UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SIG SAUER INC.,
Petitioner

v.

LONE STAR FUTURE WEAPONS, INC.,
Patent Owner

Case IPR2025-00410
U.S. Patent No. 8,919,238

PATENT OWNER PRELIMINARY RESPONSE UNDER 37 C.F.R. § 42.107(a)

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

TABLE OF CONTENTS

I. INTRODUCTION 1
II. CLAIM CONSTRUCTION 3
III. THE '238 PATENT 3
A. Background 3
B. Overview 4
C. Prosecution History 5
D. Level of Ordinary Skill in the Art 7
IV. SUMMARY OF THE REFERENCES 7
A. Holek 7
B. Rossier 8
C. Chinn 9
V. THE PETITION HAS MYRIAD FLAWS AND FAILS TO ESTABLISH A REASONABLE LIKELIHOOD OF PREVAILING ON ANY CHALLENGED CLAIM. 10
A. Ground 1: Holek does not anticipate the claims because it has multiple missing elements. 11
1. Ground 1 fails because Holek does not disclose "an impulse of the fired rounds stops the forward momentum of the operating group," as recited by the claims. 11
2. Ground 1 also fails because Holek does not disclose "an operating rod (op-rod) assembly at least partially housed and arranged to axially translate within the barrel extension in the charged condition," as recited by the claims. 15
B. Ground 2: Rossier, which was previously applied and overcome during prosecution, does not anticipate the claims because it has multiple missing elements. 18
1. Ground 2 fails because Rossier does not disclose an "op-rod assembly and bolt assembly [being] locked[/secured] to the barrel extension" during the "firing condition," as recited by the claims. 19

2. Ground 2 also fails because Rossier does not disclose a bolt assembly "at least partially housed . . . within [a] barrel extension," as recited by the claims. 22

C. For all obviousness combinations in Grounds 3-5, the Petition fails to cure the deficiencies of Grounds 1-2 or demonstrate a motivation with a reasonable expectation of success in combining the asserted references.....25

1. Petitioner provides only a cursory assertion of motivation to combine and reasonable expectation of success that is insufficient to meet its burden and devoid of supporting evidence because the declaration merely copies the Petition verbatim. . 28

2. Ground 3: The combination of Holek and Rossier fails because it has missing elements and because the Petition fails to articulate an adequate motivation to combine Holek and Rossier with a reasonable expectation of success. 33

3. Ground 4: The combination of Holek and Chinn does not render the claims obvious because it has missing elements and because the Petition fails to articulate an adequate motivation to combine Holek and Chinn with a reasonable expectation of success. ... 34

4. Ground 5: The combination of Rossier and Chinn does not render the claims obvious because it has missing elements and because the Petition fails to articulate an adequate motivation to combine Rossier and Chinn with a reasonable expectation of success. . 36

VI. CONCLUSION 38

PATENT OWNER'S UPDATED EXHIBIT LIST

Exhibit No.	Description
2001	First Amended Complaint [46], *True Velocity Ammunition, LLC v. SIG Sauer Inc.*, Case No. 2:24-cv-522 (D. Vt. Jan. 13, 2025)
2002	"FAQ For Interim Processes for PTAB Workload Management," https://www.uspto.gov/patents/ptab/faqs/interim-processes-workload-management (accessed April 25, 2025)
2003	U.S. Patent No. 4,475,438 to Sullivan
2004	Answer [32], *True Velocity Ammunition, LLC v. SIG Sauer Inc.*, Case No. 2:24-cv-522 (D. Vt. Nov. 8, 2024)
2005	Motion to Dismiss [38], *True Velocity Ammunition, LLC v. SIG Sauer Inc.*, Case No. 2:24-cv-522 (D. Vt. Dec. 12, 2024)
2006	"Appeal Statistics: Patent Trial and Appeal Board, March 31, 2025," https://www.uspto.gov/sites/default/files/documents/fy25_ptab_appeal_statistics_2025march.pdf
2007	"Patent Trial and Appeal Board (PTAB) Dashboards November 2023," https://www.uspto.gov/dashboard/ptab/ (accessed April 25, 2025)
2008	"U.S. District Court – Judicial Caseload Profile," https://www.uscourts.gov/sites/default/files/2025-02/fcms_na_distprofile1231.2024.pdf (accessed April 25, 2025)
2009	Discovery Schedule/Order [52], *True Velocity Ammunition, LLC v. SIG Sauer Inc.*, Case No. 2:24-cv-522 (D. Vt. Mar. 11, 2025)
2010	Redline Comparison of Petition vs. Declaration of John Nixon (EX1003) in IPR2025-00410
2011	File History of U.S. Patent No. 2,223,004

I. INTRODUCTION

The Board should decline to institute *inter partes* review of claims 1-17 of U.S. Patent No. 8,919,238 ("the '238 patent) for two key reasons: (i) each of Petitioner's anticipation and obviousness grounds have at least one missing element, and (ii) every obviousness argument posited by Petitioner lacks an adequate motivation and explanation of a reasonable expectation of success beyond conclusory, unsupported statements. One of Petitioner's primary references—Rossier, which includes both of the '238 patent inventors—was applied in a rejection and overcome during prosecution. Petitioner's other primary reference (Holek) was filed nearly 90 years ago and has little in common with the '238 patent's revolutionary Lightweight Medium Machine Gun ("LMMG") other than being an automatic firearm. Moreover, Mr. Nixon's declaration accompanying SIG Sauer's Petition parrots the Petition's attorney argument *verbatim*—without citing even a single additional reference for support—and thus should receive little or no weight. As discussed in detail below, the Petition and prior art are riddled with flaws. The Board should deny institution.

The '238 patent discloses and claims a revolutionary next-generation LMMG that gives soldiers a distinct advantage in extended- and close-range combat. The LMMG eliminates the gap between the lighter and heavier weapons systems currently fielded by the United States Armed Forces and their allies. At

the heart of the LMMG is its revolutionary recoil mitigation system claimed by the '238 patent, called Short Recoil Impulse Averaging ("SRIA"). Previously, machine gun recoil was mitigated by either adding mass to a weapon system or lengthening the receiver. The SRIA technology claimed by the '238 patent, however, reduces recoil without increasing the weapon's weight or length, resulting in a larger caliber, compact, and lightweight weapon that has reduced recoil, enhanced mobility, increased accuracy, and gives soldiers heavy machine gun capability in a medium machine gun package.

Petitioner, Sig Sauer, Inc. ("SIG Sauer"), struggled to develop a medium machine gun capable of mitigating recoil. Then, SIG Sauer recruited and hired engineers that helped develop the SRIA technology, misappropriating intellectual property in the process. *See* EX2001 (First Amended Complaint, *True Velocity Ammunition, LLC and Lone Star Future Weapons, Inc.*[1] *v. SIG Sauer Inc.*, No. 2:24-cv-522 (D. Vt. Jan. 15, 2025), ECF No. 46); *see also* Section III.A. SIG Sauer now attempts to clear a path to implement Lone Star's technical achievements without recourse, by challenging Lone Star's intellectual property in the instant, facially flawed Petition.

[1] True Velocity Ammunition, LLC is a sister company and licensee of Lone Star Future Weapons, Inc.

II. CLAIM CONSTRUCTION

The Board need not construe any term in order to determine that institution should be denied. Lone Star reserves the right to contest SIG Sauer's implicit or explicit constructions should trial be instituted.

III. THE '238 PATENT

A. Background

In 2009, General Dynamics Ordnance and Tactical Systems ("GD-OTS") determined that a gap existed in the weapons capabilities of the U.S. Military. EX2001, ¶25. Specifically, GD-OTS determined that there was a need for a new LMMG that could provide the range of a .50 caliber heavy machine gun, yet would be as light as a 7.62 mm medium machine gun. *Id.* GD-OTS discovered that marrying these two attributes presented a major problem: managing the significant rearward impulse (i.e., recoil). *Id.*, ¶26.

To solve this issue, GD-OTS assembled a design team that would eventually invent the '238 patent's SRIA operating group. *Id.*, ¶¶26-31. Notably, this team included David Steimke, the first-named inventor of the '238 patent. *Id.*, ¶41. Over time, members of the GD-OTS design team—as well as the intellectual property arising from the team's efforts—migrated to Lone Star (a small, Texas-based company) after an agreement with GD-OTS to have Lone Star pursue further design activities. *Id.*, ¶¶38, 56.

Historically, SIG Sauer (a subsidiary of a German international

conglomerate with several thousand employees) was not a competitor of GD-OTS in the belt-fed machine gun market. *Id.*, ¶¶39, 40, 48. In 2014, SIG Sauer hired Steimke and other members of the original GD-OTS design team, even though SIG manufactured no related products at the time. EX2001, ¶¶39-45. Less than 18 months after the Department of the Army announced an opportunity to submit prototypes for its "Next Generation Squad Automatic Rifle," SIG Sauer developed its own, competing medium belt-fed machine gun. *Id.*, ¶¶47, 51.

Now, SIG Sauer has filed this Petition in its quest to continue trampling upon Lone Star's intellectual property rights.

B. Overview

The '238 patent relates to a weapon system that "includes a receiver and an operating group configured to operate the weapon system through a charged condition, a firing condition, and a recoil condition." EX1001, 1:44-48. "The operating group includes a barrel extension at least partially housed within the receiver and arranged to axially translate relative to the receiver; an operating rod (op-rod) assembly at least partially housed and arranged to axially translate within the barrel extension in the charge condition, the firing condition, and the recoil condition; and a bolt assembly coupled to the op-rod assembly and at least partially housed and arranged to axially translate within the barrel extension." *Id.*, 1:49-56. "The system further includes a barrel coupled to the barrel extension and defining a

chamber; a gas accelerator with a first end coupled to the barrel and a second end coupled to the op-rod assembly; and a buffer assembly including a drive spring having a first end coupled to the receiver and a second end coupled to the op-rod assembly." *Id*., 1:56-62.

"In the charged condition, the op-rod assembly and the bolt assembly are retracted against the drive spring." *Id*., 1:62-63. "In the firing condition, the op-rod assembly and bolt assembly are driven by the drive spring such that the round is guided into the chamber and the op-rod assembly and bolt assembly are locked to the barrel extension and a forward momentum of the op-rod assembly is imparted to the operating group and the round is fired." *Id*., 1:63-2:2. "A portion of an impulse of the fired round stops the forward momentum of the operating group." *Id*., 2:2-3. "In the recoil condition, the operating group is driven rearward by the remaining portion of the impulse of the fired round, the gas accelerator imparts additional rearward momentum to the op-rod assembly and bolt assembly and stops rearward momentum of the barrel and barrel extension, and the op-rod assembly and the bolt assembly are stopped by the drive spring." *Id*., 2:3-11.

C. Prosecution History

The '238 patent issued from U.S. Patent App. No. 13/562,078 ("the '078 Application"), filed on July 30, 2012. EX1001, (21), (22).

The first (and only) Office Action on the merits rejected the originally-filed

claims under 35 U.S.C. §§ 102, 103 as allegedly being unpatentable over U.S. Patent No. 6,343,536 to Rossier—the same reference applied in the Petition. EX1002, 131-33. Notably, Rossier was originally cited by GD-OTS itself. *See id*., 1, 131. Indeed, GD-OTS was familiar with Rossier—and intimately understood why the '078 Application was patentable thereover—as Rossier was GD-OTS's own patent.

Particularly relevant here: in the Office Action, the Examiner alleged, *inter alia*, that Rossier discloses an "op-rod assembly and bolt assembly [being] locked to [a] barrel extension" during the firing condition. *Id*., 132.

In response, GD-OTS explained that in their prior patent (Rossier) "the op-rod assembly and the bolt assembly are not locked to the barrel extension during the firing condition." *Id*., 171 (emphasis in original). GD-OTS also amended independent claim 13 to similarly recite that "the driving step includes securing the bolt assembly to the barrel extension during the contact with the barrel extension." EX1002, 4-5, 7-9.

Recognizing that Rossier did not disclose, suggest, or render obvious any of the then-pending claims—and, as discussed below, *still* does not for at least the same reasons—the Examiner allowed the '078 Application, which issued as the '238 patent on December 30, 2014. EX1002, 179-83, 199.

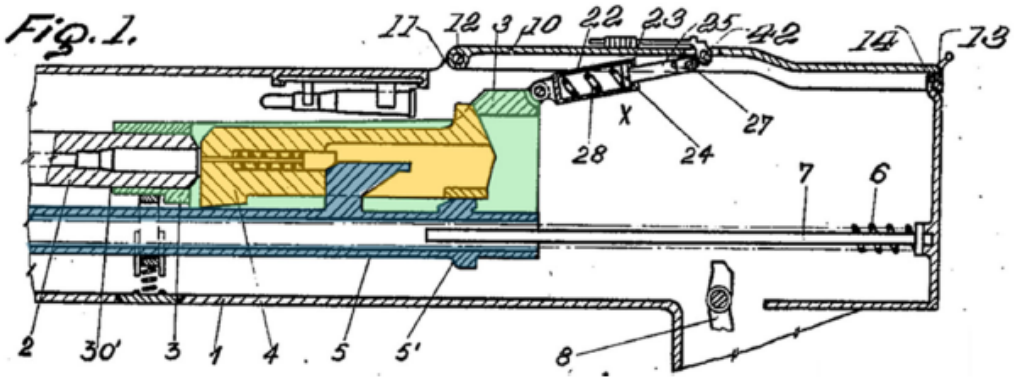
D. Level of Ordinary Skill in the Art

For purposes of this Preliminary Response only, Lone Star applies SIG Sauer's level of skill for a person of ordinary skill in the art ("POSA"). Pet., 10. Lone Star reserves the right to present a different definition, if trial is instituted.

IV. SUMMARY OF THE REFERENCES

A. Holek

Holek is directed to a long-antiquated, pre-World War II firearm. The "essential feature of [Holek] consists in a member, that is, a cover [10]" configured to cock Holek's barrel 2 and casing 3 prior to firing, thereby allegedly improving upon other cocking mechanisms at the time (i.e., the 1930s). EX2011, 35; *see generally* EX1005, p. 1, col. 1, lines 1-40.



EX1005, FIG. 1 (Petitioner's Annotations)

Holek describes that cocking the barrel 2 and casing 3 is essential to the operation of its firearm due to an interaction between casing 3 and breech block 4

during Holek's firing cycle. EX1005, p. 2, col. 1, lines 5-8. Accordingly, the forward movement of Holek's barrel 2 and casing 3 during its firing cycle is due to a mechanical necessity—*not* because barrel 2 or casing 3 take part in any short-recoil impulse averaging. Indeed, as discussed in detail below, Holek unambiguously discloses that an impulse of a fired round *does not* stop a forward momentum of its operating group, an element of the '238 patent claims. EX1005, p. 2, col. 2, lines 42-45; *see* EX1001, 17:39-40.

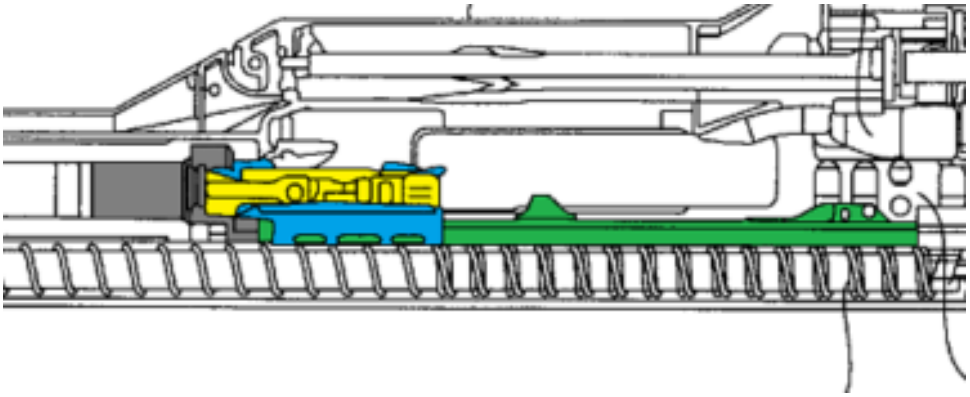
Holek's antiquity lends to its other deficiencies noted herein. This cannot be overlooked when considering Petitioner's inadequate motivation-to-combine rationales—which summarily allege that a POSA would have combined Holek (a pre-World War II firearm) with, e.g., Rossier (a weapon designed over 60 years later).

B. Rossier

Rossier is a familiar reference to Lone Star because it is Lone Star's own patent—and because it was applied by the Examiner and overcome during prosecution of the '238 patent.

Rossier is directed to an "automatic projectile firing weapon and a related method for absorbing the recoil force of an automatic projectile weapon." EX1006, Abstract. The weapon system disclosed by Rossier is for "a lightweight crew served weapon for firing medium caliber munitions," EX1006, 3:64-67, meaning that it is

designed to be fired from a mount such as a bipod, and not while being held by an individual. Particularly relevant here, and as shown in Figure 11 of Rossier (reproduced and annotated below), Rossier discloses that its bolt body 96 (yellow) and lugs 89 of its barrel 52 (grey) lock together during Rossier's firing cycle, with its barrel extension 60 (green) and op-rod assembly (referred to as "bolt carriage 92") (blue) taking no part in this locking.



EX1006, FIG. 11 (annotated, excerpted).

See EX1006, 5:13 ("Barrel 52 includes a chamber 88 and breech locking lugs 89."); *see also* EX1006, 5:45-46 ("bolt body lugs [engage] with barrel lugs 89").

Accordingly, as discussed in detail below, Rossier does *not* disclose or suggest an "op-rod assembly and bolt assembly [being] locked[/secured] to the barrel extension" during the "firing condition," as recited by the '238 patent claims.

C. Chinn

Chinn, purportedly a declassified summary of machine gun technologies from the 1980s, discusses the 7.62 mm M60 Machine Gun. EX1007, 11. In short, Chinn

discloses that the M60 includes a bolt body that locks to its barrel, similar to the bolt body 96 and barrel 52 in Rossier. *Id.*, 13-14. Indeed, Chinn is largely cumulative of Rossier—as evidenced by the Petition's reliance on Chinn for the same limitations allegedly disclosed by Rossier, with the exception of a few additional dependent claims. Pet., 1, 60-66, 68-71.

Thus, like Rossier, and as discussed below, Chinn also fails to disclose or suggest, *inter alia*, an "op-rod assembly and bolt assembly [being] locked[/secured] to the barrel extension" during the "firing condition," as recited by the '238 patent claims.

V. THE PETITION HAS MYRIAD FLAWS AND FAILS TO ESTABLISH A REASONABLE LIKELIHOOD OF PREVAILING ON ANY CHALLENGED CLAIM.

The Petition fails to establish the required reasonable likelihood of prevailing at least because: (A) Holek does not anticipate the claims because it has multiple missing elments; (B) Rossier, which was previously applied and overcome during prosecution, does not anticipate the claims because it has multiple missing elements; and (C) for all obviousness combinations in Grounds 3-5, the Petition fails to cure the deficiencies of Grounds 1-2 or provide any sufficient motivation with a reaonsable expectation of success in combining the asserted references to arrive at what is claimed. Accordingly, the Board should deny institution.

A. Ground 1: Holek does not anticipate the claims because it has multiple missing elements.

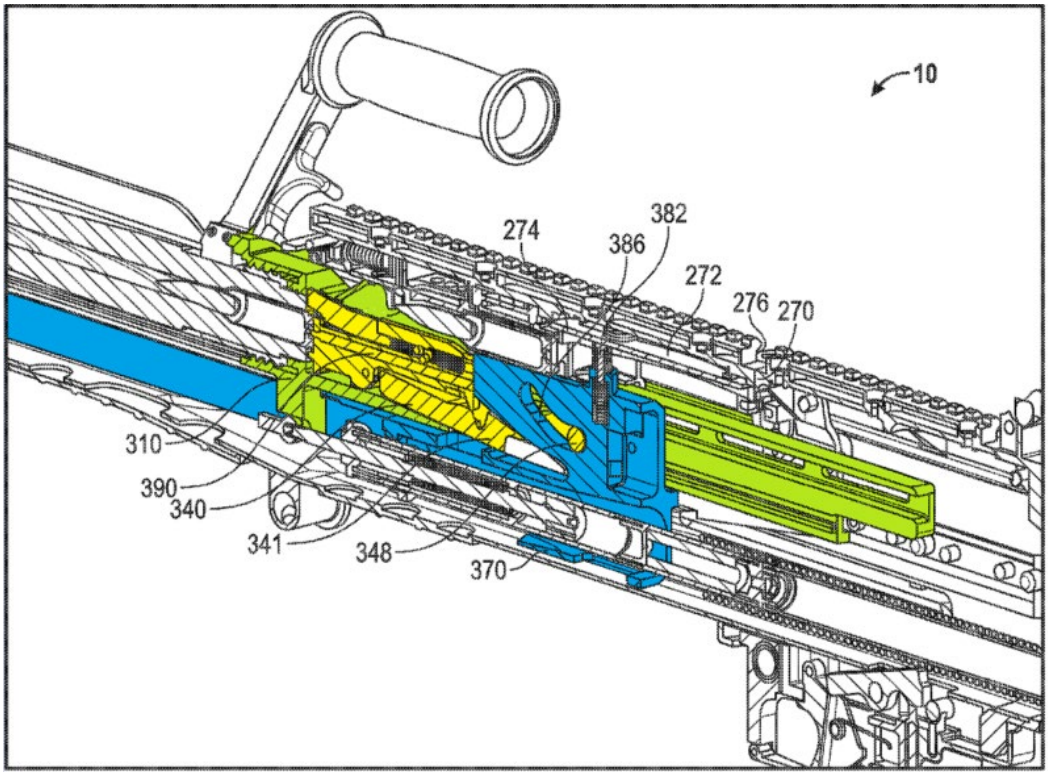
Petitioner alleges that claims 1, 5-7, 13, and 14 are anticipated by Holek (Ground 1). Pet., Section III. However, Holek fails to disclose at least: (i) "an impulse of the fired rounds stops the forward momentum of the operating group," and (ii) "an operating rod (op-rod) assembly at least partially housed and arranged to axially translate within the barrel extension in the charged condition," and thus cannot anticipate the claims.

1. Ground 1 fails because Holek does not disclose "an impulse of the fired rounds stops the forward momentum of the operating group," as recited by the claims.

Independent claim 1 of the '238 patent recites that "an impulse of the fired rounds *stops the forward momentum* of the operating group." EX1001, 17:39-40. Claims 5-7 depend either directly or indirectly from claim 1, and thus also include this feature. Independent claim 13 similarly recites that "firing of the round *stops the forward momentum* . . . [of] the op-rod assembly, the bolt assembly, and the barrel extension." EX1001, 18:36-39. Claim 14 depends directly from claim 13 and thus also includes this feature. Contrary to SIG Sauer's unsupported contentions, Holek does not disclose or otherwise suggest such a forward stoppage. In fact, Holek expressly states that an impulse of a fired round *does not* stop forward momentum of its operating group.

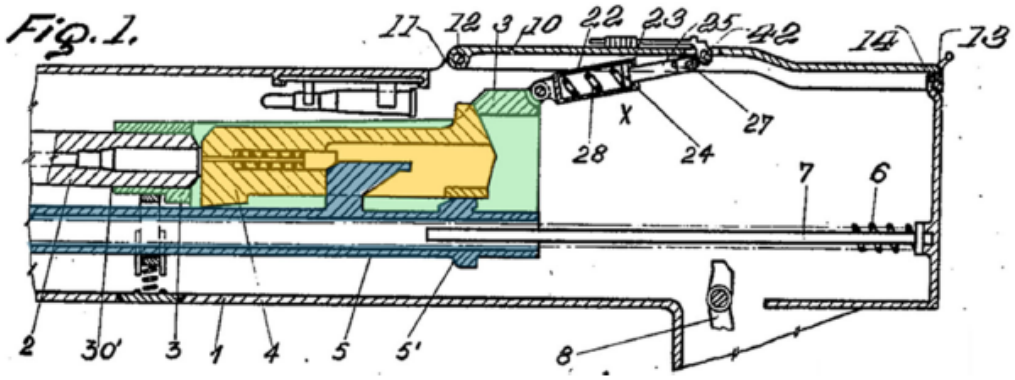
As shown below in Figure 21 of the '238 patent, the claimed "operating

group" includes a barrel extension (green), an op-rod assembly (blue), and a bolt assembly (yellow). EX1001, 17:11-23.



EX1001, FIG. 21 (annotated).

A fundamentally different weapon system is shown in Holek (reproduced below with SIG Sauer's annotations). Petitioner begins by alleging that Holek's casing 3 (green), breech block 4 (yellow), and breech-block carrier 5 (blue) form the claimed operating group. Pet., 12-17, 30-31.



EX1005, FIG. 1 (Petitioner's annotations).

But Holek unambiguously discloses that an impulse of a fired round *does not* stop a forward momentum of its casing 3, breech block 4, and breech-block carrier 5. Instead, after Holek's trigger is pulled, the breech-block carrier 5, together with breech block 4, is moved forward within the firearm under the action of return spring 6. EX1005, p. 2, col. 2, lines 31-34. As breech-block carrier 5 is moving forward, "protrusion 5' thereon strikes frame 30 and depresses it," allowing casing 3 to move forward within the firearm as well. EX1005, p. 2, col. 2, lines 36-41. "During this forward movement," Holek explains that "firing takes place with the breech block locked *and the energy of the parts which are moving forward overcomes the energy of the recoil resulting from the firing*." EX1005, p. 2, col. 2, lines 42-45 (emphasis added). Simply put, casing 3, breech block 4, and breech-block carrier 5 overcome "the energy of the recoil resulting from the firing" and, accordingly, are *not* stopped by an impulse of the fired round.

Petitioner attempts to support its contention that Holek discloses this feature

with the following conclusory statement (repeated verbatim by its declarant):

> Holek discloses this limitation. Holek also discloses that the propulsion of the "breech block carrier" is transferred to the operating group and the shot is thereby fired. The operating group itself is still undergoing propulsion at the time of firing ("during this forward movement, firing takes place"), which is then stopped by a portion of the impulse of the fired round "without reaching the foremost fixed stops." EX1003, ¶62; EX1005, p.2, col.2, ll.31-51.

Pet., 24; EX1003, ¶62. This statement demonstrates Petitioner's fundamental misunderstanding of Holek—as Holek unambiguously discloses that an impulse of the fired round *does not* stop forward momentum of its casing 3, breech block 4, and breech-block carrier 5. EX1005, p. 3, col. 2, lines 42-45 ("During this forward movement, firing takes place with the breech block locked and the energy of the parts which are moving forward overcomes the energy of the recoil resulting from the firing."). This incorrect argument, copied in the declaration without further analysis or support, also highlights that the Board should give little or no weight to Petitioner's declarant. *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 12 at 5 (P.T.A.B. Feb. 10, 2023) (Director Review) (precedential) (finding the Board "correct in giving little weight" to expert testimony because the "declaration merely offered conclusory assertions without underlying factual support and repeated, verbatim, [petitioner's] conclusory arguments.").

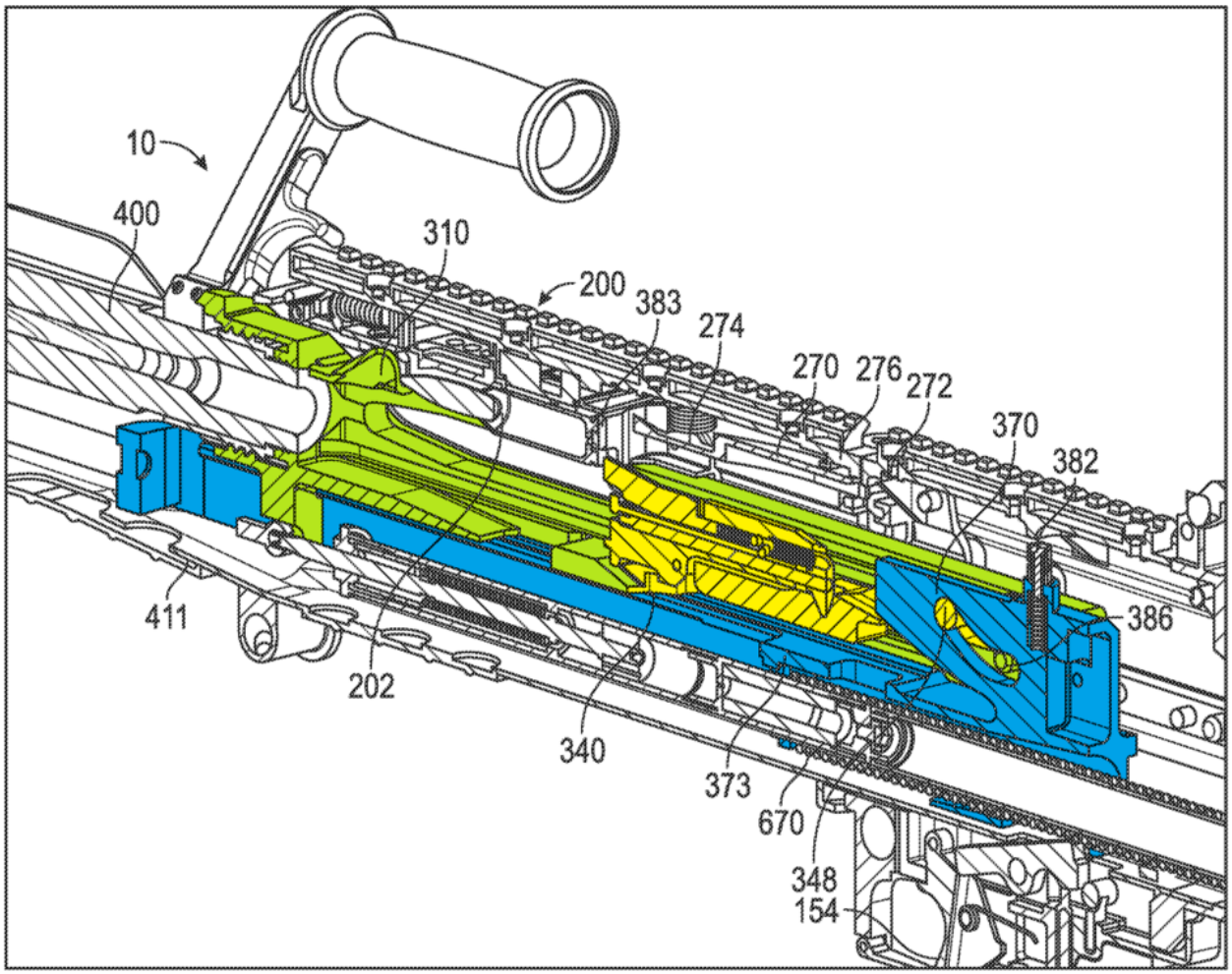
For at least these reasons, Holek does not anticipate independent claims 1 or 13.

Claims 5-7 and 14 depend either directly or indirectly from independent claims 1 or 13 and, therefore, are not anticipated by Holek for at least the same reasons.

2. Ground 1 also fails because Holek does not disclose "an operating rod (op-rod) assembly at least partially housed and arranged to axially translate within the barrel extension in the charged condition," as recited by the claims.

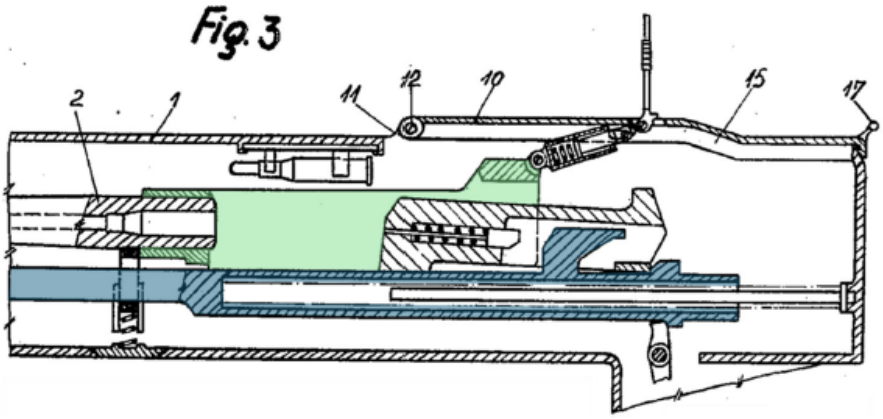
Independent claim 1 of the '238 patent also recites that "an operating rod *(op-rod) assembly [is] at least partially housed* and arranged to axially translate *within the barrel extension in the charged condition*." EX1001, 17:17-20. Holek does not disclose this limitation, as is immediately apparent from its Figures and disclosure, and Petitioner's own annotated drawings.

Figure 18B of the '238 patent provides a useful illustration, demonstrating how the claimed op-rod assembly (highlighted in blue) is at least partially housed and arranged to axially translate within the barrel extension (highlighted in green) when in the charged condition:



EX1001, FIG. 18B (annotated).

Tellingly, Petitioner references multiple figures from Holek to address this element, yet *only* Figure 3 depicts the charged condition. Pet., 14-16. And Figure 3 clearly demonstrates that Holek does *not* disclose this element:



EX1005, FIG. 3 (Petitioner's annotations).

In the above figure, depicting Holek's charged condition, the op-rod is in blue and the barrel extension is green. Pet., 16. As is apparent, the op-rod (blue) is *not* "at least partially housed…within the barrel extension" (green) in the charged condition.

Petitioner obfuscates the above fact by first showing Figure 1 from Holek twice—which clearly does not show the charged condition[2]—before actually showing Holek's charged condition. Pet., 15-16. No part of Holek's operating rod (op-rod) is within the barrel extension in the charged condition. Petitioner glosses over this glaring flaw by avoiding use of the word "housed" in the relevant section of its Petition. Pet., 14-16 ("The operating rod assembly of Holek . . . is configured

[2] Figure 1 of Holek shows an automatic firearm with its "operative parts at rest" before the firearm is cocked (i.e., charged) to the position shown in Figure 3. EX1005, p. 1, col. 2, lines 14-16; EX1005, p. 2, col. 1, lines 46-64.

to move axially within the barrel extension . . . between the various operating states."). Mr. Nixon's declaration copies the Petition, offering no additional insight into this missing element, merely repeating the same points nearly word-for-word. EX1003, ¶¶48-50.

For at least these reasons, Holek does not anticipate independent claim 1. Claims 5-7 depend either directly or indirectly from independent claim 1 and, therefore, are not anticipated by Holek for at least the same reasons.

B. Ground 2: Rossier, which was previously applied and overcome during prosecution, does not anticipate the claims because it has multiple missing elements.

Petitioner alleges that claims 1-5 and 13-16[3] are anticipated by Rossier (Ground 2). Pet., Section III. This same reference, which has two inventors in common with the '238 patent, and is Lone Star's own patent, was applied and overcome during prosecution. As was the case then, Rossier still fails to disclose each and every element of the claims, and thus cannot anticipate them, at least because: (1) Rossier does not disclose an "op-rod assembly and bolt assembly

[3] In its listing of grounds of invalidity, the Petition includes claims 6, 7, and 11 in Ground 2. Pet., 1, 37. But the Petition does not address claims 6, 7, and 11 in its analysis of Ground 2. Pet., 48-49. Petitioner's challenge under Ground 2 is therefore limited to claims 1-5 and 13-16.

[being] locked[/secured] to the barrel extension" during the "firing condition,"; and (2) Rossier does not disclose a bolt assembly "at least partially housed . . . within [a] barrel extension."

1. Ground 2 fails because Rossier does not disclose an "op-rod assembly and bolt assembly [being] locked[/secured] to the barrel extension" during the "firing condition," as recited by the claims.[4]

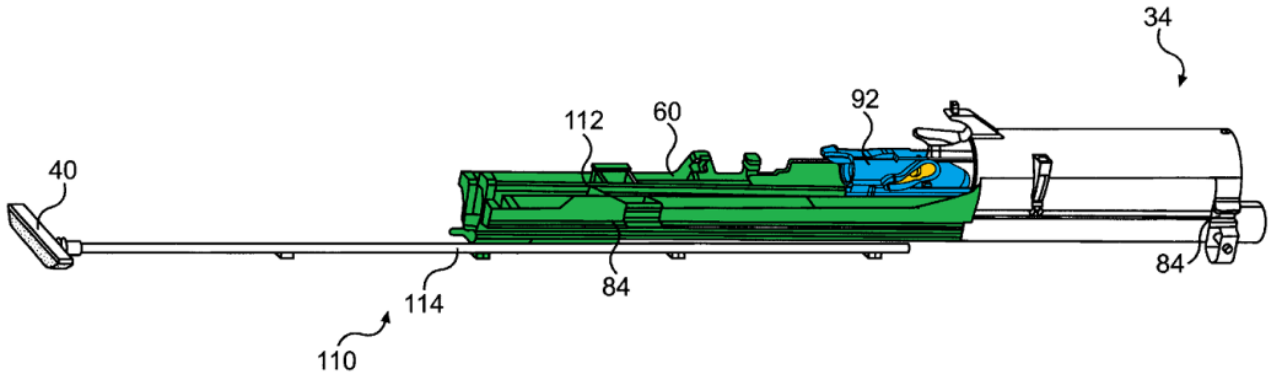
Independent claim 1 of the '238 patent recites that "the op-rod assembly and *bolt assembly* are *locked to the barrel extension" during the "firing condition*." EX1001, 17:33-36. Claims 2-5 depend either directly or indirectly from claim 1 and thus also include this element. Independent claim 13 similarly recites "*securing the bolt assembly to the barrel extension* during the contact with the barrel extension." EX1001, 18:46-47. Claims 14-16 depend either directly or indirectly from claim 13 and thus also include this element.

As explained during prosecution and agreed to by the Examiner, because Rossier does not disclose a bolt assembly that is locked/secured to a barrel

[4] Although the header for Ground 2 alleges the claims are "obvious," Pet., 37, the arguments allege anticipation. Additionally, Petitioner's identified Grounds for Unpatentability, Pet., 1, state that the basis for Ground 2 is § 102(a), i.e., anticipation. Mr. Nixon's declaration also alleges anticipation based on Rossier. EX1003, ¶87. Thus, Petitioner's challenge is limited to anticipation.

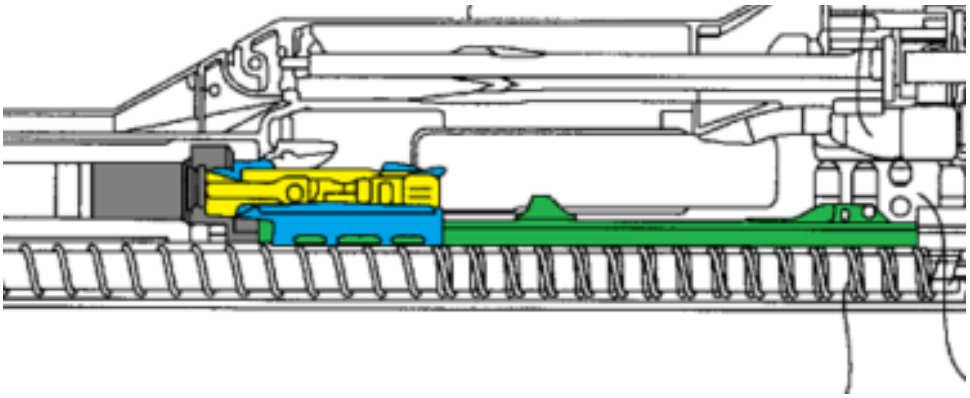
extension, Rossier does not anticipate any claim of the ’238 patent.

As shown in the annotated figures below, Rossier discloses an op-rod assembly (referred to as “bolt carriage 92”) (blue), a bolt assembly (referred to as a “bolt body 96”) (yellow) that is inside the bolt carriage 92, and a barrel extension 60 (green):



EX1006, FIG. 6 (annotated).

As shown, in Rossier the bolt body 96 and barrel extension 60 are *separated* by the bolt carriage 92. Indeed, even in the firing condition, the bolt body 96 never comes into contact with the barrel extension 60, as shown below in annotated Figure 11 of Rossier:



EX1006, FIG. 11 (annotated, excerpted).

Instead, the bolt body 96 comes into direct contact with Rossier's barrel 52 (grey). Rossier's specification corroborates this. It specifies that the bolt body 96 engages directly with the barrel lugs 89, which are part of the barrel 52, *not* the barrel extension 60. *Compare* EX1006, 5:13 ("Barrel 52 includes a chamber 88 and breech locking lugs 89.") *with id*, 5:13-14 ("Barrel extension 60 extends rearward from barrel 52 and defines a track 112."); *see also id.*, 5:45-46 ("to engage bolt body lugs with barrel lugs 89"), FIG. 6.

Petitioner acknowledges that it is Rossier's barrel lugs 89 that engage with the bolt body 96—as the Petition quotes the very portion of Rossier that discloses this fact. Pet., 44 ("As bolt carriage 92 moves forward, cam pin 90 rides along cam surface 91 to convert the linear motion of bolt carriage 92 into a *rotary motion of bolt body* 96, to engage the bolt body lugs with barrel lugs 89 (referring to FIG. 4).") (emphasis in Petition); *see also* EX1003, ¶99 (verbatim). But Petitioner misses or ignores the fact that the lugs 89 are part of the barrel 52—*not* the barrel

extension 60.

In failing to appreciate this distinction, Petitioner sets forth the same argument made by the Examiner and overcome (see below) during the prosecution of the '238 patent:

> to col. 9, line 19. However, contrary to the arguments in the Office Action, the op-rod assembly and the bolt assembly are not locked to the barrel extension during the firing condition. Rossier fails to disclose any such locking mechanism.

EX1002, 171.

Thus, just as the Examiner's rejection over Rossier was deficient during prosecution, Ground 2 is also deficient for at least the very same reasons explained during prosecution.

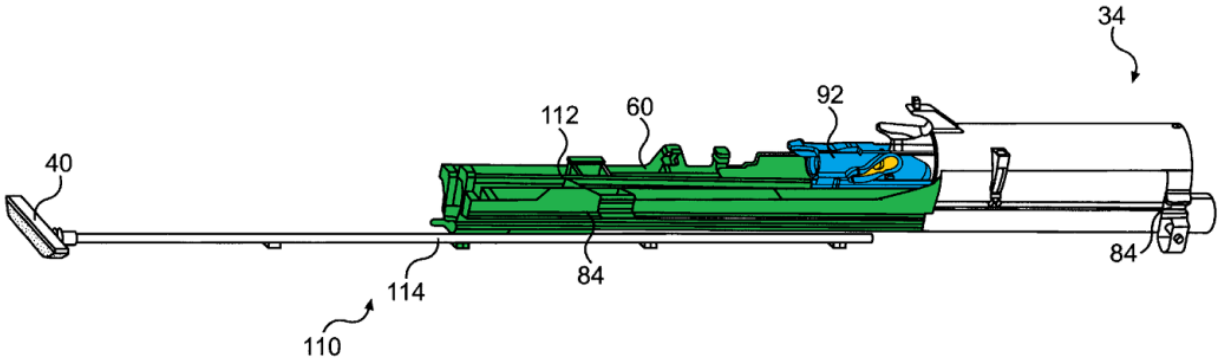
For at least these reasons, Rossier does not anticipate independent claims 1 or 13. Claims 2-5 and 14-16 depend either directly or indirectly from independent claims 1 or 13 and, therefore, are not anticipated by Rossier for at least the same reasons.

2. Ground 2 also fails because Rossier does not disclose a bolt assembly "at least partially housed . . . within [a] barrel extension," as recited by the claims.

Independent claim 1 of the '238 patent recites that the bolt assembly is "at least partially housed and arranged to axially translate within the barrel extension." EX1001, 17:21-23. Claims 2-5 depend either directly or indirectly from claim 1, and thus also include this element. Independent claim 13 similarly recites "driving

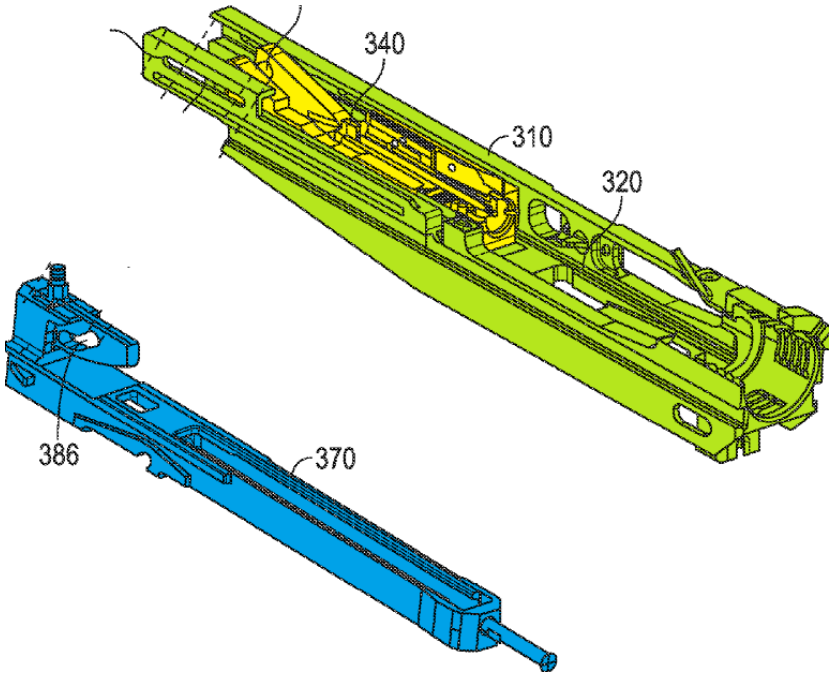
the bolt assembly . . . with a forward momentum within the barrel extension." EX1001, 18:31-32. Claims 14-16 depend either directly or indirectly from claim 13 and thus also include this element. Because Rossier does not disclose a bolt assembly that is at least partially housed within a barrel extension, Rossier does not anticipate any claim of the '238 patent.

Once again, Rossier's Figure 6 is illustrative here. It shows that the bolt assembly (referred to as a "bolt body 96") (yellow) is not housed within a barrel extension 60 (green). Instead, bolt body 96 is housed within an op-rod assembly (referred to as a "bolt carrier 92") (blue). And, no portion of bolt body 96 is housed within barrel extension 60 or its track 112:



EX1006, FIG. 6 (annotated).

When compared with Figure 14 of the claimed element (reproduced and annotated below), it is even clearer that Rossier's bolt body 96 is in no part housed within the barrel extension 60:



EX1001, FIG. 14 (annotated, excerpted).

More specifically, unlike the bolt assembly (yellow) shown in Figure 14 of the '238 patent, which rests within and is bounded by the barrel extension (green), Rossier's bolt body 96 is in no part bounded or encompassed by its barrel extension 60.

Once again, Petitioner fails to appreciate readily-apparent distinctions, cites only Mr. Nixon's verbatim testimony, EX1003, ¶94, and provides no further explanation or justification as to how Rossier discloses the claimed element.

For at least these reasons, Rossier does not anticipate independent claims 1 or 13. Claims 2-5 and 14-16 depend either directly or indirectly from independent claims 1 or 13 and, therefore, are not anticipated by Rossier for at least the same reasons.

C. For all obviousness combinations in Grounds 3-5, the Petition fails to cure the deficiencies of Grounds 1-2 or demonstrate a motivation with a reasonable expectation of success in combining the asserted references.

Petitioner does not provide any compelling reason to combine the references in Grounds 3-5 or demonstrate a reasonable likelihood of successfully combining the teachings of the references to achieve the claimed invention.

Given that firearms employ the use of controlled explosions—generally near the user's face and extremities—Petitioner (and Mr. Nixon) should have articulated a reasonable expectation of success explaining how the combinations would actually work such that the resulting firearm would not explode in its user's hands. Instead, Petitioner—and Mr. Nixon's verbatim declaration—merely provide vague, unsupported assertions that a POSA would anticipate success when integrating dissimilar, incompatible machine gun components to create a firearm capable of automatic fire with minimal recoil.

For example, Petitioner and Mr. Nixon also fail to explain why a POSA would be motivated to take components from lower pressure weapon systems like Chinn and place them within a high pressure weapon system designed for medium caliber munitions like Rossier, without any guidance on how to modify the parts from Chinn to withstand this increased pressure. This failure exists for all obviousness grounds, as Petitioner and Mr. Nixon broadly claim that a POSA could take a part from one firearm, adapt it to another despite their incompatibility,

and expect to produce a new weapon able to endure the repeated, explosive forces of automatic firing. This argument is comparable to installing a Model T engine into a 1990 Toyota Camry and expecting it to perform like a brand-new Ferrari. Through this fitting analogy, it is unsurprising why Petitioner and Mr. Nixon present no credible, reasoned, or supported motivation for any of its combinations—there simply isn't one.

In an IPR, "the burden of proving a proposition of unpatentability" is borne by (and remains at all times with) the petitioner. 35 U.S.C. §§ 314(a), 316(e); *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1375 (Fed. Cir. 2016). To satisfy its burden, a petitioner must "articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness"—"mere conclusory statements" will not suffice. *Id.* at 1380. Indeed, "[i]t is of the utmost importance that petitioners in the IPR proceedings adhere to the requirement that the initial petition identify 'with particularity' the 'evidence that supports the grounds for the challenge to each claim.'" *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (quoting 35 U.S.C. § 312(a)(3)).

"An obviousness determination requires finding that [a Skilled Artisan] would have been motivated to combine or modify the teachings in the prior art and would have had a reasonable expectation of success in doing so." *Regents of the Univ. of Cal. v. Broad Inst., Inc.*, 903 F.3d 1286, 1291 (Fed. Cir. 2018); *Intelligent*

Bio-Sys., 821 F.3d at 1367-68; *see also, e.g., NJOY, LLC v. JUUL Labs, Inc.*, IPR2024-00536, Paper 17 (P.T.A.B. Aug. 12, 2024) (denying institution where petitioner did not show a reasonable expectation of success in combining the asserted references); *Honeywell Int'l Inc. v. DSM IP Assets, B.V.*, IPR2024-00493, Paper 7 (P.T.A.B. Aug. 21, 2024) (same).

Notably, the literature need not demonstrate an expectation of failure in a proposed combination in order for the patent to withstand Petitioner's challenge—it is enough that the prior art supports no expectations one way or the other. *See Honeywell Int'l Inc. v. Mexichem Amanco Holding S.A.*, 865 F.3d 1348, 1355 (Fed. Cir. 2017) (reversing a P.T.A.B. obviousness finding for improperly requiring the patentee to show an expectation of failure, instead of properly finding no expectation of success—and thus nonobviousness—where the prior art gave no expectations one way or the other).

Finally, declarations that merely parrot the petitions that they accompany, or otherwise set forth conclusory statements with no underlying factual basis, are entitled to little or no weight. *Xerox Corp. v. Bytemark, Inc.*, No. IPR2022-00624, Paper 12, at 5 (P.T.A.B. Feb. 10, 2023) (Director Review) (precedential) (finding the Board "correct in giving little weight" to expert testimony because the "declaration merely offered conclusory assertions without underlying factual support and repeated, verbatim, [petitioner's] conclusory arguments"); *see also TQ*

Delta, LLC v. CISCO Sys., Inc., 942 F.3d 1352, 1362 (Fed. Cir. 2019) (reversing obviousness determination when expert's testimony was '[u]ntethered to any supporting evidence' and, thus, could not support the Board's findings).

Petitioner's failure to meet its burden to show a motivation for its combinations with a reasonable expectation of success warrants denial of institution.

1. Petitioner provides only a cursory assertion of motivation to combine and reasonable expectation of success that is insufficient to meet its burden and devoid of supporting evidence because the declaration merely copies the Petition verbatim.

For Grounds 3-5, Petitioner relies on two-reference combinations. In Ground 3, Petitioner asserts that Holek and Rossier are analogous art, both "directed towards controlling the amount of recoil load in automatic firearms." Pet., 55. Petitioner briefly and generically suggests that a POSA would have sought to control recoil based on disclosures in each reference. Pet., 55-56. However, Petitioner fails to provide any material motivation to combine these references, stating only that "Holek would benefit from the hydraulic piston design disclosed in Rossier, with hydraulic pistons being well-known generally before both Rossier and the critical date of the '238 patent." Pet., 56. Petitioner's only alleged support is a citation to Mr. Nixon's declaration, but that merely repeats Petitioner's bare allegation verbatim. EX1003, ¶122. Mr. Nixon cites no other evidence and

provides no further explanation.

The problem is that neither Petitioner nor its declarant offer any evidence or reasoning to substantiate this alleged motivation, leaving it unsupported. And it further exposes the copy-and-paste relationship of the Petition and the declaration, which should be entitled to little or no weight. *Xerox Corp. v. Bytemark, Inc.*, No. IPR2022-00624, Paper 12, at 5 (P.T.A.B. Feb. 10, 2023) (Director Review) (precedential) (finding the Board "correct in giving little weight" to expert testimony because the "declaration merely offered conclusory assertions without underlying factual support and repeated, verbatim, [petitioner's] conclusory arguments").

Petitioner's argument for a reasonable expectation of success is equally, if not more, anemic. The extent of Petitioner's analysis is found in a single paragraph, alleging that "Holek provides implementation details for its movable barrel," "Rossier also provides implementation details for its locking assembly," and thus "[i]ncorporating Rossier's teaching into Holek would be a straightforward change and well within the capabilities of a [POSA]." Pet., 56. Petitioner's assertion that each reference "provides implementation details" and bald contention that their combination would be a "straightforward change and well within the capabilities of a [POSA]" are so generic that they could apply to *any* combination of references. It falls far short of meeting Petitioner's burden to

demonstrate a POSA would have a reasonable expectation of success combining the references.

Moreover, Petitioner again relies on Mr. Nixon's declaration, which, yet again repeats the Petition verbatim. EX1003, ¶123. He does not explain how "incorporating" Rossier's teachings into Holek would be "straightforward" or is within a POSA's capabilities. Indeed, he provides no additional support or analysis beyond the verbatim recitation of the faulty assertion made in the Petition.

The pattern continues in Ground 4, which combines Holek and Chinn. Petitioner's only argument here for motivation to combine is that a POSA "would have been aware" of the references' teachings and that "a [POSA] would also recognize that the rod-and-piston design of Holek would benefit from the rotatable locking bolt design disclosed in Chinn, with rotatable locking bolts being well-known generally before Chinn and the critical date of the '238 patent." Pet., 59. Again, Petitioner's only support is Mr. Nixon's declaration, which merely echoes the exact same statement from the Petition without any additional analysis or supporting evidence. EX1003, ¶135. For alleging a reasonable expectation of success, Petitioner again relies only on "implementation details" and the unsupported conclusion that "[i]ncorporating Chinn's teachings into Holek would be a straightforward change and well within the capabilities of a [POSA]." Pet., 60. Predictably, the declaration repeats this verbatim without elaboration. EX1003,

¶136. Accordingly, Petitioner also fails to meet its burden in Ground 4 to demonstrate a POSA would have been motivated to combine the references and would have had a reasonable expectation of success in doing so.

Ground 5, which combines Rossier and Chinn, follows the same flawed approach. Petitioner's only purported motivation to combine the references is that "[a POSA] would also recognize that the locking assembly of Rossier could alternatively be replaced [with] the rotatable locking bolt design disclosed in Chinn, with rotatable locking bolts being well-known generally before Rossier and the critical date of the '238 patent." Pet., 67. As expected, the declaration mirrors this word-for-word. EX1003, ¶151. For the purported reasonable expectation of success, Petitioner reiterates its unspecific "implementation details" and "straightforward change" reasoning. Pet., 68. And the declaration, once more, parrots this exact language without further justification. EX1003, ¶152. Accordingly, Petitioner also fails to meet is burden in Ground 5 to demonstrate a POSA would have been motivated to combine the references and would have had a reasonable expectation of success in doing so.

Petitioner's repetitive, unsupported offerings across Grounds 3-5—and the declaration's mere parroting of them— undermines the credibility of Petitioner's motivation and expectation of success arguments. Frankly, there are none.

Obviousness, however, requires "a reason that would have prompted a

person of ordinary skill in the relevant field *to combine the elements in a way the claimed new invention does*." *KSR*, 550 U.S. at 418 (emphasis added). And it is Petitioner's burden to demonstrate "that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so." *Intelligent Bio-Sys.*, 821 F.3d at 1367-1368 (citations omitted). Here, as noted, Petitioner asserts conclusory motivations to combine and reasonable expectation of success without any additional analysis on its own accord or from its declarant. Petitioner further fails to offer any additional evidence to support these conclusory statements made with regard to the asserted motivation to combine or reasonable expectation of success in making such combinations.

This is especially perplexing here because Petitioner is taking the position that, e.g., a POSA would have been motivated to modify a firearm invented before World War II (i.e., Holek) with a modern firearm designed over half-a-century later (i.e., Rossier). The mere fact that both references disclose automatic firearms with *some* similar parts (which should come as no surprise) or that aim to reduce recoil (a standard goal for firearms generally) does not establish that there would have been a reasonable expectation of success in combining the components from these entirely different weapons to arrive at the revolutionary claimed weapon.

Petitioner fails to even consider the real possibility and real consequences that combining the elements in the prior art references could lead to a weapon system that explodes upon firing its first shot. Petitioner's failure to explain how the proposed combinations would have a reasonable expectation of success, beyond the simple assertion that the references relate to automatic firearms, is fatal to Grounds 3-5.

2. Ground 3: The combination of Holek and Rossier fails because it has missing elements and because the Petition fails to articulate an adequate motivation to combine Holek and Rossier with a reasonable expectation of success.

Petitioner alleges that claims 1-4, and 13-16 of the '238 patent would have been obvious over Holek in view of Rossier (Ground 3). Pet., Section III. Yet, as shown below, Ground 3 relies *only* on Holek as allegedly disclosing (not rendering obvious) *all* of the elements of independent claims 1 and 13:

> **2. Claim 1**
>
> Holek discloses the limitations of independent claim 1. *Supra* at VIII.A.1.

> **6. Claim 13**
>
> Holek discloses the limitations of independent claim 13. *Supra* at VIII.A.2.

Pet., 57. Petitioner does not even mention Rossier for the independent claims. And, as evidenced by the above discussion for Ground 1, Holek does *not* disclose each and every limitation of independent claims 1 and 13. *See* Section V.A., *supra*. On this basis alone, Ground 3 fails. Claims 2-4 and 14-16 depend either directly or

indirectly from independent claims 1 or 13 and, therefore, Ground 3 also fails to render claims 2-4 and 14-16 obvious for at least the same reason.

Even assuming, *arguendo*, that Petitioner actually set forth a combination of Holek and Rossier for independent claims 1 and 13, Ground 3 nevertheless fails. As discussed in detail above in Section V.C.1, Petitioner falls far short of providing an adequate, reasoned motivation for a POSA to combine Holek and Rossier with any reasonable expectation of success.

For at least these reasons, independent claims 1 and 13 are not obvious over Holek in view of Rossier. Claims 2-4 and 14-16 depend either directly or indirectly from independent claims 1 or 13 and, therefore, are not obvious for at least the same reasons.

3. Ground 4: The combination of Holek and Chinn does not render the claims obvious because it has missing elements and because the Petition fails to articulate an adequate motivation to combine Holek and Chinn with a reasonable expectation of success.

Petitioner alleges that claims 1, 5-13, and 17 of the ’238 patent would have been obvious over Holek in view of Chinn (Ground 4). Pet., Section III. Yet, as shown below, Ground 4 relies *only* on Holek as allegedly disclosing (not rendering obvious) *all* of the elements of independent claims 1 and 13:

> **2. Claim 1**
>
> Holek discloses the limitations of independent claim 1. *Supra* at VIII.A.1.

> **11. Claim 13**
>
> Holek discloses the limitations of independent claim 13. *Supra* at VIII.A.2.

Pet., 60, 65. Petitioner does not even mention Chinn for the independent claims. And, as evidenced by the above discussion for Ground 1, Holek does not disclose each and every limitation of independent claims 1 and 13. *See* Section V.A., *supra.* On this basis alone, Ground 4 fails. Claims 5-12 and 17 depend either directly or indirectly from independent claims 1 or 13 and therefore, Ground 4 also fails to render claims 5-12 and 17 obvious for at least the same reason.

Even assuming, *arguendo*, that Petitioner actually set forth a combination of Holek and Chinn for independent claims 1 and 13, Ground 4 nevertheless fails. As discussed in detail above in Section V.C.1, Petitioner falls far short of providing an adequate, reasoned motivation for a person of ordinary skill in the art to combine Holek with Chinn with any expectation to achieve the claimed invention.

For at least these reasons, independent claims 1 and 13 are not obvious over Holek in view of Chinn. Claims 5-12 and 17 depend either directly or indirectly from independent claims 1 or 13 and, therefore, are not obvious for at least the same reasons.

4. Ground 5: The combination of Rossier and Chinn does not render the claims obvious because it has missing elements and because the Petition fails to articulate an adequate motivation to combine Rossier and Chinn with a reasonable expectation of success.

Petitioner alleges that claims 1, 5-13, and 17 of the '238 patent would have been obvious by Rossier in view of Chinn (Ground 5). Pet., Section III. Yet, as shown below, Ground 5 relies *only* on Rossier as allegedly disclosing (not rendering obvious) *all* the elements of independent claims 1 and 13:

> **2. Claim 1**
>
> Rossier discloses the limitations of independent claim 1. *Supra* at VIII.B.1.

> **11. Claim 13**
>
> Rossier discloses the limitations of independent claim 13. *Supra* at VIII.B.6.

Pet., 68, 70. Petitioner does not even mention Chinn for the independent claims. And, as evidenced by the above discussion for Ground 2, Rossier does not disclose each and every limitation of independent claims 1 and 13. *See* Section V.B., *supra*.

On this basis alone, Ground 5 fails. Claims 5-12 and 17 depend either directly or indirectly from independent claims 1 or 13 and, therefore, Ground 5 also fails to render claims 5-12 and 17 obvious for at least the same reason.

Even assuming, *arguendo*, that Petitioner actually set forth a combination of Rossier and Chinn with respect to independent claims 1 and 13, Ground 5 nevertheless fails. As discussed in detail above in Section V.C.1, Petitioner falls far short of providing an adequate, reasoned motivation for a POSA to combine Rossier with Chinn with any expectation to achieve the claimed invention.

Moreover, even if Petitioner had provided an adequate motivation, it would be unable to show that Chinn discloses a bolt assembly "at least partially housed and arranged to axially translate within [a] barrel extension," as recited by the claims and absent from Rossier. *See* Section V.B.2. Specifically, Chinn discloses that its bolt enters and locks to its *barrel socket*—meaning that, like Rossier, Chinn discloses a bolt being locked to a barrel, *not* a barrel extension. *See* EX1007, 13.

Finally, statements within Rossier would have discouraged a POSA from modifying its weapon with a medium machine gun, like that disclosed in Chinn. Specifically, a POSA would have been discouraged from modifying Rossier's automated projectile firing weapon with *the M60 disclosed in Chinn* at least because Rossier states that "[o]ther automatic weapons, *like the 7.62mm M60*/M240 medium machine guns . . . are easily portable but *are not effective at long ranges*." EX1006, 1:18-21 (emphasis added). Put otherwise, Rossier states that the gun disclosed in Chinn, the M60, is undesirable because it is configured to fire a round that is underpowered for Rossier's purposes.

For at least these reasons, independent claims 1 and 13 are not obvious over Rossier in view of Chinn. Claims 5-12 and 17 depend either directly or indirectly from independent claims 1 or 13 and, therefore, are not obvious for at least the same reasons.

VI. CONCLUSION

The Petition it flawed at every turn and fails to show a reasonable likelihood that any of the challenged claims is unpatentable as anticipated or obvious in view of the cited art. The Board should deny institution.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX PLLC

/Jason A. Fitzsimmons/

Jason A. Fitzsimmons
Registration No. 65,367
Lead Attorney for Patent Owner

Date: April 29, 2025

1101 K Street, NW, 10th Floor
Washington, DC 20005
(202) 371-2600

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

1. This Patent Owner Preliminary Response complies with the type-volume limitation of 14,000 words, comprising 7,308 words, excluding the parts exempted by 37 C.F.R. § 42.24(a)(1).

2. This Patent Owner Preliminary Response complies with the general format requirements of 37 C.F.R. § 42.6(a) and has been prepared using Microsoft® Word 2016 in 14-point Times New Roman font.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX PLLC

/Jason A. Fitzsimmons/

Jason A. Fitzsimmons
Registration No. 65,367
Lead Attorney for Patent Owner

Date: April 29, 2025

1101 K Street, NW, 10th Floor
Washington, DC 20005
(202) 371-2600

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

I certify that the above-captioned **PATENT OWNER PRELIMINARY RESPONSE UNDER 37 C.F.R. § 42.107(a)** and associated **Exhibit 2011** were served in their entireties on April 29, 2025, upon the following parties via electronic mail:

Steven R. Daniels (Lead Counsel)
Bryan D. Atkinson (Back-up Counsel)
DICKINSON WRIGHT PLLC
sdaniels@dickinsonwright.com
batkinson@dickinsonwright.com

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX PLLC

/Jason A. Fitzsimmons/

Jason A. Fitzsimmons
Registration No. 65,367
Lead Attorney for Patent Owner

Date: April 29, 2025

1101 K Street, NW, 10th Floor
Washington, DC 20005
(202) 371-2600