

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TOUGHBUILT INDUSTRIES, INC.,
Petitioner

v.

MERIDIAN INTERNATIONAL CO., LTD.,
Patent Owner

Case IPR2025-01461
U.S. Patent No. 11,986,946

PETITIONER'S REPLY

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TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	CLAIM CONSTRUCTION	1
	A. “Stop Part”	1
	B. “Mounting Body”	1
	C. “Locking Buckle”	3
III.	GROUND 1A AND 2A – EACH OF LI AND BARUCH ANTICIPATES CLAIMS 1-4, 7-12, AND 15	5
	A. Li discloses a mounting body, a locking buckle, and first resilient member located between the mounting body and locking buckle.	5
	1. The Petition explains how Li discloses these features.....	5
	2. Meridian’s “mounting body” arguments fail.....	8
	3. Meridian’s “locking buckle” arguments fail.....	9
	4. Meridian’s “first resilient member” arguments fail.....	10
	B. Li discloses dependent claims 2-4, 7-10, and 12.	13
	C. Baruch discloses a mounting body, a locking buckle, and resilient member located between the mounting body and locking buckle.	13
	1. The Petition explains how Baruch discloses these features.	13
	2. Meridian’s “mounting body” arguments fail.....	15
	3. Meridian’s “locking buckle” arguments fail.....	17
	4. Meridian’s “first resilient member” arguments fail.....	20
	D. Baruch discloses dependent claims 2-4, 7-10, and 12.	23
	E. Li and Baruch still teach the claims even under Meridian’s constructions.....	23
	1. “Mounting body”	23
	2. “Locking buckle”	24
IV.	GROUND 1B AND 2B – LI AND BARUCH RENDER OBVIOUS CLAIMS 1-4, 7-12, AND 15	24

V.	GROUNDS 1C AND 2C – LI-BURCHIA-HAMMOND AND BARUCH-BURCHIA-HAMMOND RENDER OBVIOUS CLAIMS 5-6 AND 13	26
A.	Motivation to combine Li-Burchia-Hammond (Ground 1C) and Baruch-Burchia-Hammond (Ground 2C)	26
B.	Li-Burchia-Hammond (Ground 1C) and Baruch-Burchia- Hammond (Ground 2C) Render Claims 5 and 6 Obvious	31
C.	Li-Burchia-Hammond (Ground 1C) and Baruch-Burchia- Hammond (Ground 2C) Render Claim 13 Obvious	32
VI.	GROUNDS 1D AND 2D – LI-DAVIDIAN AND BARUCH- DAVIDIAN RENDER OBVIOUS CLAIMS 14 AND 16	33
VII.	DR. MCCARTHY FAR EXCEEDS A POSA	35
VIII.	CONCLUSION.....	36

PETITIONER'S EXHIBIT LIST

Exhibit No.	Description
1001	U.S. Patent No. 11,986,946 B2 to Zhang et al., issued May 21, 2024 (“the ’946 patent”)
1002	File History of U.S. Patent No. 11,986,946
1003	Declaration of J. Michael McCarthy, Ph.D. in Support of Petition for <i>Inter Partes</i> Review of U.S. Patent No. 11,986,946
1004	<i>Curriculum Vitae</i> of J. Michael McCarthy, Ph.D.
1005	Chinese Patent Application No. 202210212862.5, filed March 4, 2022
1006	Chinese Patent Application No. 202320135456.3, filed January 13, 2023
1007	U.S. Patent Application Publication No. 2022/0396985 A1 to Li et al., published December 15, 2022 (“Li”)
1008	U.S. Patent Application Publication No. 2020/0329837 A1 to Burchia, published October 22, 2020 (“Burchia”)
1009	U.S. Patent Application Publication No. 2023/0340804 A1 to Hammond et al., published October 26, 2023 (“Hammond”)
1010	PCT Publication No. WO 2021/150410 A1 to Hammond et al., published July 29, 2021 (“Hammond PCT”)
1011	U.S. Patent Application Publication No. 2021/0221561 A1 to Davidian et al., published July 22, 2021 (“Davidian”)
1012	U.S. Patent Application Publication No. 2020/0298392 A1 to Baruch et al., published September 24, 2020 (“Baruch”)
1013	“Standard Handbook of Machine Design” by Shigley – 2 nd Edition
1014	“University Physics Volume 1” Ling et al. (OpenStax)
1015	Declaration of Timothy L. Tang

Exhibit No.	Description
1016	U.S. Patent No. 5,934,466 to Loeffler, issued August 10, 1999 (“Loeffler”)
1017	U.S. Patent Application Publication No. 2003/0094392 A1 to Meier et al., published May 22, 2003 (“Meier”)
1018	U.S. Patent Application Publication No. 2019/0291922 A1 to Gonitiner et al., published September 26, 2019 (“Gonitiner922”)
1019	U.S. Patent Application Publication No. 2019/0002004 to Brunner, published January 3, 2019 (“Brunner”)
1020	U.S. Patent No. 9,725,209 B1 to Ben-Gigi, issued August 8, 2017 (“Ben-Gigi”)
1021	U.S. Patent Application Publication No. 2023/0238755 A1 to Shabtai et al., published July 27, 2023 (“Shabtai”)
1022	U.S. Patent Application Publication No. 2020/0165036 to Squiers et al., published May 28, 2020 (“Squiers”)
1023	U.S. Patent Application Publication No. 2019/0315515 A1 to Gonitiner et al., published September 26, 2019 (“Gonitiner515”)
1024	Non-Infringement and Invalidity Report of J. Michael McCarthy, Ph.D., <i>Meridian Int’l Co., Ltd. v. ToughBuilt Industries, Inc.</i> , Civil Action No. 8:24-cv-01840 (C.D. Cal.)
1025	ToughBuilt – Opening Claim Construction Brief [91], <i>Meridian Int’l Co., Ltd. v. ToughBuilt Industries, Inc.</i> , Civil Action No. 8:24-cv-01840 (C.D. Cal.) (Jun. 9, 2025)
1026	Meridian – Opening Claim Construction Brief [92], <i>Meridian Int’l Co., Ltd. v. ToughBuilt Industries, Inc.</i> , Civil Action No. 8:24-cv-01840 (C.D. Cal.) (Jun. 9, 2025)
1027	ToughBuilt – Responsive Claim Construction Brief [94], <i>Meridian Int’l Co., Ltd. v. ToughBuilt Industries, Inc.</i> , Civil Action No. 8:24-cv-01840 (C.D. Cal.) (Jun. 23, 2025)

Exhibit No.	Description
1028	Meridian – Responsive Claim Construction Brief [95], <i>Meridian Int'l Co., Ltd. v. ToughBuilt Industries, Inc.</i> , Civil Action No. 8:24-cv-01840 (C.D. Cal.) (Jun. 23, 2025)
1029	ToughBuilt – Post-Hearing Claim Construction Brief [102], <i>Meridian Int'l Co., Ltd. v. ToughBuilt Industries, Inc.</i> , Civil Action No. 8:24-cv-01840 (C.D. Cal.) (Jul. 15, 2025)
1030	Meridian – Post-Hearing Claim Construction Brief [103], <i>Meridian Int'l Co., Ltd. v. ToughBuilt Industries, Inc.</i> , Civil Action No. 8:24-cv-01840 (C.D. Cal.) (Jul. 15, 2025)
1031	Defendant's Notice of Inter Partes Reviews and Stipulation Regarding Invalidity Contentions as to U.S. Patent Nos. 11,986,946 and 11,192,689 [116], <i>Meridian Int'l Co., Ltd. v. ToughBuilt Industries, Inc.</i> , Civil Action No. 8:24-cv-01840 (C.D. Cal.) with Notice of Electronic Filing Dated Sept, 5, 2025
1032	Order on Motion to Stay Case Pending Inter Partes Reviews, <i>Meridian Int'l Co., Ltd. v. ToughBuilt Industries, Inc.</i> , Case No. 8:24-cv-01840-JWH-JDE (C.D. Cal. September 25, 2025).
1033	File History of U.S. Appl. No. 18/176,907
1034	USPTO - Multi-Step U.S. Patent Search Strategy <i>available at</i> https://www.uspto.gov/patents/search/patent-search-strategy
1035	Complaint for Patent Infringement, <i>Meridian Int'l Co., Ltd. v. ToughBuilt Industries, Inc.</i> , Civil Action No. 8:24-cv-01840 (C.D. Cal. August 21, 2024)
1036	<i>Intentionally Left Blank</i>
1037	Declaration of Tony Kriz, <i>Meridian Int'l Co., Ltd. v. ToughBuilt Industries, Inc.</i> , Civil Action No. 8:24-cv-01840 (C.D. Cal. August 26, 2024)

Exhibit No.	Description
1038	Memorandum of Points and Authorities in Support of Plaintiff's Motion for Preliminary Injunction, <i>Meridian Int'l Co., Ltd. v. ToughBuilt Industries, Inc.</i> , Civil Action No. 8:24-cv-01840 (C.D. Cal. August 26, 2024)
1039	Plaintiff Meridian Int'l Co. Ltd.'s Infringement Contentions
1040	<i>ToughBuilt Industries, Inc. v. Meridian Int'l Co., Ltd.</i> , IPR2025-01462, Petition, Paper 2 (PTAB August 28, 2025)
1041	<i>ToughBuilt Industries, Inc. v. Meridian Int'l Co., Ltd.</i> , IPR2025-01462, Petitioner's Opposition to Patent Owner's Request for Discretionary Denial, Paper 11 (PTAB December 9, 2025)
1042	Thesaurus.com – “part” <i>available at</i> https://www.thesaurus.com/browse/part
1043	Declaration of William H. Milliken in Support of Admission <i>Pro Hac Vice</i>
1044	Declaration of Dr. J. Michael McCarthy in Support of Petitioner's Opposition to Patent Owner's Contingent Motion to Amend
1045	U.S. Patent No. 6,508,495 B1 to Riley, issued January 21, 2003 (“Riley”)
1046	Meridian Response Letter to ToughBuilt Request (July 21, 2026)
1047	Deposition Transcript of Dr. Glenn Vallee from IPR2025-01461 (July 16, 2026)
1048	Deposition Transcript of Dr. Glenn Vallee from IPR2025-01462 (July 14, 2026)
1049	Declaration of Dr. J. Michael McCarthy in Support of Petitioner's Reply to Patent Owner's Response
1050	Excerpts from J. Michael McCarthy & Gim Song Soh, <i>Geometric Design of Linkages</i> , 2nd Edition (Springer 2010) (“Geometric Design”)

Exhibit No.	Description
1051	Deposition Transcript of Dr. J. Michael McCarthy from IPR2025-01462 (May 7, 2026)

I. INTRODUCTION

All claims of the '946 patent are unpatentable. They are directed to nothing more than a latch with a well-known “*stop part*” that aids in decoupling storage boxes. Meridian’s rebuttal arguments do not engage with the analysis and evidence presented in the Petition, apply impermissibly narrow and incorrect claim constructions, and are supported by conclusory expert testimony that should not be accorded weight. The Board should reject Meridian’s arguments and find all claims of the '946 patent unpatentable.

II. CLAIM CONSTRUCTION

While this Reply addresses Meridian’s POR constructions, the Board need not construe any terms to find the claims unpatentable. Pet., 9-10.

A. “Stop Part”

The parties construed “stop part” in the district court proceeding. Pet., 9-10. Meridian argues that the “plain and ordinary meaning of ‘stop part’ should be used.” POR, 6; EX2012, ¶38. The Board need not construe “stop part” to resolve any controversy because Meridian fails to rebut ToughBuilt’s arguments and evidence that Li and Baruch disclose this limitation. *See* POR, i-iii (Table of Contents). Thus, Li and Baruch disclose the claimed “stop part” for the reasons provided in the Petition. Pet., 43-47, 112-117; EX1049, ¶¶3-5.

B. “Mounting Body”

The parties did not construe “mounting body” in the district court

proceeding, instead agreeing that “mounting part” should carry its “[p]lain and ordinary meaning, and is used interchangeably with ‘mounting body.’” POR, 7.

Despite Meridian’s argument that the Petition construes the term, it is Meridian who proposes a new construction attempting to limit the claims to only one embodiment in the specification. POR, 8-9. Meridian argues “mounting body” should be construed as “the portion of the first connection part attached to the body of the storage container relative to which the locking buckle slides.” POR, 8-9; EX2012, ¶44. Addressing the prior art, Meridian further defines the “mounting body” to exclude “any additional structures, or any components of the locking buckle and/or locking part that attach the locking buckle and/or the locking part to the mounting body.” POR, 9, 22-25, 31-32.

But the specification does not support Meridian’s narrow and exclusionary construction. The specification lists several, non-limiting options for mounting body 112:

- “can be bolted into the mounting slot 111”;
- “may also be integrally formed with the mounting slot 111”; or
- “fixedly connected by means such as snap-on.”

EX1001, 6:54-60.

The specification therefore does not limit “mounting body” to any particular structure. EX1049, ¶¶6-10. Absent explicit language in the specification that limits

the scope of the claims, Meridian’s interpretation fails, and the Board should reject Meridian’s attempt to limit the claims. *Info-Hold, Inc. v. Applied Media Techs. Corp.*, 783 F.3d 1262, 1267 (Fed. Cir. 2015) (limiting the scope of the claim to a preferred embodiment only when “the patentee uses words that manifest a clear intention to restrict the scope of the claims to that embodiment”); *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004).

Regardless, Li and Baruch disclose a “mounting body” under Meridian’s incorrect construction. Section III.E.

C. “Locking Buckle”

Meridian argues that the Petition construes the term “locking buckle,” but it is Meridian who now proposes a new limiting construction. POR, 9-10. Meridian construes “locking buckle” as the “entire locking or latch component that slides relative to the mounting body.” POR, 9-10. But the claims, specification, and Dr. Vallee’s testimony demonstrate that Meridian’s construction is wrong.

First, the claims do not support Meridian’s construction. Claim 1 recites “a locking part cooperating with the locking buckle.” The parties agreed in the district court that this term should be construed as “a locking part **including** a locking buckle.” EX1027, 3; EX1028, 10. The “locking buckle” is therefore a portion of the “locking part” rather than the entire locking or latch component. EX1047, 49:7-17, 50:3-51:18 (Dr. Vallee confirming). Meridian’s construction therefore

contradicts the claims and is wrong. EX1049, ¶¶11-12.

Second, the specification does not support Meridian’s construction. EX1001, 7:3-20 (“The locking part 12 includes ... a locking buckle 122”), 8:26-34 (“locking buckle 122 on the locking part 12”). Figure 7 also depicts locking buckle 122 as a portion of locking part 12:

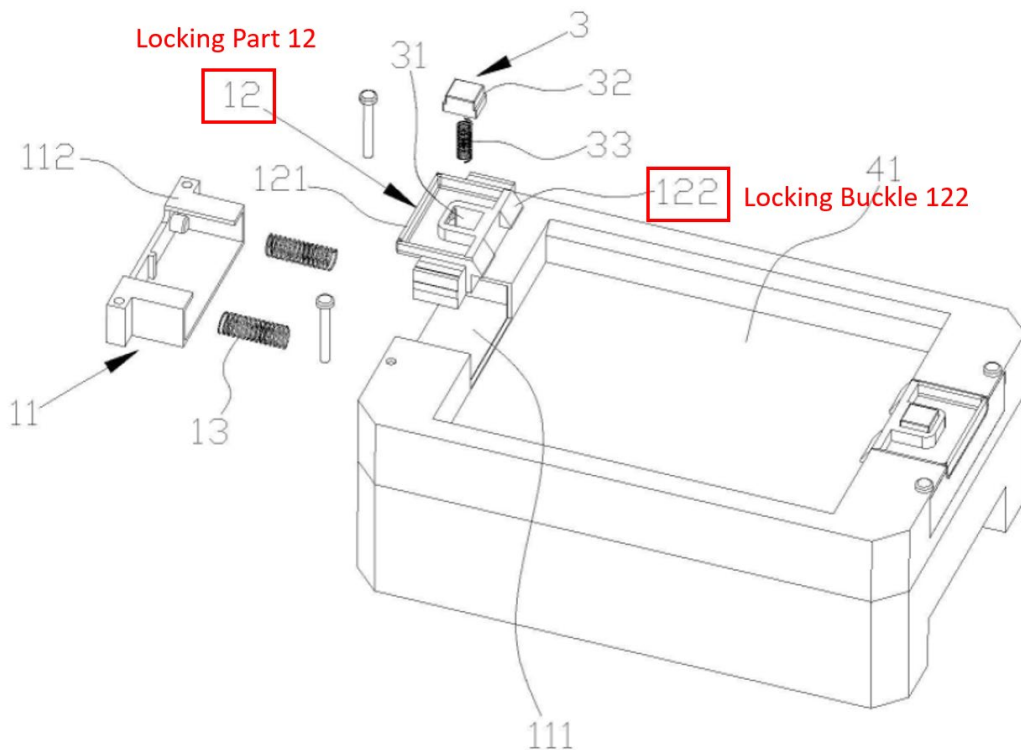


FIG. 7

EX1001, FIG. 7 (annotated).

In view of the claims and specification, the term “locking buckle” does not refer to the entire locking/latch component, but rather refers to a portion of the claimed “locking part.” EX1001, 7:3-20, 8:26-34; EX1049, ¶¶13-15. The Board should therefore reject Meridian’s construction.

Regardless, Li and Baruch disclose the claimed “locking buckle” under Meridian’s incorrect construction. Section III.E.

III. GROUNDS 1A AND 2A – EACH OF LI AND BARUCH ANTICIPATES CLAIMS 1-4, 7-12, AND 15

Meridian takes the same flawed approach to allege that neither Li nor Baruch discloses a “*first resilient member between said mounting body and locking buckle.*” Meridian does not dispute—but rather appears to concede—that both references disclose the “*first resilient member,*” “*mounting body,*” and “*locking buckle.*” Instead, Meridian asserts narrow and incorrect claim constructions for “*mounting body*” and “*locking buckle,*” such that—if Meridian’s constructions and mappings are accepted—the “*first resilient member*” in Li and Baruch is not “*between*” the “*mounting body*” and “*locking buckle.*” The Board should reject these arguments because Meridian’s constructions and mappings are wrong and Meridian largely ignores the Petition’s arguments and evidence.

A. Li discloses a mounting body, a locking buckle, and first resilient member located between the mounting body and locking buckle.

1. The Petition explains how Li discloses these features.

Li discloses the claimed “*mounting body,*” “*locking buckle,*” and “*first resilient member located between said mounting body and locking buckle.*” Pet., 24-33. The table below summarizes the Petition’s mappings. Figures 3-5 from Li are also provided below.

Claim Term	Teaching from Li
Mounting body	“Stop piece 35” as attached to “chute 21” via “snap-in hole 211” (EX1007, ¶34)
Locking buckle	“Pull latch cover 32” which includes “latch bar 321” (EX1007, ¶33)
First resilient member located between the mounting body and locking buckle	“First spring 34” (positioned between stop piece 35 and pull latch cover 32) (EX1007, ¶34)

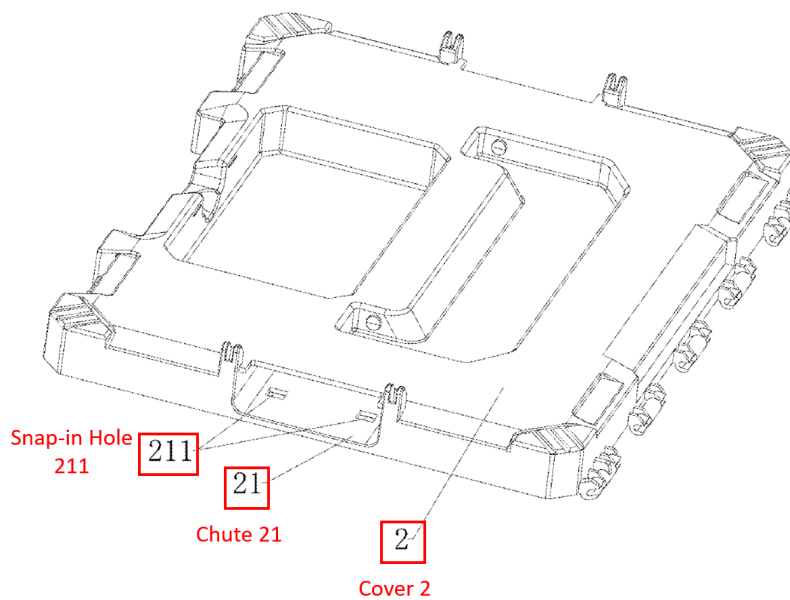


FIG. 5

EX1007, FIG. 5 (annotated).

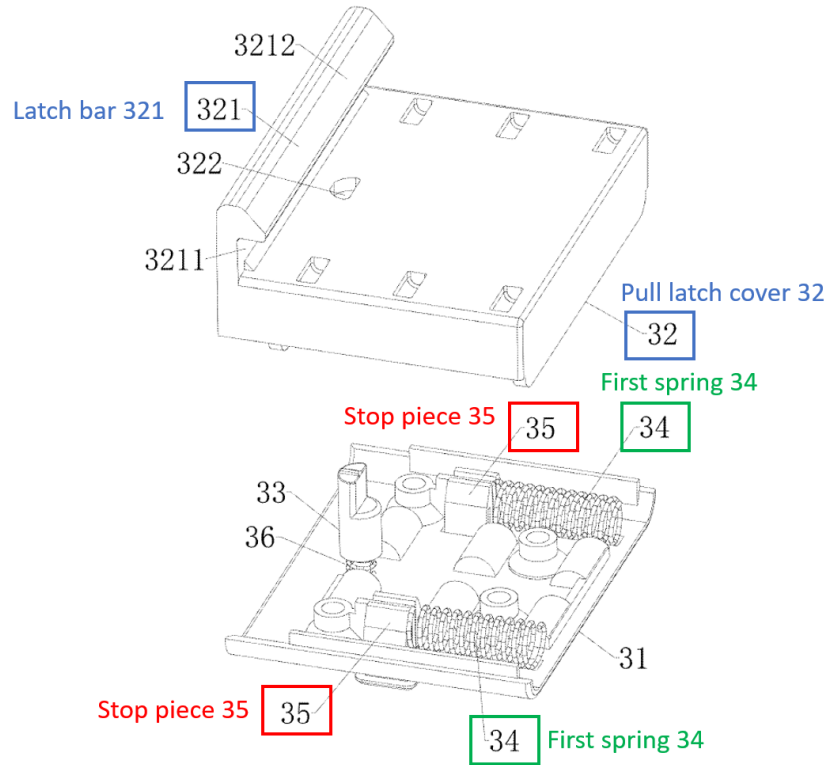


FIG. 4

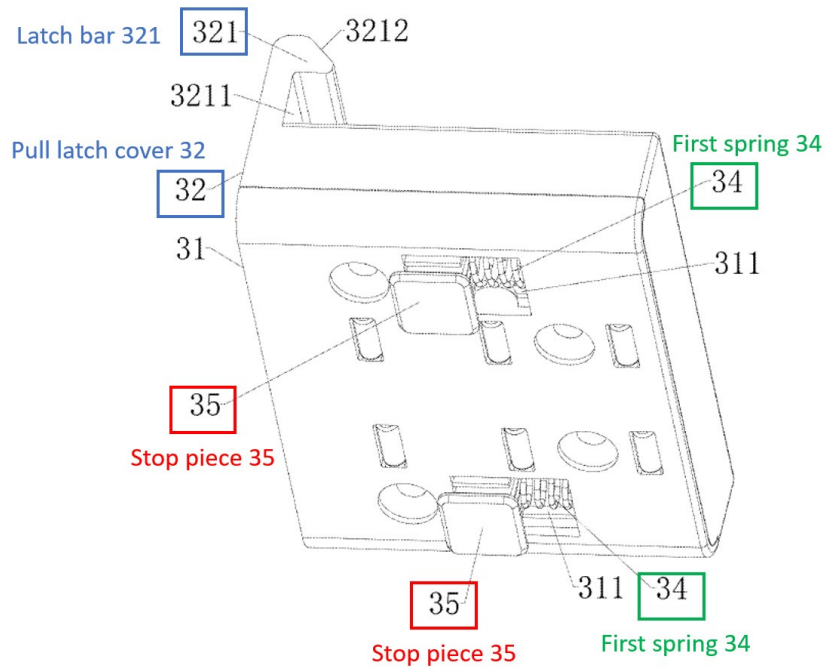


FIG. 3

EX1007, FIGs. 3-4 (annotated).

“First spring 34” (i.e., claimed *first resilient member*) is located between stop piece 35 and pull latch cover 32 because first spring 34 contacts stop piece 35 and the front face of pull latch cover 32 as depicted in Figure 4. Pet., 30; EX1007, ¶34. Stop piece 35 as inserted into “chute 21” via “snap-in hole 211” teaches the claimed *mounting body* while “pull latch cover 32”—which includes “latch bar 321”—teaches the claimed *locking buckle*. Pet., 24-33; EX1049, ¶¶16-17.

2. Meridian’s “mounting body” arguments fail.

Meridian presents several arguments related to Li’s teaching of a “*mounting body*,” but none are availing. POR, 22-25; EX1049, ¶¶18-23.

First, Meridian mischaracterizes the Petition’s prior-art analysis as presenting a narrow, express construction of “*mounting body*.” POR, 22-24. The Petition argues no express construction is needed and explains how Li discloses a “*mounting body*” under the term’s plain and ordinary meaning. Pet., 27-30. By contrast, Meridian seeks to read limitations into this term and improperly limit “*mounting body*” to a single disclosed embodiment. Section II.B.

Second, Meridian argues Li’s “stop piece 35” inserted into “chute 21” via “snap-in hole 211” does not teach a “*mounting body*” because the allegedly “correct interpretation of ‘mounting body’ is the chute 21 of Li.” POR, 24. This argument fails because it (1) does not address the Petition’s invalidity theory and evidence and (2) concedes that Li does, in fact, disclose a “*mounting body*.”

Additionally, Meridian argues that Li did not consider “these three structures to be a single ‘mounting body’” because they are not pictured together in a single figure. POR, 24-25. But being pictured together is not a requirement to show that a reference discloses a limitation. *See Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1344 (Fed. Cir. 2016) (“[A] reference may still anticipate if that reference teaches that the disclosed components or functionalities may be combined and one of skill in the art would be able to implement the combination.”). Here, Li’s figures and description collectively disclose the “mounting body.” Pet., 27-30.

Third, the specification supports the Petition’s mapping. The specification explains that any component “fixedly connected [to a lid] by means such as snap-on” sufficiently teaches a “mounting body.” EX1001, 6:57-60. Li’s stop piece 35 as attached to “chute 21” via “snap-in hole 211” functions in the same way described in the ’946 patent and similarly mounts Li’s elastic pull latch 3 to cover 2. EX1007, ¶34. The ’946 patent therefore reinforces Li disclosing the claimed *mounting body*.

3. Meridian’s “locking buckle” arguments fail.

Meridian presents several arguments related to Li’s teaching of a “*locking buckle*,” but none are availing. POR, 25-26; EX1049, ¶¶24-27.

First, Meridian applies an incorrect construction that “locking buckle” is the “entire locking or latch component.” POR, 25. Meridian’s construction contradicts

the claims, specification, and Dr. Vallee's testimony, which indicate the locking buckle is a portion of the "locking part." Section II.C. The Board should reject Meridian's arguments because they hinge on this incorrect construction.

Second, Meridian argues that Li's "pull latch cover 32" and "latch bar 321" do not teach a "locking buckle" because "the entire latch 3 of Li" is more "comparable." POR, 26. Similar to Meridian's mounting-body arguments, this argument fails because it (1) does not address the Petition's invalidity theory and evidence and (2) concedes that Li does, in fact, disclose a "locking buckle."

4. Meridian's "first resilient member" arguments fail.

Meridian presents several arguments related to Li's teaching of a "*first resilient member located between said mounting body and said locking buckle*," but none are availing. POR, 26-28; EX1049, ¶¶28-32.

First, Meridian bases its theories on arguments not found in the Petition. Meridian argues that Li does not teach the claimed "resilient member" positioning because Li does not teach a resilient member between "chute 21 and latch 3 of Li." POR, 27. But Meridian premises this argument on incorrect claim constructions and its own prior-art mapping rather than the one presented in the Petition. The Board should therefore reject these arguments for failing to address or refute the Petition's arguments and evidence.

Second, Meridian argues that because Li's spring 34 is positioned within

latch 3, it cannot be located between a mounting body and locking buckle. POR, 27-28. But Meridian's argument is premised on mapping Li's elastic pull latch 3 to the "*locking buckle*," whereas the Petition explained how Li's "pull latch cover 32" teaches the claimed "*locking buckle*." Pet., 28-30. The Board should reject Meridian's argument because it does not address the ground presented in the Petition.

Regardless, nothing in the claim excludes the "*first resilient member*" from being positioned within the *locking buckle*. The claim simply requires the *first resilient member* to be "***located between***" the *mounting body* and *locking buckle*. Figures 4 and 7 from the '946 patent confirm this understanding and depict first resilient member 13 being received within and covered by locking part 12, which includes locking buckle 122. EX1001, FIGs. 4, 7. The Petition's mapping of Li is consistent and shows that Li discloses this element. Pet., 28-30.

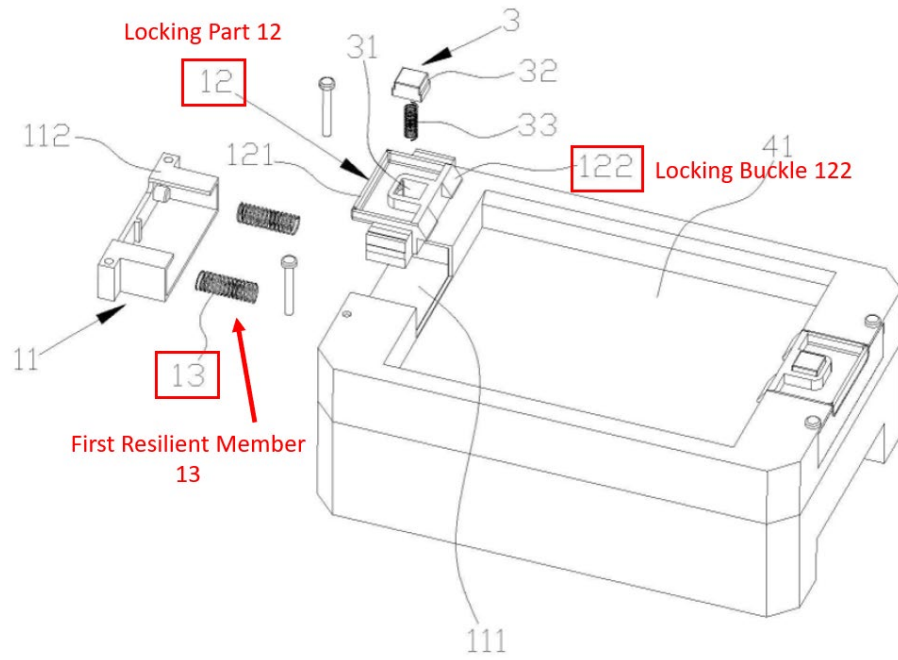


FIG. 7

EX1001, FIG. 7 (annotated).

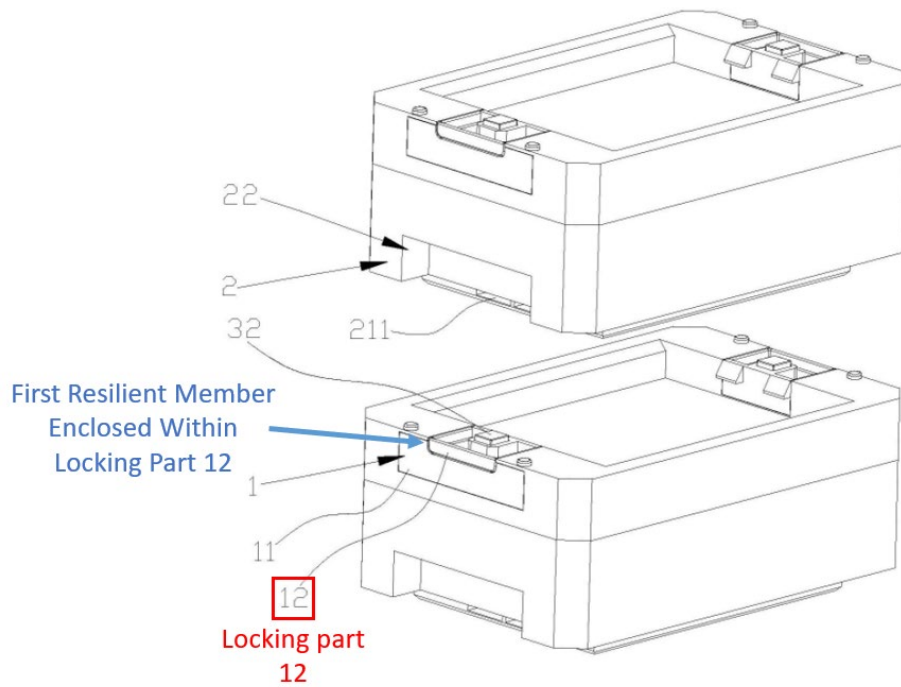


FIG. 4

EX1001, FIG. 4 (annotated).

B. Li discloses dependent claims 2-4, 7-10, and 12.

Meridian presents no arguments for claims 2-4, 7-10, and 12. Li discloses these claims. Pet., 56-64; EX1049, ¶33.

C. Baruch discloses a mounting body, a locking buckle, and resilient member located between the mounting body and locking buckle.

1. The Petition explains how Baruch discloses these features.

Baruch discloses the claimed “*mounting body*,” “*locking buckle*,” and “*first resilient member located between said mounting body and locking buckle*.” Pet., 102-106. The table below summarizes the Petition’s mappings. Figures 21-22 and 23B from Baruch are also provided below.

Claim Term	Teaching from Baruch
Mounting body	Pins 334 as mounted in carveout 352 via holes 356 on a lid (EX1012, ¶¶54-55)
Locking buckle	latch 314 which includes a main body 315 and a primary hook 316 (EX1012, ¶49)
First resilient member located between the mounting body and locking buckle	latch bias 320 (EX1012, ¶¶51, 54, 62-63)

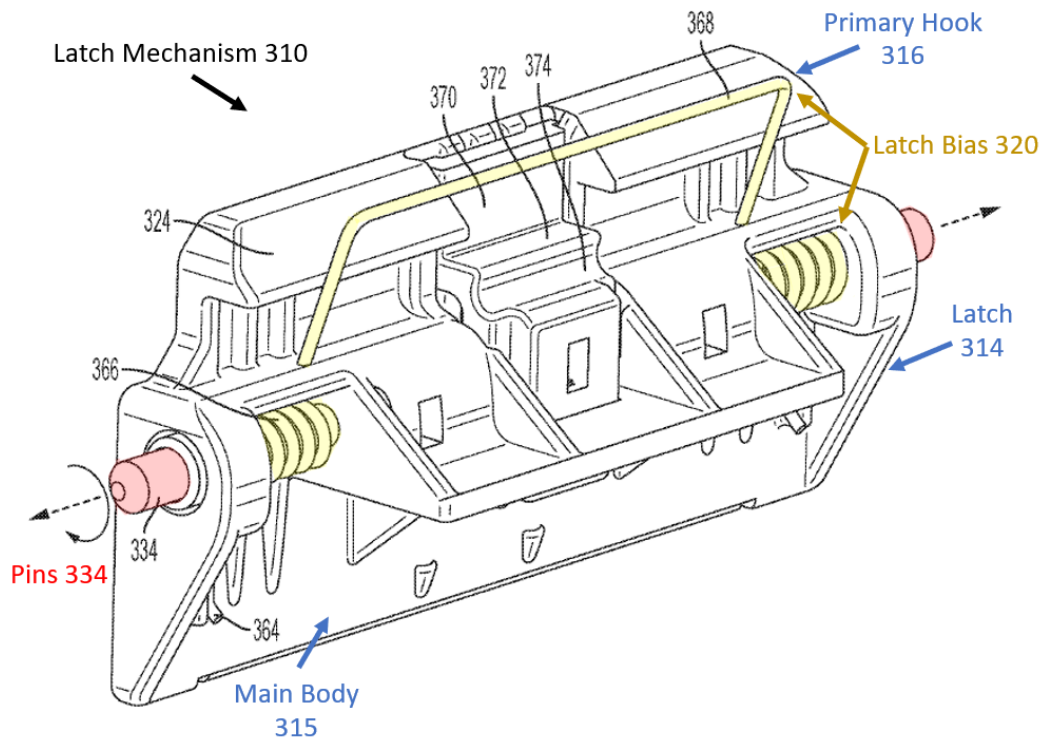


FIG. 21

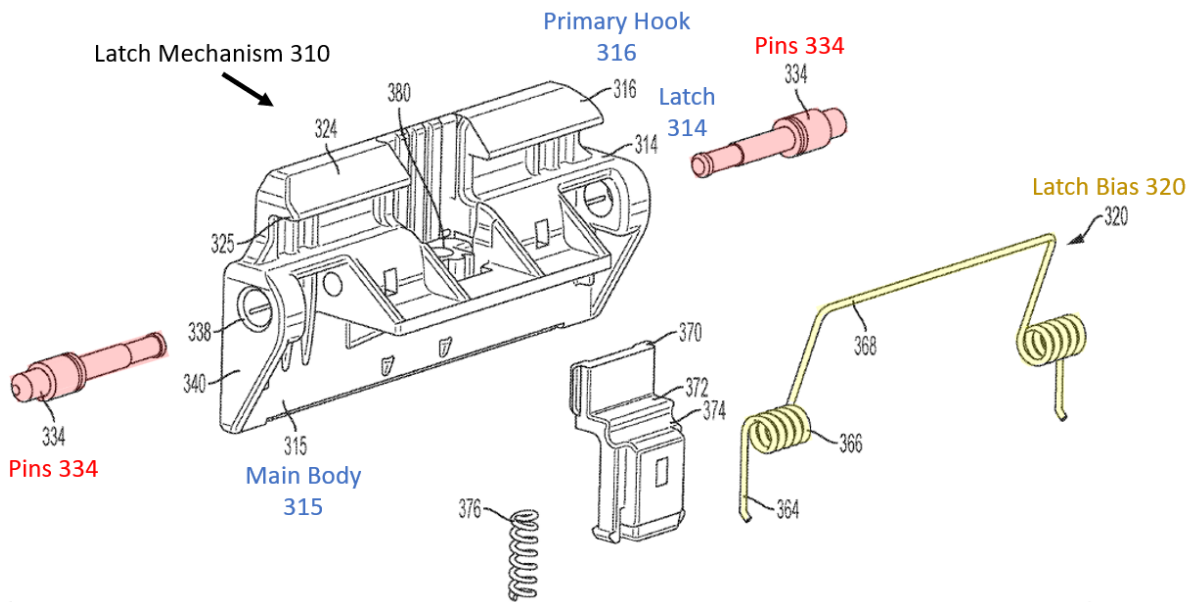


FIG. 22

EX1012, FIGs. 21-22 (annotated).

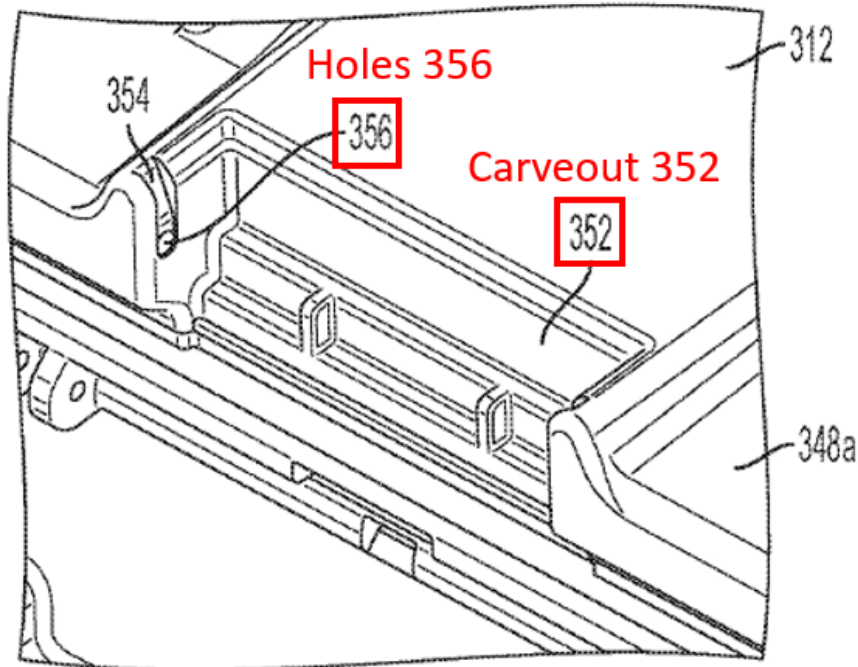


FIG. 23B

EX1012, FIG. 23B (annotated).

“Latch bias 320” (i.e., claimed *first resilient member*) is located between pins 334 and main body 315 of latch 314 because latch bias 320 coils around pins 334 and “applies force against the main body 315.” EX1012, ¶54; Pet., 105. Pins 334 as mounted in carveout 352 via holes 356 teach the claimed *mounting body* while latch 314—which includes main body 315 and primary hook 316—teaches the claimed *locking buckle*. Pet., 104-106; EX1049, ¶¶34-35.

2. Meridian’s “mounting body” arguments fail.

Meridian presents several arguments related to Baruch’s teaching of a “*mounting body*,” but none are availing. POR, 30-32; EX1049, ¶¶36-40.

First, Meridian again mischaracterizes the Petition’s prior-art analysis as presenting a narrow, express construction of “*mounting body*.” POR, 30-32. But again, the Petition argues no express construction is needed and explains how Baruch discloses a “*mounting body*” under the term’s plain and ordinary meaning. Pet., 102-104. By contrast, Meridian seeks to read limitations into this term and improperly limit “*mounting body*” to a single disclosed embodiment. Section II.B.

Second, Meridian argues that pins 334 as mounted in carveout 352 via holes 356 cannot teach the claims because the “‘*mounting body*’ is only the carveout 352.” POR, 31. This argument fails because it (1) does not address the Petition’s invalidity theory and evidence and (2) concedes that Baruch does, in fact, disclose a “*mounting body*.”

Third, the specification supports the Petition’s mapping. The specification explains that any component “fixedly connected [to a lid] by means such as snap-on” sufficiently teaches a “*mounting body*.” EX1001, 6:57-60. Baruch’s pins 334 are guided by slots 354 to snap into holes 356. EX1012, ¶¶45, 55; EX1047, 179:4-17. Pins 334 as mounted in carveout 352 via holes 356 function in the same way described in the ’946 patent and similarly mount Baruch’s latch mechanism 310 to the container’s lid. EX1012, ¶55. Thus, the ’946 patent reinforces that Baruch disclosing the claimed *mounting body*.

3. Meridian’s “locking buckle” arguments fail.

Meridian presents several arguments related to Baruch’s teaching of a “*locking buckle*,” but none are availing. POR, 32-34; EX1049, ¶¶41-46.

First, Meridian argues that Baruch’s latch 314 does not teach the claimed *locking buckle* because “latch mechanism 310” “is not at least partially received within the carveout 352.” POR, 33. Meridian’s argument fails because the Petition does not rely on “latch mechanism 310” to teach the claimed “*locking buckle*.” Pet., 104-105, 110-112. Rather, Baruch’s latch mechanism 310 teaches the claimed “*locking part*” while latch 314 teaches the “*locking buckle*.” Pet., 104-105, 110-112. Meridian’s arguments related to “latch mechanism 310” therefore fail to address or refute the Petition’s ground.

Additionally, Meridian is factually wrong. Latch mechanism 310—which includes latch 314—is at least partially received within the carveout 352 when pins 334 are inserted into holes 356. *See* EX1012, ¶¶49, 55, FIGs. 21, 23B.

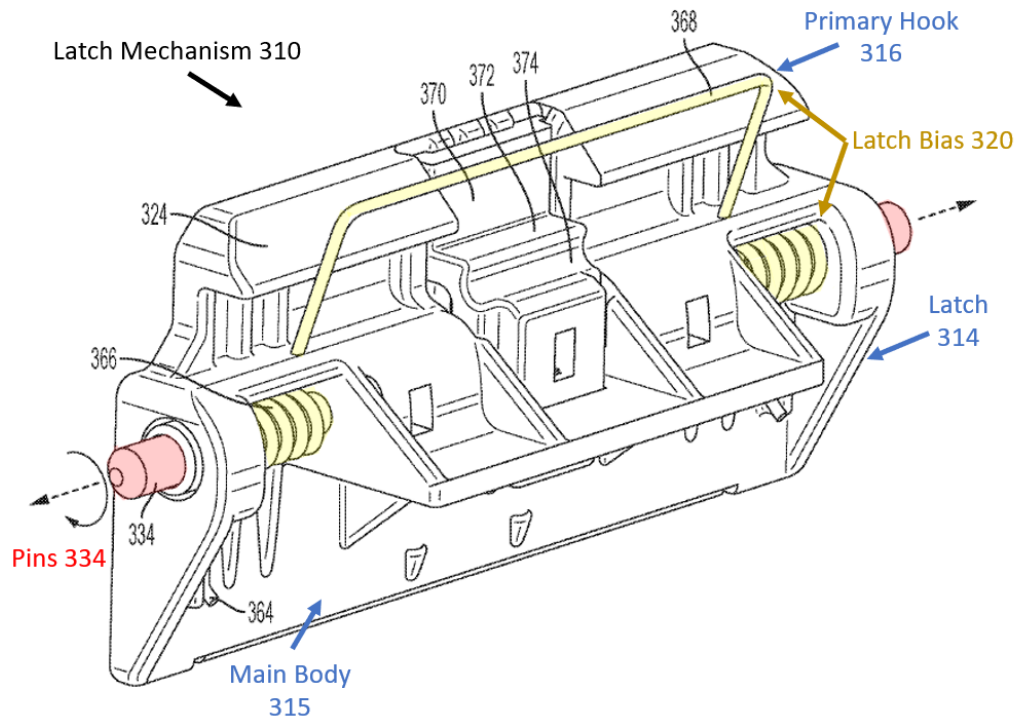


FIG. 21

EX1012, FIG. 21 (annotated).

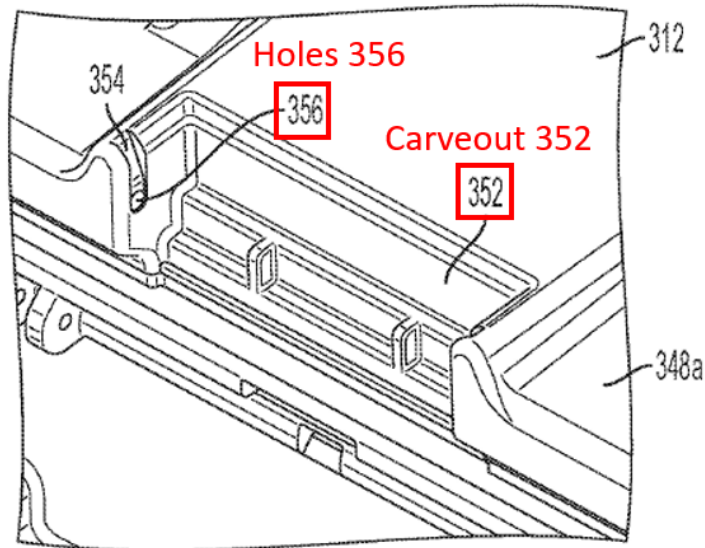
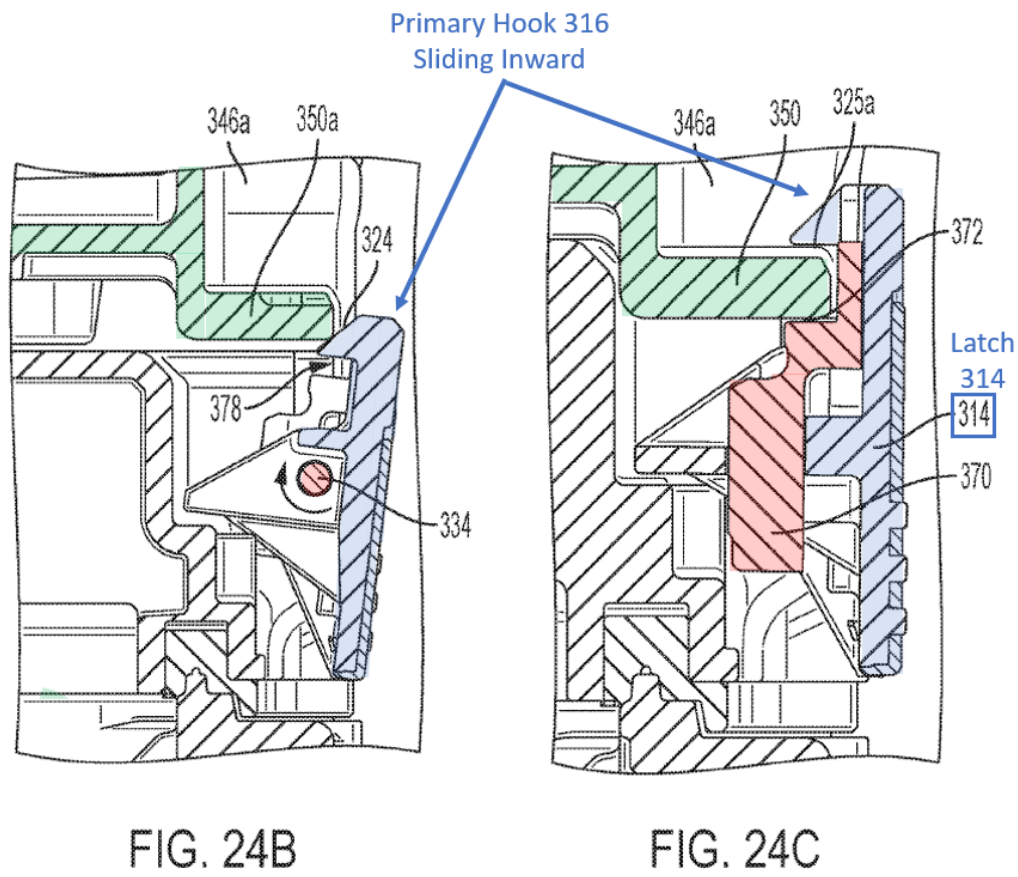


FIG. 23B

EX1012, FIG. 23B (annotated).

Second, Meridian argues that latch 314 does not teach the claimed locking buckle because it does not “slide inward with respect to the mounting part.” POR, 33-34. Meridian argues that latch 314 pivoting around pins 334 does not sufficiently teach the claimed “sliding inward.” POR, 33-34. But Meridian’s argument again fails to address latch 314 and primary hook 316 rotating inward relative to pin 334 and sliding inward into a locked position. Pet., 107-110; EX1012, ¶62, FIGs. 24B-24C. As Figure 24B transitions to Figure 24C when locking, latch 314 and primary hook 316 slide inward. Pet., 107-110; EX1003, ¶352 (explaining a component of Baruch’s rotation is horizontal).



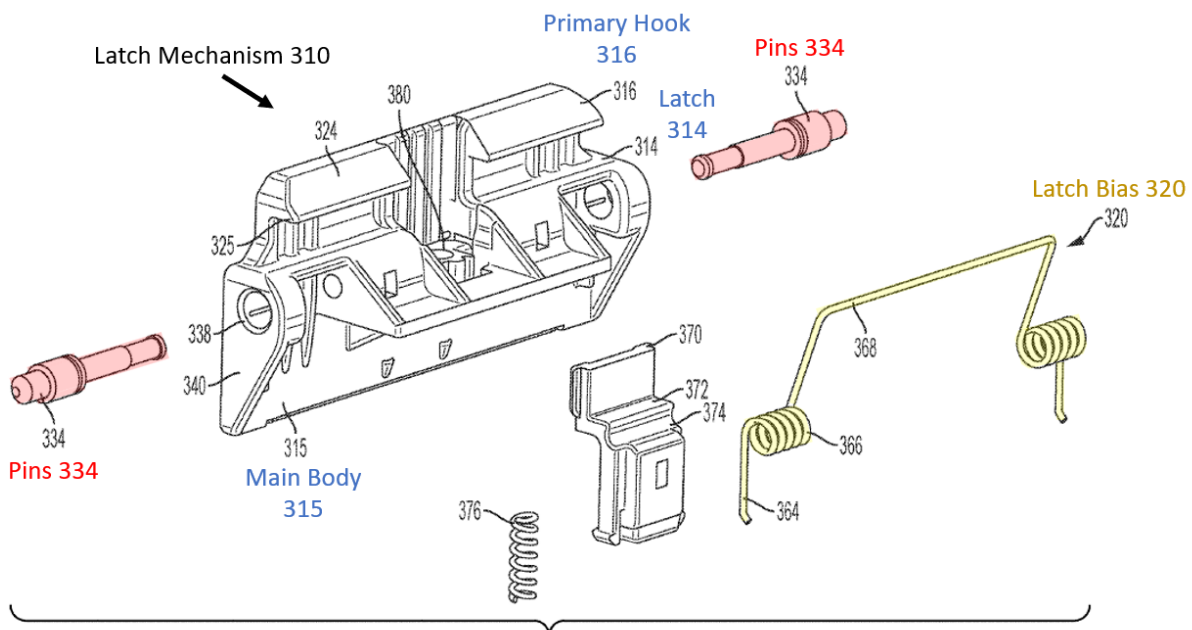
EX1012, FIGs. 24B-24C (annotated).

Meridian fails to address the movement of primary hook 316 at all and therefore fails to refute the Petition's arguments and evidence.

4. Meridian's "first resilient member" arguments fail.

Meridian argues that Baruch's latch bias 320 is not located between latch 314 and carveout 352 because latch bias 320 is contained within latch 314. POR, 34-36. But this argument fails. EX1049, ¶¶47-52.

First, Meridian misinterprets Baruch's mechanism and improperly conflates "latch 314" with "latch mechanism 310." As seen in Figure 22, "latch mechanism 310" includes both latch 314 and latch bias 320 as separate components. POR, 35; EX1012, ¶¶51, 54, FIG. 22.



EX1012, FIG. 22 (annotated).

Even when assembled, latch bias 320 is a separate component from latch 314 and is therefore not “within the latch 314” as Meridian alleges. POR, 34-35; EX1012, ¶¶51, 54, FIG. 22. Thus, Meridian’s argument fails due to Meridian’s misunderstanding of Baruch’s mechanism.

Second, Meridian’s observation that a portion of latch bias 320 is wrapped around pins 334 does not disprove that Baruch teaches a “*first resilient member located between said mounting body and said locking buckle.*” Pet., 105-106.

Rather, latch bias 320 is *located between* pins 334 and main body 315 of latch 314 because latch bias 320 coils around pins 334 and “applies force against the main body 315.” EX1012, ¶54, FIGs. 21-22; Pet., 105. To perform Baruch’s biasing action, latch bias 320 would be positioned between pins 334 and latch 314.

EX1012, ¶¶51, 54, FIG. 22; EX1003, ¶¶293, 297-299. Baruch therefore discloses the claimed positioning.

Further, Meridian’s position that latch bias 320 is within latch 314 is not commensurate with the claim’s scope. Nothing in the claim excludes the “*first resilient member*” from being positioned partially within the locking buckle. The claim simply states that the first resilient member is *located between* the mounting body and locking buckle. Figures 4 and 7 from the ’946 patent depict first resilient member 13 being received within and covered by locking part 12, which includes locking buckle 122. EX1001, FIGs. 4, 7. The Petition’s mapping of Baruch is

Case IPR2025-01461
U.S. Patent No. 11,986,946

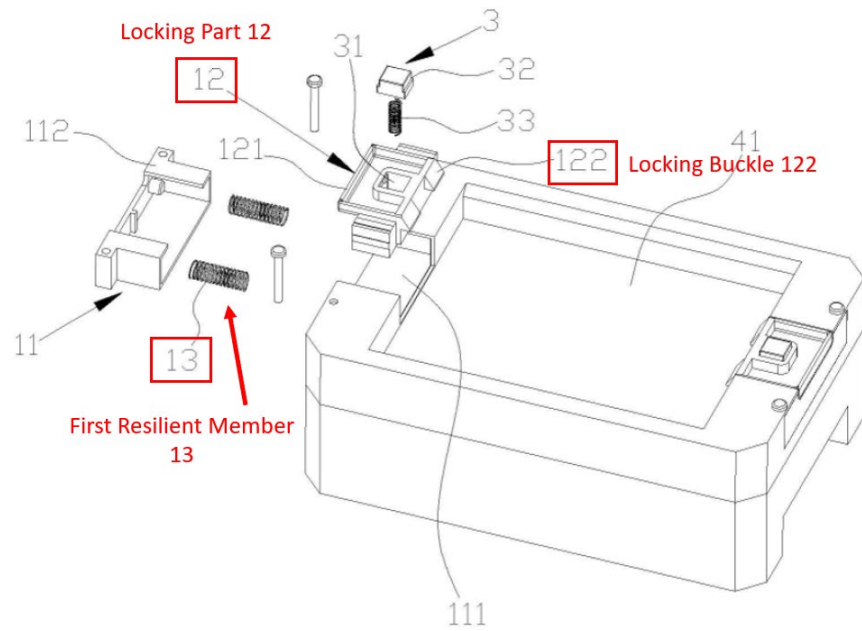


FIG. 7

EX1001, FIG. 7 (annotated).

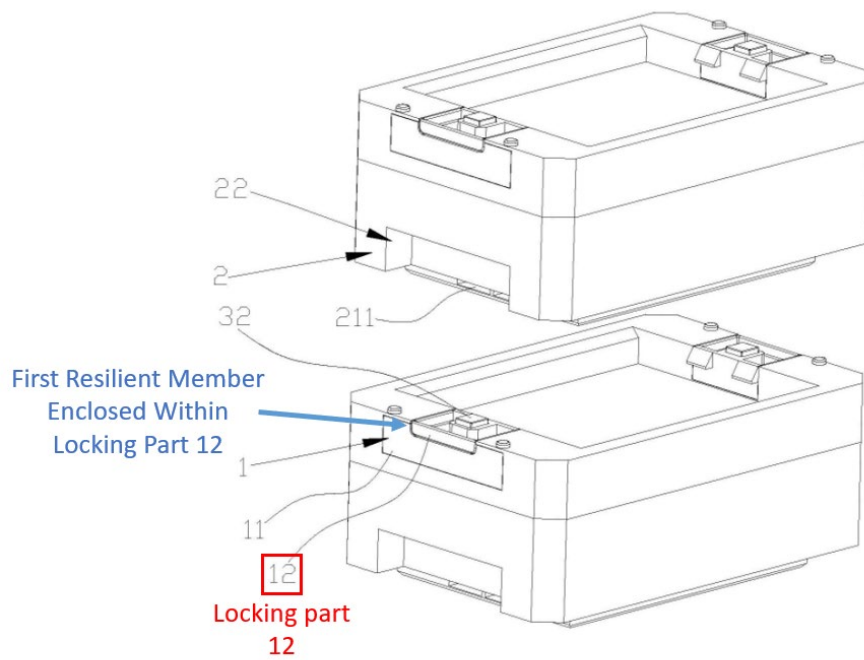


FIG. 4

EX1001, FIG. 4 (annotated).

D. Baruch discloses dependent claims 2-4, 7-10, and 12.

Meridian presents no arguments for claims 2-4, 7-10, and 12. Baurch discloses these claims. Pet., 134-145; EX1049, ¶53.

E. Li and Baruch still teach the claims even under Meridian's constructions.

1. "Mounting body"

Meridian argues that a "*mounting body*" should be construed as "*the portion of the first connection part attached to the body of the storage container relative to which the locking buckle slides.*" POR, 8-9; EX2012, ¶44. Li and Baruch disclose a *mounting body* under Meridian's incorrect construction. EX1049, ¶¶54-56.

Li's stop piece 35 as attached to chute 21 via snap-in hole 211 is still a portion of the first connection part attached to the body of the storage container. EX1007, ¶34. Further, pull latch cover 32 slides relative to stop piece 35 as inserted into chute 21. Thus, Li teaches a "*mounting body*" under Meridian's construction.

Baruch's pins 334 as mounted in carveout 352 via holes 356 is similarly still a portion of the first connection part attached to the body of the storage container. EX1012, ¶¶54-55. Further, latch 314 still slides relative to pins 334 when primary hook 316 slides into the locked/unlocked positions. EX1012, ¶49; Pet., 126-127, 136-137. Thus, Baruch teaches a "*mounting body*" under Meridian's construction.

2. “Locking buckle”

Meridian argues that a “*locking buckle*” should be construed as the “*entire locking or latch component that slides relative to the mounting body.*” POR, 9-10. Li and Baruch disclose a *locking buckle* under Meridian’s incorrect construction. EX1049, ¶¶57-59.

Li’s “pull latch cover 32” including “latch bar 321” discloses an “entire locking or latch component that slides relative to the mounting body.” Latch bar 321 slides relative to Li’s stop pieces and chute and locks/latches onto an upper container via catch 12, thereby disclosing a “locking buckle” under Meridian’s construction. EX1007, ¶¶33-34, 36-38, FIGs. 3-4.

And Baruch’s latch 314 discloses an “entire locking or latch component that slides relative to the mounting body.” Primary hook 316 slides relative to Baruch’s pins and carveout and locks/latches onto an upper container via step 350, thereby disclosing a “locking buckle” even under Meridian’s construction. EX1012, ¶¶ 36, 51, 55-54, 62-63.

IV. GROUND 1B AND 2B – LI AND BARUCH RENDER OBVIOUS CLAIMS 1-4, 7-12, AND 15

Meridian argues that the claims are not obvious over Li and Baruch but fails to address the Petition’s arguments and evidence. POR, 37-41; EX1049, ¶¶60-64.

A POSA would have found the claims obvious over Li or Baruch. Pet., 65, 145-146. For example, Li’s “stop piece 35” as attached to “chute 21” via “snap-in

hole 211” renders the claimed “*mounting body*” obvious. EX1003, ¶¶225-229. Li’s elastic pull latch 3 mounts to chute 21 and moves horizontally relative to chute 21 and stop pieces 35 in the same way described in the ’946 patent, thereby rendering the claimed functionality and components obvious. EX1007, ¶¶34, 36; EX1001, 6:61-67.

Similarly, Baruch’s “pins 334” as mounted in “carveout 352” via “holes 356” renders obvious the claimed “*mounting body*” because latch 314 mounts to the lid and the rotation of latch 314 and primary hook 316 still moves relative to carveout 352 and pins 334. EX1012, ¶¶54-55; EX1003, ¶¶363-366. This amounts to a predictable use of Baruch’s prior art elements according to their known functions, thereby rendering the claimed functionality and components obvious.

Li’s and Baruch’s components and functionality amount to using a known technique to address a known problem using prior art elements according to their established functions. *KSR Int’l. Co. v. Teleflex, Inc.*, 550 U.S. 398, 417-18 (2007). This renders the claims obvious.¹ *Id.*

Rather than engaging with Petition’s explanation, Meridian argues that

¹ Despite Meridian’s assertions, Dr. McCarthy does not make only conclusory statements but provides a rationale and explanation for why Li and Baruch render the claims obvious. EX1003, ¶¶225-229, 363-366.

Dr. McCarthy stated there was “no deficiency” in Li or Baruch. POR, 38, 40. But a deficiency is not needed to demonstrate obviousness. *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1380-81 (Fed. Cir. 2023) (no need to show any “improvement” to establish a motivation to combine). Li and Baruch render the claims obvious at least because their respective components and functionality amount to using known prior art techniques (e.g., mounting latches on storage boxes) in predictable ways. Pet., 65, 145-146.

V. GROUND 1C AND 2C – LI-BURCHIA-HAMMOND AND BARUCH-BURCHIA-HAMMOND RENDER OBVIOUS CLAIMS 5-6 AND 13

A. Motivation to combine Li-Burchia-Hammond (Ground 1C) and Baruch-Burchia-Hammond (Ground 2C)

A POSA would have been motivated to form the Li-Burchia-Hammond and Baruch-Burchia-Hammond combinations because Burchia and Hammond provide details for implementing a torsion spring as Li’s “second spring 36” or Baruch’s “stopper bias 376.” Pet., 71-74, 147-148; EX1049, ¶¶65-66. Li and Baruch disclose using springs while Burchia explains that a torsion spring (as opposed to a compression spring) would have been a simple design choice. EX1008, ¶14; EX1003, ¶¶233-234, 369-370. Hammond provides implementation details for using a torsion spring to bias a locking mechanism upward/outward. EX1009, Abstract, ¶¶4, 54, 78, FIGs. 1A-1B, 3C. Thus, a POSA would have looked to Burchia for types of well-known springs (e.g., torsion spring) and to Hammond for

torsion spring implementation details. Pet., 71-74, 147-148. Despite Meridian's arguments, this demonstrates motivation under *KSR. Intel*, 61 F.4th at 1380-81 (no need to show any "improvement" to establish a motivation to combine; employing a "suitable option" is sufficient).

Meridian does not address the Petition's rationale. Rather, Meridian argues that implementing Burchia with Li would require "significant redesign." POR, 43. This is wrong. The combination does not require a redesign but instead presents a simple substitution of well-known springs. Moreover, Meridian's argument fails to negate a motivation to combine because a POSA can weigh "simultaneous advantages and disadvantages" when designing/redesigning components. *Allied Erecting v. Genesis Attachments*, 825 F.3d 1373, 1381 (Fed. Cir. 2016).

Additionally, Meridian's argument that Li allows container connection in two different orientations while Burchia is limited to a single configuration does not address Burchia's teaching of implementing a torsion spring to move a component vertically. Pet., 71-74. Using one or two configurations is irrelevant to how the Petition applies Burchia. *Id.*

Regarding Hammond, Meridian argues that a POSA would not have considered Hammond "due to the complexity of [Hammond's] design." POR, 44. Again, a POSA would have been able to weigh such design considerations, which do not negate a motivation to combine. *Allied Erecting*, 825 F.3d at 1381; EX1049,

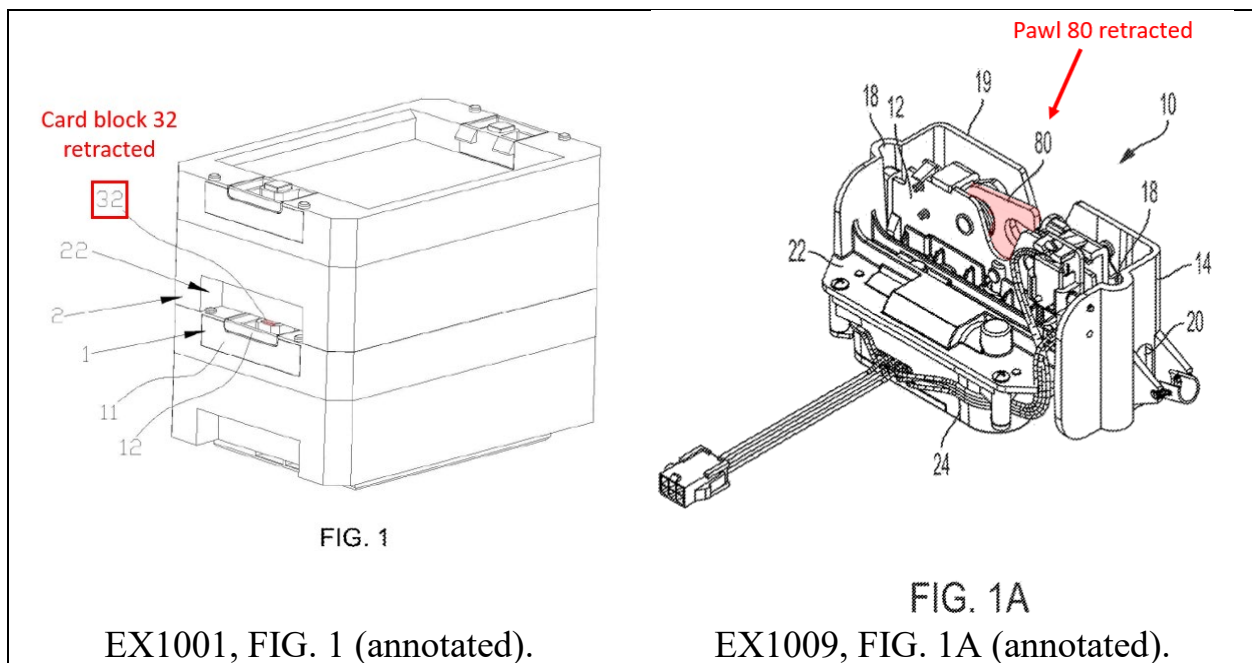
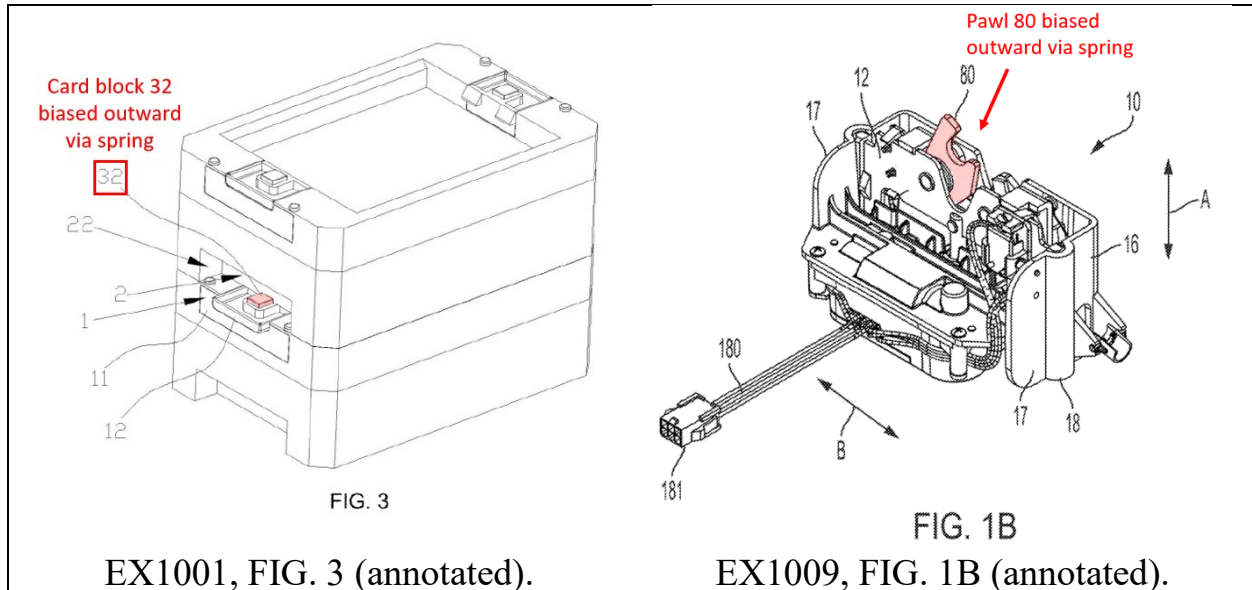
¶¶67-68.

Meridian also argues that Hammond is non-analogous art. POR, 44-46. This fails because Hammond meets both analogous art tests—i.e., Hammond is (1) from the same field of endeavor as the '946 patent and (2) reasonably pertinent to the problem addressed by the inventor. *Netflix, Inc. v. DivX, LLC*, 80 F.4th 1352, 1358 (Fed. Cir. 2023).

Hammond is in the same field of endeavor as the '946 patent. Both relate to latching mechanisms for storage containers. The '946 patent provides a “**connection structure**” for a storage box. EX1001, 1:52-57. Similarly, Hammond’s invention “relates to the **field of latches or connector systems configured to provide a mechanical connection between adjacent components.**” EX1009, ¶2. While Hammond describes a baggage compartment example, Hammond does not limit its teachings to only those contexts and instead indicates applicability to the entire field of “latches and connector systems.” EX1009, ¶2. Thus, Hammond is in the same field of endeavor. EX1049, ¶¶69-70.

Additionally, despite Meridian’s attempt to limit Hammond’s teachings to only closing doors (POR, 45-46), Hammond’s latch mechanism is reasonably pertinent to the '946 patent’s problems. The '946 patent describes solving an automatic locking/unlocking problem via a connection structure that uses a “stop part” or card block moving between retracted/extended states via a spring bias.

EX1001, FIGs. 1, 3, 2:9-14, 7:66-8:17, 8:44-61. Hammond similarly describes pawl 80 moving between a “closed and fully retracted state” and an “open and fully extended state” and a spring bias. EX1009, ¶¶8-9, 52, 54-55, 78.



In view of their commonalities, Hammond is reasonably pertinent to the

'946 patent's automatic locking/unlocking problem and connection solution.

EX1001, FIGs. 1, 3, 2:9-14, 7:66-8:17, 8:44-61; EX1049, ¶¶71-72.

Meridian additionally argues that the combination is based on hindsight bias. POR, 46-48. Not true. A POSA would have looked to Burchia, which describes various spring types for vertical locking elements in stackable boxes (e.g., “pressure spring,” “elastomer springs, leaf springs, helical springs,” “torsion springs or plate springs.”). EX1008, ¶14; Pet., 71-74, 147-148. A POSA would have known how to implement these spring types interchangeably with Li's and Baruch's springs as simple substitutions, and Hammond provides implementation details for a torsion spring. Pet., 72-74, 147-148; EX1003, ¶¶231-236, 368-372; EX1049, ¶73. Meridian fails to refute this showing.

Rather, Meridian mischaracterizes Dr. McCarthy's deposition testimony in alleging hindsight bias. Meridian argues that Dr. McCarthy admitted there is “nothing wrong with the latching mechanism taught by Li” or Baruch. POR, 46-47. But as previously explained, a deficiency is not required to demonstrate a motivation to combine. *Intel*, 61 F.4th at 1380-81.

Additionally, Meridian mischaracterizes Dr. McCarthy's testimony related preparing the Grounds. POR, 47. Rather than performing a hindsight analysis, Dr. McCarthy was commenting on how he prepared his declaration and the corresponding Grounds, which reflect a POSA's knowledge and motivations

before the '946 patent. EX1003, ¶¶231-232, 368-369 (explaining why a “POSA *would have been motivated*” to form the combinations). Dr. McCarthy explained the same during cross-examination. EX2014, 64:3-21 (explaining a POSA “*would* simply use a torsion spring” and “*would* put the torsion spring around [a pin] and then it *would* push up the stop part”), 65:16-19 (a POSA “*would* understand what’s required to do that”); EX1049, ¶¶74-75.

Thus, despite Meridian’s selective quotation, Dr. McCarthy has consistently maintained—without hindsight bias—that a POSA would have been motivated to form the Li-Burchia-Hammond and Baruch-Burchia-Hammond combinations. EX1049, ¶76.

B. Li-Burchia-Hammond (Ground 1C) and Baruch-Burchia-Hammond (Ground 2C) Render Claims 5 and 6 Obvious

Meridian does not appear to argue that the combinations fail to address any particular element of claims 5 or 6. Rather, Meridian presents its motivation to combine arguments again to argue that implementing a torsion spring would not have been obvious. POR, 48-50. For example, Meridian again argues that there is no “motivation to modify disclosed embodiments” and that it would not have been obvious to replace a “compression spring” with a “torsion spring.” POR, 49. But these arguments fail in view of Burchia’s teaching of a simple substitution. Section V.A; Pet., 71-74, 147-148; EX1008, ¶14; EX1049, ¶77.

Meridian additionally alleges that torsion springs are “more expensive” and

increase the “complexity of the design and the manufacturing costs.” POR, 50.

This fails to negate a showing of obviousness or motivation to combine because a POSA is capable of weighing such trade-offs along with simultaneous advantages/disadvantages in designs. *Allied Erecting*, 825 F.3d at 1381. Moreover, Dr. McCarthy explained that implementing a torsion spring would not have increased the cost. EX2014, 66:22-67:10; EX1049, ¶¶78-79.

Thus, Meridian’s additional arguments applied to claims 5 and 6 fail.

Section V.A.

C. Li-Burchia-Hammond (Ground 1C) and Baruch-Burchia-Hammond (Ground 2C) Render Claim 13 Obvious

Regarding claim 13, Meridian presents similar motivation-to-combine arguments. POR, 51-53. These arguments fail for the reasons discussed in Section V.A. EX1049, ¶80.

Meridian additionally argues that Hammond’s pawl 80 has “no relevance” to Li’s elastic boss 33 or Baruch’s stopper 370. POR, 51-52. But this argument fails to address the Petition’s arguments. Pet., 71-74, 147-148. Specifically, a POSA would have found it obvious to implement a torsion spring to perform the same “stop part” functionality described in Li and Baruch. *Id.* When implementing a torsion spring, pawl 80 is an example rotatable stop part. *Id.* Pawl 80 moves between an extended and retracted position similar to Li’s elastic boss 33 or Baruch’s stopper 370, so implementing Hammond’s teachings related to pawl 80

in Li and Baruch would have been an obvious variation that addresses claim 13.

Pet., 82-83, 152; EX1049, ¶81.

Rather than addressing the Petition's explanation, Meridian alleges that implementing Hammond with Li and Baruch would render their systems inoperable. POR, 52. Meridian argues that Li's elastic boss 33 or Baruch's stopper 370 would not be capable of rotation. POR, 52-53. But this fails to address the Petition's explanation that a POSA would have found it obvious to modify Li's and Baruch's latches to implement a *rotatable stop part* similar to pawl 80—not simply add pawl 80 and a torsion spring to Li and Baruch. Pet., 82, 166; EX1049, ¶¶82-83. Meridian's arguments therefore fail.

Moreover, Meridian provides no explanation for how the '946 patent's Figure 1-7 embodiment would implement a torsion spring with a rotatable stop part. The '946 patent's lack of explanation demonstrates that implementing a torsion spring would have been known and obvious to persons of skill in the art. Pet. 73-74; *In re Epstein*, 32 F.3d 1559, 1568 (Fed. Cir. 1994); *Paice LLC v. Ford Motor Co.*, 881 F.3d 894, 902 (Fed. Cir. 2018) (cannot hold prior art to higher standard that claimed invention).

VI. GROUNDS 1D AND 2D – LI-DAVIDIAN AND BARUCH-DAVIDIAN RENDER OBVIOUS CLAIMS 14 AND 16

Regarding Li-Davidian and Baruch-Davidian, Meridian alleges that the combinations rely on hindsight. POR, 53-55. Not true. A POSA before the '946

patent would have been motivated to combine Davidian's projections and recesses with Li and Baruch to provide additional stability when stacking multiple boxes (e.g., greater stability and reducing movement between stacked boxes). Pet., 85-87, 152-156; EX1003, ¶¶262-265, 391-394; EX1049, ¶¶84-85. Meridian does not refute this motivation.

Rather, Meridian again selectively quotes Dr. McCarthy's testimony to allege hindsight. POR, 54-55. Meridian argues that Dr. McCarthy admitted that stability was not a problem for Li or Baruch. POR, 54-55. But a deficiency is not required to demonstrate a motivation to combine. *Intel*, 61 F.4th at 1380-81. Additionally, Meridian mischaracterizes Dr. McCarthy's testimony related to presenting Li-Davidian and Baruch-Davidian. POR, 54-55. Rather than performing a hindsight analysis, Dr. McCarthy was commenting on how he prepared his declaration and the corresponding Grounds (correctly addressing each claim element), which reflect a POSAs knowledge and motivations before the '946 patent. EX1049, ¶¶85-87; EX1003, ¶¶262-265, 391-394. Dr. McCarthy confirmed this during cross-examination. EX2014, 68:16-69:1 (explaining that a POSA "*would* be motivated to combine Davidian with Li"), 69:8-12.

Thus, despite Meridian's selective quotation, Dr. McCarthy has maintained a consistent position—without hindsight bias—that a POSA would have been motivated to form Li-Davidian and Baruch-Davidian and would have found claims

14 and 16 obvious in view of these combinations. EX1003, ¶¶262-280, 391-400.

VII. DR. MCCARTHY FAR EXCEEDS A POSA

The Board should reject Meridian’s attack on Dr. McCarthy as not a POSA. Meridian reads requirements into the agreed POSA definition that are not there, such as experience developing commercial products. *Contra* POR, 3 n.1.

Both parties agree that a POSA would have had a bachelor/undergraduate degree in mechanical engineering and two years of industry or academic experience with connecting technologies or similar mechanisms. Pet., 9; POR, 3. Dr. McCarthy plainly satisfies that definition. EX1003, ¶¶4-14. He holds a B.S., M.S., and a Ph.D. in mechanical engineering. He also has well over two years of academic experience with connecting technologies. EX1004, 13. Dr. Vallee conceded that Dr. McCarthy’s “academic record is impeccable” and that he possesses “theoretical experience in designing connecting technologies.” EX2012, ¶31; EX1049, ¶¶88-93.

Dr. McCarthy qualifies as (and exceeds) a POSA. To the extent expert testimony is needed for the Petition’s straightforward analysis, he is more than “qualified to offer expert testimony on issues from the vantage point of an ordinarily skilled artisan in a patent case.” *Kyocera Senco Indus. Tools Inc. v. Int’l Trade Comm’n*, 22 F.4th 1369, 1377 (Fed. Cir. 2022).

VIII. CONCLUSION

The Board should find all claims to be unpatentable.

Respectfully submitted,

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CERTIFICATE OF WORD COUNT (37 C.F.R. § 42.24(d))

1. This Petitioner's Reply complies with the type-volume limitation of 5,600 words, comprising 5,576 words, excluding the parts exempted by 37 C.F.R. § 42.24(a).

2. This Petitioner's Reply complies with the general format requirements of 37 C.F.R. § 42.6(a) and has been prepared using Microsoft® Word in 14-point Times New Roman font.

Respectfully submitted,

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CERTIFICATE OF SERVICE (37 C.F.R. §§ 42.6(e), 42.105(a))

I certify that the above-captioned **PETITIONER’S REPLY** and associated Exhibits 1049-1051 were served in their entirety upon the Patent Owner on August 12, 2026, via electronic mail:

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