

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SILENCERCO WEAPONS RESEARCH, LLC,
Petitioner,

v.

HUXWRX SAFETY CO. LLC,
Patent Owner.

IPR2024-01214
Patent 8,286,750 B1

Before KEN B. BARRETT, SEAN P. O'HANLON, and
ANDREAS BALTATZIS, *Administrative Patent Judges*.

O'HANLON, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

A. Background

SilencerCo Weapons Research, LLC (“Petitioner”) filed a Petition for *inter partes* review of claims 1–22 (“the challenged claims”) of U.S. Patent No. 8,286,750 B1 (Ex. 1001, “the ’750 patent”). Paper 2 (“Pet.”), 1. HuxWrx Safety Co. LLC (“Patent Owner”) waived its right to file a preliminary response. *See* Paper 6.

Institution of an *inter partes* review is authorized by statute only when “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). A decision to institute may not institute on fewer than all claims challenged in the petition. *SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1354, 1359–60 (2018). If the Board institutes a trial, the Board will institute on all challenges raised in the petition. *See* 37 C.F.R. § 42.108(a) (“When instituting . . . review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.”).

We have authority, acting on the designation of the Director, to determine whether to institute an *inter partes* review under 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a). For the reasons set forth below, upon considering the Petition and evidence of record, we conclude that the information presented shows that there is a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of at least one of the challenged claims. Thus, we institute *inter partes* review of all challenged claims based on all asserted grounds.

B. Real Parties in Interest

Petitioner identifies itself and its parent company, Silence Holdings, LLC, as real parties in interest. Pet. vii.

Patent Owner identifies itself as the sole real party in interest. Paper 5, 2.

The parties are reminded of their continuing obligation to update their mandatory notice information “within 21 days of a change of the information.” 37 C.F.R. § 42.8(a)(3).

C. Related Matters

The parties indicate that the ’750 patent is the subject of the following district court proceeding:

HuxWrx Safety Co. LLC v. SilencerCo Weapons Research, LLC, No. 2-24-cv-00130 (D. Utah filed February 21, 2024).

Pet. vii; Paper 5, 2.

D. The Challenged Patent

The ’750 patent discloses an energy capture and control device. Ex. 1001,¹ code (57), 4:10–18. The energy capture and control device may include “a serpentine fluid pathway which dissipates energy transferred from . . . high energy material,” such as a bullet. *Id.* at 4:15–18; 9:23–25. Figures 1a and 1b illustrate an energy capture and control device and are reproduced below.

¹ We refer to the corrected versions of Petitioner’s exhibits filed on August 15, 2024. *See* Ex. 3001.

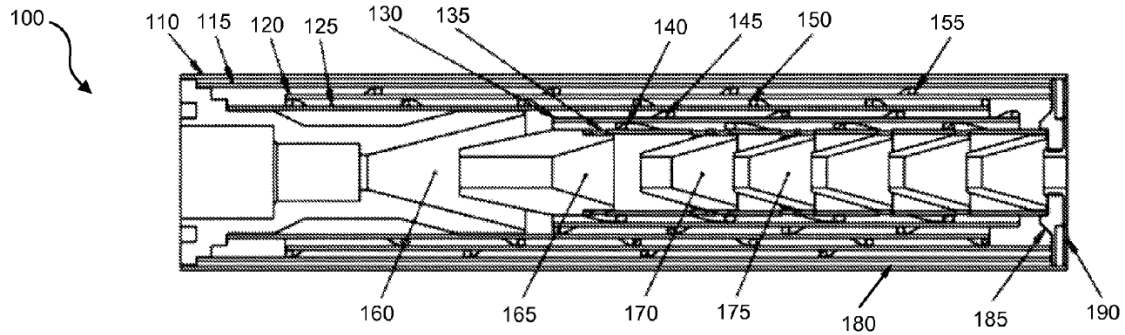


FIG. 1a

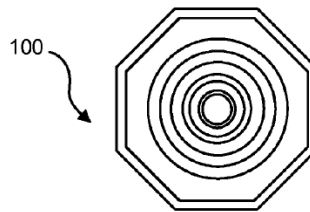


FIG. 1b

Figure 1a shows a cross-sectional side view of energy capture and control device 100, and Figure 1b shows a cross-sectional end view of the device. *Id.* at 1:56–60. The device includes outer shell 110 in which a central chamber is oriented along a central axis of the shell and in which deflectors 165, 170, 175 are arranged. *Id.* at 4:10–12, 4:19–22. The deflectors allow the bullet to pass through the device and direct at least a portion of the generated gases, sound/shock waves, and particulates into an off axis chamber that surrounds the central chamber. *Id.* at 4:22–26.

The multiple internal walls [115, 120, 125, 130, 140, 145, 150, 155] can provide an increased volume for fluid expansion and increased acoustic absorbent path length. The fluid pathway can be an axially serpentine fluid pathway which causes fluids received in the off axis chamber to travel back and forth along a length of the off axis chamber. In another aspect, the fluid pathway can be a radially serpentine fluid pathway which causes the fluids received in the off axis chamber to flow back

and forth around a radius of the off axis chamber. . . . In yet another aspect, the fluid pathway can be a helical fluid pathway which causes the fluids to spiral around the central chamber within the off axis chamber along a length of the off axis chamber.

Id. at 4:29–44.

E. The Challenged Claims

Petitioner challenges claims 1–20 of the '750 patent. Claims 1, 19, and 20 are independent. Claim 1 is illustrative of the challenged claims and is reproduced below.

1. An energy capture and control device, comprising:
 - a) a central chamber oriented along a central axis within an outer shell, said central chamber having an inlet configured to receive a high energy material from a high energy outlet;
 - b) a common off axis chamber oriented within the outer shell in fluid communication with the central chamber and having a fluid outlet and multiple internal walls defining a serpentine fluid pathway which is at least one of axially serpentine and radially serpentine and which dissipates energy transferred from the high energy material; and
 - c) a plurality of deflectors oriented in series along the central axis of the central chamber and configured to deflect the energy from the high energy material to the common off axis chamber.

Ex. 1001, 10:45–60.

F. Asserted Grounds of Unpatentability

The Petition relies on the following prior art references:

Name	Reference	Exhibit
Thurler	US 1,000,702, issued August 15, 1911	1015

Name	Reference	Exhibit
Bouton	US 748,157, issued December 29, 1903	1016
Barlowatz	FR 493,462, published August 9, 1919 ²	1017
Reeves	US 582,485, issued May 11, 1897	1019
Eichenseher	DE 305012, published January 7, 1920 ³	1020

Petitioner asserts the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1, 4, 5, 7–9, 15–17, 19, 22	102(b) ⁴	Thurler
1, 4–11, 15–17, 19, 21, 22	103(a)	Thurler
18	103(a)	Thurler, Bouton
1, 4–17, 19–22	103(a)	Thurler, Barlowatz
1, 9, 19, 20	102(b)	Barlowatz
1, 9, 19, 20	103(a)	Barlowatz
2	103(a)	Barlowatz, Reeves
1, 3–5, 8, 9, 18, 19	103(a)	Eichenseher, Barlowatz

Pet. 31. Petitioner submits a declaration of Mr. Eur Ing John Nixon (Ex. 1013, “Nixon Declaration”) in support of its contentions.

² We refer herein to the certified English translation of Barlowatz filed with the Petition (Ex. 1018).

³ We refer herein to the certified English translation of Eichenseher filed with the Petition (Ex. 1021).

⁴ The application resulting in the ’750 patent was filed prior to the date when the Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, 125 Stat. 284 (2011), took effect. Thus, we refer to the pre-AIA version of sections 102 and 103.

II. ANALYSIS

A. Principles of Law

1. Anticipation

“Under 35 U.S.C. § 102 a claim is anticipated ‘if each and every limitation is found either expressly or inherently in a single prior art reference.’” *King Pharm., Inc. v. Eon Labs, Inc.*, 616 F.3d 1267, 1274 (Fed. Cir. 2010) (quoting *Celeritas Techs. Ltd. v. Rockwell Int’l Corp.*, 150 F.3d 1354, 1360 (Fed. Cir. 1998)). “Anticipation requires the presence in a single prior art disclosure of all elements of a claimed invention arranged as in the claim.” *Therasense, Inc. v. Becton, Dickinson & Co.*, 593 F.3d 1325, 1332 (Fed. Cir. 2010) (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)).

A reference inherently discloses an element of a claim “if that missing characteristic is necessarily present, or inherent, in the single anticipating reference.” *Schering Corp. v. Geneva Pharm.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003) (citing *Cont’l Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991)). “Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient.” *Therasense*, 593 F.3d at 1332 (quoting *Cont’l Can*, 948 F.2d at 1269).

2. Obviousness

A patent claim is unpatentable under 35 U.S.C. § 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 the

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, any objective evidence of nonobviousness.⁵ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. 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). In determining the level of ordinary skill in the art, we may consider certain factors, including: “(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.” *Best Med. Int’l, Inc. v. Elekta Inc.*, 46 F.4th 1346, 1353 (Fed. Cir. 2022) (quoting *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007)). “The patent’s purpose can also be informative.” *Id.*

Petitioner contends that a person having ordinary skill in the art at the time of the invention “would have had a relevant technical degree in

⁵ At this stage of the proceeding, the parties have not directed us to any such objective evidence.

Mechanical Engineering, Fluid Engineering, or the like, and 2-3 years of experience researching, designing, manufacturing, or assessing [energy suppression devices (“ESD”)], though less education may be sufficient with additional experience, and *vice versa*.” Pet. 1.

Based on the arguments presented and the cited references, we find Petitioner’s definition of the level of ordinary skill reasonable and for purposes of this Decision, adopt it as our own.

C. Claim Construction

In an *inter partes* review, claims are construed using the same claim construction standard that would be used to construe the claims in a civil action under 35 U.S.C. § 282(b), including construing the claims in accordance with the ordinary and customary meaning of such claims as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. 37 C.F.R. § 42.100(b). “[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention” and “after reading the entire patent.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313, 1321 (Fed. Cir. 2005) (en banc). In addition to the specification and prosecution history, we also consider use of the terms in other claims and extrinsic evidence including expert and inventor testimony, dictionaries, and learned treatises, although extrinsic evidence is less significant than the intrinsic record. *Id.* at 1312–17. Usually, the specification is dispositive, and it is the single best guide to the meaning of a disputed term. *Id.* at 1315.

The specification may reveal a special definition given to a claim term by the patentee, or the specification may reveal an intentional disclaimer or disavowal of claim scope by the inventor. *Phillips*, 415 F.3d at 1316; *see also Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014) (citing *Thorner v. Sony Computer Ent. Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)) (“We depart from the plain and ordinary meaning of claim terms based on the specification in only two instances: lexicography and disavowal.”). If an inventor acts as his or her own lexicographer, the definition must be set forth in the specification with reasonable clarity, deliberateness, and precision. *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998). A disavowal, if any, can be effectuated by language in the specification or the prosecution history. *Poly-America, L.P. v. API Indus., Inc.*, 839 F.3d 1131, 1136 (Fed. Cir. 2016). “In either case, the standard for disavowal is exacting, requiring clear and unequivocal evidence that the claimed invention includes or does not include a particular feature.” *Id.* “Ambiguous language cannot support disavowal.” *Id.* (citing *Omega Eng’g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1324 (Fed. Cir. 2003)).

“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (alteration in original) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

Petitioner asserts that no “specific constructions are required at this time,” but presents its interpretation of the ordinary and customary meanings

of four claim terms. Pet. 12–19. We discuss two of Petitioner’s interpretations below.

1. Radially Serpentine

Petitioner argues that the ordinary and customary meaning of “a serpentine fluid pathway which is . . . radially serpentine” is “a fluid pathway that causes fluids to flow back (e.g., counterclockwise) and forth (e.g., clockwise) in alternate rotational directions, changing direction at least twice, *while advancing outwardly* along a radius of the off-axis chamber.”

Pet. 17. Petitioner argues that the ’750 patent “provides that a ‘radially serpentine fluid pathway . . . causes the fluids received in the off-axis chamber to flow back and forth around a radius of the off axis chamber.’”

Id. at 15 (alteration in original) (emphasis omitted) (citing Ex. 1001, 4:34–37). Petitioner argues that “‘back and forth’ movement requires at least two changes in direction.” *Id.* at 17.

The ’750 patent states that “the fluid pathway can be a radially serpentine fluid pathway which causes the fluids received in the off axis chamber to flow back and forth *around a radius* of the off axis chamber,” also using “radially serpentine fluid pathway” to refer to this rotation around the chamber radius “while also traversing a length of the off axis chamber.” Ex. 1001, 4:34–41 (emphasis added). This is the only description of “radially” serpentine flow in the ’750 patent. Notably, the ’750 patent does not use “radially” or “serpentine” to describe a fluid pathway “which causes the fluids to spiral around the central chamber within the off axis chamber along a length of the off axis chamber,” instead referring to such a fluid pathway as a “helical fluid pathway.” *Id.* at 4:41–44. *See CAE*

Screenplates, Inc. v. Heinrich Fiedler GmbH & Co. KG, 224 F.3d 1308, 1317 (Fed. Cir. 2000) (“In the absence of any evidence to the contrary, we must presume that the use of . . . different terms in the claims connotes different meanings.”); *Bd. of Regents of the Univ. of Tex. Sys. v. BENQ Am. Corp.*, 533 F.3d 1362, 1371 (Fed. Cir. 2008) (“Different claim terms are presumed to have different meanings.”).

During prosecution of the application resulting in the ’750 patent, the Applicant amended the claims that issued as independent claims 1 and 19 to recite that the serpentine fluid pathway “is at least one of axially serpentine and radially serpentine.” Ex. 1004, 88, 90; *see also id.* at 40 (presenting the final claim numbering). The Applicant argued that “radially serpentine” means the “fluids travel in an alternating clockwise to counterclockwise pattern” and the “fluid would flow back and forth from clockwise to counter-clockwise around the axis as described in page 7, lines 20-22.” *Id.* at 93. That description states, “In another aspect, the fluid pathway can be a radially serpentine fluid pathway which causes the fluids received in the off axis chamber to flow back and forth around a radius of the off axis chamber.” Ex. 1004, 252 (corresponding to Ex. 1001, 4:34–37). We understand the Applicant’s use of “the axis” of rotation to refer to the “radius of the off axis chamber.”

Thus, both the ’750 patent and its prosecution history support Petitioner’s contention that a “radially serpentine” fluid flow is one in which the fluid flows back and forth around a radius of the off axis chamber.

We see no support, however, for Petitioner’s assertion that a serpentine flow requires two or more changes of direction. *See* Pet. 17. Petitioner states that “‘back and forth’ movement requires at least two

changes in direction. Specifically, to come ‘back,’ an object must have first gone ‘forth.’” Pet. 17; *see also* Ex. 1013 ¶ 130 (presenting essentially identical assertions). However, both Petitioner and its witness, Mr. Nixon, identify only a single change in direction – from “forth” to “back.” Neither Petitioner nor Mr. Nixon provide any support for their assertions that *two* changes of direction are required, and we decline to adopt this aspect of Petitioner’s interpretation of “radially serpentine.” Instead, we interpret “back and forth,” as used in the ’750 patent, to be satisfied by only a single change in direction.

We also see no support for Petitioner’s assertion that a radially serpentine fluid pathway only flows outwardly along a radius of the off axis chamber. *See* Pet. 17. Petitioner presents no reasoning to support this aspect of its interpretation. *See id.* Mr. Nixon characterizes certain components of a non-asserted prior art reference as extending outwardly from the center of the device, but Mr. Nixon fails to explain persuasively how this characterization limits the axially serpentine flow recited in the ’750 patent to be only away from the central axis. *See* Ex. 1013 ¶ 125. Neither Mr. Nixon nor Petitioner identifies any part of the ’750 patent or its prosecution history that imposes such a directional limitation, nor does our review reveal such support. Rather, on this preliminary record, it seems to us that flow back and forth around a radius of the off axis chamber is axially serpentine flow regardless of whether the fluid is also flowing toward or away from the center of the off axis chamber. We further note that when referencing another non-asserted reference, Mr. Nixon relies on both directions of such a flow as being “radially serpentine.” *See* Ex. 1013 ¶ 126.

We decline to adopt this aspect of Petitioner’s interpretation of “radially serpentine.”

Finally, we disagree with the Applicant’s assertion during prosecution that Figure 14 illustrates a device with a radially serpentine fluid pathway. *See* Ex. 1004, 93 (asserting that the fluid flow “described in page 7, lines 20-22” is “shown in Figure 14 (see units 500, 505 and 510)”). The portion of the specification discussing the embodiment illustrated in Figure 14 does not mention a “radially” serpentine flow, instead describing flow through the annular spaces between concentric cylinders positioned within the off axis chamber. *See* Ex. 1004, 259:11–19 (corresponding to Ex. 1001, 9:1–13). Thus, the flow described here flows *circumferentially* about the central chamber, not radially.

Accordingly, for the foregoing reasons and on this preliminary record, we interpret “radially serpentine” as recited in the claims of the ’750 patent to mean a back and forth flow around a radius of the off axis chamber.

2. At Least One Of

Petitioner interprets “axially serpentine” and “radially serpentine” to be categories and argues, therefore, that the ordinary and customary meaning of “a serpentine fluid pathway which is at least one of axially serpentine and radially serpentine” is “a fluid pathway that is *both* axially serpentine *and* radially serpentine.” Pet. 17–19 (citing *SuperGuide Corp. v. DirecTV Enters.*, 358 F.3d 870, 886 (Fed. Cir. 2004); Ex. 1001, Fig. 1a).

We disagree with Petitioner’s interpretation of *Superguide*. There, the Federal Circuit “conclude[d] that the plain and ordinary meaning of . . . the phrase ‘at least one of’ means ‘one or more.’” *Superguide*, 358 F.3d at 886

(citing *Rhine v. Casio, Inc.*, 183 F.3d 1342, 1345 (Fed. Cir. 1999)). The court then considered what the phrase modified and determined that, because “[t]he phrase ‘at least one of’ precedes *a series of categories of criteria*, and the patentee used the term ‘and’ to separate the categories of criteria,” the phrase “connotes a conjunctive list” and required selecting at least one value for each category. *Id.* (emphasis added). For example, in *SuperGuide*, the claim phrase “storing at least one of a desired program start time, a desired program end time, a desired program service, and a desired program type” was interpreted as requiring storing at least one desired program start time, at least one desired program end time, and so forth. *Id.* at 884, 886. Neither courts nor the Board has interpreted *SuperGuide* as setting forth a per se rule that the use of “at least one of” followed by “and” necessarily connotes a conjunctive list, and both courts and the Board have found *SuperGuide* inapplicable when the listed items following “at least one of” are not categories containing many possible values. *See Apple Inc. v. CPC Patent Techs. PTY, Ltd.*, IPR2022-00601, Paper 31 at 28 (PTAB Sept. 27, 2023) (collecting cases).

Here, Petitioner does not persuade us that “axially serpentine” and “radially serpentine” are categories. Notably, for each of these terms, both Petitioner and Mr. Nixon provide only a single example of such a fluid pathway. *See* Pet. 18; Ex. 1013 ¶ 134. Such identification of only a single instance does not persuade us that these terms identify categories of criteria. *See Superguide*, 358 F.3d at 886 (“Each category is further comprised of many possible values.”).

Accordingly, for the foregoing reasons and on this preliminary record, we interpret “at least one of” as recited in the claims of the ’750 patent to have its plain and ordinary meaning of one or more.

3. Conclusion

At this time, we determine that no express construction of any other term is necessary. We note that this determination does not preclude the parties from arguing their proposed constructions of the claims during trial. Indeed, the parties are hereby given notice that claim construction, in general, is an issue to be addressed at trial. A final determination as to claim construction will be made at the close of the proceeding, after any hearing, based on all the evidence of record. The parties are expected to assert all of their claim construction arguments and evidence during the trial, as permitted by our rules.

D. Overview of the Asserted Prior Art

1. Thurler

Thurler discloses devices for lessening the report of firearms by guiding the combustion gases through a series of chambers. Ex. 1015, 1:9–19. Figures 1 and 2 illustrate an embodiment of the suppression device and are reproduced below, with Figure 1 rotated clockwise 90°.

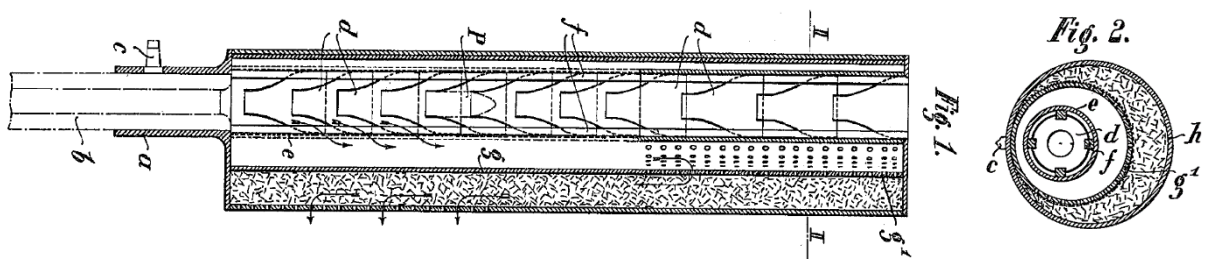


Figure 1 shows a horizontal longitudinal cross-section of the device, and Figure 2 shows a cross-section taken along line II–II of Figure 1. *Id.* at 1:40–43. The device includes a series of tubular sleeves d placed coaxially within tube e. *Id.* at 1:53–55. Tube e is surrounded by tube g, which is perforated with annular openings for the one-third of its length g¹. *Id.* at 1:69–74. Tube g is surrounded by tube h, which is perforated at an opposite end for one-third of its length. *Id.* at 1:75–77. The device may include additional intermediate tubes g. *Id.* at 1:27–30. The direction of gas flow is indicated by arrows. *Id.* at 1:83–84. Gases generated by firing projectile P are directed by sleeves d into the space between tubes e and g where they partially expand. *Id.* at 1:84–91. The gases then travel along this space and pass through the annular openings of tube g into the space between tubes g and h. *Id.* at 1:91–99. The gases pass through this space, which is filled with metal shavings to prevent the gases from expanding instantly, and escape through the openings in tube h. *Id.*

2. Bouton

Bouton discloses devices for muffling or deadening the sound of escaping vapors. Ex. 1016, 1:8–10. Figure 2 illustrates an embodiment of the muffler and is reproduced below.

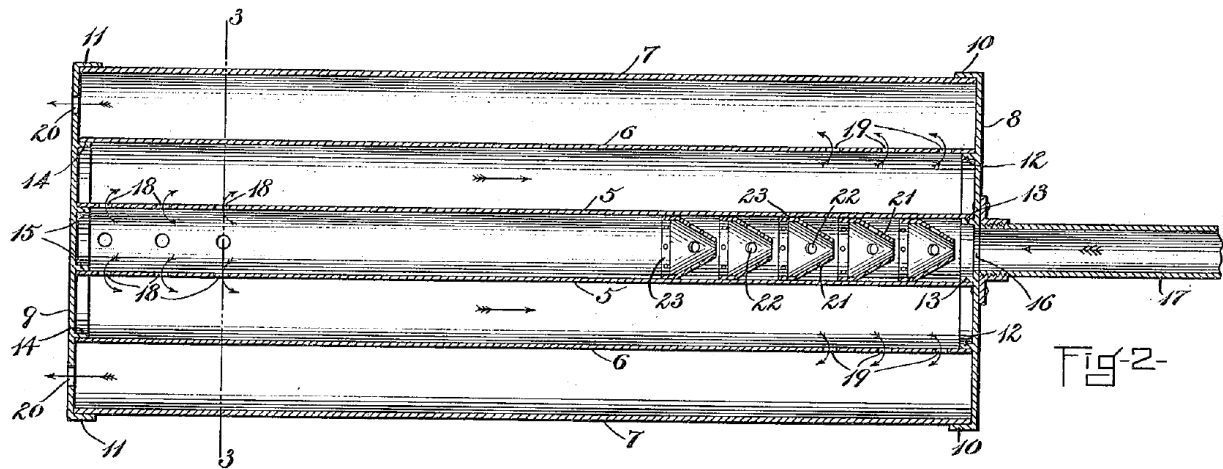
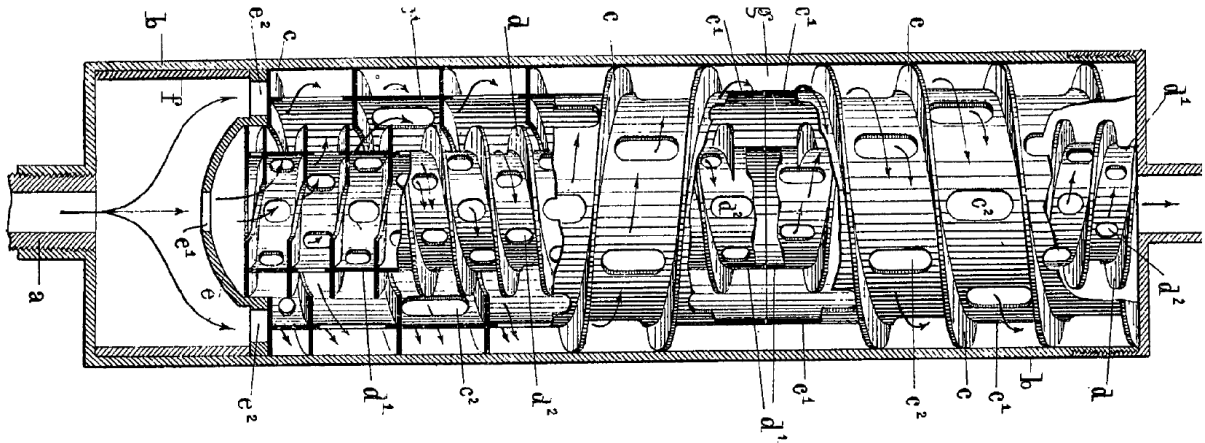


Figure 2 shows a longitudinal cross-section of the muffler. *Id.* at 1:39–41. The muffler includes concentric cylindrical tubes 5, 6, 7. *Id.* at 1:19–30, 1:47–53. Annular flanges 12, 13, 14, 15 on heads 8, 9 hold the tubes concentrically in place. *Id.* at 1:53–60. Head 8 includes inlet-orifice 16 that connects with exhaust pipe 17 of an engine. *Id.* at 1:61–64. Exhaust gases enter the muffler through the exhaust pipe and pass into innermost tube 5 where they encounter truncated cones 21, which decrease the gas velocity. *Id.* at 1:82–87. The gases then travel the length of tube 5 and pass through orifices 18 into tube 6. *Id.* at 1:89–91. The gases then travel through tube 6 in the reverse direction as through tube 5 and pass through orifices 19 into tube 7. *Id.* at 1:92–95. The gases then travel in the first direction through tube 7 and exit the muffler through orifices in head 9. *Id.* at 1:95–99. The velocity of the gases is constantly reduced by the increased travel distance, the obstacles in the path, the changes of direction, and the increased volume of the respective tubes, such that there is no perceptible sound upon exiting the muffler. *Id.* at 1:99–2:5.

3. Barlowatz

Barlowatz discloses a silencer device. Ex. 1018, 1. The sole drawing figure is reproduced below, rotated clockwise 90°.



The figure shows, in partial cross-section, an axial view of the silencer device. *Id.* The device includes cylindrical sleeve b fastened to the end of gun barrel a. *Id.* External coil c and internal coil d are nested within the sleeve, the coils having turns that are oriented in different directions. *Id.* Each of the coils is divided into groups, with the turns of the coils being opposite for each group. *Id.* at 1, 2, Fig. The external and internal coils are supported by metal sheets c1 and d1, respectively, which are positioned halfway along the width of the coils to define two ducts for each coil, one on either side of the metal sheets. *Id.* at 2. These bracing sheets have perforations, allowing the gases passing along the coils to interact. *Id.* The coils are supported by cap e, which is held at a distance from the gun barrel by spacer sleeve f. *Id.* at 1. Some of the blast gases generated by firing the gun follow the projectile and enter the inner coil, but most of the gases are diverted by the dome shape of the cap toward the external coil. *Id.* As indicated by the arrows in the figure, the gases flow through the two coils in

opposite directions and, therefore, “counteract each other, so that their progress is delayed and they leave the sleeve at the end of the two coils at a much reduced velocity, with a notable reduction in noise.” *Id.* at 2. The change of rotational direction imparted by the reversed coil orientation among the groups of each coil also reduces the velocity of the gases. *Id.*

4. Reeves

Reeves discloses mufflers for engines. Ex. 1019, 1:6–9. Figures 1 and 2 illustrate the muffler and are reproduced below.

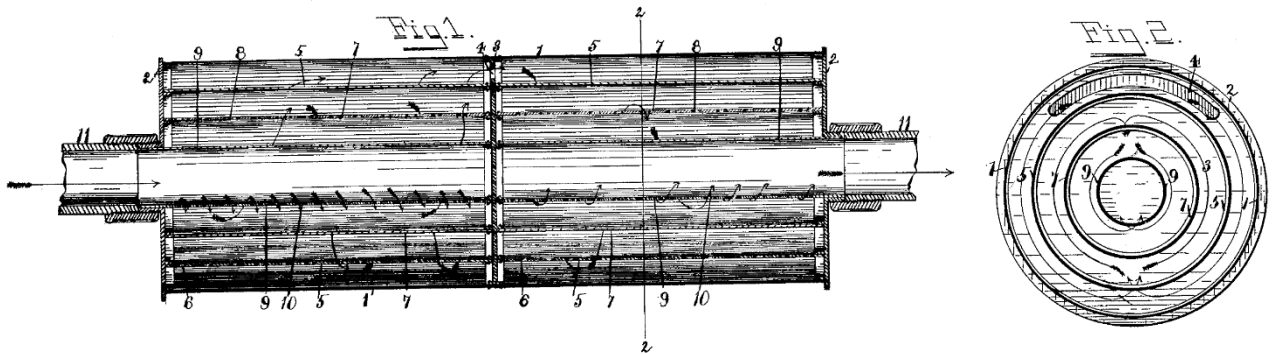


Figure 1 shows a central vertical section of the muffler, and Figure 2 shows a cross-section taken along line 2–2 of Figure 1. *Id.* at 1:32–34. The muffler includes an outer shell 1 inside of which additional concentric shells 5, 7, 9 are positioned. *Id.* at 1:35–53. Partition 3 divides the muffler into two compartments. *Id.* at 1:37–39. The muffler is attached to pipe 11 at either end. *Id.* at 1:54–55.

A gas or liquid entering the small chamber at one end must, before being expelled at the other end, pass through 180° in each annular chamber between the shells. For illustration, suppose the pipe 11, at the left, is connected with the exhaust of an engine. The exhaust product first passes into the small chamber, then through perforations 10 into the annular chamber between shells 9 and 7, around within this chamber, through

perforations 8, into the chamber between shells 7 and 5, thence to perforations 6, into the chamber between shells 5 and 1, thence through opening 4 in partition 3 into the chamber at the right-hand side. In this latter chamber the gas passes from the larger to the smaller chamber through a path similar to that described, only reversed, and is finally exhausted from the smaller chamber into the latter series. The gas is thus gradually expanded and exposed to a large cooling-surface, whereby it is reduced in pressure and temperature to a point nearly normal, thereby preventing the report incident to the engine-exhaust.

Id. at 1:55–79.

5. Eichenseher

Eichenseher discloses silencers for firearms. Ex. 1021, 1. Figure 1 illustrates a silencer for rifles and is reproduced below, rotated clockwise 90°.

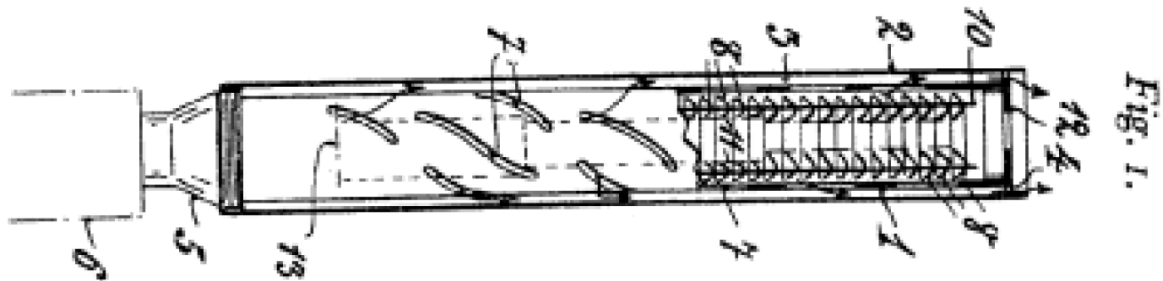


Figure 1 shows a silencer for rifles. *Id.* at 1. The silencer includes two cylinders 1, 2 placed one inside the other. *Id.* A number of sound absorbers 8 are provided within inner cylinder 1. *Id.* Gases resulting from the firing of the rifle pass into the inner cylinder and engage the sound absorbers. *Id.* at 2. Notches 9 are formed in the sound absorbers to allow the gases to escape. *Id.* at 1–2. Slots 7 are formed in the inner cylinder to allow the gases to pass into cavity 3 between the cylinders. *Id.* at 1.

“[S]ound is effectively intercepted by sound absorbers 8, while the powder gases can escape through [notches] 9, [slots] 7, [cavity] 3 and [slots] 4, whereby the resistance is reduced to a minimum.” *Id.* at 2.

E. Asserted Anticipation by Thurler

Petitioner argues that claims 1, 4, 5, 7–9, 15–17, 19, and 22 are anticipated by Thurler. Pet. 31–46. In support of its showing, Petitioner relies upon the Nixon Declaration. *Id.* (citing Ex. 1013). We have reviewed Petitioner’s assertions and supporting evidence. For the reasons discussed below, and based on the record before us, we determine that Petitioner demonstrates a reasonable likelihood of prevailing in showing that at least one challenged claim is anticipated by Thurler.

1. Independent Claim 1

a. The Preamble

Claim 1 recites “[a]n energy capture and control device.” Ex. 1001, 10:45. Petitioner maps Thurler’s device for lessening the report of firearms to the recited device. Pet. 32 (citing Ex. 1015, 1:9–10,⁶ Fig. 1).

Thurler discloses devices for lessening the report of firearms by guiding the combustion gases through a series of chambers. Ex. 1015, 1:9–19, Fig. 1.

⁶ We note that Petitioner’s citations to Thurler appear to be off by a page. For example, Petitioner cites to “EX1015, 2:9, 10” on page 32 of the Petition, but the quoted language appears on page 1 of Thurler. We correct Petitioner’s references in our citations to the Petition.

Accordingly, for the foregoing reasons and on this preliminary record, to the extent the preamble is limiting, Thurler supports Petitioner's contentions.

b. The Central Chamber Recitation

Claim 1 recites "a) a central chamber oriented along a central axis within an outer shell, said central chamber having an inlet configured to receive a high energy material from a high energy outlet." Ex. 1001, 10:46–49. Petitioner maps Thurler's tube e to the recited central chamber and tube h to the recited outer shell. Pet. 32 (citing Ex. 1015, Figs. 1–2).

Thurler discloses that its device includes an innermost tube e, which is eccentrically surrounded by tube g, which is surrounded by tube h. Ex. 1015, 1:53–55, 1:69–77. In use, tube e abuts barrel b and forms a canal through which projectile P is fired. *Id.* at 1:47–68, Fig. 1.

Accordingly, for the foregoing reasons and on this preliminary record, Thurler supports Petitioner's contentions.

c. The Off Axis Chamber Recitation

Claim 1 recites,

b) a common off axis chamber oriented within the outer shell in fluid communication with the central chamber and having a fluid outlet and multiple internal walls defining a serpentine fluid pathway which is at least one of axially serpentine and radially serpentine and which dissipates energy transferred from the high energy material

Ex. 1001, 10:50–56. Petitioner maps Thurler's tube g and tube h to the recited off axis chamber. Pet. 34 (citing Ex. 1015, Fig. 1). We divide our discussion of Petitioner's arguments into three subsections below.

i. Off Axis Chamber

Petitioner argues that “Thurler discloses embodiments that include a common off-axis chamber having three or more tubes that are alternately perforated,” and presents a rendering of this embodiment. Pet. 34 (citing Ex. 1015, 1:27–30; Ex. 1013 ¶ 174).

Thurler discloses that its device includes an innermost tube *e*, which is eccentrically surrounded by tube *g*, which is surrounded by tube *h*. Ex. 1015, 1:53–55, 1:69–77. Thurler further discloses that “[t]he inner casing is further [e]nclosed in one or more mantles.” *Id.* at 1:27–30. Based on Figure 1, which is reproduced in § II.D.1 above, we understand Thurler’s use of “inner casing” to refer to tube *e* and “mantle” to refer to tube *g*. Thus, we agree with Petitioner’s contentions that Thurler’s tube *g* and tube *h* correspond to the recited off axis chamber and that Thurler discloses including one more additional tubes in its device.

ii. Axially Serpentine

Petitioner argues that Thurler discloses an axially serpentine fluid pathway. Pet. 35. According to Petitioner,

the walls of tubes *e* and *g* will cause gas that escapes from tube *e* to travel in a first (e.g., forward) direction on its path to the perforations at the end of tube *g* before entering tube *h*, where the walls of tubes *g* and *h* will cause the gas to travel *back* in a second (e.g., backward) direction on its path to the perforations at the beginning of tube *h*.

Id. (citing Ex. 1013 ¶ 175). Continuing, Petitioner argues that the gases will then “enter[] the added tube, where the walls of tube *h* and the added tube will cause the gas to travel *forth* in the first direction on its path to the perforations at the end of the added tube.” *Id.* (citing Ex. 1013 ¶ 175).

Thurler discloses that gases generated by firing projectile P are directed by sleeves d into the space between tubes e and g. Ex. 1013, 1:84–91. The gases then travel along this space and pass through the annular openings of tube g into the space between tubes g and h. *Id.* at 1:91–99. The gases pass through this space and escape through the openings in tube h. *Id.* Thus, based on our interpretation of “back and forth” as requiring only a single change in direction as discussed in § II.C.1 above, we agree with Petitioner’s contentions that the walls of Thurler’s tube e, tube g, and tube h define a serpentine fluid pathway that is axially serpentine, with or without additional mantles as disclosed by Thurler. *See* Ex. 1001, 4:31–34 (“The fluid pathway can be an axially serpentine fluid pathway which causes fluids received in the off axis chamber to travel back and forth along a length of the off axis chamber.”).

iii. Radially Serpentine

Petitioner argues that Thurler discloses a radially serpentine fluid pathway. Pet. 35–36. According to Petitioner,

the walls of tubes *e* and *g* will cause gas that escapes from the top of tube *e* to travel in a first (*e.g.*, clockwise) direction before traveling radially outward into the larger tube *h*, where the walls of tubes *g* and *h* will cause the gas to travel back in an opposing (*e.g.*, counterclockwise) direction before traveling radially outward into the larger added tube, where the gas will travel *forth* in the first direction.

Pet. 36 (citing Ex. 1013 ¶ 176).

We are not persuaded by Petitioner’s assertion that Thurler’s device includes internal walls defining a radially serpentine fluid pathway. First, Petitioner does not explain adequately how the walls of Thurler’s tubes *g* and *h* will cause gases passing from tube *g* into tube *h* to reverse its

rotational direction, instead making conclusory assertions without citation to any disclosure of Thurler or any other technical reference. Nor does our review of Thurler reveal such support. Mr. Nixon's testimony on this point is identical to the Petition, also providing no explanation for the asserted change in rotation. *See* Ex. 1013 ¶ 176. Moreover, neither Petitioner nor Mr. Nixon explains adequately how Thurler's device causes the gases to flow back and forth around a *radius* of tube g or tube h as required by both Petitioner's and our interpretations of "axially serpentine." *See* § II.C.1 above.

Petitioner's failure to show a radially serpentine fluid pathway in Thurler's device is not fatal to its challenge, however, because, as explained in § II.C.2 above, claim 1 requires the internal walls to define a fluid pathway that is either radially serpentine or axially serpentine, and we are satisfied by Petitioner's showing that Thurler's device imparts an axially serpentine flow to the gases passing therethrough.

iv. Conclusion

Accordingly, for the foregoing reasons and on this preliminary record, we are satisfied that Petitioner has shown sufficiently how Thurler's device satisfies the requirements of the Off Axis Chamber Recitation.

d. The Deflectors Recitation

Claim 1 recites "(c) a plurality of deflectors oriented in series along the central axis of the central chamber and configured to deflect the energy from the high energy material to the common off axis chamber." Ex. 1001, 10:57–60. Petitioner maps Thurler's tubular sleeves d to the recited deflectors. Pet. 37 (citing Ex. 1015, Fig. 1).

Thurler discloses that its device includes a series of tubular sleeves d placed coaxially within tube e. Ex. 1015, 1:53–55. Gases generated by firing projectile P are directed by sleeves d into the space between tubes e and g. *Id.* at 1:84–91.

Accordingly, for the foregoing reasons and on this preliminary record, Thurler supports Petitioner’s contentions.

e. Conclusion

Accordingly, at this stage of the proceeding, we determine that Petitioner has established a reasonable likelihood of prevailing on its assertion that claim 1 is anticipated by Thurler.

2. *Independent Claim 19*

Claim 19 recites an energy capture and control device containing substantially similar recitations as claim 1, and further reciting that the common off axis chamber is in fluid communication with the central chamber via a plurality of orifices, but does not recite multiple internal walls. Ex. 1001, 12:8–23. Claim 19 further specifies that the position of multiple individual deflectors corresponds with individual orifices. *Id.* Petitioner relies on its previous mappings and arguments regarding Thurler for the subject matter common to claim 1. Pet. 42–44. We address Petitioner’s contentions regarding the recitations unique to claim 19 below.

a. The Orifices Recitation

Claim 19 recites that the common off axis chamber is in fluid communication with the central chamber “via a plurality of orifices.”

Ex. 1001, 12:13–15. Petitioner maps the annular openings in Thurler’s tube e to the recited orifices. Pet. 43 (citing Ex. 1015, Fig. 1).

Thurler discloses that its tube e includes annular openings for two-thirds of its length to allow gases to pass from the central channel into the space between tubes e and g. Ex. 1015, 1:55–58, 83–91.

Accordingly, for the foregoing reasons and on this preliminary record, Thurler supports Petitioner’s contentions.

b. The Deflectors Recitation

Claim 19 recites that the “position of multiple individual deflectors of the plurality of deflectors corresponds with the individual orifices of the plurality of orifices to the common off axis chamber.” Ex. 1001, 12:20–23. Petitioner argues that Thurler’s sleeves d correspond to the annular openings in tube e. Pet. 43–44 (citing Ex. 1015, 1:84–90, Fig. 1).

Thurler discloses that its sleeves d direct gases generated by firing projectile P through the annular openings in tube e into the space between tubes e and g. *Id.* at 1:83–91

Accordingly, for the foregoing reasons and on this preliminary record, Thurler supports Petitioner’s contentions.

c. Conclusion

Accordingly, at this stage of the proceeding, we determine that Petitioner has established a reasonable likelihood of prevailing on its assertion that claim 19 is anticipated by Thurler.

3. Independent Claim 22

Claim 22 recites a method for energy capture and control of discharged high energy material using a device substantially as recited in claim 19, but specifying that the fluid pathway is axially serpentine. Ex. 1001, 12:38–54. Petitioner generally repeats its arguments made for independent claims 1 and 19, additionally noting that the gases flowing through Thurler’s device are generated by discharging projectile P from rifle barrel b. Pet. 44–46 (citing, in relevant part, Ex. 1015, 1:83–102).

For the reasons set forth in §§ II.E.1 and II.E.2 above, at this stage of the proceeding, we determine that Petitioner has established a reasonable likelihood of prevailing on its assertion that claim 22 is anticipated by Thurler.

F. Asserted Obviousness Based on Thurler

Petitioner argues that claims 1, 4–11, 15–17, 19, 21, and 22 would have been obvious in view of Thurler. Pet. 46–53. In support of its showing, Petitioner relies upon the Nixon Declaration. *Id.* (citing Ex. 1013). We have reviewed Petitioner’s assertions and supporting evidence. For the reasons discussed below, and based on the record before us, we question whether Petitioner demonstrates a reasonable likelihood of prevailing in showing that at least one challenged claim would have been obvious in view of Thurler.

Regarding the independent claims, Petitioner argues that, “[s]hould [Patent Owner] argue that Thurler fails to disclose ‘a central chamber’ due to the eccentric configuration of the tubes in the ESD disclosed in Thurler, Thurler teaches or suggests an ESD configuration that includes ‘a central

chamber’ that is surrounded by concentric tubes.” Pet. 47. Petitioner notes that Thurler discloses the reason that its tubes are arranged eccentrically is to allow use of sight c and argues that this disclosure indicates that “Thurler at least teaches or suggests concentric configurations for the outer tubes, which could be used with suppressor-height sights on a firearm.” Pet. 47 (citing Ex. 1015, 1:70–81; Ex. 1013 ¶ 209). Petitioner argues that it would have been obvious to an ordinarily skilled artisan to modify Thurler’s device to have a concentric tube configuration for two reasons. *Id.* at 47–48. We question whether Petitioner presents adequate rationale for modifying Thurler’s device for the reasons set forth below.

First, Petitioner argues that the proposed modification “would have been a simple matter of design choice resulting from a finite number of possibilities: eccentric or concentric.” Pet. 47 (emphasis omitted) (citing Ex. 1013 ¶ 210). Mr. Nixon makes substantially identical assertions. Ex. 1013 ¶ 210. On this preliminary record, we question whether Petitioner explains sufficiently that the eccentricity of Thurler’s tubes is not a critical aspect of Thurler’s device or fails to solve a stated problem, such that it may be a matter of design choice. *Cf. In re Kuhle*, 526 F.2d 553, 555 (CCPA 1975) (“Use of such a means of electrical connection in lieu of those used in the references solves no stated problem and would be an obvious matter of design choice within the skill of the art.”). As correctly noted by Petitioner, Thurler states that tubes g and h are placed eccentrically to tube e for a specific purpose – to allow use of sight c. *See* Ex. 1015, 1:69–82 (“The tube e is surrounded by a second tube g of a greater diameter than e, the position of which is eccentric with regard to the common axis of the tubular sleeves d. . . . The position of the tube h is also eccentric with regard to the

axis of the sleeves d so that the sight c projects over the device for a few millimeters.”). Thus, we are not persuaded, on this preliminary record, that Petitioner’s proposed modification is “a simple matter of design choice” as asserted by Petitioner.

Second, Petitioner argues that that the proposed modification would have been obvious “to increase the fluid path area in a balanced way, to simplify the machining process, to modernize Thurler’s ESD design, or any combination thereof.” Pet. 47–48 (citing Ex. 1013 ¶ 210). However, neither Petitioner nor Mr. Nixon provide adequate explanation for why a balanced fluid path would be better, how the machining process would be simplified, or the benefits of “modernizing” Thurler’s device. *See* Pet. 47–48, Ex. 1013 ¶ 210. Mr. Nixon asserts that the AR15 and M16 rifles have elevated sights, but he does not provide any support for this assertion, nor any reason why an ordinarily skilled artisan would use those sights on Thurler’s rifle. *See* Ex. 1013 ¶ 210.

Finally, neither Petitioner nor Mr. Nixon provide adequate explanation for the assertion that Thurler’s disclosure of positioning tubes g and h eccentrically to tube e suggests the opposite – concentric positioning of Thurler’s tubes. *See* Pet. 47; Ex. 1013 ¶ 210. Such conclusory assertions fail to apprise us of why an ordinarily skilled artisan would have been motivated to modify Thurler’s device in contradiction to Thurler’s explicit disclosure.

For at least these reasons, we question whether Petitioner demonstrates a reasonable likelihood of prevailing in showing that claims 1, 4–11, 15–17, 19, 21, and 22 would have been obvious in view of Thurler.

G. Asserted Obviousness Based on Thurler and Barlowatz

Petitioner argues that claims 1, 4–17, and 19–22 would have been obvious in view of Thurler and Barlowatz. Pet. 56–63. In support of its showing, Petitioner relies upon the Nixon Declaration. *Id.* (citing Ex. 1013). We have reviewed Petitioner’s assertions and supporting evidence. For the reasons discussed below, and based on the record before us, we question whether Petitioner demonstrates a reasonable likelihood of prevailing in showing that at least one challenged claim would have been obvious in view of Thurler and Barlowatz.

Regarding independent claims 1 and 19, Petitioner argues that, “[s]hould [Patent Owner] argue that Thurler fails to disclose or render obvious ‘a serpentine fluid pathway which is at least one of axially serpentine and radially serpentine,’” Barlowatz teaches “a fluid pathway that is both axially and radially serpentine.” Pet. 57–60. Petitioner relies on Barlowatz to teach a radially serpentine fluid pathway and proposes to modify Thurler’s device to include Barlowatz’s external coil c and internal coil d, which Petitioner asserts form a flow path that is both axially and radially serpentine, to improve noise suppression. *Id.* (citing Ex. 1015, Fig. 1; Ex. 1018, 1–2, Fig.; Ex. 1013 ¶ 238).

We disagree with Petitioner’s assertion that Barlowatz teaches a radially serpentine fluid pathway. Barlowatz discloses a silencer device having “two coils, nested one inside the other.” Ex. 1018, 1, Fig. Blast gases enter both the inner coil and the outer coil: “some of the blast gases follow the projectile and enter th[e] inner coil, while most of the gases are diverted by the cap towards the periphery of the sleeve b and enter the outer coil c.” *Id.* at 1. Each of the coils is divided into two groups having

opposite orientations such that the gas flowing along each coil is forced to change rotational direction. *Id.* at 2, Fig. Additionally, the gases flow about the two coils in opposite directions and counteract each other such that the blast gases gradually lose velocity until they leave the device at the end of the coils. *Id.* at 1, 2. Barlowatz thus discloses that its coils impart a helical or circumferential rotation to the gases, but Petitioner has not explained adequately, and we fail to discern, how Barlowatz's coils impart a *radially* serpentine pathway. We additionally note that Petitioner's assertion here that a *helical* pathway is a *radial serpentine* pathway is inconsistent with its proposed interpretation of "radially serpentine." Petitioner's assertion is also inconsistent with the descriptions provided in the '750 patent and discussed above. *See* Ex. 1001, 4:41–44.

For completeness, we also are unpersuaded by Petitioner's interpretation that Barlowatz's coils would direct any blast gases toward the shooter. *See* Pet. 58 ("the fluid would flow away from a shooter in the first helical duct, towards the shooter in the second helical duct, and away from the shooter in the third helical duct"); Ex. 1013 ¶ 238. Barlowatz's inner coil and outer coil are each braced by a cylindrical metal strip d^1 , c^1 , respectively, positioned mid-width of the coils. Ex. 1018 1, 2, Fig. Each coil thus has two ducts, one on each side of the bracing strip. *Id.* at 2. The blast gases enter both ducts of the inner coil and both ducts of the outer coil, flow along the length of the device as indicated by the arrows in Barlowatz's Figure, and exit the device at the end of the two coils. *Id.* at 1, 2, Fig. Neither Petitioner nor Mr. Nixon provides adequate support for the assertion that Barlowatz's coils direct blast gases toward the shooter. *See* Pet. 58;

Ex. 1013 ¶ 238. Thus, on this record, we disagree with Petitioner's assertion that Barlowatz discloses or teaches an axially serpentine fluid pathway.

For at least these reasons, we question whether Petitioner demonstrates a reasonable likelihood of prevailing in showing that claims 1, 4–17, and 19–22 would have been obvious in view of Thurler and Barlowatz.

H. Asserted Anticipation by Barlowatz

Petitioner argues that claims 1, 9, 19, and 20 are anticipated by Barlowatz. Pet. 63–70. In support of its showing, Petitioner relies upon the Nixon Declaration. *Id.* (citing Ex. 1013). We have reviewed Petitioner's assertions and supporting evidence. For the reasons discussed below, and based on the record before us, we question whether Petitioner demonstrates a reasonable likelihood of prevailing in showing that at least one challenged is anticipated by Barlowatz.

Regarding independent claims 1 and 19, Petitioner argues that Barlowatz discloses a fluid pathway that is both axially serpentine and radially serpentine. Pet. 65–66, 68. We disagree with Petitioner's assertions and fail to discern how Barlowatz discloses either an axially serpentine or a radially serpentine fluid pathway for the reasons set forth in § II.G above regarding Petitioner's obviousness challenge based on the combination of Thurler and Barlowatz.

For at least these reasons, we question whether Petitioner demonstrates a reasonable likelihood of prevailing in showing that claims 1, 9, 19, and 20 are anticipated by Barlowatz.

I. Asserted Obvious Based on Barlowatz

Petitioner argues that claims 1, 9, 19, and 20 would have been obvious in view of Barlowatz. Pet. 70. We have reviewed Petitioner’s assertions and supporting evidence. For the reasons discussed below, and based on the record before us, we question whether Petitioner demonstrates a reasonable likelihood of prevailing in showing that at least one challenged claim would have been obvious in view of Barlowatz.

Regarding the independent claims, Petitioner argues that it would have been obvious “to modify Barlowatz’s ESD to include fewer or additional coils, perforations, or deflectors (e.g., by increasing or decreasing the winding of the coils), and the like.” Pet. 70.

We are not persuaded by Petitioner’s assertions. Petitioner presents no rationale for the proposed modification. *See In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring “some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”) (cited with approval in *KSR*, 550 U.S. at 418). Although Petitioner references its arguments made for its obviousness challenge based on Thurler alone (Pet. 70 (citing “III.C.2”)), Petitioner fails to explain how those arguments, which propose to modify Thurler’s device (*see id.* at 46–48), are applicable to Barlowatz’s device. Petitioner also references section “X.A.6.a” of the Nixon Declaration (*id.* at 70); however, the Nixon Declaration contains no such section. To the extent Petitioner intended to reference the portion of the Nixon Declaration purporting to support its obviousness challenge based on Barlowatz, we find Mr. Nixon’s testimony unsupported by the record and, therefore, unpersuasive, as Mr. Nixon merely makes a conclusory assertion and fails to present any supporting evidence. *See Ex. 1013 ¶ 271*

(“To the extent it is found that Barlowatz fails to disclose any limitations of Claims 1, 9, 19, and 20, it is my opinion that Barlowatz renders obvious any such limitations.”).

For at least these reasons, we question whether Petitioner demonstrates a reasonable likelihood of prevailing in showing that claims 1, 9, 19, and 20 would have been obvious in view of Barlowatz.

J. Asserted Obviousness Based on Eichenseher and Barlowatz

Petitioner argues that claims 1, 3–5, 8, 9, 18, and 19 would have been obvious in view of Eichenseher and Barlowatz. Pet. 72–82. In support of its showing, Petitioner relies upon the Nixon Declaration. *Id.* (citing Ex. 1013). We have reviewed Petitioner’s assertions and supporting evidence. For the reasons discussed below, and based on the record before us, we question whether Petitioner demonstrates a reasonable likelihood of prevailing in showing that at least one challenged claim would have been obvious in view of Eichenseher and Barlowatz.

Regarding the independent claims, Petitioner proposes to add Barlowatz’s external coil c to Eichenseher’s cavity 3, asserting that this modification would impart both an axially serpentine and a radially serpentine fluid pathway. Pet. 74–75, 81. However, as explained in § II.G above regarding Petitioner’s obviousness challenge based on the combination of Thurler and Barlowatz, Barlowatz’s coils do not impart axially serpentine or radially serpentine fluid pathways. For the same reasons as set forth above, and on this preliminary record, Petitioner fails to explain persuasively how the Eichenseher-Barlowatz device satisfies the serpentine pathway recitation of independent claims 1 and 19.

For at least these reasons, we question whether Petitioner demonstrates a reasonable likelihood of prevailing in showing that claims 1, 3–5, 8, 9, 18, and 19 would have been obvious in view of Eichenseher and Barlowatz.

III. CONCLUSION

For the foregoing reasons, we determine that the information presented establishes a reasonable likelihood that Petitioner would prevail in showing that at least one of the challenged claims is unpatentable. At this preliminary stage, we have not made a final determination with respect to the patentability of the challenged claims or any underlying factual and legal issues. *See TriVascular, Inc. v. Samuels*, 812 F.3d 1056, 1068 (Fed. Cir. 2016) (noting that “there is a significant difference between a petitioner’s burden to establish a ‘reasonable likelihood of success’ at institution, and actually proving invalidity by a preponderance of the evidence at trial”).

Accordingly, *inter partes* review is instituted as to all challenged claims and all proposed grounds of unpatentability. *See* 37 C.F.R. § 42.108(a).

IV. ORDER

Accordingly, it is:

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–22 of the ’750 patent is instituted with respect to all grounds set forth in the Petition; and

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FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial, which commences on the entry date of this decision.

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