UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GLOBUS MEDICAL, INC., Petitioner

v.

MOSKOWITZ FAMILY LLC, Patent Owner

Case No.: IPR2020-01309 U.S. Patent No. 10,028,740 Issued: July 24, 2018 Application No: 15/862,016 Filed: January 4, 2018

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 10,028,740 PURSUANT TO 35 U.S.C. §§ 311–319 AND 37 C.F.R. § 42

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1001	U.S. Patent No. 10,028,740
1002	Prosecution history of U.S. Patent No. 10,028,740
1003	Declaration of Jorge A. Ochoa, Ph.D., P.E.
1004	Curriculum Vitae of Jorge A. Ochoa, Ph.D., P.E.
1005	U.S. Patent Publication No. 2005/0177236 to Mathieu et al.
1006	Auguste, KI, M.D., Chin, C, M.D., Acosta, FL, M.D., Ames, CP,
	M.D. Expandable cylindrical cages in the cervical spine: a review of
	22 cases. J. Neurosurg Spine 4:285-291, 2006
1007	Boakye, M, Mummaneni, P, Rodts, GW, Haid, RW. The Poly-ether-
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1008	Cheung KMC, Leong, JCY. "Spinal Instrumentation Overview in
	Lumbar Degenerative Disorders: Cages", Chapter 26 in The Lumbar
	Spine, 3rd Edition, Herkowitz et al. editors, 2004, Lippincott
	Williams & Wilkins, Philadelphia.
1009	Centinel Spine. The Gold Standard in Integrated Interbody
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1018	Ryu, SI, Kim, DH. Cervical Carbon Fiber Interbody Fusion Cage:	
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1019	Schimmel, JJP, MSC, Poeschmann, MS, M.D., Horsting, PP, M.D.,	
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	M.D., Ph.D. PEEK Cages in Lumbar Fusion. Mid-term Clinical	
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1020	Technique Guide: SynFix-LR. Implant and instrumentation for stand	
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I. INTRODUCTION

Petitioner Globus Medical, Inc. ("Globus" or "Petitioner") hereby petitions for *inter partes* review ("IPR") of claims 1, 3, 6, 8, 11, 15, 16-18 and 20 (the "Challenged Claims") of U.S. Patent No. 10,028,740, titled "Spinal Fusion Implant with Curvilinear Nail-Screws" ("the '740 patent"), issued to Nathan C. Moskowitz, et al. and assigned to Moskowitz Family LLC ("Moskowitz") (EX1001).

The invention of the '740 patent is not new. Rather, the claimed invention encompasses known implantable spinal fusion implants for conducting surgical procedures to accomplish an intervertebral fusion of the human spine. In this regard, the Challenged Claims of the '740 patent describe the invention as having features that are well-known and/or inherent in the prior art.

For the reasons set forth herein, Petitioner seeks a final, written decision that the Challenged Claims of the '740 patent are unpatentable as obvious pursuant to 35 U.S.C. § 103. A specific listing of Petitioner's asserted grounds for unpatentability and a comparison of the prior art to the Challenged Claims follows below. Evidentiary support for Petitioner's conclusions is provided in the Declaration of Jorge A. Ochoa, Ph.D., P.E. *See*, EX1003. Dr. Ochoa is an expert with over 35 years of experience in the area of medical device design, manufacture, commercialization, and failure analysis, surgical instruments and techniques, as well as biomechanics, and engineering biomaterials. Dr. Ochoa's declaration establishes that each of the challenged claims is anticipated or rendered obvious in view of the prior art and confirms all of Petitioner's assertions of unpatentability.

In summary, Allain, alone, renders Challenged Claims 1, 3, 11, 15-18 and 20 unpatentable as obvious under 35 U.S.C. § 103. *Id.* Additionally, Allain in view of Mathieu renders Challenged Claims 6 and 8 unpatentable as obvious under 35 U.S.C. § 103. *Id.*

Petitioner respectfully requests IPR of the Challenged Claims.

II. MANDATORY NOTICES - 37 C.F.R § 42.8

A. <u>Real Party in Interest (37 C.F.R. § 42.8(b)(1))</u>

Globus Medical, Inc. ("Globus") is the real party-in-interest. No other party had access to the Petition, and no other party had any control over, or contributed to any funding of, the preparation or filing of the Petition.

B. <u>Related Matters (37 C.F.R. § 42.8(b)(2))</u>

Petitioner is unaware of any disclaimers or reexamination certificates of the '740 patent.

The '740 patent is asserted in *Moskowitz Family LLC v. Globus Medical Inc.*, U.S. District Court for the Western District of Texas, civil action no. 6:19-cv-672, filed November 20, 2019 ("the Pending Litigation"). The complaint was served on Petitioner, defendant in the Pending Litigation, on November 21, 2019. Notably, in the Pending Litigation, Moskowitz has accused certain of Globus's spinal implant devices of infringing the challenged claims of the '740 patent. <u>Notably, on July 2,</u> <u>2020, by Order of the U.S. District Court for the Western District of Texas, the</u> <u>Pending Litigation was transferred to the U.S. District Court for the Eastern</u> <u>District of Pennsylvania and assigned civil action no. 2:20-cv-03271. EX1030. As</u> of the date of this Petition, a new judge has only just been assigned to the case.

Concurrently with this Petition, Petitioner is also filing IPR Petitions for the following patents: U.S. Patent No. 10,478,319 ("the '319 patent"); U.S. Patent No. 10,307,268 ("the '268 patent"); 10,251,643 ("the '643 patent"); U.S. Patent No. 9,889,022 ("the '022 patent"); and U.S. Patent No. 8,353,913 ("the '913 patent"). The '319, '268, '643, '022 and '913 patents, although not directly related to the '740

patent, disclose similar subject matter and claim priority in a common provisional

patent application No. 60/670,231. Petitioner understands that all of the patents are

commonly owned by Moskowitz.

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C. Designation of Lead and Backup Counsel (37 C.F.R.§ 42.8(b)(3))

A Power of Attorney (37 C.F.R. § 42.10(b)) is filed concurrently with this

Petition.

D. <u>Notice of Service (37 C.F.R. § 42.8(b)(4))</u>

Please direct all correspondence to lead counsel at the above address. Petitioner consents to email service at the above-referenced email addresses.

III. PAYMENT OF FEES – 37 C.F.R. § 42.103

Petitioner authorizes the Office to charge Deposit Account No. 08-0750 for the petition fee set in 37 C.F.R. § 42.15(a). The Office is authorized to charge any fee deficiency, or credit any overpayment, to Deposit Acct. No. 08-0750.

IV. REQUIREMENTS FOR IPR UNDER 37 C.F.R. § 42.104

A. <u>Grounds for Standing (37 C.F.R. § 42.104(a))</u>

Petitioner certifies that the '740 patent is available for IPR and Petitioner is not barred or estopped from requesting IPR. Petitioner notes that service of the Summons and Complaint issued in the Pending Litigation was made on Petitioner on November 21, 2019. Petitioner, therefore, is not time barred by the Pending Litigation to bring this Petition.

B. Challenge Under 37 C.F.R. § 42.104(b) and Relief Requested

Petitioner requests an IPR of the Challenged Claims on the following grounds:

Ground	Challenged Claims	Asserted Prior Art	Statutory Grounds
1	1, 3, 11, 15, 16, 17, 18 and 20	U.S. Patent Application Publication No.	35 U.S.C. § 103(a)

		2009/0105832 to Allain et al. ("Allain") (EX1028)	
2	6 and 8	Allain in view of U.S. Patent Application Publication No. 2005/0177236 to Mathieu et al. ("Mathieu") (EX1005)	35 U.S.C. § 103(a)

Based on the foregoing grounds and as established by the declaration of Dr. Ochoa (as further discussed below at Sections X, XI and XII), Petitioner seeks a final, written decision that the Challenged Claims are unpatentable.

V. SUMMARY OF THE '740 PATENT (EX1001)

The '740 patent issued on July 24, 2018, on an application filed on January 4, 2018. The '740 patent is a continuation of U.S. Application Serial No. 12/957,776, filed December 1, 2010 issued as U.S. Patent No. 9,888,918, which is a continuationin-part of U.S. Application Serial No. 12/471,340 filed May 22, 2009 issued as U.S. Patent No. 8,734,516, which is a continuation-in-part of U.S. Application Serial No. 12/054,335 filed March 24, 2008, issued as U.S. Patent No. 7,972,363, which is a continuation-in-part of U.S. Application Serial No. 11/842,855 filed August 21, 2007, issued as U.S. Patent No. 7,942,903, which is a continuation-in-part of U.S. Application Serial No. 11/536,815 filed September 29, 2006, issued as U.S. Patent No. 7,846,188, which is a continuation-in-part of U.S. Application Serial No. 11/208,644 filed August 23, 2005, issued as U.S. Patent No. 7,704,279. The application also claims priority to U.S. Provisional application No. 60/670,231 filed April 12, 2005 and U.S. Provisional application No. 61/265,752 filed December 1, 2009.

The Challenged Claims of the '740 patent lack written description support under §112 at least in the '516 patent, '363 patent, '903 patent, '188 patent, the '279 patent and the '231 provisional application.¹ Consequently, Petitioner asserts that the earliest priority date supporting the Challenged Claims for the '740 patent is the December 1, 2009 filing date of the '752 provisional application. *See*, EX1002 at 57-58 (during prosecution, the Examiner concluded that the effective filing date for the claims of the '740 patent was December 1, 2009). The burden to prove entitlement to a priority date of a patent earlier than its filing date is on the patentee.²

A. <u>The '740 Patent Specification and Claims</u>

The '740 patent is directed to the field of implantable orthopedic devices for the human body and particularly to implantable spinal fixation devices for spinal fusions. The '740 patent generally discloses a spinal fixation implant using a transvertebral curvilinear nail-screw which is implanted and embedded in adjacent

¹ See 35 U.S.C. §§119 and 120 (Pre-AIA); *In re Gosteli*, 872 F.2d 1008 (Fed. Cir. 1989).

² Natural Alternatives Int'l, Inc. v. Iancu, 904 F.3d 1375, 1380 (Fed. Cir. 2018).

vertebrae with a trajectory avoiding the pedicles of the vertebrae. EX1001 at 1:64-2:2.

The '740 patent issued with 23 claims, 10 of which are at issue in this Petition. Claims1 and 17 are independent. Challenged Claims 3, 6, 8, 11, 15 and 16 depend directly from independent apparatus claim 1 and claims 18 and 20 depend directly from independent method claim 17. The Challenged Claims, however, encompass known implantable spinal fixation devices and surgical procedures and techniques for implanting such devices and are unpatentable.

The written description and drawings of the '740 patent describe an implantable nail-screw 10 having a body 12 with a sharp pointed tip 14 and a head 16. EX1001 at 4:28-44. The device 10 can include a geometry that is curvilinear, allowing its sharp pointed tip 14 to be posteriorly or laterally, or anteriorly introduced, and to penetrate the mid lateral aspect of a vertebral body. *Id.* The head 16 can provide a surface which can be tamped upon by any variety of instruments in order to insert the pointed tip 14 (e.g., tail portion) and a portion of the body 12 into the core of the vertebral body. *Id.* A fish-hooked tail 18 can include a series of radially arranged fish-hooks 20 to engage the cancellous core of the vertebral body. *Id.* at 4:66-5:5; FIGs. 1E, 1F.



B. <u>The '740 Patent Prosecution History (EX1002)</u>

Following a preliminary amendment introducing all of the claims to be examined (EX1002 at 103-110), the application leading to the '740 patent, Serial No. 15/862,016, was restricted between claims to a spinal fusion implant and claims to a method for implanting a spinal fusion implant. The claims directed to the apparatus were elected. *Id.* at 52.

A non-final Office Action issued February 21, 2018 rejecting all of the elected claims as anticipated by and/or obvious over the prior art. *Id.* at 51-74. The applicant conducted an interview to discuss the rejections and potential claim amendments. *Id.* at 45. In the Amendment that followed, the applicant amended the rejected independent claim (corresponding to challenged claim 1) to require that the curved trajectories of the curvilinear nail-screws for avoiding penetrating the pedicles when implanted into the vertebral bodies are along a "single continuous arc." *Id.* at 45-46.

Thereafter, the claims were allowed. Id. at 12.

VI. CLAIM CONSTRUCTION

In an IPR, a claim of a patent "shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent."³

Challenged claims 1 and 17 include the claim limitation "a [first/second] curvilinear nail screw for penetration and implantation into a [first/second] intervertebral body along a [first/second] curved trajectory that avoids penetrating pedicles. In the Pending Litigation, Petitioner contends the limitation should be construed to mean "a curved, threaded body for penetration into an intervertebral body along a curved trajectory in the axial plane (*i.e.*, horizontally or laterally) necessary to avoid penetrating pedicles," or alternatively, that the limitation is indefinite. Moskowitz contends that only the shorter phrase "curvilinear nail-screw" requires construction, and that it should be construed to mean "a body having a curvilinear shape with the attributes of both a nail and a screw." Moskowitz further

³ 37 C.F.R. § 42.100(b); *see Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (en banc).

argues that the relevant characteristic of a nail is "capa[city to be]... inserted into the bone," and that the relevant characteristic of a screw is "being immobile once inserted," and that either threads or ridges can create the required immobility. For purposes of this proceeding, Petitioner adopts the claim construction position that Moskowitz has taken before the district court; however, Petitioner will continue to dispute Moskowitz's construction of the limitation before the district court.

Challenged claims 1 and 17 also include the claim limitations "first means for engaging a first cancellous core of the first vertebral body" and "second means for engaging a second cancellous core of the second vertebral body." In the Pending Litigation, Petitioner contends the limitation should be construed as a means-plusfunction limitations as permitted under 35 U.S.C. § 112(f), and Moskowitz agrees. The parties also agree that the function associated with these limitations is to engage a cancellous core. In the Pending Litigation, Petitioner contends that the specific portions of the specification that describe the structure for "engaging...[the] cancellous core[s]" of the vertebrae is found in the '740 patent at 4:66-5:11 and FIGs. 1E, 1F, 1G and 1H. See also, EX1002 at 59-60 (during prosecution, the Examiner likewise treated these limitations under § 112(f) without objection by applicant). Specifically, the structures described are "radially arranged fish-hooks 20" and "threads 24." Id. Petitioner, therefore, submits before the district court that these claim terms should be construed to encompass threads or fishhooks. Moskowitz, on the other hand, contends that the structure may consist of a series of fish-hooks, threads, ridges, or equivalent structure known to a PHOSITA, extending along a linear direction of the curvilinear nail-screw. For purposes of this proceeding, Petitioner adopts the claim construction position that Moskowitz has taken in the Pending Litigation; however, Petitioner will continue to dispute Moskowitz's construction of the limitation before the district court.

In the Pending Litigation, Petitioner also proposes constructions for the claim limitations "radially arranged fishhooks," "wherein the connecting support comprises at least first and second separate components," "connecting support structure," and "bar." Moskowitz, on the other hand, advocates for plain meaning constructions of those three terms. For purposes of this proceeding, Petitioner adopts the claim construction position that Moskowitz has taken in the Pending Litigation, although Petitioner will continue to dispute Moskowitz's construction of those three limitations before the district court.

Otherwise, unless expressly discussed herein, Petitioner submits that for purposes of this proceeding, the claim terms require no express construction and that they should be given their ordinary and customary meaning. Petitioner expressly reserves its right to argue a different claim construction in a different forum for any term in the '740 patent, as appropriate in that proceeding.

VII. THE LEVEL OF SKILL IN THE ART

As established in the Declaration of Dr. Ochoa (EX1003 at ¶¶25-30), a person having ordinary skill in the art (PHOSITA) of the '740 patent would have a Bachelor's or equivalent degree in Mechanical Engineering or a related discipline (*e.g.* biomechanics or biomedical engineering), and at least five years of experience. The experience would consist of a) designing, developing, evaluating and/or using prosthetic devices, b) anatomy, physiology and biology of soft and calcified tissues including bone healing and fusion, and c) biomechanical and functional loading of orthopedic implants. Alternatively, a POSITA could have an advanced degree, in the technical disciplines provided above, or a Doctor of Medicine, and at least two years of experience in the subject areas provided above.

VIII. THE STATE OF THE RELEVANT ART AT THE TIME OF THE INVENTION⁴

The '740 patent generally describes an implantable spinal fixation device for arthrodesis (*i.e.*, immobilization by fusion) of the adjacent bones, or vertebrae, in the human spine and a method for implant the device.

Implantable spinal fixation devices ("spinal fixation implants") used for spinal fusion have evolved over the years and included various type(s) and design(s) of spinal fixation implants (e.g., screws, rods, plates and spacers and/or cages (with or

⁴ For a more complete discussion, *see* EX1003 at ¶¶ 42-50.

without screws)) for stabilizing the spine with the intent of promoting fusion between adjacent vertebrae. Further, as the type(s) and design(s) of spinal fixation implants have changed, so to have the surgical techniques and procedures for performing spinal fusion surgery.

At the time of the invention of the '740 patent, this entire body of art relating to spinal fusions, including the various types of spinal fixation implants, the associated surgical tools for implanting the spinal fixation implants and surgical techniques for carrying out a spinal fusion procedure would have been well known to a PHOSITA.

IX. THE PRIOR ART RELIED UPON IN THIS PETITION

A. Allain (EX1028)

Allain, entitled "Intersomatic Cage, Intervertebral Prosthesis, Anchoring Device and Implantation Instruments," issued published April 23, 2009 on application Serial No. 12/134,884 filed June 6, 2008. Allain is prior art to the '740 patent under 35 U.S.C. § 102(e)(1) (Pre-AIA). Allain is an application for patent, published under Section 122(b), by another filed in the United States before the invention by the applicant for patent (*i.e.*, '740 patent's effective filing date, December 1, 2009). Allain was not considered by the Examiner during the prosecution of the application leading to the '740 patent.

To swear behind Allain, Moskowitz must prove conception of the claimed

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invention before Allain's June 6, 2008 filing date and diligence in reducing the invention to practice after that date. *Apator Miitors APS v. Kamstrup A/S*, 887 F.3d 1293, 1295 (Fed. Cir. 2018). It should be noted that Moskowitz has already asserted that its earliest invention date for the '740 patent is May 23, 2009. EX1029 at 9-10.

Allain discloses an intervertebral cage, *e.g.*, 2A, 2B, an anchoring device 1, and an instrument for the implantation of the cage and/or anchoring device into the spine including a guide 3 having a head 30 and a guidance element 310 (*e.g.*, FIGs.5C and 5D). The cage 2A, 2B is implanted in the intervertebral disc space between two adjacent vertebrae in order to promote the arthrodesis, or fusion, of the vertebrae. EX1028 at [0002], [0003].



Allain discloses an anchoring device 1 that is received in the intervertebral cage 2A, 2B at a slot 20. The anchoring device 1 may include an elongated body 10 with a curved shape that describes an arc along the longitudinal axis. *Id.* at FIGs. 1A-1D.



The anchoring device body 10 may have an abutment end 11 for connecting to the cage 2A, 2B and a penetration end 13 that is driven into the cancellous bone of the vertebral body. *Id.* at [0034]-[0036]. Allain discloses that the anchoring device body 10 is equipped with features such as notches 12 that are oriented to oppose the withdrawal of the anchor 1 from the cancellous bone after it has penetrated and been implanted in the vertebra. *Id.* at [0038], FIGs. 1A-1D.



Allain further discloses the guidance element 310 for the implantation tool contains curved surfaces 31 to effect implantation of the anchoring device along a curved path that avoids penetrating the pedicles of vertebrae. *Id.* at [0049], [0053], FIGs. 5C-5E.

B. Mathieu (EX1005)

Mathieu, entitled "Intervertebral Implant," published August 11, 2005. Mathieu is prior art to the '740 patent under 35 U.S.C. § 102(b) (Pre-AIA). Mathieu is a printed publication in this country more than one year prior to the effective filing date of the application for the '740 patent in the United States. Mathieu was not considered by the Examiner during the prosecution of the application leading to the '740 patent.

Mathieu discloses a spinal fusion implant. EX1005 at [0002], [0009]. The implant has a bar-shaped connecting support structure comprising two separate components - a cage 10 and a front fixation plate 8 – which are connected directly to one another via a dovetail slotted connection. *Id.* at [0010], [0011], [0042] and FIGs.6, 7, below.



The fixation plate 8 defines a hole for receiving a fixation screw. *Id.* and FIG. 5, below.



X. GROUND 1: ALLAIN RENDERS CLAIMS 1, 3, 11, 15, 16, 17, 18 and 20 OBVIOUS

As further discussed below, and as supported by Dr. Ochoa, Allain teaches or renders obvious each and every element and limitation of the <u>spinal fusion</u> <u>implant</u> recited in independent claim 1 and of the <u>method for implanting a spinal</u> <u>fusion implant</u> of independent claim 17. Further, Allain discloses or renders obvious each and every element and limitation of claims 3, 11, 15 and 16, each of which depend directly from claim 1, and 20, which depends directly from claim 17.

A. <u>Independent Claim 1</u>

[1] A spinal fusion implant comprising:

Allain discloses a spinal fusion implant, such as an intersomatic cage for intervertebral fusion grafting and its attachment to the vertebrae by a bony anchoring device and its implantation in the vertebra. EX1028 at Abstract; [0002], [00003]; FIGs. 1A-1D, 2A-2E.

A PHOSITA would have understood that Allain discloses or renders obvious a spinal fusion implant as recited at [1]. EX1003 at ¶54.

[2] a first curvilinear nail-screw for penetration and implantation into a first vertebral body along a first curved trajectory that avoids penetrating pedicles

Allain discloses a first curvilinear nail-screw (*i.e.*, anchor device 1) for penetration and implantation into a first vertebral body along a first curved trajectory that avoids penetrating pedicles. EX1028 at FIGs. 1A-1D.



FIGURE 11B

Allain describes the "anchoring device (1). . . may have a curved shape that, along the longitudinal axis, describes an arc, for example a circular arc or an elliptic arc." *Id.* at [0026]. The anchoring device includes a "penetration end," and is implantable in the vertebral plate of a vertebra. *Id. and see, e.g.*, FIG. 11B (which "represent[s] . . . a view in profile of one method of implementation of [the device] equipped with anchoring devices,..." *Id.* at [0023].



The anchor 1 can include screw or screw like features. EX1003 at ¶55. The body 10 of the anchor 1 is equipped with notches 12 that are oriented so as to oppose the withdrawal of the anchor 1 from the cancellous bone after it has penetrated and been implanted in a vertebra. EX1028 at [0038], FIGs. 1A-1D. As seen in FIGs. 1A (a perspective view) and 1B (a plan view), the number, the dimension and the shape of these notches 12 may vary by implementation. *Id*.



As clearly understood from Allain (*e.g., see* FIG. 11B) the implantation direction of the anchors 1 into the vertebral end plates avoids penetrating the pedicles. EX1003 at ¶¶52, 55. Specifically, one anchor 1 projects upward into the plate of the superior vertebra in the intervertebral space (into which the cage 2A, 2B

is implanted) and another anchor 1 projects downward into the plate of the inferior vertebra in the intervertebral space. Additionally, FIGs. 5C-5E show a guidance element 310 for the anchors 1 providing the curved trajectory along which the anchors move during implantation. EX1028 at [0049], FIG. 5C; EX1003 at ¶55. During implantation, the anchors 1 are guided into the vertebrae at a location and orientation that does not penetrate the pedicles. "This curved surface (31) may guide [the] anchoring device (1) through the slot (20) of an intersomatic cage (2A, 2B) or of an intervertebral prosthesis (2C), for the impacting of the anchoring device (1) into a vertebral plate of one of the vertebrae between which the cage (2A, 2B) or the prosthesis (2C) is implanted." *Id.* at [0049].

A PHOSITA would have understood that Allain discloses or renders obvious a spinal fusion implant having the limitations recited at [2]. EX1003 at ¶55.

[3] wherein the first curvilinear nail screw extends from a first proximal end to a first distal end along the first curved trajectory with a first head at the first proximal end and a first bone penetrating pointed tip at the first distal end

Allain discloses that the anchor 1 includes a body 10 of elongated shape along a longitudinal axis extending between a first end and a second end. EX1028 at [0026], FIG. 1D; EX1003 at ¶56. The first end is called the "penetration end" and the second end is called the "abutment end." *Id*. The body may have a curved shape along the longitudinal axis. *Id*.

FIGURE 1D



The abutment end of the body 10 includes at least one stop element 11, or head, that mates with at least one surface of the cage that the anchor 1 secures. *Id.* at [0036]. The penetration end of the anchor 1 penetrates into the vertebral plate and cancellous mass of one of the vertebrae between which the cage is to be implanted. *Id.* at [0035]. The penetration end includes a chamfer/bevel (13) or pointed tip to facilitate the penetration of the anchor 1 into the vertebra, as may be seen particularly in FIG. 1D. *Id.*

A PHOSITA would have understood that Allain discloses or renders obvious a spinal fusion implant including the limitations recited at [3]. EX1003 at ¶56.

[4] wherein the first curvilinear nail-screw comprises first means for engaging a first cancellous core of the first vertebral body positioned along a first distal portion of the first curvilinear nailscrew proximate the first distal end

The '740 patent describes the "means for engaging" the cancellous core of the vertebral body as radially arranged fish-hooks 20 or threads 24 on the nail-screw. *See* the '740 patent at 4:66-5:11; FIGs. 1E, 1F, 1G and 1H.

Allain discloses that the anchor 1 body 10 is equipped with notches 12 that

are positioned along the sides of the body and oriented so as to oppose the withdrawal of the device from the cancellous mass of the vertebral body after it has been implanted. EX1028 at [0038], FIGs. 1B, 1D. The number, the dimension and the shape of these notches 12 may vary according to implementation, "without moving outside the spirit of the invention." *Id.* Thus the notches 12 of the anchor 1 function to engage the cancellous core of the adjacent vertebrae as recited at [4]. EX1003 at [57.

FIGURE 1B



A PHOSITA would have recognized that the notches 12 extend outwardly from the opposite sides of the body 10 of the anchor 1 and are shaped to oppose withdrawal from the cancellous core of the vertebra into which the anchor 1 is penetrated. EX1003 at ¶57. A PHOSITA would have, therefore, considered the notches 12 of the anchor 1 taught by Allain to be the same or similar structure to the radially arranged fish-hooks 20 and/or threads 24 disclosed in the '740 patent. *Id.*

A PHOSITA, therefore, would have understood that Allain discloses or renders obvious a spinal fusion implant including the limitations recited at [4]. *Id.*

[5] wherein the first curved trajectory is along a first single continuous arc

Allain discloses that the body 10 of the anchor 1 may have a curved shape that, along its longitudinal axis, describes a continuous arc, for example a circular arc or an elliptic arc. EX1028 at [0026], FIGs.1C and 1D.



Allain further discloses an implantation tool including a guide 3 having a head 30 with a guidance element 310. *Id.* at [0049], [0053], FIGs. 5C-5E. The guidance element 310 includes curved guidance surfaces 31 to enable implantation of the anchor 1 along a continuous curved arc that avoids penetrating the pedicles of vertebrae. *Id.* The guidance surface 31 has a radius of curvature that is substantially the same as the radius of curvature of the anchor 1. The curved guidance surface 31 guides the anchor 1 along a curved trajectory through the slot 20 of the cage 2A, 2B and into a vertebral plate of one of the vertebrae between which the cage 2A, 2B is implanted. *Id.*

A PHOSITA, therefore, would have understood that Allain discloses or renders obvious a spinal fusion implant including the limitations recited at [5]. EX1003 at ¶58.

[6] a second curvilinear nail-screw for penetration and implantation into a second vertebral body along a second curved trajectory that avoids penetrating pedicles

wherein the second curvilinear nail screw extends from a second proximal end to a second distal end along the second curved trajectory with a second head at the second proximal end and a second bone penetrating pointed tip at the second distal end

wherein the second curvilinear nail-screw comprises second means for engaging a second cancellous core of the second vertebral body positioned along a second distal portion of the second curvilinear nail-screw proximate the second distal end

wherein the second curved trajectory is along a second single continuous arc; and

The limitations recited at [6] describe a "second curvilinear nail-screw" that is substantially the same as the "first curvilinear nail-screw" previously recited at [2]-[5]. Consequently the above discussion is equally applicable and expressly adopted here.

Moreover, Allain discloses two anchors 1 (an upper or first anchor 1 and a lower or second anchor 1) in the implant. *See, e.g.*, EX1028 at [0023] ("FIGs. 11A and 11B respectively represent a view in perspective and a view in profile of one method of implementation of an intervertebral prosthesis equipped with anchoring *devices*." (Emphasis added)). Including a second anchor follows from the stated goal of creating fusion (arthrodesis) of two vertebrae.

Allain shows both the first and second anchors 1 can be identical. See, e.g.,

EX1028 at FIGs. 11A-11D. The first anchor penetrates and is implanted in an upper vertebra along the first curved trajectory and the second anchor penetrates and is implanted in a lower vertebra along the second curved trajectory. *Id.* at [0049].A PHOSITA, therefore, would have understood that Allain discloses or renders obvious a spinal fusion implant including the limitations recited at [6]. EX1003 at ¶59.

[7] a connecting support structure defining

a first hole sized and configured for receiving the first curvilinear nail screw and

a second hole sized and configured for receiving the second curvilinear nail screw

such that the first curvilinear nail-screw is held with respect to the second curvilinear nail-screw

Allain discloses that the anchors 1 fit into slots 20 located on the cage 2A, 2B (*i.e.*, connecting support structure) that they secure in the vertebral body and to the cage. EX1028 at [0024]; FIGs. 2C, 11A. Each anchor 1 may be inserted through a respective slot 20 located on the wall 25 of the cage 2A, 2B or on a plate 51, 52 (*see*, FIG. 11A). *Id.* at [0028].



The bar shaped flat portion of the wall 25 of the cage 2A connects and supports the anchors 1. EX1028 at FIGs. 2A, 2C. The first anchor is held with respect to the second anchor. EX1028 at *e.g.*, FIGs. 2A-2C, 11A-11B (depicting two anchors fixed with respect to one another). The anchors are held in place, in part, using a stop element 11 on the anchor 1 that engages a stop element surface 21 of the cage 2A, 2B. *Id.* at [0036]. Secondarily, the first anchor 1 is held with respect to the second anchor 1 by features such as the flexible lugs 14 and notches 12. EX1003 at [62.

A PHOSITA would have understood that Allain discloses or renders obvious a spinal fusion implant including the limitations recited at [7]. EX1003 at [60-62.

[8] with the first curvilinear nail-screw extending into the first vertebral body without penetrating pedicles and

the second curvilinear nail-screw extending into the second vertebral body without penetrating pedicles.

Allain discloses that each of the two slots 20 for receiving the anchors 1 is oriented toward one of the top and bottom surfaces of the cage, so as to allow the

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anchor 1 to penetrate into each of the adjacent vertebra between which the cage 2A, 2B is implanted (*i.e.*, in an upward direction into the plate of the superior vertebra and in a downward direction into the plate of the inferior vertebra). *Id.* at [0028], FIGs. 2A-2C, 11B.



The direction that the anchors 1 are implanted into the upper and lower vertebrae avoids penetrating the pedicles. EX1028 at [0043], FIGs. 2C, 11B; EX1003 at ¶63. During implantation, the anchors 1 are guided from an anterior direction into the vertebrae between which the cage 2A is implanted. *Id*.

As shown in Allain, the guidance element 310 includes two curved surfaces 31, one extending upwardly and another extending downwardly. EX1028 at FIG. 5D.



Each curved surface 31 of the guidance element 310 guides a respective one of the anchors 1 through a corresponding slot 20 of the cage 2A. The anchors 1 are then impacted into a vertebral body. *Id.* at [0049]; [0053]. Specifically, one anchor 1 extends upward into the first vertebral body without penetrating the pedicles of the first vertebra and the other anchor 1 extends downward into the second vertebral body without penetrating the pedicles of the second vertebra. EX1003 at ¶63.Based on basic anatomy, as demonstrated by the figure below, it would have been understood that the location and orientation of implantation of the anchors 1 would not cause them to penetrate the pedicles when implanted "substantially along the plane of the intervertebral space" *Id.* at [0010]; EX1003 at ¶63.



A PHOSITA would have understood that Allain discloses or renders obvious a spinal fusion implant including the limitations recited at [8]. EX1003 at [63.

The spinal fusion implant as recited in claim 1 is obvious in view of Allain.

B. Independent Claim 17

Claim17 is directed to a method for implanting a spinal fusion implant. For those elements of claim 17 which are substantially the same as elements of claim 1, reference is made to the analysis detailed above with regard to claim 1 with the understanding that the corresponding analysis equally applies to claim 17. *See also*, EX1003 at ¶\$54-60, 62, 63.

[1] A method of implanting a spinal fusion implant, the method

comprising:

See analysis above, *supra*, at section X.A. [1]. A PHOSITA would have understood that Allain discloses or renders obvious a method of implanting a spinal fusion implant recited at [1]. EX1003 at ¶64.

[2] *implanting a first curvilinear nail-screw to penetrate into a first vertebral body along a first curved trajectory that avoids pedicles,*

wherein the first curvilinear nail screw extends from a first proximal end to a first distal end along the first curved trajectory with a first head at the first proximal end and a first bone penetrating pointed tip at the first distal end,

wherein the first curvilinear nail-screw comprises first means for engaging a first cancellous core of the first vertebral body positioned along a first distal portion of the first curvilinear nailscrew proximate the first distal end,

See analysis above, supra, at section X.A. [3] and [4]. A PHOSITA would

have understood that Allain discloses or renders obvious a method of implanting a

spinal fusion implant recited at [2].

[3] wherein the first head is positioned exterior to the first vertebral body and the first distal portion is positioned in the first cancellous core when implanted,

Allain discloses that the anchor 1 may be inserted through a slot 20 located on

a peripheral wall 25 of the cage 2A or a plate of the intervertebral disc prosthesis.

EX1028 at [0028]; FIGs. 2A, 11A.

The penetration end of the anchor 1 penetrates into the vertebral plate and cancellous mass of one of the vertebrae between which the cage (or the prosthesis)

is to be implanted. *Id.* at [0035]. The penetration end includes a chamfer 13 or a bevel to facilitate the penetration of the anchor 1 into the vertebra. *Id.*

The abutment end of the body 10 of the anchor 1 includes at least one stop element 11, or head, that mates with a stop element surface 21 of the cage 2A that the anchor 1 secures to the vertebra. *Id.* at [0036]. In a complementary manner, in different implementation variants of the cage (2A, 2B), at the level of the peripheral surface of the wall 25, the slot 20 includes at least one stop element surface 21 that engages with at least one stop element 11 of the anchor 1. *Id.*

It is inherent in Allain, and a PHOSITA would have understood, that since the anchor is intended to connect the cage to the vertebrae, the distal portion of the body 10, appropriately featured to engage the bone, will be located within the vertebra, while the stop element 11, or head, which is connected and in contact with the stop element surface 21 of the cage, will be positioned exterior to the vertebral body.

A PHOSITA would have, therefore, understood that Allain discloses or renders obvious a method of implanting a spinal fusion implant recited at [3]. EX1003 at ¶65.

[4] wherein the first curved trajectory is along a first single continuous arc;

See analysis above, *supra*, at section X.A. [5]. A PHOSITA would have understood that Allain discloses or renders obvious a method of implanting a spinal fusion implant recited at [4]. EX1003 at ¶66. [5] implanting a second curvilinear nail-screw to penetrate into a second vertebral body along a second curved trajectory that avoids pedicles,

wherein the second curvilinear nail screw extends from a second proximal end to a second distal end along the second curved trajectory with a second head at the second proximal end and a second bone penetrating pointed tip at the second distal end,

wherein the second curvilinear nail-screw comprises second means for engaging a second cancellous core of the second vertebral body positioned along a second distal portion of the second curvilinear nail-screw proximate the second distal end,

wherein the second head is positioned exterior to the second vertebral body and the second distal portion is positioned in the second cancellous core when implanted,

Allain discloses implanting a second anchor 1 (which can be identical to the first anchor 1 already described) into a second vertebra. A PHOSITA would have understood that since the anchor 1 is intended to connect the cage 2A, 2B to the vertebrae, the inclusion of a second anchor follows from the stated goal of creating fusion (arthrodesis) of two vertebrae.

See analysis above, *supra*, at section X.A. [2]-[6]. A PHOSITA would have understood that Allain discloses or renders obvious a method of implanting a spinal fusion implant recited at [5]. EX1003 at ¶66, 67.

[6] wherein the second curved trajectory is along a second single continuous arc;

See analysis above, *supra*, at section X.A. [6]. A PHOSITA would have understood that Allain discloses or renders obvious a method of implanting a spinal

fusion implant recited at [6]. EX1003 at ¶67.

[7] connecting the first curvilinear nail-screw to the second curvilinear nail-screw via a connecting support structure

such that the first curvilinear nail-screw is held with respect to the second curvilinear nail-screw with the first curvilinear nail-screw extending into the first vertebral body without penetrating pedicles and

the second curvilinear nail-screw extending into the second vertebral body without penetrating pedicles.

See analysis above, supra, at section X.A. [7] and [8]. A PHOSITA would

have understood that Allain discloses or renders obvious a method of implanting a spinal fusion implant recited at [7]. EX1003 at ¶68.

The spinal fusion implant as recited in claim 17 is obvious in view of Allain.

C. Dependent Claims 3 and 20

Dependent claim 3 depends directly from claim 1 and dependent claim 20 depends directly from claim 17. Both claims 3 and 20 recite limitations specifically limiting the structure for the "means for engaging" the cancellous core of the vertebrae recited in claims 1 and 17. Claims 3 and 20 state:

wherein the first means for engaging a first cancellous core of the first vertebral body and

the second means for engaging a second cancellous core of the second vertebral body

comprise radially arranged fishhooks.

Allain discloses that the anchor 1 body 10 is equipped with notches 12 are

positioned along a distal portion of the body. EX1028 at [0038]; FIGs. 1A, 1B, 1D. The notches extend outwardly from the body and are oriented so as to oppose the withdrawal of the anchor 1 from the cancellous bone after it has penetrated and been implanted in a vertebra. EX1028 at [0038], FIGs. 1A-1D. The number, the dimension and the shape of these notches 12 may vary according to implementation. *Id.*



A PHOSITA would have understood that the notches 12 (and other features such as flexible lugs 14) are an integral part of the anchor and serve to prevent withdrawal of the anchor from the cancellous bone of the vertebral bodies into which they were inserted. A PHOSITA would have understood that these features may be arranged radially, longitudinally, transversely or any combination or permutation thereof within the teachings of Allain. EX100X at ¶69.

A PHOSITA would have understood that Allain discloses or renders obvious the features of a spinal fusion implant recited in claims 3 and 20. *Id.*

The spinal fusion implant as recited in claims 3 and 20 is rendered obvious in view of Allain.

D. Dependent Claim 11

Dependent claim 11 depends directly from claim 1 and recites:

The spinal fusion implant of claim 1,

wherein the first and second curvilinear nail-screws are oriented by the connecting support structure to be introduced anteriorly into the first and second vertebral bodies.

Allain discloses that the anchors 1 are implantable in the vertebral plate of a vertebra by presenting the longitudinal axis of the anchor approximately along the plane of the intervertebral space. EX1028 at [0026]. The anchors are oriented by the cage and introduced anteriorly into the first and second vertebral bodies. *Id.* at [0041] and [0042]. The cage disclosed in Allain can be implanted anteriorly along the axis 2C-2C in FIG. 2B. *Id.*; *and see* figure, below.



A PHOSITA would have understood that Allain discloses or renders obvious the features of a spinal fusion implant recited in claim 11. EX1003 at ¶70.

The spinal fusion implant as recited in claim 11 is rendered obvious in view of Allain.

E. <u>Dependent Claim 15</u>

Dependent claim 15 depends directly from claim 1 and recites:

The spinal fusion implant of claim 1,

wherein the first and second curvilinear nail-screws connect to the first and second holes of the support structure at curved portions of the first and second curvilinear nail-screws.

Allain discloses the implant employs two anchors 1. The abutment end of the body 10 of each anchor 1 includes a curved stop element 11 that mates with a stop element surface 21 of the cage 2A, 2B that the anchor secures in the vertebra. EX1028 at [0036]; FIG. 1D, 2C.





Each of the slots 20 through which the anchors traverse toward the vertebra include a stop element surface 21 that engages with the stop element 11 of the respective anchor 1, thus connecting the anchors to the holes of the support structure,

as claimed. *Id.* The stop element surface 21 of the cage 2A, 2B also includes a peripheral surface of the wall 25 or of the plate 51, 52 (FIG. 11A) to accommodate the projecting lug 14 creating another (click-fitted) connection. *Id.*

A PHOSITA would have understood that Allain discloses or renders obvious the features of a spinal fusion implant recited in claim 15. EX1003 at ¶71.

The spinal fusion implant as recited in claim 15 is rendered obvious in view of Allain.

F. Dependent Claim 16

Dependent claim 16 depends directly from claim 1 and recites:

The spinal fusion implant of claim 1,

wherein the first curvilinear nail-screw is curved from the first proximal end to the first distal end including a portion of the first curvilinear nail-screw connected to the connecting support structure and

the second curvilinear nail-screw is curved from the second proximal end to the second distal end including a portion of the second curvilinear nail-screw connected to the connecting support structure.

Allain describes an anchor 1 having a curved shape along its longitudinal axis

that describes an arc, for example a circular arc or an elliptic arc. EX1028 at [0026],

FIG. 1D. In addition, the stop element 11 of the anchor 1 connected to the support

structure at stop element surface 21 may be curved and be simultaneously located

on the already curved portion of the anchor. Id.

The spinal fusion implant as recited in claim 16 is rendered obvious in view of Allain. EX100X at ¶72.

G. Dependent Claim 18

Dependent claim 18 depends directly from claim 17 and recites:

The method of claim 17,

wherein the first curvilinear nail-screw penetrates into the first vertebral body so as to traverse no more than 50% of the first vertebral body and the second curvilinear nail-screw penetrates into the second vertebral body so as to traverse no more than 50% of the second vertebral body.

Allain teaches that "bony anchoring devices" must penetrate into the vertebrae to a sufficient depth to secure the device. EX1028 at [0006]. Allain provides an anchor 1 that is implanted solidly and at a sufficient depth in the vertebral plates to retain the cage 2A in the vertebra. *Id.* at [0008]. The length of the anchor 1 may be designed for the depth of the slot 20 to be traversed and to the depth to which it must penetrate to the vertebral plates. *Id.* at [0032]. The depth into which the anchor penetrates the vertebral body is, therefore, merely a function of the length of the anchor the anchor. EX100X at ¶73.

A PHOSITA would have understood it would have been obvious for the anchor to penetrate no more than 50% into the vertebral body. *Id.* at ¶74. A PHOSITA would have understood that multi-level fusions were a common surgical procedure and that, in cases of multi-level fusion, one anchor may penetrate a

vertebral body from the top and another from the bottom. *Id.* Therefore, prescribing no more than 50% penetration into the vertebral body would have been a predictable consequence of avoiding impingement between two anchors within the same vertebra. *Id.* If impingement occurred, a PHOSITA would understand it would decrease the holding power of the anchors in the bone of the cancellous core, and prevent the secure connection of the anchor to the cage or prosthesis. *Id.*

The spinal fusion implant as recited in claim 18 would have been obvious to a PHOSITA at the time of the invention of the '740 patent over Allain. EX100X at ¶33, 74, 81.

In summary, as confirmed by Dr. Ochoa (*see, e.g.*, EX1003 at ¶¶31-33, 54-74, 80-81) Allain renders claims 1, 3, 11, 15, 16, 17, 18 and 20 obvious under 35 U.S.C. § 103.

XI. GROUND 2: ALLAIN IN VIEW OF MATHIEU RENDERS CLAIMS 6 AND 8 OBVIOUS

Dependent claim 6 depends directly from claim 1 and recites specific additional limitations concerning the connecting support of claim 1. Claim 6 recites:

The spinal fusion implant of claim 1,

wherein the connecting support comprises at least first and second separate components,

wherein the first component defines the first hole for the first curvilinear nail screw, and

wherein the first component is connected directly to the second

component.

Allain discloses a cage (*i.e.* connecting support) that has wall that is substantially annular with a periphery that is substantially circular with a bar-shaped flat portion that connects and supports the anchors 1. EX1028 at FIG. 2A and [0039]. The bar-shaped flat portion of the wall (25) includes slots (20) for receiving the anchors (1).



Mathieu discloses a spinal fusion implant. EX1005 at [0002], [0009]. The implant has a connecting support structure comprising two separate components - a generally annular cage 10 and a front fixation plate 8 – which are connected directly to one another via a dovetail slotted connection. *Id.* at [0010], [0011], [0042] and FIGs. 5, 6, and 7, below.



The fixation plate 8 defines boreholes 9 for receiving fixation bone screws 20. Id.



Moreover, the fixation plate 8 is a bar-shaped metal insert. EX1005 at [0010], [0011], [0042] and FIG.7; EX1003 at [76-79.

A PHOSITA would have appreciated that, in combination as a whole, the fixation plate and cage disclosed by Mathieu constitutes a connecting support structure. *Id.*; EX1003 at ¶53.

A PHOSITA would also have understood that the use of the bar-shaped metal insert in combination with the plastic cage of Mathieu provides an advantage that is

enabled by the use of different materials. EX100X at ¶76, 79. The unreinforced plastic cage provides a supporting structure with appropriate mechanical properties to provide support and load sharing in the spinal column while offering a radiolucent material that allows X-ray visualization of fusion maturation in the cage's enclosed spaces. *Id.* The metal fixation plate offers a stronger material to provide enhanced strength at the interface between the plate and the fixation screws. *Id.* In addition to providing rigid fixation, this also creates a tension band on the anterior surface, replacing the function of the anterior longitudinal ligament, and enhancing the strength of the treated level in bending. *Id.*

A PHOSITA would have been motivated to modify the cage disclosed in Allain to provide the advantages of the two-component construction disclosed in Mathieu, *i.e.* a radiolucent cage with a plate to that can provide rigid fixation of the anchors and create an anterior tension band. *Id.* at ¶77. Applying the two component construction disclosed in Mathieu to the device disclosed by Allain would be accomplished using known technique and would obtain predictable results. *Id.*

Allain as modified by Mathieu disclose a connecting support structure having at least first and second separate components (*i.e.*, metal plate and plastic cage), wherein the first component (*i.e.*, metal plate) defines the first hole for the first curvilinear nail screw, and wherein the first component is connected directly to the second component (*i.e.*, plastic cage). Thus, the spinal fusion implant as recited in

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claim 6 would have been obvious to a PHOSITA at the time of the invention of the '740 patent over Allain in view of Mathieu. EX100X at ¶¶31, 34-40, 75-82.

Dependent claim 8 depends directly from claim 1 and further limits the connecting support structure of claim 1 to be "a bar."

As discussed above with respect to claim 6, Allain as modified by Mathieu includes a metal insert (*i.e.*, connecting support structure) in the form of a bar.

In summary, as confirmed by Dr. Ochoa, Allain in view of Mathieu renders claims 6 and 8 unpatentable as obvious under 35 U.S.C. § 103.

XII. SECONDARY CONSIDERATIONS

There are no secondary considerations known to Petitioner that affect—let alone overcome—the strong showing of obviousness set out above.

XIII. THIS PETITION SHOULD NOT BE DISCRETIONARILY DENIED

Patent Owner may argue that this Petition should be discretionarily denied under 35 U.S.C. § 314(a) in view of the Pending Litigation, based on *NHK Spring*⁵ and its progeny. Any such argument by Patent Owner should be rejected for several reasons.

First, Lex Machina reports that the median number of days to trial in the

⁵ *NHK Spring Co. v. Intri-Plex Techs., Inc.,* IPR2018-00752, Paper 8 (PTAB Sept. 12, 2018).

EDPA for patent cases is 572 days. EX1031. The Pending Litigation however involves eight asserted patents, one hundred thirty-one asserted claims and twenty three accused products. *Id.* The Pending Litigation needs to go through full fact discovery, Markman, expert discovery, summary judgment and trial. This will require significantly more than the median of 572 days to address the number of claims and products, not to mention the Pending Litigation enters the queue behind all other cases that are on Judge Goldberg's docket, even those subsequently filed, and at a time when many cases are delayed because of COVID-19. The expectation is for a trial date in 2022/2023.⁶

Second, the most likely scenario is that a final decision will issue before and perhaps well before trial in the EDPA. Any appeal of a final decision would, at best, overlap with any appeal of the District Court decision. The Federal Circuit may consolidate such appeals, and enable the decision of this Board to impact the final outcome of the District Court case. Either way, any remand from appeal to the EDPA would delay the conclusion of the District Court action by years.

Third, Congressional intent militates against discretionary denial. Through 35 U.S.C. § 315(b), Congress established a one-year bar to file a petition for inter parties review after service of a complaint. In so doing, Congress was intending to "afford

⁶ Globus intends on filing a motion for stay in the Pending Litigation.

defendants a reasonable opportunity to identify and understand the patent claims that are relevant to the litigation." 157 Cong. Rec. S5429 (daily ed. Sept. 8, 2011). Indeed, as is the case here, "[h]igh-technology companies . . . are often sued by [patent owners] asserting multiple patents with large numbers of vague claims, making it difficult to determine in the first few months of the litigation which claims will be relevant and how those claims are alleged to read on the defendant's products." Id. Thus, it would be unfair—and in clear contravention of legislative intent—to refuse Petitioner access to the efficiencies intended through this forum.

XIV. CONCLUSION

Petitioner has demonstrated in this Petition that the Challenged Claims are unpatentable. Petitioner, therefore, respectfully requests institution of an IPR of the '740 patent.

Dated: July 21, 2020

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Attorneys for Petitioner, Globus Medical, Inc.

CERTIFICATE OF COMPLIANCE

The undersigned hereby certifies that this Petition complies with the word count limitations of 37 CFR § 42.24. This brief contains less than the 14,000 words permitted under 37 C.F.R. § 42.24(a)(1)(i). In accordance with 37 C.F.R. 42.24(a), this word count does not include table of contents, table of authorities, mandatory notices under §42.8, certificate of service or word count, or appendix of exhibits or claim listing.

Petitioner relies on the word count feature of the word-processing system used to prepare this paper.

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§42.6(e) and 42.105, this is to certify that I caused a true, correct and complete copy of the PETITION FOR INTER PARTES REVIEW OF U.S. PATENT NO. 10,028,740 PURSUANT TO 35 U.S.C. §§ 311–319 AND 37 C.F.R. § 42 and related documents to be served via electronic mail and FedEx, next day delivery, on the Patent Owner, on this 21st day of July, 2020:

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