

IPR2024-01214

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*SilencerCo Weapons Research, LLC v. HuxWrx Safety  
Co. LLC*

U.S. Patent No. 8,286,750

Petitioner's Oral Argument

# ROADMAP OF TODAY'S ARGUMENT

2

## Three Key Demonstrations:

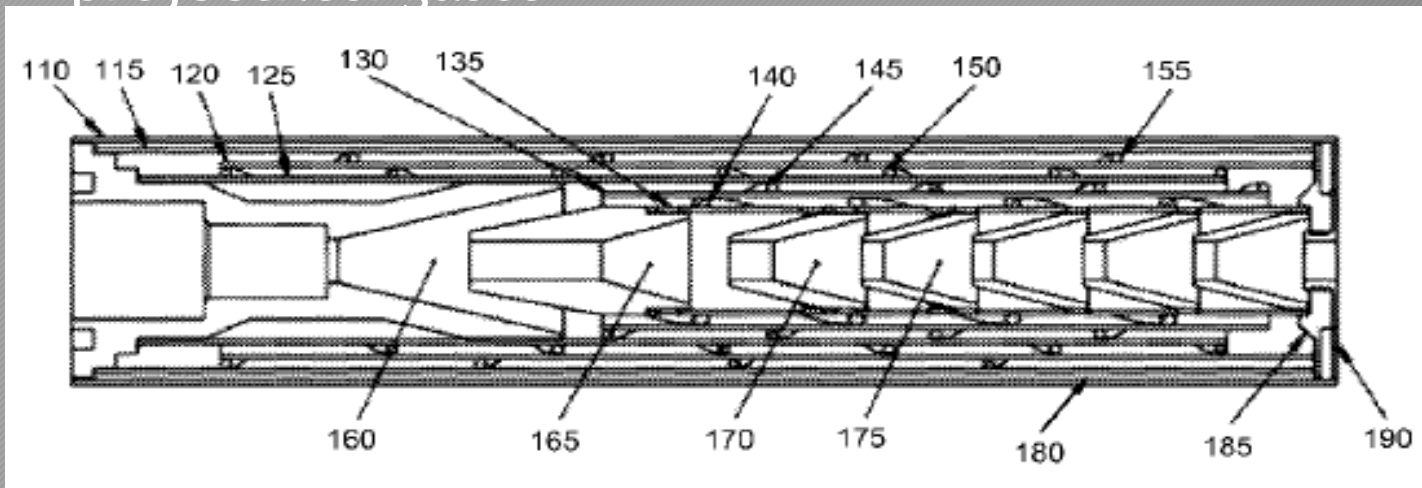
1. Patent Owner's Proposed Constructions contradict the intrinsic record and lack support
2. Prior Art anticipates and renders obvious all claims
3. Motion to Amend Fails on threshold requirements and obviousness

# THE '750 PATENT: CLAIMED TECHNOLOGY

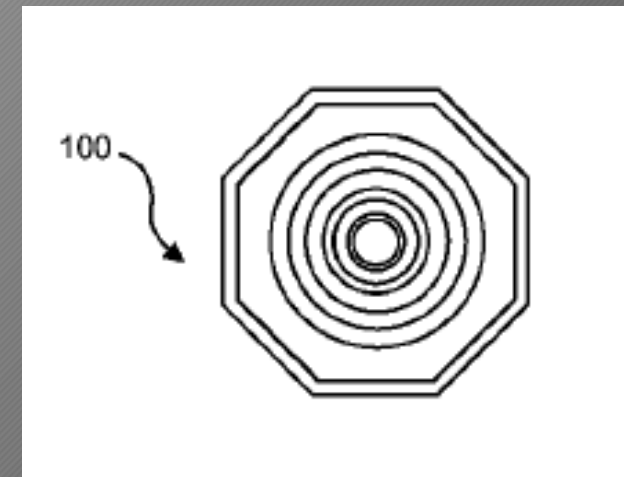
3

## Energy Suppression Device Structure

- Central chamber in fluid communication with common off-axis chamber
- Serpentine fluid pathways for dissipating energy from projectiles/gases



DEMONSTRATIVE EXHIBIT - NOT EVIDENCE



EX1001, Figs. 1a, 1b

# THE '750 PATENT: CLAIMED TECHNOLOGY

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## Patent's Definitional Structure

1. **Axially Serpentine:** “travel back and forth along a length of the off axis chamber”
2. **Radially Serpentine:** “flow back and forth around a radius of the off axis chamber” or “flow back and forth around a radius of the off axis chamber while also traversing a length of the off axis chamber”
3. **Helical:** “spiral around the central chamber within the off axis chamber”

# The Claimed Flow Patterns Are Distinct

5

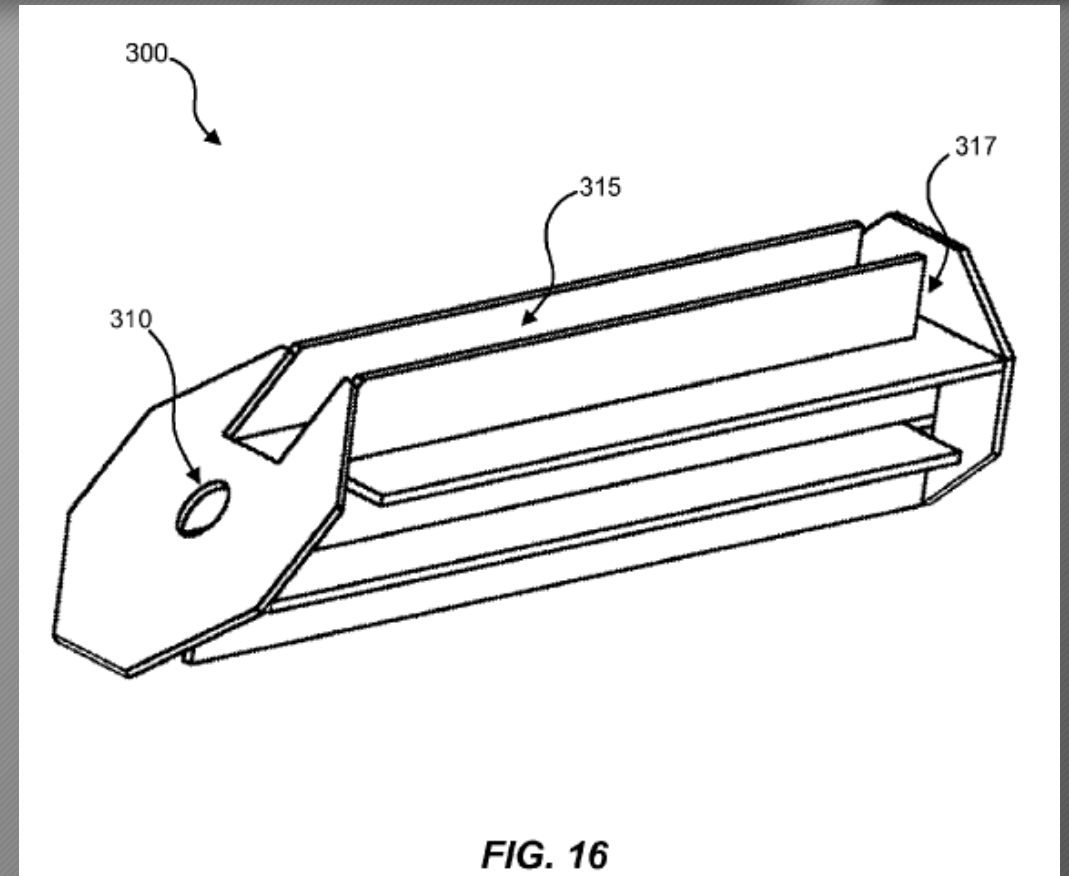
- The Patent's careful definitional structure prohibits conflating the definitions
- Can have multiple distinct flows in a single device
- Radially serpentine  $\neq$  axially serpentine  $\neq$  helical

# THE '750 PATENT: AXIALLY SERPENTINE

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## Energy Suppression Device Structure

- Figure 16: Axially serpentine flow

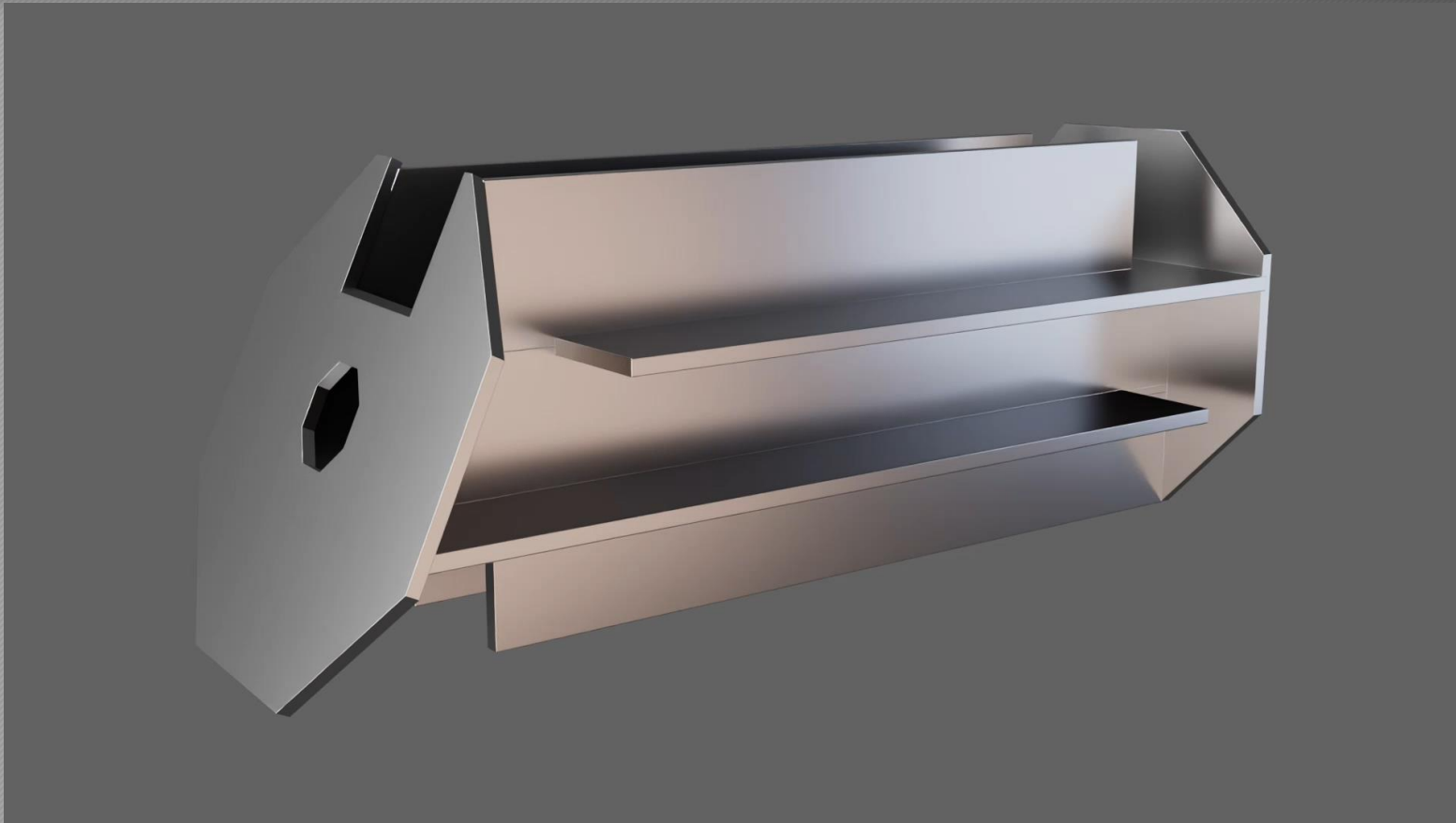


DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

EX1001, Fig. 16

# THE '750 PATENT: AXIALLY SERPENTINE

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DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

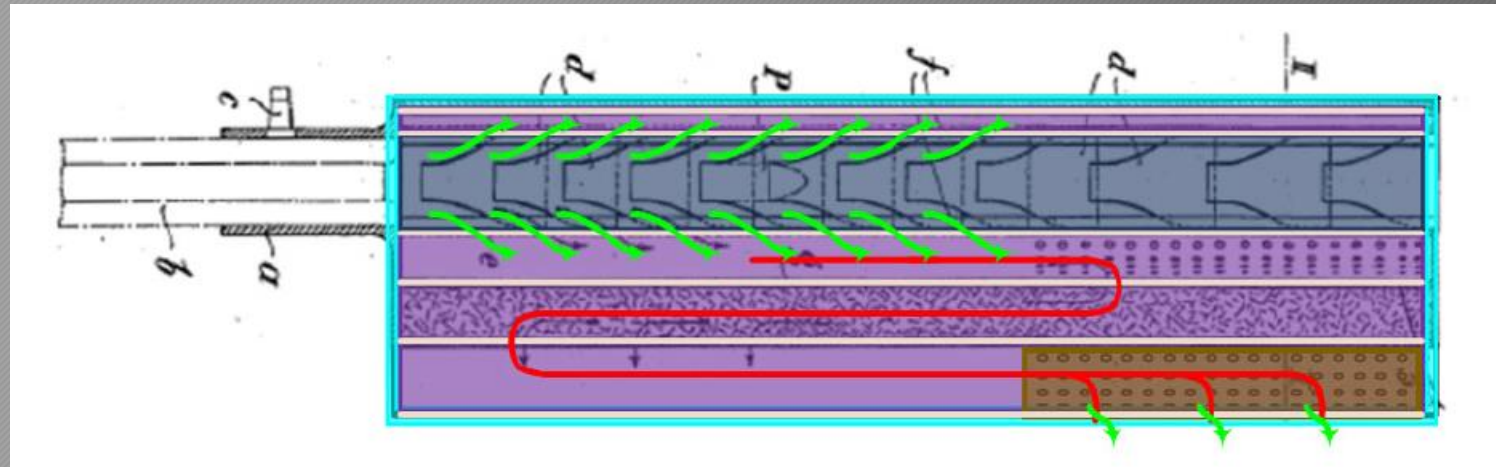
EX1001 at Fig. 16

# THE '750 PATENT: AXIALLY SERPENTINE

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## Patent's Careful Definitional Structure

1. Axially Serpentine: “travel back and forth along a length of the off axis chamber”



DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

EX1001, 4:31-34;  
Pet. at Fig. 4

## THE '750 PATENT: AXIALLY SERPENTINE

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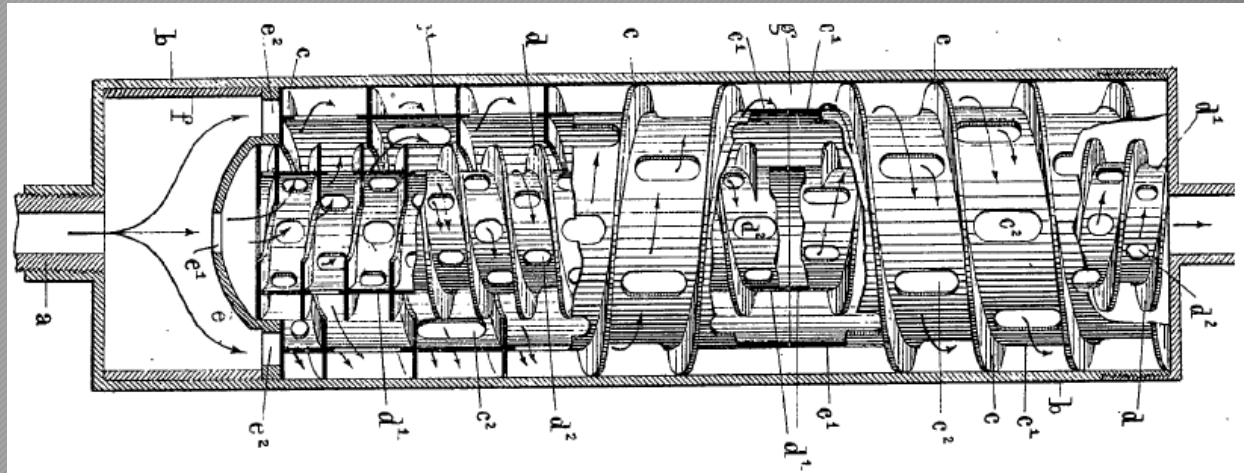
DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

Pet. at Fig. 4

# THE '750 PATENT: Helical

10

Helical: “spiral around the central chamber within the off axis chamber”

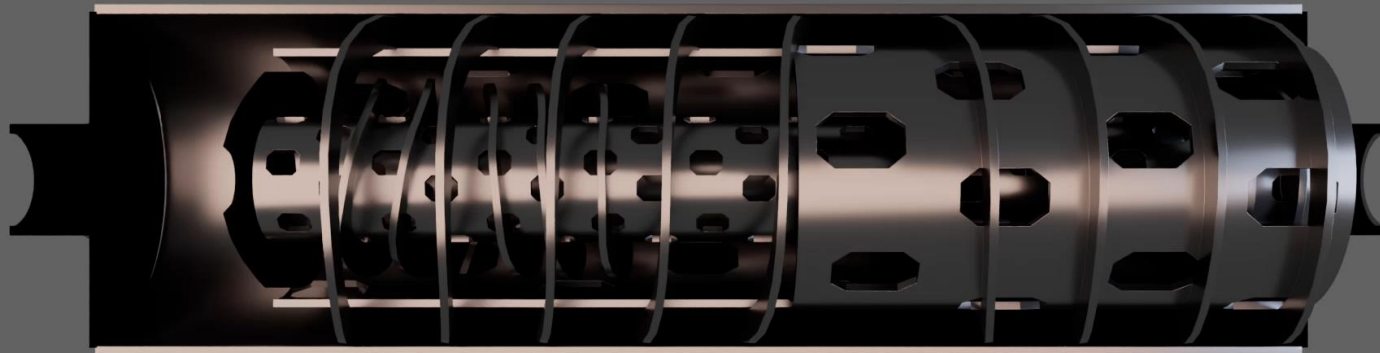


DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

EX1001 at 4:41-44;  
EX1018 at Fig. 1

# THE '750 PATENT: Helical

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DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

EX1018 at Fig. 1

# THE '750 PATENT: RADIALY SERPENTINE

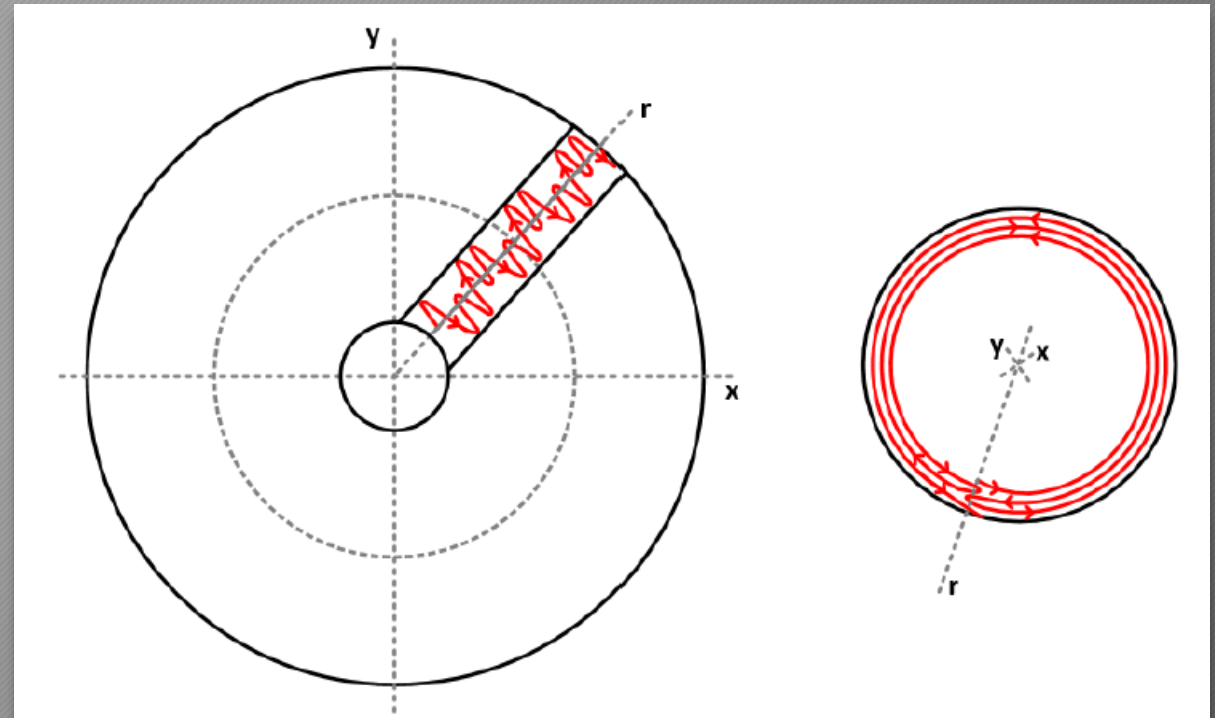
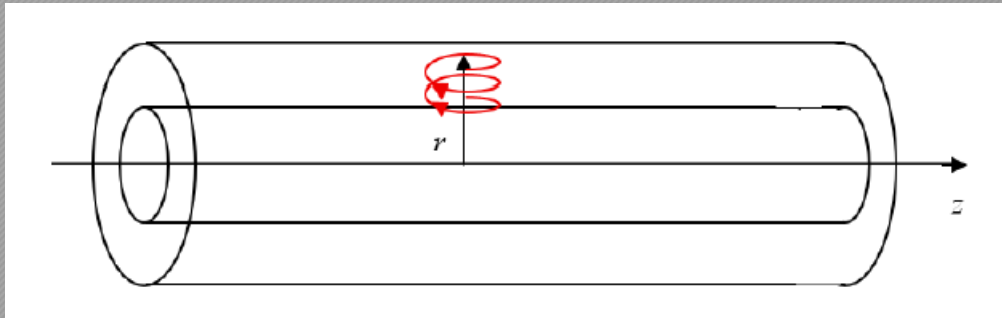
12

## The Board's Correct Construction

“A back and forth flow around a radius of the off axis chamber”

Follows precise language of specification

EX1001, 4:34-37

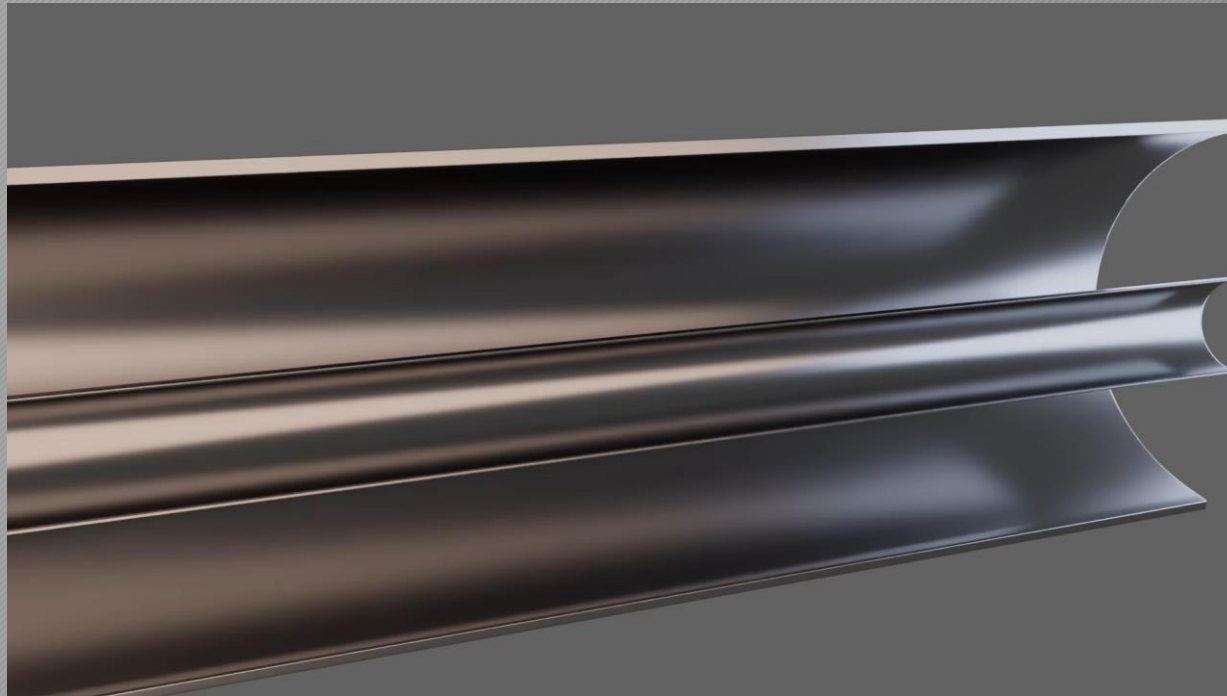


DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

EX1013 ¶127, Fig. 1; EX2003  
at ¶32

# THE '750 PATENT: RADIALY SERPENTINE

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DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

EX2003 ¶32

# PROSECUTION HISTORY: PATENT OWNER'S BINDING CONCESSIONS

14

## December 2011: Critical Amendments

- Added “at least one of axially serpentine and radially serpentine” language to overcome prior art rejection (Latka)
- Patentee’s Representation: “radially serpentine flow... fluid would flow back and forth from clockwise to counter-clockwise around the axis as described in page 7, lines 20-22 and shown in Figure 14.”
  - The axis on page 7 is the radius (EX1004, 252)
- Patentee’s representation during amendment confirms Patent’s and Board’s definition

EX1004 at 88, 93

# PATENT OWNER'S PROSECUTION DISCLAIMER

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## May 2012: Helical vs. Serpentine Distinction

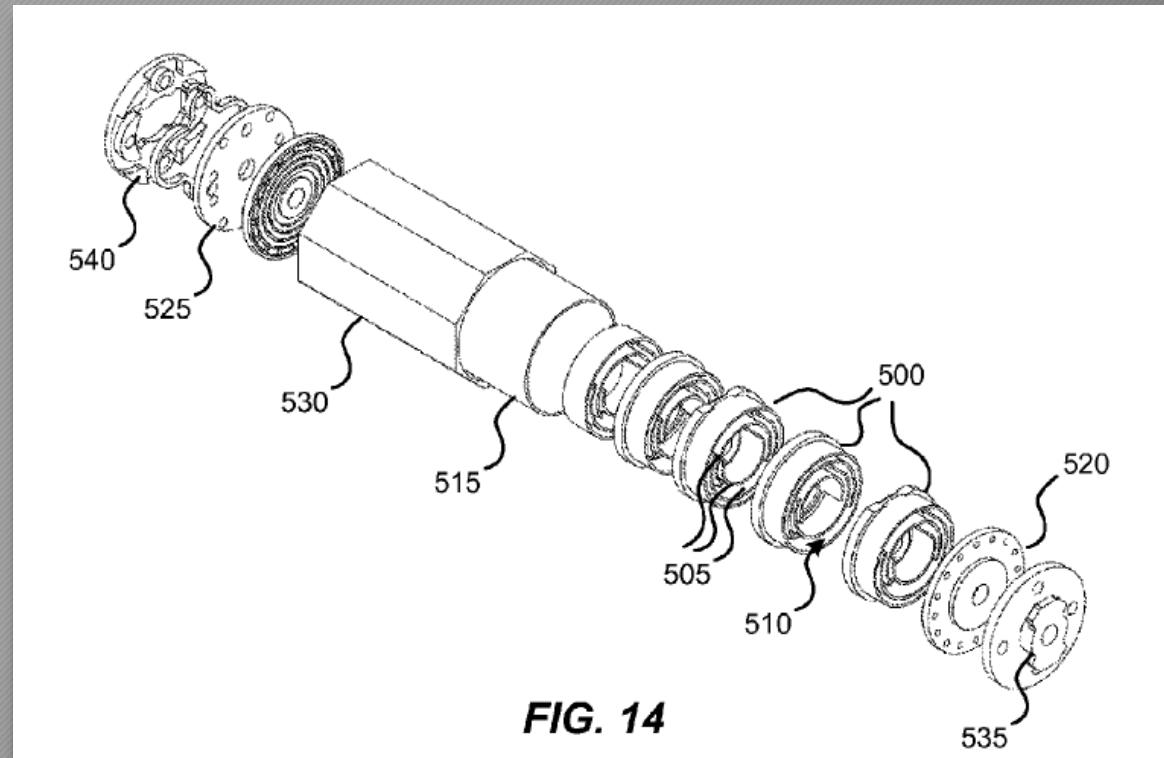
- Patent Owner's Statement: "axially helical is substantially different from axially serpentine" (responding to Latka reference)
- Legal Effect: Patentee is bound by this statement—helical flows and serpentine flows are **substantially different** categories
- P.O.'s Current Position: Patent Owner now seeks to conflate helical flows within "radially serpentine"

# Figure 14: Circumferential Flow

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## Fig. 14's Structure and Flow

- Internal walls to form the serpentine pathway can be concentric incomplete cylinders
- Gases traveling therethrough are forced to pass through the annular space between each cylinder
- Gases flow into a serpentine path created by the offset cylinders



DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

EX1001, Fig. 14; 9:1-20;  
Paper 7, 14; Paper 22, 5-6

## Figure 14: Circumferential Flow

### Fig. 14's Description

- Passage does not mention “radially serpentine”
- Patent does not mention a radius or flowing back and forth around a radius
- Gases flow in serpentine path, but not radially serpentine path
- Fig. 14 describes a circumferential flow

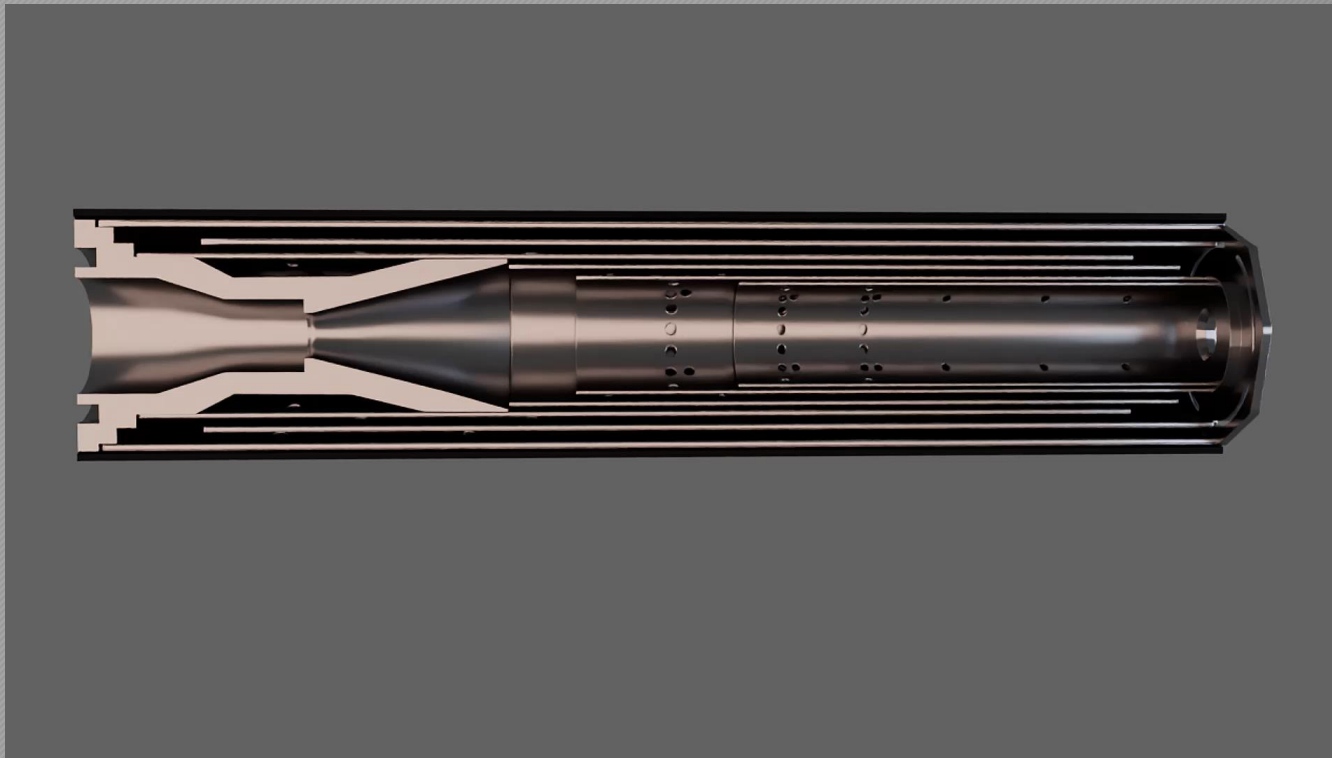
9

Another alternative configuration for the internal walls to form the serpentine pathway can be concentric incomplete cylinders (i.e. the cross-section is an incomplete circle). The openings or gaps can form slits along the length of the cylinder. These gaps can be offset such that gases traveling there- 5 through are forced to pass through the annular space between each concentric cylinder. One example of such a configuration is shown in FIG. 14. In this configuration, the device includes multiple segments 500 which each have concentric offset cylinders 505. Gases flow into a serpentine path 510 10 created by the offset and spaced cylinders. The serpentine path in this case is a series of annular spaces which are connected and progressively larger. An outer shell 515 can enclose the assembly of segments and can include endpieces 520 and 525 to redirect gases which can optionally flow 15 through the outer shell and external shell 530. Coupling mechanisms 535 and 540 can also optionally be used to secure the device to a muzzle adapter or other modular device. Such coupling can also be obtained using threaded or other suitable connectors as described herein. 20

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# Figure 14: Circumferential Flow

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DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

EX1001, Fig. 14

# Figure 14: Circumferential Flow

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## PO's Figure 14 Misrepresentation

- **Patent Owner's Error:** During prosecution, claimed Figure 14 shows “radially serpentine” flow
- **Factual Reality:** Figure 14 never described as “radially serpentine” in specification
- **Board's Analysis:** Figure 14 shows “circumferential” flow, “not radially”

# Patent Owner's Incorrect Definition: Radially Serpentine

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- PO's Shifting Definitions:
-  “back and forth flow around a radius of the off axis chamber” - PO's Opp., 10
-  “crosses over and back of the radius” - PO's Opp., 10; EX1036, 22:1-4
-  includes “circumferential flow” of Fig 14 - PO's Opp., 16; EX1036, 21:1-3
-  helical flow that changes directions - EX1036, 31:16-34:25
-  any dictionary definition of “around” Ex. 2004; EX1040, 30:15-35:12

# WHY PATENT OWNER'S EXPANSION OF RADIALLY SERPENTINE FAILS

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## 1. Contradicts Patent Structure

- Patent separates “radially serpentine” from “helical” as distinct categories
- Patent Owner’s expansion would conflate these distinctions

# WHY PATENT OWNER'S EXPANSION FAILS

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## 1. Contradicts Patent Structure

The off axis chamber can include multiple internal walls **115, 120, 125, 130, 140, 145, 150, and/or 155** defining a serpentine or winding fluid pathway. The multiple internal walls 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 another aspect, the fluid pathway can be a radially serpentine pathway which causes the fluids to flow back and forth around a radius of the off axis chamber while also traversing a length 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. The various configurations can be integrated into various combinations as well to produce more complex flow paths.

# WHY PATENT OWNER'S EXPANSION OF RADIALLY SERPENTINE FAILS

23

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## 2. The WerBell Trap

- Had Patent Owner advanced current interpretation during prosecution, application would have been **rejected as anticipated by WerBell**

# THE WERBELL TRAP FOR PATENT OWNER

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## During Prosecution (2011-2012)

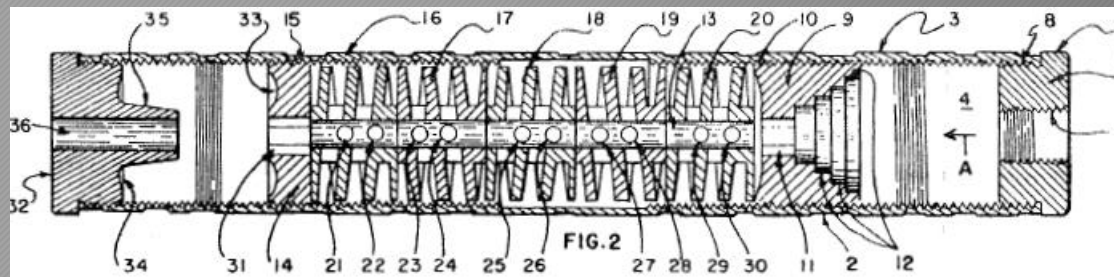
- **WerBell** cited by Examiner as prior art
- **Patent Owner distinguished** by emphasizing helical vs. serpentine differences

## Patent Owner's Current Position

- Expands “**radially serpentine**” to include helical flows with direction changes
- **Would encompass WerBell:** “helical suppressor elements... arranged in opposition”

## The Fatal Consequence

- Had Patent Owner advanced current interpretation during prosecution, application would have been **rejected as anticipated by WerBell**



DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

EX1004, 127, 094; EX1038, Abstract, Fig. 2;  
EX1036, 31:16-34:25; Reply at 14

# WHY PATENT OWNER'S EXPANSION OF RADIALLY SERPENTINE FAILS

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- Patent Owner’s expansion would conflate these distinctions

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## 3. No Written Description Support

- Figure 14 text never uses “radially serpentine” or describes how a radially serpentine pathway would be accomplished
- Cannot create support through post-hoc recharacterization

# Figure 14: Circumferential Flow

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## Fig. 14's Description

- Passage does not mention “radially serpentine”
- Patent does not mention a radius or flowing back and forth around a radius
- Gases flow in serpentine path, but not radially serpentine path
- Fig. 14 describes a circumferential flow

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Another alternative configuration for the internal walls to form the serpentine pathway can be concentric incomplete cylinders (i.e. the cross-section is an incomplete circle). The openings or gaps can form slits along the length of the cylinder. These gaps can be offset such that gases traveling there- 5 through are forced to pass through the annular space between each concentric cylinder. One example of such a configuration is shown in FIG. 14. In this configuration, the device includes multiple segments 500 which each have concentric offset cylinders 505. Gases flow into a serpentine path 510 10 created by the offset and spaced cylinders. The serpentine path in this case is a series of annular spaces which are connected and progressively larger. An outer shell 515 can enclose the assembly of segments and can include endpieces 520 and 525 to redirect gases which can optionally flow 15 through the outer shell and external shell 530. Coupling mechanisms 535 and 540 can also optionally be used to secure the device to a muzzle adapter or other modular device. Such coupling can also be obtained using threaded or other suitable connectors as described herein. 20

# WHY PATENT OWNER'S EXPANSION OF RADIALLY SERPENTINE FAILS

27

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- Figure 14 text never uses “radially serpentine” or describes how a radially serpentine pathway would be accomplished
- Cannot create support through post-hoc recharacterization

## 4. Dictionary Argument Fails

- Non-contemporaneous source (September 2, 2025, ~15 years after relevant date)
- Conflicts with Patent’s lexicography
- Would broaden term to point of being meaningless, essentially capturing ANY flow

DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

Paper 7, 14; Paper 22, 6;  
EX1001, 9:1-13; EX2004

# WHY PATENT OWNER'S EXPANSION FAILS

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## 4. Dictionary Argument Fails

- Non-contemporaneous source (September 2, 2025)
- Conflicts with Patent's lexicography
- Would render term meaningless by capturing ANY flow

# WHY PATENT OWNER'S EXPANSION FAILS

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## 4. Dictionary Argument Fails

Q. Okay. Let's talk about some of these.

So if we're talking about "around" meaning here and there, from one place to another, under that definition, really any fluid flow would fall within that definition of "around," right?

A. Basically.

Q. It's from one place to another, right?

A. Yes.

Q. So any fluid flow would meet that definition of around?

A. Correct.

DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

EX2004; EX1040, 30:15-  
35:12

# WHY PATENT OWNER'S EXPANSION FAILS

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- PO argues that under the Board's construction, fluid "cannot" both rotate around a radius and traverse a length. Reply at 3-6.
- But, under PO's definition of "traverse," simple flow back and forth around the radius does indeed traverse a length of the device, as PO admits *any* movement of any distance along the longitudinal axis of the device necessarily traverses a length of the device.
- Straw man—not Petitioner's burden to show enablement, furthers the written description failure. PO's quarrel is really with the fact that the patent never enabled the "back and forth around a radius . . . while also traversing a length" flow it now seeks to read into Figure 14.

# Dr. Neitzel is not a POSITA

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- PO agrees that a person of ordinary skill in the art (“POSITA”) at the time of the invention for the '750 patent “would have had a relevant technical degree in Mechanical Engineering, Fluid Engineering, or the like, and 2-3 years of experience researching, designing, manufacturing, or assessing ESDs [energy suppression devices], though less education may be sufficient with additional experience, and vice versa.”
- Dr. Neitzel admittedly has NO experience with firearm, silencer or muffler research, design, manufacture, or assessment.

# PATENT OWNER'S CHANGING DEFINITIONS

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PO initially agreed that “radially serpentine” means “a back and forth flow around a radius of the off axis chamber.”

## District Court Litigation

- “**Radially serpentine**” = a “pathway that changes directions from counterclockwise to clockwise”

## Other Litigation

- “**Radially serpentine**” = pathway “in the shape of a helix” that “spirals around the central chamber”

## This IPR

- **Expands ‘750 definition** to include circumferential and helical flows

DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

PO's Response; EX1033, 4;  
EX1035, 34, 42

# Institution Decision: Grounds for Invalidity

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- The Board, in its ID (Paper 7) addressed Grounds 1-2, 4-6 and 8.
- Addressed Grounds with respect to Independent Claims 1, 19 and 22.
- Found Petitioner demonstrated a reasonable likelihood of prevailing on Ground 1, but not the other grounds.

| Grounds                                                                                             | 35 U.S.C.     |
|-----------------------------------------------------------------------------------------------------|---------------|
| GROUND 1: Claims 1, 4, 5, 7-9, 15-17, 19, and 22 are anticipated by Thurler.                        | 102 (pre-AIA) |
| GROUND 2: Claims 1, 4-11, 15-17, 19, 21, and 22 are rendered obvious by Thurler.                    | 103 (pre-AIA) |
| GROUND 3: Claim 18 is rendered obvious by Thurler in view of Bouton.                                | 103 (pre-AIA) |
| GROUND 4: Claims 1, 4-17, and 19-22 are rendered obvious by Thurler in view of Barlowatz.           | 103 (pre-AIA) |
| GROUND 5: Claims 1, 9, 19, and 20 are anticipated by Barlowatz.                                     | 102 (pre-AIA) |
| GROUND 6: Claims 1, 9, 19, and 20 are rendered obvious by Barlowatz.                                | 103 (pre-AIA) |
| GROUND 7: Claim 2 is rendered obvious by Barlowatz in view of Reeves.                               | 103 (pre-AIA) |
| GROUND 8: Claims 1, 3-5, 8, 9, 18, and 19 are rendered obvious by Eichenseher in view of Barlowatz. | 103 (pre-AIA) |

DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

# PATENT OWNER'S STRATEGIC CONCESSIONS

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## What Patent Owner Abandoned

Rather than defending claims on merits, Patent Owner:

- ✓ Seeks amendment of most claims instead of substantive defense
- ✓ Concedes anticipation of most elements by failing to contest Board's anticipation findings as to Thurler

## Significance

- Demonstrates weakness of original claims
- Cannot now claim strong patentability position

*Paper 20, 24-25; Paper 17*

# Original Claims Still at Issue

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- In its MTA, PO sought to non-contingently amend Claims 1, 4, 5, 7, 8, 10, 11, 15-17, 19, 21, and 22.
- Thus, the original claims still at issue are:
  - Claim 2 - Ground 7
  - Claim 3 - Ground 8
  - Claim 6 - Grounds 2, 4
  - Claim 9 - Grounds 1, 2, 4, 5, 6, 8
  - Claims 12-14 - Ground 4
  - Claim 18 - Grounds 3 and 8
  - Claim 20 - Grounds 4 - 6

# HISTORICAL PRIOR ART: CENTURY OF DISCLOSURE

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## The Timeline Of Prior Art

- 1897: Reeves - compartmentalized serpentine flow
- 1903: Bouton - end cap
- 1911: Thurler - common off axis chamber; deflectors; axially serpentine suppressor
- 1912: Kenney - benefits of concentric, symmetric gas expansion through exit; endcaps
- 1917: Barlowatz - helical coils with direction reversals
- 1917: Eichenseher - secure mounting mechanism
- 1972: WerBell - helical coils with direction reversals
- 2010: '750 Patent filing

DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

EX1015-EX1021; EX1038-EX1039; Pet., generally

# THURLER (1911)

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## Core Disclosure - Ex. 1015, Fig. 1

[Thurler Device Structure] - Central chamber: tube e with sleeves d as deflectors - Off-axis chamber: tubes g and h  
- Axially serpentine pathway: gases travel back and forth through chambers - Eccentric positioning: solely for sight clearance with low iron sights

## Board's Institution Decision

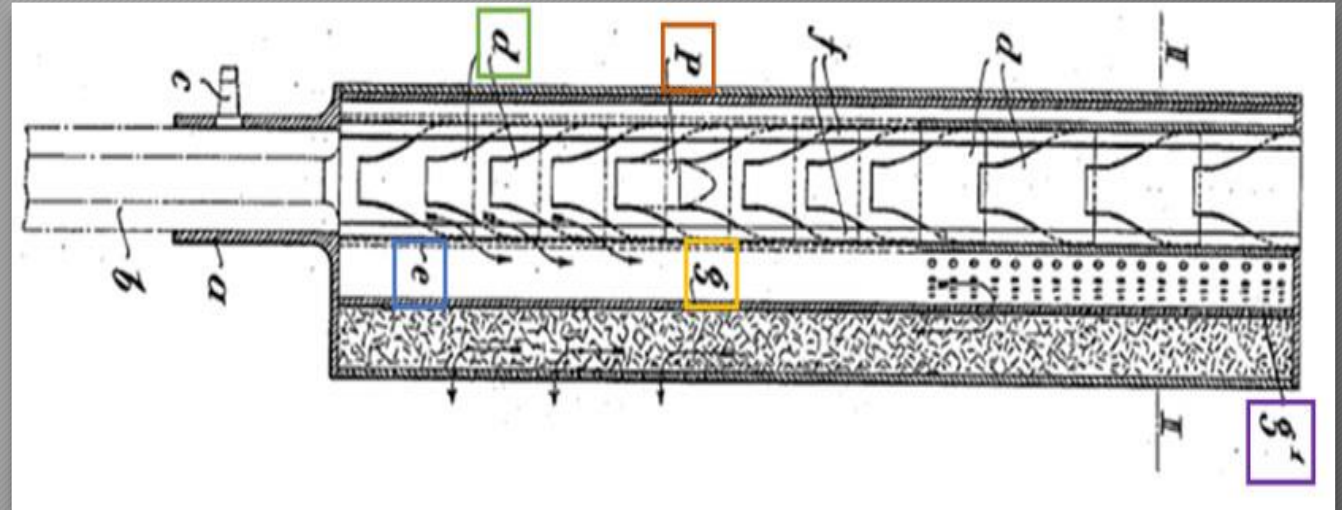
“Petitioner has established a reasonable likelihood of prevailing on its assertion that claim 1 is anticipated by Thurler”

# THURLER (1911): THE ANTICIPATING REFERENCE

38

Core Disclosure - EX1015, Fig. 1,  
Pet. at Ground 1

[Thurler Device Structure] - **Central chamber:** tube e with sleeves d as deflectors - **Off-axis chamber:** tubes g and h  
- **Axially serpentine pathway:** gases travel back and forth through chambers - **Eccentric positioning:** solely for sight clearance with low iron sights



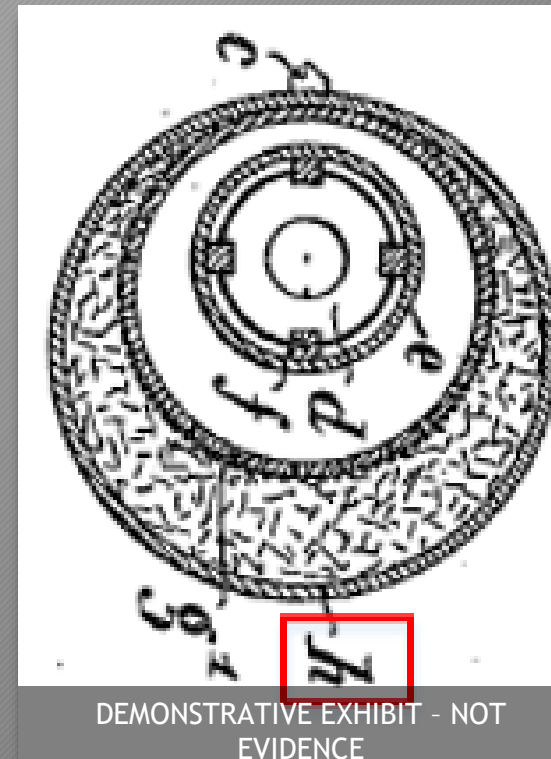
DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

# THURLER (1911): THE ANTICIPATING REFERENCE

39

## Core Disclosure - EX1015, Fig. 2

[Thurler Device Structure] - **Central chamber:** tube e with sleeves d as deflectors - **Off-axis chamber:** tubes g and h  
- **Axially serpentine pathway:** gases travel back and forth along the length of chambers - **Eccentric positioning:** solely for sight clearance with low iron sights.  
EX1015, 1:79-82; EX1037, ¶110



DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

# THURLER ANTICIPATION: ELEMENT-BY-ELEMENT (INDEPENDENT CLAIMS)

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Energy Capture and Control Device ✓

- “devices for lessening the report of fire-arms” - *EX1015*, 1:9-10

Central Chamber with Inlet ✓

- Tube e with inlet for projectile and gases - *Paper 7*, 23; *EX1015*, 1:53-55, 1:69-77, 1:47-68, *Fig. 1*.

Off-Axis Chamber with Serpentine Pathway ✓

- Tubes g and h with axially serpentine flow - *Paper 7*, 23-26; *Pet. 34* (citing *EX1015*, 1:27-30; *EX1013* at 174); *Pet. 34*; *EX1013* at 175

Plurality of Deflectors ✓

- Sleeves d oriented in series - *Paper 7*, 26-27; *Pet. 37* (citing *EX1015*, *Fig. 1*); *EX1015*, 1:53-55.

“At Least One Of” ✓

- Thurler indisputably shows **axially serpentine** flow
- Satisfies “at least one of axially serpentine and radially serpentine”

# GROUND 1 CLAIMS: THURLER ANTICIPATION SUMMARY

41

## Independent Claims 1, 19, 22: ANTICIPATED

### Board Findings:

- ☒ Energy capture and control device
- ☒ Central chamber with inlet
- ☒ Off-axis chamber with axially serpentine pathway
- ☒ Plurality of deflectors
- ☒ “At least one of” satisfied by axially serpentine

PO only seeks to save Claim 9 (Opp. at Ground 1)

# Ground 1: Claim 9

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- Claim 9 - The device of claim 1, wherein the multiple internal walls are formed to produce a radially serpentine fluid pathway.
  - Lacks written description - Paper 22 at 5-6.
  - Under the proper definition of “radially serpentine” Petitioner concedes that Thurler fails to disclose a radially serpentine fluid flow. Reply at Ground 1.

# CLAIM 9: PATENT OWNER CANNOT WIN EITHER WAY

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## Under Board's Correct Construction

- “Radially serpentine” = back and forth around radius
- Thurler doesn't show this specific flow pattern

## Under Patent Owner's Expanded Definition

- “Radially serpentine” includes circumferential/helical flows
- Thurler would show both axially and radially serpentine patterns
- Even stronger anticipation case

DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

## Ground 2: Overview (Obviousness over Thurler)

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- Ground 2 asserts that claims 1, 4-11, 15-17, 19, 21, and 22 would have been obvious over U.S. Patent No. 1,000,702 to Thurler (EX1015). (Petition at 46-53.)
- The Board's Institution Decision already recognized that, for independent claims 1, 19, and 22, Thurler discloses the core elements (central chamber/outer shell, off-axis chamber with axially serpentine flow, and plurality of deflectors). (ID at 22-28.)
- **PO only seeks to save Claims 6 and 9 (Opp. at Ground 2)**

# Ground 2: Claim 6 (Only First Three Deflectors Provide Fluid Communication)

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- Claim 6 requires: “fluid communication between the common off axis chamber and the central chamber occurs only at the primary deflector, the secondary deflector and a first tertiary deflector.” (’750 Patent, claim 6.)
- Petition: A POSITA would have found it obvious to vary the axial extent of perforations in tube e to control which deflectors communicate with the off-axis chamber. (Petition at 48-49; EX1015, claim 1; 1:73-76; EX1013 ¶¶212-213.)
- Thurler itself teaches the principle of selecting different perforation extents to tune gas communication (g and h), and a POSITA would recognize the same design could be applied to e to achieve communication at only the first three deflectors. (Petitioner’s Reply at 20-22; EX1013 ¶¶212-213.)
- Mr. Nixon further explains multiple technical motivations: tuning pressure gradients, increasing path length selectively, manufacturing simplicity, and fouling control; all are routine optimizations of known suppressor design variables. (EX1037 ¶¶65-75.)

## Ground 2: Claim 9 (radially serpentine)

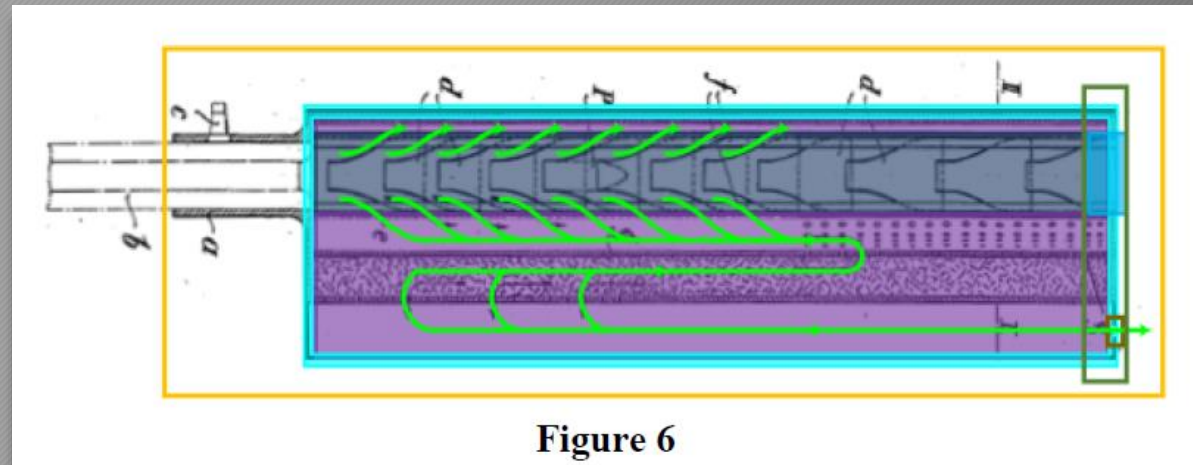
46

- Claim 9 - The device of claim 1, wherein the multiple internal walls are formed to produce a radially serpentine fluid pathway.
  - Lacks written description - Paper 22 at 5-6.
  - Under the proper definition of “radially serpentine” Petitioner concedes that Thurler fails to disclose a radially serpentine fluid flow. Reply at Grounds 1, 2.

# Ground 3: Overview (Obviousness over Thurler + Bouton) - Claim 18

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- PO seeks to save Claim 18 (Opp. at Ground 3.)
- Ground 3 asserts that claim 18 would have been obvious over Thurler. (Petition at Ground 3.)
- Claim 18 adds: an “end cap assembly at an outlet end ... which allows fluid to escape from the common off axis chamber through the fluid outlet, the fluid outlet being only accessible to the fluid in the common off axis chamber.” ('750 Patent, claim 18.)
- Petition: Modify Thurler by adding an additional outer tube and a forward end cap outlet as taught by Bouton’s muffler to improve noise suppression by increasing total path length/expansion volume and directing gases forward out the endcap. (Petition at 54-55; EX1016 (Bouton), 1:99-2:8; EX1001, 4:29-31; EX1013 ¶¶226-231, Fig. 6.)



## Ground 3: Responses to HuxWrx (Claim 18)

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- HuxWrx's Position: A forward endcap outlet to Thurler would interfere with sights or automatic reloading and is therefore not motivated. (PO Response at 38-41.)
- Petitioner's Reply: The combination offers recognized benefits—greater path length and forward ejection of gases—without interfering with reloading; PO's own expert (Dr. Neitzel) conceded that directing gas out of the end would not interfere with automatic reloading. (Petitioner's Reply at 23-24; EX1036 (Neitzel Dep.) 69:25-73:4.)
- Mr. Nixon explains tactical and engineering benefits of a forward outlet (reduced downward gas disturbance, predictable exit, and improved suppression), teaching a POSITA to implement Bouton's forward outlet in Thurler's framework. (EX1013 ¶¶226-231; EX1037 ¶¶78-86.)

# Ground 4: Overview (Obviousness over Thurler + Barlowatz)

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- PO only seeks to save Claims 6, 9, 12-14 and 20 (Opp. at Ground 4)
- Ground 4 addresses claims 1, 4-17, 19-22 by combining Thurler with the helical coil teachings of Barlowatz to implement helical walls within annular spaces and achieve enhanced path length and, under PO's advocated construction, "radially serpentine" reversing flow. (Petition at 56-63; EX1018; EX1013 ¶¶238-243.)
- Motivation to combine: Increase path length and lower gas velocity using known techniques (helical channels) within known suppressor annular spaces; this is a classic application of known elements to yield predictable results. (Petition at 56-63; EX1013 ¶¶238-243.)

# Ground 4: Claim 6 (Only First Three Deflectors Provide Fluid Communication)

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- Claim 6 requires: “fluid communication between the common off axis chamber and the central chamber occurs only at the primary deflector, the secondary deflector and a first tertiary deflector.” (’750 Patent, claim 6.)
- Petition: A POSITA would have found it obvious to vary the axial extent of perforations in tube e to control which deflectors communicate with the off-axis chamber. (Petition at 48-49; EX1015, claim 1; 1:73-76; EX1013 ¶¶212-213.)
- Thurler itself teaches the principle of selecting different perforation extents to tune gas communication (g and h), and a POSITA would recognize the same design could be applied to e to achieve communication at only the first three deflectors. (Petitioner’s Reply at 20-22; EX1013 ¶¶212-213.)
- Mr. Nixon further explains multiple technical motivations: tuning pressure gradients, increasing path length selectively, manufacturing simplicity, and fouling control; all are routine optimizations of known suppressor design variables. (EX1037 ¶¶65-75.)

## Ground 4: Claim 9 (radially serpentine)

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- Claim 9 - The device of claim 1, wherein the multiple internal walls are formed to produce a radially serpentine fluid pathway.
  - Lacks written description - Paper 22 at 5-6.
  - Under the proper definition of “radially serpentine” Petitioner concedes that Thurler and Barlowatz fail to disclose a radially serpentine fluid flow. Reply at Ground 4.

# Ground 4: Claims 12-14 & 20 (Helical Wall; Geometry; Winding Ratio)

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- Dependent Claim Elements:
- Claim 12 (helical wall in annular space); Claim 13 (quadrilateral or circular cross-section); Claim 14 (winding ratio ~3:1 to 8:1). See Pet. at 60-62; EX1013 ¶¶244-246; EX1013 ¶¶246-247; EX1013 ¶248.
- Claim 20 (axially serpentine that helically spirals around the central chamber): Satisfied by implementing helical walls in the off-axis chamber that helically spiral around e along the length, as shown in the combination. See Pet. at 62-63; EX1013 ¶¶249-251.

# Ground 5: Overview & Claim 9 (Anticipation by Barlowatz)

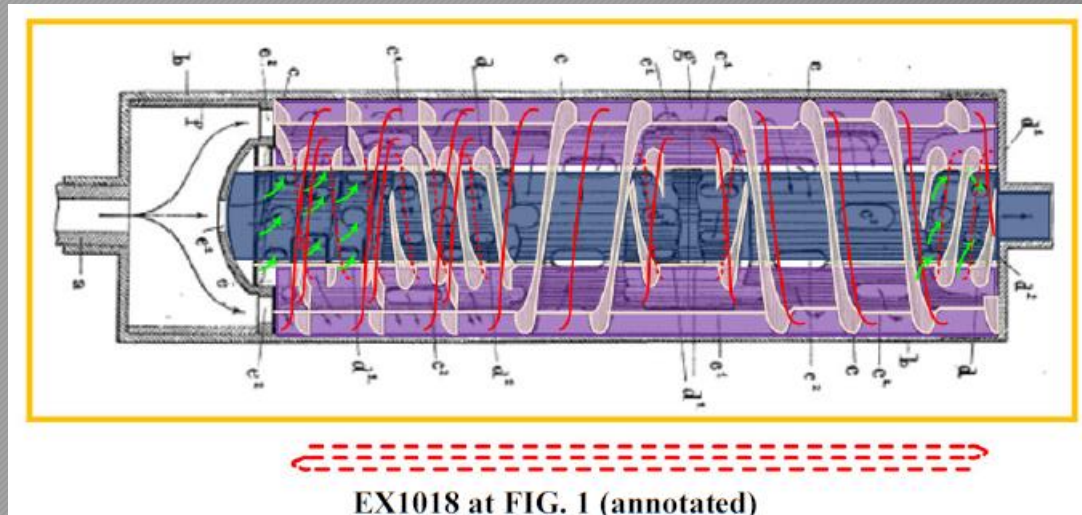
53

- PO only seeks to save claims 9 and 20. (Opp. at Ground 5.)
- Ground 5 asserts that claims 1, 9, 19 and 20 would have been anticipated by Barlowatz. (Petition at Ground 3.)
- Claim 9 - The device of claim 1, wherein the multiple internal walls are formed to produce a radially serpentine fluid pathway.
  - Lacks written description - Paper 22 at 5-6.
  - Under the proper definition of “radially serpentine” Petitioner concedes that Barlowatz fails to disclose a radially serpentine fluid flow. Reply at Ground 5.

# Ground 5: Claim 20 (helical walls)

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- Claim 20 (axially serpentine that helically spirals around the central chamber): Satisfied by Barlowatz's helical walls in the off-axis chamber that helically spiral along the length, as shown in the depiction. (Petition at Ground 5; EX1013 ¶¶268-269, Fig. 8.)



DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

# Ground 6: Overview (Obviousness over Barlowatz)

55

- PO only attempts to save claims 9 and 20 (Opp. at Ground 6)
- Ground 6 asserts that claims 1, 9, 19, and 20 would have been obvious over Barlowatz. (Petition at 70.)
- Rationale: To the extent any limitation is argued missing, a POSITA would have obviously varied known parameters (number of coils, perforation patterns, helical pitch) drawn from a finite set of options to achieve the claimed structure and flows, with predictable results. (Petition at 70; EX1013 ¶271.)
- This is classic optimization of known suppressor variables disclosed in a single reference.

# Ground 7: Overview (Obviousness over Barlowatz + Reeves) - Claim 2

56

- Ground 7 asserts that claim 2 is rendered obvious by Barlowatz in view of Reeves. (Petition at Ground 7.)
- Claim 2 adds: “common off axis chamber comprises a plurality of sub-chambers defined by the plurality of deflectors, each with the radially serpentine fluid pathway, and ... the [radially] serpentine fluid pathways ... are axially non-linearly interconnected along an outermost portion.” ('750 Patent, claim 2.)
- Petition: Reeves (EX1019) teaches multiple concentric shells with alternating perforations/outermost interconnection (slot 4) to create extended back-and-forth paths. Combining Reeves’s outermost interconnections with Barlowatz’s reversing helical ducts yields the claimed non-linear, alternating, outermost interconnections among sub-chambers. (Petition at 71; EX1019, 1:55-79; 2:85-93 & Fig. 1; EX1018 at 2; EX1013 ¶¶272-274.)

# Ground 8: Overview (Obviousness over Eichenseher + Barlowatz)

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- PO only seeks to save claims 3, 9, and 18 (Opp. at Ground 8.)
- Ground 8 addresses claims 1, 3-5, 8, 9, 18, 19 by inserting Barlowatz-style helical walls into the annular cavity 3 of Eichenseher's double-walled silencer to force helical paths, enhance suppression, and (under PO's approach) supply "radially serpentine" reversing flow. (Petition at 72-82; EX1021; EX1018; EX1013 ¶¶275-283.)
- Dependent claims:
  - Claim 3 (locking block): Eichenseher discloses mouthpiece 5 and a reducing throat/flared outlet inlet coupling. (Petition at 76-77; EX1021 Fig. 1; EX1013 ¶¶281-283.)
  - Claim 9 (radially serpentine fluid pathway): lack's written description (Paper 22); PO has admitted that Barlowatz discloses radially serpentine under their definition. EX1036, 63:13-16
  - Claim 18: Exit through slots 4 at the top ring closing cavity 3 creates a forwardly directed escape path for the off-axis chamber, consistent with the "fluid outlet" requirement. (Petition at 80; EX1021 at 1-2; EX1013 ¶¶281-283.)

# Motion to Amend: Overview

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## Claims Being Amended

- Original Claims: 1-17 and 19-22 (all except claim 18)
- Proposed Substitute Claims: 23-43
- One-to-one substitution: Each original claim replaced by one substitute claim

## Amendment Types

- Non-contingent: Claims 1, 4, 5, 7, 8, 10, 11, 15-17, 19, 21, 22
- Contingent: Claims 2, 3, 6, 9, 12-14, 20 (only if found unpatentable)

# Key Amendments Added

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1. **Weapon Specification:** Added “for use with a weapon”

2. **Axis Alignment:** Added outer shell “oriented along the central axis”

3. **Material Definition:** Added: high energy material comprises “projectile and gases”

4. **Outlet Location:** Added “fluid outlet is located at an opposite end of the energy capture and control device as the inlet”

# MOTION TO AMEND: THRESHOLD FAILURE #1

60

## Claim 43: Impermissibly Broadens Scope

### The *Sisvel* Standard (Controlling)

“A claim is broader if it contains within its scope any conceivable apparatus or process which would not have infringed the original patent”

### Clear Scope Enlargement

- Original: “high energy device”
- Amended: “weapon”
- Problem: Includes low-energy weapons (paintball guns, airsoft pistols, crossbows)

### Board’s Correct Finding

*“Patent Owner has not shown that all weapons are high energy devices”*

*Sisvel, 81 F.4th at 1237; Paper 22, 5; EX1040, 17:7-18:4*

# PATENT OWNER'S FAILED CIRCULAR ARGUMENT

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## PO's Position:

“Any weapon practicing the method ‘must’ be high-energy because it discharges high-energy material”

## Why This Fails:

1. **Wrong Standard:** Applies enablement analysis instead of *Sisvel* scope test
2. **Circular Logic:** Defines weapon type by discharged material
3. **Redundancy Problem:** Makes original “high energy device” limitation meaningless
4. **Enablement Deficiency:** “High energy material” undefined in specification - no standard for cutoff between high energy and low energy
5. **Conceivable Coverage:** Low energy weapons could discharge high-energy projectiles

EX2003, para. 21-23; EX1040, 19:21-20:10, 22:1-23:5; MTA Sur-Reply at Sec. II

# MOTION TO AMEND: THRESHOLD FAILURE #2

62

## New Matter Through “Radially Serpentine” Expansion

### The Figure 14 Problem:

-  Never described as “radially serpentine” in specification
-  Board found “circumferential” flow, not radial
-  No textual support for “back and forth across radius”
-  Prosecution error cannot create written description

# MOTION TO AMEND: THRESHOLD FAILURE #2

63

## New Matter Through “Radially Serpentine” Expansion

PO improperly attempts to “redefine radially serpentine” as meaning back and forth flow around a *longitudinal axis* as opposed to a *radius*. EX1040, 36:4 - 41:3; 44:4-21.

Patent defines “radially serpentine,” “axially serpentine,” and “helical” as **separate categories**

# Motion to Amend: Grounds for Invalidity

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| Grounds                                                                                                                                                          | 35 U.S.C.     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| GROUND 1: Proposed Amended Claims 23, 26, 27–30, 32, 33, 37–39, 40, and 43 are rendered obvious by <u>Thurler</u> in view of Kenney and <u>WerBell</u> .         | 103 (pre-AIA) |
| GROUND 2: Proposed Amended Claims 34–36, 41 and 42 are rendered obvious by <u>Thurler</u> in view of Kenney, <u>WerBell</u> , and <u>Barlowatz</u> .             | 103 (pre-AIA) |
| GROUND 3: Proposed Amended Claim 24 is rendered obvious by <u>Thurler</u> in view of Kenney, <u>WerBell</u> , <u>Barlowatz</u> and Reeves.                       | 103 (pre-AIA) |
| GROUND 4: Proposed Amended Claims 25 and 31 are rendered obvious by <u>Thurler</u> in view of Kenney, <u>WerBell</u> , <u>Barlowatz</u> and <u>Eichenseher</u> . | 103 (pre-AIA) |

DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

# AMENDED LIMITATION: “FLUID OUTLET AT OPPOSITE END”

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## Kenney’s Clear Teaching

*“Discharge them into the free atmosphere through openings 15, in the muzzle end of the silencer”*

## Benefits of Forward Discharge

1. **Maintains gas concentricity** throughout device operation
2. **Provides predictable symmetric expansion**
3. **Retards vacuum collapse** after projectile exit

4. **Directs noxious gases away from operator**

## Patent Owner’s Misdirection

- Claims modification would interfere with Thurler operation
- Ignores clear benefits taught by Kenney
- **Dr. Neitzel confirmed** mufflers direct gases away from operator

EX1039, 1:91-103, 1:19-28; EX1036, 51:14-52:22

# GROUND 1: THURLER + KENNEY + WERBELL

66

**Amended Limitation: “For Use with a Weapon”**

**All Three References Are Firearm Suppressors:** - Thurler: “devices for lessening the report of fire-arms” - Kenney: “Silencer for Firearms”  
- WerBell: “Silencers for Firearms”

**Amended Limitation: “Outer Shell Oriented Along Central Axis”**

**Oriented along  $\neq$  concentric**

**Clear Motivation for Concentric Design:** - Thurler’s Limited Rationale: Eccentric only for sight clearance - Kenney’s Superior Benefits: “predictable, symmetric gas expansion” - WerBell’s Solution: Concentric works with modern high sights -  
**Historical Context:** High sights standard by priority date

EX1015, 1:9-10; EX1039, title; EX1038, title; EX1037, ¶106-112; Pet. Sur-Reply

# GROUND 1: “ORIENTED ALONG” ≠ “CONCENTRIC” Amendment Does Not Distinguish Thurler

## Patent Owner’s Unsupported Addition

- Claims use “oriented along central axis”
- Patent Owner reads in “concentric with”
- Board questioned: “whether ‘along’ means ‘concentric with’”

## Plain Language Controls

- “Along” = directional alignment/parallelism
- “Along” ≠ axial coincidence or concentricity
- Thurler’s tubes g and h run “along” central axis despite eccentric position

## Patent Owner Chose Incorrect Language

- Available language: “concentric with the central axis”
- They chose: “oriented along”
- Post-hoc limitation addition improper

# GROUND 1: KENNEY'S CONCENTRIC DESIGN TEACHING

68

## Critical Benefits Disclosed

*“The exhaust forms ‘a jacket of gases, substantially concentric with the axial center of the path of the bullet’ to retard vacuum collapse after the shot”*

## Symmetric Gas Expansion

- Concentricity linked directly to predictable performance
- Superior to eccentric arrangements for acoustic performance

Clear motivation to modify Thurler's eccentric design

EX1039, 1:19-28, 1:91-103; EX1037, ¶109

# GROUND 1: WERBELL SOLVES THE SIGHT PROBLEM

69

## Eliminates Thurler's Eccentric Rationale

- Thurler's Only Reason: "so that the sight c projects over the device"
- WerBell's (1972) Solution: Shows concentric suppressors work with high sights/scopes
- Modern Reality: High sights standard by priority date (~2.5 inches above bore)

## Visual Evidence - Figures 1-3, 7

- WerBell explicitly shows rifles with elevated sighting systems using concentric suppressors without obstruction
- Result: No remaining reason for Thurler's eccentric design

EX1015, 1:70-81; EX1038, Figs. 1-3, 7; EX1037, ¶84

# GROUND 2: HELICAL ELEMENTS OBVIOUS

70

Claims 34-36, 41, 42: Adding Helical Walls

## Multiple Prior Art Sources

- Barlowatz: Helical coils with direction reversals
- WerBell: “plurality of helical suppressor elements... arranged in opposition”
- Standard Practice: Increasing path length for noise reduction

## Patent Owner’s “Incompatibility” Argument Fails

- Legal Error: *KSR* permits obvious adaptations even without perfect compatibility
- Technical Error: Helical elements can enhance existing annular spaces
- Practical Reality: Century of successful implementations proves compatibility

EX1018, Fig. 1; EX1038, Abstract, Fig. 2; *KSR*, 550 U.S. at 417

# GROUND 3: COMPARTMENTALIZATION OBVIOUS

71

## Claim 24: Sub-chambers with Radially Serpentine Pathways

### Reeves' Direct Teaching (1897)

*"A series of compartments that each include encapsulated shells"* connected by alternating openings

### Obvious Application

- Apply compartmentalization to Thurler's design
- Create sub-chambers with individual serpentine pathways
- **Standard engineering:** Segmentation for improved performance

EX1019, 2:40-53; Paper 22, 5-6

# GROUND 4: MOUNTING IMPROVEMENTS OBVIOUS

72

Claims 25, 31: Secure Mounting Elements

Eichenseher's Teaching (1917)

*“Double-walled hollow body 1 and 2 is screwed onto rifle barrel 6 by means of a mouthpiece 5”*

Standard Engineering Practice

- Secure mounting prevents loosening during repeated firing
- Throat and flared outlet configurations well-known for flow conditioning
- Obvious adaptation of known mounting to known suppressor structure

Patent Owner's Arguments Lack Merit

No technical basis for claiming Eichenseher lacks “reducing throat and flared outlet”

EX1021, 1, Fig. 1; EX1037, ¶¶148-151

# SUMMARY: WHY PATENT OWNER FAILS ON ALL FRONTS

73

## Original Claims: All Invalid (except 9)

- Thurler (1911) anticipates independent claims per Board findings
- Century-old combinations render obvious all dependent claims
- Patent Owner's concessions through amendment strategy

## Motion to Amend: Fails All Requirements

- Claim 43 broadens scope under *Sisvel* standard
- Lack of Written Description for “radially serpentine” limitation
- Amended claims remain obvious over historical combinations

## Claim Construction: Bound by Prosecution

- “Radially serpentine” limited to “back and forth around radius”
- Figure 14 does not teach radial serpentine
- Prosecution disclaimers prevent broadening

# RELIEF REQUESTED FROM THE BOARD

74

## 1. Claim Construction

Adopt correct construction of “radially serpentine” as “back and forth flow around a radius of the off axis chamber”

## 2. Original Claims Invalidity

Find all claims 1-22 unpatentable based on instituted grounds, particularly Ground 1 anticipation by Thurler

## 3. Motion to Amend Denial

Deny Motion to Amend entirely for: - Scope broadening (Claim 43) - New matter (radially serpentine expansion) - Continued obviousness over prior art

## 4. Final Written Decision

Cancel all claims of the '750 Patent

# Claim Construction: “common off axis chamber”

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- In its Final Office Action response, PO amended the independent claims to recite “a common off axis chamber.”
- In support of these amendments, PO represented that “the off axis chamber is a ‘*common*’ off axis chamber into which *a plurality of deflectors* direct energy.”
- PO further represented that “the [claimed] off axis chamber *spans and is connected to multiple deflectors*.”
- Accordingly, the OCM of “a *common* off axis chamber” is “an off-axis chamber into which *at least two* deflectors *separately and directly* deflect energy transferred from a high energy material received by the central chamber.” Petition at 13-14.

Claim Construction: “*a plurality of deflectors . . . configured to deflect the energy from the high energy material to the common off axis chamber*”

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- “a plurality of deflectors . . . configured to deflect the energy from the high energy material *to the common off axis chamber*” is “at least two deflectors *each* configured to deflect energy from a high energy material to the common off axis chamber via respective *separate and direct* fluid connections.”

# THE DEFLECTOR AND COMMON CHAMBER CONSTRUCTION

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## Patent Owner Puts Terms in Controversy

- Claims no construction needed for “common off axis chamber” and “plurality of deflectors”
- But disagrees with our interpretation without providing alternative
- Terms directly relevant to claims 2, 5, 6 challenges

## Our Supported Construction

“Common off axis chamber”: off-axis chamber into which at least two deflectors separately and directly deflect energy

“Plurality of deflectors”: at least two deflectors each configured to deflect energy via respective separate and direct fluid connections

## Prosecution History Support

Patent Owner represented: “off axis chamber spans and is connected to multiple deflectors”

Paper 17, 17; EX1004, 54

DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

# WHY PATENT OWNER'S EXPANSION FAILS

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- No Written Description Support
- PO claims that a helical reversing fluid pathway is a “radially serpentine fluid pathway. EX1036, 31:16-34:25
- PO fails to acknowledge that the helically serpentine flow that it attempts to characterize as “radially serpentine” is amply disclosed in the prior art. EX1036, 62:22-63:16; EX1018; EX1038.
- U.S. Patent No. 3,667,570 to WerBell, cited by the Examiner during prosecution of the '750 Patent, disclosed such flow and would have prevented the '750 Patent from ever issuing had PO advanced the same argument during prosecution.

# PATENT OWNER'S EXPANSION FAILS

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## 2. Board's Prior Analysis Is Correct

Institution Decision: Figure 14 shows  
“circumferential... not radially”

Preliminary Guidance: Patent Owner seeks  
“circumferentially serpentine pathway”

PO's improperly attempts to “redefine radially serpentine”  
as meaning back and forth flow around a *longitudinal axis*  
as opposed to a *radius*.

DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

Paper 7, 14; Paper 22, 6; EX1001, 9:1-13; EX1040, 36:4 - 41:3, 44:4-21

# PATENT OWNER'S ARGUMENTS FAIL

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## “Board Should Adopt Our Expanded Definition”

**Response:** - Board already rejected expansion multiple times - Contradicts specification's definitional structure  
- Would encompass WerBell (cited during prosecution) - No written description support for expansion

## “References Can't Be Combined”

**Response:** - KSR permits obvious adaptations - Century-old art proves routine combination - Each reference contributes different obvious elements - Standard engineering practice to improve performance

*Paper 7, 14; Paper 22, 5-6; KSR, 550 U.S. at 417*

# PATENT OWNER'S ARGUMENTS FAIL

81

## “No Motivation for Modifications”

**Response:** - Clear motivations in references themselves - Kenney teaches superior concentric performance  
- WerBell shows compatibility solutions - Standard goals of improved suppression performance

## “Our Expert Is Qualified”

**Response:** - Dr. Neitzel admits lacking required suppressor experience - Provided no supporting evidence for key opinions - Made contradictory statements (declaration vs. deposition) - Acknowledged Patent Owner used “inappropriate terminology”

EX1039, 1:19-28; EX1036, 21:4-15, 49:9-51:13

DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

# PATENT OWNER'S PROSECUTION ESTOPPEL BINDS THEM

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## Cannot Expand Beyond Prosecution Positions

### What They Told the Examiner

- “Radially serpentine”: “clockwise to counter-clockwise around the axis”
- “Axially helical substantially different” from axially serpentine

### Legal Consequence

- Bound by these representations in

claim construction

- Cannot expand to avoid prior art they failed to distinguish
- Prosecution disclaimer narrows available claim scope

### Their Current Contradiction

Now seeking to include helical flows in “radially serpentine” despite explicitly distinguishing them during prosecution

# MOTION TO AMEND: COMPREHENSIVE FAILURE

83

## Threshold Legal Requirements: FAILED

1. **Scope Broadening:** Claim 43 “weapon” vs. “high energy device”
2. **New Matter:** “Radially serpentine” expansion beyond written description
3. **Unsupported Limitations:** “Concentric” reading into “oriented along”

## Obviousness: ALL AMENDED CLAIMS OBVIOUS

1. **Ground 1:** Thurler + Kenney + WerBell = obvious core amendments
2. **Ground 2:** Addition of helical elements obvious from Barlowatz/WerBell

3. **Ground 3:** Compartmentalization obvious from Reeves
4. **Ground 4:** Mounting improvements obvious from Eichenseher

## Board’s Preliminary Guidance Confirmed Problems

- Identified scope broadening issue
  - Recognized new matter concerns
  - Questioned unsupported claim constructions
- Paper 22, 5-6, 9-10; Sisvel, 81 F.4th at 1237*

DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

# KEY FEDERAL CIRCUIT AUTHORITIES SUPPORT OUR POSITIONS

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## Sisvel (2023): Scope Enlargement Standard

*“A claim is broader if it contains within its scope any conceivable apparatus or process which would not have infringed the original patent”* - Objective test focused on claim scope - Patent Owner’s “weapon” plainly broader than “high energy device”

## Phillips (2005): Claim Construction Hierarchy

- Intrinsic evidence controls over dictionary definitions
- Specification provides own definition of “radially serpentine”
- Patent Owner’s dictionary approach improper

## KSR (2007): Obviousness Standard

- Obvious adaptations permitted even without perfect compatibility
- Century-old successful implementations prove obviousness

*Sisvel*, 81 F.4th at 1237; *Phillips*, 415 F.3d at 1319; *KSR*, 550 U.S. at 417

DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

# Global Responses to PO's Arguments

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- “No motivation to combine”/“fundamental incompatibility” (Grounds 3-4, 7-8): The combinations apply known flow-control (helical walls; forward endcap) to known annular-space suppressors to extend path length and reduce gas velocity—precisely the art-recognized aims. The Supreme Court’s KSR framework supports such predictable uses of prior-art elements. (Petition at 54-63, 71-82; EX1016, 1:99-2:8; EX1019, 2:85-93; EX1013 ¶¶226-231, 238-243, 272-274, 281-283.)
- “Fluid outlet” objections: The parties now agree the outlet must allow escape without requiring an absolute no-return barrier; mapped art shows escape paths from the off-axis region (e.g., Bouton head 9; Reeves slot 4; Eichenseher slots 4; outer sleeve exits). (Petitioner’s Reply at 17-18; Petition at 54-55, 71, 80; EX1016; EX1019; EX1021.)
- “Radially serpentine” claim 9: Under the Board’s construction (ID at 12-14), Petitioner focuses on axial serpentine sufficiency for independent claims and maintains obviousness for claim 9 in the combinations employing reversing helices; under PO’s advocated broader reading, Grounds 4-8 also demonstrate “radially serpentine” via reversing helical flow as argued in the Petition. (Petitioner’s Reply at 24-25; Petition at 56-63, 63-70, 71, 72-82.)

# Expert Support - Mr. Nixon (Selected Citations)

86

- Ground 2 mappings and motivations: EX1013 ¶¶171-221 (incl. ¶¶212-213 on claim 6; ¶¶219-221 on claim 10; ¶¶214-217 on claim 8).
- Ground 3 mappings/motivations: EX1013 ¶¶226-231; see also EX1037 ¶¶78-86; EX1036 (Neitzel Dep.) 69:25-73:4.
- Ground 4 mappings/motivations: EX1013 ¶¶238-251; (helical wall geometry, winding ratio, spiral around central chamber).
- Ground 5 mappings: EX1013 ¶¶253-269.
- Ground 6 rationale: EX1013 ¶271.
- Ground 7 mappings/motivations: EX1013 ¶¶272-274; EX1019, 2:85-93.
- Ground 8 mappings/motivations: EX1013 ¶¶275-283; EX1021, 1-2.

DEMONSTRATIVE EXHIBIT - NOT EVIDENCE