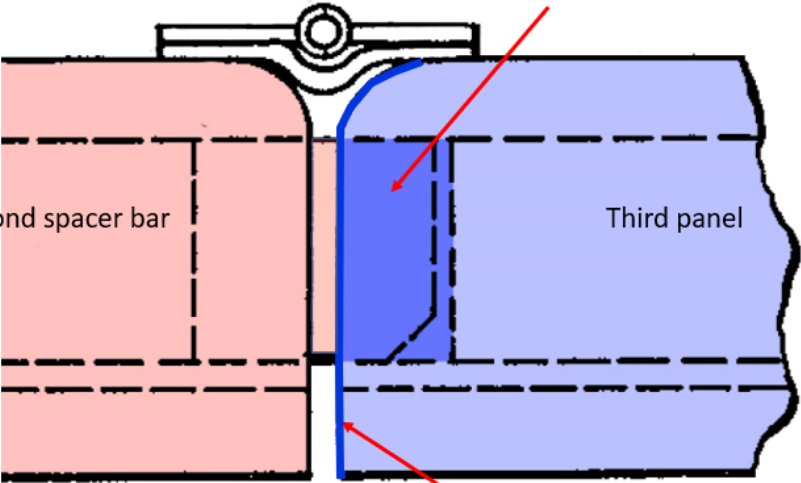
	Claim Language	Stone in view of Thoman
		 <p data-bbox="526 520 1365 680">As seen in the annotated excerpt from Figures 10 and 5 above, Stone discloses a second spacer bar 225. <i>See</i> Ex. 1003, ¶ 84, Claim 2 (viii); <i>see</i> Ex. 1005 at 9:7-12.</p>
2.6	<p data-bbox="269 716 500 1770">a third lateral member attached to a front lateral edge of the second panel, with the third lateral member including a third interlocking element interlocked with a back lateral edge of the second spacer bar;</p>	<p data-bbox="526 716 1414 1325">As explained in the disclosures for [2.2], [2.3] and [2.4] above, each panel and spacer bar in Stone is identical except for its dimensions, such that second panel 224 has a third lateral member attached to its front lateral edge, and second spacer bar 223 has a back lateral edge with a female interlocking element, wherein the third lateral member includes a third (male) interlocking element (extension 144) interlocked with the female interlocking element (notch 146) of the back lateral edge of second spacer bar 225. <i>See</i> Ex. 1003, ¶ 84, Claim 2 (ix)-(x).</p>

	Claim Language	Stone in view of Thoman
		 <p>The third lateral member attached to a front lateral edge of the second panel is depicted in blue above and includes a third interlocking element. <i>See</i> Ex. 1003, ¶ 84, Claim 2 (ix) and (x). The third interlocking element interlocks with the back lateral edge of the second spacer bar 225 as seen in the annotated figures below. <i>Id.</i></p>

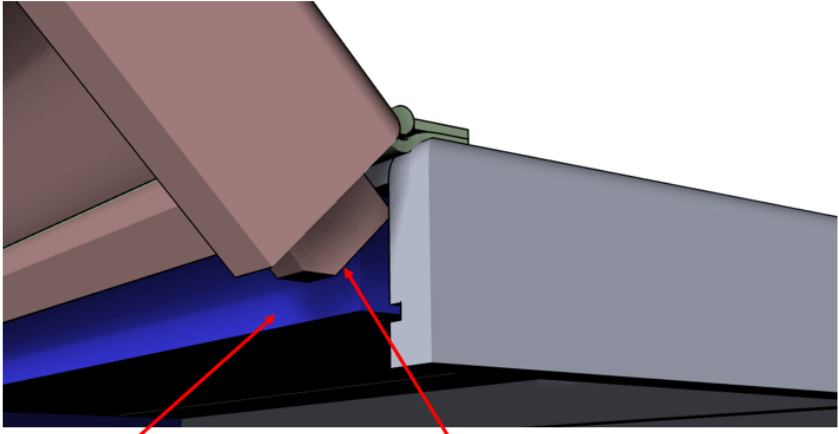
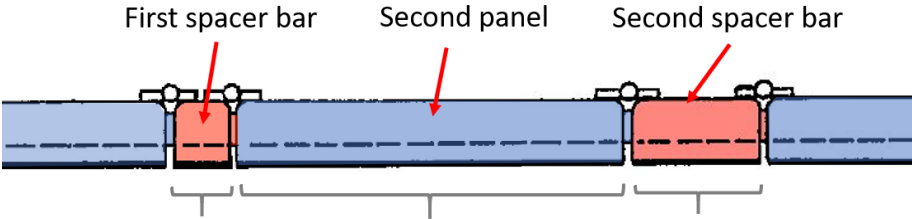
	Claim Language	Stone in view of Thoman
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See also Ex. 1003, ¶ 84, Claim 2 (x) (CAD rendering):

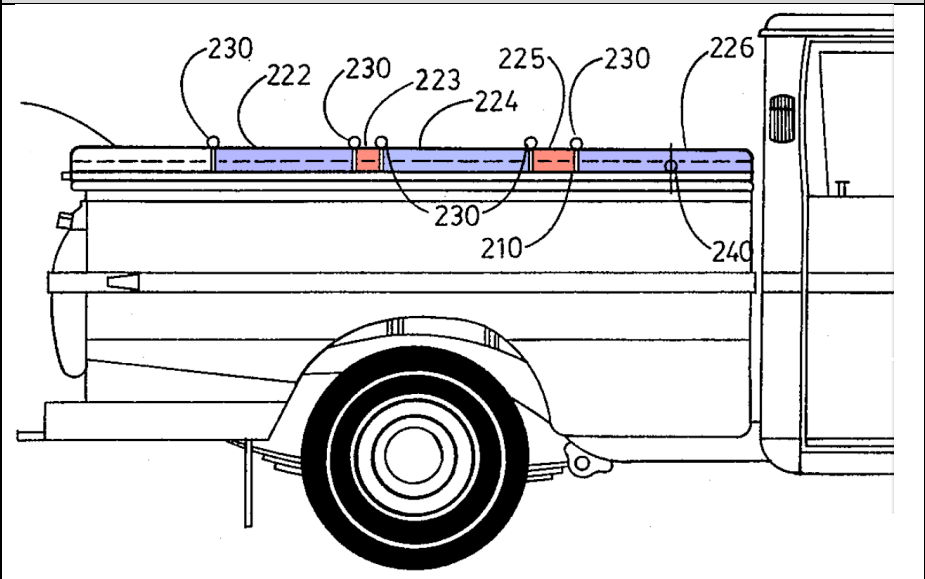
	Claim Language	Stone in view of Thoman
		 <p data-bbox="534 285 760 310">Third lateral member</p> <p data-bbox="954 348 1149 373">Second spacer bar</p> <p data-bbox="534 741 813 766">Third interlocking element</p> <p data-bbox="1081 741 1260 766">Back lateral edge</p>
2.7	<p data-bbox="269 821 496 1881">a fourth lateral member attached to a back lateral edge of the third panel, with the fourth lateral member including a fourth interlocking element interlocked with front lateral edge of the second spacer bar;</p>	 <p data-bbox="1040 835 1406 861">Fourth lateral member</p> <p data-bbox="534 1077 760 1102">Second spacer bar</p> <p data-bbox="1187 1077 1325 1102">Third panel</p> <p data-bbox="1097 1388 1373 1413">Back lateral edge</p> <p data-bbox="524 1465 1414 1822">Stone also discloses a fourth lateral member attached to a back lateral edge of the third panel 226. <i>See</i> Ex. 1003, ¶ 84, Claim 2 (xi); Ex. 1005 at 9:7-12; FIG. 10. As explained in [2.2], each of the panels and spacer bars in Stone include such a lateral member attached to each of the lateral edges as depicted in the annotated excerpt from Figure 7 above.</p>

	Claim Language	Stone in view of Thoman
		<p>As explained in [2.2] and [2.3], the fourth lateral member includes a fourth (female) interlocking element (notch 146) that interlocks with the (male) interlocking element (extension 144) of the front lateral edge of the second spacer bar 225. <i>See also</i> Ex. 1003, ¶ 84, Claim 2 (xii) (annotated figures):</p> <p>The top diagram is a side view of the assembly. It shows a blue 'Third panel' on the right and a red 'Second spacer bar' in the middle. A red 'Fourth lateral member with fourth interlocking element' is positioned between the spacer bar and the panel. Red arrows point to the 'Second spacer bar', 'Third panel', and the interlocking point. The bottom diagram is a cross-sectional view. It shows the 'Second spacer bar' (red) on the left and the 'Fourth lateral member' (blue) on the right. A red arrow points to the 'Front lateral edge' of the spacer bar, which has a protruding interlocking element. Another red arrow points to the corresponding notch in the 'Fourth lateral member'. Dashed lines indicate the internal structure of both components.</p>

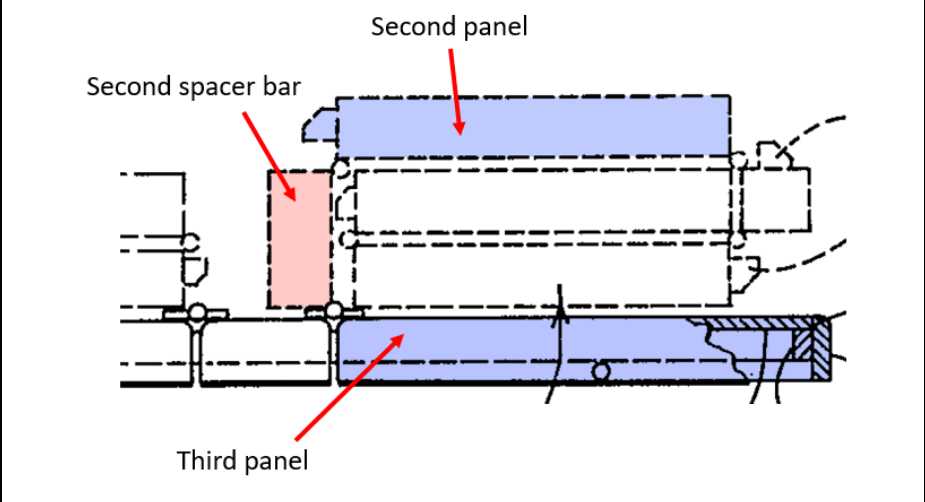
	Claim Language	Stone in view of Thoman
		 <p data-bbox="537 741 1166 806">Fourth lateral member Front lateral edge of second spacer bar</p>
2.8	<p data-bbox="269 915 488 1843">with the second spacer bar having a width greater than the first spacer bar and less than the width of the second panel and of the third panel, and the width of the second spacer bar selected to</p>	 <p data-bbox="526 1178 1414 1539">As depicted in the excerpt from Figure 4 above, Stone discloses the second spacer bar 225 having a width greater than the first spacer bar 223 and less than the width of the second panel 224 and of the third panel 226. See Ex. 1003, ¶ 84, Claim 2 (xiii). This is also seen in the annotated excerpt of Figure 10 below:</p>

	Claim Language	Stone in view of Thoman
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allow the second panel to fold over onto the third panel, with a top surface of the first panel facing and substantially parallel to a top surface of the second panel and with a bottom surface of the first panel facing and substantially parallel to a top surface of the third panel.

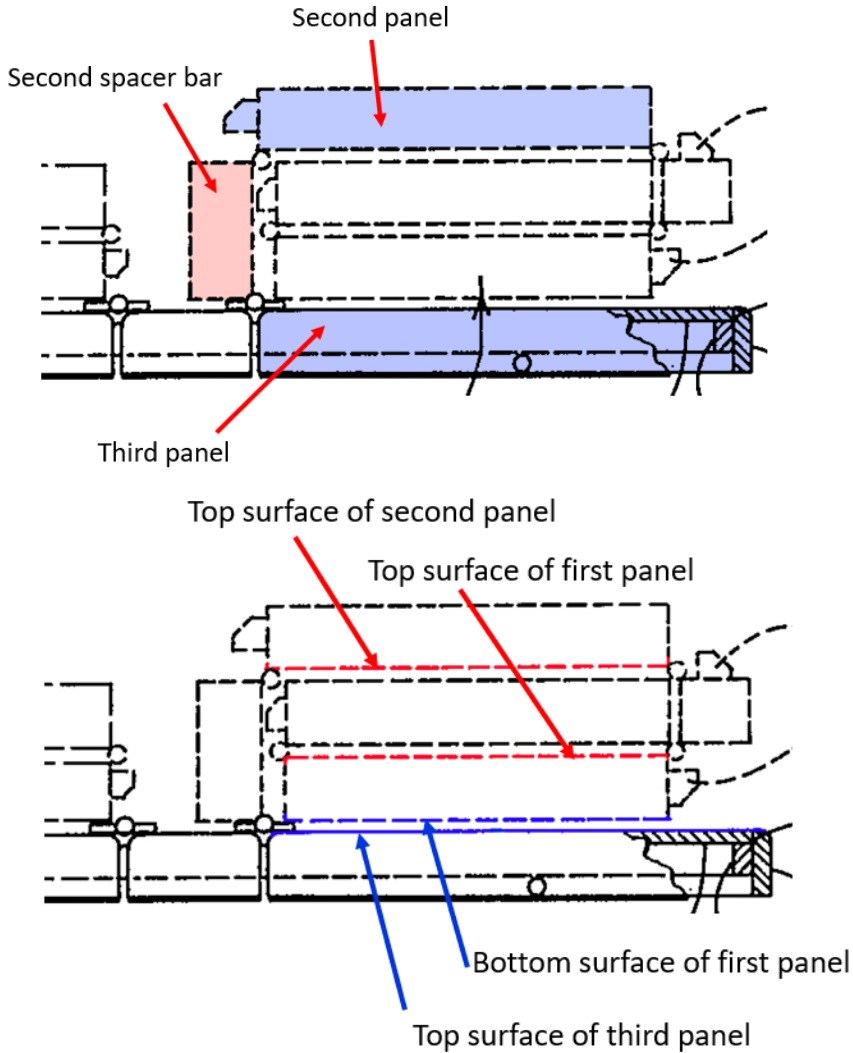


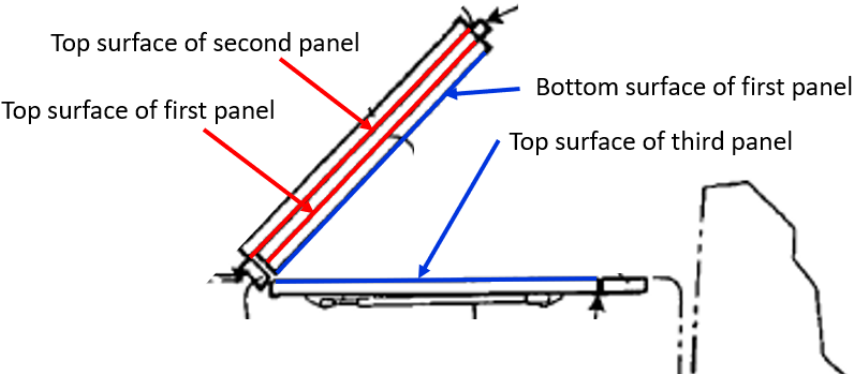
As described in the Stone specification, “[t]he width of the panel [spacer bar] 123 [and 223] is substantially equal to its depth . . . and the width of the panel 125 [and 225] is substantially equal to twice this distance.” Ex. 1005 at 8:39-42 and 13:1-4; also 9:7-10 (“panels indicated by the numerals 221 through 226 . . . corresponding to the panels 121 through 126 of the first form of cover”).

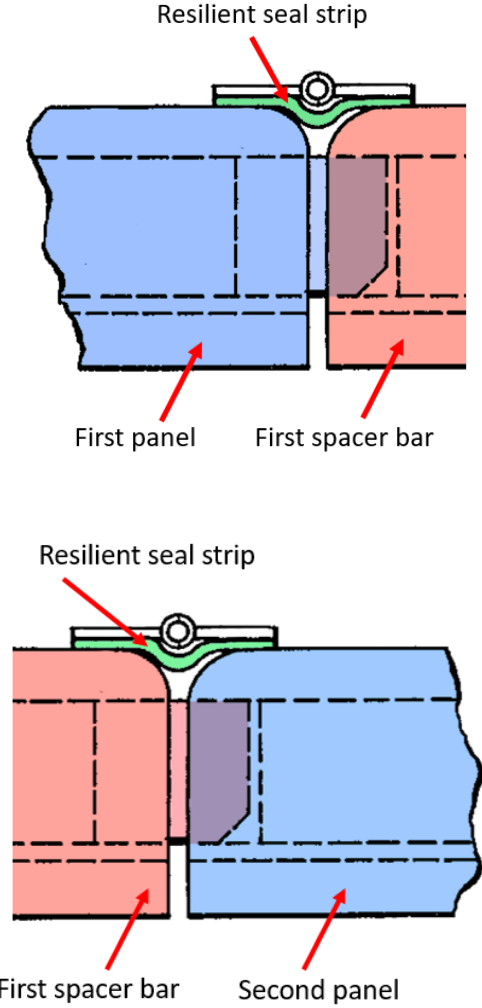


	Claim Language	Stone in view of Thoman
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This allows second panel 224 to fold over onto the third panel 226, with a top surface of the first panel 222 facing and substantially parallel to a top surface of the second panel 224 and with a bottom surface of the first panel 222 facing and substantially parallel to a top surface of the third panel 226 as shown in the annotated excerpts from Figure 5 below. *See Ex. 1003, ¶ 84, Claim 2 (xiii).*



	Claim Language	Stone in view of Thoman
		<p>As seen below, this depiction precisely matches the depiction of this claimed concept shown in Figure 11 of the '758 patent below. Ex. 1001 at 6:18-33; folding sequence shown in Figures 9-11. <i>See</i> Ex. 1003, ¶ 84, Claim 2 (xiv).</p> 
3.0	<p>The cover of claim 2 further comprising a first resilient seal strip compressed between the first spacer bar and the first panel when the cover is in an unfolded position, and a second resilient seal</p>	<p>Stone teaches use of a water-protective seal “formed of a resilient material such as rubber” (Ex. 1005 at 7:55-56) that is compressed between panels (or between the panel and a spacer bar) when the cover is in an unfolded position, as represented in green in the below excerpts from Figure 7. <i>See</i> Ex. 1003 at ¶ 84, Claim 3 (i); <i>see also</i> Ex. 1005 at 7:54-59 and 10:55-62.</p>

	Claim Language	Stone in view of Thoman
	<p>strip compressed between the first spacer bar and the second panel, when the cover is in the unfolded position.</p>	 <p>The diagrams illustrate the assembly of Stone in view of Thoman. The top diagram shows the first panel (blue) and first spacer bar (red) with a resilient seal strip (green) compressed between them. The bottom diagram shows the first spacer bar (red) and second panel (blue) with a resilient seal strip (green) compressed between them.</p> <p>As explained in [2.2] above, the hinges between each panel and spacer bar in Stone are the same, such that there is a resilient seal strip (166) compressed between first spacer bar 223 and first panel 222 and a second resilient seal strip (166) compressed between first spacer bar 223 and second panel 224 when the cover is unfolded. <i>See also Ex. 1003 at ¶ 84, Claim 3 (ii).</i></p>

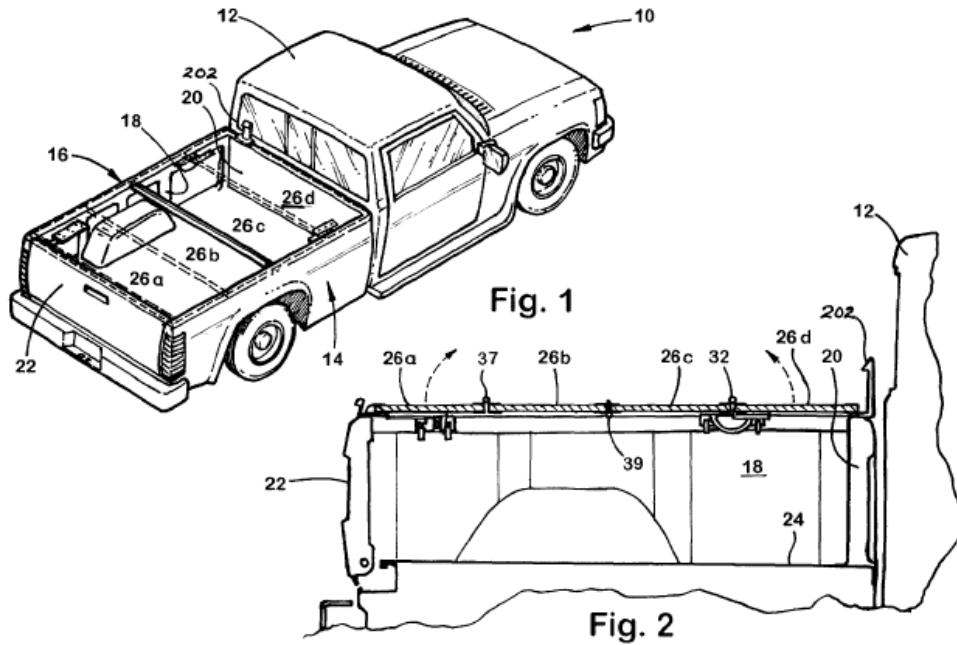
B. Ground 2: Claims 3 and 4 Are Unpatentable as Obvious Over Stone in view of Thoman and Kooiker 296

As described in Section IV.A above, the combination of Stone and Thoman teaches every limitation of independent claim 2, as well as the additional limitation of dependent claim 3. Claim 4 also depends directly from claim 2, and adds longitudinal side members attached to the sides of the panels, with a resilient strip attached to each of the longitudinal side members.

Longitudinal side members with resilient strips were well known by the '758 priority date as shown in Kooiker 296 (Ex. 1007). Further, even if Stone did not disclose the resilient seal strips of claim 3 (which it does), Kooiker 296 also discloses the claim 3 resilient seal strips.

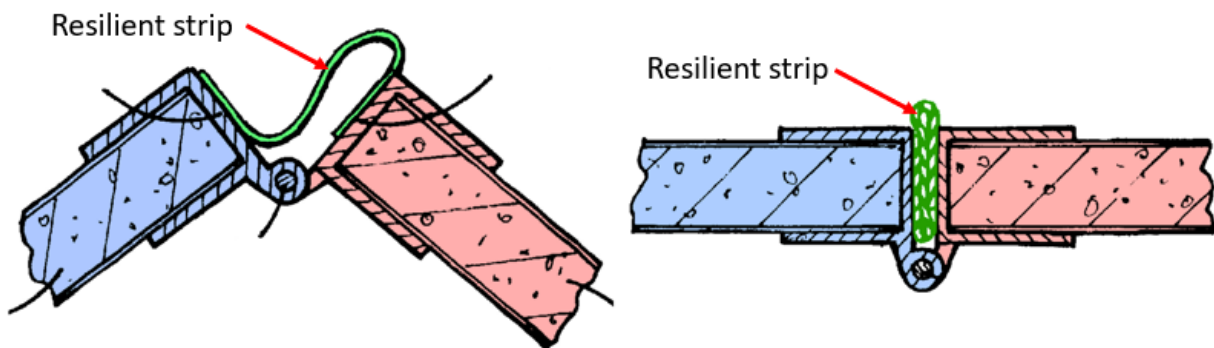
1. Kooiker 296

Kooiker 296 is titled “Folding Cover for Pickup Truck Bed.” Ex. 1007. Kooiker 296 expressly incorporates by reference Kooiker 521. Ex. 1007 at 4:25-27. Thus, together the two Kooiker references effectively represent a single disclosure, and describe a multi-panel pickup truck cover as seen in Figures 1 and 2 of Kooiker 296:



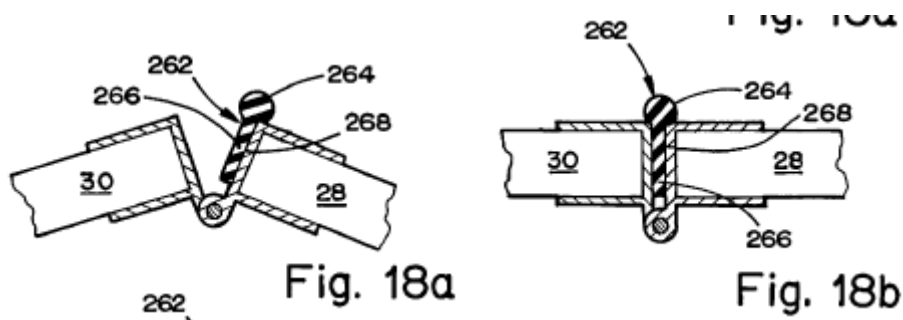
Resilient Seal Strips Between Panels

The Kooiker references disclose a number of resilient seal strips used between panels to prevent water incursion when the cover is closed/unfolded. *See* Ex. 1007 at 6:43-63; Ex. 1008 at 8:42-65; Ex. 1003, ¶¶ 52-55. Annotated Figures 16 and 17 of Kooiker 296 illustrate one such example:



The above figures show using “a sheet of flexible material 132, such as rubber or the like.” Ex. 1007 at 6:34-35. “As shown in FIG. 17, when the panels are coplanar, the sheet material fills the gap between the panels” (Ex. 1007 at 6:43-47) and “**compresses when the edges of the panel come together**, thus providing a flexible yet water-impermeable connection” (*id.* at 6:61-63) (emphasis added).

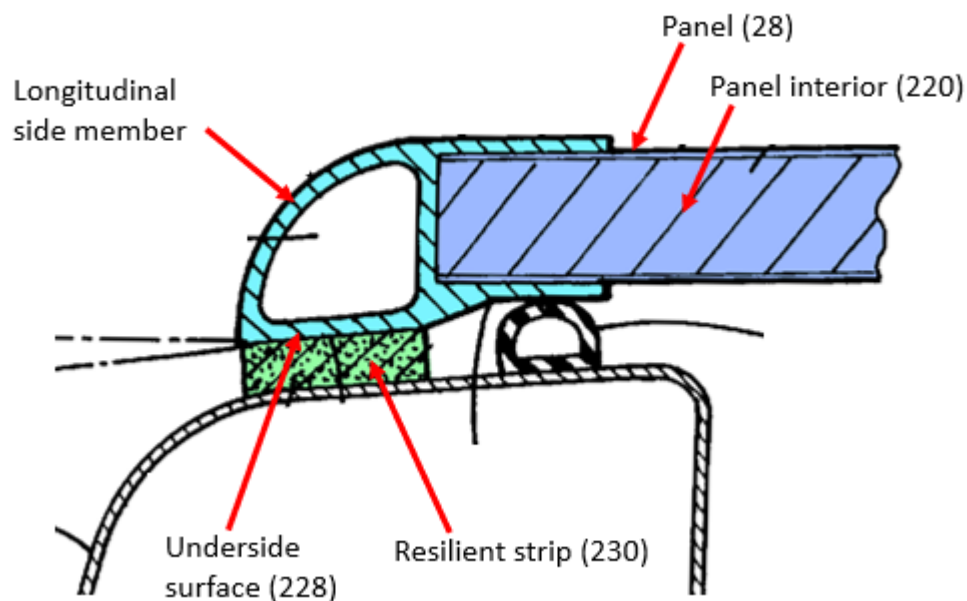
Figures 18a and 18b of Kooiker 521 similarly provide a seal compressed between adjacent panels: “an elongated resilient member 262 have an enlarged tubular or cylindrical head 264 on the top and leg flange 266 extending downwardly . . . with the leg substantially filling the gap between the panels when the cover is closed . . . so that it bridges the gap between panels when the cover is closed.” Ex. 1008 at 8:49-58; Ex. 1003, ¶ 55.



Longitudinal Side Members With Resilient Strips

Kooiker 521 also discloses a longitudinal side member (called a “special edge extrusion”) on the sides of the panels, each of which has a resilient strip attached. Ex. 1003, ¶ 55; *see also* Ex. 1008 at 7:67-8:13 (“As shown in FIG. 20, the interior portion 220 of panel 28 (which is the same as all the other panels) is

framed on the edge by a special edge extrusion. . . A seal 230 formed of rubber or similar material is positioned on the upper edge of the pickup truck bed or on the underside of surface 228 to provide a water tight seal between the panel and pickup truck bed.”). This feature of Kooiker 521 is shown in the annotated excerpt of Figure 20 below. *See* Ex. 1003, ¶ 55.



2. Combination of Stone, Thoman and Kooiker 296

When making the Stone cover (modified to incorporate Thoman’s foam-core panels), a POSITA would have been motivated to use Kooiker 296’s resilient strips to improve water protection for the truck bed—an express objective stated in both Stone and Thoman. *See* Ex. 1005 at 2:22-24 (“Another object is to provide...a cover which prevents water leakage into the box when the cover is closed”); *see also* Ex. 1006 at 1:19-24 (“[W]ith multi-piece covers, various hinges are exposed

to the elements and after a period of time corrosion can occur and worse still water may be communicated to the compartment intended to be covered”); also Exhibit 1003, ¶ 101.

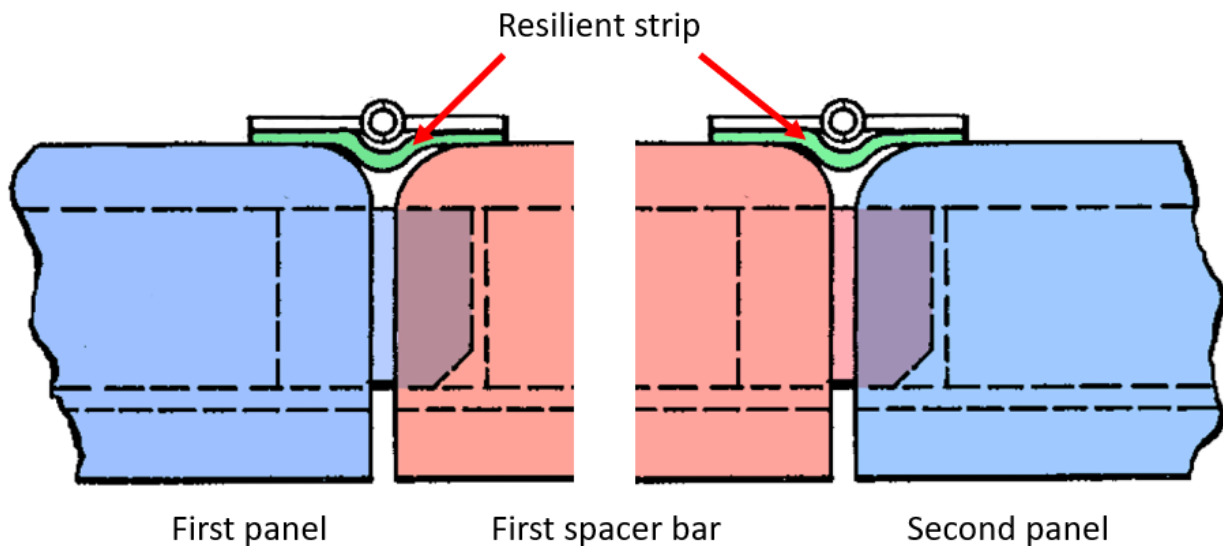
The Kooiker references teach that their disclosed resilient strips further this objective. Specifically, the resilient seal strips compressed in the gap between panels in the Kooiker references “seal[] the gap from moisture” (Ex. 1007 at 8:51-58) and “provid[e] a flexible yet water-impermeable connection” (Ex. 1008 at 6:59-63). And the “seal 230 formed of rubber or similar material” that Kooiker 521 teaches to attach to the underside of longitudinal side members is intended “to provide a water tight seal between the panel and pickup truck bed.” Ex. 1008 at 8:10-13. As such, a POSITA would have been motivated and able to use these resilient elements taught in the Kooiker references to help fulfill Stone’s express objective “to provide a cover which prevents water leakage into the box when the cover is closed.” Ex. 1003, ¶ 101 (citing Ex. 1005 at 2:23-25).

Further, the combination of Stone/Thoman and the Kooiker references is nothing more than a combination of known elements to achieve an expected improvement. Ex. 1003, ¶¶ 90–102. The disclosures of Stone, Thoman, and Kooiker each predates the filing date of the ’758 patent by several years. Using resilient strips as taught in Kooiker in order to prevent water incursion in Stone’s cover would require no more than ordinary skill, and the result would have been

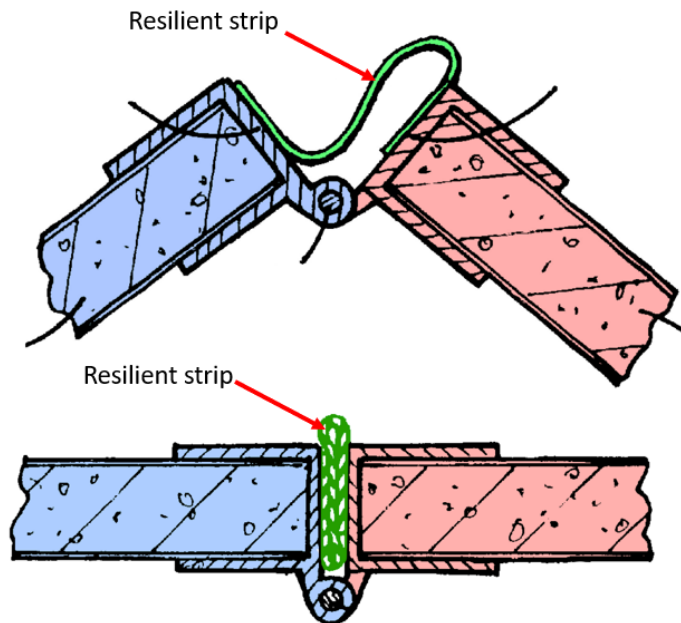
the expected improvement of less water being able to reach the cargo bed of the pickup truck when the cover is unfolded. Ex. 1003, ¶ 102.

Resilient Seal Strips Between Panels

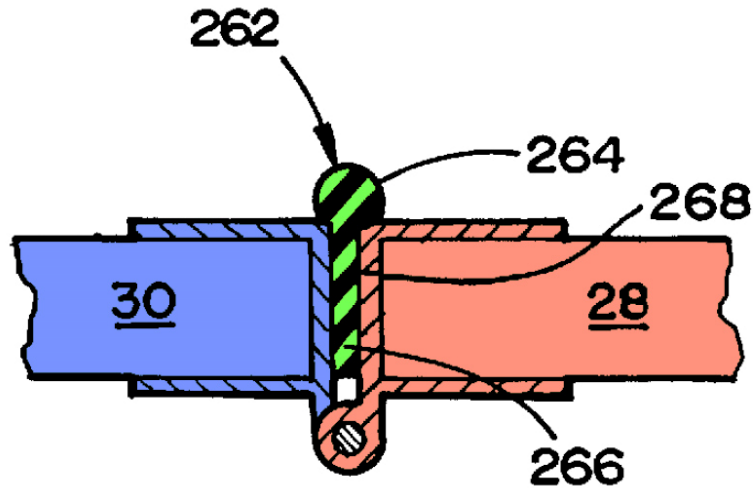
As discussed above in Section IV.A.4 (Claim 3) and shown below, Stone already discloses the claim 3 limitation.



Yet even if claim 3 required more of the resilient seal strip to be compressed between the panel/spacer bar (which it does not), it would be obvious for a POSITA to modify the resilient seal strip used in Stone so that it is longer—as shown for instance in Figures 16 and 17 of Kooiker 296 below—with the result that more of the resilient strip would hang down and be compressed between the panel/spacer bar when the cover is unfolded. Ex. 1003, ¶¶ 94-95.



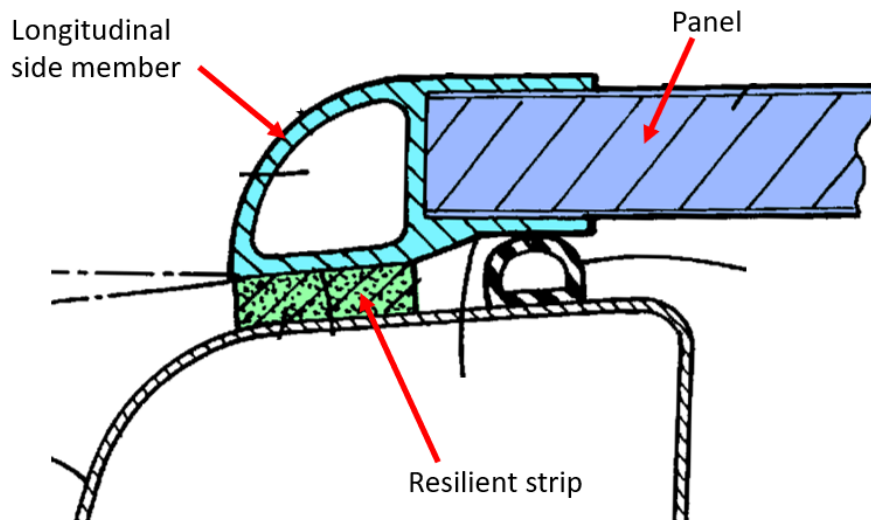
Alternatively, a POSITA would also have been motivated to add “an elongated resilient member 262 have an enlarged tubular or cylindrical head 264 on the top and leg flange 266 extending downwardly” as taught in Kooiker 521 (Ex. 1008 at 8:49-58), albeit with the head necessarily at the bottom of the panel/spacer bar and the flange extending upwardly given the position of the hinge at the top of the panel/spacer bar when unfolded (*i.e.*, it would be like Figure 18b from Kooiker 521 shown below, but inverted). Ex. 1003, ¶ 96.



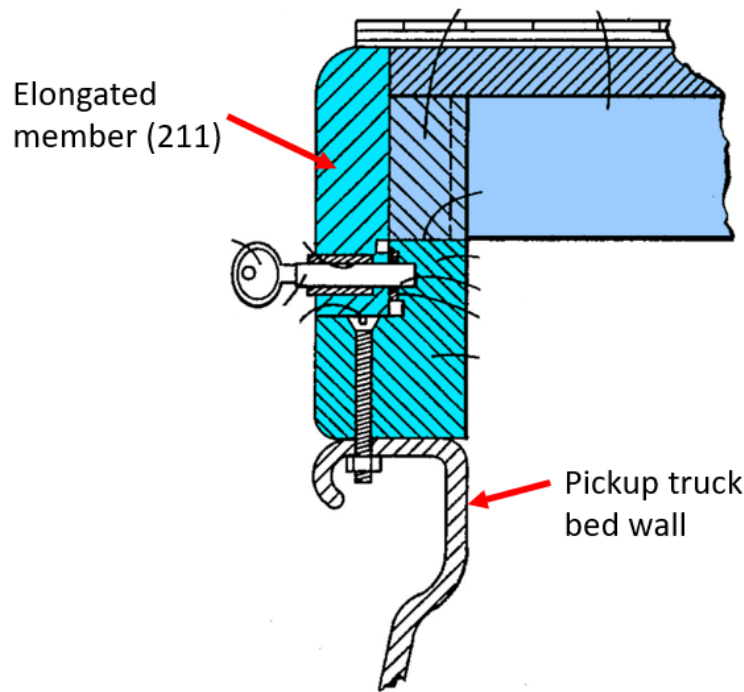
Both of these minor adjustments would have been easily within the level or ordinary skill in the art during the relevant period. Ex. 1003, ¶ 97.

Longitudinal Side Members With Resilient Strips

As discussed previously, Kooiker 521 discloses longitudinal side members (called “special edge extrusions”) on the panel edges that attach to the left and right sides of the truck bed, each of which has a resilient strip attached. Ex. 1003, ¶ 98. This is illustrated in the excerpt of Fig. 20 below:



Stone likewise has longitudinal side members attached to the left and right sides of the panels. Ex. 1003, ¶ 99. With respect to the form of the cover shown in Figure 10 of Stone, these consist of a “bar” and “elongated members 211,” and serve to attach the cover to the side rails of the pickup truck as seen in annotated Figure 11 below. *See* Ex. 1003, ¶ 99.



Combining Kooiker 521 with Stone simply requires attaching to the underside of Stone’s “elongated member 211” a “seal 230 formed of rubber or similar material” as taught in Kooiker 521 in order “to provide a water tight seal between the panel and pickup truck bed” (Ex. 1008 at 8:10-13). *See* Ex. 1003, ¶ 100. Such a simple modification was well within the abilities of a person of

ordinary skill in the art as of the effective filing date of the '758 patent. *See* Ex. 1003, ¶¶ 101-102.

3. Applying Stone in view of Thoman and Kooiker 296 to Claims 3 and 4

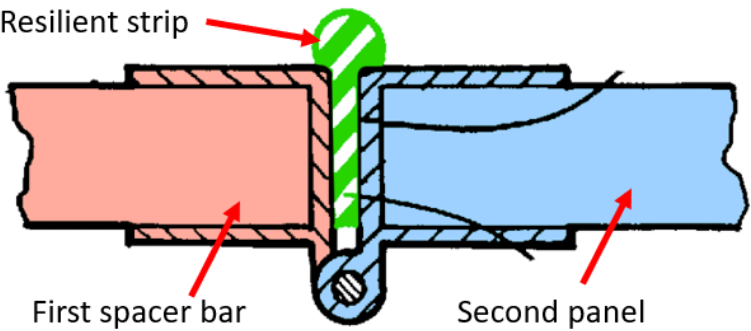
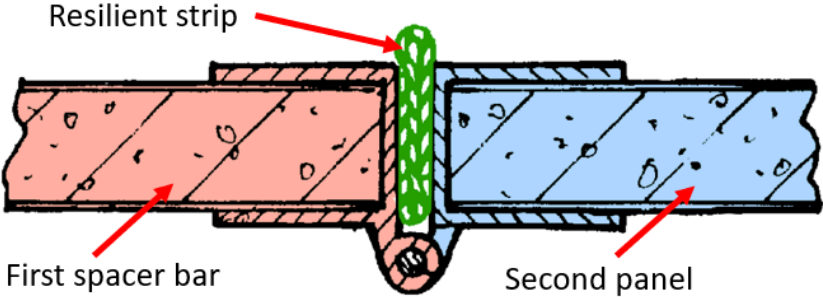
Modification of Stone and Thoman in view of Kooiker 296 does not impact how the combination of Stone and Thoman meets the limitations of independent claim 2. Ex. 1003, ¶¶ 94-95. Thus, the combination of Stone, Thoman and Kooiker 296 meets the limitations of claim 2 in the same way as the combination of Stone and Thoman (*see* Section IV.A.4, *supra*).

The combination of Stone, Thoman, and Kooiker 296 (again, which incorporates by reference Kooiker 521) also discloses every limitation of dependent claims 3 and 4 of the '758 patent, as set forth below.

	Claim Language	Stone in view of Thoman and Kooiker 296
3.0	The cover of claim 2 further comprising a first resilient seal strip compressed between the first spacer bar and the first	Stone discloses a first resilient seal strip that is compressed between the first spacer bar and the first panel when the cover is in an unfolded position as shown in the annotated figure below.

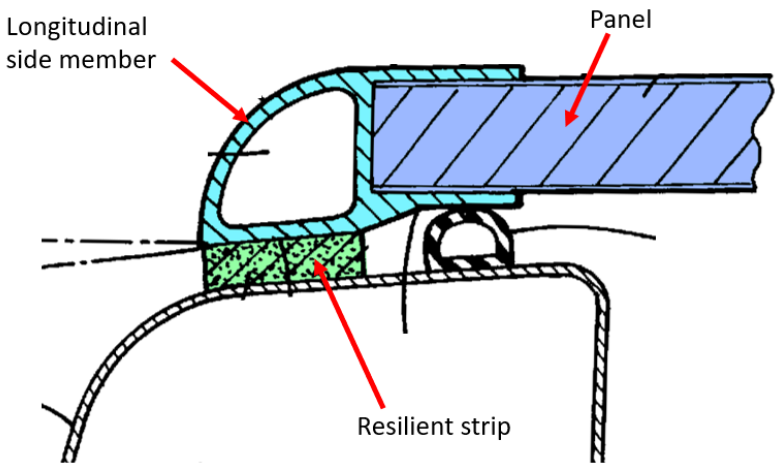
	Claim Language	Stone in view of Thoman and Kooiker 296
	<p>panel when the cover is in an unfolded position, and a second resilient seal strip compressed between the first spacer bar and the second panel, when the cover is in the unfolded position.</p>	<div data-bbox="755 289 1203 751" data-label="Image"> </div> <p>However, even if claim 3 required a longer strip for greater compression (which it does not), use of such a resilient strip would be obvious in light of Kooiker 296 (including Kooiker 521 as incorporated by reference). Ex. 1003, ¶¶ 101-103, Claim 3 (i) and (ii); <i>see also id.</i> at ¶¶ 90–97.</p> <p>For example, each resilient seal strip (166) of Stone could be lengthened such that more of the strip was interposed between the panel and spacer bar as shown in Figures 16 and 17 of Kooiker 296, or Figures 17a and 17b from Kooiker 521 . <i>See</i> Ex. 1003, ¶¶ 89–92. Or elongated resilient members 262 with cylindrical heads 264 as shown in Figure 18b of Kooiker 521 could be added. <i>See</i> Ex. 1003, ¶¶ 96 and 103, Claim 3 (i) and (ii).</p>

	Claim Language	Stone in view of Thoman and Kooiker 296
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Thus, Stone alone, or Stone with Kooiker 296/521, discloses a first resilient seal strip compressed between the first spacer bar and the first panel and second resilient seal strip compressed between the first spacer bar and the second panel, when the cover is in an unfolded position.

	Claim Language	Stone in view of Thoman and Kooiker 296
4.0	<p>The cover of claim 2 with the first, second and third panels each having left and right side longitudinal side members attached to the left and right sides, respectively, of the panels, and with a resilient strip attached to each of the longitudinal side members.</p>	<div data-bbox="548 317 1354 827" data-label="Image"> </div> <p>As represented in highlighted Figure 11 above, Stone discloses first, second and third panels each having left and right side longitudinal side members attached to the left and right sides, respectively, of the panels. Ex. 1005 at 7:10-12 (“[T]he bars 136 and 150 form a flange 155 extending around the periphery of the canopy portion 62”); 8:54-68 (“The cover has a mounting portion 204 and a canopy portion which are substantially identical, respectively, to the mounting portion 60 and canopy portion 62 of the first form of the cover . . . The mounting portion 204 has a rectangular frame 201 formed by a plurality of elongated members 211.”).</p> <p>Kooiker 296 (via Kooiker 521) similarly discloses longitudinal side members (called “special edge extrusions”) on the edges of the panels, each of which has</p>

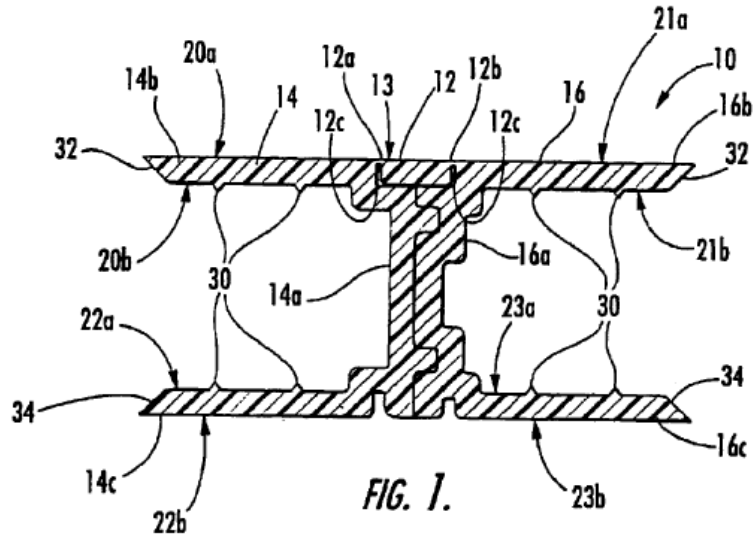
	Claim Language	Stone in view of Thoman and Kooiker 296
		<p>a resilient strip 230 attached. Ex. 1003, ¶ 103, Claim 4(ii); <i>see also</i> Ex. 1008 at 7:67-8:13 (“As shown in FIG. 20, the interior portion 220 of panel 28 (which is the same as all the other panels) is framed on the edge by a special edge extrusion. . . A seal 230 formed of rubber or similar material is positioned on the upper edge of the pickup truck bed or on the underside of surface 228 to provide a water tight seal between the panel and pickup truck bed.”) (emphasis added).</p>  <p>It would be obvious in light of Kooiker 296/521 to attach such a resilient strip to the underside of the Stone longitudinal members to prevent water leaking into the truck cargo box and thereby help fulfill Stone’s express objective “to provide a cover which prevents water leakage into the box when the cover is closed.” Ex. 1003, ¶¶ 99-103, Claim 4(ii) (quoting Ex. 1005 at 2:23-25).</p>

C. Ground 3: Claims 2 through 4 Are Unpatentable as Obvious Over Stone in View of Thoman, Erlandsson, and Kooiker 296

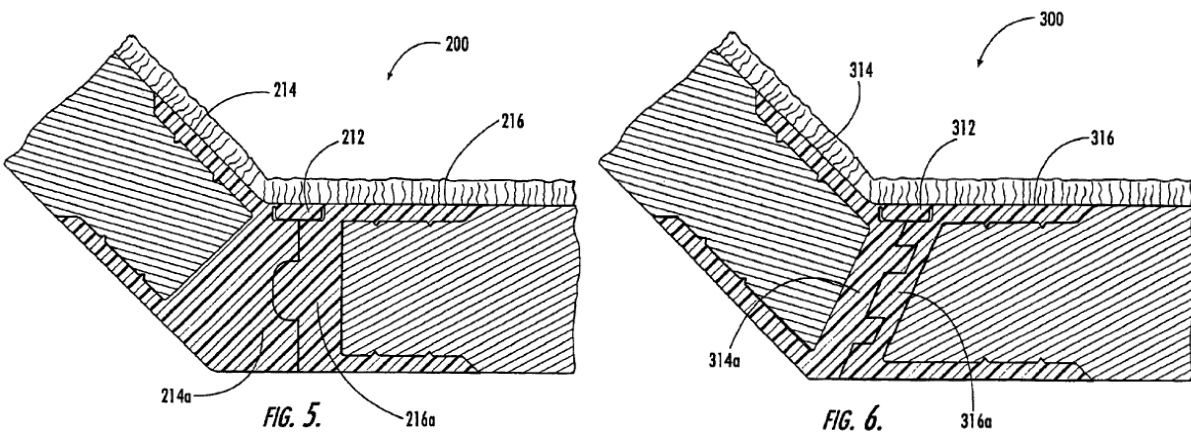
As explained above, the combination of Stone and Thoman renders claims 2 and 3 obvious, and the combination of Stone, Thoman, and Kooiker 296 renders claims 3 and 4 obvious. But even if Stone did not disclose the interlocking elements of claim 2 (which it does), Erlandsson teaches using this exact feature between connected automotive panels.

1. Erlandsson

Erlandsson discloses a “hinge apparatus” for connecting two rigid panels for use in vehicles using two lateral hinge members (14 and 16 below) that are “pivotally connected” to a middle “bridge member,” and the hinge members “interlock with each other when both hinge members 14, 16 are in the first [unfolded] position (FIG. 1).” Ex. 1009 at 3:28-31; *also* 6:14-17 (claim 6) (claiming a system “wherein the base members of the hinge members interlock with each other when the first and second hinge members are both in the first [unfolded] position.”).



Erlandsson explains that “[t]he interlocking of the base members 14a, 16a adds structural strength and rigidity to the hinge apparatus.” Ex. 1009 at 3:31-33. Erlandsson further provides that a “[h]inge apparatus according to embodiments of the present invention may have various shapes, sizes, and configuration without limitation.” Ex. 1009 at 5:5:16-18. For example, Erlandsson provides additional types of interlocking structures in Figures 5 and 6 as shown below. See Ex. 1009 at 5:7-12; Ex. 1003, ¶¶ 56-58.



2. Combination of Stone in View of Thoman, Erlandsson, and Kooiker 296

Although Erlandsson does not address truck covers specifically, Erlandsson is from the same field of endeavor as the '758 Patent (*i.e.*, multi-panel covers for use in vehicles)⁵, and Erlandsson's teaching regarding adding "structural strength and rigidity to the hinge apparatus" used in pivotally attached adjacent panels (Ex. 1009 at 3:29-33) is highly pertinent to a problem the named inventors of the '758 patent explicitly tried to solve: providing a vehicle cover made up of pivotally attached panels that is "durable, strong, and rigid" (Ex. 1001 at 1:46-47). Ex. 1003, ¶ 110. As such, Erlandsson constitutes analogous prior art to the '758 Patent. Ex. 1003, ¶ 110.

It would have been obvious to a person of ordinary skill in the art during the relevant timeframe to use interlocking elements as taught in Erlandsson between the panels and spacer bars disclosed in Stone. Ex. 1003, ¶¶ 108-111. Erlandsson teaches that, in the context of a multi-panel cover used in a "vehicle floor system" (Ex. 1009 at 3:4-6), the use of interlocking elements between rigid panels "adds

⁵ Indeed, another Kooiker patent for a truck bed cover (U.S. Patent No. 6,170,900) is cited on the face of Erlandsson. *See* Ex. 1009 (cover page).

structural strength and rigidity to the hinge apparatus” (Ex. 1009 at 3:29-33). A POSITA would have been both motivated and able to use interlocking elements disclosed by Erlandsson between the panels and spacer bars in the Stone cover in order to “add[] structural strength and rigidity to the hinge apparatus” as taught by Erlandsson. Ex. 1003, ¶ 111 (quoting Ex. 1009 at 3:29-33).

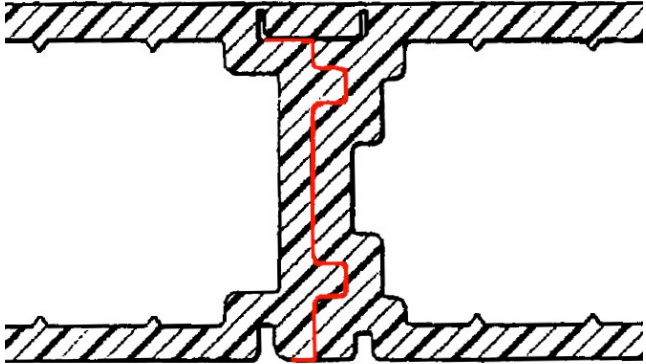
As explained further below, combining Stone, Thoman, Kooiker and Erlandsson would have required nothing more than the combination of known elements to achieve an expected improvement in structural strength and rigidity. Ex. 1003, ¶¶ 112–113. Further, a POSITA could have implemented the interlocking elements of Erlandsson with the Stone/Thoman/Kooiker combination with a reasonable expectation of success via the simple mechanical change of including male elements on the lateral edge of one panel or spacer bar and corresponding female elements on the lateral edge of the opposing panel or spacer bar. Ex. 1003, ¶ 113.

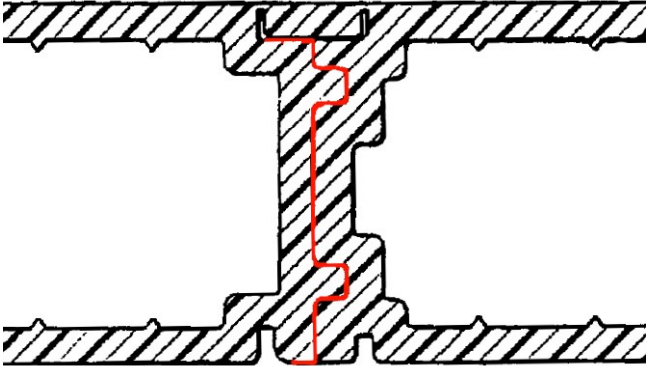
3. Applying the Combination of Stone/Thoman/Kooiker 296 and Erlandsson to Claims 2-4

Modification of Stone, Thoman, and Kooiker 296 in view of Erlandsson does not impact how the combination of Stone and Thoman (or Stone, Thoman, and Kooiker 296) meets any of the limitations claims 2 through 4 except those that involve interlocking elements. Ex. 1003, ¶ 114. Thus, the combination of Stone, Thoman, Kooiker 296 and Erlandsson meets the limitations of claims 2 through 4

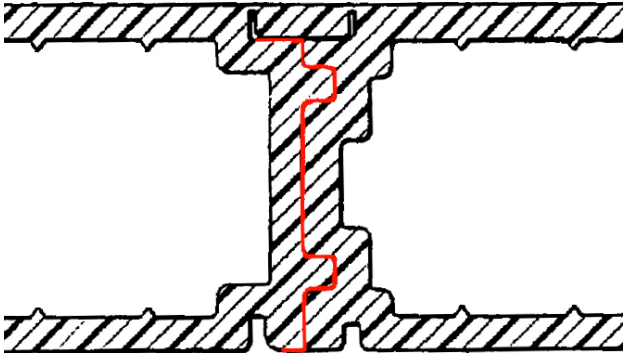
in the same way as shown in Section IV.A.4 and IV.B.3, *supra*, except for the interlocking elements, as set forth in greater detail in the following chart.

	Claim Language	Stone in view of Thoman, Erlandsson, and Kooiker 296
2.3	<p>a first spacer bar, with the first lateral frame member including a first interlocking element interlocked with a back lateral edge of the first spacer bar and with first panel pivotally attached to the first spacer bar;</p>	<div data-bbox="522 478 1377 730" data-label="Image"> </div> <p>As shown in the annotated excerpt from FIG. 5 above, Stone discloses a first spacer bar 223 between a first panel 222 and second panel 224.</p> <p>Erlandsson discloses a number of different designs for interlocking lateral edges of adjacent spacer/bars, such as the one seen in annotated Figure 3 of Erlandsson below:</p> <div data-bbox="662 1251 1284 1604" data-label="Image"> </div> <p>For the reasons discussed, it would have been obvious to employ such mated interlocking elements between each of the panels and spacer bars in the Stone cover—including</p>

	Claim Language	Stone in view of Thoman, Erlandsson, and Kooiker 296
		<p>between the first lateral frame member of the first panel 222 and the back lateral edge of the first spacer bar 223—in order to “add[] structural strength and rigidity to the hinge apparatus” as explicitly taught by Erlandsson (Ex. 1009 at 3:29-33). Ex. 1003, ¶¶ 111-114, Claim 2(iv).</p>
2.4	<p>a second lateral member attached to a back lateral edge of the second panel, the second lateral member including a second interlocking element interlocked with a front lateral edge of the first spacer bar;</p>	<p>Erlandsson discloses a number of different designs for interlocking lateral edges of adjacent spacer/bars, such as the one seen in annotated Figure 3 of Erlandsson below:</p>  <p>For the reasons discussed previously, it would have been obvious to employ such mated interlocking elements between each of the panels and spacer bars in the Stone cover—including between the second lateral frame member of the second panel 224 and the front lateral edge of the first spacer bar 223—in order to “add[] structural strength and rigidity to the hinge apparatus” as explicitly taught by Erlandsson (Ex. 1009 at 3:29-33). Ex. 1003, ¶¶ 111-114, Claim 2(vii).</p>

	Claim Language	Stone in view of Thoman, Erlandsson, and Kooiker 296
2.6	<p>a third lateral member attached to a front lateral edge of the second panel, with the third lateral member including a third interlocking element interlocked with a back lateral edge of the second spacer bar;</p>	<p>Erlandsson discloses a number of different designs for interlocking lateral edges of adjacent spacer/bars, such as the one seen in annotated Figure 3 of Erlandsson below:</p>  <p>For the reasons discussed, it would have been obvious to employ such mated interlocking elements between each of the panels and spacer bars in the Stone cover—including between the third lateral frame member of the second panel 224 and the back lateral edge of the second spacer bar 225—in order to “add[] structural strength and rigidity to the hinge apparatus” as explicitly taught by Erlandsson (Ex. 1009 at 3:29-33). Ex. 1003, ¶¶ 111-114, Claim 2(x).</p>
2.7	<p>a fourth lateral member attached to a back lateral edge of the third panel,</p>	<p>Erlandsson discloses a number of different designs for interlocking lateral edges of adjacent spacer/bars, such as the one seen in annotated Figure 3 of Erlandsson below:</p>

	Claim Language	Stone in view of Thoman, Erlandsson, and Kooiker 296
	<p>with the fourth lateral member including a fourth interlocking element interlocked with front lateral edge of the second spacer bar;</p>	<div data-bbox="704 310 1240 617" data-label="Image"> </div> <p>For the reasons discussed, it would have been obvious to employ such mated interlocking elements between each of the panels and spacer bars in the Stone cover—including between the fourth lateral frame member of the second panel 226 and the front lateral edge of the second spacer bar 225—in order to “add[] structural strength and rigidity to the hinge apparatus” as explicitly taught by Erlandsson (Ex. 1009 at 3:29-33). Ex. 1003, ¶¶ 111-114, Claim 2(xii).</p>
3.0	<p>The cover of claim 2 further comprising a first resilient seal strip compressed between the first spacer bar and the first panel when the</p>	<p>As described in Section IV.A.4, Stone already discloses a first resilient seal strip compressed between the first spacer bar and the first panel when the cover is in an unfolded position.</p> <p>As discussed in the alternative in Section IV.B.3, it would also be obvious in light of Kooiker 296/521 to employ such a resilient strip to prevent water leaking into the truck bed.</p> <p>Under either scenario it would have been obvious to a POSITA, and well within ordinary skill, to modify the lateral edges of the Stone panels and spacer bars in such a</p>

	Claim Language	Stone in view of Thoman, Erlandsson, and Kooiker 296
	<p>cover is in an unfolded position, and a second resilient seal strip compressed between the first spacer bar and the second panel, when the cover is in the unfolded position.</p>	<p>way both to accommodate a resilient seal strip compressed along a portion of the space between panels/spacer bars, and leave sufficient room between the panels/spacer bars to still employ one of the two interlocking element pairs shown in Figure 3 of Erlandsson below (either the top pair or the bottom pair depending on the compressed resilient seal strip chosen). Ex. 1003, ¶¶ 111-114, Claim 3(i) and 3(ii).</p> 

D. Ground 4: Claims 2, 3, and 4 Are Unpatentable as Obvious Over Steffens in View of Keller and Erlandsson

1. Steffens

Steffens discloses a truck cover comprising a series of rigid panels that fold to allow access to the truck bed. Ex. 1010 at 4:1-9; Figure 1; Ex. 1003, ¶¶ 59, 118.

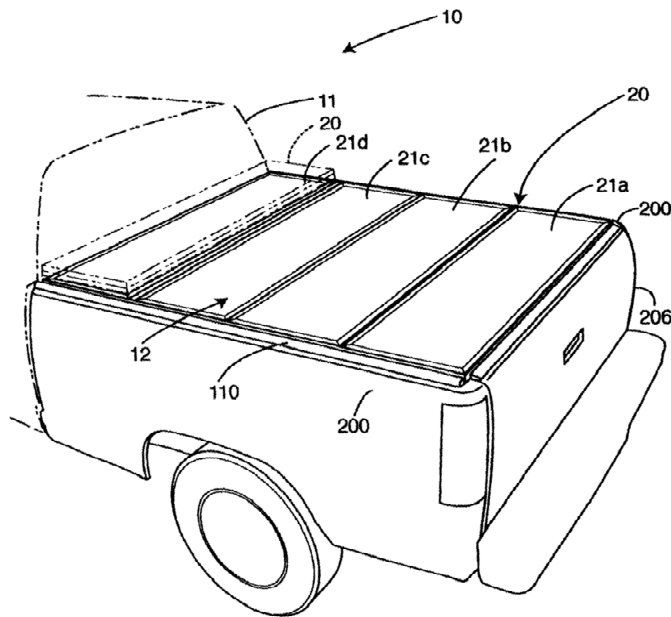
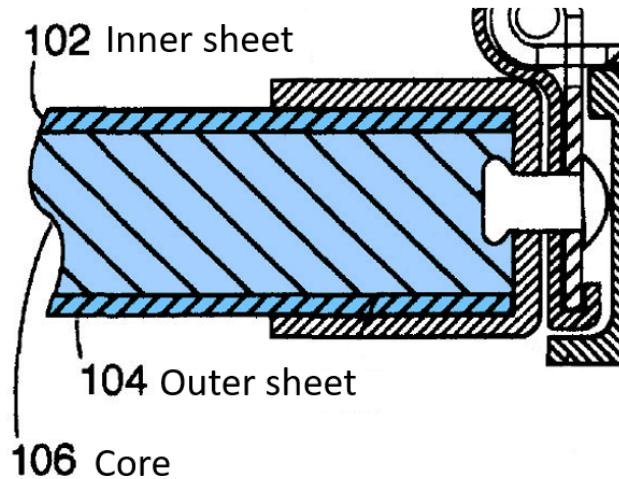


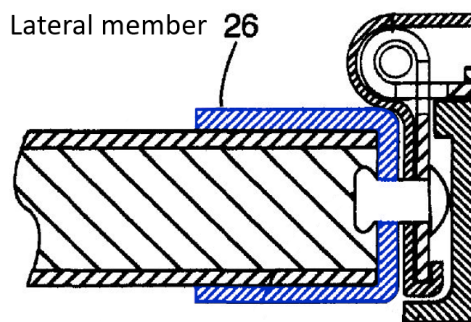
Fig. 1

In the preferred embodiment “four identical panels 21a, 21b, 21c, and 21d” are used in the cover. Ex. 1010 at 4:8-9. The panels of Steffens are lighter weight than solid panels. *See* Ex. 1010 at 7:1-14; Ex. 1003, ¶ 60. This is due to sandwiching a lighter core material between top and bottom plates of a denser material: “[T]he panels are of the laminar construction have inner and outer sheets 102 and 104 and a core of rigid foam 106. The inner 102 and outer 104 sheets are preferably of aluminum and are bonded to the core 106”. Ex. 1003, ¶ 60 (quoting Ex. 1010 at 7:1-4). The construction of the panels can be seen in the excerpt from Figure 10 below:



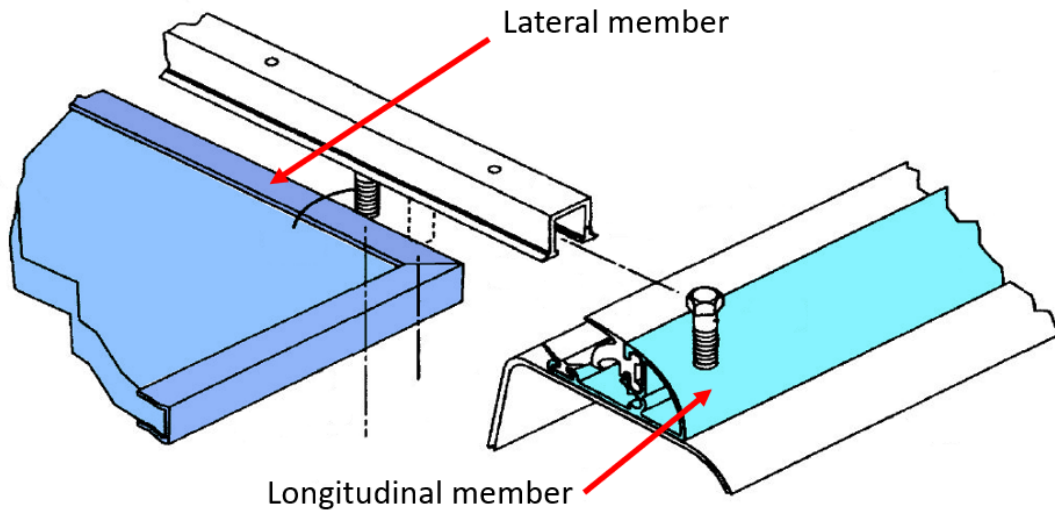
Ex. 1003, ¶ 60. Steffens also employs lateral frame members for the panels (alternatively referred to as “panel frames 26” or “C-frames 26”)⁶ (Ex. 1010 at 7:18-23) as highlighted in blue in the excerpt from Figure 10 of Steffens below.

Ex. 1003, ¶¶ 61, 119.

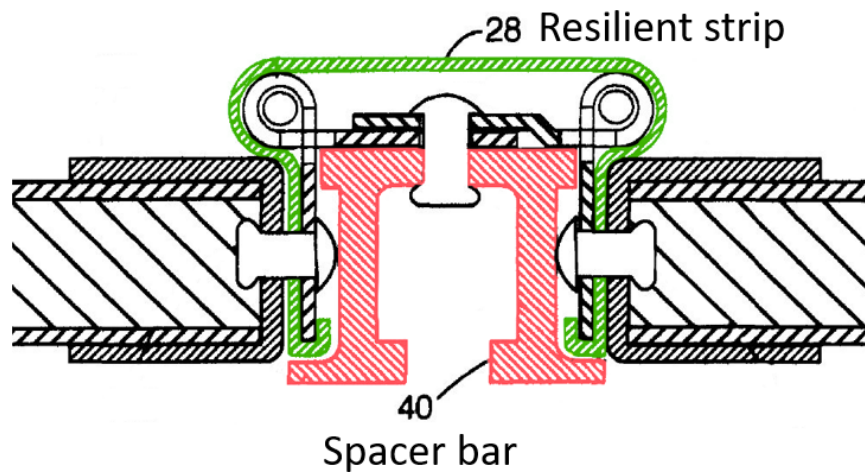


⁶ Note that Steffens uses a nomenclature different from the '785 patent in that Steffens' “spacers” (in the parlance of the '785 patent) are called “frame member[s]” (40) while another element (134) of Steffens is referred to as a “spacer.” See Ex. 1009, 4:18-26, 6:1-4, and Fig. 5.

Steffens further employs longitudinal frame member supports on the sides of the panels highlighted in the excerpt from Figure 5 of Steffens below (Ex. 1003, ¶¶ 61, 119).



Steffens further teaches the use of spacer bars (40, referred to as “frame members”) between panels in order to facilitate folding of the panels when opening the cover. Ex. 1010, 4:18-26; *see also* Ex. 1003, ¶¶ 62, 120. A spacer bar (40) is shown in annotated Figure 10 below:



Ex. 1003, ¶¶ 62, 120.

As also highlighted in green in the Figure 10 excerpt above, Steffens discloses a resilient strip (28, called a “flexible plastic jacket”) compressed between each of the panels and the spacer bar to prevent water ingress. Ex. 1010 at 7:11-23 (“The jacket 28, between the leaves of the hinges 41a and 51b, provides a water-tight seal at the edges of the C-frames 26 to prevent water from leaking into the cargo bay”); *see also* Ex. 1003, ¶¶ 63, 121.

For one embodiment, Steffens teaches that when just one spacer element (40) is utilized in conjunction regular hinges (22) connecting the other panels to each other directly, the panels can be folded accordion style to open the cover. Ex. 1003, ¶ 64 (citing Ex. 1010 at 4:10-17). Steffens further teaches, however, that spacers 40 “**may replace one or both hinges 22** to add structural support to the cover panels 21a, 21b, 21c, and 21d.” Ex. 1010 at 4:22-24 (emphasis added); Ex. 1003, ¶¶ 65, 123. For example, Figure 26 of Steffens illustrates an embodiment where an additional spacer (labeled 40a) is used to replace one of the hinges 22 as shown below. Ex. 1010 at 12:1-10; Ex. 1003, ¶¶ 65, 123.

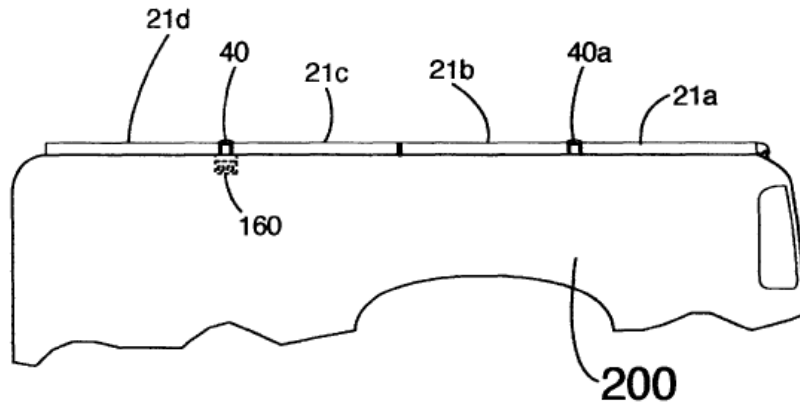
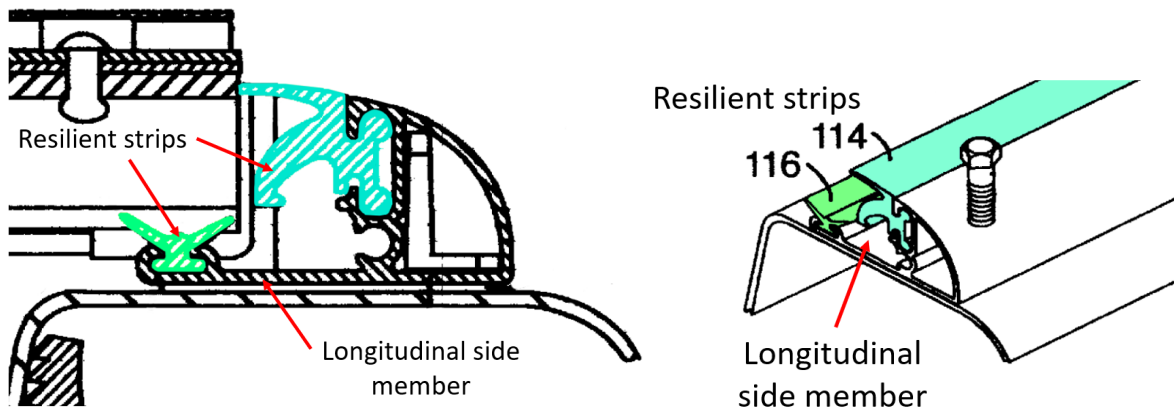


Fig. 26

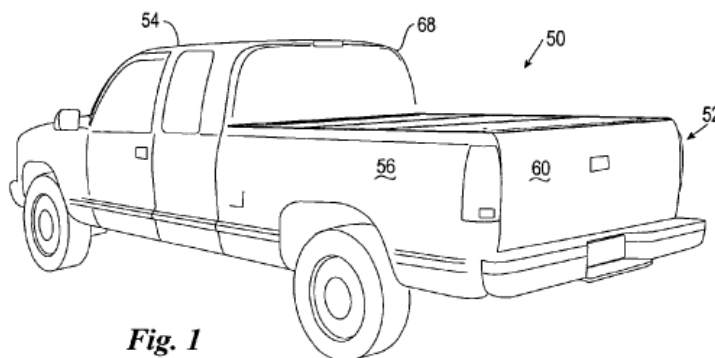
Steffens further discloses two resilient strips (“edge cover seal 114” and “lower panel seal 116”) attached to each of the longitudinal side members on the left and right sides of the panels. Ex. 1010 at 9:50-59. This can be seen in the highlighted excerpts from Figures 5 and 7 below:



Ex. 1003, ¶ 66. Thus, Steffens discloses nearly all elements of claim 2 of the '758 patent claims. Steffens does not disclose, however, that when two spacer bars are used, they should vary in width to allow the panels to fold over onto one another starting in the back. But this is taught in Keller.

2. Keller

Keller discloses a “multi-section folding pickup bed cover” where the “cover folds against the pickup cab to permit use of the entire pickup bed.” Ex. 1011 at 1:6-14; Ex. 1003, ¶¶ 67, 124. Keller represents analogous prior art to the ’758 patent. Ex. 1003, ¶ 124.



Keller teaches using a spacer bar 62c (“sometimes referred to as a double-hinge panel”) with multiple fixed-width panels. Ex. 1003, ¶ 68 (citing Ex. 1011 at 3:7-20). As seen in Figure 4 and the excerpt from Figure 13 below, the spacer bar 62c permits the rigid panels to be folded over onto each other starting from the rear of the cab to form a “pancake-style stack of rigid panels in a tight bundle.” Ex. 1003, ¶ 68 (citing Ex. 1011 at 3:30-52). In particular, the spacer bar allows the rear panel to be fold over onto the center panel, and then both to be folded over onto the front panel resulting in the fixed-width panels being substantially parallel to each other while the spacer “62c is substantially vertical.” Ex. 1003, ¶¶ 68, 125 (citing Ex. 1011 at 3:30-38).

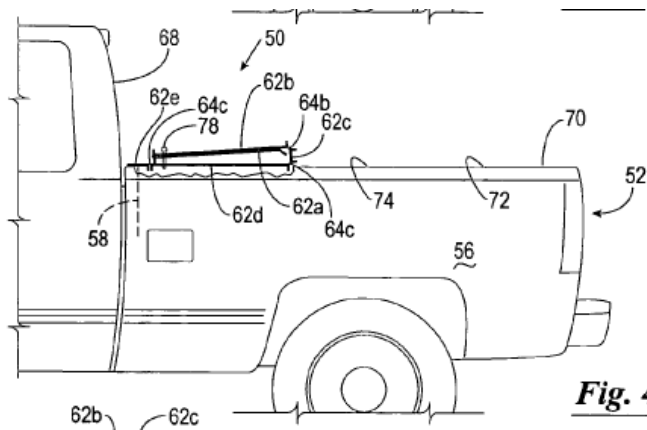


Fig. 4

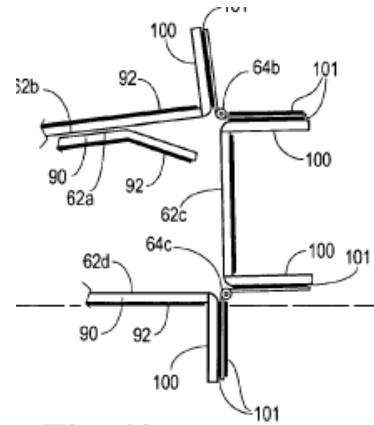


Fig. 13

Keller further discloses an embodiment using four fixed-width panels (62a, 62b, 62d, and 62g) as shown Figure 16 below, as well as *two* spacer bars that increase in width as they near the cab (62c and 62f)—both of which are now needed to “accommodate[] folding of multiple layers of rigid panels in pancake fashion” given the additional panel that must be folded over. Ex. 1011 at 5:18-32; Ex. 1003, ¶¶ 69, 126.

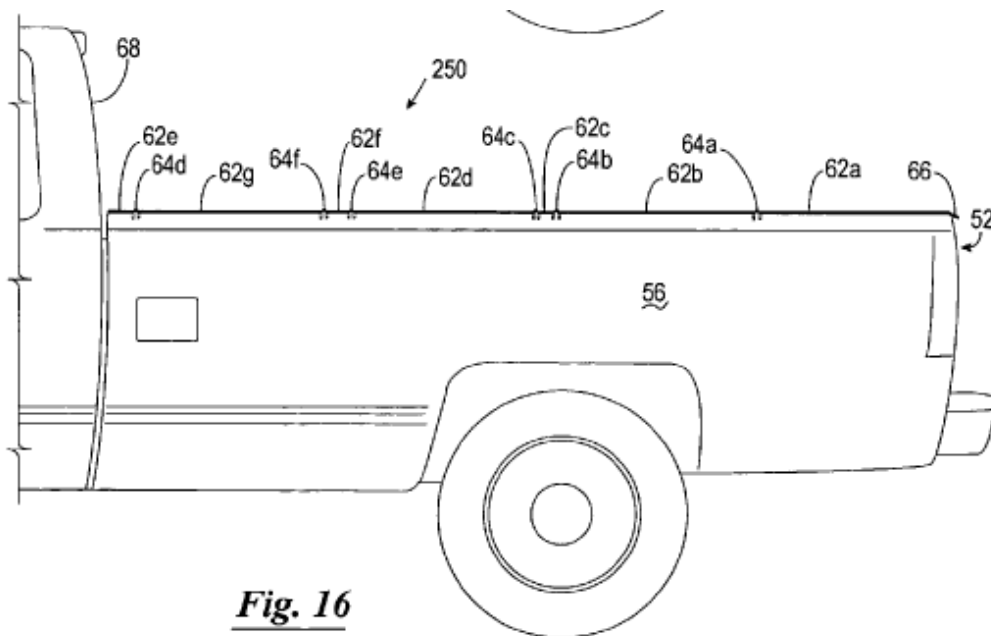
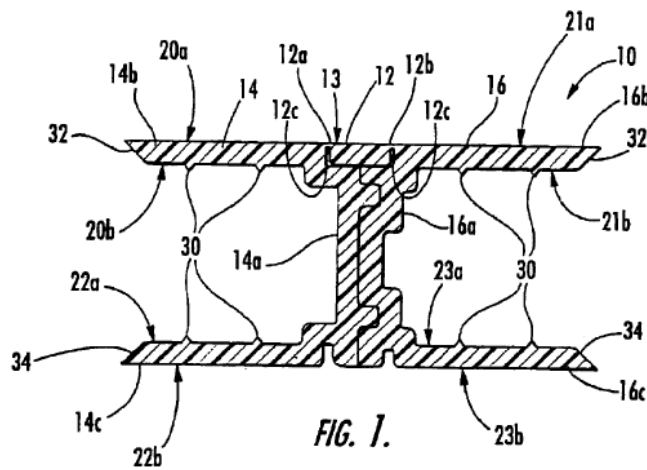


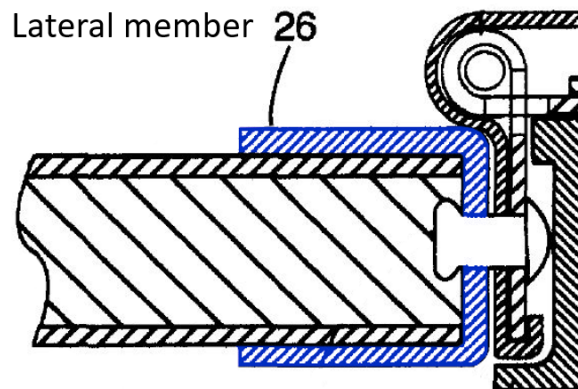
Fig. 16

3. Erlandsson

As discussed previously, Erlandsson discloses a “hinge apparatus” for connecting two rigid panels vehicles using two lateral hinge members (14 and 16 below) that are “pivotally connected,” and the hinge members “interlock with each other when both hinge members 14, 16 are in the first [unfolded] position (FIG. 1).” Ex. 1003, ¶¶ 56, 127 (citing Ex. 1009 at 3:28-31)



The lateral frame members 14 and 16 of Erlandsson have the same function as the lateral frame members 26 of Steffens as seen in Figure 5 below. Ex. 1003, ¶ 61.



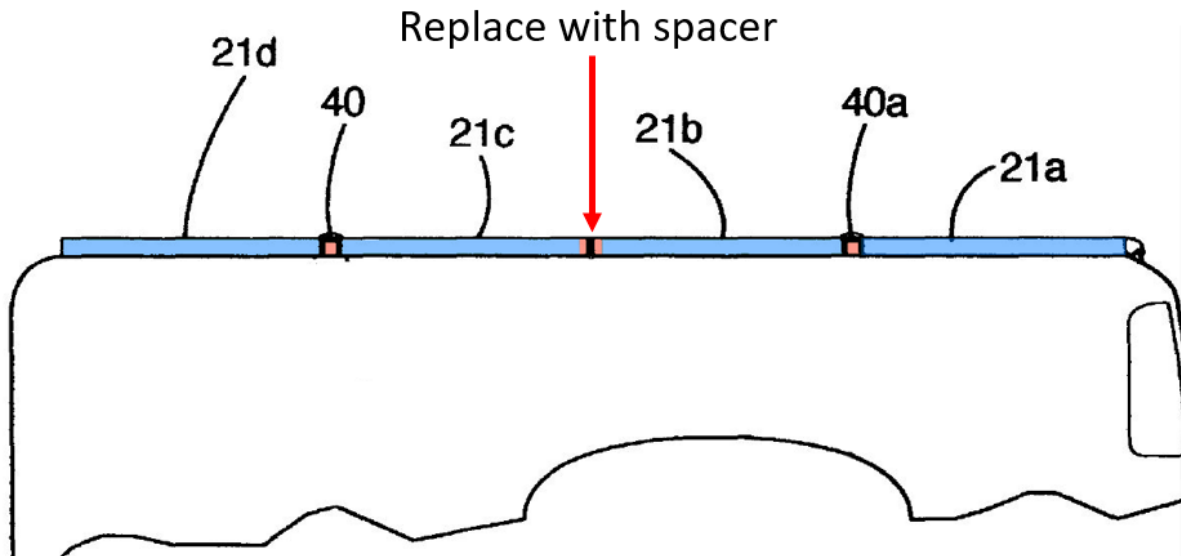
The lateral frame members 14 and 16 of Erlandsson, however, provide an additional feature, namely, “[t]he interlocking of the base members 14a, 16a [of hinge members 14, 16].” Ex. 1009 at 3:31-33. “The interlocking of the base members 14a, 16a adds structural strength and rigidity to the hinge apparatus.” Ex. 1009 at 3:31-33; Ex. 1003, ¶¶ 57, 127-128.

As discussed previously in Section IV.C.2, *supra*, Erlandsson constitutes analogous prior art to the ’758 Patent. *Id.*

4. The Combination of Steffens in view of Keller and Erlandsson

A POSITA would have been motivated to increase the width of the spacer bars disclosed in Steffens in the manner taught in Keller in order to “accommodate the folding of multiple layers of rigid panels in pancake fashion.” Ex. 1011 at 5:18-32; Ex. 1003, ¶ 131.

Steffens teaches in one embodiment that spacers (40) “may replace **one or both hinges** 22 to add structural support to the cover panels 21a, 21b, 21c, and 21d.” Ex. 1010 at 4:22-24 (emphasis added); Ex. 1003, ¶ 138. Such a four-panel cover would look like Figure 26 below, but with the hinge between panels 21c and 21b also replaced with a spacer 40:



Ex. 1003, ¶¶ 133, 138.

In this embodiment described in Steffens, it would no longer be possible to fold the panels accordion-style, as the spacers 40 would not permit such folding.

Ex. 1003, ¶¶ 134, 139. Thus, in order to still have the panels fold up and lie flat against the cab as taught in Figure 1 of Steffens, a POSITA would know in view of Keller that differing spacer widths would be needed, with the spacer closer to the cab having a longitudinal width greater than the previous spacer. *Id.*

Thus, modifying Steffens in view of Keller simply would require increasing the longitudinal widths of the two spacers closest to the cab in the Steffens cover (*i.e.*, between panels 21d and 21c, and between panels 21c and 21b in annotated Figure 26 above)—with the wider spacer closer to the truck cab—to “accommodate[] folding of multiple layers of rigid panels in pancake fashion” like

the spacers 62f and 62c shown in Keller Figure 16 below. Ex. 1003, ¶ 134; Ex. 1011 at 5:18-32.

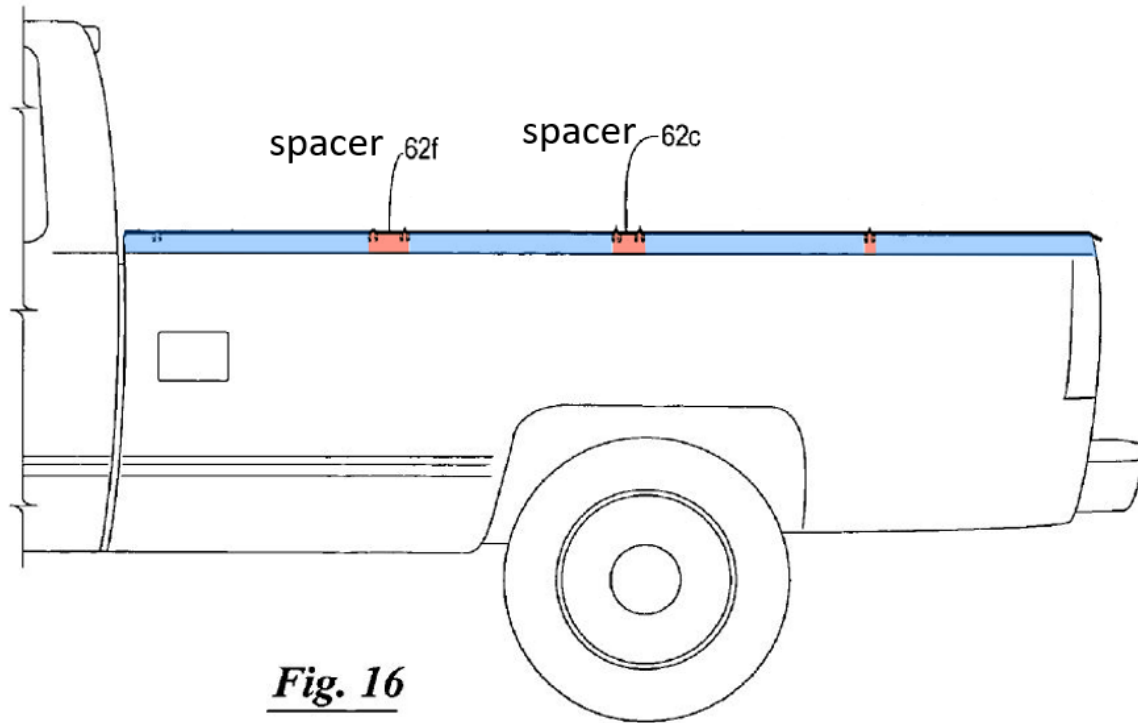
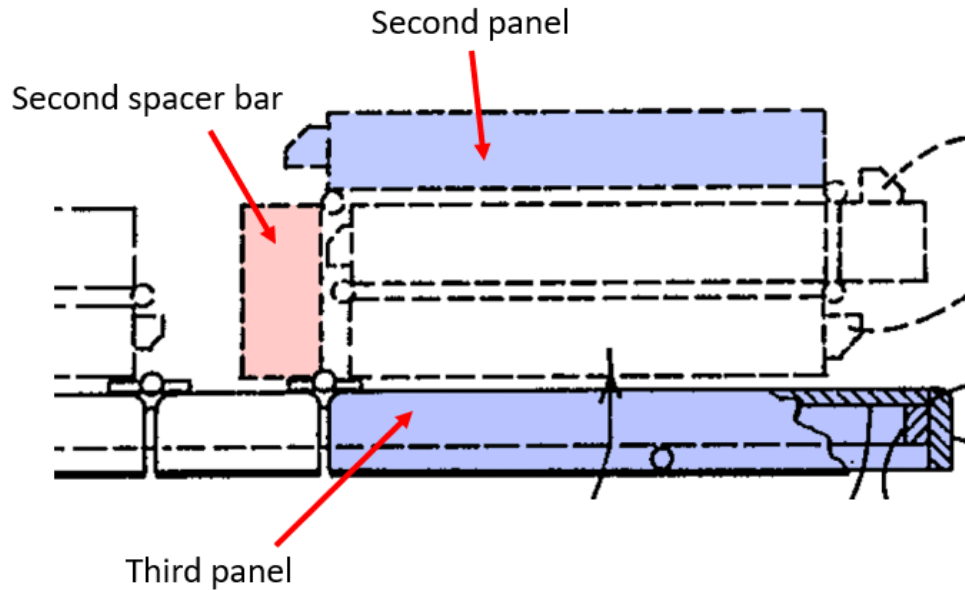


Fig. 16

Note that his principle of using different-sized spacer bars when folding panels one on top of the next was well known in the art long before Keller, having been disclosed previously in the Stone reference as far back as 1980 (*see* Section IV.A.1, *supra*):



Ex. 1003, ¶ 140.

The prosecution history corroborates the obviousness of combining Steffens and Keller. During prosecution, the examiner repeatedly rejected the claims over the combination of Steffens and Keller. (Ex. 1002 at 171-73 (January 5, 2011 OA); 242-246 (August 10, 2011)). In particular, on August 10, 2011, the Examiner issued a Final Rejection rejecting all claims except for 22-25 as being unpatentable over this combination. *See* Ex. 1002 at 242-246. In response, Applicant acquiesced to this rejection and cancelled all claims except for 22-25. Ex. 1002, p. 257. Thus only claims 22-25 issued, becoming claims 1-4. The Examiner’s entire reason for allowance was: “Prior art of record fails to teach show or disclose the use of an interlock element interlocked with the spacer bar as found in independent claims 22 and 23 [issued claims 1 and 2].” Ex. 1002, p. 274.

As explained above, the “interlock element” is disclosed in Erlandsson—a reference that was not before the Examiner during prosecution. Ex. 1003, ¶ 143. Erlandsson teaches that using interlocking elements between rigid panels “adds structural strength and rigidity to the hinge apparatus” (Ex. 1009 at 3:29-33). Ex. 1003, ¶ 138. A POSITA would have been motivated and able to use interlocking elements from Erlandsson between the panels and spacer bars in Steffens in order to “add[] structural strength and rigidity to the hinge apparatus.” Ex. 1003, ¶ 141 (citing Ex. 1009 at 3:29-33).

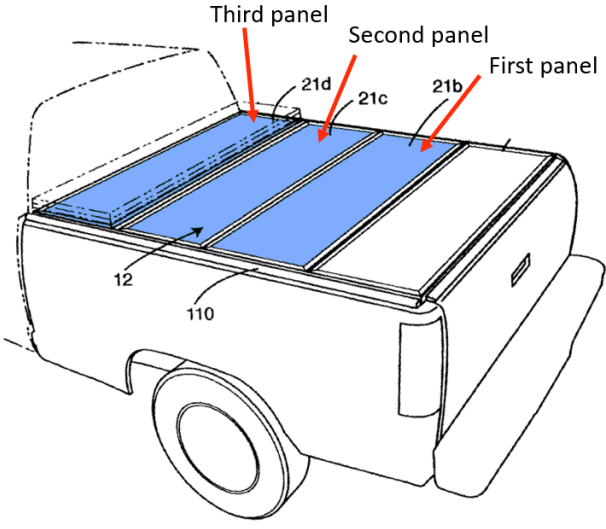
The combination is also, separately, supported by the rationales discussed in *KSR Int’l Co. v. Teleflex, Inc.*, 580 U.S. 398 (2007). There, the Supreme Court held, *inter alia*, that “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *Id.* at 416. Furthermore, “if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *Id.* at 417.

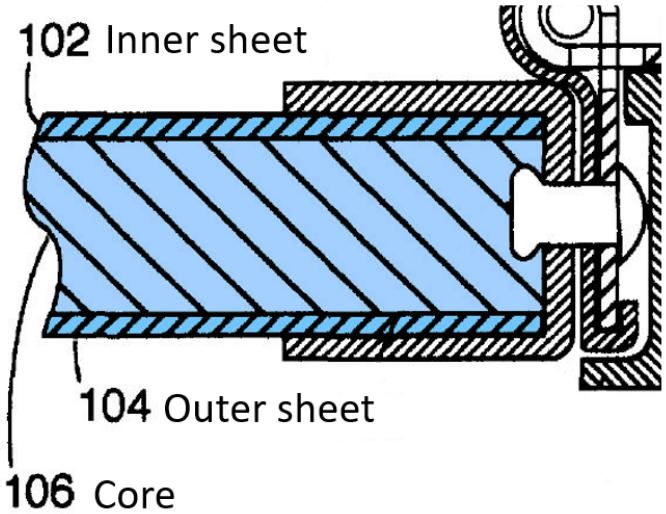
The disclosures of Steffens, Keller, and Erlandsson were all well known in the art, as each reference predates the filing date of the ’758 patent by several years. Ex. 1003, ¶ 139. Adjusting the Steffens spacer widths (as taught by Keller) and using interlocking elements between the Stone panels (as taught by

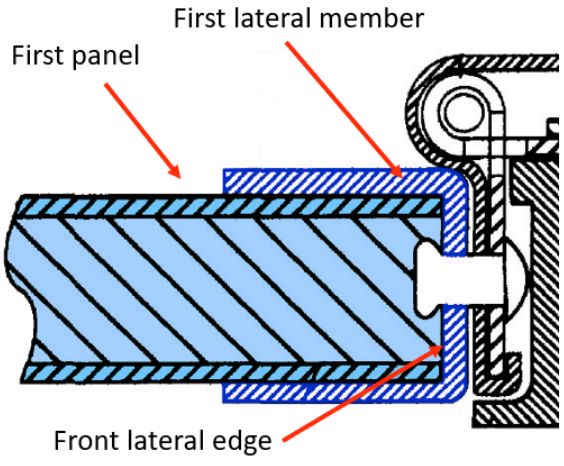
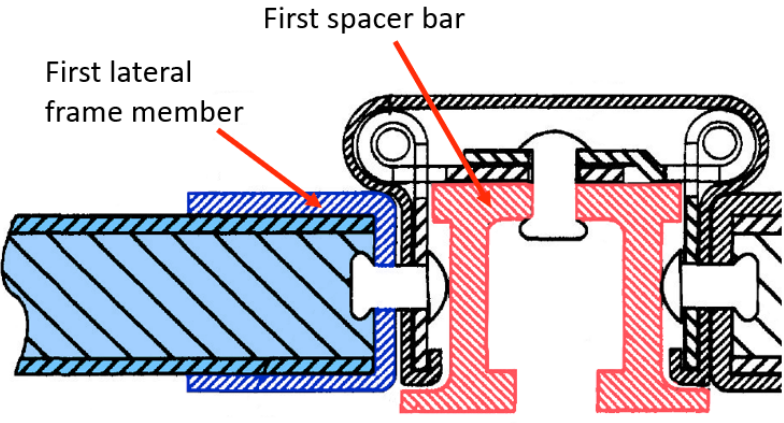
Erlandsson) would require no more than ordinary skill. Ex. 1003, ¶¶ 144-146. And the resulting improvements would have been exactly as described in Keller, namely, “accommodat[ing] folding of multiple layers of rigid panels in pancake fashion” (Ex. 1011 at 5:18-32); and exactly as described in Erlandsson, specifically, increasing “structural strength and rigidity to the hinge apparatus” (Ex. 1009 at 3:29-33). Ex. 1003, ¶ 142.

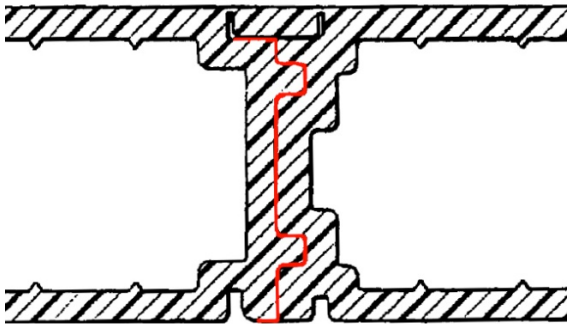
5. Applying Steffens in View of Keller and Erlandsson to the Claims

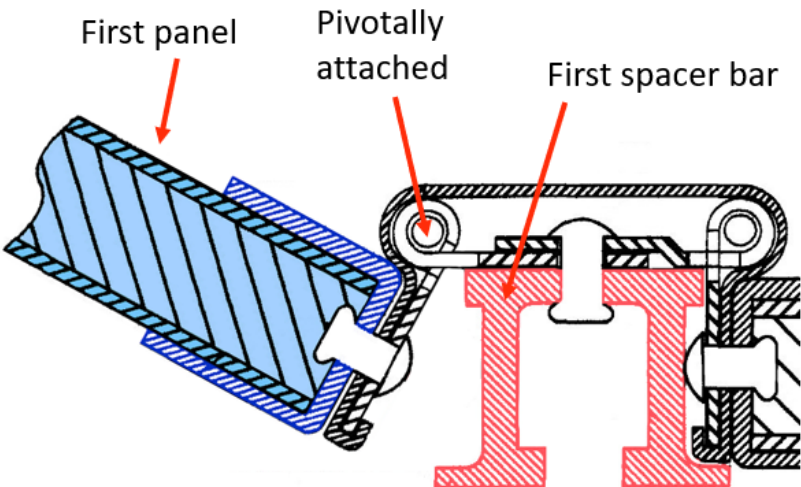
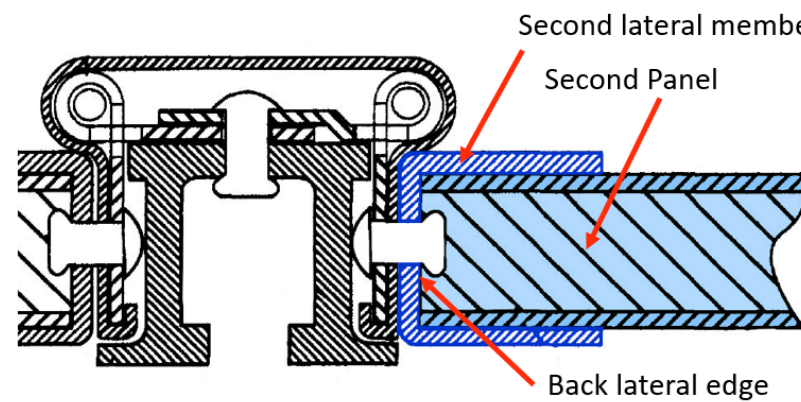
The combination of Steffens, Keller and Erlandsson teaches every limitation of claims 2 through 4 of the '758 patent, as set forth below. Ex. 1003, ¶ 147 (and accompanying claim charts).

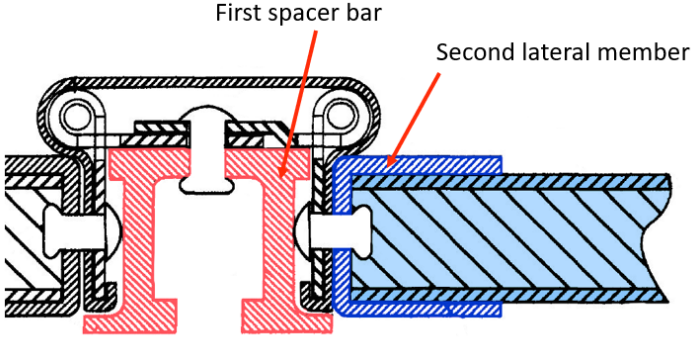
	Claim Language	Steffens in view of Keller and Erlandsson
2.0	A cover for a pick-up truck cargo box, comprising:	<p>Steffens discloses a cover for a pick-up truck cargo box, including a first panel, a second panel, and a third panel. Ex. 1010 at 4:1-9; Figure 1.</p> 
2.1	a first panel, a second panel, and a third panel, with each panel having a core material between top and bottom	

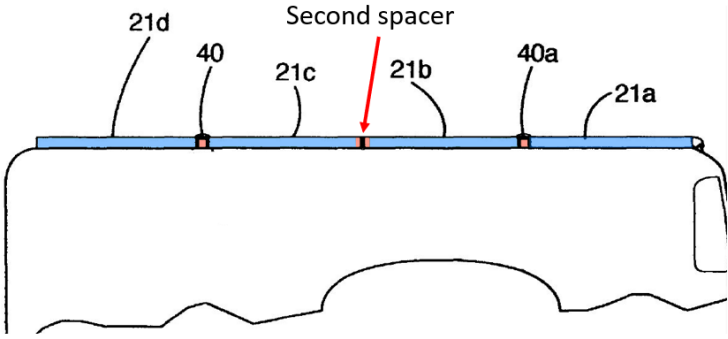
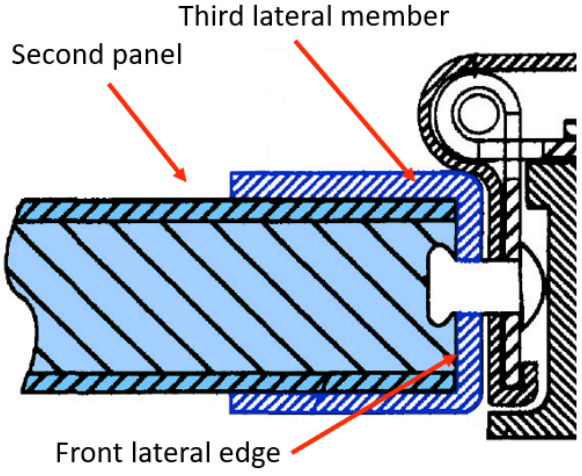
	Claim Language	Steffens in view of Keller and Erlandsson
	plates;	<p data-bbox="581 258 1390 678">Steffens also discloses each panel having a core material between top and bottom plates, as seen in annotated Figure 10 below. Ex. 1010 at 7:1-4 (“As best depicted in FIG. 10, the panels are of the laminar construction have inner and outer sheets 102 and 104 and a core of rigid foam 106.”); Exhibit 1003, ¶ 147, Claim 2(i-ii).</p> 

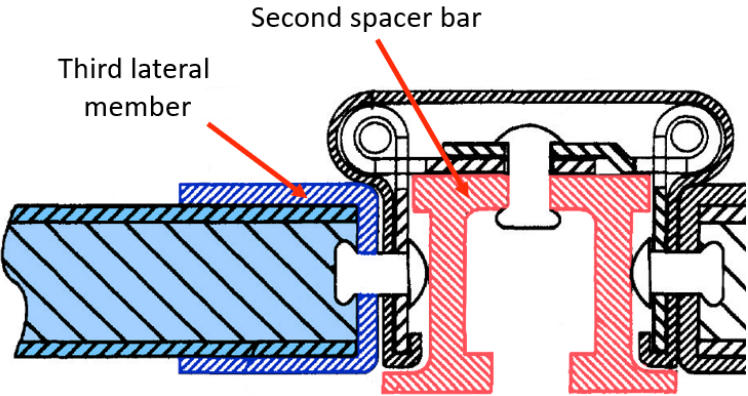
	Claim Language	Steffens in view of Keller and Erlandsson
2.2	<p>a first lateral member attached to the front lateral edge of the first panel;</p>	<p>Steffens discloses a first lateral member attached to the front lateral edge of the first panel, as shown in the annotated excerpt from Figure 10 of Steffens below (Ex. 1010 at 7:5-7):</p>  <p>Exhibit 1003, ¶ 147, Claim 2(iii)</p>
2.3	<p>a first spacer bar, with the first lateral frame member including a first interlocking element interlocked with a back lateral edge of the first spacer bar and with first panel pivotally</p>	<p>Steffens discloses a first spacer bar (40) between the first panel and the second panel as represented in annotated Figure 10 below (e.g., Ex. 1010 at 4:18-22):</p>  <p>See Exhibit 1003, ¶ 147, Claim 2(iv).</p>

	Claim Language	Steffens in view of Keller and Erlandsson
	attached to the first spacer bar;	<p>As discussed, a POSITA would have been motivated and able to use interlocking elements disclosed by Erlandsson between the panel lateral members and the spacer bars in the Steffens cover to “add[] structural strength and rigidity to the hinge apparatus” as expressly taught by Erlandsson. Ex. 1009 at 3:29-33; Ex. 1003, ¶ 141. For example, using one of the Erlandsson interlock designs (<i>e.g.</i>, Figure 3 below) would require little more than creating one or more male elements on the lateral edge of the panel lateral member and one or more corresponding female elements on the lateral edge of the spacer bar, and it would have been obvious to a POSITA to do so. Ex. 1003, ¶¶ 141-142.</p>  <p>Steffens also discloses the first panel pivotally attached to the first spacer bar, as seen in Figure 10 of Steffens modified below to show the pivoting action. Ex. 1010 at 4:16-17 (“Panels 21c and 21d are joined together and</p>

	Claim Language	Steffens in view of Keller and Erlandsson
		<p data-bbox="571 233 1015 275">pivot at frame member 40”).</p>  <p data-bbox="571 819 1071 861">Exhibit 1003, ¶ 147, Claim 2(v).</p>
2.4	<p data-bbox="272 877 571 1881">a second lateral member attached to a back lateral edge of the second panel, with the second lateral member including a second interlocking element interlocked with a front lateral edge of the first spacer bar;</p>	<p data-bbox="571 898 1432 1134">Steffens discloses a second lateral member (26) attached to the back lateral edge of the second panel, as represented in the annotated excerpt from Figure 10 of Steffens below (Ex. 1010 at 7:5-7):</p>  <p data-bbox="571 1638 1432 1816">Steffens discloses that the first spacer bar (40) also is pivotally attached to the second panel as represented in annotated Figure 10 below (e.g., Ex. 1010 at 4:18-22):</p>

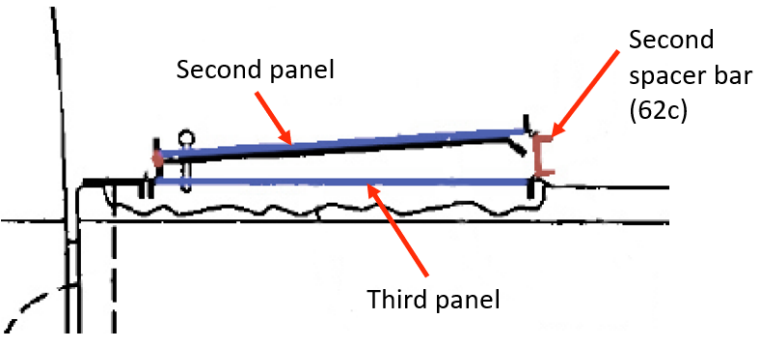
	Claim Language	Steffens in view of Keller and Erlandsson
		 <p data-bbox="581 699 1419 1184">As discussed in the prior claim elements a POSITA would have been motivated and able to use interlocking elements disclosed by Erlandsson between the panel lateral members and the spacer bars in the Steffens cover to “add[] structural strength and rigidity to the hinge apparatus” as expressly taught by Erlandsson. Ex. 1009 at 3:29-33; Exhibit 1003, ¶ 147, Claim 2(vi-vii).</p>
2.5	a second spacer bar;	<p data-bbox="581 1234 1419 1654">Steffens expressly teaches that spacers (40) “may replace one or both hinges 22 to add structural support to the cover panels 21a, 21b, 21c, and 21d.” Ex. 1010 at 4:22-24. Such a four panel/three spacer bar cover would look like Figure 26 below, but with the hinge shown between panels 21c and 21b also replaced with a spacer:</p>

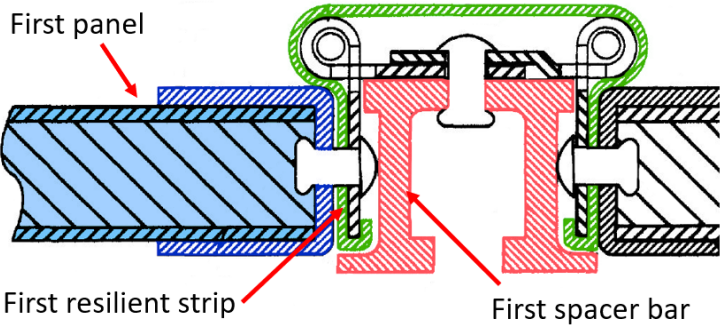
	Claim Language	Steffens in view of Keller and Erlandsson
		 <p data-bbox="584 640 1096 682">Exhibit 1003, ¶ 147, Claim 2(viii).</p>
2.6	<p data-bbox="284 709 560 1575">a third lateral member attached to a front lateral edge of the second panel, with the third lateral member including a third interlocking element interlocked with a back lateral edge of the second spacer bar;</p>	<p data-bbox="584 724 1404 955">Steffens discloses a third lateral member (26) attached to the front lateral edge of the second panel, as represented in the annotated excerpt from Figure 10 of Steffens below (Ex. 1010 at 7:5-7):</p>  <p data-bbox="584 1554 1404 1848">In the three-spacer embodiment disclosed in Steffens (Ex. 1010 at 4:22-24), Steffens discloses that the second spacer bar (40) also is pivotally attached to the third lateral member of the second panel as represented in annotated Figure 10 below (e.g., Ex. 1010 at 4:18-</p>

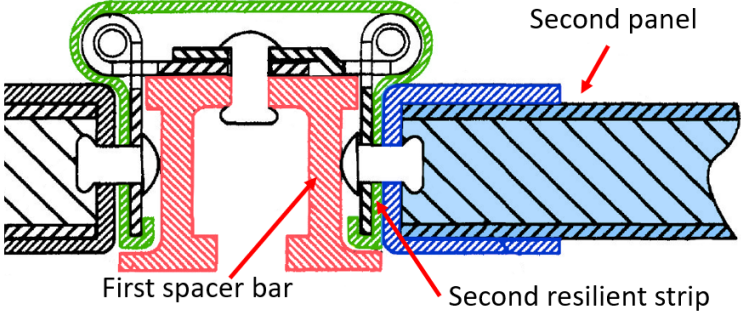
	Claim Language	Steffens in view of Keller and Erlandsson
		<p>22):</p>  <p>Exhibit 1003, ¶ 147, Claim 2(x).</p> <p>As discussed with respect to prior claim elements, one of ordinary skill in the art would have been motivated and able to use interlocking elements disclosed by Erlandsson between the panel lateral members and the spacer bars in the Steffens cover to “add[] structural strength and rigidity to the hinge apparatus” as expressly taught by Erlandsson. Ex. 1009 at 3:29-33; Ex. 1003, ¶ 141.</p>
2.7	<p>a fourth lateral member attached to a back lateral edge of the third panel, with the fourth lateral member including a fourth</p>	<p>Steffens discloses a fourth lateral member (26) attached to the back lateral edge of the third panel, as represented in the annotated excerpt from Figure 10 of Steffens below (Ex. 1010 at 7:5-7):</p>

	Claim Language	Steffens in view of Keller and Erlandsson
	<p>interlocking element interlocked with front lateral edge of the second spacer bar;</p>	<div data-bbox="646 268 1365 617" data-label="Image"> </div> <p>In the three-spacer embodiment disclosed in Steffens (Ex. 1010 at 4:22-24), Steffens discloses that the second spacer bar (40) also is pivotally attached to the third panel as represented in annotated Figure 10 below (e.g., Ex. 1010 at 4:18-22):</p> <div data-bbox="639 1005 1357 1354" data-label="Image"> </div> <p>Ex. 1003, ¶ 147 Claim 2(xi-xii). As discussed in prior claim elements, a POSITA would have been motivated to use interlocking elements disclosed by Erlandsson between the panel lateral members and the spacer bars in the Steffens to “add[] structural strength and rigidity to the hinge apparatus” as expressly taught by Erlandsson. Ex. 1009 at 3:29-33; Ex. 1003, ¶ 141.</p>

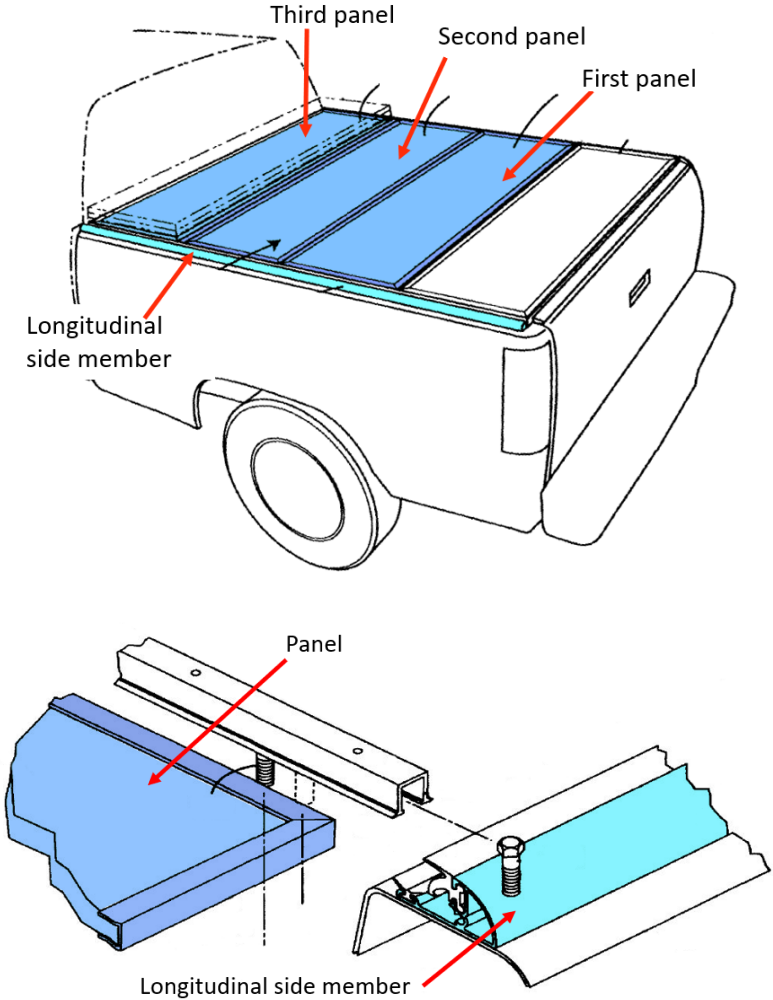
	Claim Language	Steffens in view of Keller and Erlandsson
2.8	<p>with the second spacer bar having a width greater than the first spacer bar and less than the width of the second panel and of the third panel, and the width of the second spacer bar selected to allow the second panel to fold over onto the third panel, with a top surface of the first panel facing and substantially parallel to a top surface of the second panel and with a bottom surface of the first panel facing and substantially</p>	<p>Like the three-spacer embodiment disclosed in Steffens (Ex. 1010 at 4:22-24), Keller discloses an embodiment using four fixed-width panels as shown Figure 16 below, as well as multiple spacer bars between the first/second and second/third panels that increase in width as they near the cab, the widths of which are increased to “accommodate[] folding of multiple layers of rigid panels in pancake fashion” given the additional panel that must be folded over. Ex. 1011 at 5:18-32; Ex. 1003, ¶ 147 Claim 2(xii).</p> <div data-bbox="618 940 1382 1423" data-label="Image"> </div> <p style="text-align: center;"><u>Fig. 16</u></p> <p>In the three-spacer embodiment described in Steffens (Ex. 1010 at 4:22-24), it would not be possible to fold the panels accordion-style, as the spacers 40 would not permit such folding. Ex. 1003, ¶ 147 Claim 2(xii). Thus, in order to still have the panels fold up and lie flat against the cab as taught in Steffens (as seen Figure</p>

	Claim Language	Steffens in view of Keller and Erlandsson
	<p>parallel to a top surface of the third panel.</p>	<p>1 of Steffens), it would be obvious to a POSITA in view of Keller to use larger spacer widths for the spacers between the three panels closest to the cab, with the spacer closest to the cab having a longitudinal width greater than the preceding spacer, and thereby “accommodate[] folding of multiple layers of rigid panels in pancake fashion.” Ex. 1011 at 5:18-32; Ex 1003, ¶¶ 138-140. The use of a second, longitudinally wider spacer bar ensures that all panels still fold over onto one another “in pancake fashion.”</p> <p>In particular, Keller discloses a width of the second spacer bar selected to allow the second panel to fold over onto the third panel.</p>  <p>As seen in annotated Figure 4 above, the spacer bar 62c permits the rigid panels to be folded over onto each other starting from the rear of the cab to form a “pancake-style stack of rigid panels in a tight bundle.” Ex. 1011 at 3:30-52; also Ex. 1011 at 3:7-20. Specifically, the spacer bar allows the rear panel to be</p>

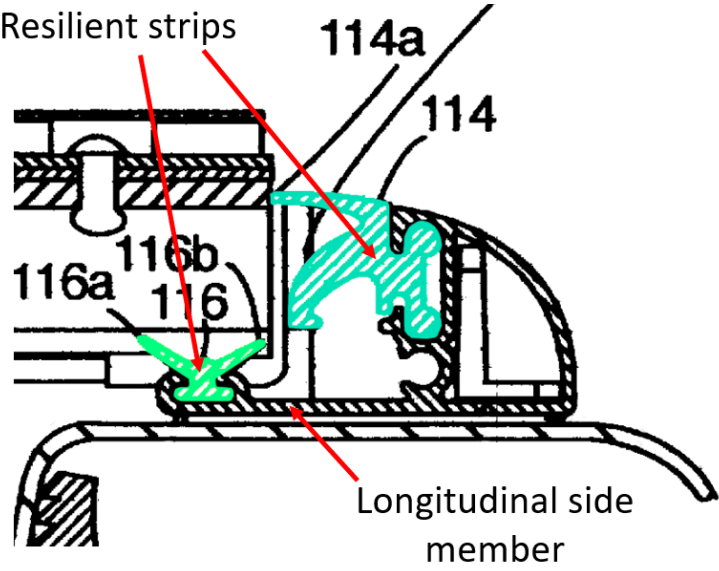
	Claim Language	Steffens in view of Keller and Erlandsson
		<p>folder over onto the center panel, and then both to be fold over onto the front panel resulting in the fixed-width panels being substantially parallel to each other while the spacer “62c is substantially vertical.” Ex. 1011 at 3:30-38.</p> <p>This results in the top surface of the first panel in Keller facing and substantially parallel to a top surface of the second panel as seen in annotated Figure 4 above, and with a bottom surface of the first panel facing and substantially parallel to a top surface of the third panel. Ex. 1003, ¶ 147, Claim 2(xiii-iv).</p>
3.0	<p>The cover of claim 2 further comprising a first resilient seal strip compressed between the first spacer bar and the first panel when the cover is in an unfolded position, and a second resilient seal strip compressed</p>	<p>Steffens discloses a first resilient seal strip compressed between the first spacer bar and the first panel when the cover is in an unfolded position. The resilient strip 30 is positioned as represented in annotated Figure 10 below when the cover is unfolded:</p>  <p>Steffens likewise discloses a second resilient seal strip compressed between the first spacer bar and the second panel when the cover is in an unfolded position. The</p>

	Claim Language	Steffens in view of Keller and Erlandsson
	<p>between the first spacer bar and the second panel, when the cover is in the unfolded position.</p>	<p>resilient strip 30 is positioned as represented in annotated Figure 10 below when the cover is unfolded:</p>  <p>Steffens discloses that, when the cover is fully unfolded, the resilient seal strip on either side of the first spacer panel is compressed between the first spacer bar and the panel on each side and thereby Steffens “provides a water-tight seal at the edges of the C-frames 26 to prevent water from leaking into the cargo bay between frame member 40 and the C-frames 26 to provide a water-tight seal there between.” Ex. 1010 at 7:20-23; Ex. 1003, ¶ 147 Claim 3(i-ii).⁷</p>

⁷ Although the two resilient strips are connected above, there is a separate resilient strip compressed in the space between the first spacer bar and the first panel, and between the first spacer bar and the second panel; and even if two non-joined resilient strips was required by the claim language, this would have been an

	Claim Language	Steffens in view of Keller and Erlandsson
4.0	<p>The cover of claim 2 with the first, second and third panels each having left and right side longitudinal side members attached to the left and right sides, respectively, of the panels, and with a resilient strip attached to each of the longitudinal side members.</p>	<p>Steffens discloses the cover of claim 2 with the first, second and third panels each having left and right side longitudinal side members (24) attached to the left and right sides, respectively, of the panels, as seen in annotated Figure 1 and the annotated excerpt of Figure 5 of Steffens shown below (Ex. 1010 at 6:42-43):</p>  <p>The figure consists of two technical drawings. The upper drawing is a perspective view of a truck bed with a cover. The cover is composed of three panels: the 'Third panel' at the rear, the 'Second panel' in the middle, and the 'First panel' at the front. Each panel is supported by a 'Longitudinal side member' on both the left and right sides. The lower drawing is an exploded view showing a 'Panel' being attached to a 'Longitudinal side member'. A resilient strip is shown attached to the side member, which fits into a channel on the panel.</p>

obvious variation of the hinge assembly disclosed in Steffens. Ex. 1003 at ¶ 147, footnote 7.

	Claim Language	Steffens in view of Keller and Erlandsson
		<p>Further, Steffens discloses not one, but two resilient strips attached to each of the longitudinal side members: “edge cover seal 114 and lower panel seal 116.” Ex. 1010 at 6:39-41. The first—“edge cover seal 114”—“includes dual seals 114a and 114b” that each “engage the edge of the cover panels 24 to provide a waterproof seal.” Ex. 1010 at 6:41-43. Second, “lower panel seal 116 includes ribs 116a and 116b which provide dual sealing surfaces that abut the lower surfaces 25 of the individual panels for the length of the cargo bay” and each “provides a secondary barrier should water or other liquid seep past the edge cover seal 114.” Ex. 1010 at 6:49-53. Both seals are seen in the annotated excerpt from Figure 9 of Steffens below:</p>  <p>Ex. 1003, ¶ 147 Claim 4(i-ii).</p>

V. MANDATORY REQUIREMENTS

A. Grounds for Standing

Petitioners certify that the '758 Patent is available for IPR and Petitioners are not barred or estopped from requesting an IPR of the challenged claims. This petition is timely filed within one year of the service of Patent Owner's Central District of California and ITC complaints alleging infringement of the '758 Patent.

B. Mandatory Notices 37 C.F.R. § 42.8(b)

1. Real Parties in Interest

Petitioners Cixi City Liyuan Auto Parts Co. Ltd., Tyger Auto, Inc., and Hong Kong Car Start Industrial Co. Ltd. are the real parties in interest for this Petition.

2. Related Matters

The '758 Patent is at issue in *Certain Pick-Up Truck Folding Bed Cover Systems and Components Thereof*, ITC Investigation No. 337-TA-1188, and *Extang Corp. et al. v. Tyger Auto Inc.*, No. 5:18-cv-02074 (C.D. Cal.) (stayed pending the ITC investigation).

3. Fees

This Petition requests review of three (3) claims of the '758 Patent and is accompanied by a payment of \$30,500, which includes the \$15,500.00 inter partes review request fee, and the \$15,000 post-institution fee. *See* 37 C.F.R. § 42.15(a). Thus, this Petition meets the fee requirements under 35 U.S.C. § 312(a)(1). The

Board is hereby authorized to charge any additional fees required by this action to Deposit Account No. 20-1430.

4. Power of Attorney

Powers of attorney are filed herewith in accordance with 37 C.F.R. § 42.10(b)

5. Designation of Lead and Back-Up Counsel and Service Information

Petitioners Tyger Auto, Inc., Cixi City Liyuan Auto Parts Co., Ltd., and Hong Kong Car Start Industrial Co. Ltd. serve this Petition and exhibits to the correspondence address of record for the '758 Patent pursuant to 37 C.F. R. § 42.105(a) and the Certificate of Service. Petitioners consent to service via email at the addresses listed below for lead and back-up counsel.

Lead Counsel	Back-Up Counsel
<p>Kristopher L. Reed Registration No. 58,694 kreed@kilpatricktownsend.com</p> <p><u>Postal and Hand-Delivery Address:</u> Kilpatrick Townsend & Stockton LLP 1400 Wewatta Street, Suite 600 Denver, CO 94111 Telephone: (303) 405-8536</p>	<p>Joshua B. Pond Registration No. 55,544 jpond@kilpatricktownsend.com</p> <p><u>Postal and Hand-Delivery Address:</u> Kilpatrick Townsend & Stockton LLP 607 14th Street, NW Suite 900 Washington, DC 20005 Telephone: (202) 508-5854</p> <p>Matthew J. Meyer Registration No. 75,249 mmeyer@kilpatricktownsend.com</p> <p><u>Postal and Hand-Delivery Address:</u> Kilpatrick Townsend & Stockton LLP 1080 Marsh Road Menlo Park, CA 94025 Telephone: (650) 614-6414</p>

Respectfully submitted,

Dated: June 2, 2020

By: /s/ Kristopher L. Reed
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Lead Counsel for Petitioner

CERTIFICATE OF WORD COUNT

The undersigned certifies pursuant to 37 C.F.R. § 42.24(d) that the foregoing Petition for *Inter partes* Review excluding any table of contents, table of authorities, certificates of service or word count, mandatory notices under § 42.8, or appendix of exhibits or claim listing, contains 13,644 words according to the word-processing program used to prepare this paper (Microsoft Word).

Dated: June 2, 2020

/s/ Kristopher L. Reed
Kristopher L. Reed
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Counsel for Petitioners

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of this PETITION FOR INTER PARTES REVIEW OF U.S. PATENT 8,061,758 has been served, per authorization of Patent Owner, on the following litigation counsel via email:

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