

IN THE 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

**DECLARATION OF DR. J. MICHAEL MCCARTHY IN SUPPORT OF
PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE**

Mail Stop "PATENT BOARD"
Patent Trial and Appeal Board
U.S. Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

ToughBuilt EX1049
ToughBuilt v. Meridian
IPR2025-01461

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	MATERIALS CONSIDERED	1
III.	CLAIM CONSTRUCTION	2
	A. “Stop Part”	2
	B. “Mounting Body”	3
	C. “Locking Buckle”	5
IV.	GROUND 1A AND 2A – EACH OF LI AND BARUCH ANTICIPATES CLAIMS 1-4, 7-12, AND 15	7
	A. Li discloses a mounting body, a locking buckle, and first resilient member located between the mounting body and locking buckle.....	7
	1. Li discloses these features for the reasons presented in my previous declaration.	7
	2. I disagree with Dr. Vallee’s “mounting body” opinions.	9
	3. I disagree with Dr. Vallee’s “locking buckle” opinions.	11
	4. I disagree with Dr. Vallee’s “first resilient member” opinions.	12
	B. Li discloses dependent claims 2-4, 7-10, and 12 for the reasons presented in my previous declaration.....	15
	C. Baruch discloses a mounting body, a locking buckle, and first resilient member located between the mounting body and locking buckle.....	16
	1. Baruch discloses these features for the reasons presented in my previous declaration.	16
	2. I disagree with Dr. Vallee’s “mounting body” opinions.	18
	3. I disagree with Dr. Vallee’s “locking buckle” opinions.	20
	4. I disagree with Dr. Vallee’s “first resilient member” opinions.	25
	D. Baruch discloses dependent claims 2-4, 7-10, and 12 for the reasons presented in my previous declaration.....	28
	E. Li and Baruch still teach the claims even under Dr. Vallee’s constructions.....	29

1.	“Mounting body”	29
2.	“Locking buckle”	30
V.	GROUND 1B AND 2B – EACH OF LI AND BARUCH RENDERS OBVIOUS CLAIMS 1-4, 7-12, AND 15	31
VI.	GROUND 1C AND 2C – LI-BURCHIA-HAMMOND AND BARUCH- BURCHIA-HAMMOND RENDER OBVIOUS CLAIMS 5-6 AND 13	33
A.	A person of ordinary skill in the art would have been motivated to combine Li, Burchia, and Hammond (Ground 1C) and Baruch, Burchia, and Hammond (Ground 2C).....	33
B.	Li-Burchia-Hammond (Ground 1C) and Baruch-Burchia-Hammond (Ground 2C) Render Claims 5 and 6 Obvious.....	40
C.	Li-Burchia-Hammond (Ground 1C) and Baruch-Burchia-Hammond (Ground 2C) Render Claim 13 Obvious.	41
VII.	GROUND 1D AND 2D – LI-DAVIDIAN AND BARUCH-DAVIDIAN RENDER OBVIOUS CLAIMS 14 AND 16.....	43
VIII.	I EXCEED THE QUALIFICATION FOR A PERSON OF ORDINARY SKILL IN THE ART.....	44
IX.	CONCLUSION.....	48

I, Dr. J. Michael McCarthy, hereby declare as follows.

I. INTRODUCTION

1. I have been retained as an expert witness on behalf of ToughBuilt Industries, Inc. (“Petitioner”) for the above-captured IPR. I previously submitted a declaration in support of the Petition (EX1003) and in support of Petitioner’s Opposition to Patent Owner’s Contingent Motion to Amend (EX1044). This declaration is in support of Petitioner’s Reply to Patent Owner’s Response.

II. MATERIALS CONSIDERED

2. In forming my opinions, I have considered the documents listed in my original declaration (EX1003, ¶18), the documents listed in my Declaration in Support of Petitioner’s Opposition to Patent Owner’s Contingent Motion to Amend (EX1035, ¶2)), Patent Owner’s Response (“POR”), as well as the documents listed below and any other documents cited in this declaration.

Exhibit No.	Description
1047	Deposition Transcript of Dr. Glenn Vallee from IPR2025-01461 (July 16, 2026)
1050	Excerpts from J. Michael McCarthy & Gim Song Soh, <i>Geometric Design of Linkages</i> , 2nd Edition (Springer 2010) (“Geometric Design”)
1051	Deposition Transcript of Dr. J. Michael McCarthy from IPR2025-01462 (May 7, 2026)

Exhibit No.	Description
2012	Declaration of Glenn E. Vallee, Ph.D., P.E. in support of Patent Owner's Response to Petition for Inter Partes Review of U.S. Patent No. 11,986,946

III. CLAIM CONSTRUCTION

3. As indicated in my previous declaration, I do not believe that any explicit claim constructions are required to determine that the claims are unpatentable in view of the prior art and grounds that I discussed in my previous declaration. EX1003, ¶121. Nevertheless, I note that Dr. Vallee discusses the claim construction for the following three terms: “stop part,” “mounting body,” and “locking buckle.” EX2012 (Vallee Dec.), ¶¶32-52. I address these proposed constructions below.

A. “Stop Part”

4. Dr. Vallee discusses the term “stop part” and references the parties’ discussion of this term in the district court proceeding. EX2012 (Vallee Dec.), ¶¶36-38. Dr. Vallee then states that the term “stop part” should be given its “plain and ordinary meaning.” EX2012 (Vallee Dec.), ¶38. Dr. Vallee further indicates that the plain and ordinary meaning of a “stop part” is “a retractable part, which is extended into the locking path of the locking part when the connection parts are in an unlocked state, and which is compressed out of the locking path of the locking part when the connection parts are in a locked state.” EX2012 (Vallee Dec.), ¶38.

5. As indicated in my previous declaration, I do not believe that an explicit construction of “stop part” is needed to determine that the claims are unpatentable in view of the prior art and grounds that I presented in my previous declaration. EX1003, ¶121. I also note that Dr. Vallee does not dispute Li or Baruch disclosing the claimed “stop part.” EX2012 (Vallee Dec.), i-iv (Table of Contents). Therefore, Dr. Vallee appears to agree with me, both Li and Baruch disclose the claimed “stop part” for the reasons presented in my previous declaration. EX1003, ¶¶173-177, 304-307.

B. “Mounting Body”

6. As Dr. Vallee indicates, the parties did not construe the term “mounting body” in the district court proceeding and instead agreed that the term “mounting part” should be construed as “[p]lain and ordinary meaning, and is used interchangeably with ‘mounting body.’” EX2012 (Vallee Dec.), ¶40.

7. Dr. Vallee states that the Petition construes the term, but I disagree. EX2012 (Vallee Dec.), ¶41. Rather, Dr. Vallee appears to suggest that “mounting body” should be limited to only one embodiment in the specification. EX2012 (Vallee Dec.), ¶¶42-45. Dr. Vallee further states 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.” EX2012 (Vallee Dec.), ¶44. Dr. Vallee also indicates that the “mounting body” should not include

“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.”

EX2012 (Vallee Dec.), ¶45.

8. I disagree with Dr. Vallee’s proposed construction. In particular, I note that the ’946 patent’s specification does not appear to support Dr. Vallee’s construction. Rather, the specification lists several options and configurations for mounting body 112. The specification indicates that 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.

9. Based on these options, the specification does not appear to limit “mounting body” to any one particular structure. That is, there is no specific language in the specification that signals an intent to limit the scope of the term “mounting body” or how the term should be interpreted when reading the claims. Therefore, I disagree with Dr. Vallee’s construction.

10. Regardless, as I will further explain below in Section IV.E, both Li and Baruch still disclose the claimed “mounting body” even under Dr. Vallee’s construction.

C. “Locking Buckle”

11. In discussing the term “locking buckle,” Dr. Vallee again states that the Petition construes the term, but I disagree. EX2012 (Vallee Dec.), ¶¶46-52. Rather, Dr. Vallee states that a “locking buckle” should be construed as the “entire locking or latch component that slides relative to the mounting body.” EX2012 (Vallee Dec.), ¶47. I note that the claims, the specification, and Dr. Vallee’s testimony demonstrate that this construction is not correct.

12. For example, the claims do not support Dr. Vallee’s construction. Claim 1 recites “a locking part cooperating with the locking buckle.” I understand that the parties agreed in the district court proceeding that this term should be construed as “a locking part *including* a locking buckle.” EX1027 (ToughBuilt – Responsive Claim Construction Brief), 3; EX1028 (Meridian – Responsive Claim Construction Brief), 10. With this understanding, the claimed “locking buckle” is a portion of the “locking part” rather than the entirety of the locking or latch component. I understand that Dr. Vallee confirmed this during his deposition. EX1047, 49:7-17, 50:3-51:19. With this understanding, Dr. Vallee’s new construction that refers to the locking buckle as the “entire locking or latch component that slides relative to the mounting body” is not correct. Because the locking buckle is a portion of the locking part, the locking buckle cannot be the entirety of the locking or latch component.

13. Additionally, I note that the specification also does not appear to support Meridian's construction. The '946 patent also indicates that the locking buckle is a portion of the locking part: EX1001, 7:3-20 ("The locking part 12 includes ... a locking buckle 122"), EX1001, 8:26-34 ("locking buckle 122 on the locking part 12"). Figure 7 from the '946 patent also depicts locking buckle 122 as a portion of locking part 12:

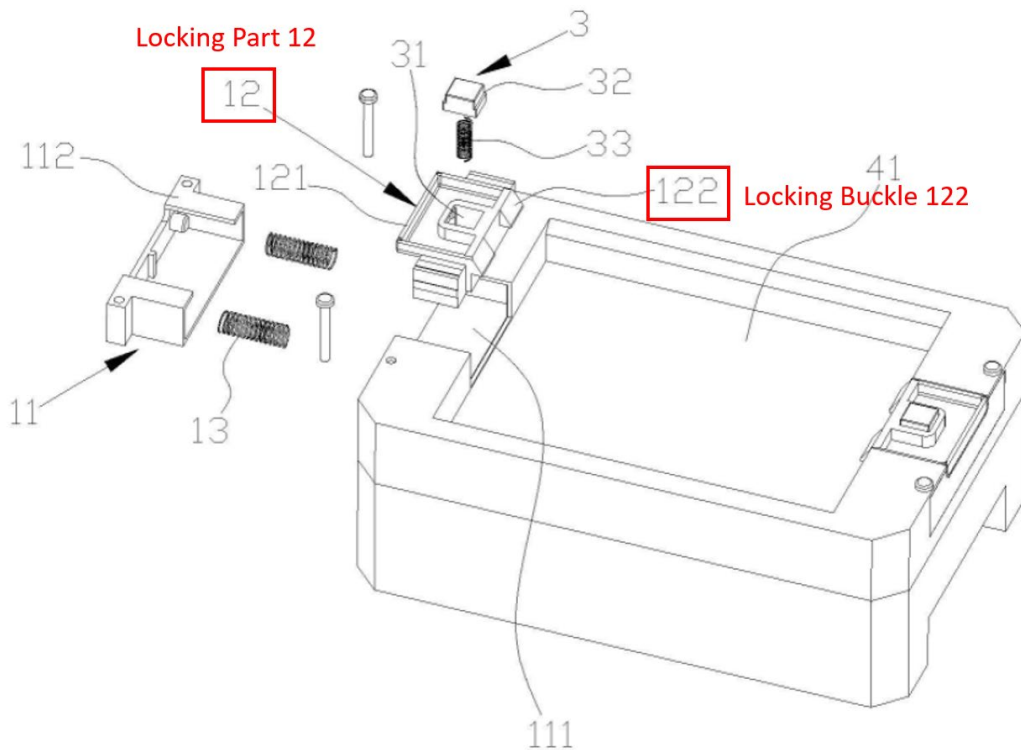


FIG. 7

EX1001 ('946 patent), FIG. 7 (annotated).

14. In view of the claims and specification, the term "locking buckle" does not refer the "entire locking or latch component" as Dr. Vallee proposes. Rather, the claimed "locking buckle" refers to a part or portion of the claimed

“locking part.” EX1001, 7:3-20, 8:26-34. Dr. Vallee’s construction is therefore not correct.

15. Regardless, as I further explain below in Section IV.E, both Li and Baruch still disclose the claimed “locking buckle” even under Dr. Vallee’s construction.

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

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

1. Li discloses these features for the reasons presented in my previous declaration.

16. As I explained in my previous declaration, Li discloses the claimed “*mounting body*,” “*locking buckle*,” and “*first resilient member located between said mounting body and locking buckle*.” EX1003, ¶¶155-162. The table below summarizes the mappings presented in my previous declaration. I have also reproduced the annotations of Figures 3-5 from Li below.

Claim Term	Teaching from Li
Mounting body	“Stop piece 35” as attached to “chute 21” via “snap-in hole 211” (EX1007 (Li), ¶34)
Locking buckle	“Pull latch cover 32” which includes “latch bar 321” (EX1007 (Li), ¶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 (Li), ¶34)

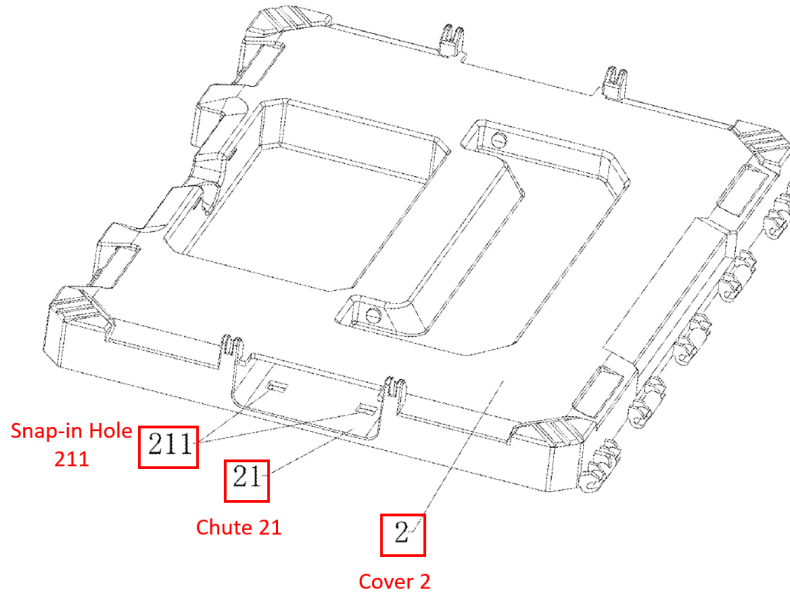


FIG. 5

EX1007 (Li), FIG. 5 (annotated).

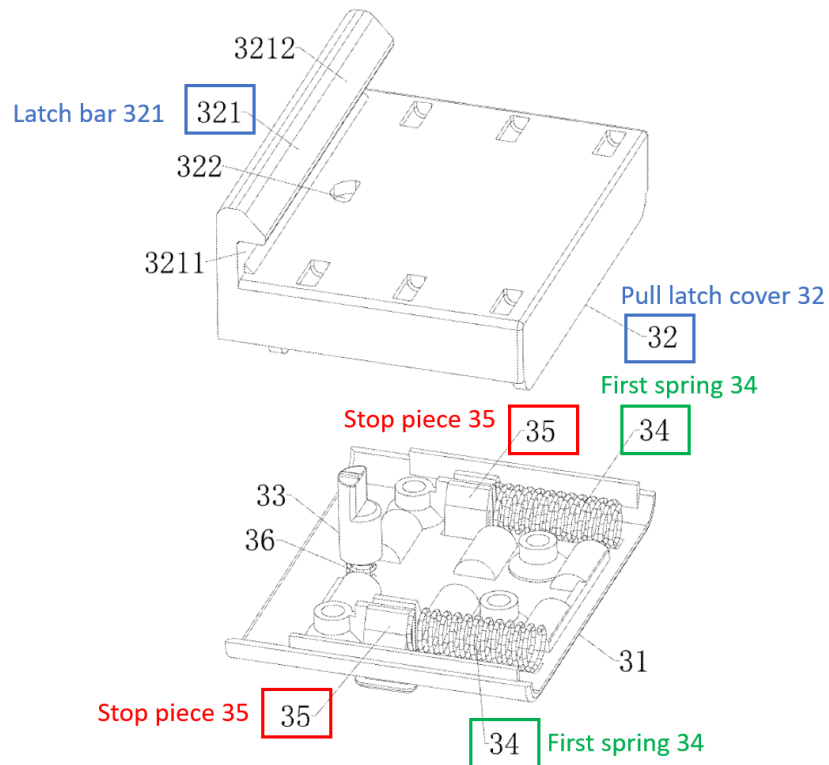


FIG. 4

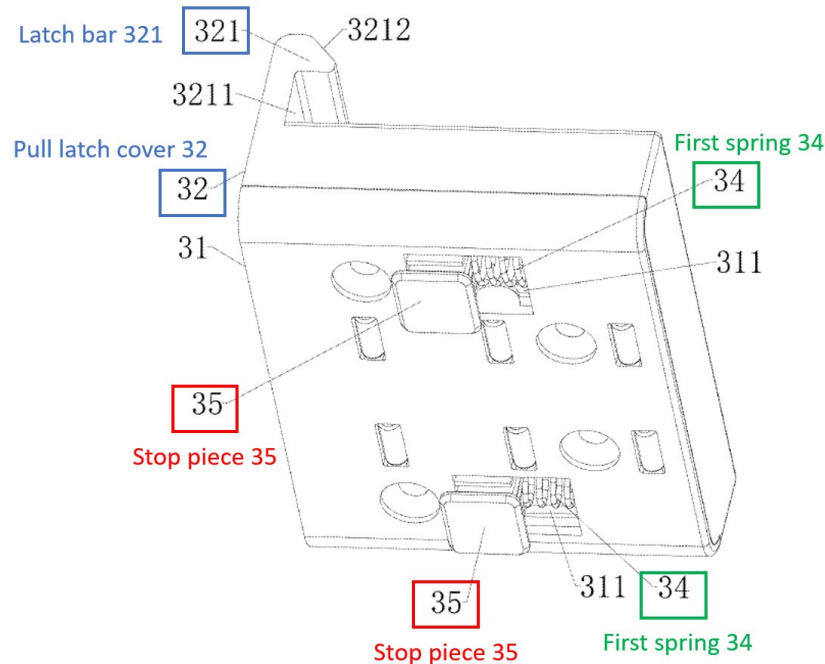


FIG. 3

EX1007 (Li), FIGs. 3-4 (annotated).

17. As explained in my previous declaration, Li’s “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. EX1003, ¶¶160-161; EX1007 (Li), ¶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*. EX1003, ¶¶155-162.

2. I disagree with Dr. Vallee’s “mounting body” opinions.

18. Dr. Vallee presents several opinions related to Li’s teaching of a “mounting body.” EX2012 (Vallee Dec.), ¶¶70-75. I disagree with these opinions.

19. First, Dr. Vallee again states that Petitioner presents an interpretation of “mounting body” that goes beyond the plain and ordinary meaning of the term. EX2012 (Vallee Dec.), ¶73. I disagree. The Petition and my previous declaration explain why Li discloses a “mounting body” without any need to add limitations to the term. Instead, as I explained in Section III.B, it is Dr. Vallee who appears to limit the term “mounting body” to only the embodiments in the specification. Regardless, as I explained in my previous declaration, no additional structure is needed to understand that the claimed “mounting body” is not inventive. Li discloses an example of a mounting body that was already known in the prior art. Dr. Vallee does not appear to refute my previous explanation.

20. Second, Dr. Vallee states that stop piece 35 as inserted into “chute 21” via “snap-in hole 211” does not teach a “mounting body” because the correct interpretation of mounting body is “chute 21” of Li. EX2012 (Vallee Dec.), ¶74. This opinion, however, does not address the explanation that I provided in my previous declaration because it does not address the mapping that I provided. Regardless, Dr. Vallee’s statement appears to be an admission that Li discloses the claimed “mounting body.”

21. Additionally, Dr. Vallee states that Li did not consider “these three structures as comprising a single body” because Li would have discussed their “combined purpose in either the specification or the figures.” EX2012 (Vallee

Dec.), ¶75. It is my understanding that it is not necessary to demonstrate that Li refers to these components as a “mounting body,” only that a person of ordinary skill in the art would have recognized that Li’s components disclose the claimed mounting body as explained in my previous declaration. EX1003, ¶¶156-159. In particular, Li still discloses the claimed “mounting body” based on how “stop piece 35” attaches to “chute 21” via “snap-in hole 211.” EX1003, ¶¶156-159.

22. Third, as I explained in Section III.B, the specification supports the mapping provided in my previous declaration as well. Specifically, the ’946 patent 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 provides a mechanism for mounting Li’s elastic pull latch 3 to the container’s cover 2. EX1007 (Li), ¶34. The ’946 patent therefore also supports the mapping of Li’s stop piece 35 as attached to “chute 21” via “snap-in hole 211” as disclosing the claimed *mounting body*. EX1001, 6:57-60.

23. Based on these reasons, I disagree with Dr. Vallee’s opinions related to Li’s teaching of a “mounting body.”

3. I disagree with Dr. Vallee’s “locking buckle” opinions.

24. Dr. Vallee presents several opinions related to Li’s teaching of a “locking buckle.” EX2012 (Vallee Dec.), ¶¶76-81. I disagree with these opinions.

25. First, Dr. Vallee relies on the interpretation that “locking buckle” should be construed as the “entire locking or latch component.” EX2012 (Vallee Dec.), ¶¶46-52, 76-81. As explained in Section III.C, however, this construction is not supported by the claims or the specification, which both recite the locking buckle as being a portion of the “locking part.” The locking buckle therefore cannot be the “entire locking or latch component.” Section III.C. With this understanding, I disagree with Dr. Vallee’s opinions regarding Li.

26. Second, Dr. Vallee states that Li’s “pull latch cover 32” which includes “latch bar 321” does not teach a “locking buckle” because “the entire latch 3 of Li” is more “comparable.” EX2012 (Vallee Dec.), ¶79. Dr. Vallee again does not appear to address the mapping provided in my previous declaration. EX1003, ¶¶158-159. Regardless, Dr. Vallee’s statement appears to be an admission that Li discloses the claimed “locking buckle” and that the claimed “locking buckle” was already known in the art.

27. Based on these reasons, I disagree with Dr. Vallee’s opinions related to Li’s teaching of a “locking buckle.”

4. I disagree with Dr. Vallee’s “first resilient member” opinions.

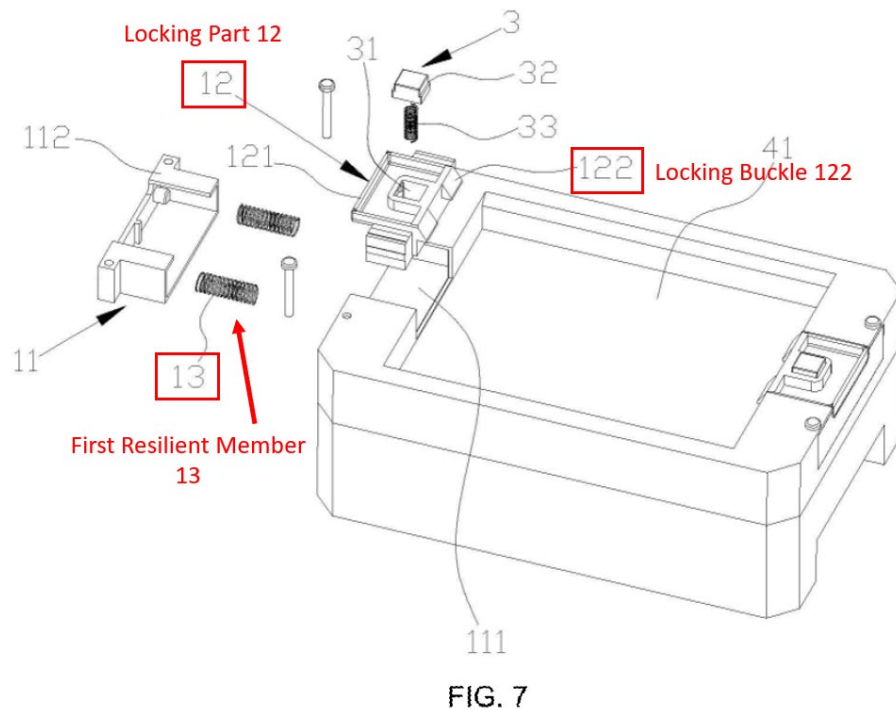
28. Dr. Vallee also presents several opinions related to Li’s teaching of a “*first resilient member located between said mounting body and said locking buckle.*” EX2012 (Vallee Dec.), ¶¶82-86. I disagree with these opinions.

29. First, Dr. Vallee's theories are not based on the mapping provided in my previous declaration. EX1003, ¶¶160-162. Dr. Vallee states that Li does not teach the proper "resilient member" positioning because it does not teach a resilient member between "chute 21 and latch 3 of Li." EX2012 (Vallee Dec.), ¶82. Again, this is not the mapping presented in my previous declaration. EX1003, ¶¶160-162. I therefore disagree with Dr. Vallee's opinions.

30. Second, Dr. Vallee states that because Li's spring 34 is positioned within latch 3, it cannot be located between a mounting body and locking buckle. EX2012 (Vallee Dec.), ¶83. I disagree. Again, Dr. Vallee's opinion is premised on elastic pull latch 3 teaching the claimed "locking buckle," but as I explained in my previous declaration, "pull latch cover 32" teaches the claimed "locking buckle." EX1003, ¶¶158-159. Dr. Vallee does not appear to address this explanation. Rather, Dr. Vallee quotes my deposition transcript and states that I indicated that "between" and "within" do not mean the same thing. EX2012 (Vallee Dec.), ¶84. Regardless of their definition, in the context of Li's disclosure of the claim language, the distinction is not relevant because Li's spring 34 is still *between* pull latch cover 32 and stop piece 35. This discloses the same positioning recited in the claim.

31. Regardless, I note that nothing in the claim excludes the "*first resilient member*" from being positioned within or partially within the locking buckle. The

claim simply requires the *first resilient member* is “*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. Therefore, the specification teaches that first resilient member 13 can be enclosed by the locking part 12 as well.



EX1001 ('946 patent), FIG. 7 (annotated).

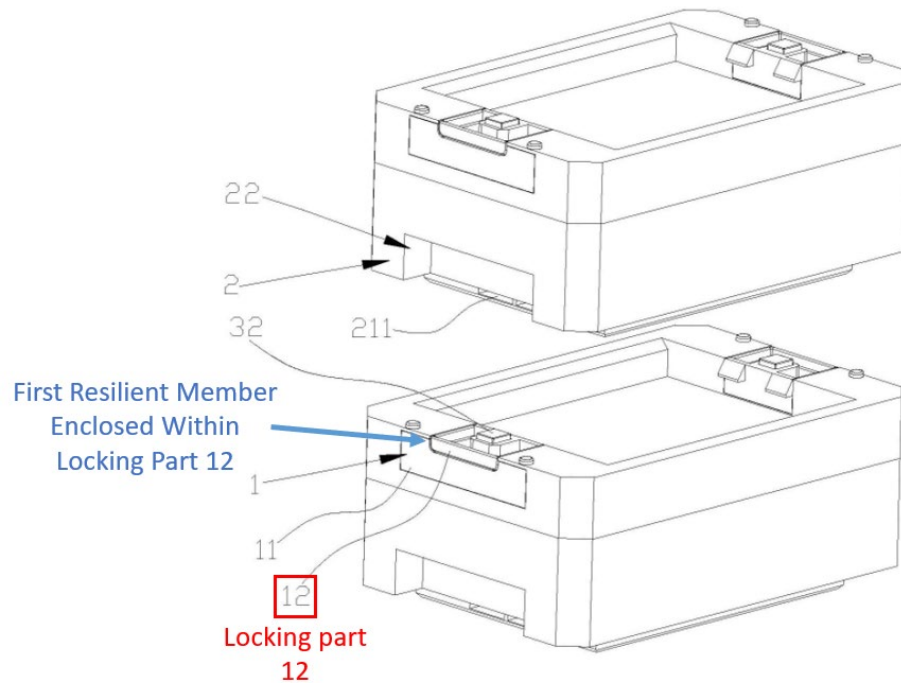


FIG. 4

EX1001 ('946 patent), FIG. 4 (annotated).

32. Thus, while Dr. Vallee's opinions rely on a mapping not presented in my previous declaration, under his mapping, a person of ordinary skill in the art would understand that Li still discloses the claimed first resilient member being located between a mounting body and locking buckle for the reasons presented in my previous declaration. EX1003, ¶¶160-161.

B. Li discloses dependent claims 2-4, 7-10, and 12 for the reasons presented in my previous declaration.

33. Dr. Vallee does not present any opinions specific to the substance of claims 2-4, 7-10, and 12. EX2012 (Vallee Dec.), ¶¶88-89. Therefore, Li still discloses claims 2-4, 7-10, and 12 for the reasons presented in my previous

declaration. EX1003, ¶¶203-224.

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

1. Baruch discloses these features for the reasons presented in my previous declaration.

34. As I explained in my previous declaration, Baruch discloses the claimed “*mounting body*,” “*locking buckle*,” and “*first resilient member located between said mounting body and locking buckle*.” EX1003, ¶¶290-294. The table below summarizes the mappings presented in my previous declaration. I have also reproduced Figures 21-22 and 23B from Baruch below with annotations.

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

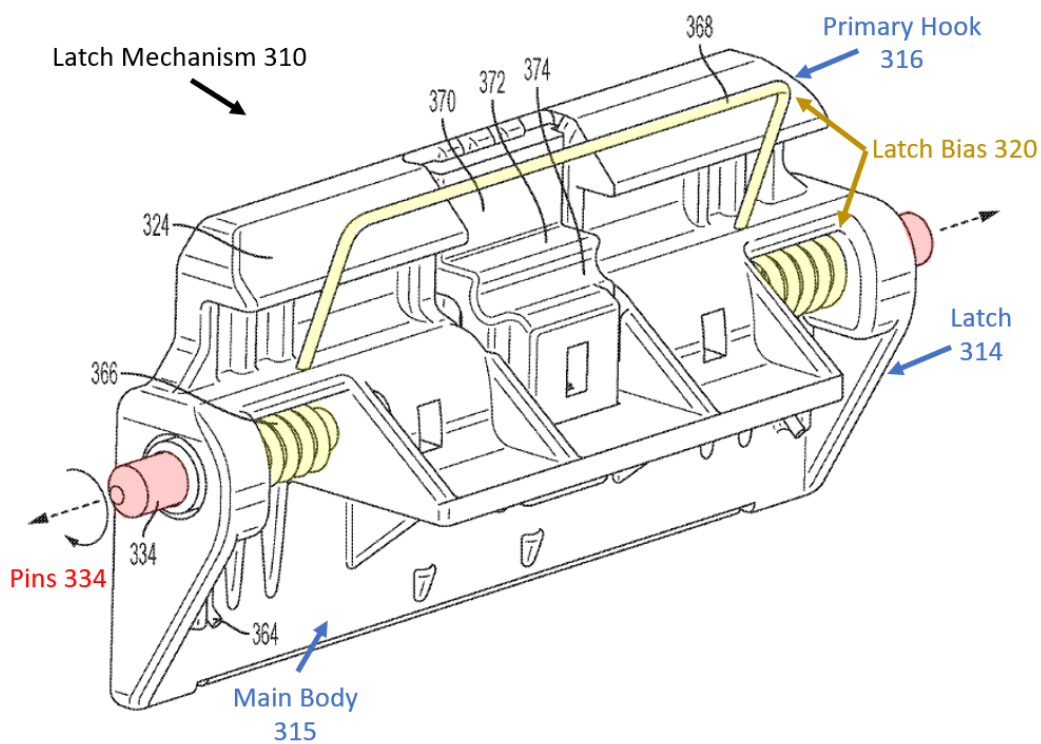


FIG. 21

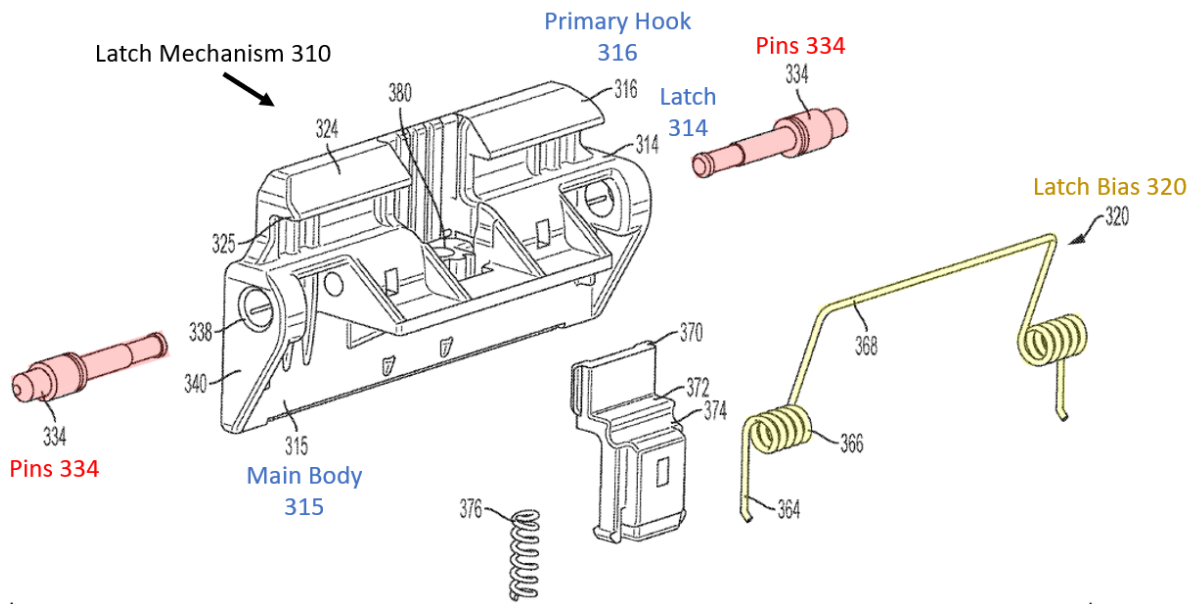


FIG. 22

EX1012 (Baruch), FIGs. 21-22 (annotated).

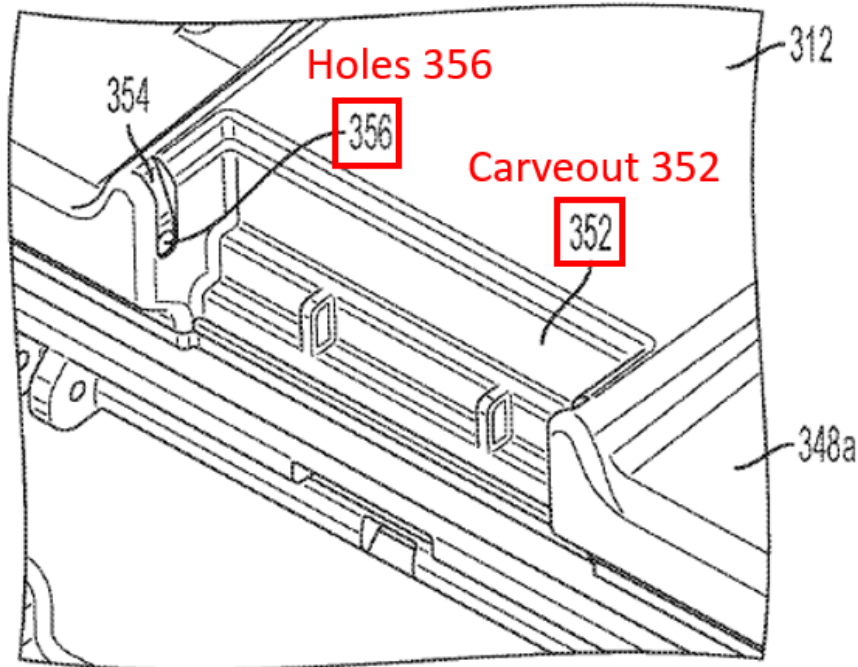


FIG. 23B

EX1012 (Baruch), FIG. 23B (annotated).

35. As explained in my previous declaration, Baruch’s “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 (Baruch), ¶54; EX1003, ¶293. 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*. EX1003, ¶293.

2. I disagree with Dr. Vallee’s “mounting body” opinions.

36. Dr. Vallee presents several opinions related to Baruch’s teaching of a

“mounting body.” EX2012 (Vallee Dec.), ¶¶93-97. I disagree with these opinions.

37. First, Dr. Vallee again states that Petitioner presents an interpretation of “mounting body” that goes beyond the plain and ordinary meaning of the term. EX2012 (Vallee Dec.), ¶¶94-97. I disagree. The Petition and my previous declaration explain why Baruch discloses a “mounting body” without any need to add limitations to the term. Instead, as I explained in Section III.B, it is Dr. Vallee who appears to limit the term “mounting body” to only the embodiments in the specification. Regardless, as I explained in my previous declaration, no additional structure is needed to understand that the claimed “mounting body” is not inventive. Baruch discloses an example of a mounting body that was already known in the prior art. Dr. Vallee does not appear to refute my previous explanation.

38. Second, Dr. Vallee states that pins 334 as mounted in carveout 352 via holes 356 cannot teach the claims because the “‘mounting body’ of Baruch is only the carveout 352.” EX2012 (Vallee Dec.), ¶97. This opinion, however, does not address the explanation that I provided in my previous declaration because it does not address the mapping that I provided. Regardless, Dr. Vallee’s statement appears to be an admission that Baruch discloses the claimed “mounting body.”

39. Third, as I explained in Section III.B, the specification supports the mapping provided in my previous declaration as well. Specifically, the ’946 patent

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 and ultimately snap into holes 356. EX1012 (Baruch), ¶55; EX1047, 179:4-17. “When pins 334 are disposed within holes [356], the latch mechanism 310 is secured within carveout [352].” EX1012 (Baruch), ¶45. In this manner, pins 334 as mounted in carveout 352 via holes 356 function in the same way described in the ’946 patent and similarly provides a mechanism for mounting Baruch’s latch mechanism 310 to the container’s lid. EX1012 (Baruch), ¶55. The ’946 patent therefore also supports Baurch’s pins 334 as mounted in carveout 352 via holes 356 disclosing the claimed *mounting body*.

40. Based on these reasons, I disagree with Dr. Vallee’s opinions related to Baruch’s teaching of a “mounting body.”

3. I disagree with Dr. Vallee’s “locking buckle” opinions.

41. Dr. Vallee presents several opinions related to Baruch’s teaching of a “locking buckle.” EX2012 (Vallee Dec.), ¶¶98-103. I disagree with these opinions.

42. First, Dr. Vallee states 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.” EX2012 (Vallee Dec.), ¶¶100-101. But Dr. Vallee’s theory is wrong for several reasons. For example, I note that my previous declaration did not map Baruch’s “latch mechanism 310” to teach the

claimed “locking buckle.” EX1003, ¶¶291-292, 300-303. Rather, Baruch’s latch mechanism 310 teaches the claimed “*locking part*” while Baruch’s latch 314 teaches the “*locking buckle*” as explained in my previous declaration. EX1003, ¶¶291-292, 300-303. Dr. Vallee’s opinions related to “latch mechanism 310” therefore do not address the mapping provided in my previous declaration.

43. Additionally, Dr. Vallee’s description of Baruch’s mechanism is not correct. Baruch’s 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 (Baruch), ¶¶49, 55, FIGs. 21, 23B. Baruch explicitly states that “latch mechanism 310 can also be disposed in a carveout 352.” EX1012 (Baruch), ¶55 (“Latch mechanism 310 is slid downwardly within carveout 352”).

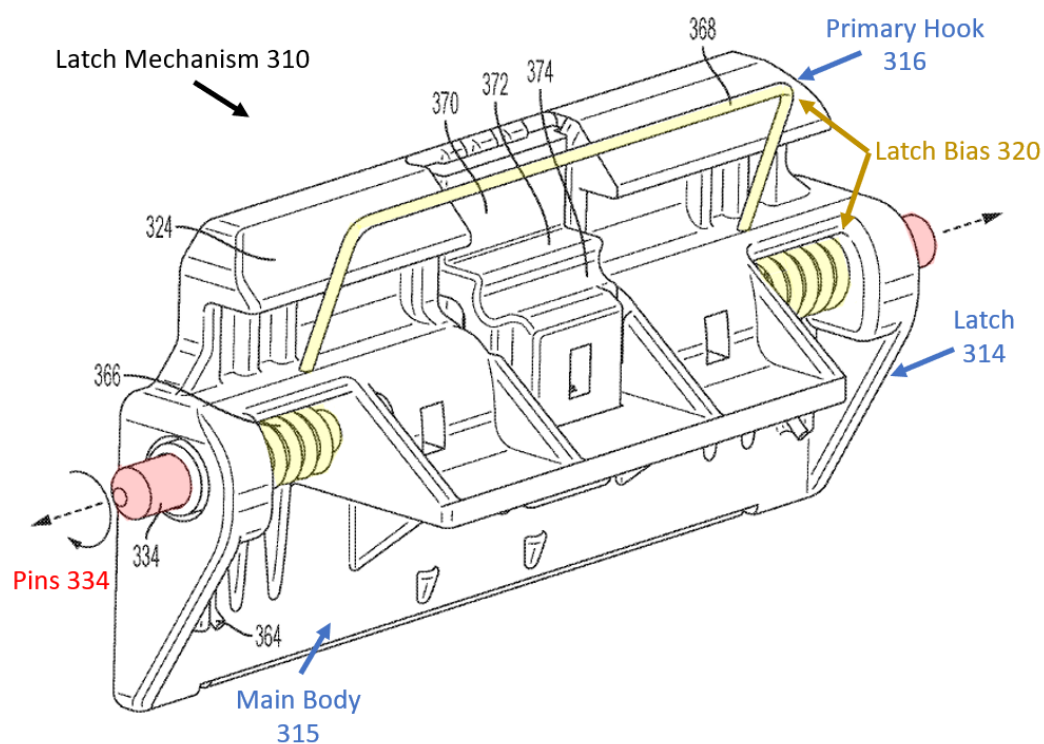


FIG. 21

EX1012 (Baruch), FIG. 21 (annotated).

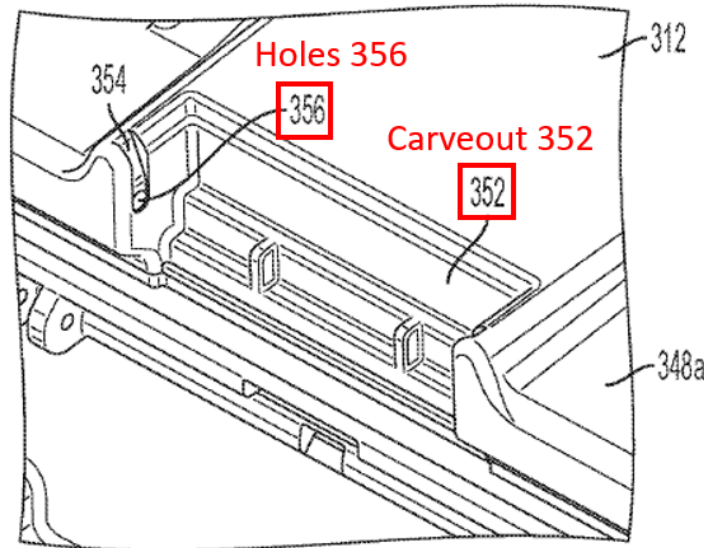


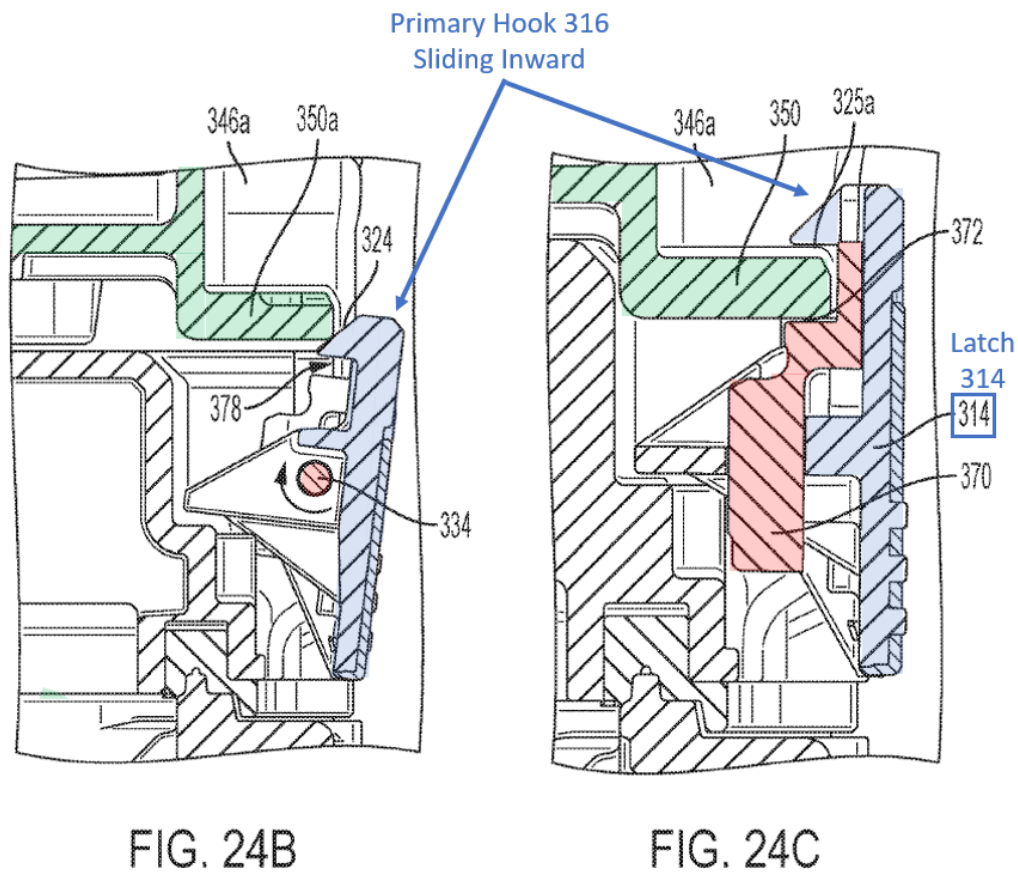
FIG. 23B

EX1012 (Baruch), FIG. 23B (annotated).

44. Therefore, Dr. Vallee’s interpretation that latch mechanism 310 is not “received within” carveout 352 is not correct.

45. Second, Dr. Vallee states that Baruch's latch 314—which includes a main body 315 and a primary hook 316—does not teach the claimed locking buckle because it does not slide inward with respect to the mounting part. EX2012 (Vallee Dec.), ¶¶102-103. Dr. Vallee states that latch 314 pivoting around pins 334 does not sufficiently teach the claimed “sliding inward.” EX2012 (Vallee Dec.), ¶¶102-103. This opinion, however, does not address the explanation presented in my previous declaration explaining that Baurch's latch 314 and primary hook 316 rotate inward relative to pin 334 and slide inward into a locked position. EX1003, ¶¶297-299; EX1012 (Baruch), ¶62, FIGs. 24B-24C. This “sliding inward” can be

seen from the relative positions of latch 314 and primary hook 316 as Figure 24B transitions to Figure 24C when locking. EX1003, ¶¶297-299. I also explained in my previous declaration that the rotational movement of Baruch's latch 314 and primary hook 316 has a horizontal component. EX1003, ¶352. This horizontal component also discloses the sliding inward of primary hook 316 as seen below.



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

46. Dr. Vallee does not address the movement of primary hook 316 and therefore does not address the explanation provided in my previous declaration.

4. I disagree with Dr. Vallee’s “first resilient member” opinions.

47. Dr. Vallee states that Baruch’s latch bias 320 is not located between latch 314 and carveout 352 because latch bias 320 is contained within latch 314. EX2012 (Vallee Dec.), ¶¶104-107. I disagree with this opinion.

48. First, Dr. Vallee does not accurately interpret Baruch’s mechanism and appears to refer to Baruch’s “latch 314” as being the same as “latch mechanism 310,” but this is not the case. As seen from Figure 22—which I have reproduced below—“latch mechanism 310” includes both latch 314 and latch bias 320 as separate components. EX1012 (Baruch), ¶¶51, 54, FIG. 22.

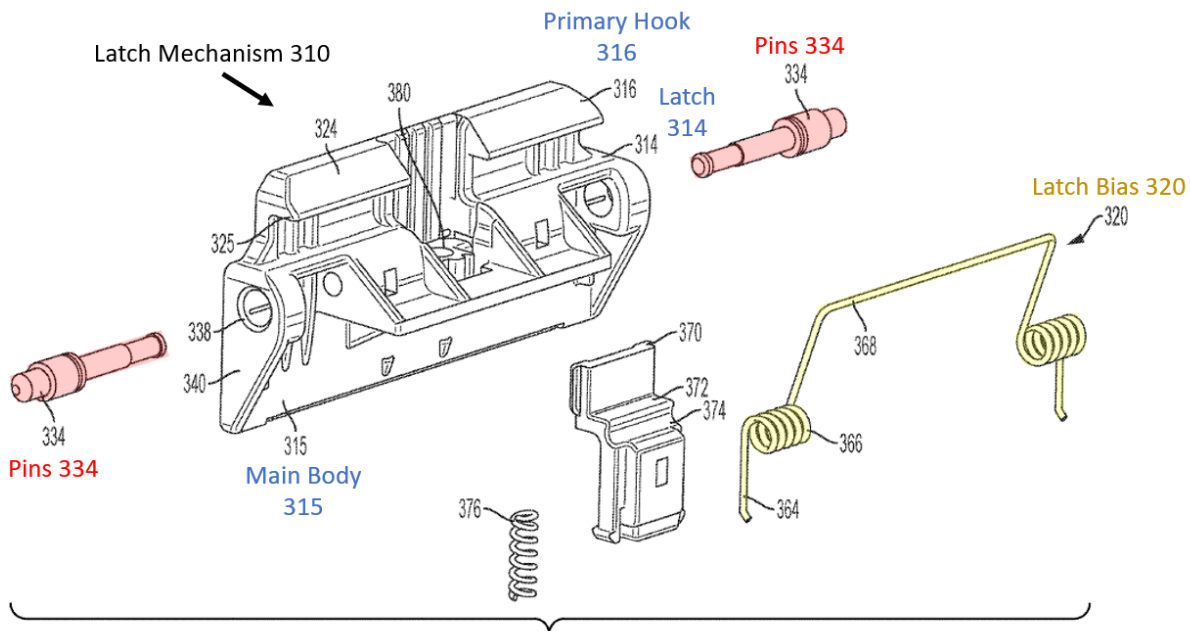


FIG. 22

EX1012 (Baruch), FIG. 22 (annotated).

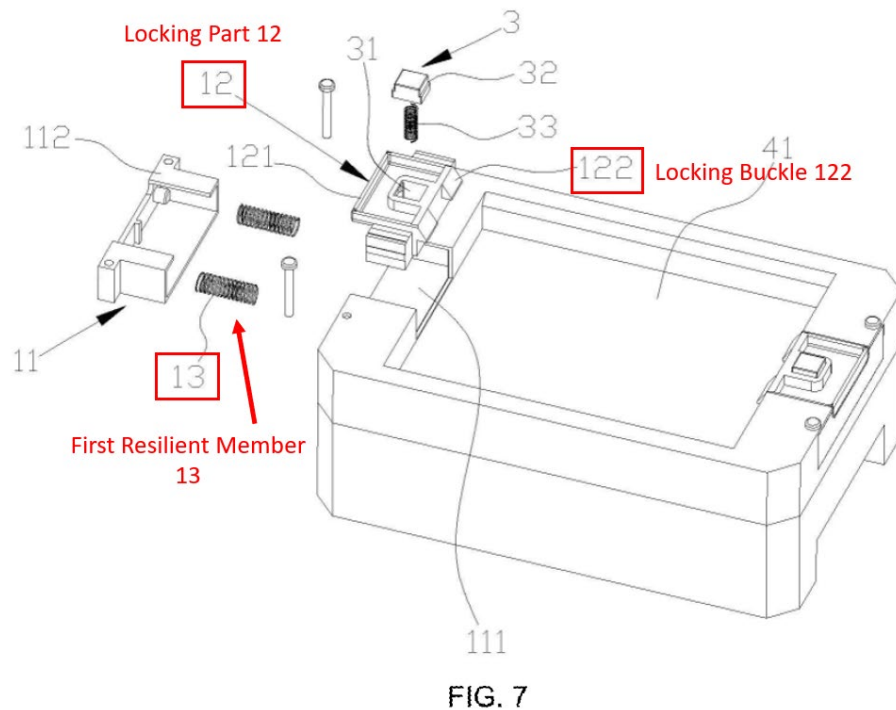
49. Even when latch mechanism 310 is assembled, latch bias 320 is a

separate component from latch 314 and is therefore not “within the latch 314” as Dr. Vallee states. EX2012 (Vallee Dec.), ¶¶106-107; EX1012 (Baruch), ¶¶51, 54, FIG. 22. Because latch bias 320 is not within latch 314, I disagree with Dr. Vallee’s opinions regarding Baruch teaching the claimed *first resilient member*.

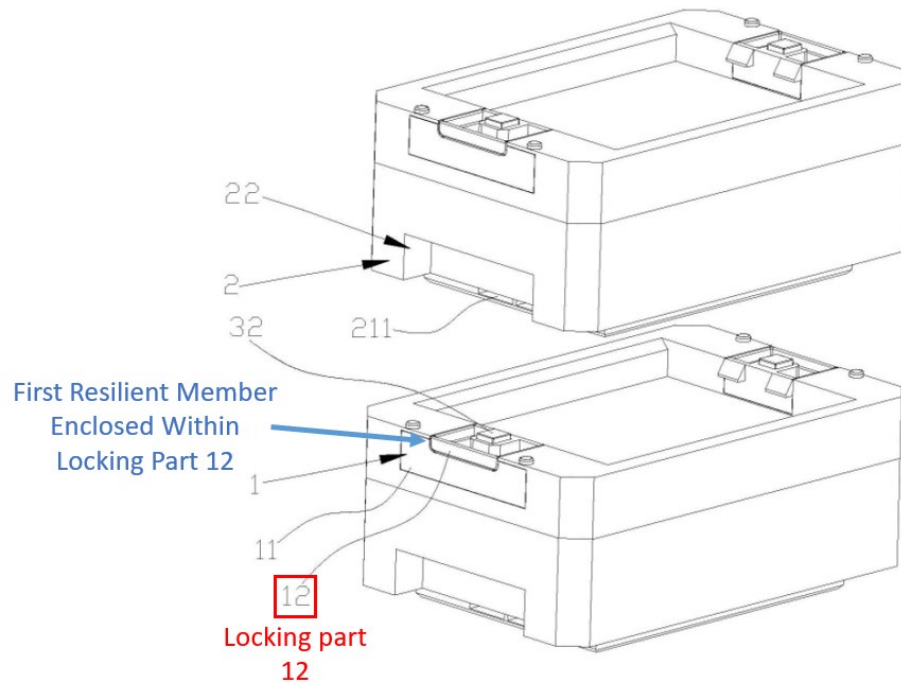
50. Second, Dr. Vallee’s observation that a portion of latch bias 320 is wrapped around pins 334 also does not refute the explanation provided in my previous declaration that Baruch teaches a “*first resilient member located between said mounting body and said locking buckle.*” EX1003, ¶¶293, 297-299. 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 (Baruch), ¶54, FIGs. 21-22; EX1003, ¶¶293, 297-299. To perform the biasing action described in Baruch, a person of ordinary skill in the art would have understood that latch bias 320 would be positioned between pins 334 and latch 314. EX1012 (Baruch), ¶¶51, 54, FIG. 22; EX1003, ¶¶293, 297-299. Because the claims only require that latch bias 320 be “*located between*” pins 334 and latch 314, Baruch discloses the claims as I previously explained. I therefore disagree with Dr. Vallee.

51. Additionally, I note that nothing in the claim excludes the “*first resilient member*” from being positioned within or partially within the locking

buckle. The claim simply states that the *first resilient member located between said mounting body and said locking buckle*. This means that even if Baruch's latch bias 320 were considered to be within latch 314, Baruch would still disclose the claim. For example, I note that 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.



EX1001 ('946 patent), FIG. 7 (annotated).



EX1001 ('946 patent), FIG. 4 (annotated).

52. With this understanding, a person of ordinary skill in the art would understand that Baruch's latch bias 320 still teaches the claimed *first resilient member* being *located between* a mounting body and locking buckle.

D. Baruch discloses dependent claims 2-4, 7-10, and 12 for the reasons presented in my previous declaration.

53. Dr. Vallee does not present any opinions specific to the substance of claims 2-4, 7-10, and 12. EX2012 (Vallee Dec.), ¶¶109-110. Therefore, Baruch still discloses claims 2-4, 7-10, and 12 for the reasons presented in my previous declaration. EX1003, ¶¶340-362.

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

1. "Mounting body"

54. Dr. Vallee states 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." EX2012 (Vallee Dec.), ¶44. It is my opinion that even if this claim construction were adopted, both Li and Baruch would still disclose such a mounting body.

55. For example, 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 (Li), ¶34. Further, pull latch cover 32 (i.e., claimed *locking buckle*) slides relative to stop piece 35 as inserted into chute 21. Based on this understanding, Li still teaches the claimed "mounting body" even under Dr. Vallee's construction.

56. Additionally, 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 (Baruch), ¶¶54-55. Further, latch 314 (i.e., claimed *locking buckle*) still slides relative to pins 334 when primary hook 316 slides into the locked and unlocked positions. EX1012 (Baruch), ¶49; EX1003, ¶¶326-330, 340-342 (my previous declaration describing the horizontal movement of latch 314). Based on this understanding, Baruch still teaches the claimed "mounting

body” even under Dr. Vallee’s construction.

2. “Locking buckle”

57. Dr. Vallee additionally states that a “locking buckle” should be construed as the “entire locking or latch component that slides relative to the mounting body.” EX2012 (Vallee Dec.), ¶47. Even if this claim construction were adopted, both Li and Baruch still teach such a locking buckle.

58. For example, Li’s “pull latch cover 32” which includes “latch bar 321” still discloses an “entire locking or latch component that slides relative to the mounting body.” Li’s latch bar 321 is the component that slides relative to Li’s stop pieces 35 and chute 21 and also performs the locking or latching onto an upper container via catch 12 and therefore discloses a “locking buckle” even under Dr. Vallee’s construction. EX1007 (Li), ¶¶33-34, 36-38, FIGs. 3-4.

59. Similarly, Baruch’s latch 314—which includes a main body 315 and a primary hook 316—still discloses an “entire locking or latch component that slides relative to the mounting body.” Primary hook 316 is the component that slides relative to Baruch’s pins 334 and carveout 352 and also performs the locking or latching onto an upper container via step 350 and therefore also discloses a “locking buckle” even under Dr. Vallee’s construction. EX1012 (Baruch), ¶¶36, 51, 55-54, 62-63.

V. GROUNDS 1B AND 2B – EACH OF LI AND BARUCH RENDERS OBVIOUS CLAIMS 1-4, 7-12, AND 15

60. Dr. Vallee states that the claims are not obvious in view of Li and Baruch but does not appear to address the explanation provided in my previous declaration. EX2012 (Vallee Dec.), ¶¶111-119; EX1003, ¶¶225-229, 363-366.

61. As explained in my previous declaration, a person of ordinary skill in the art would have found the claims obvious over either Li or Baruch. EX1003, ¶¶225-229, 363-366. For example, in addition to Li’s “stop piece 35” as attached to “chute 21” via “snap-in hole 211” anticipating the claimed “*mounting body*,” a person of ordinary skill in the art would have viewed a “*mounting body*” as obvious in view of Li’s configuration as well. EX1003, ¶¶225-229. Specifically, Li’s elastic pull latch 3 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 (Li), ¶¶34, 36; EX1001, 6:61-67.

62. Similarly, a person of ordinary skill in the art would have also viewed the “*mounting body*” as obvious in view of Baruch’s configuration as well. EX1003, ¶¶363-366. Specifically, Baruch’s “pins 334” as mounted in “carveout 352” via “holes 356” renders obvious the claimed “*mounting body*” because the rotation of latch 314, main body 315, and primary hook 315 still moves relative to carveout 352 and pins 334. EX1012 (Baruch), ¶¶54-55. This is a predictable use of Baruch’s prior art elements according to their known functions. That is, Baruch

still teaches a latch mechanism positioned in, and moving relative, to a lid carveout. Baruch's components and functionality therefore still render the claimed components and functionality obvious.

63. In this manner and as I explained in my previous declaration, both 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. EX1003, ¶¶225-229, 363-366. The application of these known techniques and components renders the claims obvious.

64. Instead of addressing the explanation that I provided, Dr. Vallee instead states that I stated there was "no deficiency" in Li or Baruch. EX2012 (Vallee Dec.), ¶¶111-112, 116-117. I have been informed by counsel that a deficiency in the prior art is not needed to demonstrate obviousness. Additionally, I have been informed that there is no need to show any improvement to a prior art reference to establish obviousness. I understand that obviousness can be sufficiently established when demonstrating that predictable results would be achieved by combining prior art elements according to known methods, performing a simple substitution of known elements, or using known techniques to improve similar devices. Here, and as I explained in my previous declaration, 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. EX1003, ¶¶225-229, 363-366.

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

A. A person of ordinary skill in the art would have been motivated to combine Li, Burchia, and Hammond (Ground 1C) and Baruch, Burchia, and Hammond (Ground 2C).

65. As I explained in my previous declaration, a person of ordinary skill in the art would have been motivated to form the Li-Burchia-Hammond and Baruch-Burchia-Hammond combinations because the combinations would have amounted to merely combining known elements in the prior art or a simple substitution of known elements to yield predictable results. EX1003, ¶¶231-236, 368-372. For example, Burchia and Hammond provide implementation details for implementing a torsion spring as Li’s “second spring 36” or Baruch’s “stopper bias 376.” EX1003, ¶¶231-236, 368-372. Both Li and Baruch disclose the use of springs while Burchia explains that it would have been a simple design choice to use a “torsion spring” to implement a vertical locking mechanism—that is, using a torsion spring would have been obvious and interchangeable with other types of vertical spring mechanisms. 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.

66. Therefore, as I explained in my previous declaration, a person of

ordinary skill in the art would have been motivated to look to Burchia for details related to usable or suitable types of springs that were well-known in the art and to Hammond for torsion spring implementation details. EX1003, ¶¶231-236, 368-372. Despite Dr. Vallee’s opinions to the contrary, a person of ordinary skill in the art would have recognized this rationale as providing a sufficient motivation to combine the references given the obviousness of the technology and the overlap of technology in the references.

67. Rather than addressing this explanation, Dr. Vallee states that implementing Burchia with Li would require “significant redesign.” EX2012 (Vallee Dec.), ¶120. I disagree. The combination does not require a redesign but instead demonstrates why a person of ordinary skill in the art would have recognized that other well-known springs would have been a simple substitution. Additionally, Dr. Vallee’s opinion does not negate a motivation to combine the references for at least two reasons. First, persons of ordinary skill in the art can weigh trade-offs when considering and combining references and can weigh various motivations when considering a design or re-design. Second, Dr. Vallee’s observation that Li allows containers to be connected in two different orientations and allegation that Burchia is limited to a single configuration does not address Burchia’s teaching that it was obvious to implement a torsion spring to move a component vertically. EX2012 (Vallee Dec.), ¶120; EX1003, ¶¶231-236. Using

one or two configurations is not relevant to the reason Burchia is used in the combinations presented in my previous declaration. EX1003, ¶¶231-236.

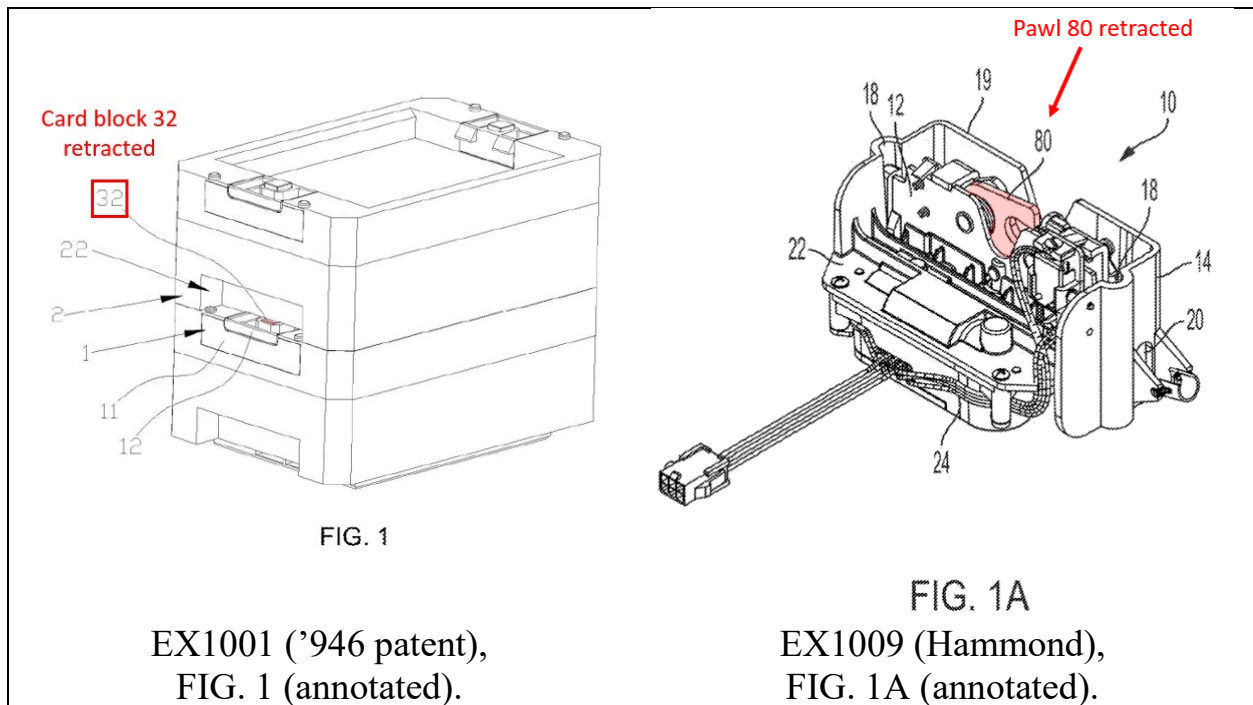
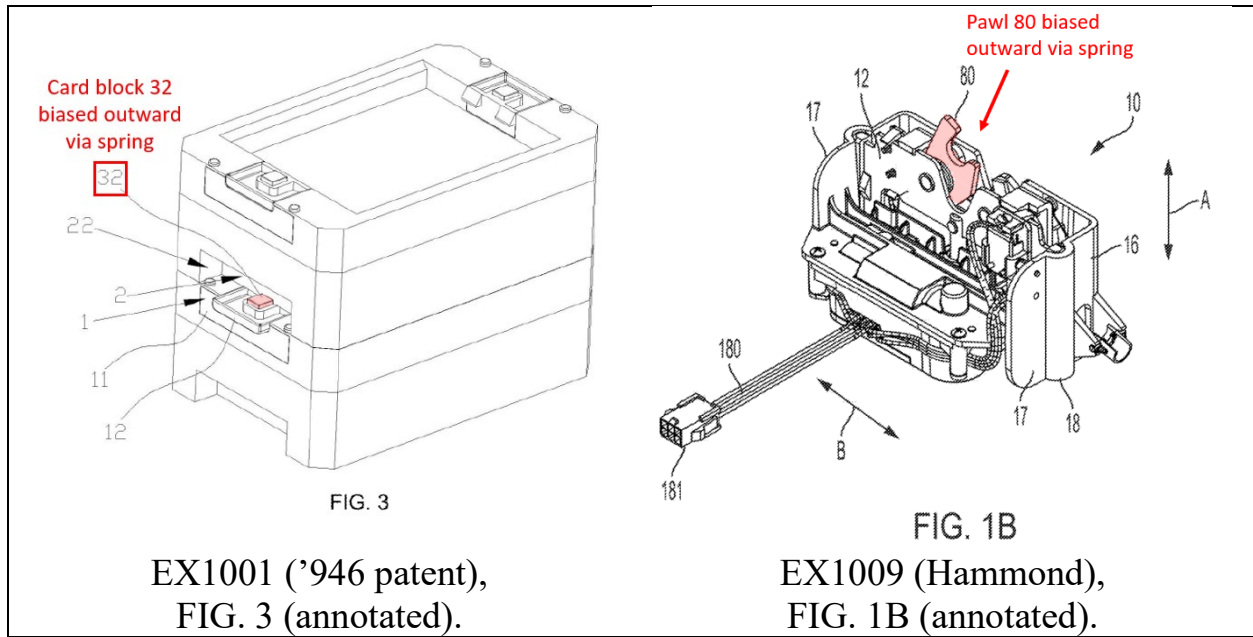
68. Regarding Hammond, Dr. Vallee states that a person of ordinary skill in the art would not have considered Hammond “due to the complexity of [Hammond’s] design.” EX2012 (Vallee Dec.), ¶121. Again, a person of ordinary skill in the art would have been able to weigh design complexity and still would have been motivated to form the combinations for the reasons provided in my previous declaration. EX1003, ¶¶231-236.

69. Dr. Vallee also states that Hammond is non-analogous art. EX2012 (Vallee Dec.), ¶¶122-127. I disagree. Hammond is analogous to the ’946 patent because Hammond is (1) from the same field of endeavor as the ’946 patent and (2) reasonably pertinent to the problem addressed by the inventors of the ’946 patent.

70. First, Hammond is in the same field of endeavor as the ’946 patent. For example, both Hammond and the ’946 patent relate to latching mechanisms for storage containers. The ’946 patent states: “The purpose of the present invention is to provide a *connection structure* of a storage box ... to achieve automatic locking, keeping unlocking and automatic reset functions, so as to facilitate the user’s operation and use.” EX1001, 1:52-57 (emphasis added). Similarly, Hammond explains that its “present invention relates to the *field of latches or*

connector systems configured to provide a mechanical connection between adjacent components.” EX1009, ¶2 (emphasis added). While Hammond describes an example of securing a baggage storage compartment or securing doors, drawers, or panels, Hammond does not limit its teachings to only those contexts and instead indicates that it is applicable to the entire field of “latches and connector systems.” EX1009, ¶2. Thus, and contrary to Dr. Vallee’s characterization, a person of ordinary skill in the art would have recognized that Hammond is in the same field of endeavor as the ’946 patent.

71. Additionally, despite Dr. Vallee’s characterization that Hammond’s teachings are only directed to compression latches for closing doors (EX2012 (Vallee Dec.), ¶¶125-127), Hammond’s latch mechanism is reasonably pertinent to the problems described in the ’946 patent. For example, the ’946 patent describes solving an automatic locking/unlocking problem by providing a connection structure that uses a “stop part” or card block 32 that moves between retracted and extended states and uses a spring bias to cause the extended state. 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 similarly using a spring bias to cause the extended state. EX1009, ¶¶8-9, 52, 54-55, 78. I have reproduced Figures 1 and 3 of the ’946 patent and Figures 1A and 1B from Hammond below:



72. As seen from this comparison, Hammond similarly describes an automatic locking/unlocking connection mechanism that uses a spring to bias a component outward. In view of the commonalities between the solutions proposed

in the '946 patent and in Hammond, a person of ordinary skill in the art would have recognized Hammond as being reasonably pertinent to the automatic locking/unlocking problem and connection solution described in the '946 patent. EX1001, FIGs. 1, 3, 2:9-14, 7:66-8:17, 8:44-61.

73. Additionally, I note that a person of ordinary skill in the art would have known of the teachings provided in Burchia and Hammond before the '946 patent. As explained in my previous declaration, a person of ordinary skill in the art would have looked to references like Burchia, which describe various spring types that may be used for a vertical locking element in stackable boxes (e.g., “pressure spring,” “elastomer springs, leaf springs, helical springs,” “torsion springs or plate springs.”). EX1003, ¶¶231-236, 368-372; EX1008, ¶14. A person of ordinary skill in the art would have known how to implement these spring types interchangeably with the spring mechanisms described in Li and Baruch as simple substitutions. EX1003, ¶¶231-236, 368-372. Hammond provides implementation details (e.g., using a pin and a pawl) to specifically implement a torsion spring. Further, such solutions were already well-known and obvious in the art as explained in my previous declaration. EX1003, ¶¶231-236, 368-372.

74. In particular, I explained in my previous declaration why a person of ordinary skill in the art would have been motivated to combine prior art references prior to the '946 patent without any hindsight bias. EX1003, ¶231 (“A [person of

ordinary skill in the art] *would have been motivated* to implement a torsion spring as described in Burchia and Hammond in Li and would have found implementing a torsion spring to amount to merely combining known elements or a simple substitution of known elements to yield predictable results.”); ¶232 (“To implement Li, a [person of ordinary skill in the art] *would have been motivated* to identify references describing types of springs used in locking mechanisms and how to implement those springs. This would have led to Burchia and Hammond.”) (emphasis added), ¶¶368-369 (similar explanation for Baruch-Burchia-Hammond).

75. Further, during my deposition, I further explained how a person of ordinary skill in the art *would* have implemented Li-Burchia-Hammond. EX2014, 64:3-21 (explaining a person of ordinary skill in the art “*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 person of ordinary skill in the art “*would* understand what’s required to do that”). These were all concepts and mechanisms that a person of ordinary skill in the art would have known prior to the ’946 patent.

76. Therefore, a person of ordinary skill in the art would have been motivated to form the Li-Burchia-Hammond and Baruch-Burchia-Hammond combinations before the ’946 patent. Further, a person of ordinary skill in the art would have found claims 5-6 and 13 obvious in view of these combinations.

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

77. With respect to claims 5 and 6, Dr. Vallee does not appear to state that the combinations fail to address any particular element of the claims. Rather, Dr. Vallee appears to state that it would not have been obvious to implement a torsion spring by repeating the previously presented motivation to combine opinions. EX2012 (Vallee Dec.), ¶¶130-134. For example, Dr. Vallee again states that a person of ordinary skill in the art “would not have had any reason to replace the compression spring of Li, Baruch, and/or Burchia with a torsion spring as taught in Hammond.” EX2012 (Vallee Dec.), ¶134. Again, I disagree with this motivation to combine opinion for the reasons presented in my previous declaration and in Section VI.A. Specifically, Burchia teaches that a torsion spring may be used to implement the spring described in Li and Baruch, which provides a motivation to combine as a simple substitution of well-known prior art elements. EX1003, ¶¶231-236, 368-372; EX1008, ¶14.

78. Dr. Vallee additionally states that torsion springs are “more expensive” and increase the “complexity of the design and manufacturing costs.” EX2012 (Vallee Dec.), ¶133. As I previously explained, a person of ordinary skill in the art is capable of weighing trade-offs and advantages and disadvantages in designs and therefore would have still found the combinations obvious. Additionally, as I explained during my deposition, implementing a torsion spring

would not have increased the cost. EX2014, 66:22-67:10 (“You can make torsion springs as easily as you can make compression springs, and the mounting shaft would be relatively inexpensive. So it doesn't have to increase the cost.”).

79. Therefore, I disagree with Dr. Vallee’s additional motivation to combine opinions as applied to claims 5 and 6 for the same reasons that I provided in Section VI.A.

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

80. Regarding claim 13, Dr. Vallee presents motivation to combine opinions. EX2012 (Vallee Dec.), ¶¶136-143. I addressed these opinions in Section VI.A and explained how and why a person of ordinary skill in the art would have implemented the Li-Burchia-Hammond and Baruch-Burchia-Hammond combinations.

81. Dr. Vallee additionally states that Hammond’s pawl 80 has “no relevance” to Li’s elastic boss 33 or Baruch’s stopper 370. EX2012 (Vallee Dec.), ¶138. Such an observation, however, does not address the combinations presented in my previous declaration. EX1003, ¶¶257-260, 387-389. Specifically, I previously explained that a person of ordinary skill in the art would have found it obvious and would have been motivated to implement a torsion spring to perform the same “stop part” functionality described in Li and Baruch. EX1003, ¶¶231-236, 257-260, 368-372, 387-389. When implementing a torsion spring, a person of

ordinary skill in the art would have also implemented a component such as pawl 80 to perform that functionality. EX1003, ¶¶231-236, 257-260, 368-372, 387-389. As I explained in my previous declaration, pawl 80 moves between an extended and retracted position similar to Li's elastic boss 33 or Baruch's stopper 370, so implementing pawl 80 would have been an obvious variation in the combinations. EX1003, ¶¶231-236, 257-260, 368-372, 387-389. Pawl 80 rotating about a pin also directly addresses the claimed "*second resilient member is a torsion spring and the stop part rotates relative to the locking part.*" EX1003, ¶¶231-236, 257-260, 368-372, 387-389.

82. Rather than addressing the explanation provided in my previous declaration, Dr. Vallee states that implementing Hammond with Li and Baruch would render their systems inoperable. EX2012 (Vallee Dec.), ¶140. For example, Dr. Vallee states that Li's elastic boss 33 or Baruch's stopper 370 would not be capable of holding stacked storage containers in an unlocked position if the movement was rotational. EX2012 (Vallee Dec.), ¶¶140-142. Dr. Vallee again does not appear to address the explanation provided in my previous declaration explaining that a person of ordinary skill in the art 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. EX1003, ¶¶257-260, 387-389. Therefore, I disagree with Dr. Vallee's opinions.

83. Additionally, I note that Dr. Vallee does not provide an explanation for how the '946 patent's embodiment depicted in Figures 1-7 would implement a torsion spring with a rotatable stop part. The lack of rationale or explanation in the '946 patent for using a torsion spring also suggests that a person of ordinary skill in the art would have found using a torsion spring obvious. In particular, the '946 patent's lack of explanation suggests to a person of ordinary skill in the art that they should use known components and known techniques to perform a simple substitution and that a person of ordinary skill in the art would have known how to implement this configuration.

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

84. Regarding the Li-Davidian and Baruch-Davidian combinations, Dr. Vallee states that there were no stability issues with Li and Baruch and therefore there is no motivation to combine Li or Baruch with Davidian. EX2012 (Vallee Dec.), ¶¶144-145.

85. However, as I explained in my previous declaration, a person of ordinary skill in the art 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., to provide greater stability and reduce movement between stacked boxes). EX1003, ¶¶262-265, 391-394. A person of ordinary skill in the art would not have required a deficiency in Li or

Baruch to have found such a combination obvious or to recognize the benefits that implementing Davidian would have provided.

86. Dr. Vallee additionally states that the combinations would “result in the addition of unnecessary components which would increase the complexity of the design and increase manufacturing costs.” EX2012 (Vallee Dec.), ¶144. However, as I have previously explained, a person of ordinary skill in the art would have been able to weigh design complexity and still would have been motivated to form the combinations for the reasons provided in my previous declaration. EX1003, ¶¶262-265, 391-394.

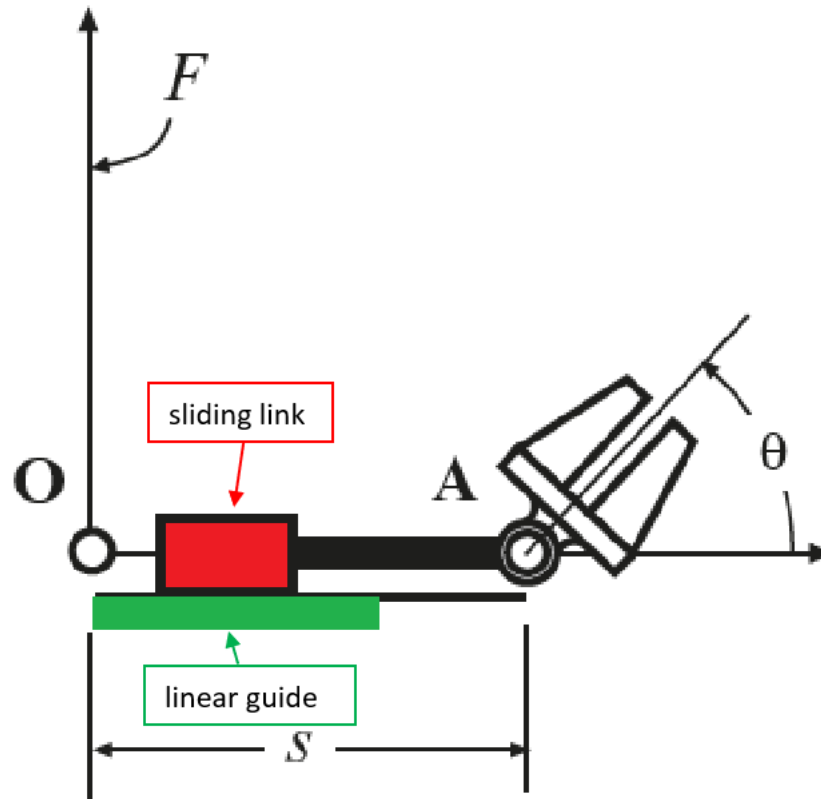
87. A person of ordinary skill in the art therefore would have been motivated to form the Li-Davidian and Baruch-Davidian combinations and would have found claims 14 and 16 obvious in view of these combinations. EX1003, ¶¶262-280, 391-400.

VIII. I EXCEED THE QUALIFICATION FOR A PERSON OF ORDINARY SKILL IN THE ART.

88. For the reasons explained in my original declaration, EX1003, ¶¶4-14, my education, work, and teaching demonstrate that I am a person of ordinary skill in the art of “connecting technologies or similar mechanisms.” My education, work, teaching and research demonstrate that I have a broad base of knowledge regarding machine design and the design of mechanical systems. This field of technology encompasses mechanical products, in general, and their structural

members and components, including connecting technologies. EX1003, ¶14.

89. Connecting technologies, particularly the '946 patent's latch mechanism, include and are built using articulated systems. In my textbook *Geometric Design of Linkages* (2nd Edition), I explain that a "linkage is a collection of interconnected components, individually called links. The physical connection between two links is called a joint." EX1050, 1. "In fact, the linkages that we study can be viewed as constructed from two elementary joints, the rotary hinge, called a revolute joint (denoted by R), *and the linear slider*, or prismatic joint (denoted by P)." EX1050, 2 (emphasis added). Indeed, I discuss a prismatic-revolute (PR) open chain that includes a link "that slides along the linear guide of a P-joint relative to the ground," similar to the sliding locking part of the '946 patent. EX1050, 16.



EX1050 (Geometric Design, McCarthy), FIG. 2.1 (annotated).

90. Additionally, I “guided the teams that formed the mechanical design” of a commercial robotic system, and “a team that would do the fabrication and testing, and then a team that would do the installation.” EX1051, 28:20-30:3. In the course of this work, I regularly designed and implemented various joints of the robotic system that releasably connected different components.

91. I have explained that my “entire activity has been involved in articulated systems that appear in latches.” EX1051, 31:20-21. Latches “are articulated systems that are designed to move under the actuation of a person or machine to engage two components so that they’re connected together. That is the

description of an articulated system.” EX1051, 32:3-22.

92. Additionally, I have well over two years of academic experience with connecting technologies, including teaching relevant courses that involve latch design and experience with articulated systems—which is experience with connecting technologies. My teaching experience includes a number of classes, for example, “Theory of Machines,” in which we discuss “the mechanical elements that are important to engineering.” EX1004, 41-42; EX1051, 33:6-13. I have taught this class on 19 separate occasions. EX1004, 41-42. As I explained, this class entails discussion of “examples in which [my students] will be asked to analyze various machine elements. And examples that are very common are articulated systems that form latches.” EX1051, 33:6-13. I have also authored multiple books addressing connecting technologies and design, including *Geometric Design of Linkages* (EX1050) and other books. See EX1004, 13.

93. Accordingly, my experience is directly relevant to the technology of the '946 patent. I have over 40 years of academic and industry experience in how components in articulated systems interact and move relative to one another (including in sliding latches), the core technologies of the '946 patent's latch mechanism. EX1004, 1-2. Linkages, which include various joints upon which latch mechanisms like the '946 patent are built, are connecting technologies or similar mechanisms. And my experience also includes latch-specific implementations.

IX. CONCLUSION

94. In signing this declaration, I recognize that the declaration will be filed as evidence in an *inter partes* review before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in the case and that cross-examination will take place within the United States. If cross-examination is required, I will appear for cross-examination within the United States during the time allotted.

95. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Executed on this 12th day of August 2026, in Irvine, California.

A handwritten signature in black ink that reads "J. Michael McCarthy". The signature is written in a cursive, flowing style with a large initial "J" and "M".

J. Michael McCarthy, Ph.D.