

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SCHLUMBERGER TECHNOLOGY CORPORATION,
Petitioner,

v.

DYNAENERGETICS EUROPE GMBH,
Patent Owner.

PGR2021-00089
Patent 10,844,696 B2

Before FRANCES L. IPPOLITO, ERIC C. JESCHKE, and
RICHARD H. MARSCHALL, *Administrative Patent Judges*.

IPPOLITO, *Administrative Patent Judge*.

DECISION
Denying Institution of Post-Grant Review
35 U.S.C. § 324

I. INTRODUCTION

Schlumberger Technology Corporation (“Petitioner”) filed a Petition to institute a post-grant review of claims 1–21 (the “challenged claims”) of U.S. Patent 10,844,696 B2 (Ex. 1001, the “’696 patent”). Paper 2 (“Petition” or “Pet.”). DynaEnergetics Europe GmbH (“Patent Owner”) filed a Preliminary Response. Paper 8 (“Preliminary Response” or “Prelim. Resp.”). With our permission, Petitioner filed a Reply to the Patent Owner’s Preliminary Response, and Patent Owner filed a Sur-reply to Petitioner’s Reply, to address discretionary denial, claim construction, and Patent Owner’s obviousness arguments related to claim construction. Paper 9 (“Pet’s Reply”); Paper 10 (PO’s Sur-reply”).

We are authorized to institute a post-grant review where a petition demonstrates that it is more likely than not that at least one challenged patent claim is unpatentable. *See* 35 U.S.C. § 324. We are never compelled to institute a review, however, because institution is discretionary. *Id.*; *cf. Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) (explaining that under § 314(a), “the PTO is permitted, but never compelled, to institute an IPR proceeding”). As in an IPR proceeding, we deny post-grant review, for example, where a petition fails to identify “with particularity” the challenges or evidence supporting them. *Cf. Harmonic*, 815 F.3d at 1363; 35 U.S.C. § 322(a)(3); *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (“It is of the utmost importance that petitioners in 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.’” (quoting 35 U.S.C. § 312(a)(3))).

For the reasons discussed below, we deny the institution of post-grant review.

A. Related Proceedings

The parties identify the following related proceeding:
DynaEnergetics Europe GmbH and DynaEnergetics US, Inc. v. Schlumberger Technology Corp., No. 6:21-cv-00225 (W.D. Tex.). Pet. 2; Paper 4, 1.

B. The '696 Patent

The '696 patent is generally directed to “an improved perforating gun assembly that does not require the use of tandem seal adapters or tandem subs,” and “a perforating gun assembly that includes an efficient design for capturing debris resulting from detonation of a plurality of shaped charges.” Ex. 1001, 2:8–14. For these purposes, the patent discloses positioning devices that include “a shaped charge holder configured for arranging/positioning a plurality of shaped charges.” *Id.* at 2:20–22.

In these positioning devices, “the shaped charges are positioned in an XZ-plane, in an outward, radial arrangement about a central-axis/Y-axis/central Y-axis of the shaped charge holder.” *Id.* at 2:23–25. “Each shaped charge includes an open front end, and a back wall including an initiation point,” and a “detonator may be positioned centrally within the shaped charge holder, adjacent the initiation point.” *Id.* at 2:30–33. The '696 patent further teaches that a wireless detonator may initiate the shaped charges directly in response to an initiation signal. *Id.* at 2:33–35.

Figure 1, reproduced below, is a perspective view of a positioning device. Ex. 1001, 4:32–33.

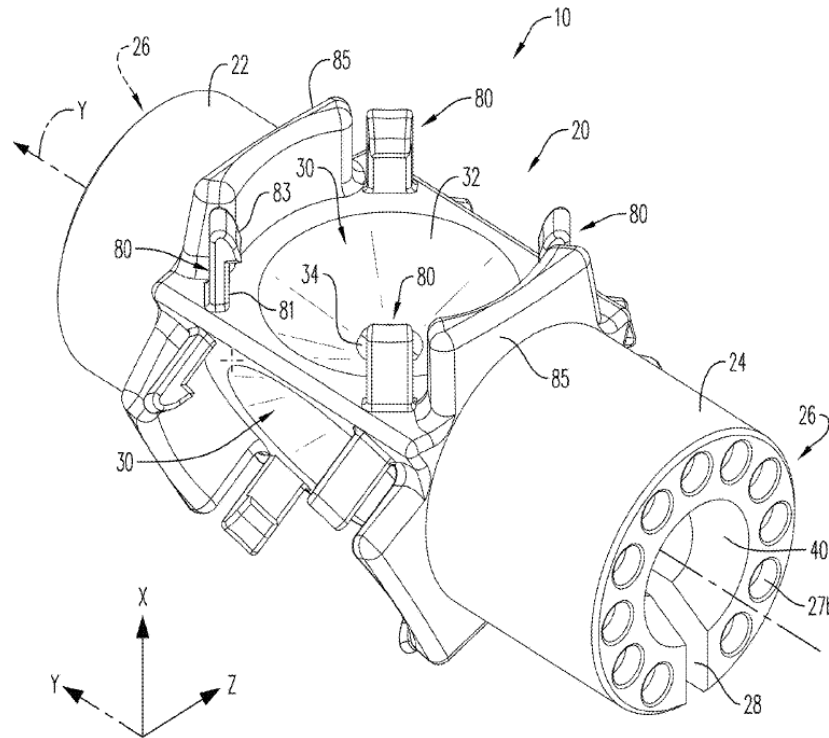


Figure 1 shows positioning device 10 and shaped charge holder 20, which contains shaped charge receptacle 30. *See id.* at 6:14–26. Figure 1 also shows “plurality of retention mechanisms 80 outwardly extending from the holder 20.” *Id.* at 7:48–50. Retention mechanisms 80 may be configured to retain one of the shaped charges within one shaped charge receptacle 30. *Id.* at 7:58–60.

C. Challenged Claims

Petitioner challenges claims 1–21 of the ’696 patent, of which claims 1, 9, and 14 are independent. Independent claim 1 is reproduced below.

1. A holding device comprising:
 - a shaped charge holder comprising:
 - a body comprising a plurality of shaped charge receptacles;
 - a plurality of retention mechanisms extending from a portion of the body, wherein each one of the plurality of retention mechanisms is configured to retain a shaped charge within a shaped charge receptacle of the plurality of shaped charge receptacles; and

a cavity extending through the body along a central axis of the body, wherein
each of the plurality of shaped charge receptacles extends radially from the central axis of the body and the plurality of shaped charge receptacles are arranged in a single axial plane, and
each of the plurality of shaped charge receptacles is configured for receiving the shaped charge in a configuration for directly initiating the shaped charge without the use of a detonating cord.

Ex. 1001, 19:38–56.

D. The Asserted References

Petitioner relies upon the following references:

Reference	No.	Date	Exhibit No.
Sokolove '009 ¹	WO 2019/148009 A2	Aug. 1, 2019	1005
Walker	US 4,621,396	Nov. 11, 1986	1008
Bradley	US 2017/0211363 A1	July 27, 2017	1014
Vann	US 4,598,775	July 8, 1986	1009
Brooks	US 8,091,477 B2	Jan. 10, 2012	1010
Von Kaenel	US 10,731,443 B2	Aug. 4, 2020	1013

E. Alleged Grounds of Unpatentability

Petitioner challenges claims 1–21 of the '696 patent based on the grounds set forth in the table below.

¹ Sokolove '009 claims priority to U.S. Provisional Application No. 62/621,999 filed on January 25, 2018 ("Sokolove Provisional '999," Exhibit 1006), U.S. Provisional Application No. 62/627,591 filed on February 7, 2018 ("Sokolove Provisional '591, Exhibit 1007); and U.S. Provisional Application No. 62/736,298 filed on September 25, 2018 ("Sokolove Provisional '298," Ex. 3001).

Claims Challenged	35 U.S.C. §	Reference(s)/Basis
1–13	103	Sokolove '009, Walker
14–21	103	Sokolove '009, Walker, Bradley
1–13	103	Vann, Brooks, Von Kaenel
14–21	103	Vann, Brooks, Von Kaenel, Bradley
9–13	112(b)	Indefiniteness

Petitioner relies on the Declaration of Mr. Robert A. Parrott (Ex. 1003, “Parrott Decl.”), which provides evidence in support of the contentions in the Petition. Patent Owner relies on the Declarations of Dr. John Rodgers, Ph.D. (Ex. 2001, “Rodgers’ Decl.”), Mr. Thilo Scharf (Ex. 2002, “Scharf Decl.”), and Mr. Preston Heard (Ex. 2010, “Heard Decl.”). *See generally* Prelim. Resp.

II. DISCUSSION

A. *Eligibility* for Post-Grant Review

Post-grant review is available for a patent that issues from an application “that contains or contained at any time . . . a claim to a claimed invention that has an effective filing date as defined in section 100(i) of title 35, United States Code, that is on or after” March 16, 2013. *See* Leahy-Smith America Invents Act, Pub L. No. 112-29 (“AIA”) §§ 3(n)(1), 6(f)(2)(A), 125 Stat. 284, 293, 311 (2011), available at <https://go.usa.gov/xQA4b>; 35 U.S.C. § 100(i). Petitioner bears the burden of proving that the challenged patent is subject to the first-inventor-to-file provisions of the AIA and eligible for post-grant review. *US Endodontics, LLC v. Gold Standard Instruments, LLC*, PGR2015-00019, Paper 54, 9–10 (PTAB Dec. 28, 2016).

Petitioner certifies, and Patent Owner does not dispute, that the ’696 patent is eligible for post-grant review. *See* Pet. 3; *see generally* Prelim. Resp. Based on the preliminary record, we determine that the ’696 patent is

eligible for post-grant review. Specifically, the record supports Petitioner’s assertion that the earliest effective filing date of the ’696 patent is July 17, 2018. Ex. 1001, code (60). Further, the Petition was filed on June 1, 2021, which is within nine months of the ’696 patent’s issuance date of November 24, 2020. *Id.* at code (45); Pet. 3.

B. Discretion under 35 U.S.C. §§ 324(a), 325(d)

Patent Owner contends we should exercise our discretion under 35 U.S.C. §§ 324(a), 325(d) to deny institution. Prelim. Resp. 38–52. Because we determine that Petitioner fails to demonstrate that it is more likely than not that at least one challenged patent claim is unpatentable, we need not address Patent Owner’s contentions concerning discretionary denial.

C. Level of Ordinary Skill in the Art

The level of ordinary skill in the art is “a prism or lens” through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). The person of ordinary skill in the art is a hypothetical person presumed to have known the relevant art at the time of the invention. *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995).

Petitioner contends a person of ordinary skill in the art (“POSITA”) “would be expected to have at least a Bachelor’s of Science degree in Mechanical or Electrical Engineering and at least two years of industry experience related to assembling, operating, and/or designing perforating tools.” Pet. 10 (citing Parrott Decl. ¶ 28).

Patent Owner “believes that Petitioner’s definition suggests that a field technician who merely assembles guns could be a POSITA, which is incorrect,” and instead proposes “a POSITA would be expected to have a Bachelor’s of Science degree in Mechanical or Electrical Engineering and at

least two (2) years of industry experience related to designing perforating gun systems.” Prelim. Resp. 35–36 (citing Ex. 2001 ¶ 52).

For the purposes of institution, we do not see a material difference between the parties’ proposed definitions. Nonetheless, because Petitioner’s proposed definition of the level of ordinary skill in the art appears consistent with the record, including the prior art, we adopt the definition of the level of ordinary skill in the art proposed by Petitioner for purposes of this Decision. *See GPAC Inc.*, 57 F.3d at 1579.

D. Claim Construction

We interpret a claim “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.200(b) (2020). This standard requires that we construe claims “in accordance with the ordinary and customary meaning of such claim[s] as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” *Id.*; *see also Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). Only those terms that are in controversy need be construed, and only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999); *see also Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (applying *Vivid Techs.* in the context of an AIA trial proceeding).

Patent Owner proposes constructions for “shaped charge receptacle” and “retention mechanism extending from a portion of the body.” Prelim. Resp. 36–38; *see also* PO Sur-reply 1–5. In its Reply, Petitioner disputes Patent Owner’s proposed constructions. Pet. Reply 2–3.

For purposes of this Decision, we determine that no claim term requires explicit construction. *See Vivid Techs.*, 200 F.3d at 803 (construing explicitly only those claim terms in controversy and only to the extent necessary to resolve the controversy).

E. Principles of Law

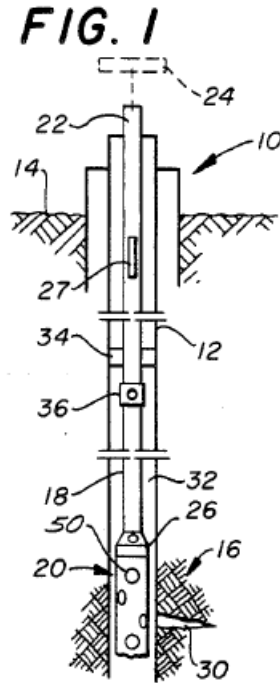
A claim is unpatentable under § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective indicia of non-obviousness (i.e., secondary considerations). *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

“To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

F. Obviousness of Claims 1–13 over Vann, Brooks, and Von Kaenel

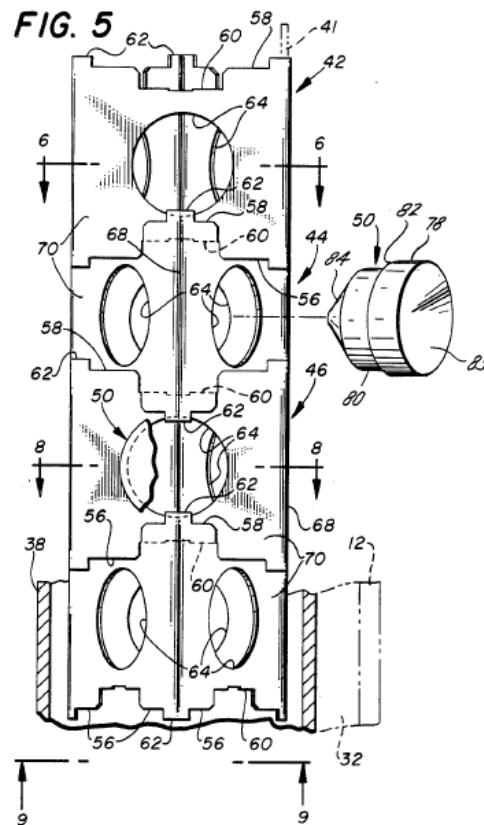
1. Vann (Ex. 1009)

Vann is directed generally to perforating gun charge carriers that include a plurality of charge holders connected together in tandem. Ex. 1009, code (57). Figure 1 is reproduced below:



Id. at Fig. 1. Figure 1 is a representation of a bore hole formed into the earth with a jet perforating gun disposed therein. *Id.* at 4:36–39. As shown in Figure 1, wellhead 10 is located at the top of cased borehole 12, which extends down from surface 14 of the ground to hydrocarbon-containing formation 16. *Id.* at 4:61–64. Tubing string 18 supports jet perforating gun 20. *Id.* at 4:64–65.

Figure 5, reproduced below, shows stacked charge holders of perforating gun 20. Ex. 1009, 4:48–49.



In Figure 5, plurality of charge holders 42, 44, and 46 are placed in tandem along the longitudinal axial centerline of gun 20. *Id.* at 5:50–51. The plurality of charge holders jointly cooperate together to make up charge carrier 48 shown in Figure 2. *Id.* at 5:50–54. Each individual charge holder 42, 44, 46 includes at least one shaped charge 50 mounted thereto. *Id.* at 5:55–57. Vann further teaches that

when the charge holders 42, 44, 46 are assembled together into the charge carrier 48, *the tabs 62 formed by the extended lateral edges 56, 58 are aligned in overhanging relationship relative to the central lateral face 70 of the two adjacent charge holders, thereby positioning the confronting tabs 62 of alternate charge holders 42, 44, 46 positioned along a line spaced forwardly of the apertures 64 of said alternate charge holders, which places the tabs 62 against the forward face of a shaped charged 50 located in the aperture 64 of the charge holder.*

Id. at 6:58–7:2 (emphases added).

2. *Von Kaenel (Ex. 1013)*

Von Kaenel relates generally to a modular charge holder segment for a perforating tool assembly. Ex. 1013, code (57). The modular charge segments may include any number of modular charge holder segments and modular charge spacer segments, “which are configured to provide for different spacings and offsets of shaped charges disposed within the modular charge holder segments.” *Id.*

Additionally, Von Kaenel teaches modular charge holder segments that include side locking tabs to secure shaped charges. *Id.* at 8:43–47. Figure 6A is provided below.

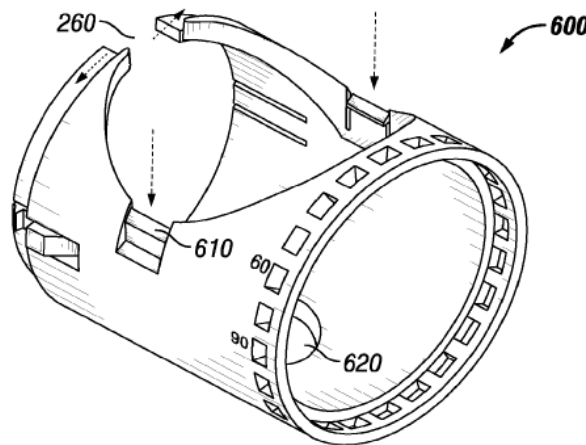


FIG. 6A

Figure 6A is a diagram showing modular charge holder segment 600. *Id.* at 8:33–34. Von Kaenel teaches that side locking tabs 610 may be any type of fastener, coupler, or other mechanism that permits shaped charge 410 to be secured within modular charge holder segment 600. *Id.* at 8:47–50. “Side locking tabs 610 may deflect or flex while the shaped charge 410 is being loaded into the modular charge holder segment 200.” *Id.* at 8:50–52.

3. *Brooks (Ex. 1010)*

Brooks describes integrated detonators for use with explosive devices. Ex. 1010, code (54). More specifically, Brooks teaches a detonator assembly for use with a perforating gun system in which an electrical signal is provided to a firing head to activate a perforating gun. Ex. 1010, 4:14–16. For example, Figure 1B is reproduced below:

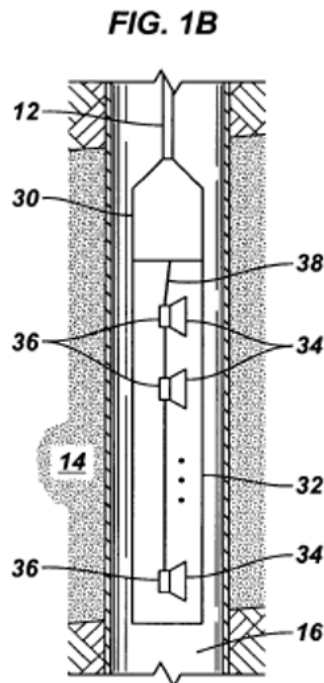


Figure 1B shows a tool string, firing head 30, and perforating gun 32. *Id.* at 3:51–53. Brooks teaches that perforating gun 32 includes multiple shaped charges 34 that are associated with respective local detonator assembly 36. *Id.* at 3:54–55. Brooks further teaches that the activating detonating signal can be in the form of pressure pulse signals, hydraulic pressure, motion signals transmitted down carrier line 12, and so forth. *Id.* at 4:16–19, Figs. 1A–1B.

4. *Claim 1 – “plurality of retention mechanisms”*

Relevant to our analysis, we observe that claim 1 is directed to a holding device comprising:

a shaped charge holder comprising:

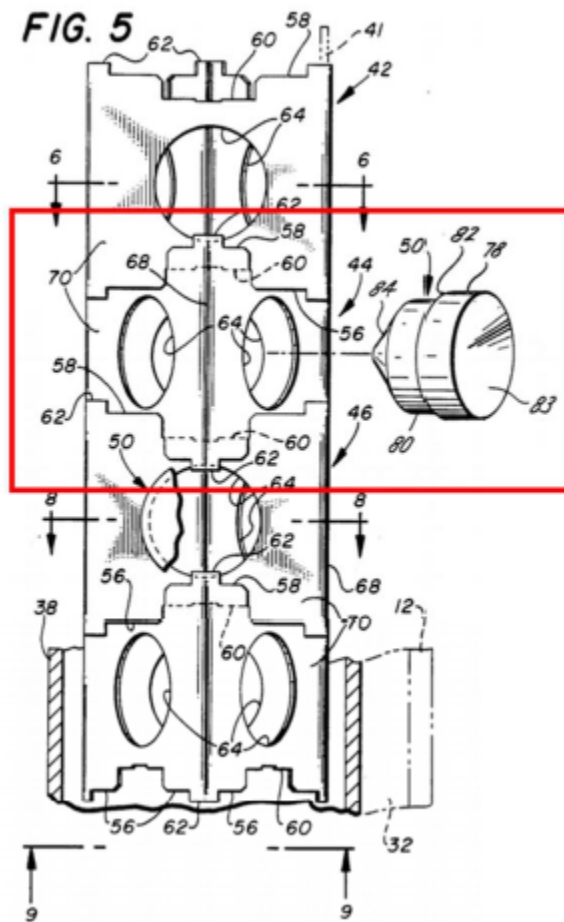
a body comprising a plurality of shaped charge receptacles;

a plurality of retention mechanisms extending from a portion of the body, wherein each one of the plurality of retention mechanisms is configured to retain a shaped charge within a shaped charge receptacle of the plurality of shaped charge receptacles.

Ex. 1001, 19:38–46 (emphasis added).

a) *Petitioner’s Contentions*

For these limitations, Petitioner maps the “shaped charge holder” to individual coacting charge holders disclosed in Vann. Pet. 84. More specifically, Petitioner asserts Vann’s “charge carrier is comprised of a plurality of individual coacting charge holders” and “a plurality of shaped charges 50 for each of the plurality of charge holders.” Pet. 84 (citing Ex. 1009, 2:57–65, 5:50–60, 3:40–55, 6:44–53, Abstract; Parrott Decl. ¶¶ 470–471). Reproduced below is Petitioner’s annotated Figure 5 from Vann:

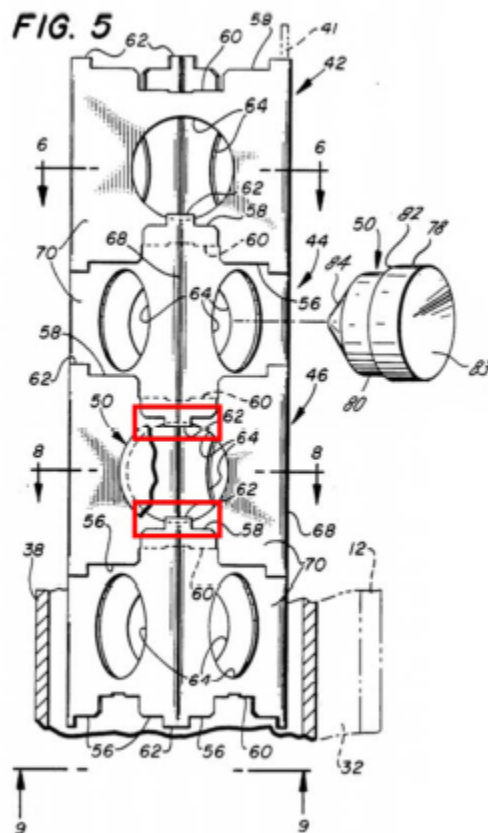


Petitioner’s annotated Figure 5 includes a red box drawn around the structure Petitioner asserts teaches a “shaped charge holder.” Pet. 85 (citing Parrott Decl. ¶ 471). Referring to the same annotated figure in his declaration, Mr. Parrott further testifies that “[a] POSITA would have recognized that the ‘charge holder’ as described in Vann discloses the claimed ‘shaped charge holder.’” Parrott Decl. ¶ 471 (citing Ex. 1009, Fig. 5 (annotated), Fig. 3).

Petitioner further contends that each of Vann’s charge holders has “bases or opposed ends [that] describe equal polygons . . . and . . . lateral faces [that] are aperture rectangles of a size to slidably receive the reduced diameter portion of the cylindrical body portion of the shaped charge.”

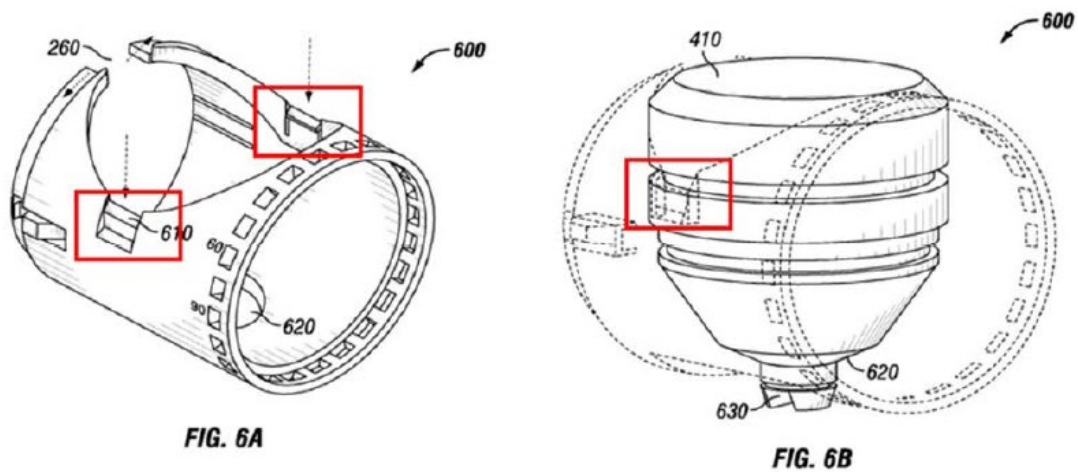
Pet. 85–86 (citing Ex. 1009, 2:56–65, 1:15–17, 3:4–28, 3:34–46, 3:57–62, 6:2–6, 6:54–57, 7:17–23, Abstract; Parrott Decl. ¶¶ 473–474). Petitioner’s declarant, Mr. Parrott, adds that “[a] POSITA would recognize that the ‘apertured rectangles’ as described in Vann discloses the claimed ‘plurality of shaped charge receptacles.’” Parrott Decl. ¶ 474.

For the recited “plurality of retention mechanisms,” Petitioner contends that Vann discloses “fasteners for the shaped charge” and “means for capturing shaped charge within an aperture of a charge holder.” Pet. 87 (citing Ex. 1009, 7:51–8:9, 6:58–7:2, 2:66–3:13, 8:48–52, 9:14–8, 9:29–34; Parrott Decl. ¶¶ 476–478). Petitioner’s annotated Figure 5 is provided below:



Petitioner's annotated Figure 5 shows red boxes drawn around tabs 62. Pet. 87.

Alternatively, Petitioner contends that Von Kaenel teaches modular charge segment 600 includes side locking tabs 610 that engage with or mate to a corresponding receptacle or other mechanism of a shaped charge. Pet. 88. Petitioner's annotated Figures 6A and 6B from Von Kaenel are reproduced below.



Petitioner argues that a “POSITA would have recognized it as obvious and beneficial to use Von Kaenel’s retention mechanisms because it was long known in the prior art that the shaped charges needed to be reliably secured and oriented for the perforating gun to operate safely and reliably.” Pet. 89 (citing Parrott Decl. ¶¶ 482–483; Ex. 1009, 1:10–25, 1:55–59; Ex. 1013, 1:43–51, 2:36–52, 5:13–16, 8:41–58; Ex. 1010, 1:29–32, 3:47–51; Ex. 1023, Figs. 1–3; *see also* Ground 1, [1.4]). Petitioner adds that Von Kaenel

teaches shaped charges designed with grooves “for the explicit purpose of being secured by retention mechanisms.” *Id.* (citing Ex. 1013, Fig. 6B, 8:59–67; Parrott Decl. ¶ 483). Petitioner further argues that

a POSITA would have recognized the advantages of having the retention mechanisms be a part of the body *in order reduce the number of tools and assembly required, to allow for differing offsets, as well as to simplify manufacturing*, as discussed in each of Vann, Brooks, and Von Kaenel.

Pet. 89–90 (emphasis added) (citing Parrott Decl. ¶ 484; Ex. 1013, Abstract, 2:60–3:16, 5:20–41, 8:41–58; Ex. 1009, 1:18–21, 2:22–29, 1:66–67, 1:41–43; 3:63–68, 4:14–24; Ex. 1010, 9:48–53, 1:52–64).

Petitioner also argues that

[t]he addition of Von Kaenel’s retention mechanisms would have merely been the application of a known technique (e.g., Von Kaenel’s tabs) to a known system (e.g., Vann’s perforating gun apparatus) to yield predictable results (EX1003, ¶ 485). *A POSITA would have recognized the combination as a simple substitution of the circular openings (for inserting the shaped charges) in Vann for the circular openings with tabs in Von Kaenel, which would have had a reasonable expectation of success.*

Pet. 90 (emphasis added) (citing Parrott Decl. ¶ 485).

b) Patent Owner’s Contentions

Patent Owner contends that Vann fails to teach the fasteners extend “from a portion of the body” because Vann’s charge holder does not itself include retention mechanisms that retain a shaped charge within the shaped charge holder. Prelim. Resp. 74. “[A] shaped charge positioned in Vann’s charge holder is **not** retained by features of that charge holder as required by the claims (‘a plurality of retention mechanisms extending from a portion of the body’ which is part of the shaped charge holder).” *Id.* (citing Ex. 1009, 6:60–68). Patent Owner further explains that Vann’s shaped charge “is

retained in place by the tabs of adjacent shaped charge holders.” *Id.* (citing Ex. 1009, Fig. 7, 6:60–68). Additionally, Patent Owner contends that Petitioner fails to provide a sufficient motivation to combine Vann’s stacked formation with locking tabs from Von Kaenel. *See id.* at 80.

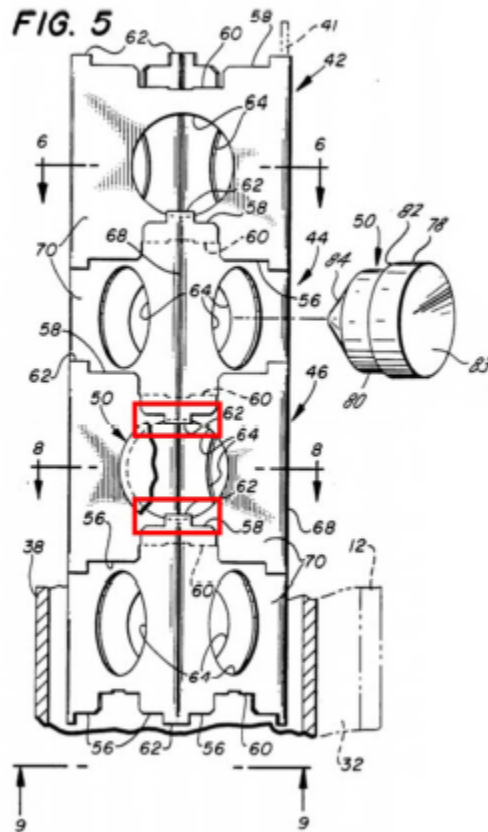
c) Discussion

As Petitioner points out, Vann teaches a plurality of charge holders in a stacked formation. Specifically, Vann teaches “a plurality of individual coaxing charge holders releasably connected *in tandem* along the longitudinal axial centerline of the gun device.” Ex. 1009, 2:56–59 (emphasis added). In order to connect the charge holders in tandem, Vann instructs that each of the charge holders cooperate with adjacent charge holders to:

cause each of the holders to be releasably locked together and to be axially rotated respective to one another an amount equal to 180 divided by the number of lateral faces, so that when the holders are placed in tandem and rotated the appropriate amount with respect to one another, *the slots of adjacent holders lock or cooperate together to maintain each of the holders oriented respective to one another to position each charge of the gun vertically and axially from the next vertically adjacent spaced charge.*

Id. at 3:17–27 (emphasis added).

When Vann’s charge holders are in the proper stacked formation, a shaped charge is captured within a charge holder by “the extended tabs of the *two adjacent charge holders.*” *Id.* at 3:9–13 (emphasis added). In this way, tabs 62 shown in Vann’s Figure 5 are part of another, separate, charge holder. To illustrate this point, we refer to Petitioner’s annotated Figure 5, provided below:



Annotated Figure 5 from page 87 of the Petition includes red boxes drawn around tabs 62. Pet. 87. As shown, we understand tab 62 from charge holder 44 retains the shaped charge held within a separate charge holder 46 (i.e., a separate “body” as term is used in the claims). See Ex. 1009, Fig. 5.

In this way, Patent Owner correctly notes that “a shaped charge positioned in Vann’s charge holder is *not* retained by features of that charge holder as required by the claims.” See Prelim. Resp. 75. Claim 1 requires that the “shaped charge holder” comprises a “body” and that the “plurality of retention mechanisms” extend “from a portion of the *body*.” Ex. 1001, 19:38–46 (emphasis added). Said another way, claim 1 recites that the plurality of retention mechanisms extend from the body of the shaped charge

holder. *Id.* In Vann, tabs 62 extend from the bodies of nearby shaped charge holders, which does not satisfy this limitation.

In addition, we determine that Petitioner has not sufficiently explained its alternative argument based on the “simple substitution of the circular openings (for inserting the shaped charges) in Vann for the circular openings with tabs in Von Kaenel.” Pet. 90 (citing Parrott Decl. ¶ 485). As an initial matter, Petitioner’s proposed substitution lacks sufficient clarity because it remains unclear which of Vann’s structures remain in the resulting combination. By emphasizing substitution of the “circular openings” alone in Vann, Petitioner suggests that Vann’s tabs 62 remain without explaining why the tabs are necessary if Von Kaenel’s tabs retain the shaped charges. *See id.* As discussed, Vann requires that the plurality of charge holders are placed in tandem and jointly cooperate together to make up a charge carrier 48. Ex. 1009, 5:50–56. To do so, tabs 62 formed by *extended lateral edges* 56, 58 are aligned in an *overhanging relationship* relative to the central lateral face 70 of the two adjacent charge holders. *Id.* at 6:61–64, Fig. 5. If the proposed combination employs Von Kaenel’s tabs to retain the charges, preserving the overhanging relationship of Vann’s tabs 62 to retain the charges would appear superfluous, and if Petitioner proposes retaining Vann’s tabs 62 but removing the overhanging relationship, Petitioner does not describe such a structure. In either case, a substitution of Vann’s circular openings alone while Vann’s tabs 62 remain in the resulting combination lacks adequate specificity and support. For completeness, we assess Petitioner’s argument based on the assumption that Petitioner proposes removing Vann’s tabs 62 entirely from the proposed combination. Per this

theory, a POSITA would have simply substituted Von Kaenel's side locking tabs 610 for Vann's tabs 62 because

a POSITA would have recognized the advantages of having the retention mechanisms be a part of the body *in order reduce the number of tools and assembly required, to allow for differing offsets, as well as to simplify manufacturing*, as discussed in each of Vann, Brooks, and Von Kaenel.

Pet. 89–90 (emphasis added) (citing Parrott Decl. ¶ 484; Ex. 1013, Abstract, 2:60–3:16, 5:20–41, 8:41–58; Ex. 1009, 1:18–21, 2:22–29, 1:66–67, 1:41–43, 3:63–68, 4:14–24; Ex. 1010, 9:48–53, 1:52–64). However, Petitioner has not explained sufficiently how this substitution would “simplify manufacturing” for Vann's specific stacked formation. Indeed, Vann's charge carrier is formed by a plurality of charge holders that *jointly cooperate* in tandem, which includes the cooperation of extended lateral edges that overhang the central lateral face of adjacent charge holders. *See* Ex. 1009, 6:61–64; Fig. 5. Substitution of Vann's tabs 62 with Von Kaenel's side locking tabs 610 would affect Vann's tandem construction if tabs 62 are removed. *See* Pet. 80–95. More importantly, Petitioner has failed to explain adequately why a POSITA would have sought to make this combination to simplify manufacturing or reduce assembly given Vann's specific charge carrier design, which is dependent on the overhanging relationship between separate, stacked charge holders. *Id.*

Further, Mr. Parrott's testimony is not helpful on this point. In paragraph 485 (cited by Petitioner), Mr. Parrott states that

Von Kaenel's tabs (retention mechanisms) *would have been applied with ease* to Vann's perforating gun apparatus, which would have yielded predictable results. *A POSITA would have recognized the combination as a simple substitution of the circular openings for inserting the shaped charges in Vann for*

the circular openings with tabs in Von Kaenel, and a POSITA would have had a reasonable expectation of success.

Parrott Decl. ¶ 485 (emphases added). Like the Petition, these statements by Mr. Parrott are conclusory and do not explain the basis for his conclusions. *See id.* Looking elsewhere, paragraph 484 mirrors statements and citations in the Petition, which as discussed, are insufficient. *Id.* ¶ 484. And although paragraph 483 articulates the advantages of using “Von Kaenel’s superior teachings in order to better achieve the goal of reliably securing and positioning the shaped charges,” Mr. Parrott neglects to explain the proposed substitution in the context of Vann’s specific charge carrier design that relies on the overhanging edges/tabs of the charge holders for the in tandem assembly and construction. *Id.* ¶ 483 (citing Ex. 1013, Fig. 6B, 8:59–67).

The Supreme Court has made clear that we apply “an expansive and flexible approach” to the question of obviousness. *KSR*, 550 U.S. at 415. Whether a patent claiming the combination of prior art elements would have been obvious is determined by whether the improvement is more than the predictable use of prior art elements according to their established functions. *Id.* at 417. Reaching this conclusion, however, requires more than a mere showing that the prior art includes separate references covering each separate limitation in a claim under examination. *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). Rather, obviousness requires the additional showing that a person of ordinary skill at the time of the invention would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention. *Id.*

Here, Petitioner has failed to make the threshold showing for the purposes of institution on this ground. For the reasons above, the Petition

does not demonstrate that it is more likely than not that claim 1 would have been obvious over the purported combination of Vann, Von Kaenel, and Brooks.

5. *Independent claim 9 – “retention mechanism”*

Claim 9 is also directed to a holding device that includes a “shaped charge holder” that includes “*a body comprising three shaped charge receptacles extending from a central axis of the body,*” “*a plurality of retention mechanisms,*” and in which “each retention mechanism of the plurality of retention mechanisms extend from a portion of the body.” Ex. 1001, 20:16, 20:21–23, 20:31–33 (emphasis added).

Similar to our discussion of claim 1, we note that claim 9 also requires that the recited “retention mechanism” “extend from a portion of the body” of the shaped charge holder. *See* Ex. 1001, 20:16, 20:21–23, 20:31–33. Petitioner relies on the same arguments discussed above for similar claim limitations recited in claim 1. Petitioner asserts “[t]he Vann-Brooks-Von Kaenel combination provides this limitation for the same reasons as discussed with respect to Claims [1.3], [1.4], [1.6], and 6[.]” Pet. 107 (citing Parrott Decl. ¶ 565). For the reasons set forth in Section II.F.4 above with respect to claim 1, we are not persuaded that Vann’s charge holders disclose this limitation, nor are we persuaded Petitioner has sufficiently explained the basis for the “simple substitution” of Vann’s tabs 62 with Von Kaenel’s side locking tabs 610. Accordingly, we determine that Petitioner has failed to demonstrate that it is more likely than not claim 9 would have been obvious over the purported combination of Vann, Brooks, and Von Kaenel.

6. *Dependent Claims 2–8 and 10–13*

Claims 2–8 depend from claim 1. Claims 10–13 depend from claim 9. For the reasons set forth above with respect to independent claims 1 and 9, we determine that Petitioner has failed to demonstrate that is more likely than not dependent claims 2–8 and 10–13 would have been obvious over the purposed combination of Vann, Brooks, and Von Kaenel.

G. *Obviousness of Claims 14–21 over Vann, Brooks, Von Kaenel, and Bradley*

1. *Bradley (Ex. 1014)*

Bradley describes a perforating gun system comprising “swaged down gun bodies, a removable cartridge to hold a detonator and switch, and insulated charge holder as an electrical feed-through.” Ex. 1014, code (57). Bradley further teaches that “[i]n order to eliminate the subs, a perforating gun system that provides male threads on one end of the gun and female threads on the other is needed.” *Id.* ¶ 13.

2. *Claim 14*

Claim 14 is directed to a perforating gun assembly that includes a “shaped charge holder” that comprises a “body,” a “plurality of shaped charge receptacles formed in the body,” and a “plurality of retention mechanisms extending from a portion of the body adjacent the shaped charge receptacles.” Ex. 1001, 21:1–2, 21:11–13, 21:22–23.

With respect to the “retention mechanisms” recited in claim 14, Petitioner contends that “[t]he Vann-Brooks-Von Kaenel-Bradley combination provides this limitation for the same reasons as discussed with

respect to Claims [1.4] and [9.8][.]” Pet. 121 (citing Parrott Decl. ¶¶ 611–616).² Petitioner adds that

[a] POSITA would understand that Vann shows the retention mechanisms are biased in a radial direction in order to engage the radially oriented shaped charges (EX1003, ¶¶ 612-616; EX1009, 7:51-8:9, 6:58-7:2, 2:66-3:13, 8:48-52, 9:14-18, 9:29-34, Figs. 2-3, 5-9)[.]

To the extent that it is argued that Vann in view of Brooks, Von Kaenel, and Bradley does not disclose the claimed bias in a radial direction, a POSITA would have either understood it to be inherent in the design or otherwise obvious to do so because the shaped charges themselves are arranged radially (EX1003, ¶¶ 612-616).

Pet. 121.

Like independent claims 1 and 9, independent claim 14 requires that the shape charge holder comprises a body. Ex. 1001, 21:13. Further, shaped charged receptacles are formed in that body. *Id.* at 21:17–18. And, a plurality of retention mechanisms extend from a portion of the body adjacent the shaped charge receptacles. *Id.* at 21:22–24. Thus, like independent claims 1 and 9, claim 14 also requires that the retention mechanisms extend from a portion of the shape charge holder’s body. *Id.*

² The terms “claim 1.4” and “claim 9.8” are used by Petitioner to denote similar retention mechanism limitations recited in independent claims 1 and 9, which are discussed above in Section II.F of this Decision. *Claim 1.4* refers to “a plurality of retention mechanisms extending from a portion of the body, wherein each one of the plurality of retention mechanisms is configured to retain a shaped charge within a shaped charge receptacle of the plurality of shaped charge receptacles” recited in claim 1. *See* Pet. 26 (subheading “b”). *Claim 9.8* refers to “each retention mechanism of the plurality of retention mechanisms extend from a portion of the body” recited in claim 9. *See* Pet. 48 (subheading “h”).

As discussed above, Vann's tab 62 on one charge holder overhangs the cut-outs on another charge holder when the plurality of charge holders are assembled in tandem to form the charge carrier. Ex. 1009, 6:58–7:2, 7:8–12 (“Any desired number of charge holders can be connected together in this manner. Thus, tabs 62 and cut outs 60 cooperate to align the charges 50 within gun 20 in a predetermined pattern.”). As such, we agree with Patent Owner that tabs 62 retain shaped charges in an adjacent charge holder but are not themselves part of those adjacent charge holder bodies. *See* Ex. 1009, 3:10–13 (“[T]he shaped charge is captured within a charge holder between the face of the charge holder, within which it resides, and the extended tabs of the two adjacent charge holders.”).

Further, we are not persuaded by Petitioner's arguments that a POSITA would have substituted Vann's tabs 62 with Von Kaenel's side locking tabs 610. As discussed, Vann's device requires the charge holders stack in an overlaying arrangement. Vann teaches that

[t]he charge carrier is comprised of a plurality of individual coaxing charge holders releasably connected in tandem along the longitudinal axial centerline of the gun device . . . so that when the holders are placed in tandem and rotated the appropriate amount with respect to one another, *the slots of adjacent holders lock or cooperate together to maintain each of the holders oriented respective to one another to position each charge of the gun vertically and axially from the next vertically adjacent spaced charge.*

Ex. 1009, 2:56–59, 3:21–28 (emphases added). In this arrangement, tabs 62 are laid over adjacent charge holders. *See id.* Fig. 5. Despite this particular arrangement, Petitioner has not explained sufficiently why a POSITA would have simply substituted Von Kaenel's side locking tabs 610 for the Vann's

tabs 62 that are part of the charge carrier's tandem assembly. *See* Section II.F.4.

Accordingly, we determine the Petition does not demonstrate that it is more likely than not that claim 14 would have been obvious over the purported combination of Vann, Von Kaenel, Brooks, and Bradley.

3. *Claims 15–21*

Claims 15–21 depend from claim 14 and require the “plurality of retention mechanisms extending from a portion of the body adjacent the shaped charge receptacles” recited by independent claim 14. For these shared limitations, Petitioner applies the same arguments and evidence discussed above with respect to claim 14. *See* Pet. 127–132. For the same reasons discussed with respect to claim 14, Petitioner's challenge against dependent claims 15–21 also do not demonstrate that it is more likely than not that these claims would have been obvious over the proposed combination of Vann, Von Kaenel, Brooks, and Bradley.

H. *Indefiniteness of Claims 9–13*

Petitioner asserts that independent claim 9 and its dependent claims 10–13 are unpatentable for indefiniteness. Pet. 132–133 (citing Parrott Decl. ¶¶ 676–683).

Patent Owner argues that Petitioner's challenges are conclusory and fail to satisfy Petitioner's burden to show that the claims are indefinite. Prelim. Resp. 88–92.

We agree with Patent Owner's arguments regarding the conclusory nature of Petitioner's indefiniteness allegations. *See id.* at 88–92.

As set forth in the Petition, Petitioner provides *three* (3) sentences (including citations) for its challenge:

Independent Claim 9 is indefinite because a POSITA would not understand with reasonable certainty whether “the one of the plurality of retention mechanisms” *requires that only one of the plurality of retention mechanisms must satisfy the subsequent limitations or whether each one of the plurality of retention mechanisms must satisfy the subsequent limitations* (EX1003, ¶¶ 676-683). *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). Claims 10-13 depend from claim 9, and therefore claims 10-13 are also rendered indefinite for the same reason.

Pet. 132–133 (emphases added). There is, however, no other explanation or discussion in the Petition to support Petitioner’s conclusions.

Generally, a bare conclusory statement in the Petition is deficient—lacking sufficient analysis and evidence, and failing to comply with 35 U.S.C. § 322(a)(3) and 37 C.F.R. § 42.22(a)(2). Under 35 U.S.C. § 322(a)(3), a petition must “identif[y], in writing and *with particularity*, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim” (emphasis added). Similarly, 37 C.F.R. § 42.22(a)(2) requires each petition to include “[a] *full statement of the reasons* for the relief requested, including a *detailed explanation* of the significance of the evidence including material facts, and the governing law, rules, and precedent” (emphases added).

Petitioner’s three sentences on page 132 of the Petition fall short of the detailed explanation required. For example, Petitioner argues that the quoted claim language is indefinite because it is unclear how to satisfy “subsequent limitations” recited in claim 9. Yet, Petitioner does not discuss what “subsequent limitations” at issue that may be affected by the purported indefiniteness. *Id.* Thus, we are left to speculate as to the basis of Petitioner’s challenge.

We further note that Petitioner cites to eight paragraphs that span three pages in Mr. Parrott’s declaration that do not appear in the Petition. Pet. 132 (citing Parrott Decl. ¶¶ 676–683); *see* Prelim. Resp. 93–94. Such incorporation by reference is improper. *See* 37 C.F.R. §§ 42.6(a)(3), 42.24(b)(1); *Cisco Sys., Inc. v. C-Cation Techs., LLC*, IPR2014-00454, Paper 12 at 7–10 (PTAB Aug. 29, 2014) (informative) (refusing to consider arguments that were “not made in the [p]etition, but [we]re instead incorporated by reference to” a declaration).

Nonetheless, even taking into account Mr. Parrott’s declaration, we are not persuaded that Petitioner’s explanation is sufficient.

To satisfy the definiteness requirement of § 112(a), a patent’s claims must, when “viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910 (2014).³

Here, claim 9 recites a shaped charge holder that comprises “a body comprising three shaped charge receptacles,” “a plurality of retention mechanisms,” and “a plurality of shaped charges.” Ex. 1001, 20:22–23, 20:34. Claim 9 further requires that each of the plurality of shaped charges “is *respectively* secured within *a corresponding one of the three* shaped

³ A recent memorandum, issued under the Director’s authority to set binding agency guidance, clarifies that the agency’s approach to analyzing indefiniteness in AIA post-grant proceedings will adhere to the approach used in district courts, as explained in *Nautilus*. *See* Memorandum from Andrei Iancu, Andrew Hirshfield, and Scott R. Boalick to Members of the Patent Trial and Appeal Board (Jan. 6, 2021), available at <https://www.uspto.gov/sites/default/files/documents/IndefinitenessMemo.pdf>.

charge receptacles by one of the plurality of retention mechanisms” and that “the one of the plurality of retention mechanisms is configured to receive the shaped charge secured within *the corresponding one of the three shaped charge receptacles.*” Ex. 1001, 20:34–43 (emphasis added).

Considering the use of “respectively,” “corresponding,” and these limitations in context, we agree with Patent Owner’s declarant, Dr. Rodgers, that “a POSITA would understand that ‘the one of the plurality of retention mechanisms’ recited in the latter limitation refers to each retention mechanism that has a respective shaped charge and corresponding shaped charge receptacle.” Rodgers’ Decl. ¶ 139. Dr. Rodgers further explains that “[b]ecause the ‘one of the plurality of retention mechanisms’ had already been introduced in the former limitation as respective to each shaped charge, repeating the word ‘respective’ was not required in the latter limitation for the claim to be reasonably certain.” *Id.* In other words, we agree with Patent Owner that the express claim language supports the position that a POSITA would reasonably be certain that “the one of the plurality of retention mechanisms” refers to each of the retention mechanisms that secure shaped charges within the *corresponding* one of the three shaped charge receptacles.

More specifically, in the absence of detailed explanation by Petitioner otherwise (*see* Pet. 132), we agree with Patent Owner that Petitioner does not show sufficiently that independent claim 9 is more likely than not unpatentable under 35 U.S.C. § 112(b) for being indefinite. Petitioner relies on the same arguments for claims 10–13, which depend from claim 9. *See* Pet. 132. For the same reasons, Petitioner does not show sufficiently that

dependent claim 10–13 are more likely than not unpatentable under 35 U.S.C. § 112(b) for being indefinite.

I. Obviousness of Claims 1–13 over Sokolove '009 and Walker and Claims 14–21 over Sokolove '009, Walker, and Brady

Petitioner asserts that claims 1–13 would have been obvious under 35 U.S.C. § 103(a) over the asserted combination of Sokolove '009 and Walker. Pet. 19–34. In addition, Petitioner asserts that claims 14–21 would have been obvious over the purported combination of Sokolove '009, Walker, and Brady. *Id.* at 55–80.

Patent Owner provides arguments specifically addressing these asserted grounds. Prelim. Resp. 55–73.

1. Priority of Sokolove '009

Sokolove '009 is a patent application filed on January 25, 2019, and published on August 1, 2019, under the Patent Cooperation Treaty (PCT). Ex. 1005, codes (43), (22). On its face, Sokolove '009 claims priority to Sokolove Provisional '999; Sokolove Provisional '591; and Sokolove Provisional '298. *Id.* at code (30).

Petitioner asserts that Sokolove '009 is prior art to the '696 patent under 35 U.S.C. § 102(a)(2) via 35 U.S.C. § 102(d)(2) based on the disclosure in Sokolove Provisional '999 and Sokolove Provisional '591, which have filing dates earlier than the '696 patent's earliest effective filing date of July 17, 2018. *See* Ex. 1001, code (60).

For completeness of record, we summarize the contents of Sokolove '009; Sokolove Provisional '999; and Sokolove Provisional '591.

2. Sokolove '009 (Ex. 1005)

Sokolove '009 is directed to a method and apparatus for containing shaped charges in a single plane, arrayed about the center axis of a gun

body, and detonated from a single initiator in a shaped charge cluster assembly. Ex. 1005, code (57). An example embodiment is shown in Figure 1, reproduced below:

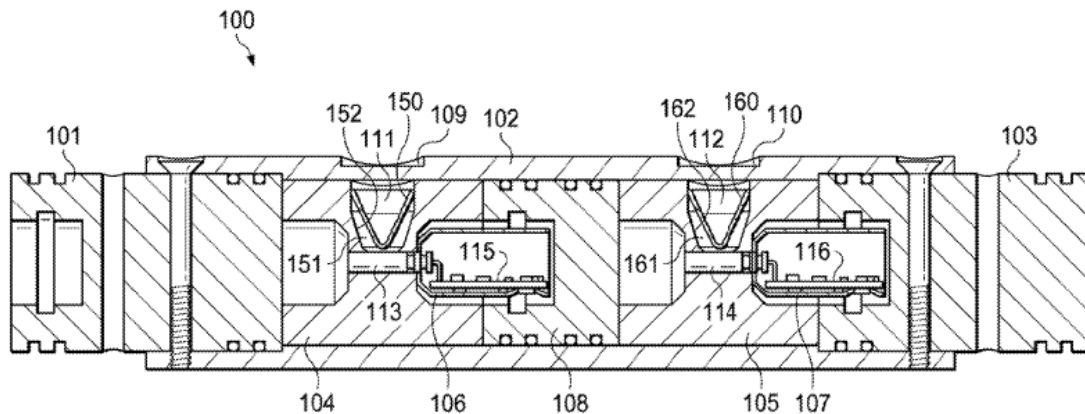


FIG. 1

Figure 1 shows a side view of a cluster assembly. *Id.* ¶ 22. In Figure 1, short cluster gun 100 includes cylindrical gun body 102 with a center, an inner bore, an outer surface, a first end coupled to bulkhead 101, and a second end coupled to bulkhead 103. *Id.* ¶ 24. Within gun body 102 is one or more charge clusters. *Id.* As shown in Figure 1, gun body 102 contains first charge cluster 104 and second charge cluster 105. *Id.* First charge cluster 104 contains shaped charges 111 arrayed about the center, and second charge cluster 105 contains shaped charges 112 arrayed about the center. *Id.* First charge cluster 104 and second charge cluster 105 are separated by internal bulkhead 108. *Id.*

In another embodiment, Sokolove '009 teaches cluster gun assembly 200. Figure 2 is reproduced below:

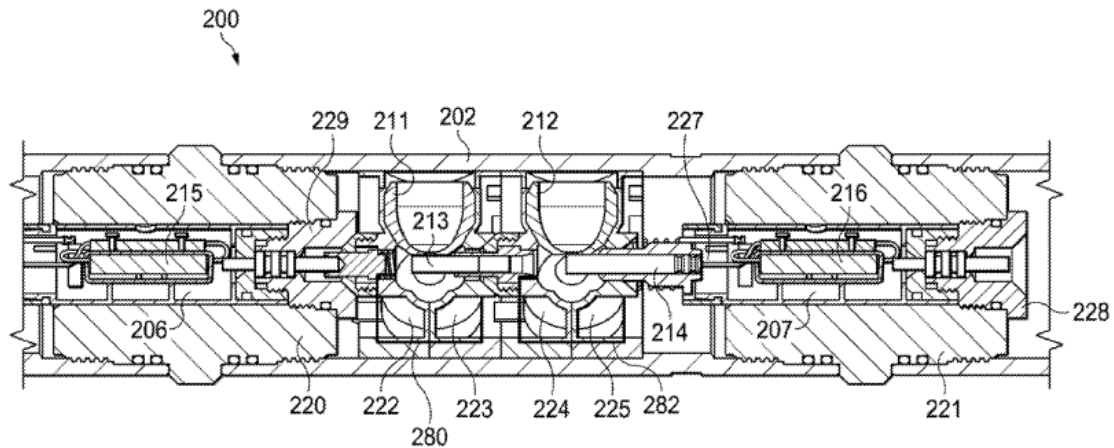


FIG. 2

Figure 2 is a side view of gun body 202 that contains two sets of charge cluster halves and cluster assembly 280. *Id.* ¶¶ 22, 26. Sokolove '009 teaches that first cluster half 222 and second cluster half 223 combine to form shaped charge cluster assembly 280. *Id.* ¶ 26.

In Figures 4A–4D, Sokolove '009 teaches a cluster assembly in various states of assembly. *Id.* ¶ 22. Figure 4A is reproduced below:

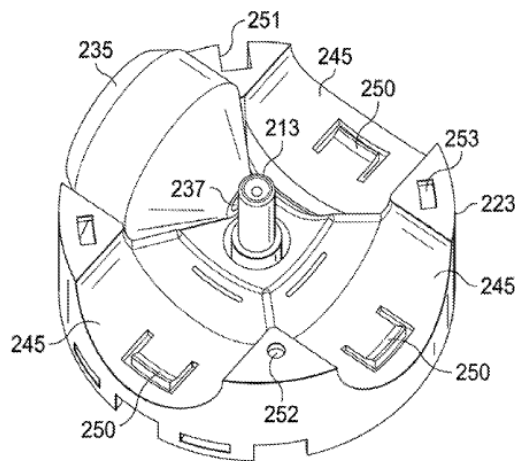
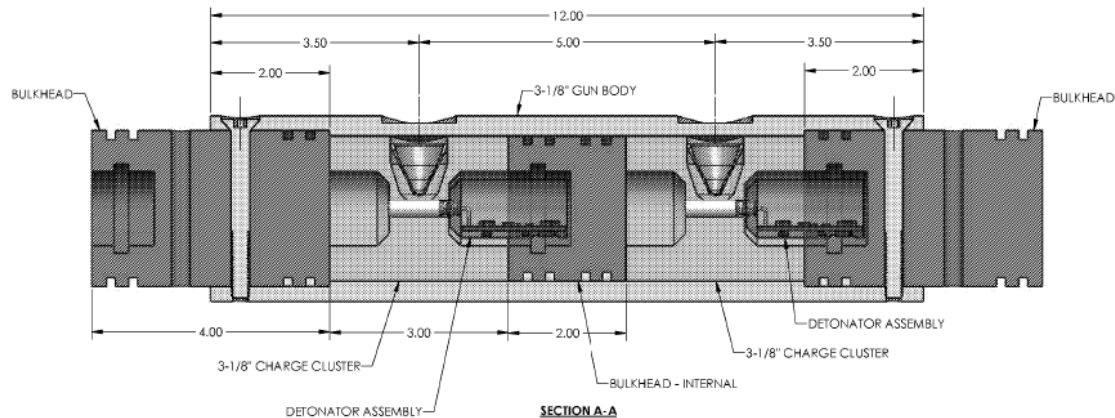


FIG. 4A

Figure 4A shows shaped charge 235 inserted into conical cavity 245. *Id.* ¶ 33. Shaped charge 235 is retained by tab 250. *Id.*

3. *Sokolove Provisional '999 (Ex. 1006)*

Sokolove Provisional '999 is directed to a “Cluster Gun System.” Ex. 1006, 19.⁴ A figure appearing on page 21 of Exhibit 1006 is provided below.

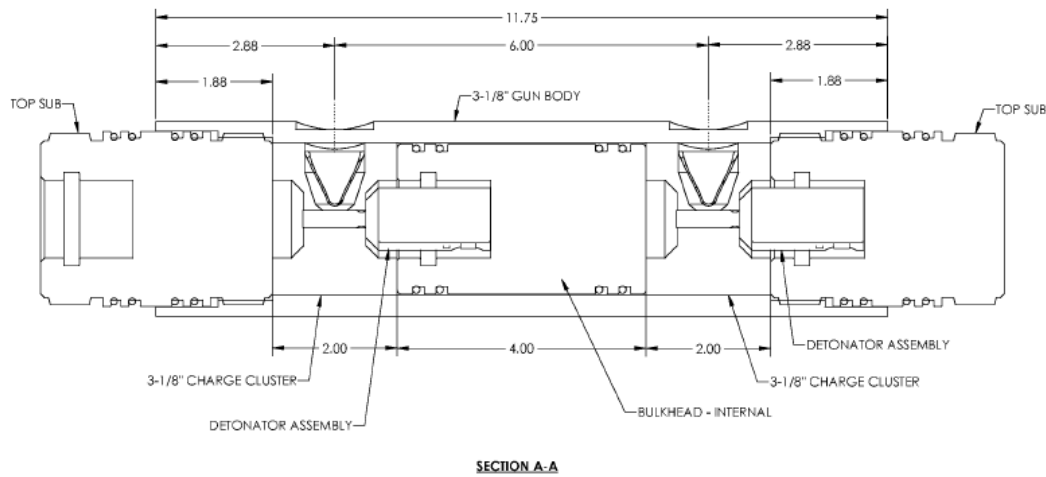


As shown, the figure on page 21 of Exhibit 1006 includes a gun body, charge clusters, detonator assemblies, and bulkheads. *Id.* at 21. According to Sokolove '999, “[t]he gun system allows for multiple selective clusters to be contained in a single gun carrier.” *Id.* at 20. Additionally, “[t]he cluster module will contain 1 to 3 shaped charges that can be positioned 120 degrees apart along the same plane or z-axis” (*id.* at 19) and “[t]he fully assembled cluster module contains charges, detonator and selective switches as well as electrical contacts (non-wired) to connect to the internal bulkhead” (*id.* at 20).

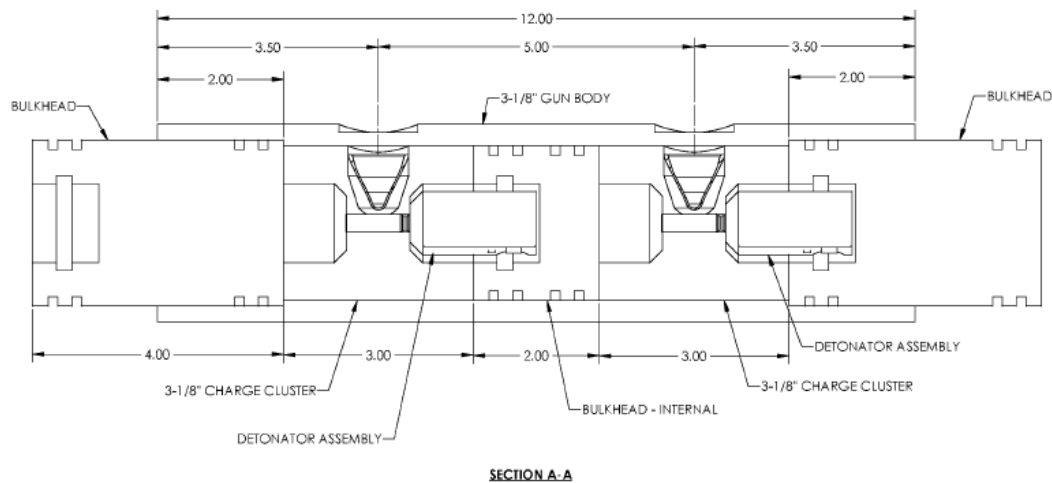
4. *Sokolove Provisional '591 (Ex. 1007)*

Sokolove Provisional '591 is titled “Cluster Gun System.” Ex. 1007, 22. A figure provided on page 24 of Exhibit 1007 is reproduced below:

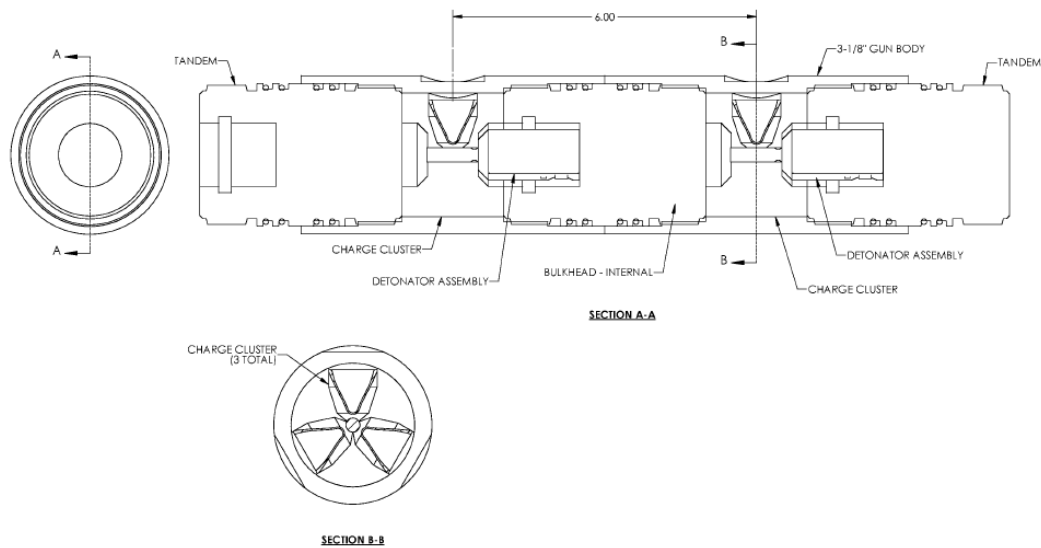
⁴ Citations are to Petitioner’s page numbers in Exhibit 1006.



The figure on page 24 shows a gun body, charge clusters, detonator assemblies, top subs, and an internal bulkhead. *Id.* A figure on page 25 of Exhibit 1007 is reproduced below:



The figure from page 25 of Exhibit 1007 shows a gun body, charge clusters, detonator assemblies, and bulkheads. *Id.* at 25. Another figure on page 26 of Exhibit 1007, provides another embodiment of Sokolove's cluster gun. That figure is reproduced below:



The figure on page 26 shows a gun body, charge clusters, detonator assemblies, “tandem” ends, an internal bulkhead, and a three-charge cluster. *Id.* at 26.

5. *Walker (Ex. 1008)*

Walker relates to elongated perforating guns used to perforate oil and gas wells. Ex. 1008, 1:8–11. Figure 1 is reproduced below:

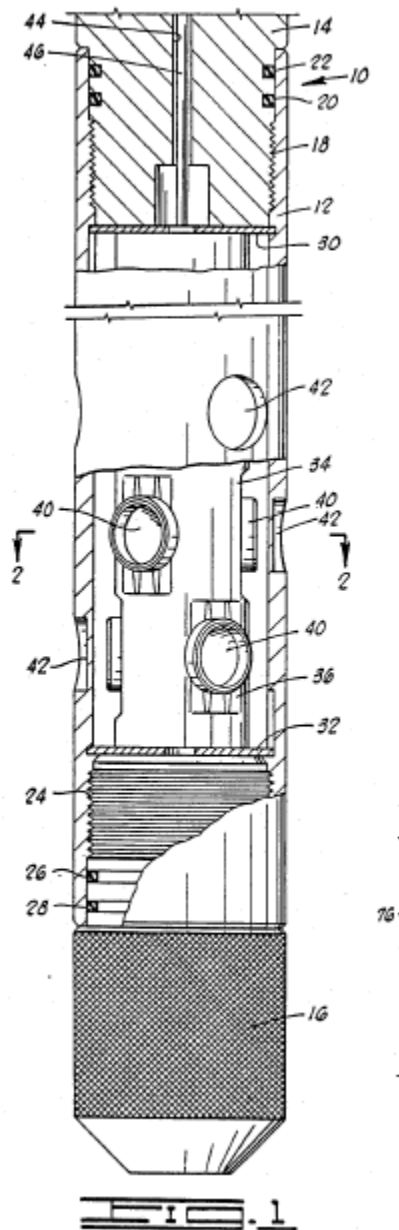


Figure 1 is an elevation, partly sectioned view of a perforating gun showing a generally cylindrical carrier tube in place within the perforating gun, with a plurality of shaped charges in place within the carrier tube. Ex. 1008, 2:26–29.

Figure 6 is provided below to better illustrate the carrier tube in Figure 1.

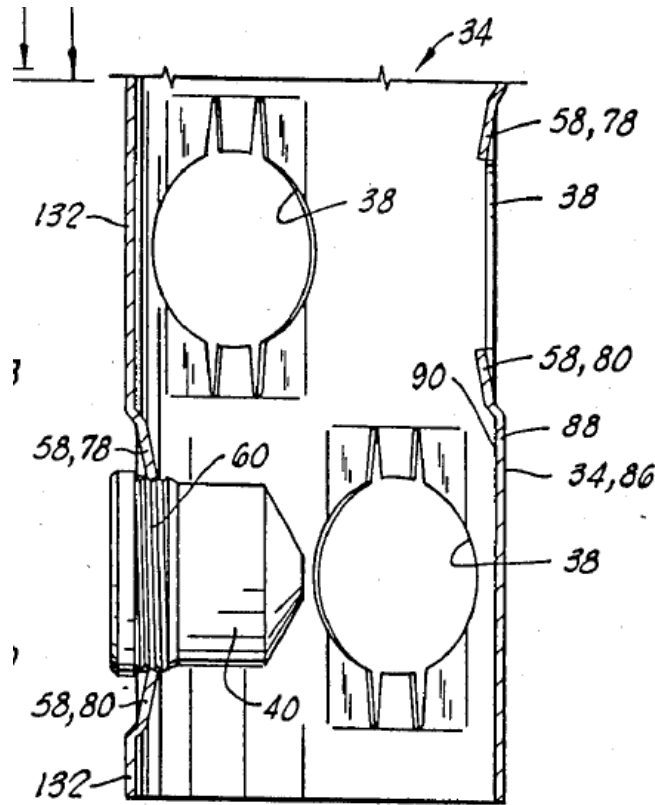


FIG. 6

Figure 6 is a sectioned elevation view of a lower part of the carrier tube of Figure 5, taken along line 6-6 of Figure 5. *See Ex. 1008, 2:39–43.* Walker teaches that carrier 34 may include resilient tab means 58 that extend into opening 38 for frictionally engaging at least portion 60 of outer surface 54 of case 47 to hold shaped charge 40 in place relative to carrier tube 34. *See id.* at 3:59–66.

6. Claim 1

We have reviewed Petitioner's contentions with respect to claim 1, and for the reasons below, we determine that the Petition does not show more likely than not that Petitioner would prevail in demonstrating that claim 1 would have been obvious over the asserted combination.

As mentioned, Sokolove '009 has a PCT filing date of August 1, 2019, which is after the earliest effective filing date, July 17, 2018, of the '696 patent. Petitioner asserts that Sokolove '009 is prior art to the '696 patent under 35 U.S.C. § 102(a)(2) via 35 U.S.C. § 102(d)(2) based on the filing dates for Sokolove Provisional '999 (January 25, 2018) and Sokolove Provisional '591 (February 7, 2018). Pet. 5–7; *see* Ex. 1001, code (60).

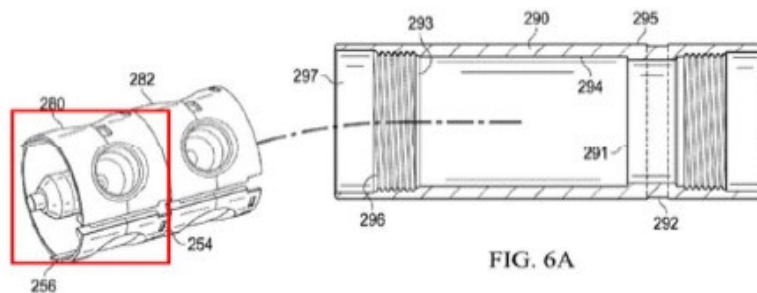
Section 102(d)(2) provides that “[f]or purposes of determining whether a patent or application for patent is prior art to a claimed invention under subsection (a)(2), such patent or application shall be considered to have been effectively filed, with respect to *any subject matter described in the patent or application . . . as of the filing date of the earliest such application that describes the subject matter.*” 35 U.S.C. § 102(d)(2) (emphases added). Thus, the subject matter disclosed in Sokolove '009 are available as prior art to the '696 patent to the extent *described* in the earlier-filed Sokolove Provisional '999 or Sokolove Provisional '591.

At this juncture, it bears mentioning once more that a petition for post-grant review must identify “in writing and with particularity, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim.” 35 U.S.C. § 322(a)(3); 37 C.F.R. § 42.204(b). Our reviewing court, in the context of *inter partes* review, describes this particularity requirement as “of the utmost importance.” *Intelligent Bio-Sys.*, 821 F.3d at 1369. Further, our rules require that each petition include “[a] full statement of the reasons for the relief requested, including a detailed explanation of the significance of the evidence including material facts, and the governing law, rules, and precedent.” 37 C.F.R. § 42.22(a)(2).

With these requirements in mind, we determine the Petition fails to provide the necessary “full statement of the reasons for the relief requested, including a detailed explanation of the significance of the evidence,” particularly a detailed explanation of the subject matter described in Sokolove Provisional ’999 and Sokolove Provisional ’591 that Petitioner relies upon for the necessary effective filing date of Sokolove ’009.

For example, claim 1 is directed to a holding device that comprises a “shaped charge holder comprising a body comprising a plurality of shaped charge receptacles.” Ex. 1001, 19:39–41.

With respect to a “shaped charge holder,” Petitioner asserts that [t]he Sokolove-Walker combination provides this limitation (EX1003, ¶¶ 132-133). Sokolove discloses a “first charge cluster 104 acts as the shaped charge housing” and a “shaped charge cluster assembly 280,” both of which a POSITA would have recognized shows a “shaped charge holder” (EX1005, [24]-[26]; *see also* EX1006, 19-20; EX1007, 22-23; EX1003, ¶¶ 132-133). Pet. 24. Petitioner further provides annotated Figure 6A from Sokolove ’009, reproduced below, to support its position.

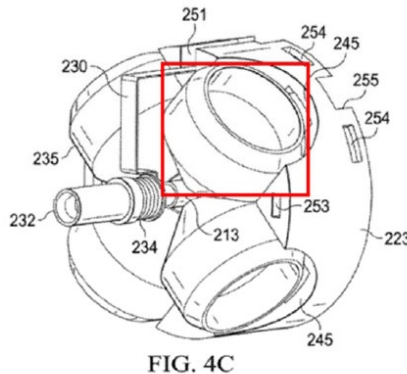


Petitioner’s annotated Sokolove ’009’s Figure 6A includes a red box drawn around a portion of cluster assembly 280.

Additionally, Petitioner argues that the Sokolove-Walker combination teaches that the shaped charge holder comprises “a body comprising a plurality of shaped charge receptacles” because Sokolove ’009 discloses:

“shaped charge cluster assembly 280” that has “conical container portions 236 [, 245 and 247 that] are adapted to slideably accept a shaped charge disposed therein,” which a POSITA would have recognized shows this limitation (Ex. 1005, [29], [25]-[26], [32]-[33], [35]; *see also* EX1006, 19-20, 22; EX1007, 22-23; EX1003, ¶¶ 134-138).

Pet. 25. Petitioner further provides annotated Figure 4C from Sokolove ’009, reproduced below:



Petitioner’s annotated Figure 4C includes a red box drawn around conical cavity 245. Pet. 26 (citing Parrott Decl. ¶ 137; Ex. 1005, Figs. 3, 4A–4D, 5A–C, 6A–B; Ex. 1006, 22).

With respect to these limitations, we determine that Petitioner cites to several aspects of Sokolove ’009 without adequate explanation as to how the subject matter relied upon in Sokolove ’009 is described in Sokolove Provisional ’999 or Sokolove Provisional ’591. To start, Petitioner cites to pages 19–20 of Sokolove Provisional ’999 and pages 22–23 of Sokolove Provisional ’591 to support its position that the subject matter of annotated Figure 6A from Sokolove ’009 was described in the earlier applications. Pet. 24.

Each of these two provisional applications contains five (5) pages, some of which are drawings. Ex. 1006, 19–20; Ex. 1007, 22–26. Yet, neither provisional application contains the drawing of the embodiment shown in Figure 6A of Sokolove '009 or any similar drawing. *See, generally id.* Moreover, Petitioner cites to the written text disclosure provided on the first two pages of each provisional application. *See* Pet. 24 (citing Ex. 1006, 19–20; Ex. 1007, 22–23). Nonetheless, Petitioner does not specifically direct us to where the subject matter relied upon from Figure 6A of Sokolove '009 is described on these pages. *See* Pet. 24–25. Nor, have we found where the specific subject matter relied upon in Figure 6A is disclosed in the pages cited by Petitioner.

In a similar way, Petitioner cites to cluster assembly 280 that is described in paragraph 26 of Sokolove '009. Pet. 24. Paragraph 26 states:

[a]n example embodiment of a cluster gun assembly 200 is shown in FIG. 2. The gun body 202 contains two sets of charge cluster halves that contain shaped charges forming a shaped charge cluster assembly 280. A first cluster half 222 and second cluster half 223 combine together within the gun body 202, they house shaped charge 211 which is located proximate to booster 213 located therethrough the center openings of the two charge halves 222 and 223. A third cluster half 224 and fourth cluster half 225 combine together within the gun body 202, they house shaped charge 212 and an initiating device 214 located therethrough the center openings of the two charge halves 224 and 225.

Ex. 1005 ¶ 26. For convenience, Sokolove '009's Figure 2 is provided below:

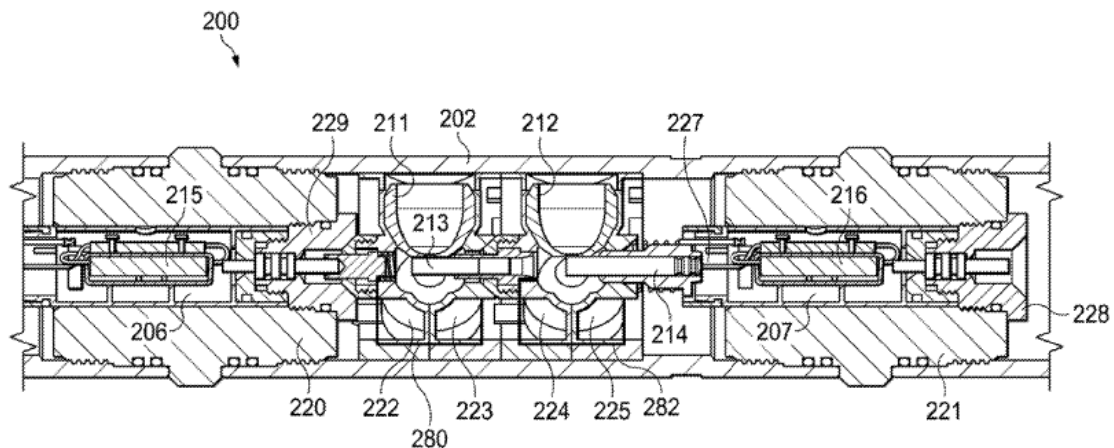
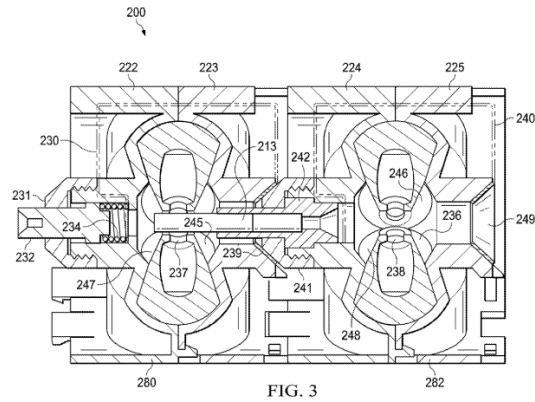


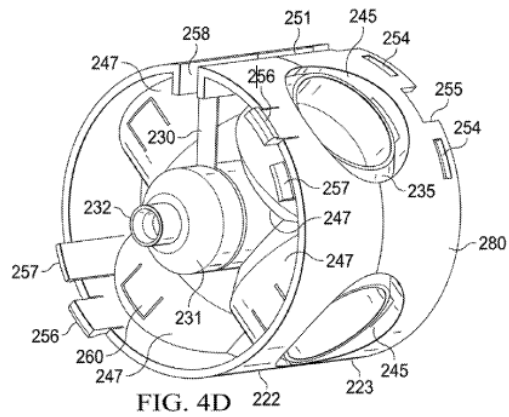
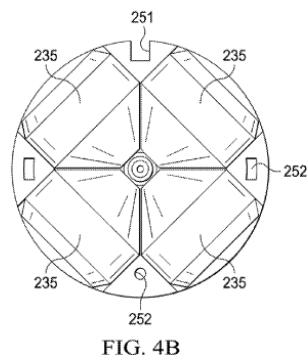
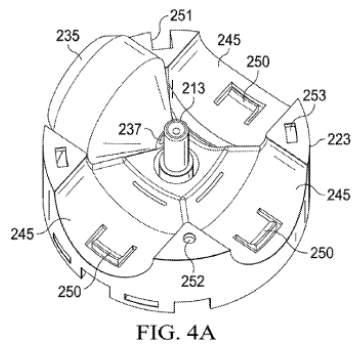
FIG. 2

Figure 2 is a side view of gun body 202 that shows shaped charge cluster assembly 280. *Id.* ¶¶ 22, 26. Petitioner again cites to pages 19–20 of Sokolove Provisional '999 and pages 22–23 of Sokolove Provisional '591 as purportedly describing the subject matter in Sokolove '009's Figure 2. Pet. 24. Nonetheless, these pages do not contain a drawing of the embodiment shown in Figure 2 of Sokolove '009 or a similar drawing. And, Petitioner, again, does not explain *specifically* where the Sokolove Provisional '999 or Sokolove Provisional '591 otherwise disclose this subject matter in the text relied upon by Petitioner. *See* Pet. 24–25. Likewise, we have reviewed the pages of the two provisionals cited by Petitioner and cannot otherwise confirm where the relied upon subject matter is described.

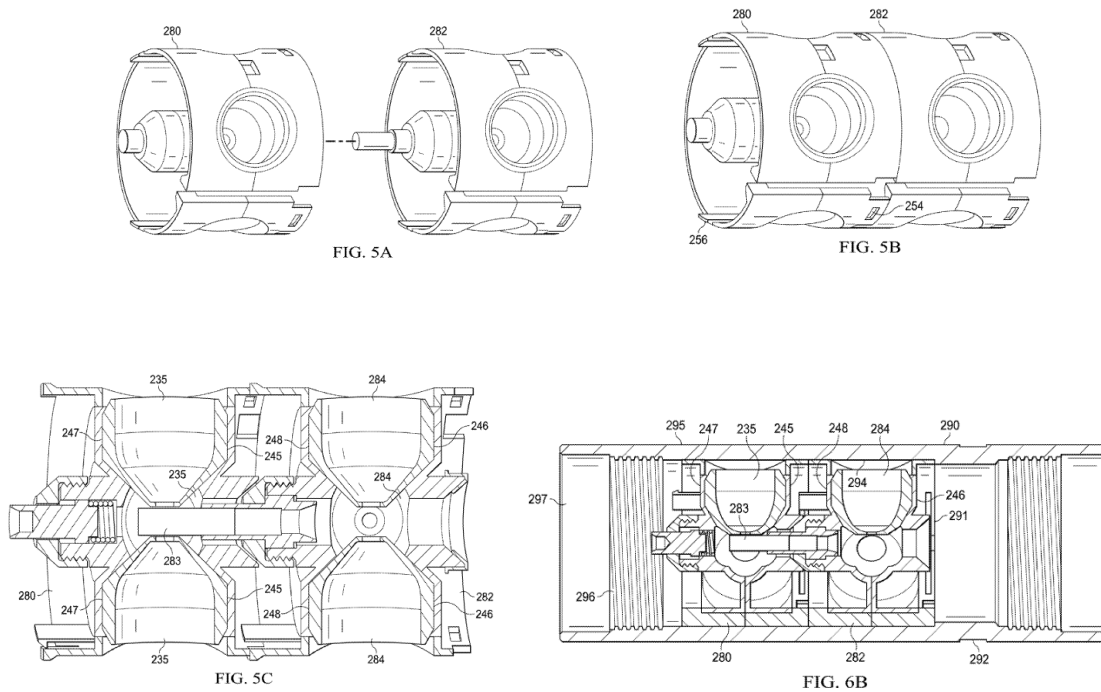
For these same limitations, Petitioner also relies on Sokolove '009's Figures 3, 4A–B, 4D, 5A–C, and 6A–B. *See* Pet. 26. Figures 4C and 6A have been produced above. Figures 3, 4A–B, 4D, 5A–C, and 6B are provided below.



“Figure 3 shows an example embodiment of a side view of a cluster assembly.” Ex. 1005 ¶ 22.



Figures 4A–B and 4D show an example embodiment of a cluster assembly in various states of assembly. *Id.*



Figures 5A–C and 6B also depict a cluster assembly in various states of assembly. *Id.*

None of these drawings, relied upon by Petitioner from Sokolove '009, appear in Sokolove Provisional '999 or Sokolove Provisional '591. *See generally* Exs. 1006–1007. Rather, from our brief review of Sokolove Provisional '298, which was filed after the '696 patent's earliest effective filing date, we observe that many of these figures appear in that later provisional. *See* Ex. 3001, 74–90, 94, 97–99. Given the overlap between the relied-upon disclosure in Sokolove '009 and the later-filed Sokolove Provisional '298, the absence of Petitioner's explanation is particularly hard-felt where it is left to the panel to speculate how the two earlier provisional applications may support Petitioner's position.

Although Petitioner does direct us to first charge cluster 104 and paragraphs 24–25 of Sokolove '009, which may align more closely to the drawings and disclosure in Sokolove Provisional '999 and Sokolove

Provisional '591 (*see* Pet. 24), Petitioner mixes and matches disclosure in Sokolove '009 for different embodiments without explaining sufficiently how the earlier provisional applications describe this subject matter.

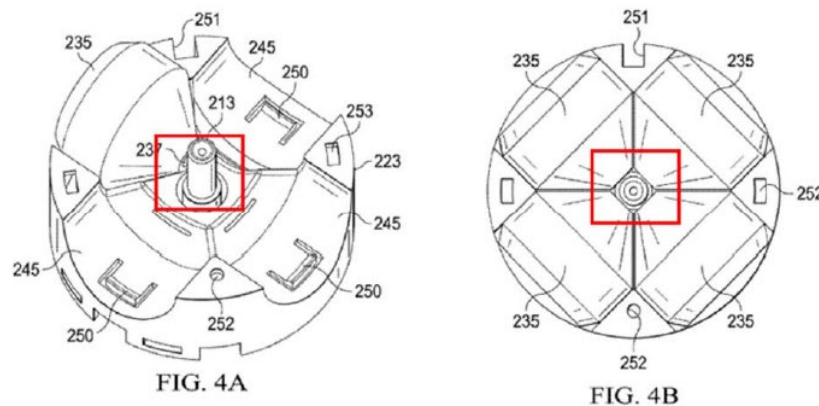
For these limitations, we additionally do not find Mr. Parrott's testimony persuasive. *See* Parrott Decl. ¶¶ 132–138. Mr. Parrott also cites to the subject matter in Sokolove '009 without adequately explaining how the same is described in the two earlier provisional applications. For example, in paragraph 133 of his declaration, Mr. Parrott asserts that “[s]haped charge cluster assembly 280,” shown in Figure 2 of Sokolove '009, “is a shaped charge holder.” Parrott Decl. ¶ 133 (citing Ex. 1005, Fig. 2; Ex. 1006, 21, 23; Ex. 1007, 24–26). Though Mr. Parrott cites to figures in the earlier provisionals, we observe that the figures on pages 21 and 23 of Exhibit 1006 (Sokolove Provisional '999) and pages 24–26 of Exhibit 1007 (Sokolove Provisional '591) differ from the embodiment shown in Figure 2 in Sokolove '009. *See* Parrott Decl. ¶ 133.

In the same vein, Mr. Parrott testifies that “[a] POSITA would recognize that Sokolove teaches that items 222–225, 280 and 282 are bodies containing a plurality of shaped charge receptacles, the shaped charge receptacles being items 236 and 245–248.” *Id.* ¶ 136. Mr. Parrott points to Sokolove '009's Figures 3, 4C–D, and 5A–B, without explaining adequately how this subject matter is also described in Sokolove Provisional '999 or Sokolove Provisional '591. *Id.* ¶¶ 135–138. Thus, the deficiencies in the Petition persist in Mr. Parrott's declaration.

Separately, as another example, we note that claim 1 further recites “a cavity extending through the body along a central axis of the body.” Ex. 1001, 19:47–48. Petitioner argues that

Sokolove discloses that the “cluster halves 222 and 223 have a thru opening adapted to allow booster 213 to slideably position at the end of the conical container portions 236,” which a POSITA would have recognized shows “a cavity extending through the body along a central axis of the body” (EX1005, [29], [26] (“center openings of the two charge halves 222 and 223”), [27], [30]; *see also* EX1006, 19-20; EX1007, 22-23; EX1003, ¶¶ 163-164).

Pet. 31. Petitioner provides annotated Figures 4A and 4B (reproduced below) on page 32 of the Petition. Pet. 32.



Petitioner’s annotations include red boxes drawn around booster 213. *Id.*

Again, Sokolove ’009’s Figures 4A and 4B do not appear in Sokolove Provisional ’999 or Sokolove Provisional ’591, though these figures are nearly identical to those provided in Sokolove Provisional ’298. *See generally* Exs. 1006–1007; Ex. 3001, 76–79. Moreover, Mr. Parrott’s testimony quotes and cites to paragraphs 29–30 in Sokolove ’009, but does not explain where this subject matter is described in pages 19–20 of Exhibit 1006 (Sokolove Provisional ’999) and pages 22–23 of Exhibit 1007 (Sokolove Provisional ’591). *See* Parrott Decl. ¶¶ 163–164.

Given the multiple instances in which Petitioner relies on subject matter in Sokolove ’009 without a detailed explanation of how either of the two earlier provisional applications support its position, we determine that

Petitioner has not adequately identified the grounds and evidence that support the grounds with the required particularity. It is Petitioner's burden to show with particularity why the patent it challenges is unpatentable and that burden never shifts to the patentee. *Harmonic*, 815 F.3d at 1363; *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

7. *Independent Claims 9 and 14*

For independent claims 9 and 14, Petitioner relies on its assertions for claim 1 and does not provide contentions for claims 9 and 14 that remedy the deficiency discussed with respect to claim 1. Pet. 42–53, 55–40. Accordingly, for the reasons discussed with respect to claim 1, we conclude that Petitioner has not demonstrated a reasonable likelihood that it would prevail in showing that claims 9 and 14 are unpatentable under 35 U.S.C. § 103 as obvious over the proposed combinations of Sokolove '009, Walker, and Brady.

8. *Dependent Claims 2–8, 10–13, and 15–21*

Claims 2–8, 10–13, and 15–21 depend from independent claims 1, 9, and 14 respectively. Petitioner's arguments regarding these dependent claims do not remedy the deficiency discussed with respect to independent claims 1, 9, and 14. *See* Pet. 34–42, 53–54, 71–80. Accordingly, for the reasons discussed with respect to claims 1, 9, and 14, we conclude that Petitioner has not demonstrated a reasonable likelihood that it would prevail in showing that claims 2–8, 10–13, and 15–21 are unpatentable under 35 U.S.C. § 103 as obvious over the proposed combinations of Sokolove '009, Walker, and Brady.

III. CONCLUSION

We deny the Petition and do not institute post-grant review.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that the Petition is *denied* as to all challenged claims, and no trial is instituted.

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