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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA, INC.

Petitioner,

v.

NIKOLA CORPORATION

Patent Owner.

Case No. IPR2019-01646
U.S. Patent No. 10,077,084

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 10,077,084

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TABLE OF EXHIBITS

Exhibit No.	Description
1001	U.S. Patent No. 10,077,084 ("the '084 patent").
1002	Declaration of Brian C. Baker.
1003	File History of the '084 patent.
1004	PCT Application Publication No. WO 2009/001086 A2 to Modec Limited ("Modec").
1005	U.S. Patent No. 7,338,335 to Messano ("Messano").
1006	October 2010 *Fleet Transport* magazine ("Fleet Transport").
1007	The Maintenance Council of the American Trucking Association, Future Truck Committee Information Report: 2001-2, 3 (Mike Malecha et al., eds., March 2001) ("Future Truck Report").
1008	U.S. Patent No. 4,932,716 to Marlowe ("Marlowe").
1009	PCT Application Publication No. 1981/001587 A1 to Eltra Corporation ("Eltra").
1010	U.S. Patent Application Publication No. 2003/0006628 A1 to Racz ("Racz").
1011	2013 Kia Sedona User Manual ("Kia").
1012	U.S. Patent No. 7,145,788 B2 to Plummer ("Plummer").
1013	2012 Annual Report of the Man Group ("Man Annual Report").
1014	Loczi, Josef. "Ergonomics Program at Freightliner." SAE Transactions, vol. 109, 2000, pp. 462–469 ("Freightliner").

1015	U.S. Patent Application Publication No. US 2008/0164724 Al to Burnett ("Burnett").
1016	*Adjacent*, Merriam-Webster's Unabridged Dictionary (2019).
1017	*Curriculum Vitae* of Brian Baker.
1018	Printout of JSTOR webpage referring to Loczi, Josef. "Ergonomics Program at Freightliner." SAE Transactions, vol. 109, 2000, pp. 462–469.
1019	Images accessed from JSTOR webpage of Loczi, Josef. "Ergonomics Program at Freightliner." SAE Transactions, vol. 109, 2000, pp. 462–469.
1020	U.S. Patent Publication No. 2008/0191515 to Hollenbeck ("Hollenbeck").
1021	U.S. Patent Publication No. 2011/0121606 to Engelbrecht ("Engelbrecht").

Tesla, Inc. ("Petitioner") requests inter partes review of claims 1-26 of U.S. Patent No. 10,077,084 (Ex. 1001, "the '084 patent"), purportedly owned by Nikola Corporation ("Patent Owner").

I. INTRODUCTION, STATE OF THE PRIOR ART, AND SUMMARY OF CHALLENGE TO THE '084 PATENT

On May 1, 2018, Patent Owner Nikola filed a lawsuit against Petitioner Tesla, Inc. for infringement of three design patents. On September 26, 2018, Nikola filed a Second Amended Complaint in that lawsuit and added an allegation that Tesla, Inc. was also infringing U.S. Patent 10,077,084. This request to invalidate the '084 patent is responsive to the allegations made by Nikola in that lawsuit.

Less than four years ago, the '084 patent was filed by the Applicants, claiming they had invented a new "semi-truck door" design "that allows a user to safely and comfortably enter and exit the vehicle." Ex. 1001 at 2:21-23. They did not allege they had invented semi-trucks or semi-trucks with electric drive trains. All they asserted they had invented was a new door position that allegedly provided a better way to get in and out of the semi-truck. Indeed, they described the technical field of the alleged invention as "systems, methods, and devices for an automobile ***door*** or window" and, in particular, "methods, systems, and devices for a ***door on a semi-truck vehicle***." *Id.* at 1:27-30 (emphases added).

Applicants explained that, in the prior art:

> Vehicle doors, and particularly semi-truck doors, often provide immediate access to a seat located in the body of the vehicle. The doors are often hinged and require a user to enter or exit the vehicle at an angle that may be uncomfortable or even dangerous. Semi-truck doors and seats are located a significant distance above the ground and a user must be cautious to avoid injury when ascending the steps to the semi-truck door, opening the hinged semi-truck door, and sliding on to the seat while closing the hinged door.

Id. at 1:36-45. Of course, Applicants were not the first to recognize that climbing through a door directly into a semi-truck seat may be uncomfortable or dangerous. Indeed, by mentioning these disadvantages of the traditional position of semi-truck doors in the background section of the '084 patent, Applicants admitted these disadvantages were already appreciated in the industry. As early as 2001, a trucking industry council of the American Trucking Associations published a report showing that the traditional position of semi-truck doors is ergonomically disadvantageous and unsafe, resulting in a relatively high level of driver injuries caused by slips. Ex. 1007 at 2-4.

Applicants claimed to have overcome these disadvantages by coming up with the idea of positioning the door so it allows the driver to enter the cabin from behind the seat. Ex. 1001 at 2:20-31; Ex. 1003, 55 (claim 1). It is non-sensical to think Applicants were the first to come up with that idea in late 2015. In fact, the

same 2001 trucking industry report that identified the disadvantages of traditional semi-truck door positioning also suggested that positioning the door behind the seat to provide rear entry into the cabin would make entry into the vehicle easier and increase safety by reducing driver injuries caused by slips. Ex. 1007 at 2-4.

Further, multiple prior art references show that positioning the door to allow rear-entry into a truck cabin and to avoid the need to climb directly into the seat was well known and common years before Applicants' alleged late-2015 invention. The prior art cited by the Examiner during prosecution of the '084 patent established that fact. The Examiner cited Hollenbeck, a publication of a patent application filed in 2005 and published in 2008, which discloses a rear-entry door (31) in a semi-truck:

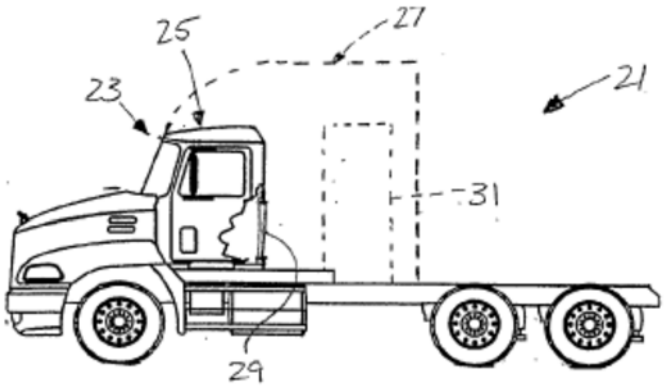


FIG. 1

Ex. 1003, 135-140; Ex. 1020, Fig. 1. The Examiner also cited Engelbrecht, a publication of a patent application with a provisional filing date in 2009 and a

publication date in 2011, which discloses a rear-entry door (37) in a recreational vehicle:

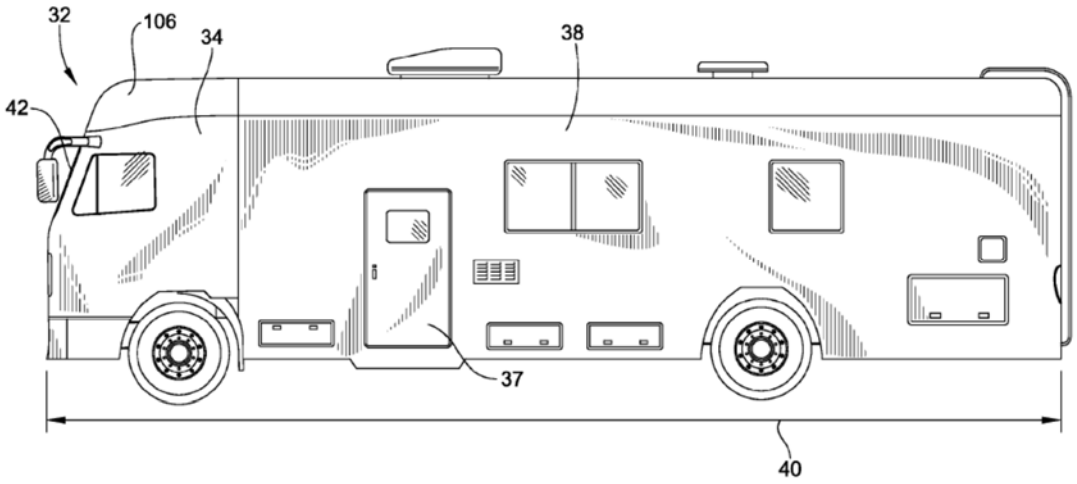


FIG. 3

Ex. 1003, 253-261; Ex. 1021, Fig. 3. Therefore, the fundamental concept Applicants had claimed as their invention—positioning the door so the driver can enter the cabin from behind the seat—is indisputably old and unpatentable.

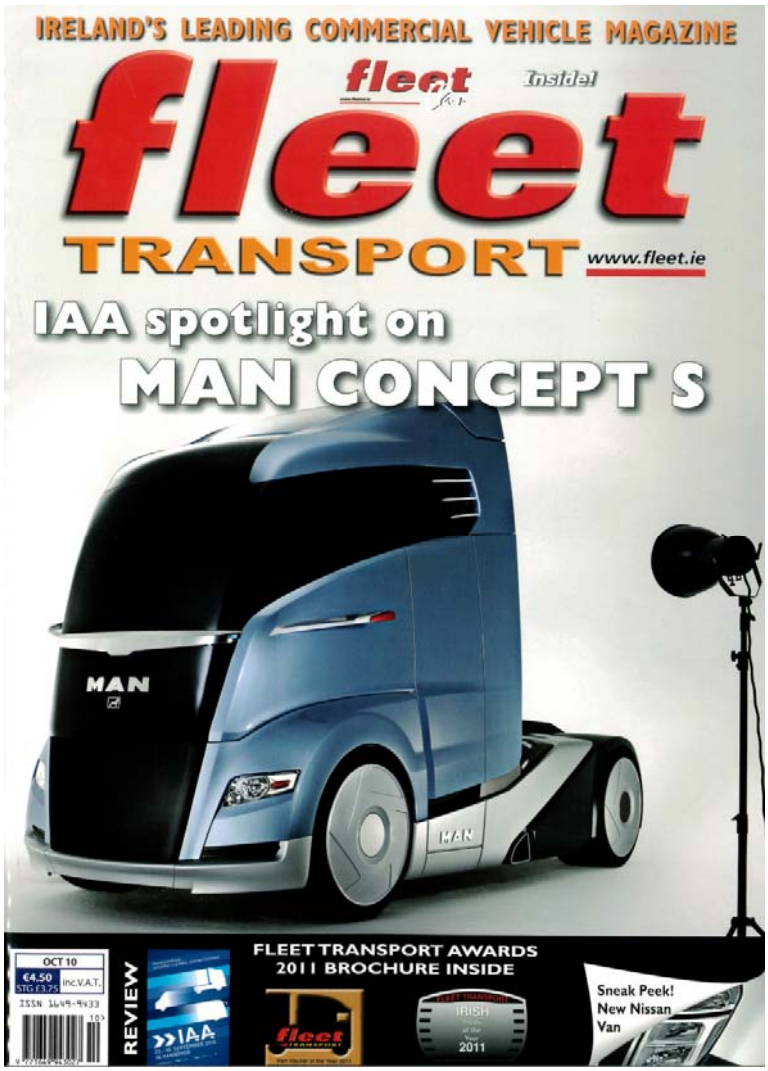
Applicants did not add any significant innovation to their claims to overcome the Examiner's rejection. Instead, they made the following claim amendment to recite more precise relative positioning between the door, front wheel well, and seat (added language underlined; deleted language in strikethrough):

> wherein the door is located <u>on the body such that a frontmost side of the door is adjacent to a rearmost portion of a front wheel well and the width of the door is disposed between the frontmost side of the door and the rearmost side of the door, at least a portion of the door being</u>

> positioned behind the seat and at least a portion of the seat is disposed to be forward of a line defining the rearmost portion of the front wheel well ~~with respect to the body, such that a majority of the width of the door is located at a backside of the seat when the door is in a closed position,~~ such that the door opens to provide ingress and egress into the cabin from a backside of the seat;

Ex. 1003, 300. The Examiner relied on this amendment as "[t]he primary reason for the allowance of the claims." *Id.*, 328.

While this amendment trivially distinguished the claims from the prior art known to the Examiner, it was not innovative to position the entry door adjacent to the front wheel well in late 2015. In fact, the prior art not known to the Examiner shows that the exact door, front wheel well, and seat alignment configuration claimed by Applicants was known years before the alleged invention. That configuration was included in a proposed "concept truck" at least as early as October 2010, when the cover of *Fleet Transport* magazine showed a picture of a semi-truck with the frontmost side of its frontmost door adjacent to and behind the rearmost portion of the front wheel well.



Ex. 1006 at 1. The picture does not show the seat because the door is closed and the windows are darkly tinted. But the customary and obvious placement of a seat near the front of the windshield would put at least part of the seat in front of the rearmost portion of the front wheel well and would put at least a portion of the door behind the seat. Ex. 1002 ¶ 49.

In addition, a PCT application of Modec Limited published on December 31, 2008 expressly discloses the exact door, seat, and wheel well alignment claimed in the '084 patent:

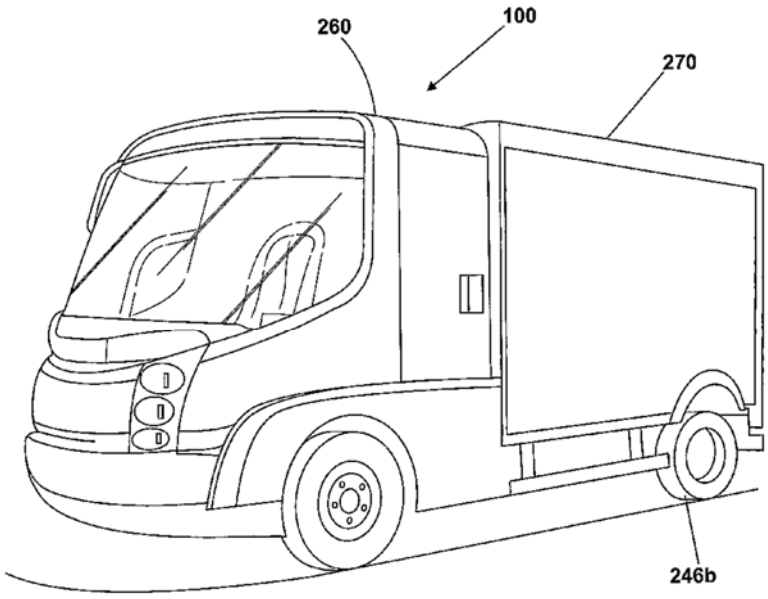


Fig. 1

Ex. 1004, Fig. 1. Modec discloses use of the disclosed door, seat, and wheel well alignment with ***any*** electric commercial vehicle. Ex. 1004 at 14:30-15:2. While Modec does not specifically mention a "semi-truck vehicle," it would have at least encouraged a person of ordinary skill in the art ("POSITA")—especially one concerned with the well-known known comfort and safety problem of requiring the driver to climb directly into a semi-truck seat—to position the door, seat, and wheel well of an electric semi-truck in the manner disclosed by Modec. Ex. 1002 ¶ 86. Further, U.S. Patent No. 7,338,335 to Messano, which issued in 2008 based on applications dating back to 2001, expressly teaches that electric drive trains can be

used with semi-trucks and a wide variety of other vehicles. *Id.* ¶ 87. Accordingly, the claimed door position recited in the '084 patent is simply not new or non-obvious based on what was well known years before the priority date of the '084 patent.

The other claim limitations do not add anything beyond well-known and conventional components of electric semi-truck vehicles. Every electric semi-truck vehicle has the claimed electric drive train, body, cabin, seat, and door. The evidence shows beyond dispute that the prior art discloses or makes obvious each and every one of these claim limitations, in addition to the specific door, seat, and wheel well alignment that Applicants added to get their claims allowed. Therefore, the Board should institute trial and hold the claims of the '084 patent unpatentable.

II. CLAIM CONSTRUCTION

The claims are to be construed under the *Phillips* claim construction standard applicable in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b); *see Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*).

A. "adjacent to" (all claims)

Every claim includes the following limitation of independent claims 1 and 26: "a frontmost side of the door is ***adjacent to*** a rearmost portion of a front wheel well." Ex. 1001, claims 1, 26 (emphasis added).

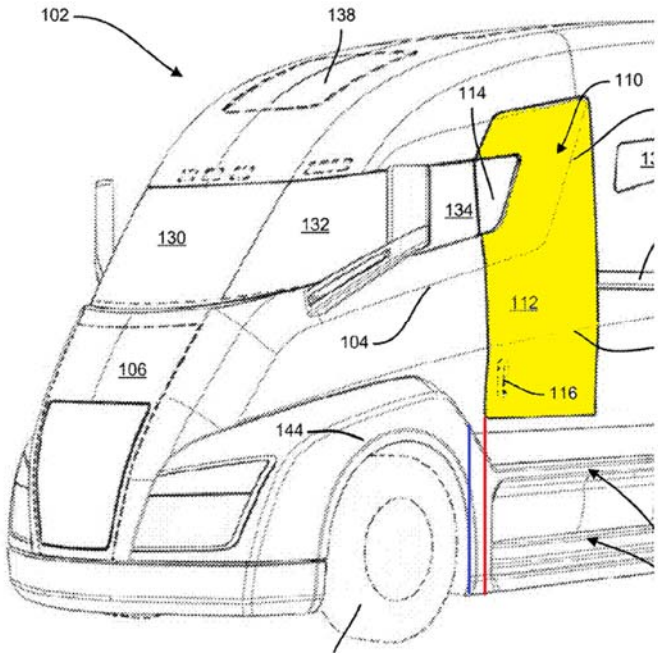
The correct construction of "adjacent to" under the applicable *Phillips* claim construction standard is "nearby but not touching." Ex. 1002 ¶¶ 35-42. This conclusion is supported by a thorough analysis of the customary and ordinary meaning of "adjacent to" in the context of the claim language itself, the specification, and the file history of the '084 patent. *Id*. Key portions of that analysis are summarized below.

Dictionary definitions show the customary and ordinary meaning of the common English phrase "adjacent to" is "nearby but not touching." *Id.* ¶ 36. The specification also supports construing "adjacent to" to mean "nearby but not touching." The most relevant paragraph explains that the front of the door is nearby, but not touching, the backside of the front wheel well:

> The front of the vehicle body **102** is denoted by the front windshield **130** and a front side of the door **110** is located ***adjacent to*** a backside of the front wheel well **144**. Alternatively, a portion of the door **110** is located above the front wheel well **144**. In an implementation, a front side of the door **110** is located at least six inches behind a backside of the front wheel well **144**. In an implementation, a front side of the door **110** is located at least twelve inches behind a backside of the front wheel well **144**. In an implementation, a front side of the door is located at least eighteen inches behind a backside of the front wheel well **144**.

Ex. 1001 at 5:23-33 (bolded reference numerals in original; other emphasis added).

Figure 1 of the ’084 patent also illustrates that the front (red line) of the door (yellow) is nearby, but not touching, the back (blue line) of the front wheel well:



Ex. 1001, Fig. 1 (annotations added).

After the sentence using “adjacent to,” the specification states: “Alternatively, a portion of the door **110** is located above the front wheel well **144**.” In the context of the entire ’084 patent, this sentence does not mean the “adjacent to” limitation ***excludes*** positioning the front of the door above a portion of the wheel well. The “adjacent to” language also does not require the front of the door to be horizontally located ***behind*** the wheel well. The “adjacent to” language is satisfied as long as the front of the door is nearby, but not touching, the back of the front wheel well. Ex. 1002 ¶¶ 37-40.

The file history of the '084 patent also supports this construction. Applicants added the "adjacent to" language to overcome two prior art references, Hollenbeck and Engelbrecht, that disclose a relatively large gap between the back of the front wheel well and the front of the door:

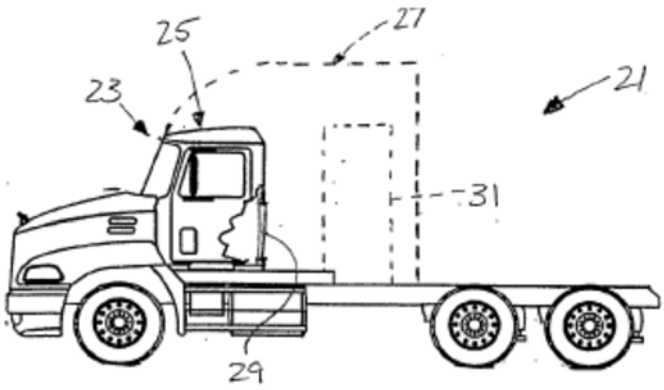


FIG. 1

Ex. 1020, Fig. 1.

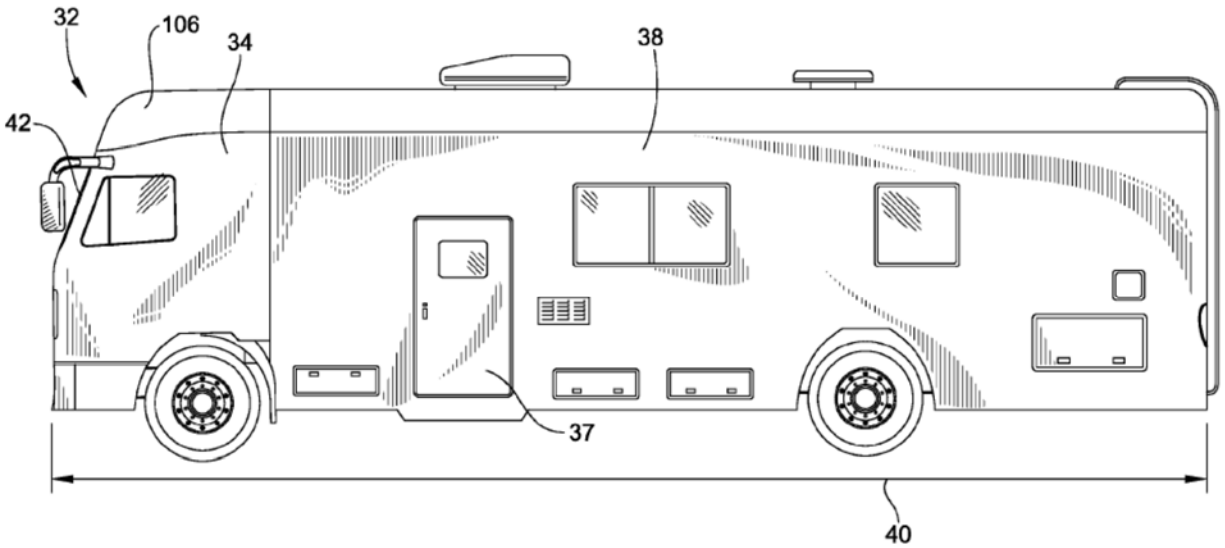


FIG. 3

Ex. 1021, Fig. 3. The "adjacent to" language overcame these references by requiring the door to be nearby, but not touching, the wheel well. Ex. 1002 ¶ 41.

Accordingly, the Board should construe "adjacent to" to mean "nearby but not touching."

B. "electric drive train" (all claims)

Every claim includes the following limitation of independent claims 1 and 26: "an electric drive train." Ex. 1001, claims 1, 26.

This limitation would be readily understood by a POSITA and does not need an express construction. However, to avoid any possible confusion, Petitioner requests that the Board find that the "electric drive train" limitation does not require a purely electric vehicle that lacks an internal combustion engine. Indeed, both the claims and the specification show that the claims encompass hybrid electric vehicles with both "an electric drive train" and a "combustion engine." Ex. 1001, claims 3 and 25; 13:61-66 (Examples 32 & 33).

C. Reservation of rights

The Board need only construe claim terms as necessary to resolve the parties' disputes. Petitioner does not believe that construction of any claim terms beyond those identified above is necessary to resolve the issues presented in this Petition or likely to be in dispute in this proceeding. However, should Patent Owner offer a claim construction for any claim term, Petitioner reserves the right

to offer a responsive construction with supporting evidence.

In different proceedings, it may be necessary to construe additional claim terms in order to resolve the disputes at issue in those proceedings. It may also be necessary in different proceedings to add clarification to constructions of claim terms construed in this proceeding in order to resolve different disputed issues. By way of example and not limitation, a district court may need to construe additional terms or add clarification to constructions of terms construed in this proceeding in order to resolve disputed issues related to infringement. Petitioner reserves the right to present additional claim construction arguments or evidence in other proceedings.

III. LEVEL OF ORDINARY SKILL IN THE ART

The field of the invention is "automotive design." Ex. 1002 ¶¶ 14-15. The POSITA at the time of the patent would have had a Bachelor of Science degree in an industrial design field and two years of experience in automotive design. *Id.* ¶ 17.

IV. EXPLANATION WHY THE CLAIMS ARE UNPATENTABLE

The grounds of unpatentability set forth herein are fully supported by thorough expert analysis conducted by Brian C. Baker, an expert with approximately 40 years of experience in the field of automotive design. Ex. 1002 ¶ 1. Mr. Baker conducted his own analysis to arrive at his own opinions and

conclusions based on his consideration of the '084 patent, the prior art, and other materials identified in his declaration. *Id.* Mr. Baker did not review this Petition or base his analysis, opinions, and conclusions on the Petition. *Id.*

A. Background and Prior Art Status of the Asserted References

1. The Earliest Effective Filing Date of the '084 Patent

The '084 patent is a post-AIA patent with an earliest effective filing date of December 30, 2015. Ex. 1001 at 2. Petitioner does not concede that the '084 patent is entitled to its earliest effective filing date. However, because all references that Petitioner relies upon in this Petition are prior art to the '084 patent even if the patent is entitled to its earliest effective filing date, the Board need not determine whether the '084 patent is entitled to its earliest effective filing date.

2. Modec

PCT Application Publication No. WO 2009/001086 A2 to Modec Limited ("Modec," Ex. 1004) was published on December 31, 2008. Ex. 1004 at 1. Modec is prior art to the '084 patent under at least post-AIA 35 U.S.C. § 102(a)(1). Because Modec's publication occurred more than one year before the earliest effective filing date of the '084 patent, the exceptions of post-AIA 35 U.S.C. § 102(b)(1) do not apply to Modec. Modec was not cited by the Examiner during prosecution. Ex. 1001 at 1-2.

Modec discloses the "electric vehicle 100" illustrated by Modec's Figure 1,

reproduced below:

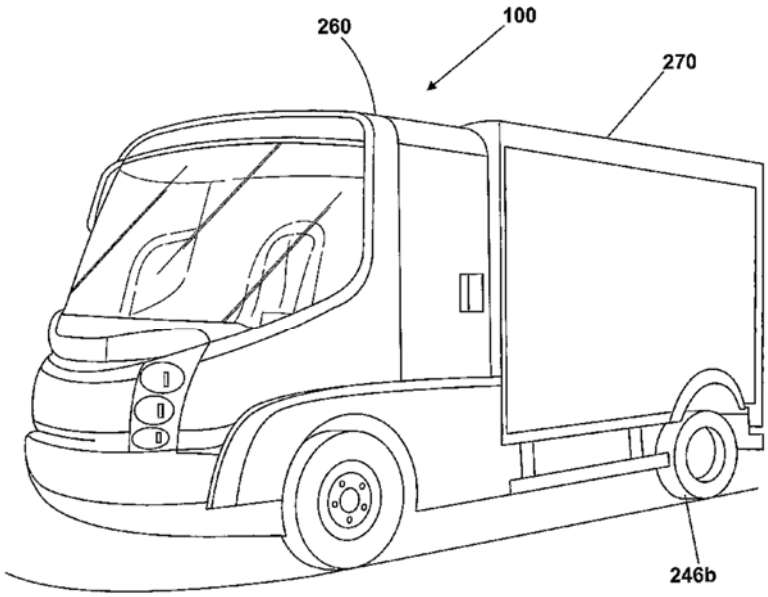


Fig. 1

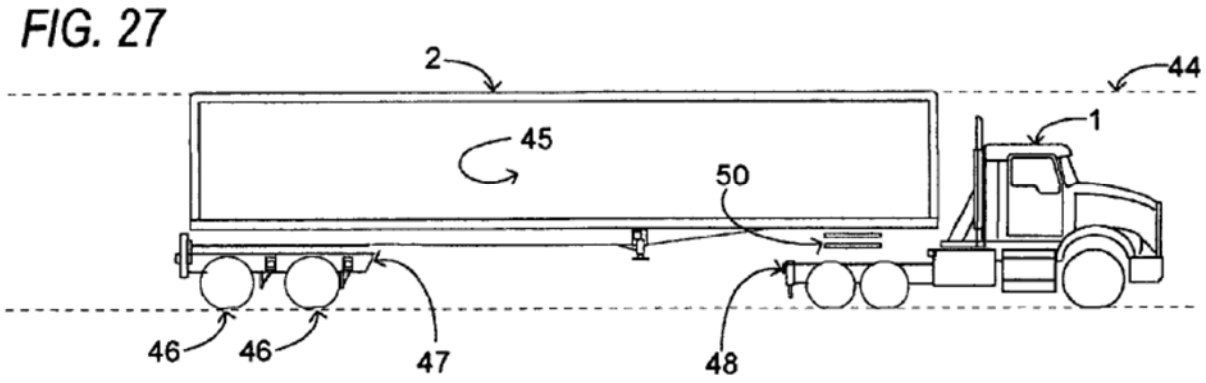
Ex. 1004, Fig. 1. Figure 1 graphically discloses the relative positioning of the door, seat, and front wheel well. While Figure 1 depicts a "specialist delivery vehicle," Modec expressly discloses the use of the disclosed door, seat, and wheel well alignment with ***any*** electric commercial vehicle. *Id.* at 14:30-15:2.

3. Messano

U.S. Patent No. 7,338,335 to Messano ("Messano," Ex. 1005) issued March 4, 2008. Ex. 1005, cover. Messano is prior art to the '084 patent under at least post-AIA 35 U.S.C. § 102(a)(1) and the exceptions of post-AIA 35 U.S.C. § 102(b)(1) do not apply. Messano was not cited by the Examiner during prosecution. Ex. 1001 at 1-2.

Messano discloses a semi-truck with an electric drive train. Messano

specifically discloses that "this present invention is for an electric vehicle which does not have a conventional driveline." Ex. 1005 at 4:10-11. Messano further discloses "Road-Wheel Modules provide the motive system for the vehicle and vehicle trailers. A Road-Wheel Module consists of an electric drive motor." *Id*. at 4:26-28. Messano expressly discloses the use of the disclosed electric drive train with a "semi-truck vehicle," as depicted by Figure 27 of Messano, reproduced below:



Id., Fig. 27. In addition, Messano establishes that it was well known to use an electric drive train with a wide variety of vehicles, including "heavy-duty long-haul vehicles" and "medium and light duty vehicles (trucks, buses, vans, SUVs, recreational vehicles, and the like)." *Id*., Abstract.

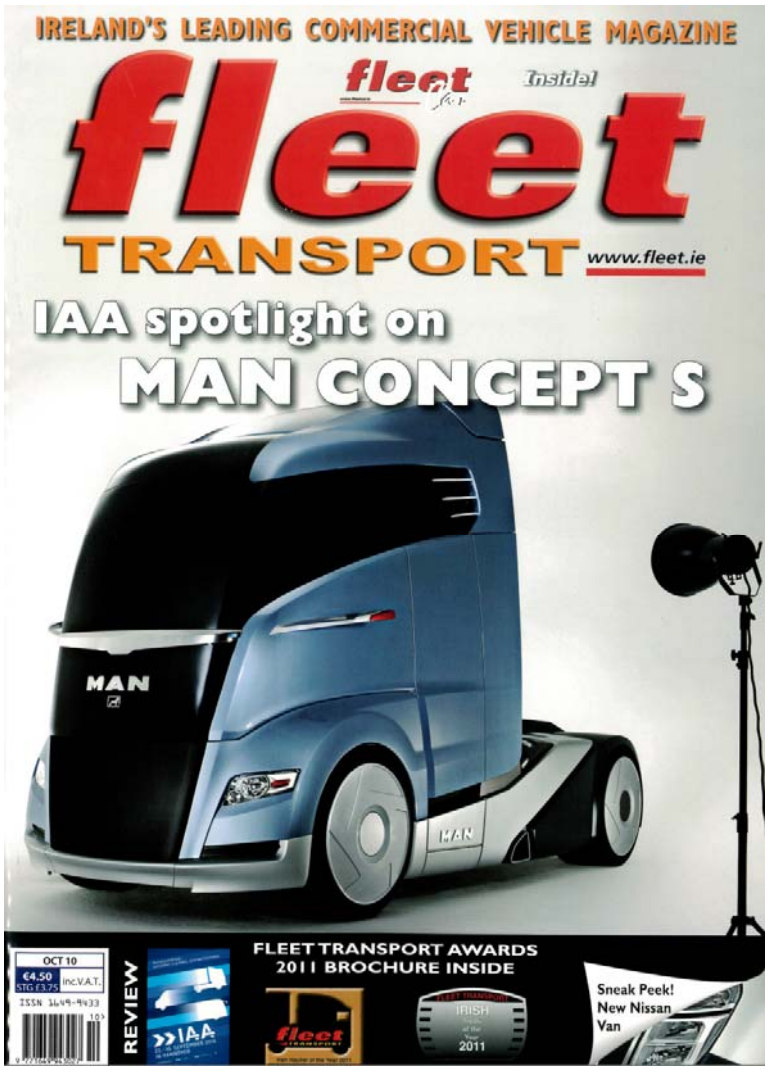
4. <u>Fleet Transport</u>

The October 2010 issue of *Fleet Transport* magazine ("Fleet Transport," Ex. 1006) was published in October 2010. Ex. 1006 at 1; Ex. 1002 ¶ 48. Fleet Transport is an authentic copy of portions of the October 2010 issue. *Id*. *Fleet*

Transport is a well-respected magazine within the trucking industry that was at the relevant time reliably published and made accessible to the relevant public in the month indicated on the cover. *Id*. The cover of Fleet Transport includes commercial markings, including the date "Oct 2010," and International Standard Serial Number ("ISSN"), and a price that includes a Value Added Tax ("V.A.T."), that are reliable indicators that Fleet Transport was published and made accessible to the relevant public in October 2010. Ex. 1006 at 1. Accordingly, the preponderance of the evidence shows that Fleet Transport is prior art to the '084 patent under at least post-AIA 35 U.S.C. § 102(a)(1) and the exceptions of post-AIA 35 U.S.C. § 102(b)(1) do not apply. Ex. 1002 ¶ 48.[1] Fleet Transport was not cited by the Examiner during prosecution. Ex. 1001 at 1-2.

[1] In *Ericsson, Inc. v. Intellectual Ventures I LLC*, IPR2014-00527, Paper 41 at 10-12 (P.T.A.B. May 18, 2015), the Board held that date indicia and commercial markings of a reputable journal established public accessibility under the preponderance-of-the-evidence standard. The evidence of public accessibility of the printed publication art (including Fleet Transport) presented in this Petition is at least as strong, and certainly more than sufficient to meet the reasonable-likelihood-of-prevailing standard for institution, especially given that the Petition relies solely on combinations of patents and patent publications which are indisputably prior art for 21 of the 26 challenged claims.

Fleet Transport graphically discloses a semi-truck with the frontmost side of its frontmost door adjacent to and behind the rearmost portion of the front wheel well, as shown below:



Ex. 1006 at 1.

5. <u>Future Truck Report</u>

A report entitled "Future Truck Committee Information Report: 2001-2,

Innovation in Future Truck Cab Designs: An Exploration of New Possibilities" ("Future Truck Report," Ex. 1007) was published in March 2001 by The Maintenance Council of the American Trucking Associations. Ex. 1002 ¶ 50. Significant evidence supports the conclusion that the Future Truck Report was published and accessible to the relevant public in March 2001. *Id.* The report is an authentic and official report of a council of the well-respected American Trucking Associations that was intended "to provoke discussion and encourage innovation." *Id.* The report includes numerous findings and suggestions about truck design that would fulfill the organization's purpose only if the report were published and accessible to the relevant public. *Id.* The report includes several indicia that the report was issued in March 2001, including the marking "Issued: March 2001" and a 2001 copyright notice, together with commercial markings showing that those date markings are reliable indicators of when the report was, in fact, issued and made accessible to the relevant members of the public. *Id.* Accordingly, the preponderance of the evidence shows that the Future Truck Report is prior art to the '084 patent under at least post-AIA 35 U.S.C. § 102(a)(1) and the exceptions of post-AIA 35 U.S.C. § 102(b)(1) do not apply. *Id.* The Future Truck Report was not cited by the Examiner during prosecution. Ex. 1001 at 1-2.

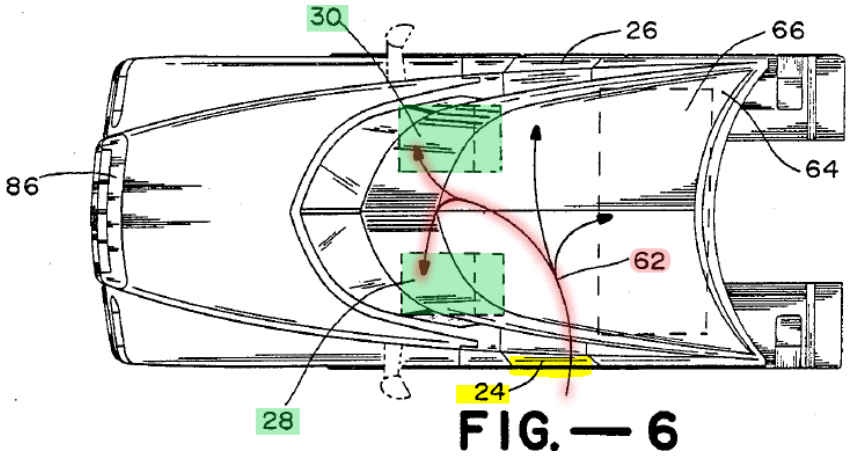
The Future Truck Report discloses that the traditional position of semi-truck doors is ergonomically disadvantageous and unsafe, resulting in a relatively high

level of driver injuries caused by slips. Ex. 1007 at 2-4. The Future Truck Report also suggested that positioning the door behind the seat to provide rear entry into the cabin would make entry into the vehicle easier and increase safety by reducing driver injuries caused by slips. *Id.*

6. Marlowe

U.S. Patent No. 4,932,716 to Marlowe ("Marlowe," Ex. 1008) issued June 12, 1990. Ex. 1008, cover. Marlowe is prior art to the '084 patent under at least post-AIA 35 U.S.C. § 102(a)(1) and the exceptions of post-AIA 35 U.S.C. § 102(b)(1) do not apply. Marlowe was submitted in an IDS but not cited by the Examiner. Ex. 1003 at 126; Ex. 1001 at 1-2.

Marlowe discloses a semi-truck with two seats, doors located behind the seats, a sleeper, and an entry path that provides access to both seats from in between the seats and to the sleeper:



Ex. 1008, Fig. 6 (annotated).

7. Eltra

PCT Application Publication No. WO 81/01587 to Eltra Corporation ("Eltra," Ex. 1009) was published June 11, 1981. Ex. 1009, cover. Eltra is prior art to the '084 patent under at least post-AIA 35 U.S.C. § 102(a)(1) and the exceptions of post-AIA 35 U.S.C. § 102(b)(1) do not apply. Eltra was not cited by the Examiner during prosecution. Ex. 1001 at 1-2.

Eltra discloses a three-track sliding door that includes components for opening and closing the door automatically upon initiation by an electrical switch. Ex. 1009 at 1:8-15; 4:12-25.

8. Racz

U.S. Patent Application Publication No. 2003/0006628 A1 to Racz ("Racz," Ex. 1010) was published January 9, 2003. Ex. 1010, cover. Racz is prior art to the '084 patent under at least post-AIA 35 U.S.C. § 102(a)(1) and the exceptions of post-AIA 35 U.S.C. § 102(b)(1) do not apply. Racz was not cited by the Examiner during prosecution. Ex. 1001 at 1-2.

Racz discloses a conventional hinged door on a semi-truck. Ex. 1010 ¶ [0014].

9. Kia

The 2013 Kia Sedona User Manual (Ex. 1011, "Kia") was published at least by the end of 2013 because, as is well known, automobile user manuals are

publicly distributed to purchasers of automobiles as soon as the model is sold and are quickly thereafter available to non-purchasers. Ex. 1002 ¶ 58. In addition, Kia includes a copyright date of 2011, indicating that the manual may have been publicly accessible even before the release of the 2013 Kia Sedona (which, according to standard automobile industry practice, would have occurred in 2012). *Id*. Accordingly, a preponderance of the evidence shows that Kia is prior art to the '084 patent under at least post-AIA 35 U.S.C. § 102(a)(1) and the exceptions of post-AIA 35 U.S.C. § 102(b)(1) do not apply. *Id.* Kia was not cited by the Examiner during prosecution. Ex. 1001 at 1-2.

Kia discloses an "automatic stop and reversal" feature for a "power sliding door." Ex. 1011 at 35. Kia explains that this feature will detect resistance to the power sliding door and stop or reverse the closing of the door. *Id.*

10. Plummer

U.S. Patent No. 7,145,788 to Plummer ("Plummer," Ex. 1012) issued December 5, 2006. Ex. 1012, cover. Plummer is prior art to the '084 patent under at least post-AIA 35 U.S.C. § 102(a)(1) and the exceptions of post-AIA 35 U.S.C. § 102(b)(1) do not apply. Plummer was not cited by the Examiner during prosecution. Ex. 1001 at 1-2.

Plummer discloses a conventional sleeper unit 142 in a semi-truck:

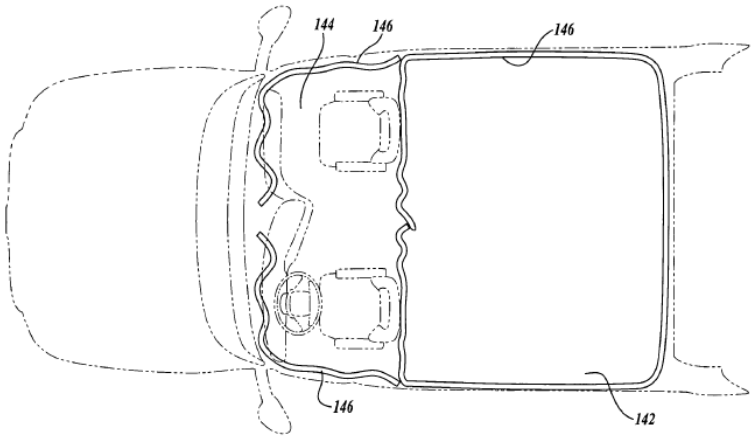


Fig.5.

Ex. 1012, Fig. 5. Plummer also discloses that long-haul trucks are equipped with "hotel loads" that include "heating and air conditioning, lighting, and appliances such as refrigerators, coffee makers and microwave ovens." *Id*. at 1:15-22.

11. Man Annual Report

The Man Annual Report (Ex. 1013) is an authentic and official annual report publicly filed by the Man Group in 2012. Ex. 1002 ¶ 62. The report includes indicia and commercial markings reliably indicating that the Man Group publicly filed the report, and, thus, that it was accessible to relevant members of the public, in 2012. *See, e.g.,* Ex. 1013 at 1 ("2012 Annual Report" marking and Man logo); Ex. 1002 ¶ 62. The requirement for public companies to file an annual report to comply with the securities laws also establishes that the report was publicly accessible in 2012. Ex. 1002 ¶ 62. Accordingly, the preponderance of the evidence shows that the Man Annual Report is prior art to the '084 patent under at least post-AIA 35 U.S.C. § 102(a)(1) and the exceptions of post-AIA 35 U.S.C. §

102(b)(1) do not apply. *Id.* The Man Annual Report was not cited by the Examiner during prosecution. Ex. 1001 at 1-2.

The Man Annual Report discloses a semi-truck vehicle with a door taller than two people pictured near the truck:

Ex. 1013 at 8-9.

12. Freightliner

An article entitled "Ergonomics Program at Freightliner" by Josef Loczi ("Freightliner," Ex. 1014), was published in *SAE Transactions* in 2000. Ex. 1002 ¶ 64. *SAE Transactions* is a well-respected journal of the Society of Automotive Engineers that is reliably published and made accessible to the relevant public near

the time indicated on each issue. *Id*. Freightliner, which is an authentic copy of the article, includes reliable indicia that the article was published in 2000 or 2001, including copyright notices and commercial markings indicating the reliability of the indicia. *Id*. Accordingly, the preponderance of the evidence shows that Freightliner is prior art to the '084 patent under at least post-AIA 35 U.S.C. § 102(a)(1) and the exceptions of post-AIA 35 U.S.C. § 102(b)(1) do not apply. *Id.* Freightliner was not cited by the Examiner during prosecution. Ex. 1001 at 1-2.

Freightliner discloses multiple steps and hand holds for assisting a driver to enter the cabin of a semi-truck:

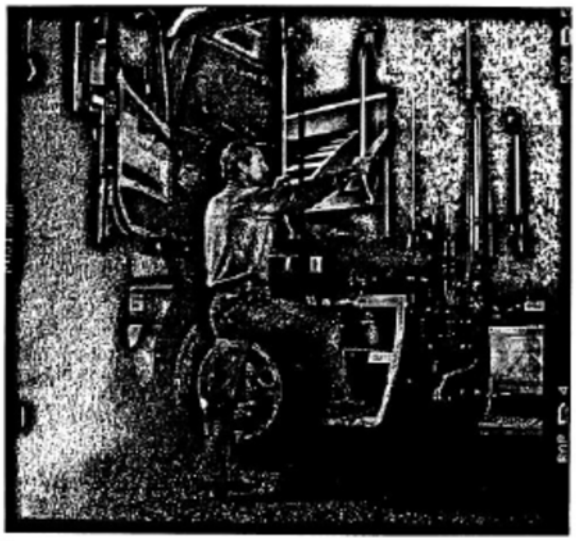


Figure 13. Driver Entering the Argosy Cab with Traditional Steps

Ex. 1014, 14.

Figure 13. Driver Entering the Argosy Cab with Traditional Steps

Ex. 1019, 5 (JSTOR image of same figure).

B. Ground 1: Claims 1-5, 15-16, and 25 would have been obvious over Modec and Messano

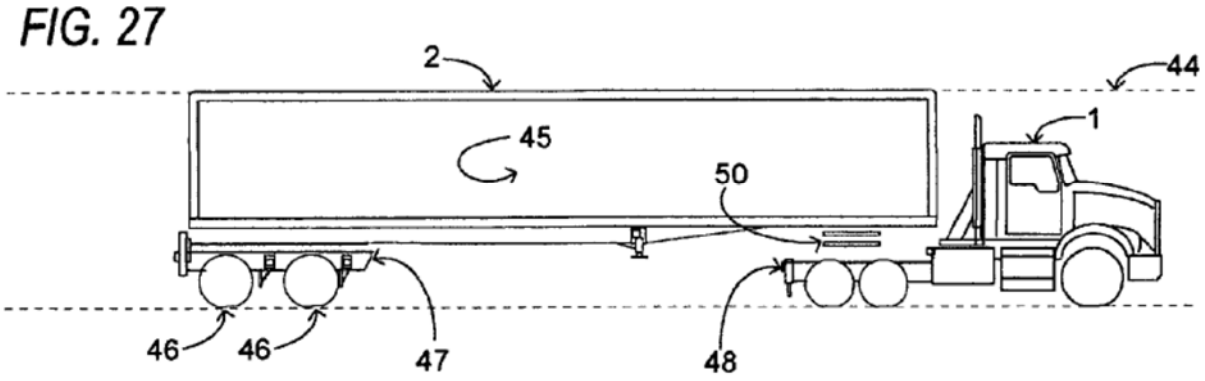
Claims 1-5, 15-16, and 25 would have been obvious over Modec and Messano, as explained below.

1. Claim 1

a. "A semi-truck vehicle"

Modec discloses an "electric vehicle 100" that can be a "specialist delivery vehicle" or "a box van or minibus or any other commercial or domestic use vehicle." Ex. 1004 at 14:30-15:2. While Modec does not specifically mention a "semi-truck vehicle," it would have been obvious to use Modec's relative positioning of the door, seat, and front wheel well with a "semi-truck vehicle," as explained below in Section IV(B)(1)(k).

In the same field, Messano discloses an electric vehicle that is a "semi-truck vehicle." Ex. 1002 ¶ 68. Figure 27 of Messano, reproduced below, illustrates "a tractor truck and semi-trailer." Ex. 1005 at 7:18-19.



b. <u>"an electric drive train"</u>

Modec discloses an "electric vehicle 100," shown in Figure 1, reproduced below.

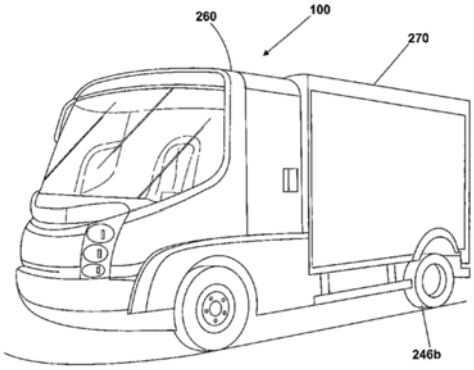


Fig. 1

Ex. 1004 at 14:30; Fig. 1. Modec further discloses: "At [the electric vehicle's] heart is an electric drive train including an electric motor 200 which is supplied with power from a battery assembly 210." *Id.* at 15:2-4. Modec also discloses that the invention relates, in particular, "to electric vehicles and to control and security

systems that may be fitted to such vehicles," and further explains that "electric powered vehicles . . . use electrical power sources and electric motors as the heart of their drive train." *Id*. at 1:7-8, 17-18.

Messano also discloses an electric drive train. Ex. 1002 ¶ 70. Messano specifically discloses that "this present invention is for an electric vehicle which does not have a conventional driveline." Ex. 1005 at 4:10-11. Messano further discloses "Road-Wheel Modules provide the motive system for the vehicle and vehicle trailers. A Road-Wheel Module consists of an electric drive motor." *Id*. at 4:26-28. The presence of a combustion engine in at least one embodiment of Messano is irrelevant to the "electric drive train" limitation. Because that limitation refers to the drive train only, it does not require the absence of a combustion engine. In fact, dependent claim 3 of the '084 patent expressly recites "wherein the semi-truck vehicle comprises a combustion engine," thereby establishing that claim 1 may include a combustion engine in addition to "an electric drive train."

c. "a body"

As would be understood by a POSITA, all vehicles have "a body." Ex. 1002 ¶ 71. A POSITA would understand that Figure 1 of Modec, reproduced below, illustrates "a body."

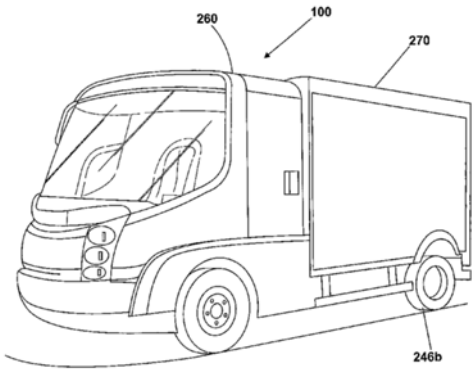
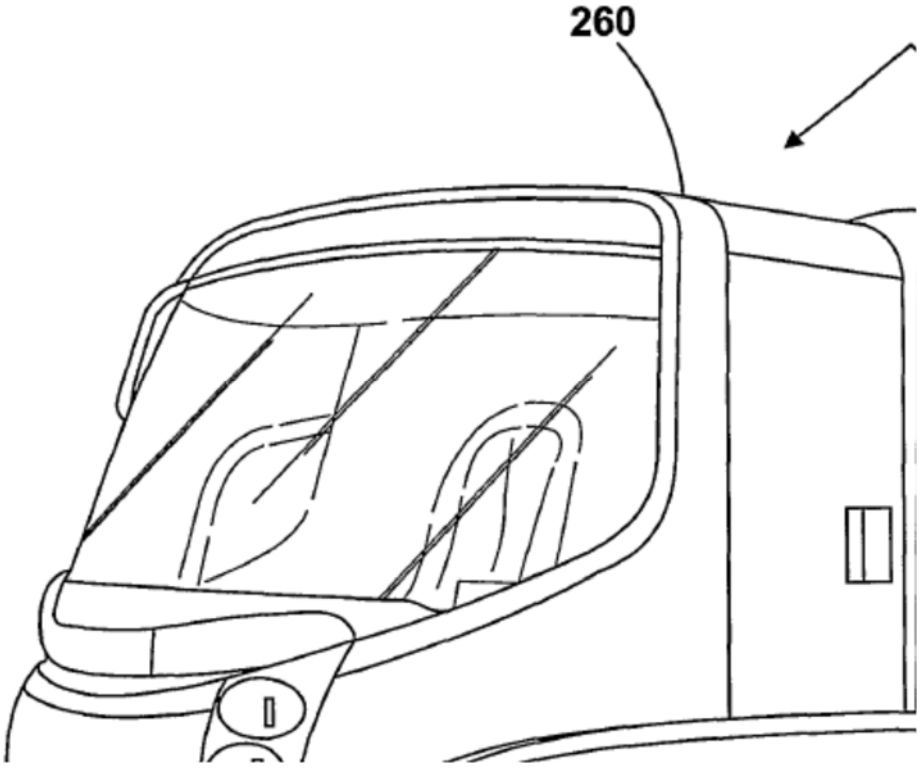


Fig. 1

Ex. 1004, Fig. 1; Ex. 1002 ¶ 71. Modec's text also expressly discloses "a body." For example, Modec discloses that electrical pins may "be grounded by connecting them to the ***body or chassis*** of the vehicle." Ex. 1004 at 12:13-14 (emphasis added). Modec also discloses: "The vehicle in this example is a specialist delivery vehicle, but through a simple change to the ***vehicle body*** it could be . . . ." *Id.* at 14:30-15:1 (emphasis added).

d. <u>"a cabin located within the body of the semi-truck vehicle, wherein the cabin comprises an interior that is configured to accommodate at least one person"</u>

Modec discloses: "At the front, the ***chassis*** carries a ***cab*** 260 in which the ***driver sits*** and which is protected by a lockable door. As shown the cab has a ***driver*** and ***passenger seat*** (not shown)." *Id.* at 15:29-31 (emphases added). As shown by the following blown-up portion, Figure 1 illustrates the cab 260:



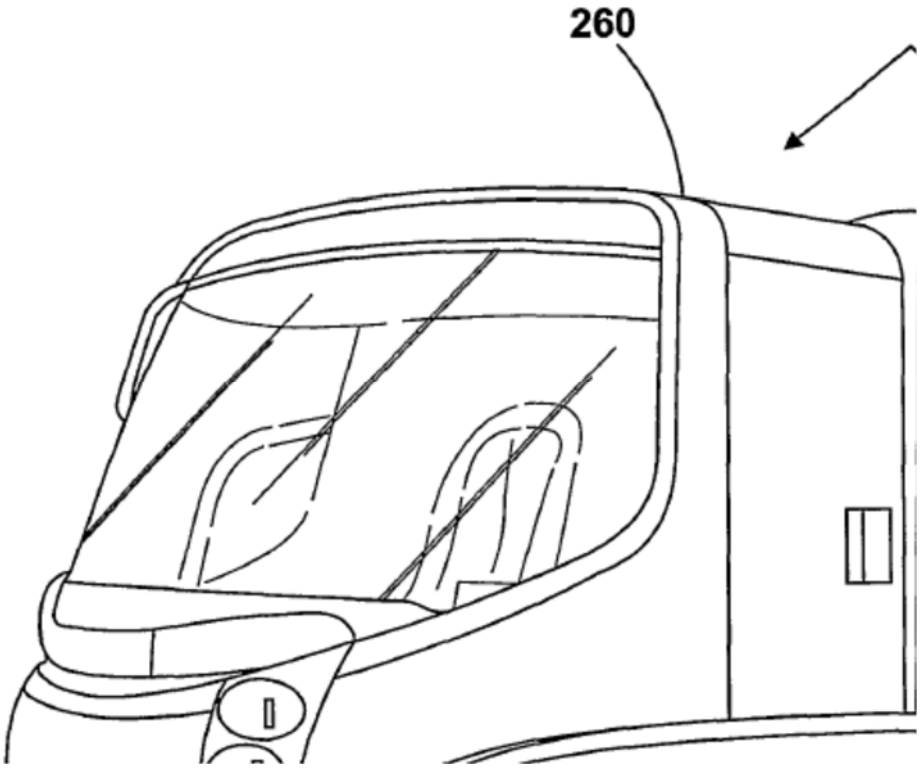
Id., Fig. 1. Modec further discloses that a cooling system "keeps the ***cabin*** at a comfortable ambient temperature." *Id*. at 15:23-24 (emphasis added). A POSITA would understand that the terms "cab" and "cabin" are used interchangeably in the art and in Modec's disclosure. Ex. 1002 ¶ 72.

Figure 1 and the text of Modec establish that the cab 260 or cabin is "located within the body." Further, Figure 1 and Modec's disclosure that the driver sits in the cab and that the cab has a driver seat and a passenger seat establish that "the cabin comprises an interior that is configured to accommodate at least one person." Ex. 1002 ¶ 73.

As explained below in Section IV(B)(1)(k), it would have been obvious to use Modec's relative positioning of the door, seat, and front wheel well with a "semi-truck vehicle."

e. <u>"a seat located in the interior of the cabin that is configured for seating a user"</u>

Modec discloses: "At the front, the chassis carries a cab 260 in which the ***driver sits*** and which is protected by a lockable door. As shown the cab has a ***driver*** and ***passenger seat*** (not shown)." Ex. 1004 at 15:29-31 (emphases added). Figure 1 shows that the seats are "located in the interior of the cabin."



Id., Fig. 1; Ex. 1002 ¶ 75. Further, a POSITA would understand that each of the disclosed driver seat and passenger seat is "configured for seating a user." Ex.

1002 at ¶ 75. In fact, Modec's express disclosure that the "driver sits" establishes that the driver seat "is configured for seating a user." *Id*.

f. "a door comprising a width extending a horizontal length of the door, wherein the door provides ingress and egress to the interior of the cabin of the semi-truck vehicle"

Modec discloses: "At the front, the chassis carries a cab 260 in which the driver sits and which is protected by a lockable ***door***." Ex. 1004 at 15:29-31 (emphasis added). The annotated blown-up portion of Figure 1, below, shows the disclosed door in yellow. Ex. 1002 ¶ 76.

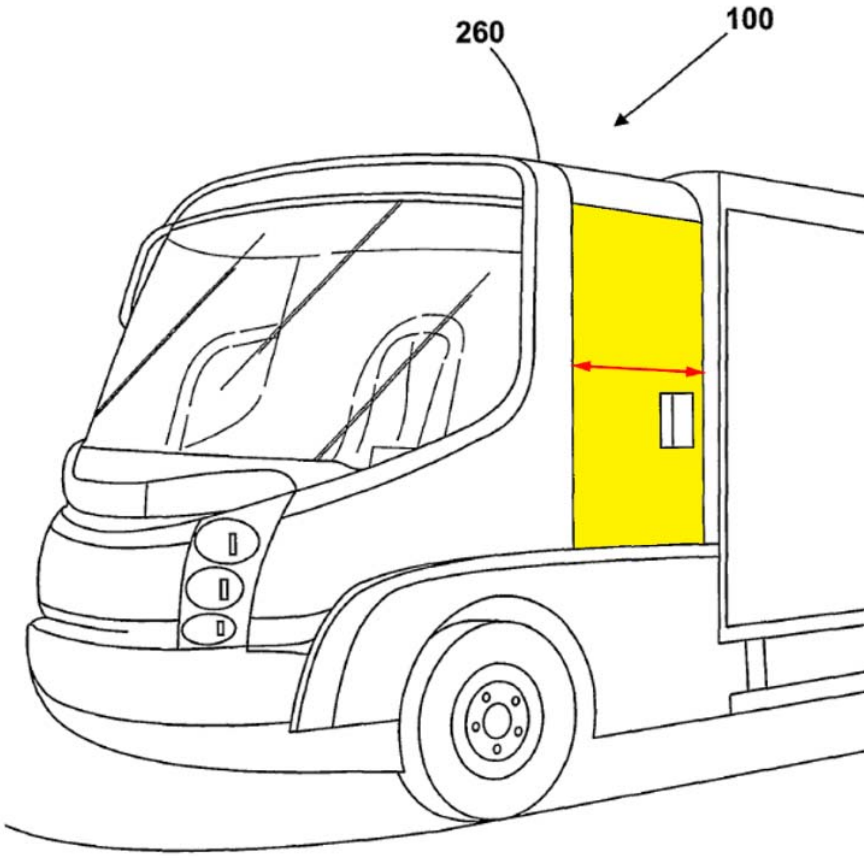


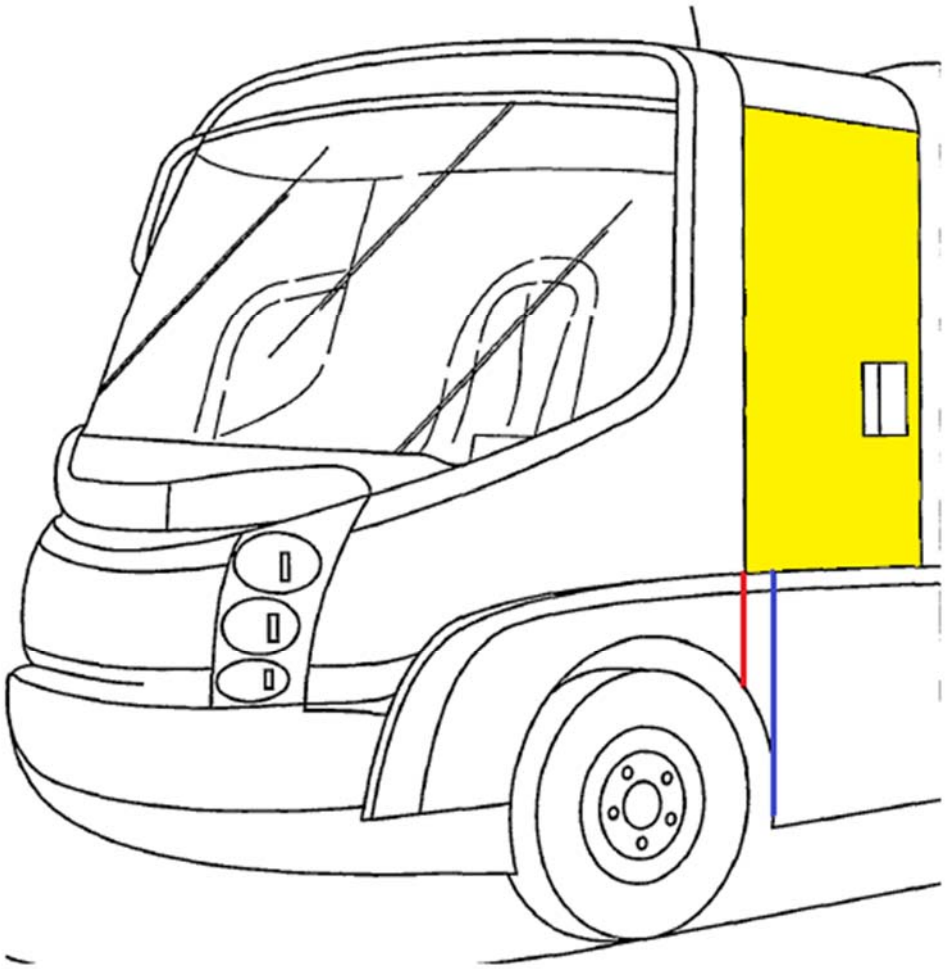
Fig. 1

Id., Fig. 1. The red line on the annotated figure shows that the door comprises "a width extending a horizontal length of the door." Ex. 1002 ¶ 76. Modec further discloses that the door can be unlocked "to allow the driver to access the vehicle through the door" (*id.* at 22:18-20), thereby establishing that "the door provides ingress and egress to the interior of the cabin." *Id*.

As explained below in Section IV(B)(1)(k), it would have been obvious to use Modec's relative positioning of the door, seat, and front wheel well with a "semi-truck vehicle."

g. "wherein the door is located on the body such that the frontmost side of the door is adjacent to a rearmost portion of a front wheel well"

The following annotated blown-up portion of Figure 1 of Modec shows that "the door [yellow] is located on the body such that the frontmost side of the door [red line extended from frontmost edge] is adjacent to a rearmost portion of a front wheel well [blue line extended from rearmost edge]." Ex. 1002 ¶ 78.

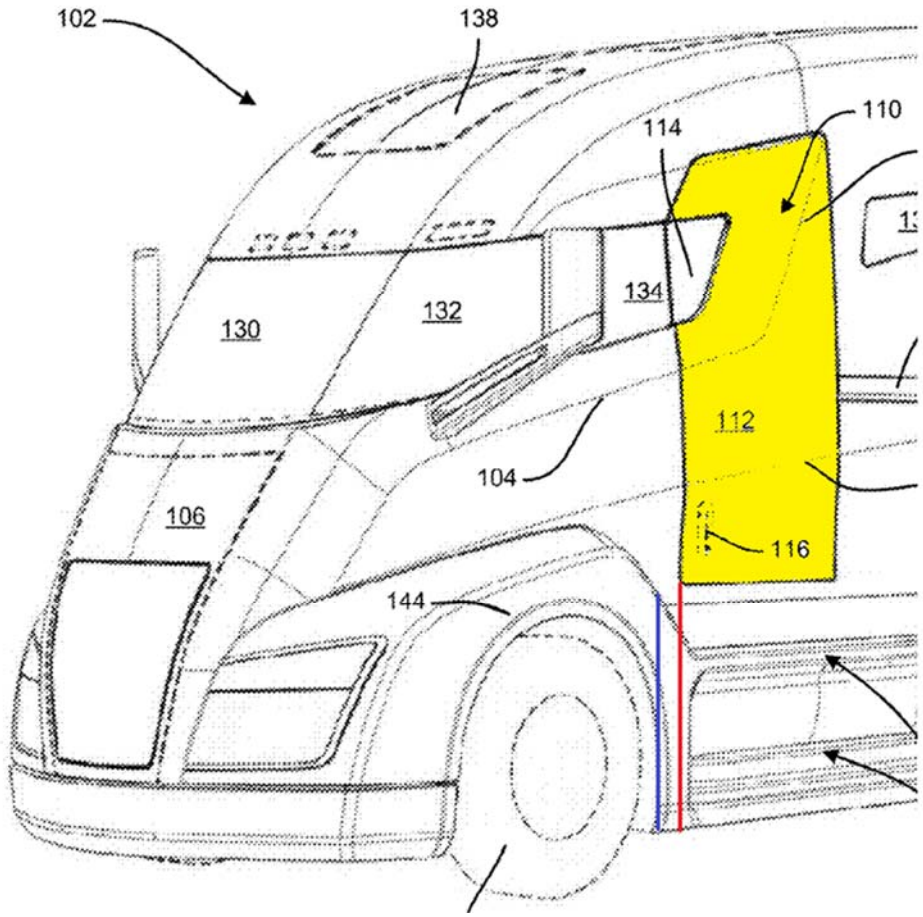


As explained above in Section II(A), "adjacent to" means "nearby but not touching." The red and blue lines in the annotated figure above show a very small gap between the frontmost side of the door and the rearmost portion of the front wheel well in Modec, and, thus, those components are "nearby but not touching" or "adjacent to" each other. *Id*.

Indeed, the position of the door relative to the front wheel well in Modec is almost identical to the position of those same components in the '084 patent, as

shown by the following annotated blown-up portion of Figure 1 of the ’084 patent.

Ex. 1002 ¶ 79



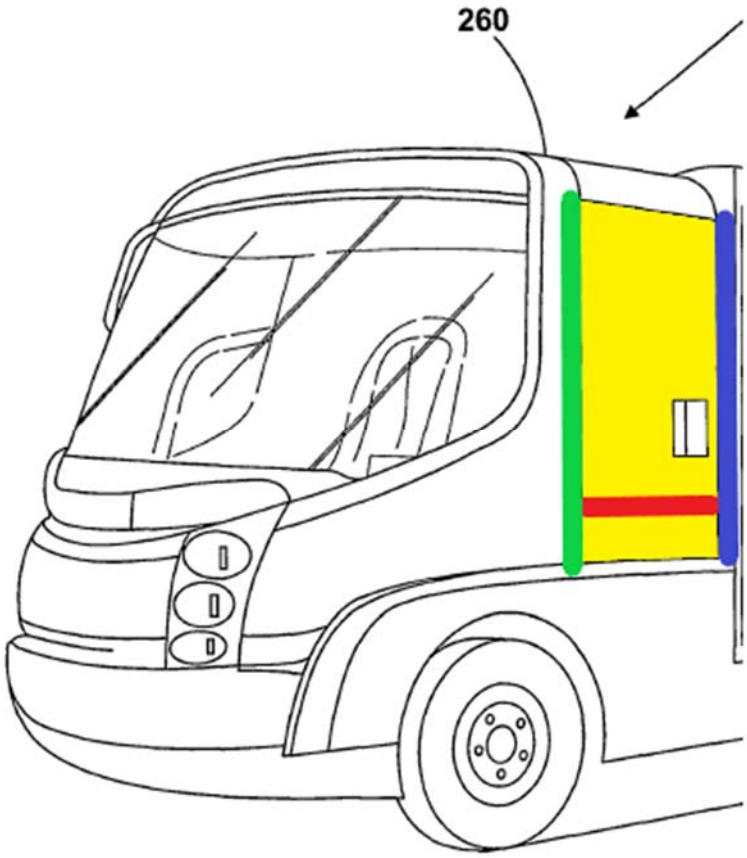
As explained above, the claim term “adjacent to” does not require the frontmost side of the door to be located horizontally behind the rearmost portion of the wheel well, or *vice-versa*. The “adjacent to” limitation is satisfied as long as those two components are “nearby but not touching,” without regard to whether the frontmost side of the door or the rearmost portion of the wheel well is in the forward-most horizontal position. Accordingly, it is irrelevant that Figure 1 of the ’084 patent depicts the frontmost side of the door located horizontally behind the

rearmost portion of the wheel well, while Figure 1 of Modec shows the frontmost side of the door located horizontally in front of the rearmost portion of the wheel well. *Id*.

Moreover, even if the "adjacent to" limitation required the frontmost side of the door to be located horizontally behind the rearmost portion of the wheel well, the relative horizontal positioning of those two components would have been a matter of obvious design choice. Ex. 1002 ¶ 80. A POSITA would understand that, as long as a sufficient portion of the door is located behind the wheel well to enable a person to enter the truck without climbing over the wheel well, there is no significant functional difference between locating the door entirely behind the wheel well and locating a small portion of the door slightly in front of the rearmost portion of the wheel well. *Id*. Accordingly, a POSITA would be motivated to locate the door entirely behind the wheel well when an elongated cabin is desired and to locate a portion of the door in front of the rearmost portion of the wheel well when a more condensed cabin is desired. *Id*. Because semi-trucks generally have relatively elongated cabins, it would have been an obvious design choice to move Modec's door back slightly to locate the frontmost side of the door horizontally behind the rearmost portion of the wheel well. *Id*.

h. <u>"and the width of the door is disposed between the frontmost side of the door and a rearmost side of the door"</u>

The annotated blown-up portion of Figure 1, below, shows that "the width [red] of the door [yellow] is disposed between the frontmost side [green] of the door and the rearmost side [blue] of the door."



Id., Fig. 1; Ex. 1002 ¶ 81.

i. <u>"at least a portion of the door being positioned behind the seat and at least a portion of the seat is disposed to be forward of a line defining the rearmost portion of the front wheel well such that the door opens to provide ingress and egress into the cabin from a backside of the seat"</u>

The following annotated Figure 1 of Modec shows that "at least a portion of the door [yellow]" is "positioned behind the seat [green] and at least a portion of the seat [green] is disposed to be forward of a line defining the rearmost portion of the wheel well [blue line extended from rearmost edge]." Ex. 1002 ¶ 82.

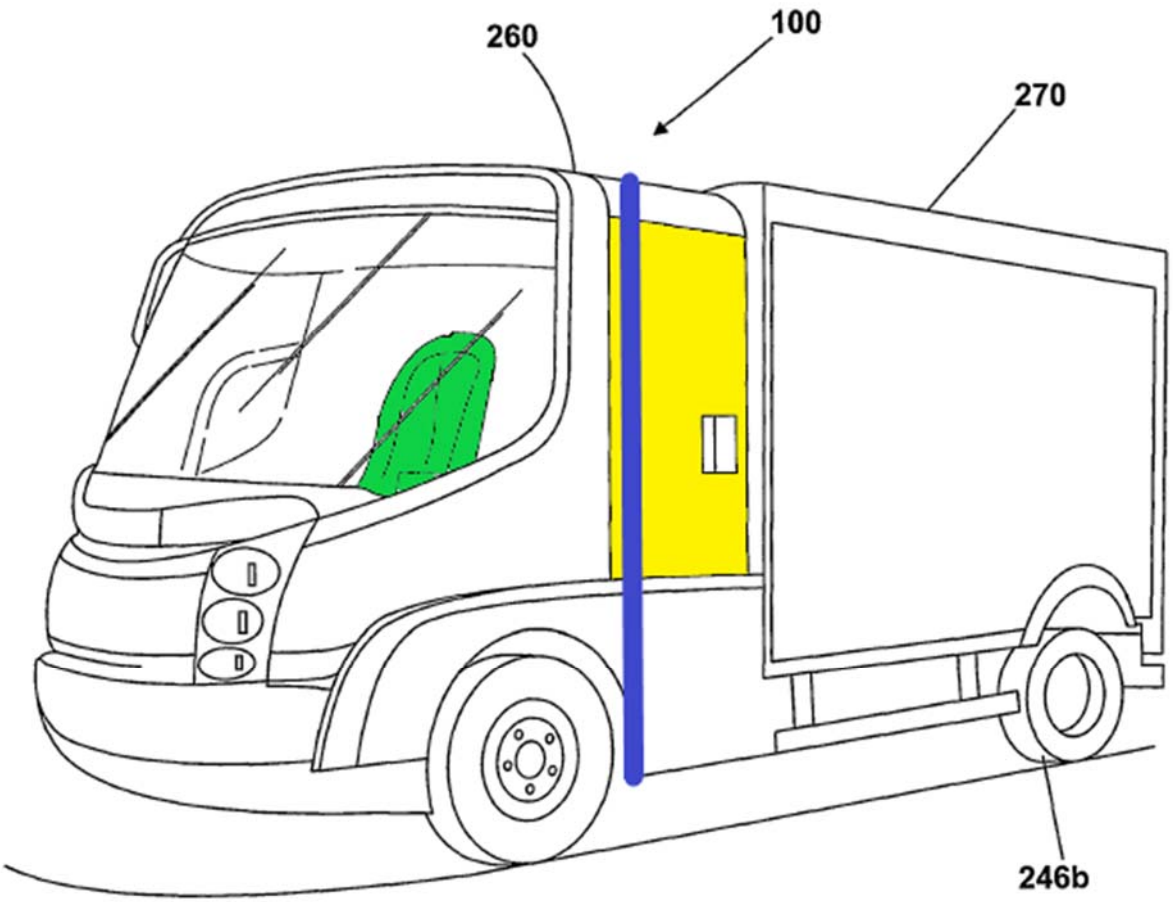


Fig. 1

Modec further discloses that the door can be unlocked "to allow the driver to access the vehicle through the door" (Ex. 1004 at 22:18-20), thereby establishing that "the door opens to provide ingress and egress into the cabin." As explained above, the door is positioned behind the seat. Therefore, ingress and egress into the cabin, as provided by the door, can only be "from a backside of the seat." Ex. 1002 ¶ 83.

j. <u>"wherein the door is the foremost door providing ingress or egress into the interior of the cabin."</u>

The following annotated Figure 1 of Modec shows that "the door [yellow] is the foremost door." Modec further discloses that the door can be unlocked "to allow the driver to access the vehicle through the door" (Ex. 1004 at 22:18-20), thereby establishing that the door is "providing ingress or egress into the interior of the cabin." Ex. 1002 ¶ 84.

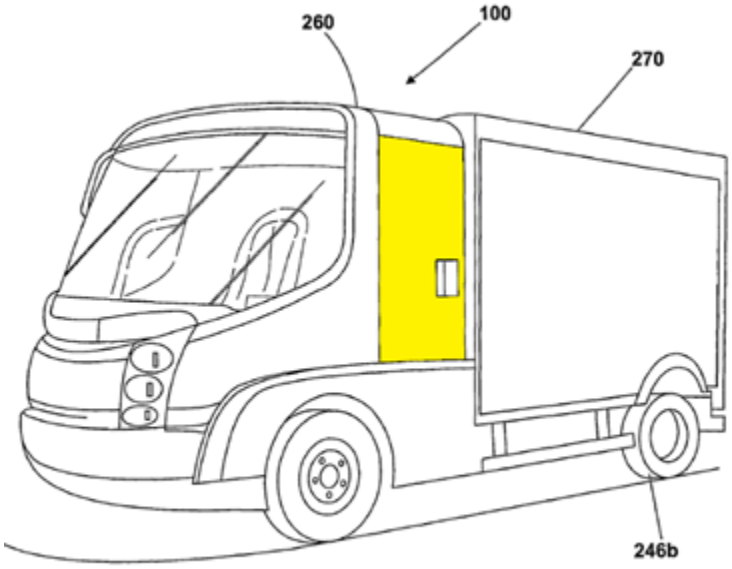


Fig. 1

k. A POSITA would have found it obvious, and would have been motivated, to use Modec's relative positioning of the door, seat, and front wheel well with a "semi-truck vehicle."

As set forth above, claim 1 of the '084 patent may differ from Modec because Modec does not expressly identify its "electric vehicle 100" as a "semi-truck vehicle." This is not a patentable distinction, however, because a POSITA at the time of the alleged invention would have found it obvious to use Modec's disclosed positioning of the door, seat, and front wheel well with a "semi-truck vehicle." Ex. 1002 ¶ 85.

It would have been obvious to use Modec with a "semi-truck vehicle" in view of Modec alone. Figure 1 of Modec depicts "a specialist delivery vehicle." *Id.* at 14:30-31. However, Modec discloses that "through a ***simple change*** to the vehicle body," the vehicle could be a box van or minibus or ***any other commercial*** or domestic use ***vehicle***." *Id.* at 14:30-15:2 (emphases added). A POSITA would understand that a "semi-truck vehicle" is a "commercial vehicle," and, thus, that "a simple change to the vehicle body" would adapt the configuration shown for Modec for use with a "semi-truck vehicle." Ex. 1002 ¶ 86. Moreover, even if a POSITA did not consider a "semi-truck vehicle" to be the type of "commercial vehicle" contemplated by Modec, the express teaching that a simple change to the vehicle body would adapt Modec for use with other vehicle types would motivate a

POSITA to consider other vehicle types, even beyond those expressly disclosed, with which Modec's relative positioning of the door, seat, and front wheel well could be used advantageously. *Id*.

Further, even if it were not obvious to use Modec's relative positioning of the door, seat, and front wheel well with a "semi-truck vehicle" in view of Modec alone, it would have been obvious to do so in view of Modec in combination with Messano. Modec expressly discloses that "a simple change to the vehicle body" would adapt Modec for use with other vehicle types. Within the same field of electric vehicles, Messano expressly discloses that an electric drive train can be used with a wide variety of vehicles, including "heavy-duty long-haul vehicles" and "medium and light duty vehicles (trucks, buses, vans, SUVs, recreational vehicles, and the like)." *Id*., Abstract. Those disclosures would motivate a POSITA to consider "semi-truck vehicles" to be among vehicle types with which Modec's relative positioning of the door, seat, and front wheel well could be used advantageously. Ex. 1002 ¶ 87.

A POSITA would also be motivated by the understanding that Modec's relative positioning would be advantageous for a "semi-truck vehicle" because it would allow a driver to more easily and safely enter and exit the "semi-truck vehicle." Ex. 1002 ¶ 88. The POSITA would be well aware of this advantage for at least three reasons. First, a POSITA would have personal knowledge, based on

experience using or testing the different door, seat, and wheel well positions in the prior art, that it is easier and requires less dangerous movement to enter the cabin of a vehicle in which the relative positioning of the door, seat, and front wheel well allows for entry into the cabin from behind the seat rather than requiring climbing directly into the seat. Second, a POSITA would be aware of the express teaching of the 2001 American Trucking Associations report that positioning the door behind the seat to provide rear entry into the cabin would make entry into the vehicle easier and increase safety by reducing driver injuries caused by slips. Ex. 1007 at 2-4. Third, a POSITA would be aware of the general knowledge within the industry, as shown by Applicants' admission in the background section of the '084 patent, that climbing directly into a semi-truck seat, as required by the traditional positioning of the door, seat, and front wheel well, may be uncomfortable and dangerous. Ex. 1002 ¶ 88.

A POSITA would be even more motivated to use the relative positioning of the door, seat, and front wheel well disclosed by Modec for a "semi-truck vehicle" than for smaller vehicles like delivery trucks or vans. The reason for this enhanced motivation is that the advantages of increased comfort and safety are even more significant for larger vehicles such as "semi-trucks" because the need to climb directly up into the seat is more of an inconvenience and danger for a larger vehicle than for a smaller vehicle. Ex. 1002 ¶ 89.

Finally, a POSITA would have an expectation of success in modifying Modec for use with a "semi-truck vehicle." Ex. 1002 ¶ 90. A POSITA would understand that Modec's relative positioning of the door, seat, and front wheel well is a simple layout choice that could easily be implemented for any type of vehicle regardless of size or other physical differences. *Id*. A POSITA would further understand that nothing beyond mere resizing of the various cabin components would be necessary to modify Modec for use with "a semi-truck vehicle" and that there would be no technical or other obstacles to making that modification. *Id*.

In summary, modifying Modec to use its disclosed relative positioning of the door, seat, and front wheel well with a "semi-truck vehicle" would meet every claim limitation, a POSITA would have had a motivation or reason to make the modification, and a POSITA would have expected success and not encountered any technical or other obstacle to making the combination. Therefore, it would have been obvious to modify Modec for use with a "semi-truck vehicle." Because such modification would include every claim limitation, claim 1 would have been obvious. Ex. 1002 ¶ 91.

2. Claim 2: "wherein the semi-truck vehicle is an electric vehicle comprising a battery pack that is coupled to an electric drive train."

Modec discloses: "At [the electric vehicle's] heart is an electric drive train including an electric motor 200 which is supplied with power from a battery

assembly 210." Ex. 1004 at 15:2-4. Modec also discloses that: "The battery assembly 210 comprises a self contained unit that comprises 10 battery cells, battery control circuitry for regulating the battery charge and voltage, and a set of contactors which selectively connect the batteries to the units output terminals or isolate them." A POSITA would understand that a "battery assembly" is a "battery pack," and, thus, Modec discloses "an electric vehicle comprising a battery pack that is coupled to an electric drive train." Ex. 1002 ¶ 92.

Further, it would have been obvious to a POSITA to couple the electric drive train of Claim 1 to a battery pack in view of Modec in combination with Messano. Messano discloses a "Battery Module" which "may consist of batteries, capacitors, or any combination thereof where electrical energy is stored." Ex. 1005 at 4:16-19. Messano discloses that the truck's "electric motors receive power from the Battery Modules and optionally from the GenSets." *Id*. at 4:33-35. A POSITA would understand that the "Battery Modules" disclosed by Messano are "a battery pack that is coupled to an electric drive train." Ex. 1002 ¶ 93.

Moreover, it would have been obvious to a POSITA to couple the electric drive train of Claim 1 to a battery pack in order to provide power to the electric drive train. Ex. 1002 ¶ 94.

3. Claims 3 and 25: "wherein the semi-truck vehicle comprises a combustion engine configured to generate power by using combustion energy of fuel" and "wherein the semi-truck vehicle is a hybrid vehicle comprising electrical and combustion components."

As explained above, claim 1 would have been obvious over Modec and Messano. In addition, Messano specifically claims "A hybrid semi-trailer truck system comprising: an electric drive road tractor that incorporates: a multiplicity of constant-speed internal combustion engines maximized for fuel efficiency." Ex. 1005 at 19:28-31. Thus, Messano discloses both "a combustion engine configured to generate power by using combustion energy of fuel" (claim 3) and "a hybrid vehicle comprising electrical and combustion components" (claim 25). Therefore, claims 3 and 25 would have been obvious over Modec and Messano. Ex. 1002 ¶ 95.

4. Claim 4: "wherein the semitruck vehicle comprises only a single door."

The following annotated Figure 1 of Modec shows only a single door (yellow). Ex. 1002 ¶ 96.

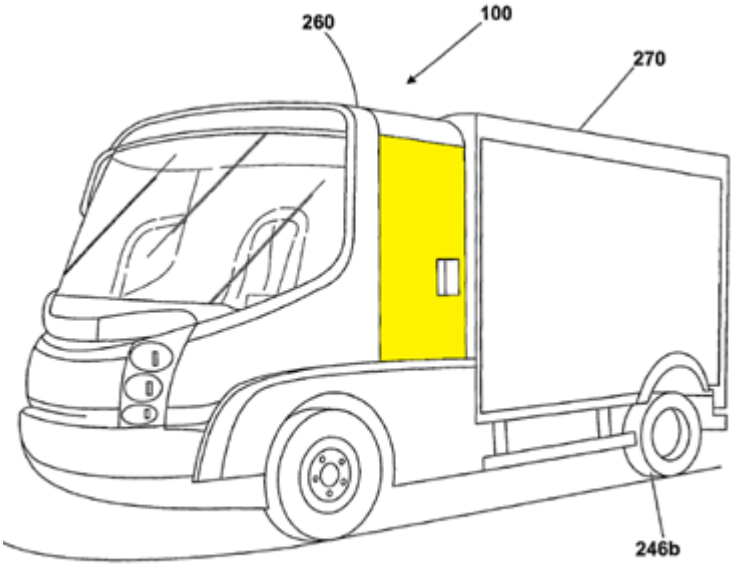


Fig. 1

Modec does not disclose the presence of additional doors. Thus, Modec discloses "only a single door." Ex. 1002 ¶ 97.

5. Claim 5: "wherein the single door is located on a left side when the user is seated in the seat of the semi-truck vehicle."

As shown in the previous figure, Modec shows "a single door" (yellow) that is located on the left side of the truck when the user is seated in the seat. Ex. 1002 ¶ 98.

6. Claim 15: "wherein the vehicle is an electric driven class 7 semi-truck."

As explained above, Messano discloses a "semi-truck vehicle" with an electric drive train. Messano further discloses that "[t]he drive system equally applies to light & medium duty Class 2 to 7 vehicles, motorhomes, amphibians, and automobiles." Ex. 1005 at 1:41-43. Thus, Messano discloses a semi-truck

vehicle "wherein the vehicle is an electric driven class 7 semi-truck." Ex. 1002 ¶ 99.

7. Claim 16: "wherein the vehicle is an electric driven class 8 semi-truck."

As explained above, Messano discloses a "semi-truck vehicle" with an electric drive train. Messano further discloses that "[t]he present invention relates […] more particularly, to a fuel efficient heavy-duty Class 8 long-haul vehicle." Ex. 1005 at 1:33-36. Thus, Messano discloses a semi-truck vehicle "wherein the vehicle is an electric driven class 8 semi-truck." Ex. 1002 ¶ 100.

C. Ground 2: Claim 6 would have been obvious over Modec, Messano, and the Future Truck Report

Claim 6, which depends from claim 4 and recites the additional limitation "wherein the single door is located on the right side when the user is seated in the seat of the semi-truck vehicle," would have been obvious over Modec, Messano, and the Future Truck Report. While Modec illustrates "a single door" (yellow in annotated Figure 1, shown previously) "located on the left side of the truck," it would have been obvious to a POSITA to instead locate the door on the right side. The Future Truck Report discloses a "single door located on the right side when the user is seated in the seat of the semi-truck vehicle," and it would have been obvious to combine Modec and Messano with the Future Truck Report. The Future Truck Report discloses that, "[e]ntry could be by a door at the right rear of

the passenger side, eliminating the door on the driver's side" and explains that this position "would eliminate the need for retractable steps/stairs and for doors opening into traffic. For on-highway use there is little need for a driver to have ready entry and exit provided by a door on his immediate left." Ex. 1007 at 3. The Future Truck Report also explains that a door weakens the cab structure and restricts the cab window size. *Id*. A POSITA would know to combine Modec and Messano with the Future Truck Report because the Future Truck Report explicitly suggests designers consider making the disclosed changes to conventional truck designs. Ex. 1002 ¶ 101-102. For example, the Future Truck Report states that, "[t]he authors … advocate spirited debate and serious consideration of the value of these changes to cab design." Ex. 1007 at 1.

D. Ground 3: Claims 7, 8, 21, and 26 would have been obvious over Modec, Messano, and Marlowe

1. Claim 7: "wherein the door of the semi-truck vehicle comprises a first door and a second door."

It would have been obvious to a POSITA to modify the cabin of Modec to have a first door and a second door. In fact, it is customary for semi-truck vehicles and other trucks to have at least two doors, a driver-side door and a passenger-side door. A POSITA would recognize that it is advantageous to have at least two doors for convenience, to provide separate entryways for the driver and the

passenger, and for safety, to provide multiple points of ingress and egress in case of an emergency. Ex. 1002 ¶ 103.

Even if this limitation were not obvious in view of Modec and Messano alone, it would have been obvious in view of Modec, Messano, and Marlowe. Marlowe discloses a "class 7 or 8 truck," that includes a cab having driver and passenger doors." Ex. 1008 at 1:6-10. A POSITA would understand that a class 8 truck is "a semi-truck vehicle." Marlowe thus expressly discloses a "semi-truck vehicle [comprising] a first door and a second door," as shown by Figure 6 from Marlowe, reproduced below, which shows "opposite driver and passenger doors **24** and **26**, respectively." Ex. 1008 at 3:1-2; Figure 6; Ex. 1002 ¶ 104.

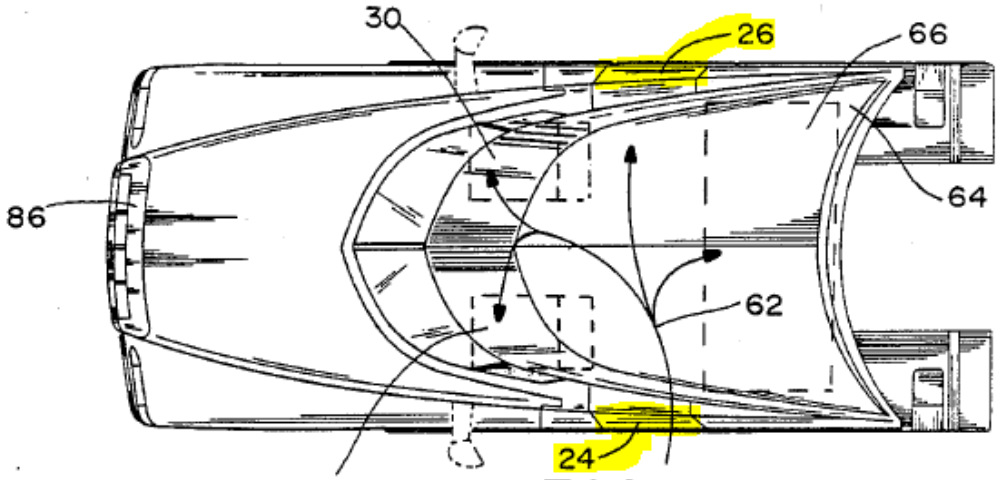


FIG.— 6

2. Claim 8: "wherein the first door is located on a left side when the user is seated in the seat of the semi-truck vehicle and the second door is located on a right side when the user is seated in the seat of the semi-truck vehicle."

It would have been obvious to a POSITA to modify the cabin of Modec to have a first door on the left side and a second door on the right side. Indeed, a POSITA would recognize that as the customary cabin design for a semi-truck vehicle or other truck. A POSITA would further recognize that it is advantageous to provide separate entryways for the driver and the passenger and to provide multiple points of ingress and egress. Ex. 1002 ¶ 105.

Even if this limitation were not obvious in view of Modec and Messano alone, it would have been obvious in view of Modec, Messano, and Marlowe. Marlowe discloses a "class 7 or 8 truck," that includes a cab having driver and passenger doors." Ex. 1008 at 1:6-10. A POSITA would understand that a class 8 truck is "a semi-truck vehicle." Figure 6 from Marlowe, reproduced below, shows "opposite driver and passenger doors **24** and **26** [in yellow], respectively." Ex. 1008 at 3:1-2; Figure 6. Figure 6 also shows "driver and passenger seats **28** [passenger seat outlined in blue] and **30**, respectively." *Id*. at 3:2-3.

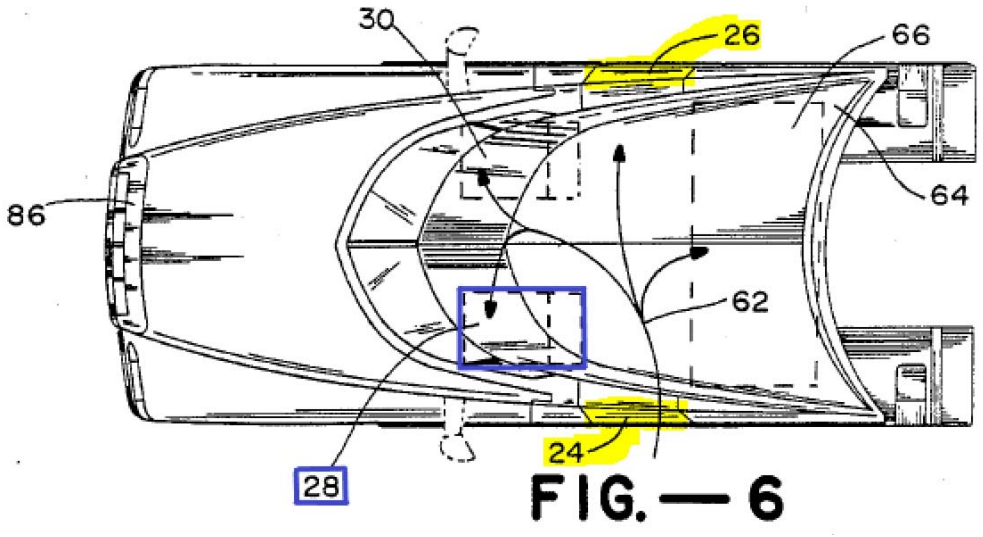


FIG. — 6

A POSITA would understand that the driver seat is where "the user is seated in the seat of the semi-truck vehicle." As shown in Figure 6, the doors are to the left and right of the driver seat. Thus, Marlowe explicitly discloses the limitation of claim 8. Ex. 1002 ¶ 106.

3. Claim 21

a. "wherein the cabin comprises a first seat and a second seat, and"

This limitation is identical in scope or nominally broader than the limitation of claim 1 discussed above in Section IV(D)(4)(e). Modec discloses this limitation for the same reasons set forth in Section IV(D)(4)(e), below. Ex. 1002 ¶¶ 107, 114.

b. "wherein <u>access to either of the first seat or the second seat is provided between the second seat and the first seat</u>."

It would have been obvious to a POSITA to modify the cabin of Modec and Messano to comprise a first seat and a second seat, wherein access to either of the first seat or the second seat is provided between the second seat and the first seat, as disclosed in Marlowe. Figure 6 of Marlowe, reproduced below, shows "driver and passenger seats 28 and 30 [green], respectively." Ex. 1008 at 3:2-3.

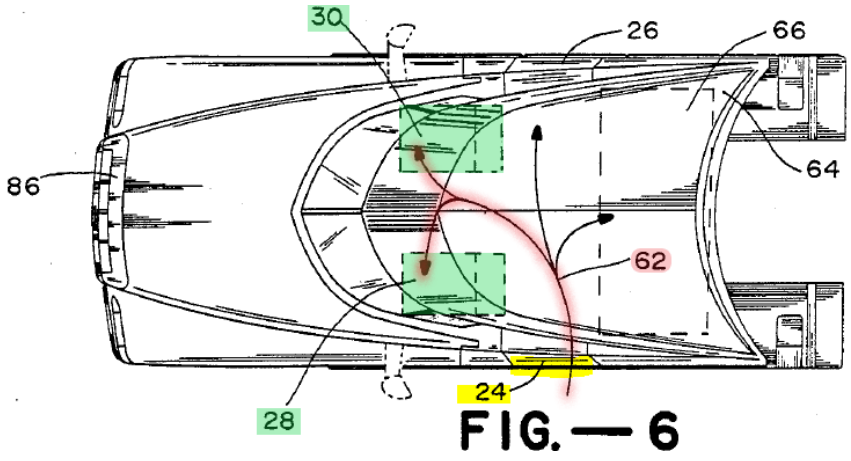


FIG. — 6

Ex. 1008, Fig. 6. Figure 6 shows "driver and passenger doors **24** [yellow] and **26** are located rearwardly of driver and passenger seats **28** and **30** [green] so as not to obstruct access into and out of the cab, as depicted by arrow **62** [red]." *Id.* at 5:35-40. Arrow 62 clearly shows that entry into the cabin through the door (24) provides access to the seats from between the seats. *Id.*, Fig. 6. Thus, Marlowe explicitly discloses this claim limitation. A POSITA would be motivated to incorporate Marlowe's design into Modec because providing a single, central aisle

for accessing both seats is more space efficient than providing two separate pathways. Ex. 1002 ¶ 108-109.

4. Claim 26

a. "A semi-truck vehicle"

This limitation is identical to the limitation of claim 1 discussed above in Sections IV(B)(1)(a) and IV(B)(1)(k). This limitation would have been obvious for the same reasons set forth above. Ex. 1002 ¶ 110.

b. "an electric drive train"

This limitation is identical to the limitation of claim 1 discussed above in Section IV(B)(1)(b). Modec and Messano each disclose this limitation for the same reasons set forth above. Ex. 1002 ¶ 111.

c. "a body"

This limitation is identical to the limitation of claim 1 discussed above in Section IV(B)(1)(c). Modec discloses this limitation for the same reasons set forth above. Ex. 1002 ¶ 112.

d. "a cabin located within the body of the vehicle, wherein the cabin comprises an interior that is configured to accommodate at least one person"

This limitation is identical to the limitation of claim 1 discussed above in Section IV(B)(1)(d). Modec discloses this limitation for the same reasons set forth above. Ex. 1002 ¶ 113.

e. "a first seat and a second seat located in the interior of the cabin"

For the reasons set forth above in Section IV(B)(1)(e), Modec discloses the following limitation of claim 1: "a seat located in the interior of the cabin that is configured for seating a user." Accordingly, Modec discloses the "first seat" of the comparable limitation of claim 26. The comparable limitation of claim 26 also requires "a second seat" in addition to the "first seat." Modec discloses both "a driver and a passenger seat (not shown)." Ex. 1004 at 15:30-31. The "passenger seat" of Modec is the "second seat" required by claim 26. Ex. 1002 ¶ 114.

f. "a door that provides ingress and egress to the interior of the cabin"

This limitation is identical in scope or nominally broader than the limitation of claim 1 discussed above in Section IV(B)(1)(f).[2] Modec discloses this limitation for the same reasons set forth above. Ex. 1002 ¶ 115.

[2] The limitation of claim 1 recites that the door comprises "a width extending a horizontal length of the door" and that the cabin is "of the semi-truck vehicle." Petitioner does not believe the claim 1 limitation differs substantively in scope.

g. "the door being located on the body such that a frontmost side of the door is adjacent to a rearmost portion of a front wheel well"

This limitation is identical to the limitation of claim 1 discussed above in Section IV(B)(1)(g). Modec discloses or renders obvious this limitation for the same reasons set forth above. Ex. 1002 ¶ 116.

h. "and at least a portion of the door being positioned behind the first seat, at least a portion of the first seat is disposed to be forward of a line defining the rearmost portion of the front wheel well"

This limitation is essentially identical to the limitation of claim 1 discussed above in Section IV(B)(1)(h), except the limitation of claim 1 recites "the seat" instead of "the first seat" and includes the additional language "such that the door opens to provide ingress and egress into the cabin from the backside of the seat." For the same reasons set forth above, Modec discloses this similar limitation of claim 26, with Modec's driver seat being the "first seat" required by claim 26. Ex. 1002 ¶ 117.

i. an entryway provided between the first seat and the second seat, wherein the entryway comprises a vertical height extending from a floor of the cabin to at least a top of the first seat or the second seat;

While Modec does not use the express terms "floor" or "entryway," a POSITA would read Modec as implicitly disclosing the claimed "entryway" of claim 26. The annotated Figure 1 of Modec shown below illustrates why a

POSITA would read Modec to include that implicit disclosure.

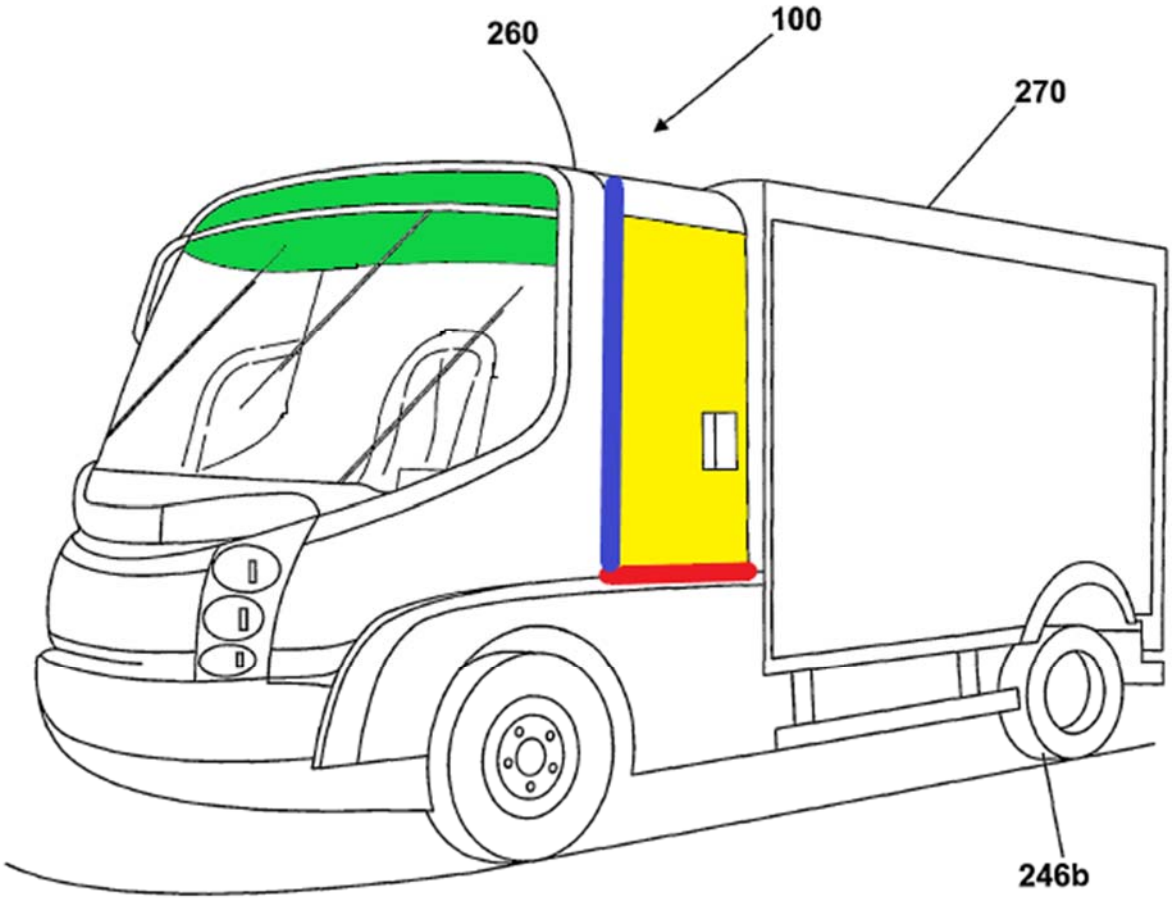


Fig. 1

As shown, Modec graphically discloses a ceiling (green) of the cabin that is above the seat and the space behind the seat. A POSITA would understand that the door (yellow) must open up to reveal a floor on the other side of the door, at about the level of the lower edge (red) of the door, to prevent the driver from falling through to the undercarriage of the vehicle. Because the door is at least partially behind the seat, a POSITA would also understand that there is an entryway behind and between the two seats that extends vertically from the floor (red) to the ceiling

(green) of the cabin, which, as shown, is above the seat. Therefore, Modec implicitly discloses "an entryway provided between the first seat and the second seat wherein the entryway comprises a vertical height extending from a floor of the cabin to at least a top of the first seat or the second seat." Ex. 1002 ¶ 118. Even if Modec does not implicitly disclose that limitation, it would have been obvious, in view of Modec's disclosure of a door located behind the driver seat, to provide the claimed entryway as the most convenient and easiest pathway for the driver to get from the door to the driver seat upon entering the cabin. Ex. 1002 ¶ 119.

j. "wherein the entryway provides access to either of the first seat or the second seat."

To the extent Modec does not expressly disclose that the "entryway provides access to either of the first seat or the second seat," it would have been obvious in view of Marlowe to provide such access. As explained above with respect to claim 21, Marlowe discloses a pathway from the door to either one of the first seat or the second seat:

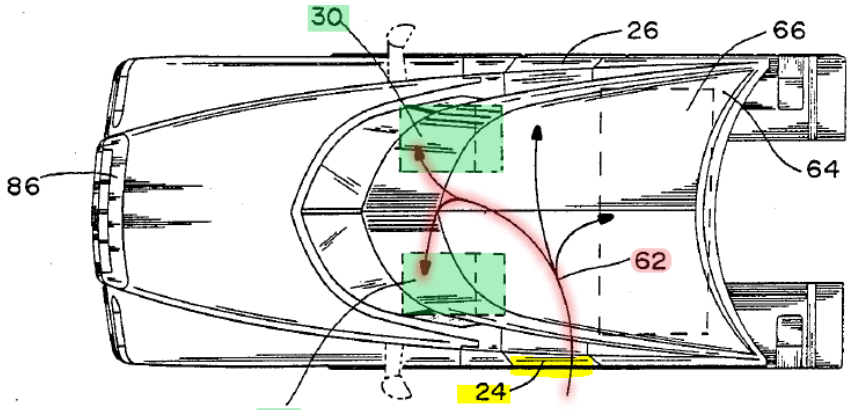


FIG. — 6

Ex. 1008, Fig. 6. A POSITA would be motivated to incorporate Marlowe's design into Modec because providing a single, central aisle for accessing both seats is more space efficient than providing two separate pathways. Ex. 1002 ¶ 120.

k. It would have been obvious, and a POSITA would have a motivation, to use Modec's relative positioning of the door, seat, and front wheel well with a "semi-truck vehicle."

As set forth above, claim 26 of the '084 patent may differ from Modec because Modec does not expressly identify its "electric vehicle 100" as a "semi-truck vehicle." This is not a patentable distinction, however. For the same reasons set forth above in Section IV(B)(1) with respect to claim 1, a POSITA at the time of the alleged invention would have found it obvious, and would have been motivated, to use Modec's disclosed positioning of the door, seat, and front wheel well with a "semi-truck vehicle." Therefore, claim 26 of the '084 patent is unpatentable. Ex. 1002 ¶ 121.

E. Ground 4: Claims 9-11 would have been obvious over Modec, Messano, and Eltra

1. Claim 9: "wherein the door slides on an upper track, a mid-track, and a lower track located externally on the body of the semi-truck vehicle to open and close the door."

It would have been obvious to a POSITA to modify the cabin of Modec and Messano to use a sliding door, as disclosed in Eltra, that "slides on an upper track, a mid-track, and a lower track located externally on the body of the semi-truck vehicle to open and close the door." Eltra discloses "sliding doors provided on the

passenger side of conventional motor vehicles." Exhibit 1009 at 1:4-5. Eltra discloses that, "[s]uch a [sliding] door is supported at three points, two support points having fixed arms which ride in tracks provided in the vehicle body. […] The third support points involves a spring loaded pivotally mounted arm riding in a track on the vehicle body disposed on the exterior of the vehicle, either at the top or center of the vehicle side." *Id*. at 1:8-15. Thus, Eltra discloses the three-track sliding door of claim 9. Ex. 1002 ¶ 122.

A POSITA would have been motivated to use Eltra's three-track sliding door of Eltra with the cabin of Modec and Messano. As Eltra discloses, sliding doors were a well-known alternative to hinged doors for large vehicles before the time of the invention. A POSITA would have understood that sliding doors are advantageous for semi-truck vehicles and other large vehicles because they provide a relatively easy and safe mechanism for opening the door and providing easy access to the interior of the vehicle. The POSITA would have also recognized that the three-track sliding door design of Eltra is advantageous to properly secure the door to the vehicle at multiple attachment points while preventing damage to both the door and the tracks. Ex. 1002 ¶ 123.

2. Claim 10: "wherein the door moves outward with respect to the body and backward with respect to the seat as the door is moved to an open position."

As explained above with respect to claim 9, it would have been obvious to use the sliding door disclosed in Eltra with the Modec and Messano cabin. Claim 10 depends from claim 9 and recites merely well-known functionality of conventional sliding doors for vehicles. Indeed, as a POSITA would have recognized, almost all conventional sliding doors in vehicles "move[] outward with respect to the body and backward with respect to the seat as the door is moved to an open position." Ex. 1002 ¶ 124.

Eltra expressly discloses the well-known functionality of conventional sliding doors for vehicles. Specifically, Eltra discloses:

> When the door is being opened, the rear edge of the door is moved outwardly […]. Then, as the door is moved rearwardly, the door slides to the rear at an angle […]."

Ex. 1009 at 1:21-26. A POSITA would have been motivated to use this well-known and conventional functionality because it was time-tested and known to work reliably. Accordingly, it would have been obvious to modify Modec and Messano to use a sliding door according to claim 9 "wherein the door moves outward with respect to the body and backward with respect to the seat as the door is moved to an open position." Ex. 1002 ¶ 125.

3. Claim 11: "wherein an activation signal turns on a drive motor to pull the door open and closed."

As explained above, claim 10 would have been obvious in view of Modec, Messano, and Eltra. Claim 11 merely adds a conventional automatic sliding-door variation in which "an activation signal turns on a drive motor to pull the door open and closed." Eltra expressly discloses this well-known and conventional variation of vehicle sliding doors:

> An electrica1 switch disposed at any convenient point is used to open and close the door. When the electrical switch is operated to open the door, the cable which is terminated at the lever attached to the conventional operating mechanism is wound onto a winch, first unlatching then opening the door. An electrical switch, integral with the winch assembly, turns the winch motor off when the door reaches a predetermined position near the full open position. When the electrical switch is actuated to close the door, the cable which is guided around the edge of the door frame, and attached to the rear edge of the door, is wound onto a winch drum, pulling the door towards its closed position.

Ex. 1009 at 4:12-25. A POSITA would understand that this disclosure describes the use of a drive motor to pull the sliding door open and closed. Thus Eltra discloses a door "wherein an activation signal turns on a drive motor to pull the door open and closed." Ex. 1002 ¶ 126.

A POSITA would be motivated to use Eltra's motor-driven automatic sliding door with Modec and Messano. Specifically, a POSITA would have known that the conventional motor-driven automatic sliding door disclosed by Eltra would be more convenient, easier to use, and safer than a manual sliding door. These advantages would be particularly compelling for the heavy doors needed for a commercial vehicle or semi-truck vehicle disclosed by Modec and Messano. Ex. 1002 ¶ 127.

F. Ground 5: Claim 12 would have been obvious over Modec, Messano, and Racz

Claim 12 depends from claim 1 and adds nothing more than "the door is hinged at one end and attached to the body of the semi-truck vehicle to open and close the door." There is literally nothing more well-known or conventional than a hinged vehicle door. A POSITA would find claim 12 self-evidently obvious over Modec and Messano. Ex. 1002 ¶ 128.

Further, Racz expressly discloses a semi-truck vehicle with the claimed hinged door. Racz discloses "an over the highway tractor" which "includes the usual cab **12** which is fitted with an access door **14**" wherein "the door is mounted by a pair of hinges **16**." Exhibit 1010 ¶ [0014]. Figure 1 of Racz is reproduced below.

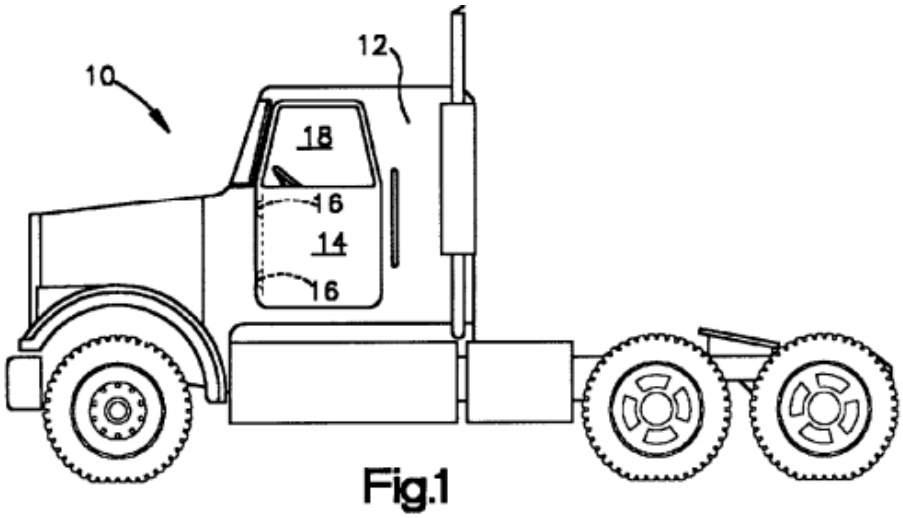


Fig.1

A POSITA would be motivated to use the conventional hinged door of Racz with the cabin of Modec and Messano because conventional hinges were time-tested and known to be reliable mechanisms for attaching doors to vehicles and allowing the doors to be opened. Ex. 1002 ¶ 129.

G. Ground 6: Claim 13 would have been obvious over Modec, Messano, and Kia

As explained above, claim 1 would have been obvious over Modec and Messano. Claim 13 adds the limitation "wherein the door comprises a peak load sensor configured to sense a threshold, such that when a load on the door is higher than a threshold a control unit reverses the direction of the door and keeps the door from closing." Ex. 1001, claim 13. The added limitation would have been obvious to a POSITA in view of Kia. Ex. 1002 ¶ 130.

Kia discloses an "automatic stop and reversal" feature for a "power sliding door." Ex. 1011 at 35. Kia states:

> If the power opening or closing is blocked by an object or part of the body, ***the power sliding door*** and power tailgate ***will detect the resistance***, then the chime will sound 3 times, and stop movement or move to the full open position to allow the object to be cleared.
>
> However, ***if the resistance is weak such as an object that is thin or soft***, or the door is near latched position, ***the automatic stop and reversal may not detect the resistance*** and the closing operation will continue.

Id. (emphases added). A POSITA would understand the emphasized portions to mean that the power sliding door uses a "peak load sensor configured to sense a threshold, such that when a load on the door is higher than a threshold a control unit reverses the direction of the door and keeps the door from closing." Ex. 1002 at ¶ 130. Specifically, a POSITA would understand that the reason resistance may not be detected when "the resistance is weak such as an object that is thin or soft" is that such objects would not cause the "load on the door" to be "higher than a threshold." Ex. 1002 ¶ 131.

A POSITA would be motivated to include an "automatic stop and reversal" feature, as disclosed by Kia, with the combination of Modec and Messano. The "automatic stop and reversal" feature is self-evidently an advantageous safety feature that would be known to reduce injuries and property damage caused by an automatic sliding door closing on a person or property. Further, Kia is within the same general technological field of vehicle doors as Modec and a POSITA would

understand that the same design of an "automatic stop and reversal" feature for a passenger van could be easily scaled and successfully used with a semi-truck vehicle to provide the same safety advantages. Accordingly, claim 13 would have been obvious over Modec, Messano, and Kia. Ex. 1002 ¶¶ 132-133.

H. Ground 7: Claim 14 would have been obvious over Modec, Messano, and Marlowe

Claim 14 depends from claim 1 and adds the limitation "wherein the door is located approximately at a midpoint of the body of the semi-truck vehicle to provide ingress and egress into the cabin." It would have been obvious to modify the combination of Modec and Messano to meet this limitation in view of Marlowe. Figure 1 of Marlowe, reproduced below, shows driver's door **24** (green).

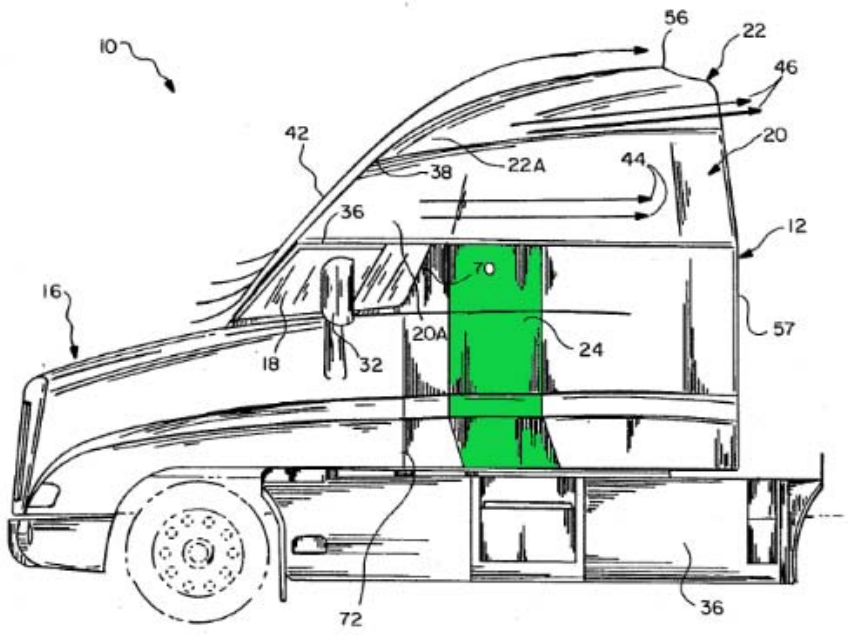


FIG. — 1

Ex. 1008, Fig. 1 (color added). Thus, Marlowe discloses a semi-truck "wherein the door is located approximately at a midpoint of the body of the semi-truck vehicle to provide ingress and egress into the cabin." A POSITA would have been motivated to modify the combination of Modec and Messano with this obvious design choice in order to provide additional space behind the seat. Ex. 1002 ¶¶ 135-136.

I. Ground 8: Claims 17 and 19 would have been obvious over Modec, Messano, and Plummer

1. Claim 17: "wherein the vehicle further comprises a sleeper within the cabin."

As explained above, claim 1 would have been obvious over Modec and Messano. It would have been obvious to modify the combination of Modec and

Messano to include "a sleeper within the cabin" in view of the disclosure of Plummer. Plummer discloses, "As is indicated in FIG. 5, the interior region of a long-haul truck typically includes a sleeper unit 142 and a driving compartment 144." Exhibit 1012 at 15:38-40. Figure 5 is reproduced below.

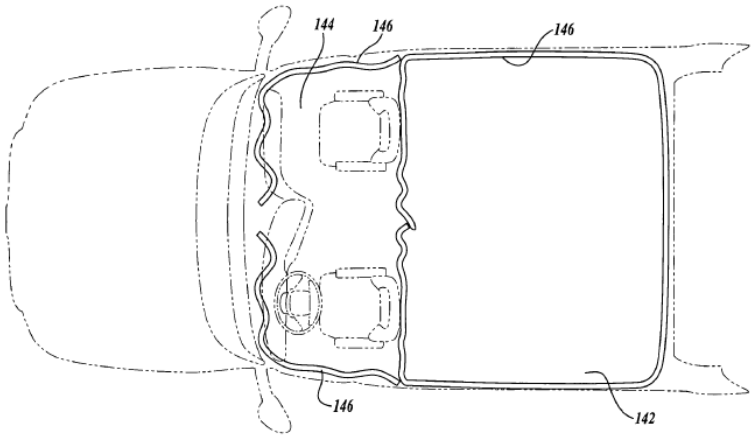


Fig.5.

It would have been obvious to add the conventional sleeper described in Plummer for the conventional reason of providing a place for the driver to sleep during long-haul trips. Ex. 1002 ¶¶ 138-140.

2. Claim 19: "wherein the sleeper comprises a bunk bed, a cooling appliance having a volume that is at least 15 cubic feet, and a microwave oven."

It would have also been obvious to modify the combination of Modec and Messano to include a sleeper with "a bunk bed, a cooling appliance having a volume that is at least 15 cubic feet, and a microwave oven" in view of the disclosure of Plummer. A POSITA would understand that Plummer's "sleeper unit" would have a bed and that it would have been an obvious design choice for

the bed to be a "bunk bed" to provide storage space or to locate other features of the truck under the bed. It was known to include a bunk bed in a semi-truck sleeper unit. *See* Ex. 1015. Plummer also discloses that "[v]arious vehicles such as long-haul trucks . . . include heating and air conditioning, lighting, and appliances such as refrigerators, coffee makers and microwave ovens." Ex. 1012 at 1:15-21. A POSITA would have understood that a refrigerator is "a cooling appliance," that the selection of a specific volume for a refrigerator would be an obvious design choice, and that it would have been obvious to select a refrigerator having a "volume that is at least 15 cubic feet" to maximize the amount of food that could be stored. A POSITA would have been motivated to include a "bunk bed, a cooling appliance having a volume that is at least 15 cubic feet, and a microwave oven" with the combination of Modec and Messano for the conventional reasons of providing a place for the driver to sleep and providing appliances for the driver to refrigerate and cook or warm food during long-haul trips. Ex. 1002 ¶¶ 142-144.

J. Ground 9: Claims 18 and 20 would have been obvious over Modec, Messano, and Marlowe

1. Claim 18: "wherein the door opens into the sleeper of the cabin."

Claim 18 depends from claim 17 and adds the limitation that "the door opens into the sleeper of the cabin." Claim 18 would have been obvious over Modec, Messano, and Marlowe. Marlowe discloses a semi-truck with a door that "opens

into the sleeper of the cabin." Figure 6, reproduced below, is a "top plan view" "diagrammatically illustrating the interior of the trucks cab and the way in which an individual can enter the cab through one of its side doors." Ex. 1008 at 2:41-44. Figure 6 shows "driver and passenger doors **24** [yellow] and **26**." *Id.* at 5:35-36. Figure 6 also shows that the "cab **12** includes a sleeper section **64** including a bed [blue] generally represented at **66**."

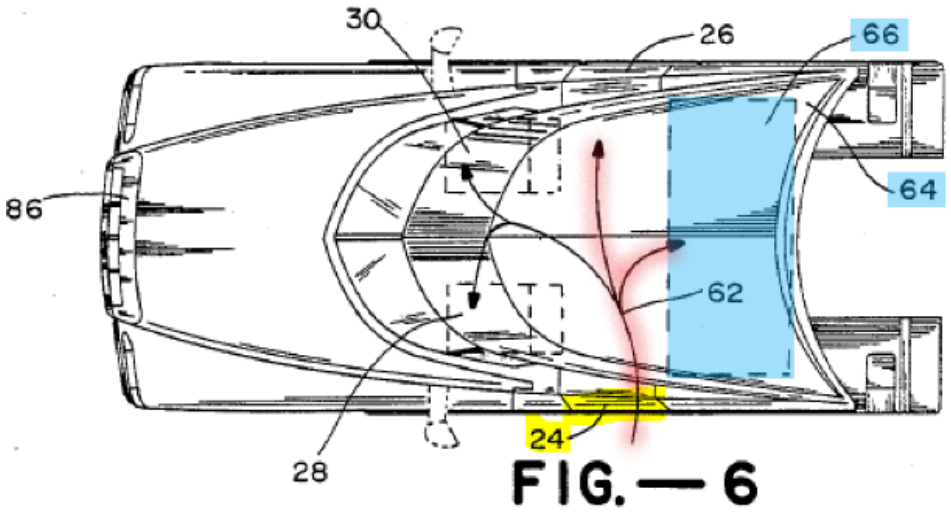


FIG. — 6

Id., 5:40-42; Fig. 6. A POSITA would understand that the sleeper section (64) and the bed (66) are the "sleeper of the cabin." Marlowe discloses that "[t]his sleeper section is located rearwardly of doors **24** and **26** so as not to obstruct access into and out of the cab, again as depicted by arrow **62**." *Id.* at 5:42-45. Arrow 62 clearly shows the sleeper may be accessed from the door of the cabin. Thus, Marlowe discloses a semi-truck "wherein the door opens into the sleeper of the cabin." Ex. 1002 ¶ 146.

A POSITA would have been motivated to add the disclosed sleeper section of Marlowe to Modec and Messano for the conventional reason of providing a place for the driver to sleep during long-haul trips. The Future Truck Report provides additional motivation for a POSITA to locate the door so that it opens into the sleeper. Specifically, the Future Truck Report expressly discloses that a door located next to the driver seat or the passenger seat weakens the cab structure and restricts the size of the driver or passenger windows. Therefore, a cab design in which the door opens into the sleeper of the cabin instead of directly into the driver or passenger would increase the cab strength and allow for larger driver and passenger windows, increasing safety and visibility. Ex. 1002 ¶ 147.

2. Claim 20: "wherein entry into the cabin of the semi-truck vehicle provides full access to the seat and the sleeper simultaneously."

Claim 20 depends from claim 17 and adds the limitation that "entry into the cabin of the semi-truck vehicle provides full access to the seat and the sleeper simultaneously." Claim 20 would have been obvious over Modec, Messano, and Marlowe. Marlowe discloses a semi-truck "wherein entry into the cabin of the semi-truck vehicle provides full access to the seat and the sleeper simultaneously." Figure 6 of Marlowe, reproduced below, is a "top plan view" "diagrammatically illustrating the interior of the trucks cab and the way in which an individual can enter the cab through one of its side doors." Ex. 1008 at 2:41-44.

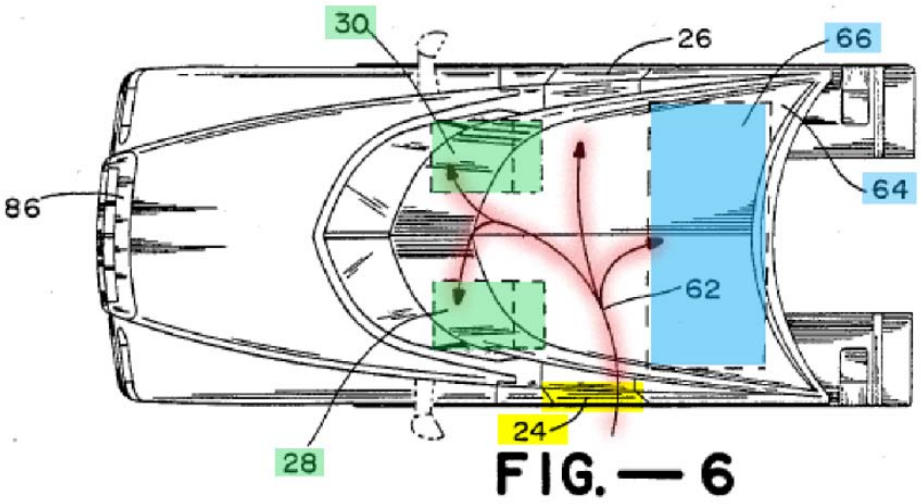


FIG. — 6

Id., Figure 6. Figure 6 shows "driver and passenger doors **24** [yellow] and **26** are located rearwardly of driver and passenger seats **28** and **30** [green] so as not to obstruct access into and out of the cab, as depicted by arrow **62** [red]." *Id.* at 5:35-40. Arrow 62 thus clearly shows that entry into the cabin through the door (24) provides access to the seats. *Id.*, Fig. 6. As discussed in Section IV(J)(1) above, Marlowe also discloses a semi-truck "wherein the door opens into the sleeper of the cabin." Therefore, Marlowe discloses a semi-truck "wherein entry into the cabin of the semi-truck vehicle provides full access to the seat and the sleeper simultaneously." Ex. 1002 ¶ 149.

A POSITA would have been motivated to add the disclosed sleeper section of Marlowe to Modec and Messano for the same reasons as described in Section VI(J)(1), above. Ex. 1002 ¶¶ 150-152.

K. Ground 10: Claim 22 would have been obvious over Modec, Messano, and the Man Annual Report

Claim 22 depends from claim 1 and adds the limitation "wherein an opening into the cabin comprises a clearance that is at least six feet five inches in height." In further view of the Man Annual Report, it would have been obvious to modify the combination of Modec and Messano to make the door "at least six feet five inches in height" to allow most drivers to enter the truck without stooping, crouching, or risking head injury. Ex. 1002 ¶¶ 154-158.

The Man Annual Report published several pictures of the Man Concept S semi-truck in 2012, including the following picture disclosing a semi-truck vehicle with a full-size door that extends almost the entire height of the cabin:

Ex. 1013 at 9. A POSITA would understand that a door that extends almost the entire height of the cabin, as pictured, would provide "an opening into the cabin" with "a clearance that is at least six feet five inches in height." Ex. 1002 ¶ 154. Further, the Man Annual Report also published a picture disclosing the same Man Concept S semi-truck near two people:

Ex. 1013 at 8. A POSITA would understand that this picture establishes that the cabin is several feet taller than the people standing in front of the truck. Ex. 1002 ¶ 155. Based on that information and the picture showing that the door extends almost the entire height of the cabin, a POSITA would conclude that the door provides "an opening into the cabin" with "a clearance that is at least six feet five inches in height." Ex. 1002 ¶ 156.

Further, even if Patent Owner argues the pictures do not establish a precise door height of "at least six feet five inches," making the door at least that height would be an obvious design choice for large vehicles such as semi-trucks. It would be self-evident to a POSITA that taller doors are generally preferred to shorter doors because they allow a wider variety of people to enter them without stooping, crouching, or risking head injury. Further, a POSITA would understand that a door "at least six feet five inches in height" would allow most drivers to enter the truck without stooping, crouching, or risking head injury. Ex. 1002 ¶ 157. Moreover, a POSITA would have understood that making the door "at least six feet five inches in height" would require nothing more than routine scaling of the overall size of the cabin and that no technical or other obstacle would prevent the use of a door of that height with Modec and Messano. Ex. 1002 ¶ 158. Accordingly, claim 22 would have been obvious over Modec, Messano, and the Man Annual Report. Ex. 1002 ¶¶ 153-158.

L. Ground 11: Claims 23-24 would have been obvious over Modec, Messano, and Freightliner

1. Claim 23: "wherein the semi-truck vehicle further comprises at least one full-size step and at least one hand hold to provide at least two points of leverage and for access and entry into the interior of the cabin."

It would have been obvious to a POSITA to modify the cabin of Modec to have at least one full-size step and at least one hand hold to provide at least two points of leverage and for access and entry into the interior of the cabin. A POSITA would be motivated to design a cabin with such features, as they would be aware of the general practice in the industry of including steps and handholds to provide leverage and for access and entry into the cabin of trucks. Ex. 1002 ¶ 160. Thus, it would be an obvious design choice to include these features.

Even if not obvious in view of Modec and Messano alone, this limitation would have been obvious in view of Modec in combination with Messano and Freightliner. Ex. 1002 ¶ 161. The below image is reproduced from Freightliner.

Figure 13. Driver Entering the Argosy Cab with Traditional Steps

Ex. 1014, 14.

Figure 13. Driver Entering the Argosy Cab with Traditional Steps

Ex. 1019, 5 (JSTOR image of same figure). A POSITA would recognize that Figure 13 depicts a semi-truck with two full-size steps and two handles. Ex. 1002 ¶ 161. A POSITA would also recognize that Figure 13 depicts a user with at least

one hand on a hand hold and at least one foot on a step, giving the user at least two points of leverage. *Id*. Thus, Freightliner explicitly discloses semi-trucks wherein the semitruck vehicle further comprises at least one full-size step and at least one hand hold to provide at least two points of leverage and for access and entry into the interior of the cabin.

A POSITA would be motivated to include the full-size step and handhold of Freightliner with the combination of Modec and Messano to make it easier and safer for the driver to enter the cabin. Ex. 1002 ¶ 162. Indeed, Freightliner expressly teaches that steps and handholds are necessary to allow a driver to safely and more easily enter the cabin. *Id.*; Exhibit 1014 at 14(illustrating a COE truck and explaining the need for steps and handholds to enter the cabin).

2. Claim 24: "wherein there are two steps and two handholds that provide four points of leverage for entry into the interior of the cabin, such that a user enters into the cabin facing forward."

As described above, Figure 13 of Freightliner depicts a semi-truck with two full-size steps and two handles. Further, as shown in Figure 13, reproduced below, the user enters into the cabin facing forward.

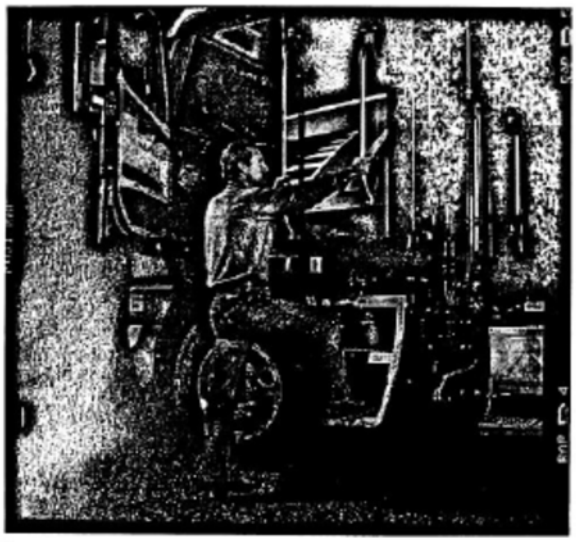


Figure 13. Driver Entering the Argosy Cab with Traditional Steps

Exhibit 1014, 14; Ex. 1002 ¶ 164.

Figure 13. Driver Entering the Argosy Cab with Traditional Steps

Ex. 1019, 5 (JSTOR image of same figure). A POSITA would recognize that Figure 13 depicts a semi-truck with two full-size steps and two handles. Ex. 1002 ¶ 164. One of skill would also recognize that the user in Figure 13 could place

each of his two hands on a different handle, and each of his two feet on a different step, giving the user four points of leverage for entry into the interior of the cabin. *Id*. Thus, Freightliner explicitly discloses semi-trucks wherein there are two steps and two handholds that provide four points of leverage for entry into the interior of the cabin, such that a user enters into the cabin facing forward.

A POSITA would be motivated to include the full-size steps and handholds of Freightliner with the combination of Modec and Messano to make it easier and safer for the driver to enter the cabin. Ex. 1002 ¶ 165. Indeed, Freightliner expressly teaches that steps and handholds are necessary to allow a driver to safely and more easily enter the cabin. *Id.*; Ex. 1014, 14 (illustrating a COE truck and explaining the need for steps and handholds to enter the cabin).

V. SECONDARY CONSIDERATIONS DO NOT OVERCOME THE STRONG EVIDENCE OF OBVIOUSNESS

With respect to the obviousness grounds set forth above, Patent Owner may attempt to set forth secondary considerations of non-obviousness. Although secondary considerations must be taken into account, they do not control the obviousness conclusion. *See Newell Cos., Inc. v. Kenney Mfg. Co.*, 864 F.2d 757, 768 (Fed. Cir. 1988). And in cases where a strong *prima facie* obviousness showing exists, the Federal Circuit has repeatedly held that even relevant secondary considerations supported by substantial evidence may not dislodge the primary conclusion of obviousness. *See*, *e.g.*, *Leapfrog Enters. Inc. v. Fisher-Price,*

Inc., 485 F.3d 1157, 1162 (Fed. Cir. 2007).

Neither Petitioner nor its expert are aware of any secondary considerations that would outweigh the strong *prima facie* case of obviousness set forth herein. Ex. 1002 ¶ 166. Petitioner reserves the right to address secondary considerations as appropriate based on Patent Owner's potential allegations of non-obviousness.

VI. MANDATORY NOTICES, FEES, AND STANDING

A. Real Party-In-Interest (37 C.F.R. §42.8(b)(1))

The real party-in-interest is Tesla, Inc.

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

Patent Owner has asserted the '084 patent in a patent infringement lawsuit entitled *Nikola Corporation v. Tesla, Inc.* in the Northern District of California (No. 3:18-cv-7460). Petitioner is presently unaware of any other proceeding that may affect, or be affected by, the decisions in this proceeding.

C. Lead and Backup Counsel (37 C.F.R. §42.8(b)(3))

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D. Service Information (37 C.F.R. §42.8(b)(4))

Service information for lead and back-up counsel is provided above. Petitioner also consents to service by email at: BoxTSLAL1@knobbe.com.

E. Payment of Fees

The fee required by 37 C.F.R. §42.15(a) has been paid. The undersigned authorizes payment for any additional fees that may be due in connection with this Petition to be charged to Deposit Account No. 11-1410.

F. Grounds For Standing

Petitioner certifies the '084 patent is available for IPR and Petitioner is not barred or estopped from requesting IPR of the challenged claims.

VII. CONCLUSION

For the reasons above, Petitioner requests institution of an IPR for claims 1-26 of the '084 patent, and ultimately a judgment cancelling the claims as unpatentable.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: September 24, 2019

By: /Ted M. Cannon/
Ted M. Cannon (Reg. No. 55,036)
Michael L. Fuller (Reg. No. 36,516)
Attorneys for Petitioner Tesla, Inc.

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. §42.24(d), the undersigned certifies that foregoing **PETITION FOR INTER PARTES REVIEW OF U.S. PATENT NO. 10,077,084**, exclusive of the parts exempted as provided in 37 C.F.R. §42.24(a), contains 13,998 words and therefore complies with the type-volume limitations of 37 C.F.R. §42.24(a).

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: September 24, 2019

By: /Ted M. Cannon/
Ted M. Cannon (Reg. No. 55,036)
Michael L. Fuller (Reg. No. 36,516)
Attorneys for Petitioner Tesla, Inc.

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing **PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 10,077,084** and **EXHIBITS 1001–1021** are being served on September 24, 2019, via Federal Express overnight mail on counsel of record for U.S. Patent No. 10,077,084 as addressed below:

Terrence J. Edwards
TechLaw Ventures, PLLC
3290 West Mayflower Ave.
Lehi, UT 84043

A courtesy copy is also being served on counsel for the patent holder in the pending district court litigation, *Nikola Corporation v. Tesla, Inc.*, No. 3:18-cv-7460 (N.D. Cal.):

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Dated: September 24, 2019

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