UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

C&D ZODIAC, INC.
Petitioner

v.

B/E AEROSPACE, INC.
Patent Owner

Patent No. 9,440,742
Filing Date: April 28, 2016
Issue Date: September 13, 2016
Title: AIRCRAFT INTERIOR LAVATORY

Inter Partes Review No. _____

PETITION FOR *INTER PARTES* REVIEW

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PETITIONER EXHIBIT	DESCRIPTION
1016	Patent Owner's Opening Brief in Federal Circuit Appeal Nos. 16-1496, 16-1497.
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1019	Declaration of Vince Huard, dated March 10, 2017, including Exhibits A-I thereto.
1020	McDonnell Douglas DC-10 Customer Configuration Summary (a/k/a Orange Book), revised October 1978 (the "Orange Book").
1021	U.S. Patent No. 6,742,840 to Bentley ("Bentley")

I. Summary

Through counsel, C&D Zodiac, Inc. ("Petitioner") hereby petitions for initiation of *inter partes* review of claims 8 and 10-16 of U.S. Patent No. 9,440,742 ("the '742 Patent"), assigned to B/E Aerospace, Inc. ("Patent Owner"). A copy of the '742 Patent is attached as Exhibit 1001 and a copy of the prosecution history of the '742 Patent is attached as Exhibit 1002.

The '742 Patent includes just four columns of description, less than one column of which is the three-paragraph "Detailed Description." The patent describes an enclosure for use in an aircraft (e.g., a closet or a lavatory). The first figure admits that an enclosure with a flat forward wall was well known in the art. The only aspect of the purported invention that is not admitted to be prior art is the recessed forward wall of the embodiment shown in Figure 2. And as explained in further detail below, aircraft enclosures with recessed forward walls have been known and used in the art for decades.

During an IPR of the parent of the '742 Patent, the Board already considered the dispositive issue here: whether it was obvious to apply a curved forward wall to a lavatory. The Board found that it was obvious. Yet, the Examiner inexplicably ignored the Board's decision without mentioning it and allowed Patent Owner's follow-on claims directed to the same subject matter already determined to be obvious—lavatories with a recessed forward wall. In view of the prior art,

Petitioner respectfully requests that the Board again find that the same subject matter already determined to be obvious with respect to the parent patent is also obvious with respect to the children. Accordingly, Petitioner requests that the Board cancel the challenged claims of the ’742 Patent.

A. Real Party-in-Interest

The real party-in-interest, C&D Zodiac, Inc., is a Delaware corporation with its principal business address at 5701 Bolsa Avenue, Huntington Beach, California 92647. No other entity is controlling, directing, or funding the submission of this petition and any proceeding initiated as a result therefrom.

B. Related Matters

The ’742 Patent is asserted against Petitioner in *B/E Aerospace, Inc. v. Zodiac Aerospace, Inc. et al.*, No. 2:14-cv-01417 (E.D. Tex., Dec. 15, 2016) (the “Underlying Litigation”). Patent Owner also asserts the following four related patents in that case: U.S. Patent Nos. 9,073,641; 9,365,292; 9,434,476; and D764,031. Patent Owner has sought a preliminary injunction against Petitioner in the Underlying Litigation. On or around the time this Petition is filed, Petitioner also will file Petitions for *Inter Partes* Review challenging the three related utility patents. On April 10, 2017 Petitioner filed a Post Grant Review challenging the claim of D764,031, which has been assigned PGR2017-00019.

All five of the asserted patents in the Underlying Litigation claim priority to U.S. Patent No. 8,590,838 ("the '838 Patent"). Patent Owner previously asserted the '838 Patent against Petitioner in *B/E Aerospace, Inc. v. Zodiac Aerospace, Inc. et al.*, No. 2:14-cv-210 (E.D. Tex. Mar. 11, 2014) (the "Prior Litigation"). Patent Owner also sought a preliminary injunction against Petitioner in that case. During the Prior Litigation, Petitioner sent Patent Owner a series of letters containing invalidating prior art. *See* Ex. 1008. Patent Owner subsequently withdrew its motion for preliminary injunction and voluntarily dismissed the Prior Litigation on June 19, 2014. Exs. 1014; 1015.

Petitioner also filed a Petition for *Inter Partes* Review of the '838 Patent. That earlier IPR was assigned Case No. IPR2014-00727, and received a Final Written Decision on October 26, 2015. The Board held claims 1, 3-7, 9, 10, 12-14, 16-19, 21, 22, 24-29, 31, and 33-37 unpatentable. That Final Written Decision is attached hereto as Exhibit 1003. That Decision is currently on appeal to the Federal Circuit where it is assigned Case Nos. 16-1496, 16-1497.

There are several entities related to Petitioner also being sued for infringement of the patents identified above. Petitioner is an indirectly-owned subsidiary of Zodiac Aerospace, a Societe Anonyme organized and existing under the laws of France. Petitioner is a wholly owned subsidiary of Zodiac US Corporation, a corporation organized and existing under the laws of Delaware.

Zodiac Aerospace and Zodiac US Corporation have been sued for infringement of the patents identified above in the Underlying Litigation. Also sued for infringement of the patents identified above in the Underlying Litigation are:

- Zodiac Seats US LLC, a limited liability company organized and existing under the laws of Texas.
- Heath Tecna, Inc., a corporation organized and existing under the laws of Delaware.
- Northwest Aerospace Technologies, Inc., a corporation organized and existing under the laws of Washington.

C. Fees

This petition is accompanied by a fee payment of $23,000, which includes the $9,000 *inter partes* review request fee, and the $14,000 *inter partes* review post-institution fee. Petitioner further authorizes a debit from Deposit Account 20-1430 for whatever additional payment is necessary in granting this petition.

D. Designation of Lead Counsel and Backup Counsel

Lead Counsel for Petitioner is John C. Alemanni (Reg. No. 47,384), of Kilpatrick Townsend & Stockton LLP. Back-up counsel for Petitioner are Dean W. Russell (Reg. No. 33,452), David A. Reed (Reg. No. 61,226), Michael T. Morlock (Reg. No. 62,245), and Andrew Rinehart (Reg. No. 75,537).

E. Service Information

As identified in the attached Certificate of Service, a copy of the present petition, in its entirety, is being served to the address of the attorneys or agents of record for the ’742 Patent and to the attorneys of record in the Underlying Litigation. Petitioner may be served at its counsel, Kilpatrick Townsend & Stockton LLP. Petitioner consents to service via email to its lead and backup counsel at the following email address: Zodiac-BE-IPR@kilpatricktownsend.com.

F. Power of Attorney

A power of attorney with designation of counsel is filed herewith in accordance with 37 C.F.R. § 42.10(b).

G. Standing

The ’742 Patent was filed on April 28, 2016 and claims priority to a utility application filed on April 18, 2011 and therefore is eligible for *inter partes* review immediately following the date of the grant of the patent. 37 C.F.R. § 42.102(a)(2). Further, the ’742 Patent is currently asserted in a co-pending litigation, and this petition is being filed within one year of Petitioner being served with a complaint for infringement. Petitioner certifies that the ’742 Patent is available for *inter partes* review and that Petitioner is not barred or estopped from requesting an *inter partes* review challenging the patent claims on the grounds identified in this petition.

II. Background

A. Priority Date and Family

The ’742 Patent issued on September 13, 2016 from Application No. 15/141,338, filed on April 28, 2016. The ’742 Patent claims priority to U.S. Patent No. 8,590,838, filed on April 18, 2011, and to Provisional Application No. 61/326,198, filed April 20, 2010, and Provisional Application No. 346,835, filed May 20, 2010. Thus, the earliest possible effective filing date is April 20, 2010.

Several other related patents also claim priority to the ’838 Patent, including U.S. Patent Nos. 9,073,641; 9,365,292; 9,434,476; and D764,031. The related utility patents share a common disclosure with the ’742 Patent.

B. The Written Specification and Figures

The ’742 Patent relates to an aircraft enclosure, “such as a lavatory, an aircraft closet, or an aircraft galley,” having a forward wall (i.e., the wall toward the nose of the aircraft) with a recess that substantially conforms to the aft (i.e., back) surface of a passenger seat located immediately forward of the enclosure. *See* Ex. 1001, 2:21-31.

The challenged claims relate to an enclosure with a contoured forward wall to allow a row of seats to be placed slightly further aft in an aircraft. As explained in further detail below, Figure 1 of the ’742 Patent admits that every claim element, other than a contoured forward wall, was known in the prior art. The only

other figure—Figure 2—shows an embodiment with a contoured forward wall with the same prior art seat as shown in Figure 1 positioned slightly further aft.

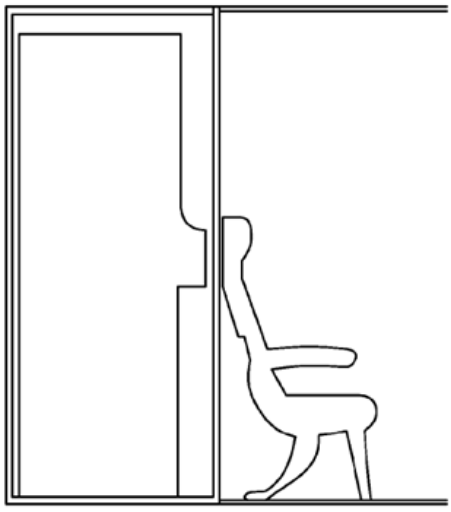


FIG. 1
(Prior Art)

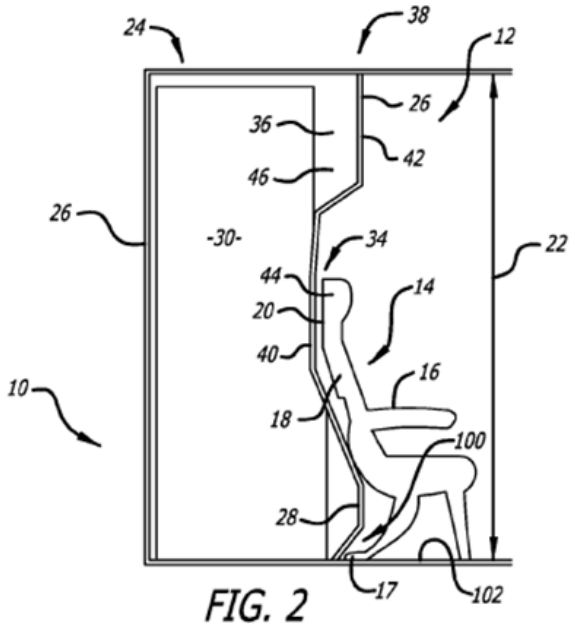
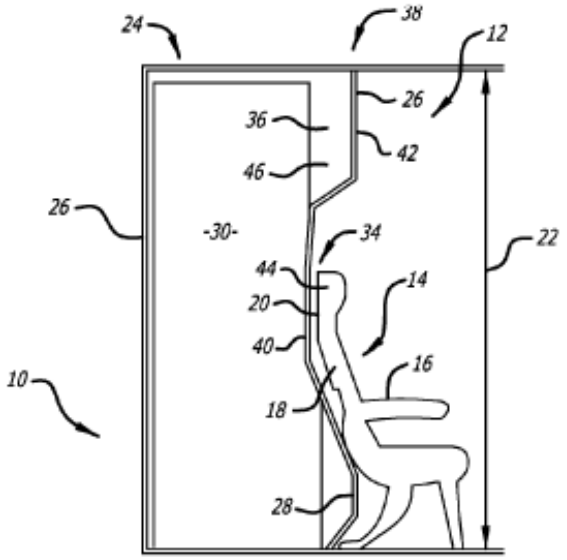
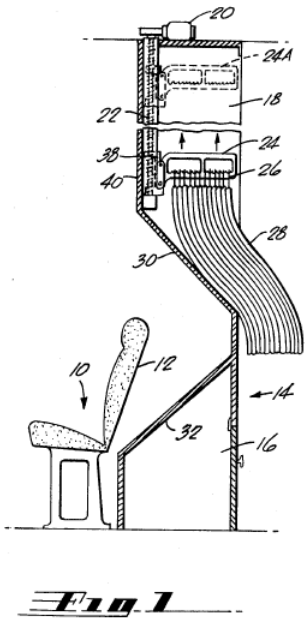


FIG. 2

Such a contoured forward wall was well known in the art long before the earliest claimed priority date, April 20, 2010. This is clear from Figure 1 of Ex. 1005 (Betts), which shows an airplane enclosure with a contoured forward wall from the early 1970s. The forward wall of Betts is almost identical to the forward wall shown in Figure 2 of the ’742 Patent. And an embodiment of the Betts enclosure flew on commercial DC-10 aircraft for decades before the earliest claimed priority date. Ex. 1004, ¶¶43, 46; Ex. 1020, at 143-163 (showing commercial embodiments of Betts). This is a fact that Patent Owner itself has admitted to the Federal Circuit. Ex. 1016, 26 (“Betts was patented in 1973. It was actually built and flown on DC-10 aircraft, for decades.”).

Ex. 1001, Figure 2	Ex. 1005 (Betts), Figure 1
 FIG. 2	 Fig. 1

C. The Earlier IPR and Underlying Litigations

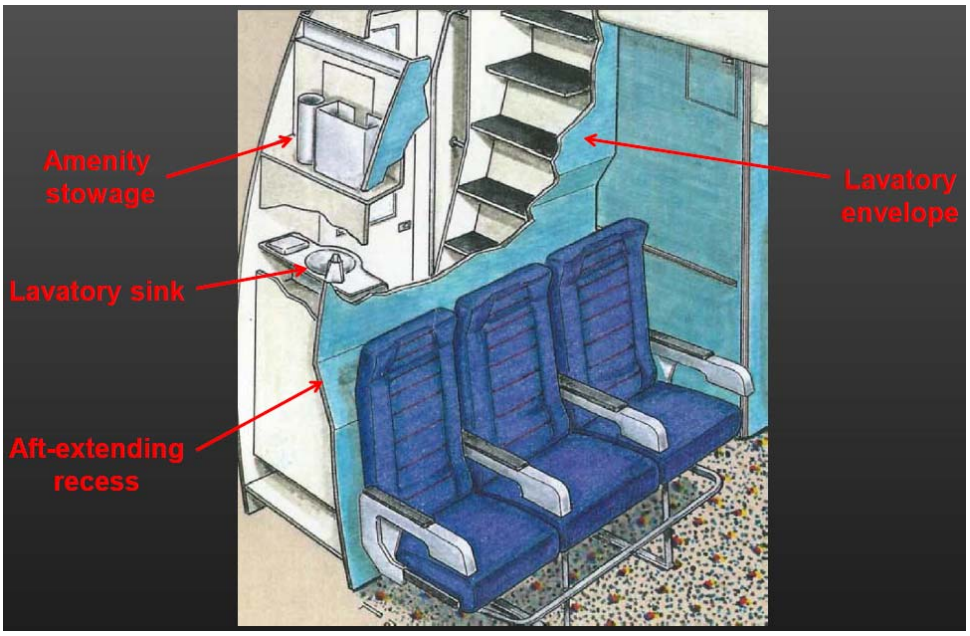
In an earlier proceeding addressing the claims of this patent's parent—the '838 Patent (Ex. 1017)—the Board invalidated most of those claims as obvious in view of Betts (Ex. 1005). In so doing, the Board specifically found that:

> ***Petitioner has shown that it would have been obvious to apply the recessed forward wall design of Betts to other enclosures, including single-spaced lavatories.***

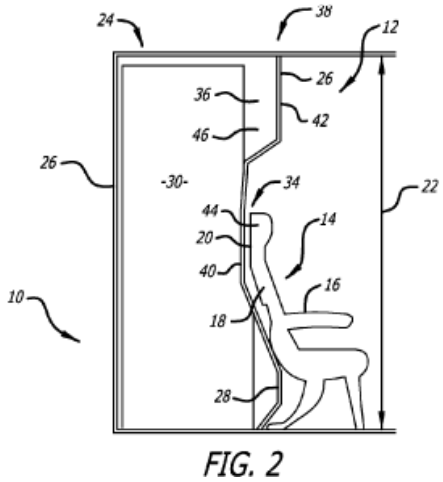
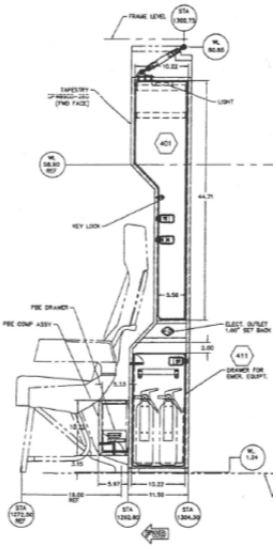
Ex. 1003 at 12 (emphasis added).

In addition to Betts, there are many other examples of contoured wall enclosures in the prior art. Indeed, one of Patent Owner's own engineers designed a prior art enclosure that was installed in Boeing 747 aircraft in the 1990s. Ex.

1006, 1007. An annotated image of this enclosure is shown below.



Further, before the application that led to the '742 Patent was filed, Patent Owner was aware that Petitioner commercialized enclosures with recessed forward walls long before the earliest claimed priority date. *See* Ex. 1008.

Ex. 1001, Figure 2	Petitioner's S4 Enclosure	Petitioner's S4 Enclosure
 FIG. 2		

Indeed, when Petitioner identified this prior art to Patent Owner (Ex. 1008) Patent Owner withdrew its previous Motion for Preliminary Injunction and voluntarily dismissed its previous complaint asserting the ’838 Patent against Petitioner. *See* Exs. 1014 and 1015.

In spite of all this, Patent Owner continued filing applications and convinced an examiner to allow the ’742 Patent along with other continuations of the ’838 Patent. Several of these are now asserted against Petitioner. Each utility patent shares a common specification, and claims a contoured forward wall along with a collection of other features. Each of these other features are either admitted to be prior art in Figure 1 or are not described in the patents’ written description, which comprises just four columns, less than one column of which is the three-paragraph “Detailed Description.” Ex. 1001.

The prior art discloses or renders obvious every limitation in the challenged claims. Petitioner respectfully requests that this *inter partes* review proceeding be instituted.

III. Statement of Relief Requested

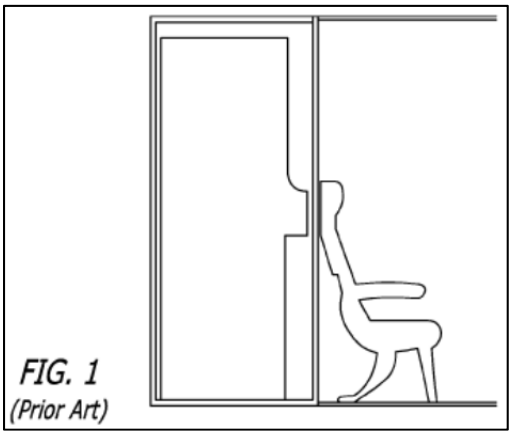
Pursuant to 35 U.S.C. § 311 and 37 C.F.R. § 42.104(b), this petition requests cancellation of claims 8 and 10-16 as rendered obvious under 35 U.S.C. § 103 by the following combinations:

- Admitted Prior Art ("APA") in Exhibit 1001 and U.S. Patent No. 3,738,497 to Betts et al. ("Betts") (Exhibit 1005), in view of the knowledge of a person of ordinary skill in the art.
- APA in Exhibit 1001 and the KLM Crew Rest documents (Exhibit 1009), in view of the knowledge of a person of ordinary skill in the art.

IV. Summary of the Prior Art

A. Admitted Prior Art (Exhibit 1001)

A flat wall lavatory and a passenger seat were both well known in the art before the earliest claimed priority date of the '742 Patent. Figure 1 of the '742 Patent shows a flat wall lavatory and passenger seat and states that these were "prior art." Ex. 1001, 4:11-13 (emphasis added) ("FIG. 1 is a schematic diagram of a **prior art** installation of a lavatory immediately aft of and adjacent to an aircraft passenger seat.").



Further, the '742 Patent includes additional admissions that such lavatories were known prior art. "Aircraft lavatories, closets and other full height enclosures commonly have forward walls that are flat in a vertical plane." Ex. 1001, 1:27-29. Many of the features found in the claims are anticipated or obvious in view of this admitted prior art. A summary of the admitted prior art shown in Figure 1 is in the graphic below. Ex. 1004, ¶86.

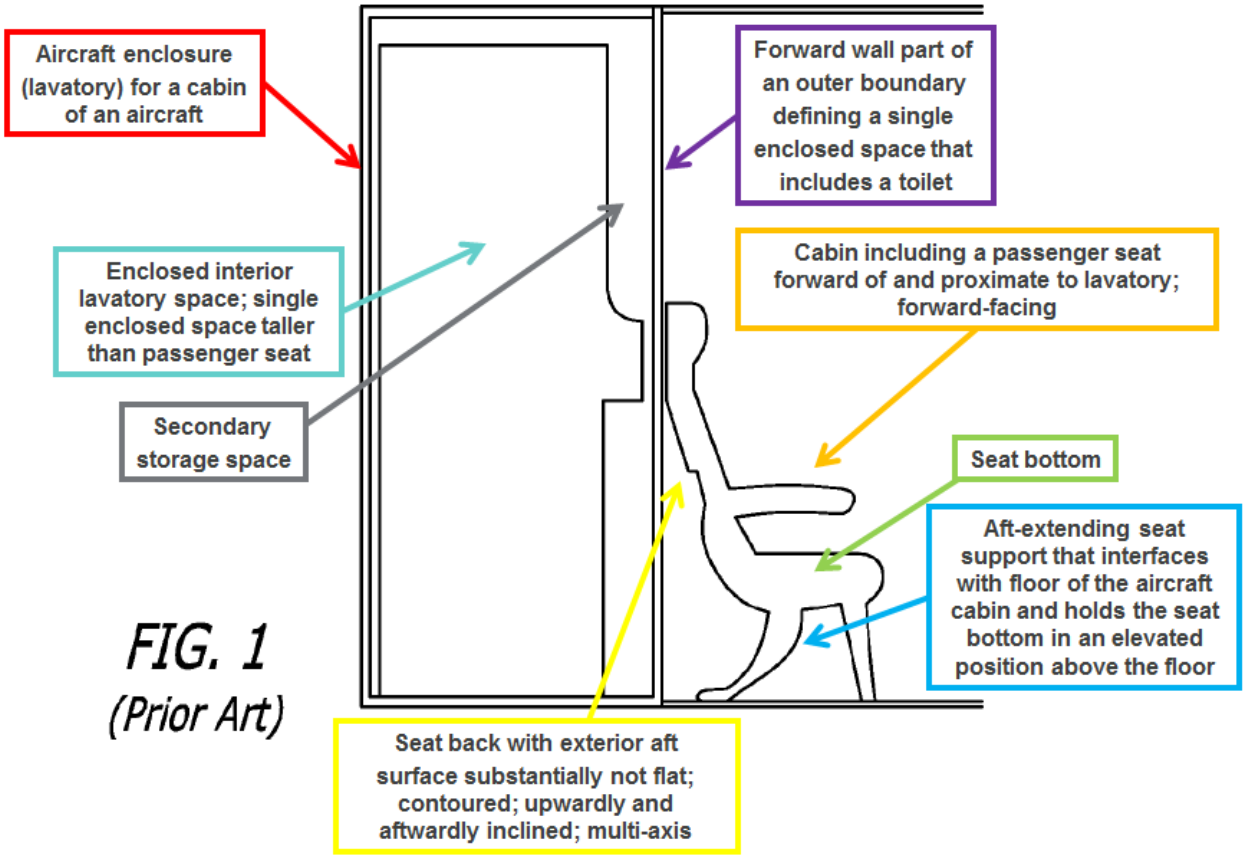


FIG. 1
(Prior Art)

The Board may rely on this admitted prior art. "Admissions in the specification regarding the prior art are binding on the patentee for purposes of a later inquiry into obviousness." *PharmaStem Therapeutics, Inc. v. ViaCell, Inc.*,

491 F.3d 1342, 1362 (Fed. Cir. 2007); *see also In re Nomiya*, 509 F.2d 566, 570-71 (CCPA 1975) ("We see no reason why appellants' representations in their application should not be accepted at face value as admissions that Figs. 1 and 2 may be considered 'prior art' for any purpose, including use as evidence of obviousness under § 103."); *Constant v. Advanced Micro–Devices, Inc*., 848 F.2d 1560, 1570 (Fed. Cir. 1988) ("A statement in a patent that something is in the prior art is binding on the applicant and patentee for determinations of anticipation and obviousness."); *I/P Engine, Inc. v. AOL, Inc*. 576 Fed.Appx. 982, 987 (Fed. Cir. 2014) ("Given that its own patents acknowledge that using the original search query for filtering was a 'conventional' technique, I/P Engine cannot now evade invalidity by arguing that integrating the query into the filtering process was a non-obvious departure from the prior art.").

The only aspect of the purported invention in the '742 Patent that is not admitted prior art is the contoured forward wall depicted in Figure 2.

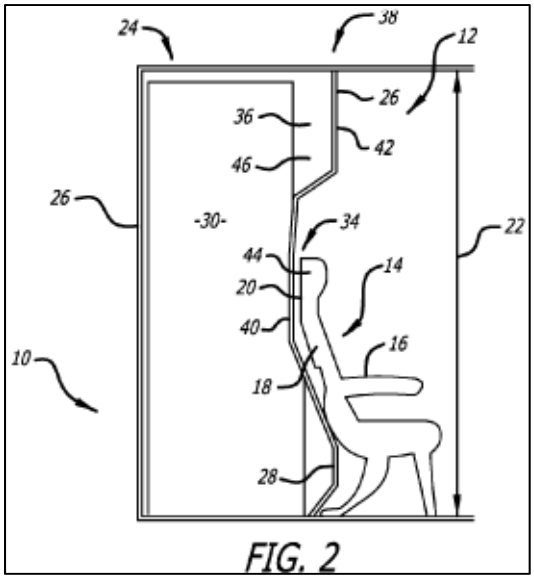


FIG. 2

But enclosures with contoured forward walls were well-known in the art as described below.

B. Betts (Exhibit 1005)

Exhibit 1005, U.S. Patent No. 3,738,497 to Betts *et al.* ("Betts"), is assigned to McDonnell Douglas Corporation and issued on June 12, 1973, and is thus prior art under 35 U.S.C. § 102(b). Betts describes a coat closet with a recessed forward wall that "provide[s] more room for passengers in an aircraft or other vehicle." Ex. 1005, 1:5-7. The design shown in Betts was implemented and flown on commercial DC-10 aircraft well before the earliest claimed priority date. Ex. 1004, ¶¶43, 46.

Figure 1 of Betts is a side elevation that shows an assembly of an overhead coat closet for a cabin of an aircraft that is located immediately aft of and adjacent

to a passenger seat. The forward wall of Betts is very similar to that shown in Figure 2 of the ’742 Patent.

Betts Figure 1	Ex. 1001, Figure 2

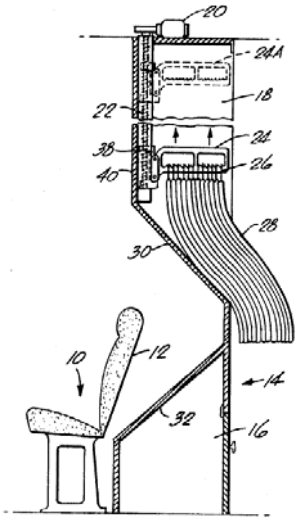
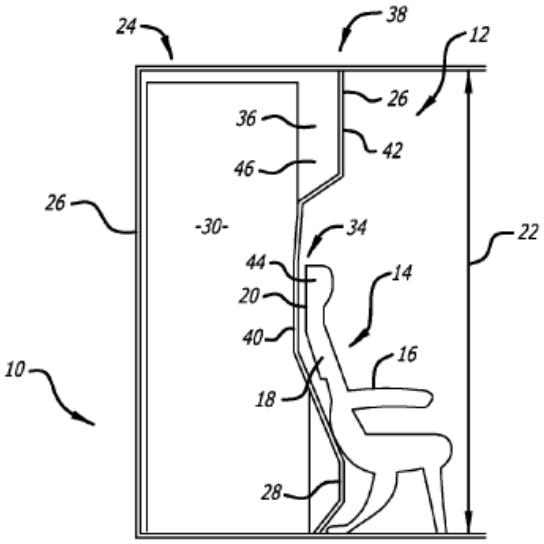

	

Fig. 1	FIG. 2

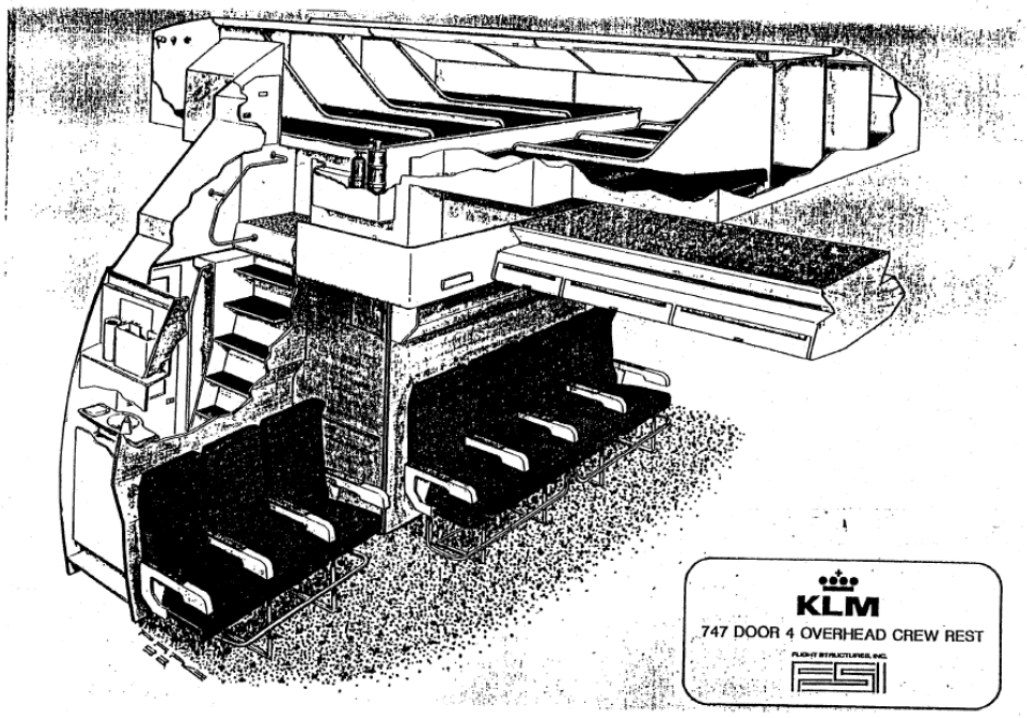
The Betts passenger seat has an exterior aft surface that is substantially not flat in a vertical plane. *See* Ex. 1005, Fig. 1; 2:7-14. Betts explains that this contour is positioned “to provide a space for seatback 12 to be tilted rearwardly.” Ex. 1005, 2:19-24. One of ordinary skill in the art would understand that the coat closet includes walls forming a complete enclosure of the closet. Ex. 1004, ¶45.

Betts states that the passenger seat is “of the type having a tiltable backrest 12 for the comfort of the occupant.” Ex. 1005, 2:8-9. Thus, as described and shown in Betts Figure 1, the passenger seat is contoured and reclineable and therefore not flat in a vertical plane. The seat back shown in Betts closely conforms to the shape of the recess in the forward wall of the enclosure. Ex. 1004, ¶45.

C. The KLM Crew Rest Document (Exhibit 1009)

In 1991, Flight Structures, Inc. ("FSI")—a company B/E now owns—was awarded a contract to develop a crew rest for Royal Dutch Airlines, better known as KLM. Ex. 1007, ¶7. Specifically, FSI was awarded a contract to develop an overhead crew rest for KLM's 747-400 aircraft. FSI developed the KLM Crew Rest during 1991 and 1992. Ex. 1007, ¶7. The KLM Crew Rest was designed to include berths in the overhead space of KLM's 747-400 aircraft for crew members to rest during lengthy flights. Ex. 1007, ¶9.

To provide access to the overhead crew rest, FSI designed an entry on the right side of the aircraft. The entry was modeled on a lavatory envelope (i.e., the outer walls forming a lavatory enclosure) and was located at a typical location for a lavatory on a 747-400 aircraft. Ex. 1007, ¶10. The interior of the lavatory envelope was modified to include a staircase in place of a toilet, which allows the crew to access the overhead space. Ex. 1007, ¶10. A rendering of the prior art KLM Crew Rest is shown below.



The image of the KLM Crew Rest above was included in the file history of an issued patent. *See* Ex. 1009, at 70.

The Board may rely on the KLM Crew Rest document in that file history as prior art. Patent Owner submitted information regarding the KLM Crew Rest in an Information Disclosure Statement during pendency of the application that issued as U.S. Patent No. 6,520,451. *See* Ex. 1009, at 66-91. This Information Disclosure Statement was submitted on March 18, 1999, more than ten years before the earliest claimed priority date. *Id*. at 64. And U.S. Patent No. 6,520,451 issued on February 18, 2003, several years before the earliest claimed priority date. Ex. 1010.

Thus, these documents were made available to the public no later than the issue date of U.S. Patent No. 6,520,451, February 18, 2003, when its file history

was made available to the public. Ex. 1010; *See* 37 C.F.R. § 1.11(a) ("The specification, drawings, and all papers relating to the file of: A published application; a patent; or a statutory invention registration are open to inspection by the public, and copies may be obtained . . ."). These KLM-related documents are therefore printed publications that may be used in this proceeding.

The Board has held previously that a file history is available as prior art. *Duodecad It Servs. Luxembourg S.A.R.L.*, IPR2015-01036, 2016 WL 6946904 (Oct. 20, 2016) ("It is undisputed that Chen FH was fully available to anyone who ordered it. We find that one of ordinary skill, being aware of Chen, would consult its file history. We conclude, based on the record as fully developed, that Chen FH is available as prior art against the challenged claims."). This is fully consistent with the MPEP, which explains "[i]n the examination of an application, it is sometimes necessary to inspect the application papers of some previously abandoned application (provisional or nonprovisional) or granted patent." MPEP § 901.01(a). The MPEP goes on to provide Examiners with instructions for locating file wrappers for patented and abandoned applications. *Id*.

The Board's decision in *Duodecad* is consistent with Federal Circuit precedent, which holds that to qualify as a printed publication, a reference "must have been sufficiently accessible to the public interested in the art." *In re Cronyn*, 890 F.2d 1158, 1160 (Fed. Cir. 1989). A reference is sufficiently accessible if it

has been indexed or cataloged. *Blue Calypso, LLC v. Groupon, Inc*., 815 F.3d 1331, 1348 (Fed. Cir. 2016) ("we generally inquire whether the reference was sufficiently indexed or cataloged."). The Federal Circuit has found that an issued patent is "classified and indexed," and that this is sufficient to "provid[e] the roadmap that would have allowed one skilled in the art to locate the [] application." *Bruckelmyer v. Ground Heaters, Inc*., 445 F.3d 1374, 1378–79 (Fed. Cir. 2006); *see also Ultimax Cement Mfg. Corp. v. CTS Cement Mfg. Corp.*, 587 F.3d 1339, 1355-56 (Fed. Cir. 2009) ("Information disclosed in a patent, even a foreign one, is 'generally known to the public,' especially the relevant public . . . Indeed, one of the primary purposes of patent systems is to disclose inventions to the public."); *Guardian Media Technologies, Ltd. v. Amazon.com, Inc*., 2014 WL 12561616 *5 (C.D. Cal. Dec. 9, 2014) (finding a patent application file history as prior art as of the date the patent issued). Here, the KLM Crew Rest document was included in the publicly available file wrapper of an issued patent and thus is prior art.

Further, "[a]ccessibility goes to the issue of whether interested members of the relevant public could obtain the information if they wanted to." *Constant v. Advanced Micro–Devices, Inc*., 848 F.2d 1560, 1568 (Fed. Cir. 1988). The Federal Circuit has further explained that "a published article with an express citation to the potentially invalidating reference would [] provide the necessary guidance." *Blue Calypso*, 815 F.3d at 1350. This is also the case here, as the face of U.S.

Patent No. 6,520,451 identifies the KLM Crew Rest submission in a related technical area. Ex. 1010, 1:11-17 (emphasis added) ("This invention relates generally to resting and sleeping quarters for an aircraft crew . . . in ***a space-saving*** and weight-saving configuration ***occupying substantially otherwise unused space aboard an aircraft***.").

OTHER PUBLICATIONS

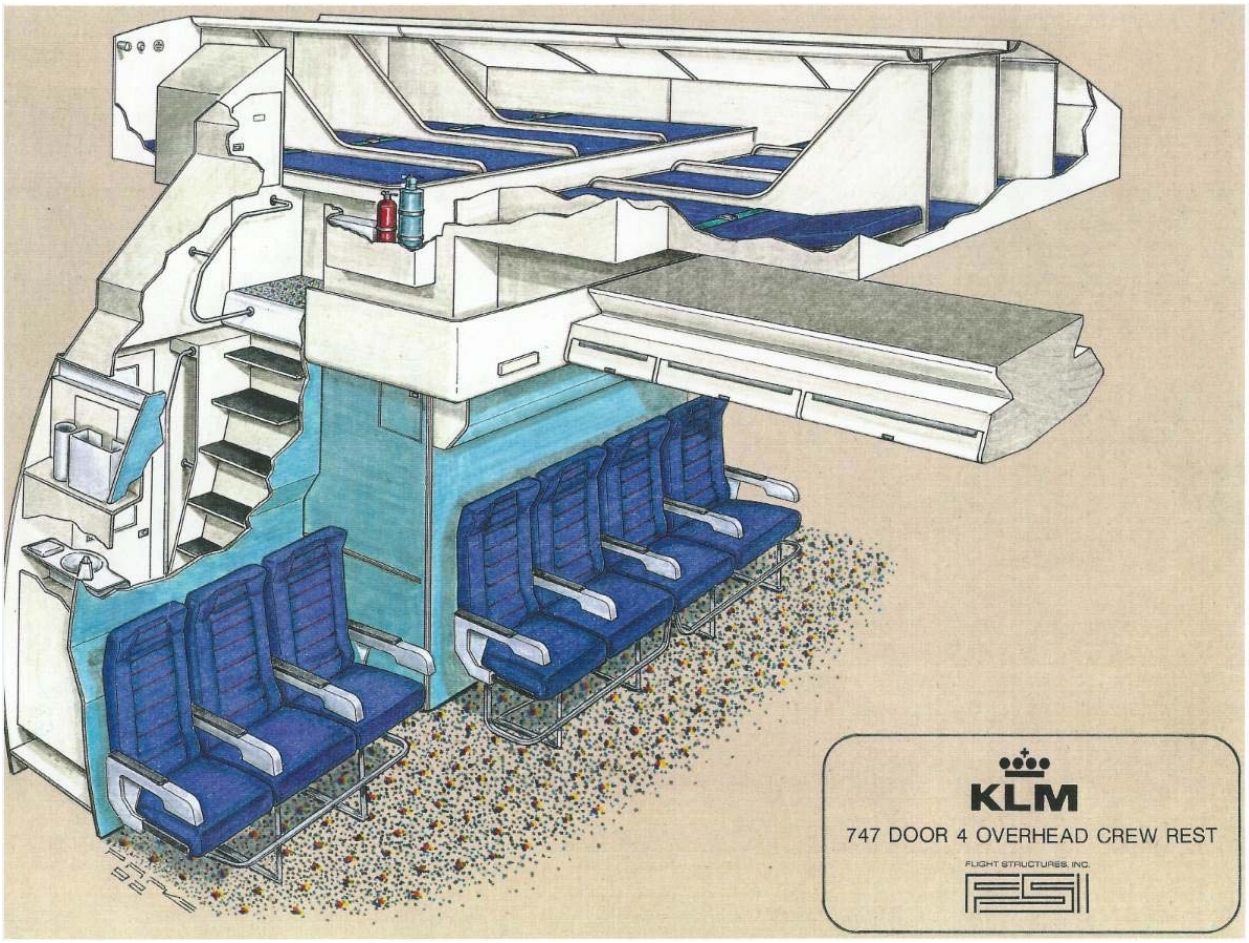
Boeing 747 Crew Rest Compartment and Proposals for Same; Correspondence From Flight Structures, Inc. to Air France Dated Aug. 3, 1994 (10 Pages), Nov. 15, 1994 (4 Pages) and Jul. 23, 1996 (11 Pages).

Ex. 1010.

Thus, this issued patent provides a "roadmap" for how to locate that reference, e.g., by accessing the publicly available file wrapper. And the Board may therefore rely on the printed publication describing the KLM Crew Rest.

While Petitioner relies on the black and white version of the KLM Crew Rest document shown in Exhibit 1009, a color version is shown below and attached as Exhibit 1006.[1]

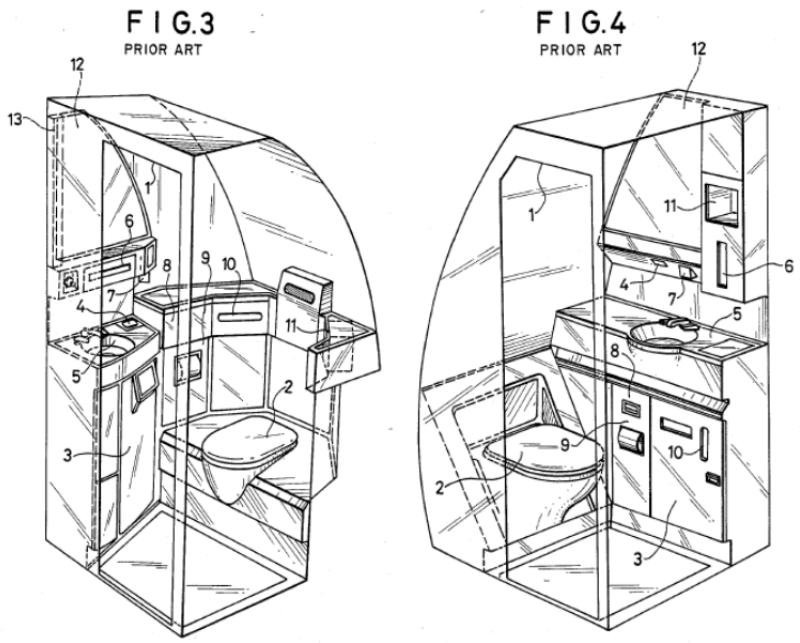
[1] *See* Ex. 1007, ¶17.



V. Motivation to Combine

A. Motivation to Combine APA and Betts

As discussed in Section IV.A above, the ’742 Patent admits that a flat wall lavatory was well known in the prior art before its earliest claimed priority date. This is further evidenced by Exhibit 1011, U.S. Patent No. 4,884,767 to Shibata (“Shibata”), which issued in 1989 and includes figures showing flat wall lavatories, which it admits were prior art as of its filing date, 1988.



It would have been obvious to one of ordinary skill in the art to modify a prior art flat wall lavatory to include a contoured forward wall like the wall shown in Betts. Ex. 1004, ¶¶56-64.

First, the Board has previously considered this very combination, and found that it would be obvious to make such a modification. Indeed, the Board stated:

> *Petitioner has shown that* ***it would have been obvious to apply the recessed forward wall design of Betts to other enclosures, including single-spaced lavatories****.*

Ex. 1003 at 12 (emphasis added).

Second, as Mr. Anderson explains, a primary goal of the design of interiors of commercial aircraft is efficient use of valuable passenger cabin space. Ex. 1004, ¶57. Efficient use of space allows an aircraft to accommodate more passengers

and/or to accommodate passengers more comfortably, thereby increasing the utility of the aircraft. Ex. 1004, ¶57. As of April 2010, a primary motivation of one of ordinary skill in the art of aircraft interior design would have been to make efficient use of space in the aircraft interior cabin. Ex. 1004, ¶57.

The contoured forward facing wall shown in Betts advantageously provides additional space to locate a seat further aft in an aircraft. Ex. 1004, ¶58. Betts says that the coat hanger rack is elevated "to provide more passenger room." Ex. 1005, Abstract. Betts also describes that it "provide[s] more room for passengers in an aircraft or other vehicle." Ex. 1005, 1:5-7. As shown in the annotated figure below, the seat shown in Betts could not be located in the position in which it is shown if the forward wall were flat. Ex. 1004, ¶58; Ex. 1005. Thus, this contoured forward wall makes more efficient use of the valuable space in the aircraft passenger cabin than would be available with a flat forward wall. Ex. 1004, ¶58.

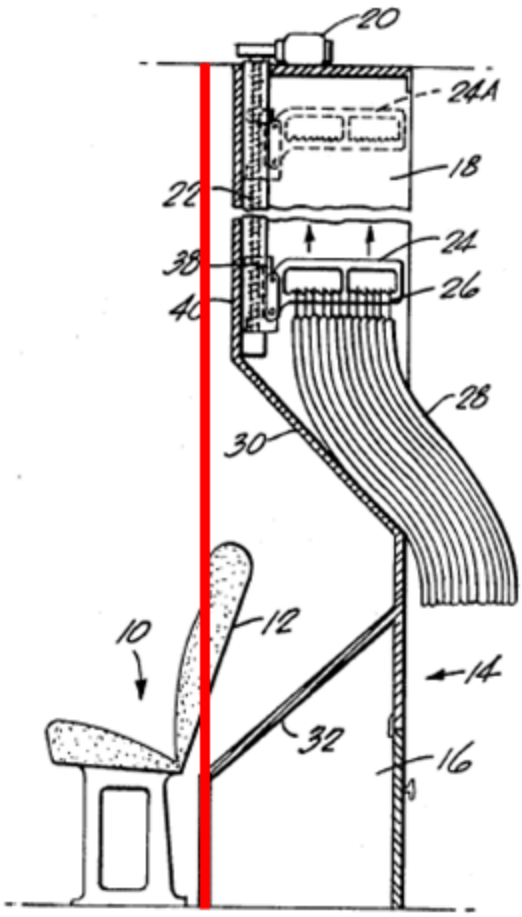


Fig. 1

One of ordinary skill in the art would understand that the forward wall of the enclosure shown in Betts would also be suitable for use with other aircraft enclosures, including lavatories. Ex. 1004, ¶59. In an aircraft, as a row of seats is moved further aft, the first thing that makes contact with a flat wall is the top of the back of the seat. Ex. 1004, ¶59. And so Betts includes a recess that receives that portion of the seat back. Applying the contoured wall of Betts to a lavatory allows

the row of seats placed immediately in front of that contoured wall to be placed further aft. Ex. 1004, ¶59.

The challenged patent does not distinguish between different types of enclosures, instead explaining that the recessed forward wall is applicable to all types of aircraft cabin enclosures, e.g., "[t]he present invention relates generally to aircraft enclosures, and more particularly relates to an aircraft cabin enclosure, such as a lavatory, an aircraft closet, or an aircraft galley." Ex. 1001, 1:20-23. As Mr. Anderson explains, multiple different types of prior art enclosures include one or more recesses to enable seats to be positioned further aft in a cabin. Ex. 1004, ¶59. Combining different types of enclosures, designs and shapes of recesses, and seat geometries would have been obvious to one of skill in the art and provides the predictable result of allowing a seat to be positioned further aft.

Patent Owner has argued in the Underlying Litigation that a person of ordinary skill would not have applied a recess to a lavatory at least because the industry had been reluctant to decrease the width out of concern that airlines and passengers would not accept narrower lavatory spaces. But even if Patent Owner were correct, whether a narrower lavatory would be acceptable to airlines and passengers has no bearing on the obviousness of applying a contoured wall to a lavatory. *Orthopedic Equip. Co. v. U.S.*, 702 F.2d 1005, 1013 (Fed. Cir. 1983) ("[T]he fact that the two disclosed apparatus would not be combined by

businessmen for economic reasons is not the same as saying that it could not be done because skilled persons in the art felt that there was some technological incompatibility that prevented their combination. Only the latter fact is telling on the issue of nonobviousness"). Customer acceptance of a narrow lavatory is a market force, not a technical challenge. *See Friskit, Inc. v. Real Networks, Inc.*, 306 Fed. App'x 610, 617-18 (Fed. Cir. 2009).

B. Motivation to Combine APA and the KLM Crew Rest Document

As discussed in Section IV.A above, a flat wall lavatory was well known in the prior art before the earliest claimed priority date of '742 Patent. It would have been obvious to one of ordinary skill in the art to modify a prior art lavatory to include a contoured forward wall like the wall shown in the KLM Crew Rest document. Ex. 1004, ¶¶65-72.

As noted above, and explained by Mr. Anderson, a primary goal of the design of interiors of commercial aircraft is efficient use of valuable passenger cabin space. Ex. 1004, ¶66. Efficient use of space allows an aircraft to accommodate more passengers and/or to accommodate passengers more comfortably, thereby increasing the utility of the aircraft. Ex. 1004, ¶66. As of April 2010, a primary motivation of one of ordinary skill in the art of aircraft interior design would have been to make efficient use of space in the aircraft interior cabin. Ex. 1004, ¶66. The contoured forward facing wall shown in the

KLM Crew Rest document advantageously provides additional space to locate a seat further aft in an aircraft. Ex. 1004, ¶66. The recess in the forward wall of the KLM Crew Rest was designed to allow the last row of seats in front of the contoured wall to sit further aft in the aircraft, yet still be able to recline. *Id.*; Ex. 1007, ¶13.

The seat in the KLM Crew Rest could not be located in the position in which it is shown if the forward wall was flat, because a flat wall would restrict the passenger's ability to recline the seat and this was not permitted by the customer requirements for the crew rest; rather, if the wall were flat, the seat would need to be moved forward. Ex. 1007, ¶12; Ex. 1004, ¶67. One of ordinary skill in the art would understand that the forward wall of the enclosure used by the KLM Crew Rest would be suitable for use in a lavatory, at least because the KLM Crew Rest itself is designed for occupancy by people and is based on a lavatory envelope, without a toilet, but including "a lavatory sink (and related plumbing), lighting, a mirror, soap dispenser, shaver outlet and amenity stowage." Ex. 1007, ¶16; Ex. 1004, ¶67.

Further one of ordinary skill in the art would recognize that in an aircraft, as a row of seats is moved further aft, the first thing that makes contact with a flat wall is the top of the back of the seat. Ex. 1004, ¶68. And so the KLM Crew Rest includes a recessed forward wall that receives that portion of the seat back. Ex.

1004, ¶68. Including the contoured wall of the KLM Crew Rest document allows the row of seats placed immediately in front of that contoured wall to be placed further aft. Ex. 1004, ¶68.

The challenged patent explains that the claimed concept is equally applicable to all types of aircraft cabin enclosures, e.g., "[t]he present invention relates generally to aircraft enclosures, and more particularly relates to an aircraft cabin enclosure, such as a lavatory, an aircraft closet, or an aircraft galley." Ex. 1001, 1:20-23. As Mr. Anderson explains, multiple different types of prior art enclosures include one or more recesses to enable seats to be positioned further aft in a cabin. Ex. 1004, ¶68. Combining different types of enclosures, designs and shapes of recesses, and seat geometries would have been obvious to one of skill in the art and provides the predictable result of allowing a seat to be positioned further aft.

Further, one of the designers of the KLM Crew Rest, Robert Papke, confirmed during direct testimony elicited by attorneys for Patent Owner that this contoured wall was really the logical way to allow seats to be placed further aft in an aircraft. Ex. 1004, ¶69; Papke Tr. at 190:1-11.

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Q. When you developed the vestibule with the indentation in it, was your design motivated by some prior system?

MR. REED: Object to form.

THE WITNESS: No. It was defined by the need or the requirements of the airline to provide their recline. There was only one really logical way to get there and still have a usable space for access into the crew rest and provide the closet space that they requested adjacent to the stair housing -- or staircase, itself.

VI. Factual Background

A. Declaration Evidence

This petition is supported by the declaration of Mr. Alan Anderson. Mr. Anderson worked at Boeing for 43 years. From 1999-2011 Mr. Anderson was the Director of Engineering, Payload Systems, where he oversaw all engineering for interiors for all models of Boeing aircraft. He was also Chief Engineer for Interiors for the development of the 787 Interior from 2002 until 2008. Mr. Anderson's declaration is attached as Exhibit 1004.

B. Person of Ordinary Skill in the Art

A person of ordinary skill in the art of the '742 Patent would have had a bachelor's degree in mechanical engineering, industrial design, or a similar discipline, or the equivalent experience, with at least two years of experience in the field of aircraft interior design. Ex. 1004, ¶¶27-29.

VII. Claim Construction

In *inter partes* review, claim terms are interpreted under a "broadest reasonable construction" standard. *See* 37 C.F.R. § 42.100(b). Under 37 C.F.R. § 1.42.104(b)(4), the "claim terms are presumed to take on their ordinary and customary meaning." *See* 77 Fed. Reg. 48699 (2012), Response to Comment 35. The interpretation of the claims presented either implicitly or explicitly herein should not be viewed as constituting, in whole or in part, Petitioner's own interpretation of such claims for the purposes of any litigation or proceeding where the claim construction standard differs from the broadest reasonable interpretation, but instead should be viewed as a broadest reasonable claim construction.

A. "Reducing a Volume of Unusable Space"

The '742 Patent relates to aircraft enclosures. Ex. 1001, 1:19-21. The patent describes that prior art "flat wall enclosures" positioned next to "contoured structures" leads to unusable space. *Id*. at 1:26-35. The patent describes using a contoured wall in an enclosure to "eliminate the gaps and volumes of space previously required between lavatory enclosures and adjacent structures, to allow the installation of an increased number of passenger seats." *Id*. at 2:10-15. Thus, a person of ordinary skill in the art would understand that the broadest reasonable interpretation of "reducing a volume of unusable space" is at least broad enough to

include "allowing an airplane seat to be positioned further aft in an aircraft than is possible with a flat wall enclosure."

B. "Recess"

The '742 Patent describes a forward wall with one or more recesses that permit a seat positioned in front of the forward wall to be positioned further aft than would be possible if the wall were flat. *See* Ex. 1001, 4:51-57 ("the recess 34 and the lower recess 100 combine to permit the passenger seat 16 to be positioned farther aft in the cabin than would be possible if the lavatory enclosure 10 included a conventional flat and vertical forward wall without recesses like that shown in FIG. 1, or included a forward wall that did not include both recesses 34, 100."). The '742 Patent further describes that the recesses cause the forward wall to be "substantially not flat in the vertical plane." Ex. 1001, 4:39-41 ("The forward wall portion has a shape that is substantially not flat in the vertical plane, and preferably is shaped to include a recess 34 . . ."). Based on the description, a wall that is substantially not flat is a wall that includes a contour. Thus, the broadest reasonable interpretation of a "recess" as used by the '742 Patent is at least broad enough to include "a wall that includes a contour in the vertical plane."

VIII. Full Statement of the Reasons for the Relief Requested

A. Claims 8 and 10-16 are Obvious Under 35 U.S.C. § 103 over APA and Betts.

The combination of APA and Betts teaches or renders obvious to one of skill in the art each element of the challenged claims and each challenged claim as a whole as described in this section. As discussed in Section V above, one of skill in the art would be motivated to modify the APA in view of the teachings of Betts.

[*'742 Claim 8 Preamble*] A method for reducing a volume of unusable space in a cabin area of a passenger aircraft, comprising:

Figure 1 of Betts is a side elevation that shows an assembly of an enclosure that is located immediately aft of and adjacent to a passenger seat and is nearly identical to Figure 2 of the '742 Patent. Ex. 1005; Ex. 1004, ¶¶241-243.

Betts Figure 1	'742 Patent Figure 2

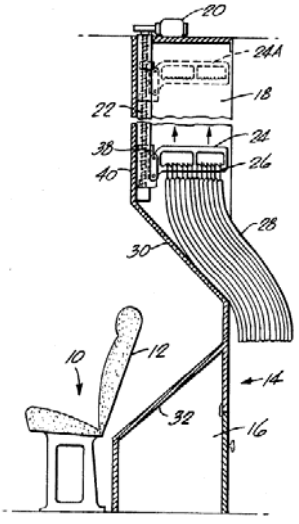
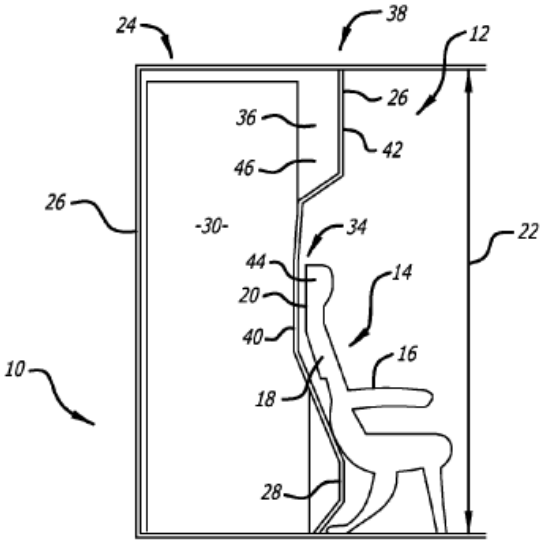

	

Fig. 1	FIG. 2

As explained above, a person of ordinary skill in the art would be motivated to modify a flat wall lavatory to use the Betts design on the forward wall of a lavatory. Ex. 1004, ¶243. Such a design would "reduce[] a volume of unusable space in a cabin area of a passenger aircraft," under the broadest reasonable interpretation of this claim phrase. *Id*. For example, the seat in Betts is positioned such that it resides within the contour, as is shown by the annotated image below. *Id*.

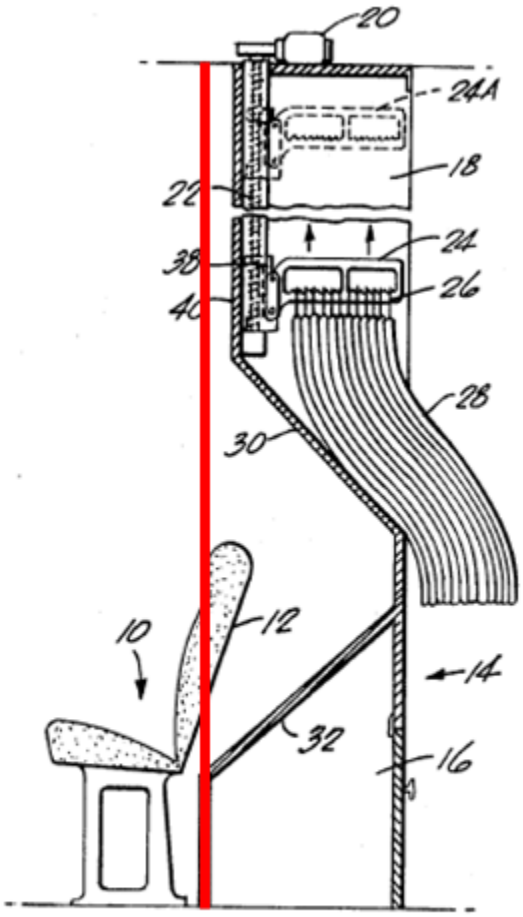
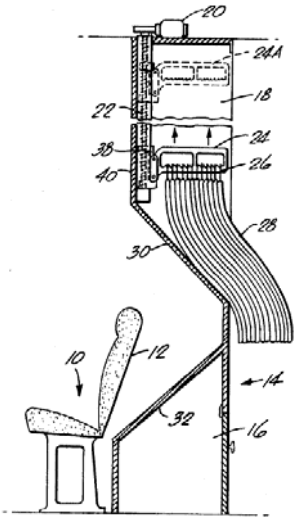
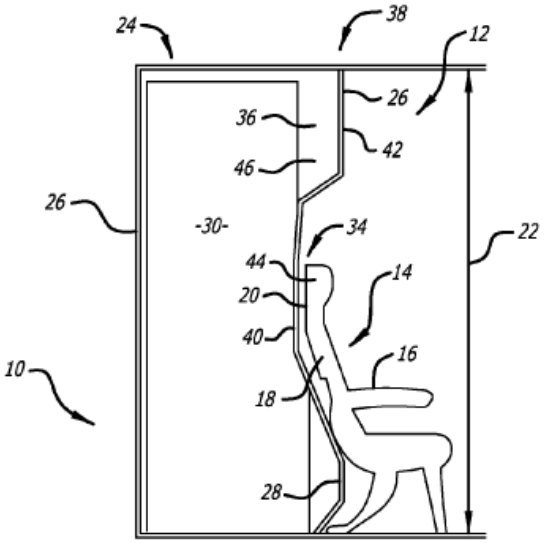


Fig. 1

[*'742 Claim 8 Element A*] replacing at least a previously-installed forward partition of a pre-existing aircraft lavatory in the cabin area of the passenger aircraft with a contoured forward partition, wherein an outward facing vertical surface of the previously installed forward partition is substantially flat, and

As is shown below, Betts includes a contoured forward wall. Ex. 1004, ¶246. A person of ordinary skill in the art would realize that this contoured forward wall could be used in place of a flat forward wall to allow the seat be placed further aft in an aircraft cabin. Ex. 1004, ¶246.

Betts Figure 1	'742 Patent Figure 2
	

[*'742 Claim 8 Element B*] the contoured forward partition comprises at least one first recess configured to receive at least a portion of an upwardly and aftwardly inclined seat back of a passenger seat therein, and

As is shown in the annotated figure below, Betts shows an aircraft passenger seat that is positioned at least partially within the contoured forward wall. Ex.

1004, ¶¶247-248. Thus, this seat is received by the contoured wall. *Id*. Further, the back of this seat is both upwardly and aftwardly inclined. *Id*.

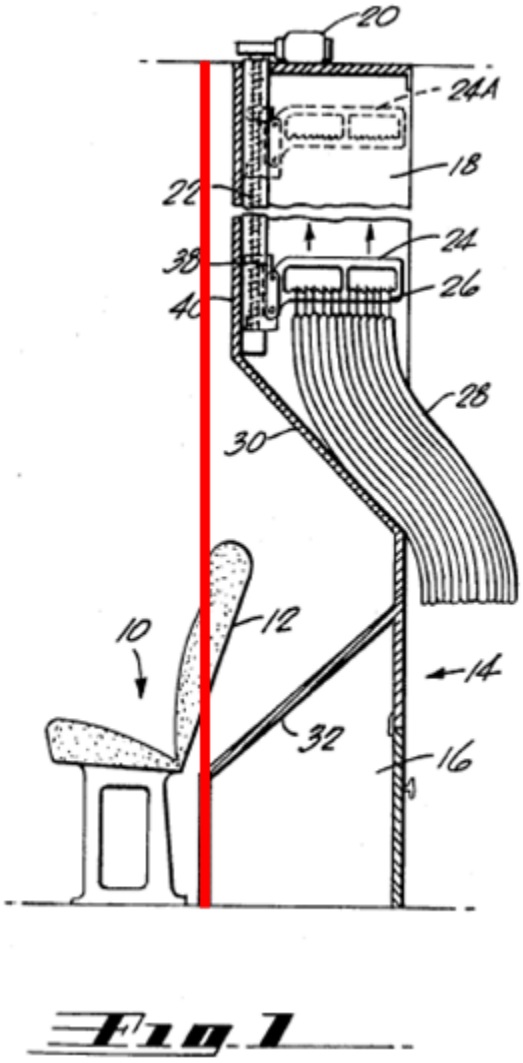
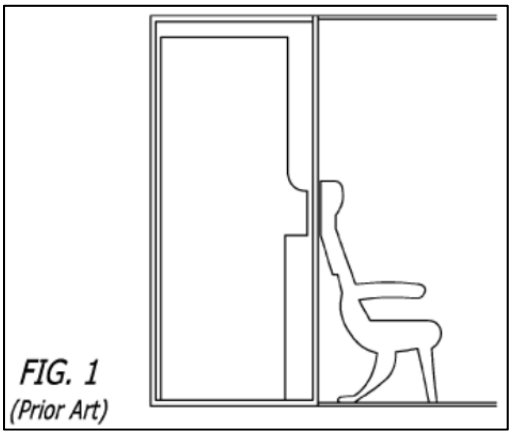


Fig. 1

[*'742 Claim 8 Element C*] at least one second recess configured to receive at least a portion of an aft-extending seat support of the passenger seat therein; and

As explained in Section V above, a person of ordinary skill in the art would be motivated to modify a flat forward facing wall of a lavatory to include a recess to allow a passenger seat to be positioned further aft in the aircraft cabin.

A seat with an aft extending seat support is well known in the art. *See, e.g.*, Ex. 1001, Fig. 1.



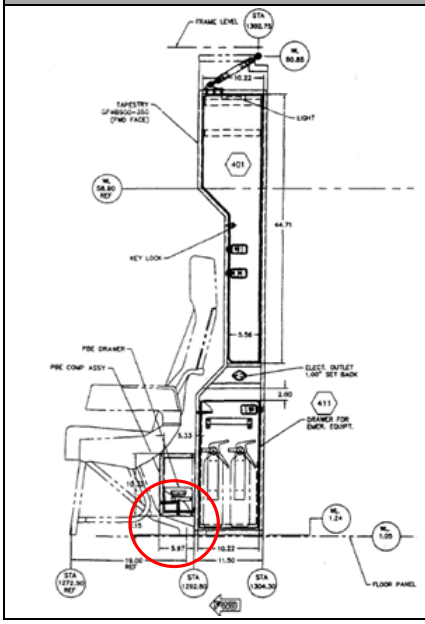
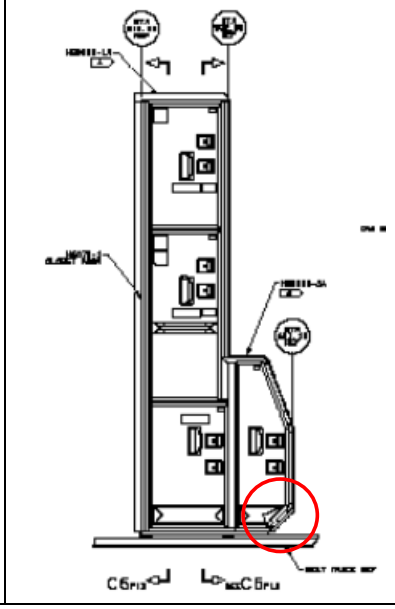
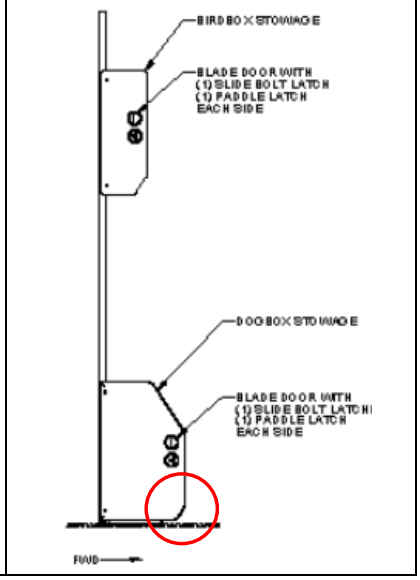
A person of ordinary skill in the art would realize that when such a seat is moved further aft, the first component to impact the wall is the seat back. Ex. 1004, Ex. 1004, ¶¶189, 250. As explained above, Betts includes a forward facing recess that receives the seat back. *Id*.

As the seat is moved further aft, the next component to impact the wall is the aft seat support. Ex. 1004, ¶¶191, 250. As Mr. Anderson explains, a person of ordinary skill in the art would be motivated to modify an enclosure, such as a lavatory, to include a second recess to receive aft facing seat supports. *Id*. Such a modification is nothing more than the application of known technology for its intended purpose. *Id*. The result of such a modification is predictable, allowing the seat to be positioned further aft in an aircraft. *Id*.

Patent Owner cannot argue this difference between the above cited prior art is sufficient to render the claims patentable. The "mere existence of differences

between the prior art and an invention does not establish the invention's nonobviousness. The gap between the prior art and respondent's system is simply not so great as to render the system nonobvious to one reasonably skilled in the art." *Dann v. Johnston*, 425 U.S. 219, 230 (1976); *see also* MPEP § 2141 ("The proper analysis is whether the claimed invention would have been obvious to one of ordinary skill in the art after consideration of all the facts."). Mr. Anderson explains in detail why this difference would be obvious to one or ordinary skill in the art. Ex. 1004, ¶¶186-192, 250.

Further, as evidence of this modification being well known, Mr. Anderson cites to three examples of prior art enclosures that include a lower recess to receive a seat support. Ex. 1004, ¶¶192, 250. Each of these designs was sold and included in passenger aircraft well before the earliest claimed priority date of the '742 Patent. *Id*. Patent Owner was aware of at least the SAS MD-90 Aft-Storage during prosecution of the application that led to the '742 Patent. Ex. 1008.

SAS MD-90 Aft-Storage October 2004	737 Storage February 1994	747 Storage December 2009
		

[*'742 Claim 8 Element D*] installing the passenger seat in front of the contoured forward partition; wherein, upon installation, the at least one first recess receives at least a portion of the upwardly and aftwardly inclined seat back, and the second recess receives at least a portion of the aft-extending seat support,

As noted above, Figure 1 of the '742 Patent admits that a seat with an aft extending seat support is well known in the art. Ex. 1004, ¶¶118, 188, 216. Further, Figure 1 of Betts shows both a passenger seat and a contoured forward partition. Ex. 1005; Ex. 1004, ¶¶175, 251-252. As explained above in connection with Claim 8, Element B, the passenger seat is positioned at least partially within the contour and is thus received by the recess. Ex. 1004, ¶¶247-248.

As explained above , a person of ordinary skill in the art would be motivated

to modify the forward wall of an enclosure to accommodate known prior art seat designs that include an aft-extending seat support. Ex. 1004, ¶¶117-122, 189-192, 215-219. Such a modification is nothing more than the application of known technology for its intended purpose. *Id*. The result of such a modification is predictable, allowing the seat to be positioned further aft in an aircraft. Ex. 1004, ¶¶121, 191, 218.

Further, as explained above, there were multiple prior art designs that included a lower recess to accommodate aft extending seat supports. Ex. 1004, ¶¶122, 192.

> **[*'742 Claim 8 Element E*] thereby reducing the volume of unusable space in the cabin area by reducing or eliminating gaps that existed between the previously-installed forward wall and the passenger seat.**

As explained in Section V above, a person of ordinary skill in the art would be motivated to modify a flat wall lavatory to use the Betts design on the forward wall of a lavatory. Such a design would "reduce[] a volume of unusable space in a cabin area of a passenger aircraft," under the broadest reasonable interpretation of this claim phrase. Ex. 1004, ¶¶253-254. For example, the seat in Betts is positioned such that it resides within the contour, as is shown by the annotated image below. Ex. 1005.

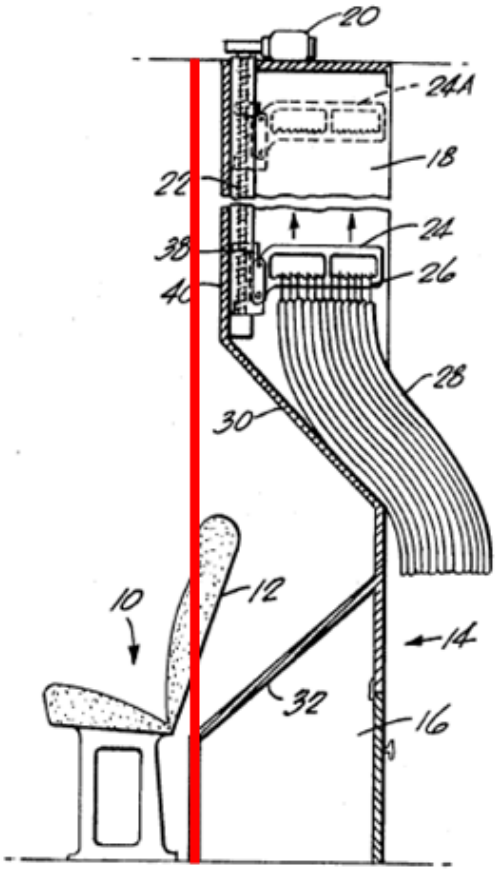
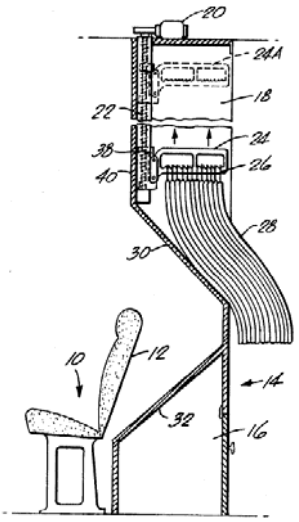
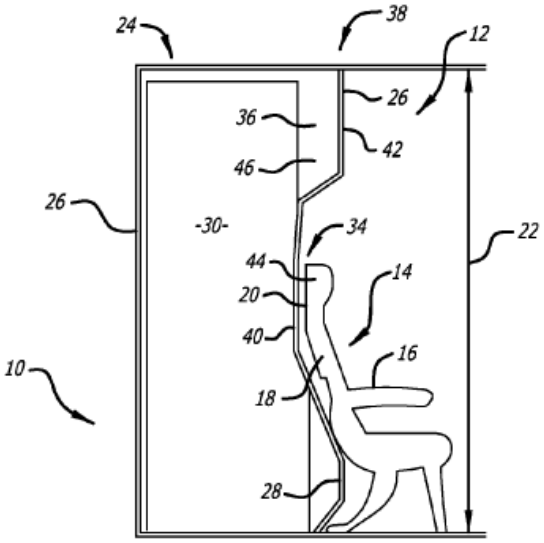


Fig. 1

The Betts design therefore "reduc[es] or eliminate[es] gaps that existed between the previously-installed forward wall and the passenger seat."

> **['*742 Claim 10*] The method of claim 8, wherein the at least one first recess substantially conforms to a contour of an aft surface of the upwardly and aftwardly inclined seat back.**

The recess shown in Betts "substantially conforms to a contour of an aft surface of the upwardly and aftwardly inclined seat back." Ex. 1004, ¶¶255-256. As shown below, the design of Betts Figure 1 is substantially the same as the design shown in Figure 2 of the '742 Patent. *Id*.

Betts Figure 1	'742 Patent Figure 2
	

Betts further discloses a seat with "a contour of an aft surface of the upwardly and aftwardly inclined seat back." Ex. 1004, ¶258. Further, the only seat disclosed in the '742 Patent is admitted to be prior art. *Id*.

> **[*'742 Claim 11*] The method of claim 8, wherein the contoured forward partition further comprises an upper projection that, upon installation, protrudes forward over a top of the upwardly and aftwardly inclined seat back.**

As is shown in the annotated figures below, Betts discloses "an upper projection that, upon installation, protrudes forward over a top of the upwardly and aftwardly inclined seat back." Ex. 1004, ¶¶259-260.

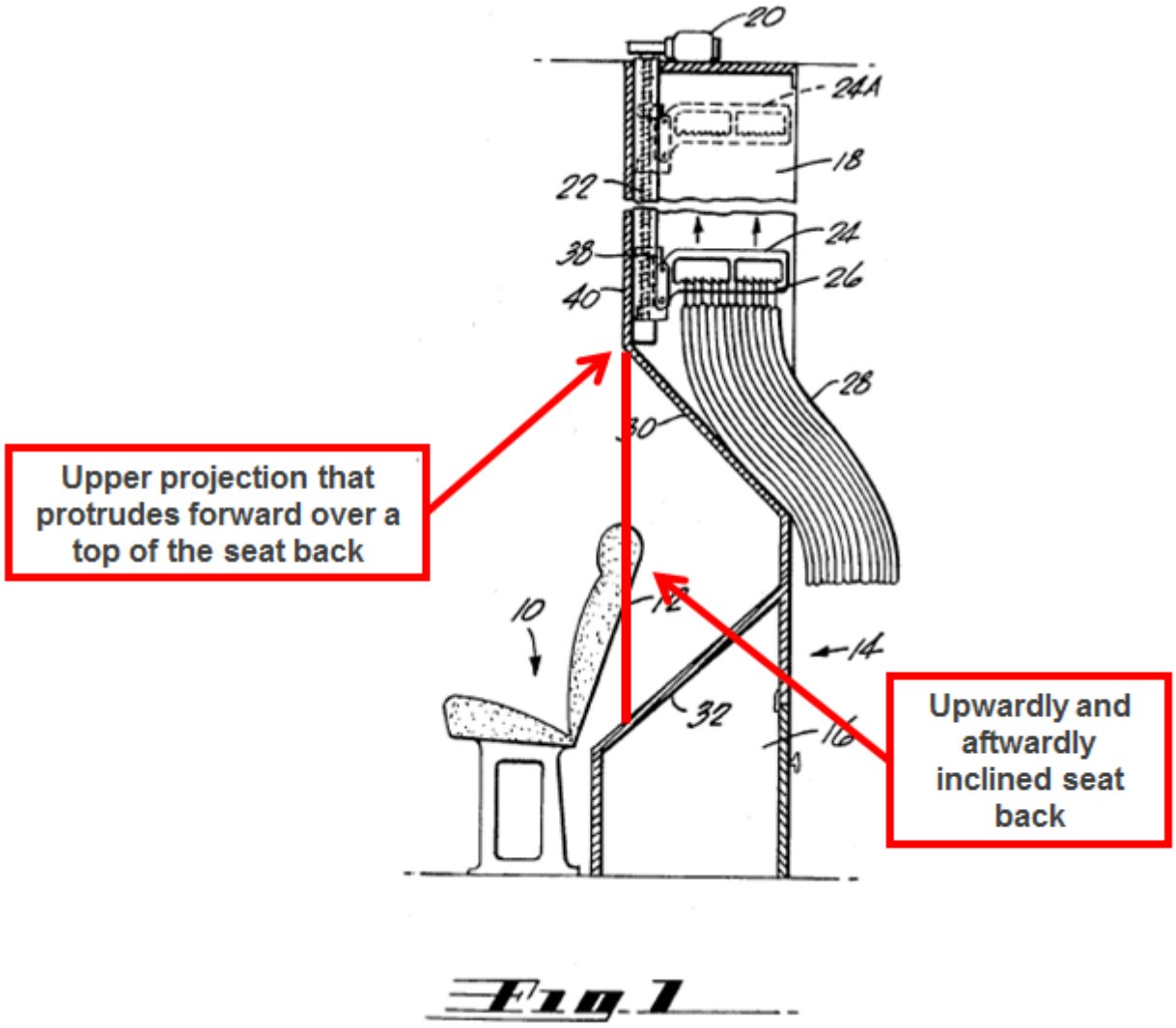


Fig. 1

[*'742 Claim 12*] The method of claim 11, wherein the upper projection is configured to abut an upper surface of the cabin area.

The upper projection shown in the analysis of Claim 11 above "is configured to abut an upper surface of the cabin area." *See* Ex. 1004, ¶262.

Further, the admitted prior art discloses a lavatory wherein the upper portion of the forward wall is configured to abut an upper surface of the cabin area.

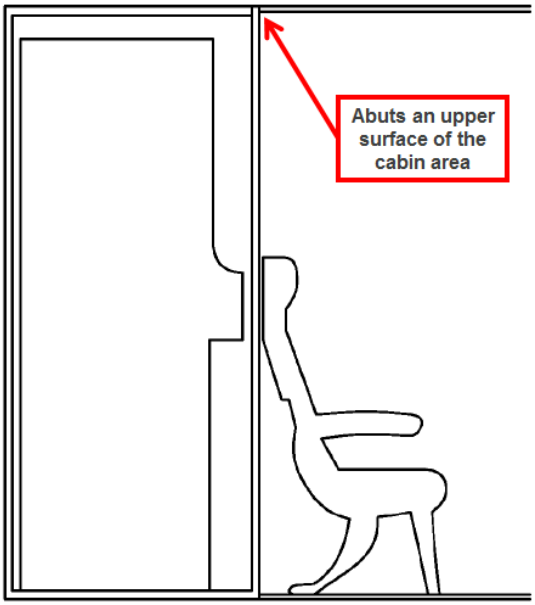


FIG. 1
(Prior Art)

[*'742* Claim *13*] The method of claim 11, wherein the upper projection defines an interior storage space in the aircraft lavatory.

To the extent "an interior storage space in the aircraft lavatory" is described in the '742 Patent, it is admitted to be prior art in Figure 1. The admitted prior art shows "a secondary space in said interior lavatory space above the passenger seat back." The specification of the '742 Patent describes "the forward wall portion defines a secondary space 36 in the interior lavatory space." Ex. 1001, 4:43-45. Such a space is shown in both Figure 1 and Figure 2. Ex. 1004, ¶¶205-206, 263. Further, a person of ordinary skill in the art would recognize that prior art lavatories often include interior storage spaces, e.g., trash receptacles, space for additional paper towels or toilet paper, space for routing plumbing, etc. Ex. 1004, ¶207. A person of ordinary skill in the art would further understand that the

enclosed space of a lavatory would continue to contain the prior art interior storage spaces after applying a contour to the forward wall. *Id*.

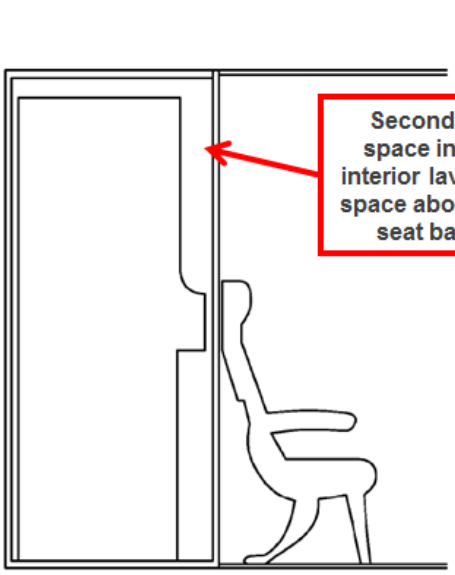


FIG. 1
(Prior Art)

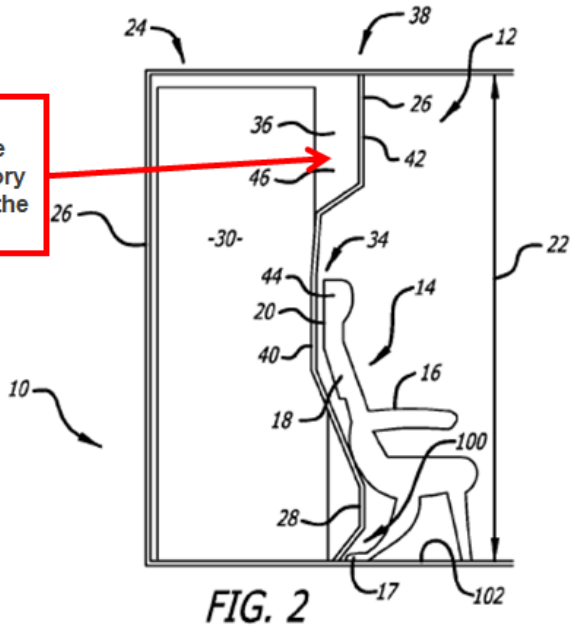
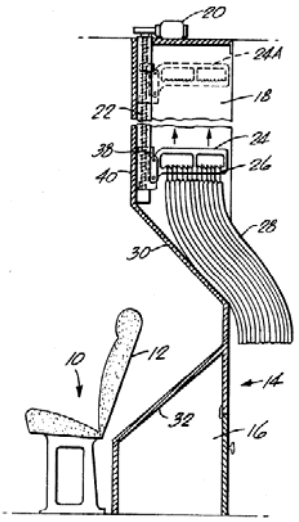
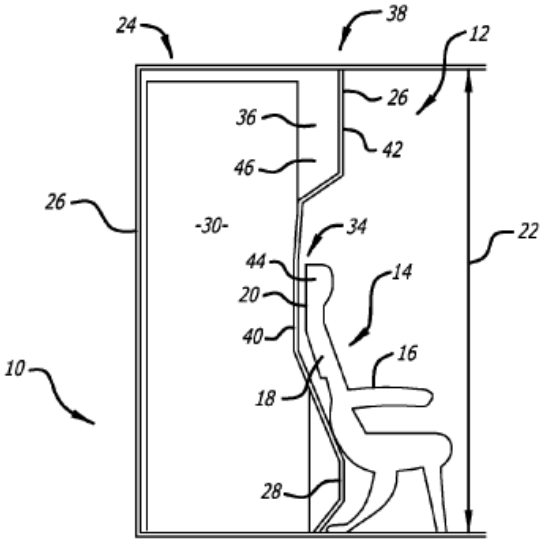


FIG. 2

[*'742 Claim 14*] The method of claim 8, wherein the upwardly and aftwardly inclined seat back is in an upright and not a reclined position.

The seat shown in Betts is in substantially the same position as the seat shown in Figure 2 of the '742 Patent. Ex. 1004, ¶264-265.

Betts Figure 1	'742 Patent Figure 2
	

Further, a person of ordinary skill in the art would recognize that the seat shown in Betts is in an upright and unreclined position. *Id*.

> **[*'742 Claim 15*] The method of claim 8, wherein the at least one first recess extends along substantially a full width of the contoured forward partition.**

Figure 1 of Betts shows a side elevational view of the coat closet enclosure. Ex. 1005, 1:58-59; Ex. 1004, ¶¶234-235, 267. The side elevational view shows the coat closet enclosure from a horizontal plane beside the enclosure. *Id*. One of ordinary skill in the art would understand from Figure 1 that the recess extends the full width of the forward wall. *Id*.

Further, nothing in Betts suggests that the recess only extends a portion of the width of the forward wall. Ex. 1004, ¶236. Moreover, one of ordinary skill in

the art would be motivated to extend the recess the full width of the forward wall in order to accommodate the full row of seats installed immediately forward of the wall. *Id*. In fact, the commercial embodiments of the Betts closet (found on DC-10s) had a recess that extended the full width of the forward partition. *Id*.

Further, the side elevation view shown in Figure 1 is essentially identical to the schematic diagram of Figure 2 of the ’742 Patent. Ex. 1001. The term “width” appears nowhere in the specification of the ’742 Patent. *See* Ex. 1001. To the extent that Figure 2 of the ’742 Patent describes this limitation, the limitation is also disclosed by Figure 1 of Betts.

> **[*’742 Claim 16*] The method of claim 8, wherein replacing the previously-installed forward partition with the contoured forward partition permits the aft-extending seat support to be positioned farther aft in the cabin area than was possible when the previously-installed forward partition was installed in the cabin area.**

As explained in Section V above, a person of ordinary skill in the art would be motivated to modify a flat wall lavatory to use the Betts design on the forward wall of a lavatory. Ex. 1004, ¶¶268-269. The seat shown in Betts is positioned further aft than it could be positioned if there were no recess in the forward wall because the seat back is within the recess. *Id*. Further, the seat shown in Betts is in substantially the same position as the seat shown in Figure 2 of the ’742 Patent. *Id*. And a person of ordinary skill in the art would recognize that the seat shown in Betts is in an unreclined position. *Id*.

Further, as explained above with regard to Claim 8, Element C, it was well known in the prior art to include a lower recess to receive an aft-extending seat support. Ex. 1004, ¶¶191-192, 271. As Mr. Anderson explains, a person of ordinary skill in the art would be motivated to modify an enclosure, such as a lavatory, to include a second recess to receive aft facing seat supports. *Id*. Such a modification is nothing more than the application of known technology for its intended purpose. *Id*. The result of such a modification is predictable, allowing the seat to be positioned further aft in an aircraft. *Id*.

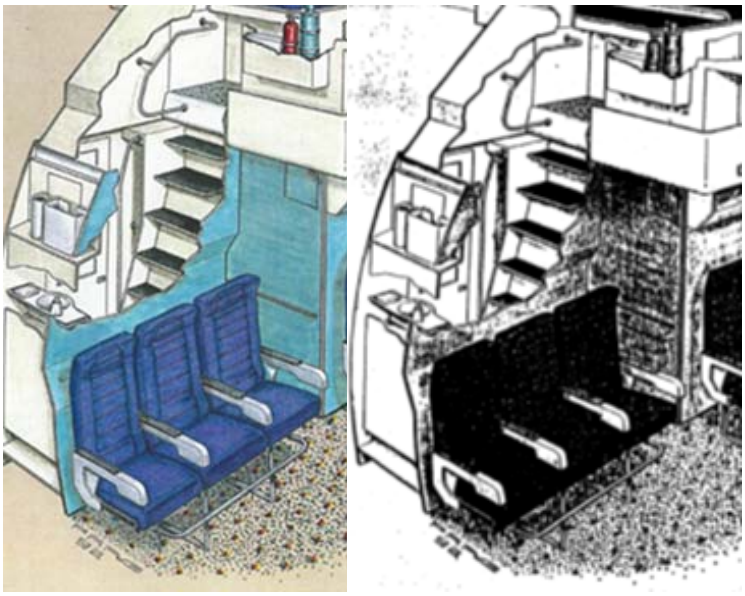
B. Claims 8 and 10-16 are Obvious Under 35 U.S.C. § 103 over APA and the KLM Crew Rest Document.

The combination of APA and the KLM Crew Rest document teaches or renders obvious to one of skill in the art each element of the challenged claims and each challenged claim as a whole as described in this section. As discussed in Section V above, one of skill in the art would be motivated to modify the APA in view of the teachings of the KLM Crew Rest document.

[*'742 Claim 8 Preamble*] A method for reducing a volume of unusable space in a cabin area of a passenger aircraft, comprising:

As explained above, a person of ordinary skill in the art would be motivated to modify a flat wall lavatory to use the KLM Crew Rest design on the forward wall of a lavatory. Ex. 1004, ¶244. The KLM Crew Rest document shows an image of a lavatory enclosure. *Id*. The enclosure has a contoured wall to allow space for a

seat that is located forward of and proximate to the aircraft enclosure. *Id*.

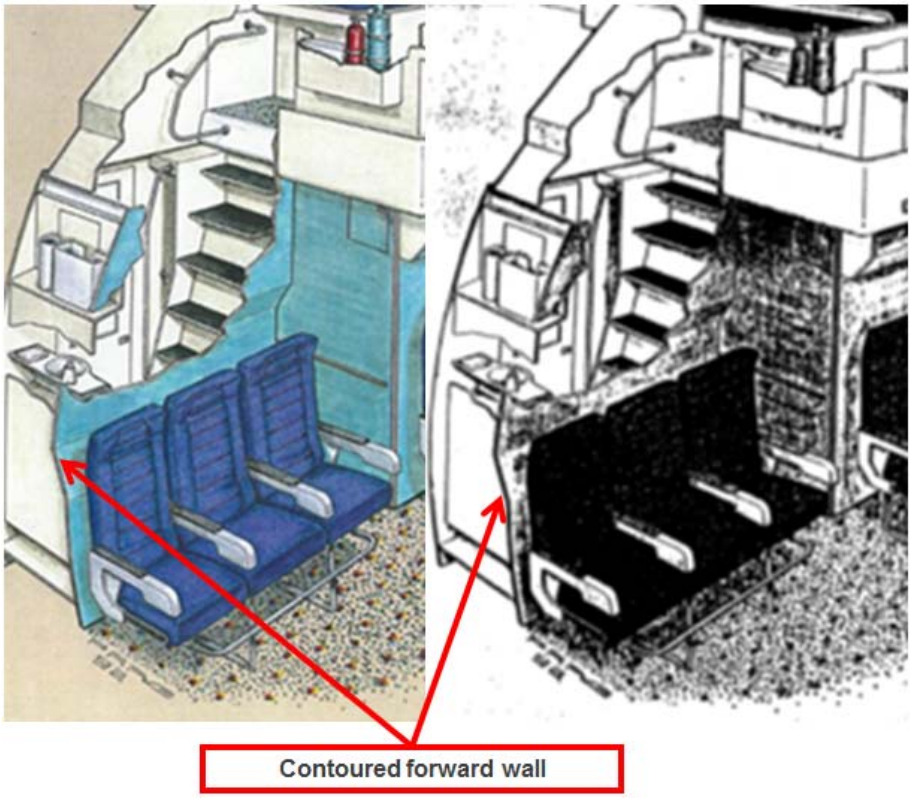


Such a design would "reduce[] a volume of unusable space in a cabin area of a passenger aircraft," under the broadest reasonable interpretation of this claim phrase. Ex. 1004, ¶245. For example, the seat in the KLM Crew Rest document is positioned such that it can recline into space made available by the contour. Ex. 1007, ¶13. This design allows for passenger seats to be placed further aft than they could be placed with a flat wall. *Id*. This allows for additional seating in the cabin of an aircraft when installed. *Id*.

> **[*'742 Claim 8 Element A*] replacing at least a previously-installed forward partition of a pre-existing aircraft lavatory in the cabin area of the passenger aircraft with a contoured forward partition, wherein an outward facing vertical surface of the previously installed forward partition is substantially flat, and**

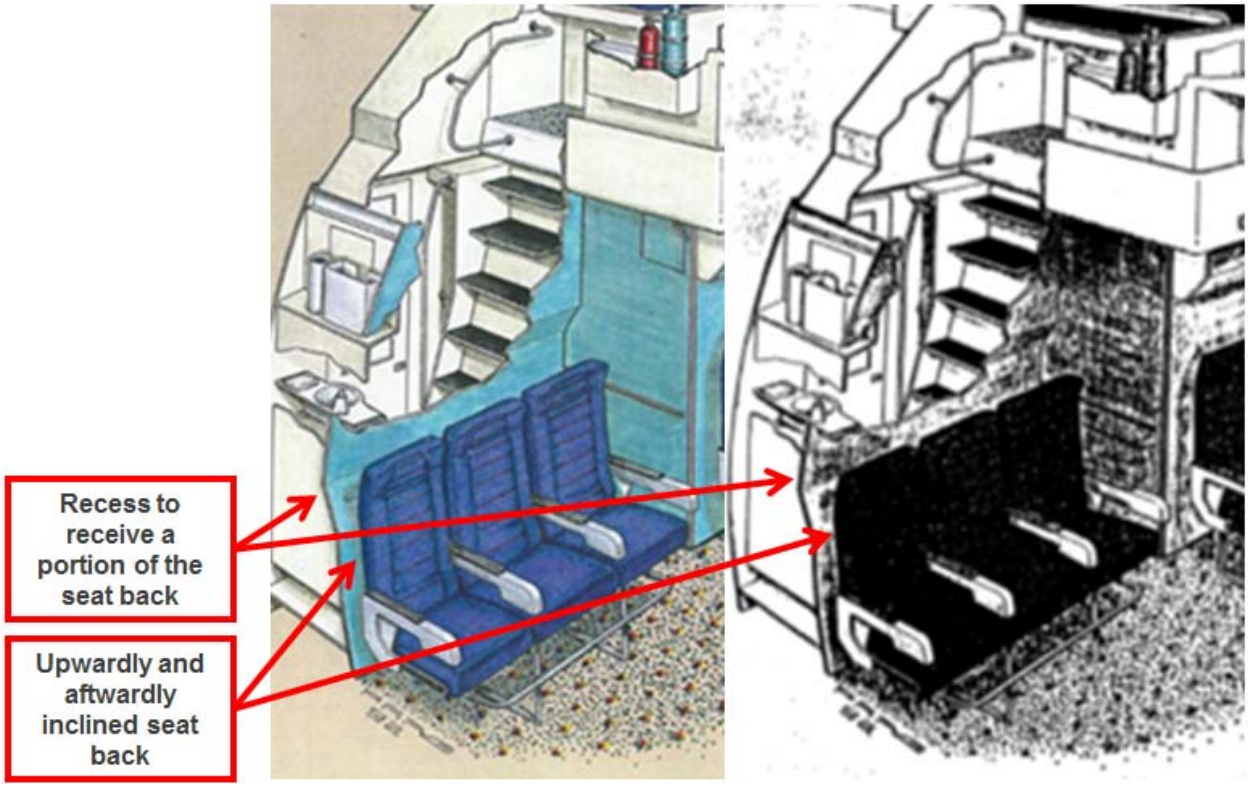
As is shown in the annotated figure below, the KLM Crew Rest document shows a contoured forward wall. Ex. 1004, ¶246. A person of ordinary skill in the

art would realize that this contoured forward wall could be used in place of a flat forward wall to allow the seat be placed further aft in an aircraft cabin. *Id*.



[*'742 Claim 8 Element B*] the contoured forward partition comprises at least one first recess configured to receive at least a portion of an upwardly and aftwardly inclined seat back of a passenger seat therein, and

As is shown in the annotated figure below, the KLM Crew Rest document shows a contoured forward wall. Ex. 1004, ¶¶247-249.This contoured forward wall includes a recess configured to receive an upwardly and aftwardly inclined seat back of a passenger seat. *Id*.

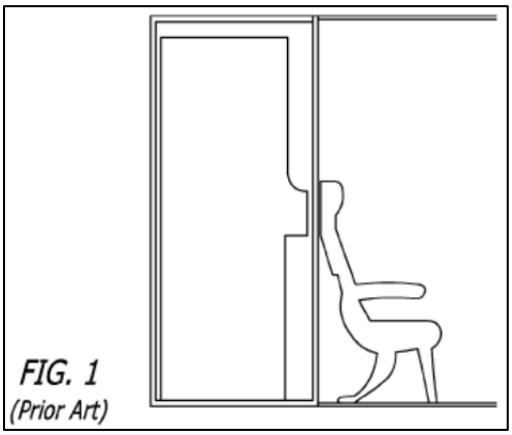


Further, the recess in the KLM Crew Rest was designed to allow the last row of seats positioned in front of the contoured wall to sit further aft in the aircraft, yet still be able to recline. Ex. 1007, ¶13. Thus, if there were no recess, this seat would need to be positioned further forward to allow for recline. Ex. 1004, ¶249. Thus, the contoured wall allows for this seat to sit further aft than it otherwise would be able to sit, and therefore receives the seat back. *Id*. Further, one of ordinary skill in the art would be motivated to restrict the recline of the seat and move the seat further aft into the recess. *Id*. A motivation for doing so would be to increase the pitch of seats between rows or allow for additional rows of seats. *Id*.

[*'742 Claim 8 Element C*] at least one second recess configured to receive at least a portion of an aft-extending seat support of the passenger seat therein; and

As explained in Section V above, a person of ordinary skill in the art would be motivated to modify a flat forward facing wall of a lavatory to include a recess to allow a passenger seat to be positioned further aft in the aircraft cabin.

A seat with an aft extending seat support is well known in the art. *See, e.g.*, Ex. 1001, Fig. 1.



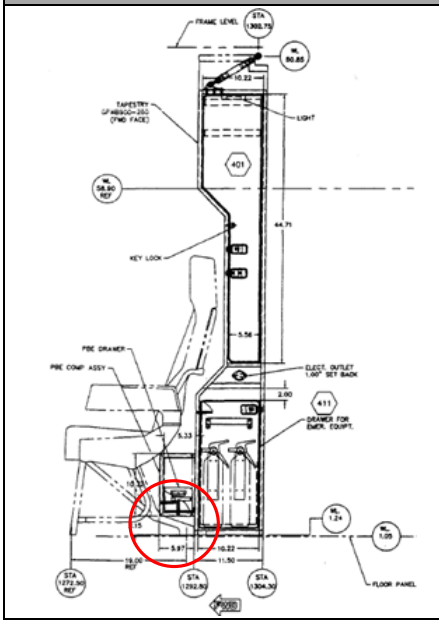
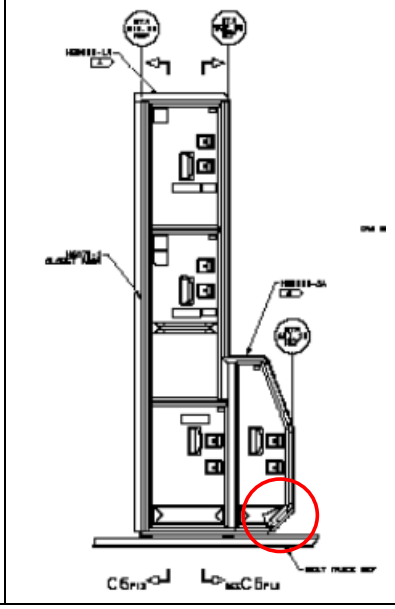
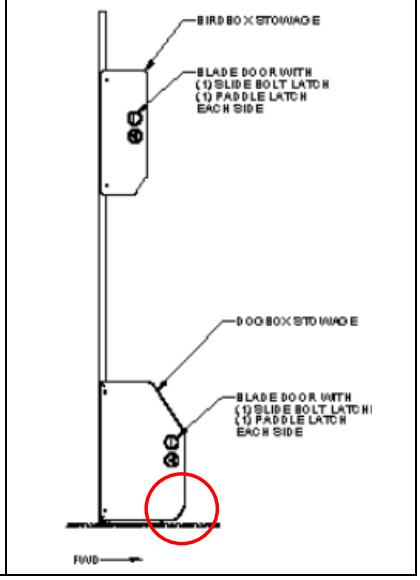
A person of ordinary skill in the art would realize that when such a seat is moved further aft, the first component to impact the wall is the seat back. Ex. 1004, ¶¶189-190, 250. As explained above, the KLM Crew Rest document shows a forward facing recess that receives the seat back when the seat is reclined. *Id*.

As the seat is moved further aft, the next component to impact the wall is the aft seat support. Ex. 1004, ¶¶191, 250. As Mr. Anderson explains, a person of ordinary skill in the art would be motivated to modify an enclosure, such as a lavatory, to include a second recess to receive aft facing seat supports. *Id*. Such a

modification is nothing more than the application of known technology for its intended purpose. *Id*. The result of such a modification is predictable, allowing the seat to be positioned further aft in an aircraft. *Id*.

Patent Owner cannot argue this difference between the above cited prior art is sufficient to render the claims patentable. The "mere existence of differences between the prior art and an invention does not establish the invention's nonobviousness. The gap between the prior art and respondent's system is simply not so great as to render the system nonobvious to one reasonably skilled in the art." *Dann v. Johnston*, 425 U.S. 219, 230 (1976); *see also* MPEP § 2141. A person of ordinary skill in the art would recognize that such a modification was well known in the art. Ex. 1004, ¶¶186-192, 250.

As evidence of this modification being well known, Mr. Anderson cites to three examples of prior art enclosures that include a lower recess to receive a seat support. Ex. 1004, ¶¶192, 250. Each of these designs was sold and included in passenger aircraft well before the earliest claimed priority date of the '742 Patent. *Id*. Patent Owner was aware of at least the SAS MD-90 Aft-Storage during prosecution of the application that led to the '742 Patent. Ex. 1008.

SAS MD-90 Aft-Storage October 2004	737 Storage February 1994	747 Storage December 2009
		

[*'742 Claim 8 Element D*] installing the passenger seat in front of the contoured forward partition; wherein, upon installation, the at least one first recess receives at least a portion of the upwardly and aftwardly inclined seat back, and the second recess receives at least a portion of the aft-extending seat support,

As noted above, Figure 1 of the '742 Patent admits that a seat with an aft extending seat support is well known in the art. Ex. 1004, ¶¶118, 188, 216. Further, the KLM Crew Rest document shows both a passenger seat and a contoured forward partition. Ex. 1004, ¶¶175, 251-252. As explained above in connection with Claim 8, Element B, the passenger seat is positioned is positioned such that it could not recline without a contoured forward wall, thus this seat is at least partially within the contour and is thus received by the recess. Ex. 1004, ¶¶247,

249.

As explained above, a person of ordinary skill in the art would be motivated to modify the forward wall of an enclosure to accommodate known prior art seat designs that include an aft-extending seat support. Ex. 1004, ¶¶117-122, 189-192, 215-219. Such a modification is nothing more than the application of known technology for its intended purpose. *Id*. The result of such a modification is predictable, allowing the seat to be positioned further aft in an aircraft. Ex. 1004, ¶¶121, 191, 218.

Further, as explained above, there were multiple prior art designs that included a lower recess to accommodate aft extending seat supports. Ex. 1004, ¶¶122, 192.

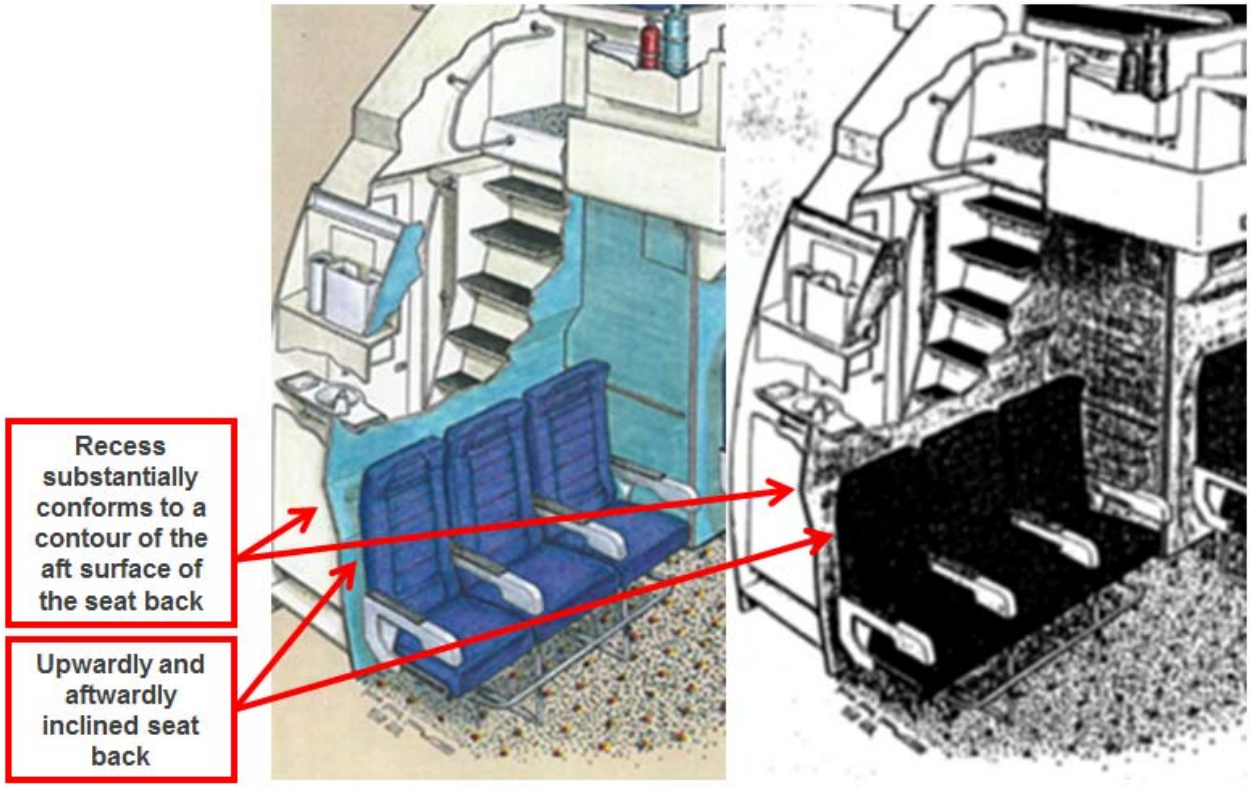
> **[*'742 Claim 8 Element E*] thereby reducing the volume of unusable space in the cabin area by reducing or eliminating gaps that existed between the previously-installed forward wall and the passenger seat.**

As explained in Section V above, a person of ordinary skill in the art would be motivated to modify a flat wall lavatory to use the KLM Crew Rest design on the forward wall of a lavatory. Such a design would "reduce[] a volume of unusable space in a cabin area of a passenger aircraft," under the broadest reasonable interpretation of this claim phrase. Ex. 1004, ¶¶253-254. For example, the seat in the KLM Crew Rest rendering is allowed to be positioned further aft yet still recline as a result of the contour in the forward wall. Ex. 1007, ¶13. The KLM

Crew Rest design therefore "reduc[es] or eliminate[es] gaps that existed between the previously-installed forward wall and the passenger seat."

> **[*'742 Claim 10*] The method of claim 8, wherein the at least one first recess substantially conforms to a contour of an aft surface of the upwardly and aftwardly inclined seat back.**

The recess shown in the KLM Crew Rest document "substantially conforms to a contour of an aft surface of the upwardly and aftwardly inclined seat back." Ex. 1004, ¶257. As Mr. Sobotta explains, the design includes a "recess that would receive the seatback of the row of seats located in front of the entry enclosure." Ex. 1007, ¶13. This is shown in the annotated figure below.

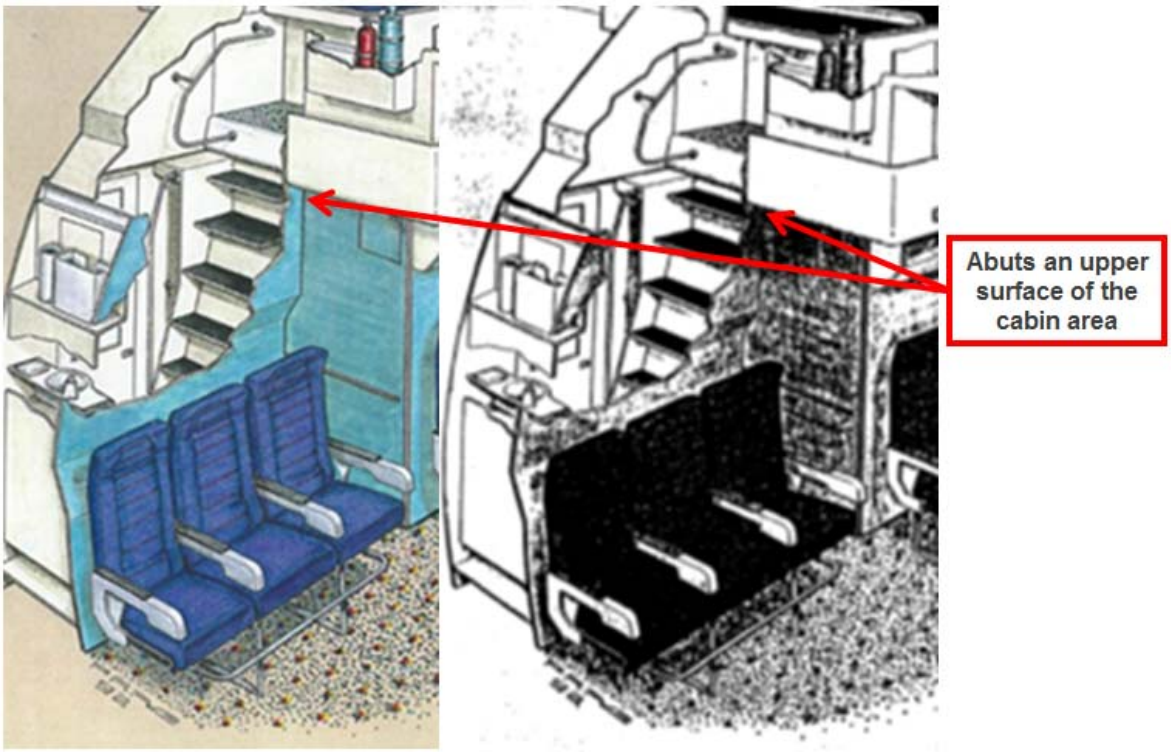


[*'742 Claim 11*] The method of claim 8, wherein the contoured forward partition further comprises an upper projection that, upon installation, protrudes forward over a top of the upwardly and aftwardly inclined seat back.

As explained above, the seat shown in the KLM Crew Rest rendering reclines into the contour in the forward wall. Ex. 1004, ¶259, 261. Thus, at least part of the forward wall is protrudes overtop of the upwardly and aftwardly reclined seat back. *Id*.

[*'742 Claim 12*] The method of claim 11, wherein the upper projection is configured to abut an upper surface of the cabin area.

As is shown in the annotated figure below, the upper part of the KLM Crew Rest, which includes a projection, is configured to abut an upper surface of the cabin area, e.g., the ceiling of the cabin. Ex. 1004, ¶262.



Further, the admitted prior art discloses a lavatory wherein the upper portion of the forward wall is configured to abut an upper surface of the cabin area.

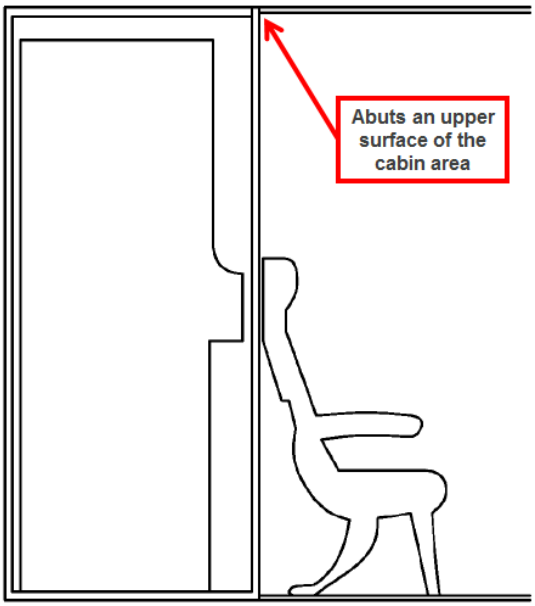


FIG. 1
(Prior Art)

[*'742* Claim *13*] The method of claim 11, wherein the upper projection defines an interior storage space in the aircraft lavatory.

To the extent "an interior storage space in the aircraft lavatory" is described in the '742 Patent, it is admitted to be prior art in Figure 1. The admitted prior art shows "a secondary space in said interior lavatory space above the passenger seat back." The specification of the '742 Patent describes "the forward wall portion defines a secondary space 36 in the interior lavatory space." Ex. 1001, 4:43-45. Such a space is shown in both Figure 1 and Figure 2. Ex. 1004, ¶¶205-206, 263. Further, a person of ordinary skill in the art would recognize that prior art lavatories often include interior storage spaces, e.g., trash receptacles, space for

additional paper towels or toilet paper, space for routing plumbing, etc. Ex. 1004, ¶207.

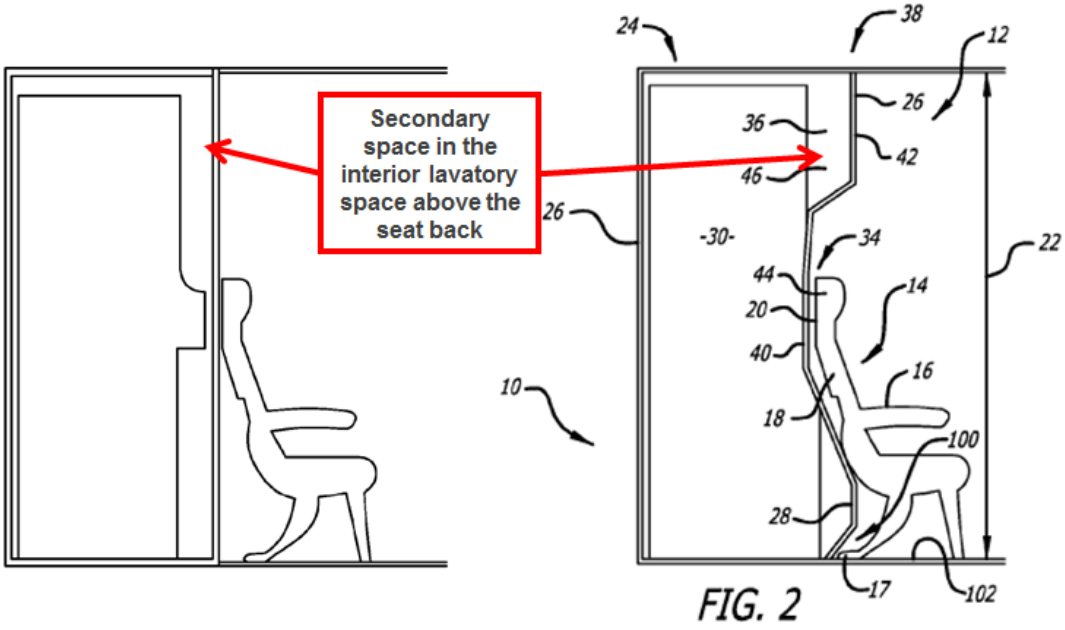
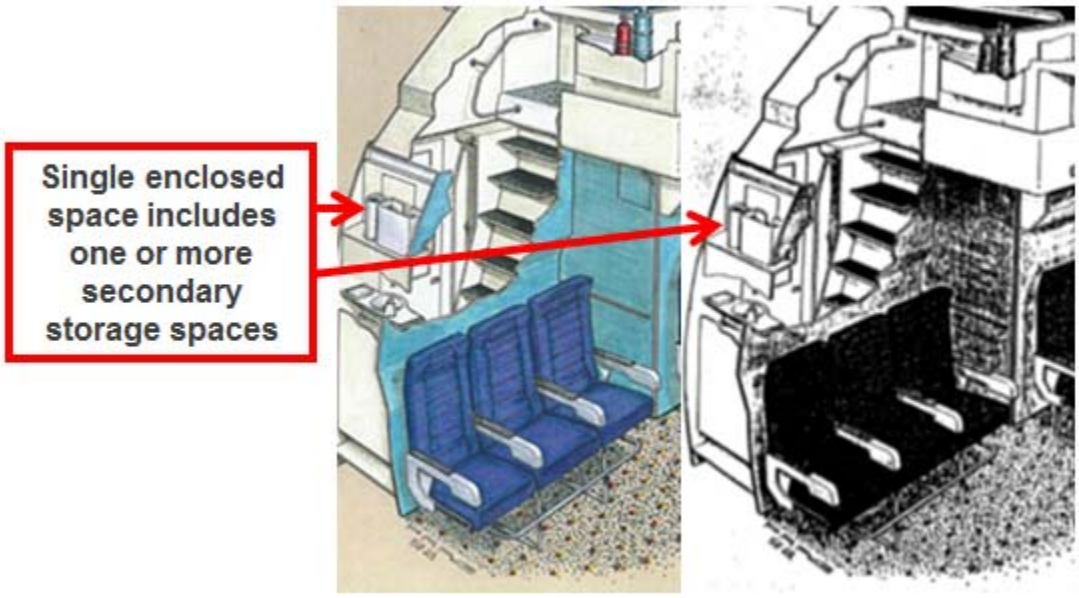


FIG. 1
(Prior Art)

FIG. 2

The KLM Crew Rest document also shows interior storage spaces within the enclosed lavatory space defined by the upper projection as shown in the annotated figure below. Ex. 1009; Ex. 1004, ¶111.



A person of ordinary skill in the art would understand that the enclosed space of a lavatory would continue to contain secondary storage spaces, such as amenity stowage, after applying a contour to the forward wall as shown by the KLM Crew Rest document. Ex. 1004, ¶207.

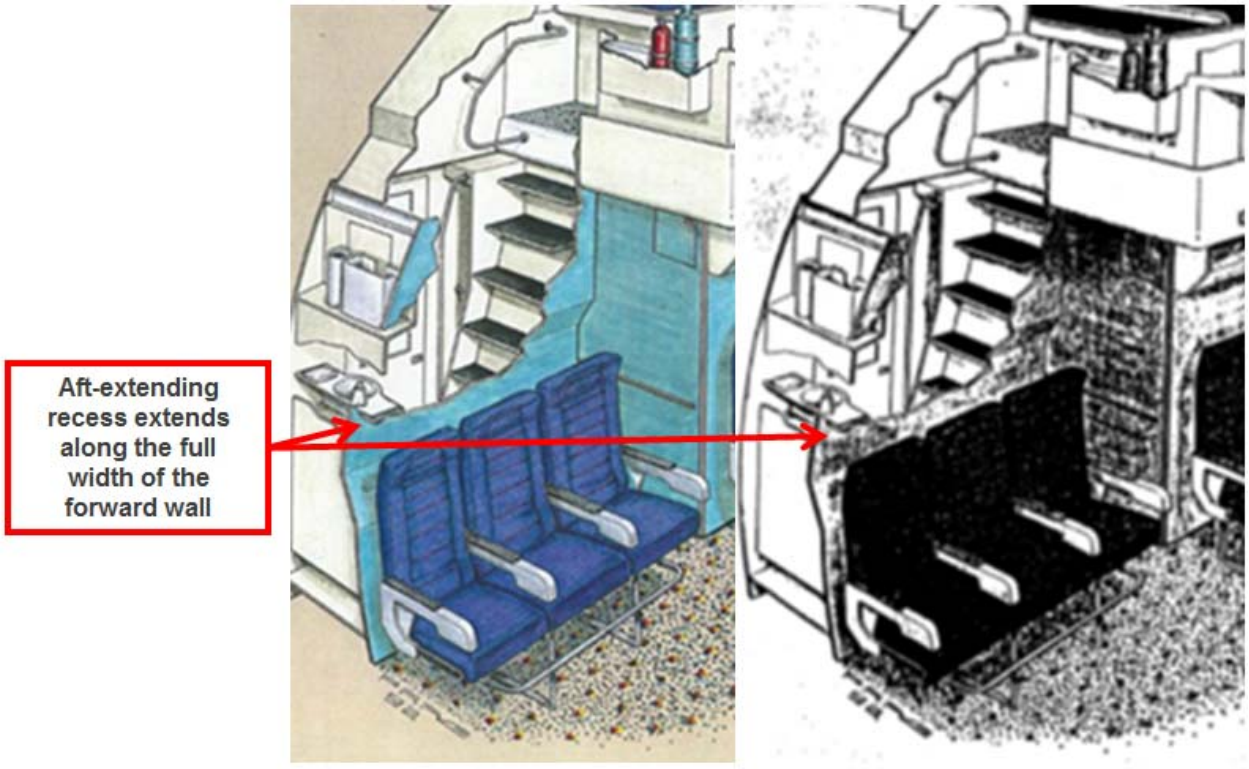
[*'742 Claim 14*] The method of claim 8, wherein the upwardly and aftwardly inclined seat back is in an upright and not a reclined position.

A person of ordinary skill in the art would recognize that the seat shown in the KLM Crew Rest document is positioned further aft than it could be positioned without the recess. Ex. 1004, ¶266, Ex. 1007, ¶13.

Further, a person of ordinary skill in the art would recognize that the seat could be moved further aft, such that the seat was in the recess when in an unreclined position. *Id*. One motivation for doing so would be to increase the amount of space in front of the passenger seat, thereby increasing the pitch of the rows of seats in the aircraft or allowing an additional row of seats to be added. *Id*.

[*'742 Claim 15*] The method of claim 8, wherein the at least one first recess extends along substantially a full width of the contoured forward partition.

The KLM Crew Rest document shows a recess that extends along substantially the full width of the of the contoured forward partition. Ex. 1004, ¶¶237, 267.



[*'742 Claim 16*] The method of claim 8, wherein replacing the previously-installed forward partition with the contoured forward partition permits the aft-extending seat support to be positioned farther aft in the cabin area than was possible when the previously-installed forward partition was installed in the cabin area.

A person of ordinary skill in the art would be motivated to modify a flat wall lavatory to use the KLM Crew Rest design on the forward wall of a lavatory. Ex. 1004, ¶270. A person of ordinary skill in the art would recognize that the seat shown in the KLM Crew Rest document is positioned further aft than it could be positioned without the recess. *Id.*; Ex. 1007, ¶13. A person of ordinary skill in the art would recognize that the seat could be moved further aft, such that the seat was in the recess when in an unreclined position. Ex. 1004, ¶270. One motivation for

doing so would be to increase the amount of space in front of the passenger seat, thereby increasing the pitch of the rows of seats in the aircraft or allowing an additional row of seats to be added. *Id*.

Further, as explained above with regard to Claim 8, Element C, it was well known in the prior art to include a lower recess to receive an aft-extending seat support. Ex. 1004, ¶¶191-192, 271. As Mr. Anderson explains, a person of ordinary skill in the art would be motivated to modify an enclosure, such as a lavatory, to include a second recess to receive aft facing seat supports. *Id*. Such a modification is nothing more than the application of known technology for its intended purpose. *Id*. The result of such a modification is predictable, allowing the seat to be positioned further aft in an aircraft. *Id*.

IX. Any Secondary Considerations Cannot Overcome the Clear Evidence of Obviousness.

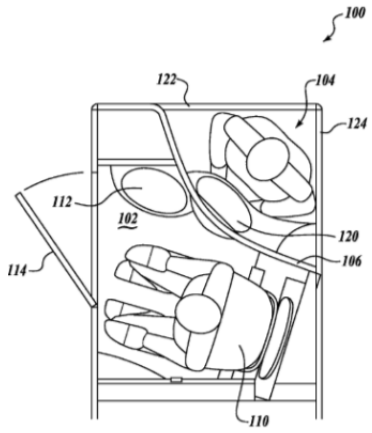
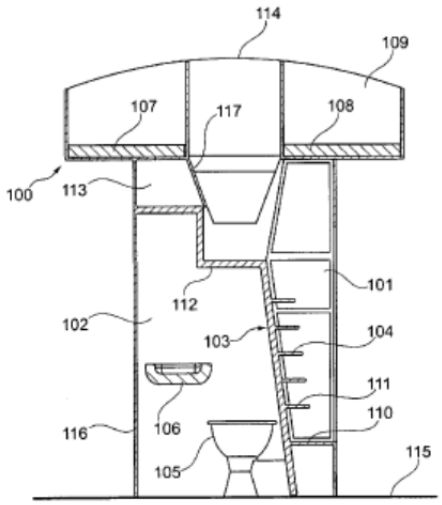
Patent Owner may attempt to overcome the clear obviousness of the challenged claims by pointing to alleged secondary considerations of non-obviousness. The Board has already considered Patent Owner's secondary considerations in the prior IPR regarding the parent '838 Patent. The Board determined that Patent Owner's secondary considerations were insufficient in the face of the strong evidence of obviousness in view of Betts. Ex. 1003, at 23-24. Patent Owner's secondary considerations fail here for the same reasons.

First, evidence of second considerations is significant only if there is a nexus between the claimed invention and the evidence. *Ormco Corp. v. Align Tech., Inc*., 463 F.3d 1299, 1311-12 (Fed. Cir. 2006) ("Evidence of commercial success, or other secondary considerations, is only significant if there is a nexus between the claimed invention and the commercial success."). All types of objective evidence of non-obviousness must be shown to have such a nexus. *Chums, Inc. v. Cablz, Inc*., IPR2014-01240, Paper No. 43 at 27 (PTAB Feb. 8, 2016) (citations omitted).

Patent Owner cannot establish a nexus here because all claim elements were known in the prior art. When objective evidence results from something that is not "both claimed and ***novel*** in the claim, there is no nexus to the merits of the claimed invention." *In re Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011) (emphasis in original); *ClassCo, Inc. v. Apple*, Inc. 838 F.3d 1214, 1220 (Fed. Cir. 2016) ("A nexus may not exist where, for example, the merits of the claimed invention were 'readily available in the prior art.'" (quoting *Richdel, Inc. v. Sunspool Corp*., 714 F.2d 1573, 1580 (Fed. Cir. 1983)); *ArcelorMittal France v. AK Steel Corp*., 700 F.3d 1317, 1325 (Fed. Cir. 2012) ("[O]ur cases make clear that the commercial success of the embodiment with additional unclaimed features is to be considered when evaluating the obviousness of the claim, provided that embodiment's success has a sufficient nexus to the ***claimed and novel features of the invention***." (emphasis

added)). No claim element is novel and there is thus no nexus to any secondary consideration of non-obviousness.

Second, contrary to Patent Owner's assertion, prior art lavatory designs included contours that intruded on the interior space of the lavatory. Ex. 1004, ¶¶60-64. Two prior art examples are shown below:

US 7,284,287, Ex. 1012	**U.S. 2009/0050738 A1, Ex. 1013**
	

Patent Owner's argument that one of ordinary skill in the art would not have contoured a lavatory wall or intruded on interior lavatory space simply has no merit. Further, the patent itself makes clear that the disclosure is not limited to lavatories with a wall that intrudes on passenger space. Rather, the patent explains that "the present invention can provide a more spacious lavatory or other enclosure with no need to move adjacent seats or other structures forward." Ex. 1001, 1:65-67.

Finally, even if Patent Owner were able to establish any secondary considerations and a nexus to them, secondary considerations are insufficient to overcome a strong case of obviousness, like the one here. *Wyers v. Master Lock Co*., 616 F.3d 1231, 1246 (Fed. Cir. 2010) ("[S]econdary considerations of nonobviousness . . . simply cannot overcome a strong prima facie case of obviousness."); *Leapfrog Enters., Inc. v. Fisher–Price, Inc*., 485 F.3d 1157, 1162 (Fed. Cir. 2007) (holding that the objective considerations of nonobvious-ness presented, including substantial evidence of commercial success, praise, and long-felt need, were inadequate to overcome a strong showing of primary considerations that rendered the claims at issue invalid); *Rothman v. Target Cor*p., 556 F.3d 1310, 1322 (Fed. Cir. 2009) ("a strong prima facie obviousness showing may stand even in the face of considerable evidence of secondary considerations."); *Stamps.com Inc. v. Endicia, Inc*., 437 Fed.Appx. 897, 905 (Fed. Cir. 2011) ("Given the strong showing of obviousness, we find that the evidence of secondary considerations was inadequate to overcome the legal conclusion that the contested claims would have been obvious.").

X. Conclusion

In view of the foregoing, Petitioner respectfully submits that there is a reasonable likelihood that Petitioner will prevail with respect to claims 8 and 10-16

of the ’742 Patent. Accordingly, Petitioner requests that the Board grant this petition and initiate an *inter partes* review.

Respectfully submitted,

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CERTIFICATE OF WORD COUNT

The undersigned certifies pursuant to 37 C.F.R. § 42.24(d) that the foregoing **Petition for Inter Partes Review** excluding any table of contents, table of authorities, certificates of service or word count, or appendix of exhibits or claim listing, contains 10,997 words according to the word-processing program used to prepare this paper (Microsoft Word). Including annotations in figures, Petitioner certifies that this **Petition for Inter Partes Review** does not exceed the applicable type-volume limit of 37 C.F.R. § 42.24(a).

Dated: April 13, 2017

/s/ *John C. Alemanni*
Counsel for Petitioner

CERTIFICATE OF SERVICE

The undersigned hereby certifies that on the date below a copy of this **Petition for *Inter Partes* Review** has been served by Express Mail upon the following:

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