



**Petitioner Globus Medical, Inc.'s
Demonstrative Exhibits
IPR2025-00226**

Oral Hearing
Patent Trial and Appeal Board
April 21, 2026

Presented By
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Outline

- 1 Claim Construction
- 2 Unpatentability Under Ground 3 (Moskowitz-Steffee)
(Claims 1-5, 7, 9)
- 3 Unpatentability Under Ground 2
(Hess + General Knowledge) (Claims 1-3, 7, 9)

Construction: “channel”

Petitioner - “a passage through which something moves or is conveyed”

Patent Owner – “a pathway ... through which an anchoring member traverses”

- No difference when applied to a fusion member and anchoring member

Construction: “curved [channel]”

Petitioner - “follow a curved path (instead of a straight path)”

Patent Owner – “following a curved trajectory, distinct from a straight one”

- Parties agree
- No difference between *path* and *trajectory*
- Patent Owner repeatedly uses *path*:

“The ’385 Patent specification consistently describes ‘curved channels’ in embodiments where the channel follows a non-linear, *curved path*”

Paper 13 at 11

“The ’385 Patent specification consistently describes ‘curved channels’ as channels that follow curved **paths**”

Paper 13 at 24

Ground 3 – Moskowitz-Steffee

Combination of Moskowitz and Steffee:

- Use Steffee's curved anchors with Moskowitz's screw box and add curvature to existing screw/drill guides to complement the anchor curvature.
- Use impact driving tool instead of screwdriver

Motivation to Combine:

- Curved anchors minimize forces tending to cause migration of screw box because anchor insertion is more perpendicular
- Non-threaded anchors with barbs are not subject to stripping (unlike Moskowitz's screws)

Reasonable Expectation of Success:

- Combination requires only use of known machining techniques (adding curvature to drill guides)
- Use of curved anchors and curved channels already successful in spinal implants, including intervertebral implants

Paper 2 at 84, 88-91
Ex. 1002 ¶¶ 159-173

Patent Owner's Counterarguments Fail

Patent Owner argues that the combination uses impermissible **hindsight** reasoning.

- “Ground 3 is a textbook case of impermissible hindsight, proposing to combine Moskowitz’s straight-channel screw box with Steffee’s fasteners for *bone graft*.”

Paper 13 at 4

Patent Owner argues that there is insufficient motivation to redesign:

- “for combining features to create a **hollow, flexible** needle capable of traversing a curved path for **PMMA injection**”

Paper 13 at 59

Patent Owner argues that there is no reasonable expectation of success because modification entails **wholesale redesign**:

- “Creating semi-circular channel paths through Moskowitz’s triangular sliding bases would require wholesale redesign that compromises the structural integrity required for the sliding base expansion mechanism.”

Paper 13 at 62

There is No Hindsight

Patent Owner's hindsight arguments are apparently grounded in criticism of combining Moskowitz's *implant* using *straight channels with screws*, and Steffee's use of *curved fasteners* for bone graft *without an implant*.

See Paper 13 at 4

- This attacks references individually, not the proposed combination.



Bradium Techs. LLC v. Iancu, 923 F.3d 1032, 1050 (Fed. Cir. 2019) (“A finding of obviousness, however, cannot be overcome by attacking references individually where the rejection is based upon the teachings of a combination of references.”) (quotation marks and citations omitted)

- Proper test is what the combined teachings suggest to POSA:



In re Mouttet, 686 F.3d 1322, 1333 (Fed. Cir. 2012) (“[T]he test for obviousness is what the combined teachings of the references would have suggested to those having ordinary skill in the art.”).

- Hindsight negated here by:
 - Use of Analogous Art
 - Testimonial Evidence Supporting Motivation to Combine

Paper 15 at 12-16

Analogous Art Negates Hindsight

Analogous Art – Same field / reasonably pertinent to same problem

- Field – surgical procedures for spinal fusion and stabilization
- Problem – improving fusion reliability, avoid failed fusions

Ex. 1001, 1:29-30, 2:10-13

Moskowitz is from the same field and pertinent to the same problem:

- “The present invention relates to a ... intervertebral device which combines the dual functions of an intervertebral spacer which can be filled with bone fusion material(s), ... [and] a transvertebral bone fusion screw apparatus”

Ex. 1004, 1:20-27

- “The entire construct ... is hollow to allow bone filling. Hence this device functions both as an intervertebral bone fusion spacer and bi-directional transvertebral screw fusion device.”

Ex. 1004, 7:57-62

Paper 2 at 25
Paper 15 at 12-13

Analogous Art Negates Hindsight

Steffee is from the same field:

- “a fastener for securing bone graft between a pair of bone portions” Ex. 1005, 1:6-9
- “Steffee explicitly discloses using its invention in a spinal fusion procedure based on ... Figures 5 and 6, which depict the use of Steffee’s fasteners with bone graft material placed between two vertebral bodies.” Ex. 1002 ¶ 163

Steffee is reasonably pertinent to improving fusion reliability because its anchors better address migration:

- “[O]ne reason spinal fusions failed was due to [implant] migration”
- “[M]igration occurred ... due to forces acting on the implant, including through its anchors”
- “Steffee’s curved fasteners ... [minimize] the forces causing migration”

Ex. 1002 ¶¶ 164-165

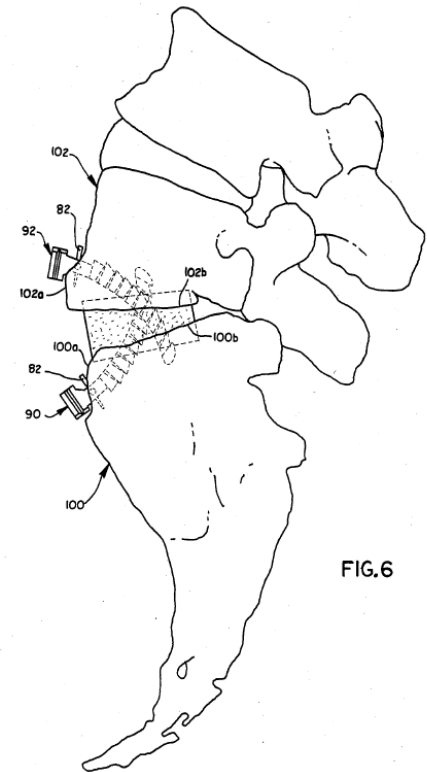


FIG. 6

Motivation Evidence Negates Hindsight

Mr. Culbert's Testimony Establishes Sufficient Motivation to Combine

- Using curved anchors would “lower the forces (acting through Moskowitz’s existing screws) that tended to cause [implant] migration.”
- “Steffee taught that forces tending to cause [migration] can be minimized or eliminated by using a curved fastener that increases the entry angle of the fastener ... [b]ecause this decreases or eliminates the moment arm acting on the fastener as explained in Steffee.”
- A POSA was also motivated to replace Moskowitz’s screws, which were subject to stripping, to “form a more secure engagement between the screw box and the vertebrae” because Steffee’s unthreaded and barbed fasteners “would not be subject to such stripping.”

Ex. 1002 ¶¶ 169-170

Mr. Culbert's Testimony as to a POSA's Understanding is **Unrebutted**

Patent Owner's attacks on the asserted motivations are pure attorney argument without any evidentiary support and cannot rebut the evidence of record.

Paper 2 at 87-90

Paper 15 at 15, 17-19

PMMA/Flexible Anchors Not Claimed

Patent Owner repeatedly argues that the claims are not unpatentable because the combination does not disclose curved channels enabling use of flexible anchoring members which have “specialized PMMA injection capability”

Paper 15 at 7-9 (citing Paper 13 at 16, 19, 20, 31,43, 44, 64, 55-71)

Patent Owner is wrong for at least the following reasons:

- Nothing in plain meaning of “anchoring member” or anything else in challenged claims that requires flexibility or injection capability
- Patent Owner admits that these features are merely preferred embodiments, not required by the invention
- Claim differentiation applies because dependent claims require these limitations
- The specification expressly states that some embodiments do not include these features.

Paper 15 at 9-11

PMMA/Flexible Anchors Not Claimed

“Anchoring member” – Patent Owner does not even argue that the plain meaning requires these features

Patent Owner admits these features are only preferred embodiments:

- “[T]he specification contemplates **various forms** for these anchoring members ... and notes they **may** possess features ... to facilitate [PMMA] injection”
- “The specification explains that ‘the anchoring members comprise a flexible material’ in **some embodiments**”

Paper 13 at 6, 7

PMMA/Flexible Anchors Not Claimed

Claim differentiation – dependent claims expressly require these elements:

- Claim 8: “wherein the ... anchoring members are made of a flexible material to allow the ... anchoring members to bend to traverse through the ... curved channels.”
- Claim 10: “wherein each anchoring member comprises a perforation for delivering a hardening material”

Paper 15 at 9-10
Ex. 1001 Claims 8, 10

The specification expressly states that some embodiments do not include these features:

- “The anchoring members 3200-3230 may be flexible in some embodiments, while being rigid in other embodiments”
- “VI. EMBODIMENTS THAT DO NOT USE POLYMER MATERIALS ... In some embodiments, the anchoring members may be without a central lumen or perforations along their shaft.”

Paper 15 at 11
Ex. 1001, 23:7-8, 26:32-49

No Evidence Redesign is Unfeasible

Patent Owner makes several arguments that the combination would require “wholesale redesign” or not succeed for one reason or another:

- “While Petitioner correctly identifies the general need to minimize implant migration, this superficial motivation is insufficient to justify the wholesale, non-obvious redesign required to transition from Moskowitz’s threaded screw-based system to the unique flexible anchor, curved channel, and PMMA-augmented fixation architecture of the ’385 Patent.” *Paper 13 at 56*
- “This combination collapses due to the underlying functional incompatibility of the systems.” *Id.*
- “A [POSA] attempting this combination must choose between these antithetical insertion mechanics. Selecting Steffee’s impact insertion undermines the stable, rigid cylindrical guiding system described by Moskowitz” *Id. at 57*
- “[Petitioner] grossly understates the wholesale redesign required and ignores critical technical barriers” *Id. at 60*
- “[C]reating semi-circular channel paths through Moskowitz’s triangular sliding bases would require wholesale redesign that compromises the structural integrity required for the sliding base expansion mechanism” *Id. at 62*
- “The structural modifications required to create complex curved channel geometries would necessarily change the spatial relationships between channels” *Id. at 65*

No Evidence Redesign is Unfeasible

Patent Owner's assertions comprise unsupported attorney argument and contradict the references and the testimony of expert witness Brad Culbert:

173. A POSA had a reasonable expectation of success in modifying Moskowitz's implant to utilize anchors like those in Steffee. First, modifying Moskowitz's screw/drill guides to accommodate and complement Steffee's anchors was a matter of using machining techniques well known to a POSA, such as EDM as discussed above. Second, the use of curved anchors in spinal implants was already well known. As discussed for Ground 2 above, Hess taught the use of such curved anchors (passing through curved channels) for an interspinous implant. *See* Section X.B.. Curved anchors had also been successfully applied in intervertebral implants. *See* Ex. 1022, 4:15-29 (referencing tangs 220), Figs. 1, 9. Finally, the use of tools for impacting intervertebral implants and their anchors was well known. *See* Ex. 1004, 9:3-11 (explaining that positioning tool 500a can be used to impact the screw box itself by "tapping the handle with a mallet"); *see also* Ex. 1021 [0142]; Ex. 1023, 8:14-16. Therefore, a POSA had a reasonable expectation of success in combining Moskowitz and Steffee.

Paper 15 at 17-18
Ex. 1002 ¶ 173

No Evidence Redesign is Unfeasible

Patent Owner's argument that Moskowitz's "fundamental adjustability feature provided by its expandable design" cannot work with Steffee's fasteners also contradicts Moskowitz.

Moskowitz teaches that the base is expanded to match the intervertebral height **before** and **independent** of anchor insertion, meaning that the particular anchor type is irrelevant to the expansion:

- “By turning this adjustment screw 105 back and forth ... the sliding rails 106 of the top triangular base 103 (Fig. 1D) slide up and down the rail inserts 107 on the bottom triangular base 104 This action will simultaneously alter the intervertebral height and depth of the screw box 100 allowing individual custom fitting ... conforming to the dimensions of the disc space.”
Ex. 1004, 7:41-48
- “**First** the Allen key 501 is screwed **until** the box conforms perfectly to the height and depth of the space. **Then** a pilot hole can be drilled or an awl can start a pilot hole on the vertebral bodies. **Then** a transvertebral screw is screwed into the vertebral body via the built-in box screw guides 505.”
Ex. 1004, 10:59-63

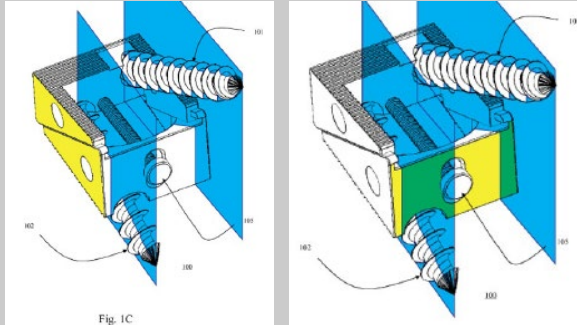
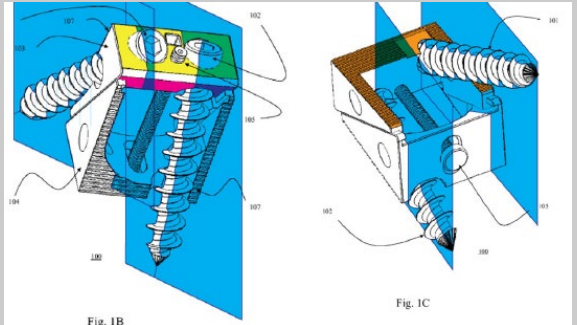
Unpatentability Under Ground 3

Independent Claim 1:

Claim	Element	Ground 3	PO Arguments
1.0	fusion device	(modified) Moskowitz intervertebral screwbox	-Admitted – “Moskowitz discloses a screw box for intervertebral placement”
1.1	curved channels	Moskowitz channels modified to accommodate curved anchors from Steffee	-Admitted – “The combination produces a channel capable of passing a curved, non-threaded component” -Attacks references individually (Moskowitz channels straight; Steffee doesn’t use implant); asserts hindsight motivation, wholesale redesign, no flexible anchors or PMMA injection capability
1.2	anchoring members coupling fusion member with vertebrae with portion remaining inside fusion member	Anchor heads engage screwbox via seat and remain inside screwbox to secure it to vertebrae	-Asserts no PMMA injection capability -Asserts Steffee’s barbed anchors won’t work because of Moskowitz expandable design
1.3	channels in parallel cross-sectional planes	Maintain existing parallel planes, as in both Moskowitz and Steffee	-Admitted: “Moskowitz discloses parallel channel orientations” -Asserts using curved channels alters device geometry and changes spatial relationship between channels

Unpatentability Under Ground 3

Dependent Claims:

Claim	Element	Ground 3	PO Arguments
2	planes parallel to at least one surface	 <p>Fig. 1C</p>	<p>-Asserts curved channels would change Moskowitz geometry, no evidence that surface relationships would be maintained (Ex. 1002 ¶ 180-181: “[T]he relative alignment of the channels and fasteners ... will be the same as in Moskowitz”)</p>
3	planes not parallel to at least one surface		
4.1	channels each open to at least two surfaces	 <p>Fig. 1B</p> <p>Fig. 1C</p>	<p>-Asserts curved channels “would change how channels interface with the screw box surfaces,” and that Petitioner presented no evidence to contrary (Ex. 1002 ¶ 182 “The channels ... will open to the same surfaces ... as in Moskowitz, with only the internal curvature ... being changed.”)</p>
4.2	planes not parallel to their respective channel’s opening surfaces		

Unpatentability Under Ground 3

Claim	Element	Ground 3	PO Arguments
5.1	first channel opens to surfaces 1 and 2, second channel opens to surfaces 1 and 3;	See Claim 4	-Attacks references individually, asserts that Steffee's fasteners do not traverse curved paths to achieve exit location on implant surfaces
5.2	anchors traverse channels, enter surface 1, exit surfaces 2, 3, without hindrance		
7.1	Anchors couple to driving member	Modified Moskowitz driver assembly for use with Steffee fasteners	-Asserts that modified driving tool does not contain central lumen for PMMA injection
7.2	driving member drives anchors into vertebrae, decouples		-Attacks references individually, asserts Moskowitz uses screwdriver, not impact driver -Asserts no "decoupling mechanism" (Ex. 1002 ¶ 185 – "a POSA ... understood the driving member would be removed")
9.1	each channel has recessed opening	seat or thread in each channel opening	-Attacks references individually, asserts that Moskowitz's seat engages bearing surface of threaded screws, Steffee does not have a "specialized flanged base" and does not use "flange-and-cavity system"
9.2	each anchor has base fits in each channel to maintain anchor partially in fusion member	head portion of Steffee's fasteners	-Asserts combination does not possess "highly specialized locking architecture" for anchoring a "non-threaded, PMMA-delivered system"

Ground 2 – Hess + General Knowledge

Combination of Hess and General Knowledge of POSA:

- Modify Hess's interspinous implant for use as intervertebral implant
- POSA understood Hess suitable and desirable for such use with minimal modifications

Motivation to Combine:

- Hess's design recognized as desirable for intervertebral use
- POSA recognized Hess's curved anchors have advantages over straight anchors to prevent loosening/migration of implant

Reasonable Expectation of Success:

- Only changes would be to modify dimensions of shell to match bone profile in intervertebral placement (e.g., box cage shape)
- Possibly modify design to increase strength by thickening walls or using stronger materials
- Reasonable expectation based on Hess's suggestion, existing prior art designs, and simple changes well within skill of a POSA

Paper 2 at 61-67
Ex. 1002 ¶¶ 122-128

Patent Owner's Counterarguments Fail

Patent Owner makes many of the same counterarguments against Ground 2 as for Ground 3, which fail for the same or similar reasons

Hess is analogous because a POSA would have recognized it as reasonably pertinent to improving intervertebral fusion - **unrebutted**

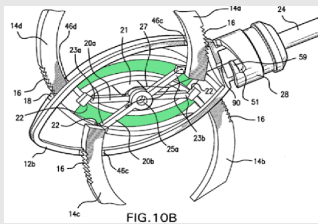
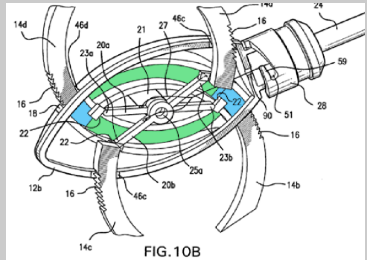
Patent Owner provides no evidence that modifying Hess would require “wholesale internal redesign” and does not rebut Petitioner’s evidence to the contrary.

Hess’s failure to disclose flexible anchors capable of PMMA-injection has no bearing on unpatentability because those limitations are not claimed

Paper 15 at 13-15, 17-19, 19-20
Ex. 1002 ¶¶ 122-125

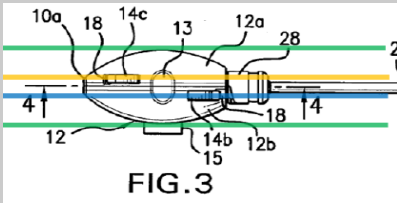
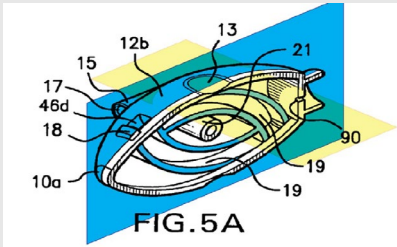
Unpatentability Under Ground 2

Independent Claim 1:

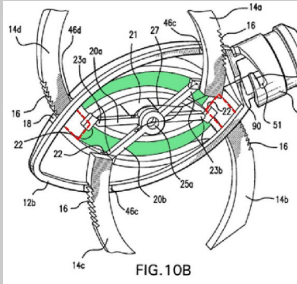
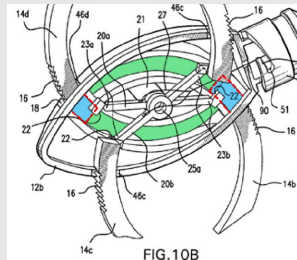
Claim	Element	Ground 2	PO Arguments
1.0	(intervertebral) fusion device	Hess's implant modified for intervertebral use	-Improper modification (non-analogous, lack of motivation and reasonable expectation of success)
1.1	curved channels	curved guide tracks 19 	-Asserts that despite explicit disclosure of curved guide tracks, the function of the tracks is “fundamentally incompatible with the inventive utility” of the curved channels enabling use of flexible anchors with PMMA injection capability
1.2	anchoring members coupling fusion member with vertebrae with portion remaining inside fusion member	locking wings 14a-14d 	-Asserts cable/wheel deployment incompatible with “push-in insertion method” -Asserts no PMMA injection capability
1.3	channels in parallel cross-sectional planes	explicitly described parallel deployment planes	-Admitted: “Hess describe[s] that its locking wings reside in parallel deployment planes”

Unpatentability Under Ground 2

Dependent Claims:

Claim	Element	Ground 3	PO Arguments
2	planes parallel to at least one surface	 <p>FIG. 3</p>	-Admits that Hess's guide tracks are parallel to sides but asserts this geometry is "incidental to its interspinous design"
3	planes not parallel to at least one surface	 <p>FIG. 5A</p>	-Admits that surfaces would necessarily be non-parallel but this "does not represent an intended design constraint"

Unpatentability Under Ground 2

Claim	Element	Ground 3	PO Arguments
7.1	Anchors couple to driving member	locking wings coupled by locking wheels to deployment cable which may be disengaged after deployment	-Asserts that “fails to meet functional requirements” because no axial/pushing force and no central lumen for PMMA injection
7.2	driving member drives anchors into vertebrae, decouples		-Asserts that Hess’s cable decoupling is “functionally unrelated” to the patented mechanism because does not address structural requirement of central lumen/PMMA injection
9.1	each channel has recessed opening		-Asserts failure to disclose “flanged base” that mechanically locks “push-in” anchor -Hess’s pawl/ratchet system serves different function
9.2	each anchor has base fits in each channel to maintain anchor partially in fusion member		-Asserts combination does not possess “highly specialized locking architecture” for anchoring a “non-threaded, PMMA-delivered system”