UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	SPNE.P0006
First Inventor	Jeffrey Paris Wensel
Title	Fusion Member for Insertion Between Vertebral Bodies
Express Mail Label No.	Filed Electronically Via EFS-Web

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☐ **Electronic Fee Transmittal Form**
2. ☒ **Applicant claims small entity status.** See 37 CFR 1.27.
3. ☒ **Specification** [*Total Pages* **64**] Both the claims and abstract must start on a new page *(For information on the preferred arrangement, see MPEP 608.01(a))*
4. ☒ **Drawing(s)** *(35 U.S.C. 113)* [*Total Sheets* **76**]
5. **Oath or Declaration** [*Total Sheets* _____]
   a. ☐ Newly executed (original or copy)
   b. ☐ A copy from a prior application (37 CFR 1.63 (d)) *(for continuation/divisional with Box 18 completed)*
      i. ☐ DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. ☐ **Application Data Sheet.** See 37 CFR 1.76
7. ☐ **CD-ROM or CD-R** in duplicate, large table or Computer Program *(Appendix)*
   ☐ Landscape Table on CD
8. **Nucleotide and/or Amino Acid Sequence Submission** (*if applicable, items a. – c. are required*)
   a. ☐ Computer Readable Form (CRF)
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ACCOMPANYING APPLICATION PARTS

9. ☐ **Assignment Papers** (cover sheet (PTO-1595) & document(s))
   Name of Assignee _____
10. ☐ **37 CFR 3.73(b) Statement** (*when there is an assignee*) ☐ **Power of Attorney**
11. ☐ **English Translation Document** *(if applicable)*
12. ☐ **Information Disclosure Statement** (PTO/SB/08 or PTO-1449)
    ☐ Copies of foreign patent documents, publications, & other information
13. ☒ **Preliminary Amendment**
14. ☐ **Return Receipt Postcard** (MPEP 503) (*Should be specifically itemized*)
15. ☐ **Certified Copy of Priority Document(s)** *(if foreign priority is claimed)*
16. ☒ **Nonpublication Request** under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
17. ☐ Other: _____

18. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:*

☒ Continuation of prior application No.: 12/383,950 ☒ Continuation-in-part (CIP) of prior application No.: 12/113,362

Examiner <Not Yet Available> *Art Unit:* 3733 *Examiner* <Not Yet Available> *Art Unit:* 3733

19. CORRESPONDENCE ADDRESS

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GLOBUS EX. 1003

NONPUBLICATION REQUEST UNDER 35 U.S.C. 122(b)(2)(B)(i)		
	First Named Inventor	Jeffrey Paris Wensel
	Title	Fusion Member for Insertion Between Vertebral Bodies
	Attorney Docket Number	SPNE.P0006

I hereby certify that the invention disclosed in the attached application **has not and will not be** the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

I hereby request that the attached application not be published under 35 U.S.C. 122(b).

/Mani Adeli/	February 15, 2010
Signature	Date
Mani Adeli	39,585
Typed or printed name	Registration Number, if applicable
(310) 442-9300 x301	
Telephone Number	

This request must be signed in compliance with 37 CFR 1.33(b) and submitted with the application **upon filing.**

Applicant may rescind this nonpublication request at any time. If applicant rescinds a request that an application not be published under 35 U.S.C. 122(b), the application will be scheduled for publication at eighteen months from the earliest claimed filing date for which a benefit is claimed.

If applicant subsequently files an application directed to the invention disclosed in the attached application in another country, or under a multilateral international agreement, that requires publication of applications eighteen months after filing, the applicant **must** notify the United States Patent and Trademark Office of such filing within forty-five (45) days after the date of the filing of such foreign or international application. **Failure to do so will result in abandonment of this application (35 U.S.C. 122(b)(2)(B)(iii)).**

Electronic Acknowledgement Receipt

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Application Number:	12705972
International Application Number:	
Confirmation Number:	9747
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		SPNE4_SpecificationandFigures.pdf	19230129 57a2d1c4b1b48b3a20c8c3f2543dc596948a877d	yes	140

	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Specification		1	52	
	Claims		53	63	
	Abstract		64	64	
	Drawings-only black and white line drawings		65	140	
Warnings:					
Information:					
2		SPNEP0006_PreliminaryAmendment.pdf	427899 6d9d7748521cf0b748ad3d71ed293518e59b7afb	yes	9
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Preliminary Amendment		1	1	
	Specification		2	2	
	Claims		3	8	
	Applicant Arguments/Remarks Made in an Amendment		9	9	
Warnings:					
Information:					
3	Transmittal of New Application	SPNE6_Transmittal.pdf	474445 cff1fc04afa07bb04657f517ce04a6b20986c104	no	1
Warnings:					
Information:					
4	Nonpublication request from applicant.	SPNE6_NonPublication.pdf	417671 087e31f3268933f8ea61d6ea3c71abbebc08fc10	no	1
Warnings:					
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INTERVERTEBRAL FUSION DEVICE AND METHOD OF USE

CLAIM OF BENEFIT TO PRIOR APPLICATION

[0001] This application claims benefit to United States Provisional Patent Application 61/040,136, filed on March 27, 2008; United States Provisional Patent Application 61/109,175, filed October 28, 2008; and United States Provisional Patent Application 61/148,036, filed January 28, 2009. The above-mentioned United States Provisional Patent Applications are incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The invention pertains to spinal implants and surgical procedures for spinal fusion and stabilization.

BACKGROUND OF THE INVENTION

[0003] Back and neck pain are the leading causes of disability and lost productivity for American workers under the age of 45. Degenerative disc disease and its sequelae, whereby the fibrocartilaginous disc between adjacent vertebral bodies loses height, hydration and structural integrity, is one of the most common causes of back and neck pain and may develop secondary to traumatic injuries, inflammatory processes or various degenerative disorders. When conservative treatment fails, surgical fusion of the vertebral segments across the abnormal disc may be the only currently available procedure for pain relief. An increasing number of these spinal fusions are performed each year. It is estimated that over half a million of these procedures were performed in the United States last year alone.

[0004] Various surgical approaches to abnormal lumbar disc spaces are employed and include anterior interbody fusions, posterior interbody fusions and tranforaminal fusions. At cervical levels, an anterior approach is often employed. These procedures may be augmented by

various posterior element instrumentation techniques. Regardless of the surgical approach, the goal is to achieve solid bony fusion between the involved endplates and eliminate the symptoms caused by motion and associated degenerative and other reactive changes between these unstable vertebral segments.

[0005] The first lumbar fusion procedures involved removal of a portion of the abnormal disc and placement of autologous bone graft material in the disc space without other instrumentation in the vertebral bodies or posterior elements. This approach often failed due to inadequate structural integrity. Subsequently, cortical bone dowels and femoral ring allografts were employed in an attempt to restore disc space height and augment structural integrity. After U.S. Patent 4,961,740 ("Ray, et al.") introduced the concept of the threaded cylindrical interbody fusion cage in 1990, numerous other interbody fusion devices were developed. These devices include cylindrical, rectangular, and tapered cages and spacers composed of metals, polymers, human bone allograft and other materials. Some of these devices incorporate or are coated with human bone morphogenetic protein or other agents to promote new bone formation and accelerate fusion. Despite these advancements, failure rates for spinal fusion surgeries remain unacceptably high, greater than 10 percent in most series.

[0006] Therefore, there is a need in the art for an improved method to effect a more rapid, reliable fusion between unstable vertebral segments and avoid the considerable medical and economic impact of failed spinal fusions.

SUMMARY OF THE INVENTION

[0007] Some embodiments of the invention provide an apparatus that (1) delivers a fusion member between two vertebral bodies after at least a portion of the fibrocartilaginous disc between the vertebral bodies has been removed, and (2) affixes the fusion member to the vertebral bodies. In some embodiments, the apparatus includes (1) a fusion member that is delivered and positioned between the vertebral bodies, (2) a delivery mechanism that delivers and positions the fusion member between the vertebral bodies, and (3) an anchoring member that affixes the fusion member to the vertebral bodies.

[0008] In some embodiments, the interbody fusion member is a shaped block (e.g., a rectangular or oblong block) with one or more channels (e.g., tubular channels). As mentioned above, this member is placed between endplates of adjacent vertebrae following a partial or complete discectomy. In this position, two or more sides of the fusion member are in contact with the opposed endplates. These contacting sides in some embodiments restore both disc height and physiologic lordosis. In some embodiments, these sides are parallel to each other, whereas in other embodiments, these sides are nonparallel such that the fusion member presents a tapered profile when viewed laterally. In this position, one or more anchoring members (e.g., one or more open-tipped or close-tipped needles) can be pushed through the one or more channels of the fusion member and into the marrow space of one or more of the vertebral bodies, in order to affix the fusion member to the vertebral bodies. This is further described below.

[0009] In some embodiments, the delivery mechanism that delivers the fusion member between vertebral bodies includes (1) a delivery housing that houses the anchoring mechanism and (2) a retention mechanism that couples the delivery housing to the fusion member. The delivery housing of some embodiments includes channels that run the entire length of the

delivery housing that guide the anchoring mechanism to the proper channel opening of the fusion member. In some embodiments, the delivery housing also includes channels that guide retention rods toward the retention mechanism of some embodiments.

[00010] In some embodiments, the retention rods have retention teeth that mate with retention grooves on the fusion member. The retention rods, grooves, and teeth form the retention mechanism of some embodiments. Other embodiments might have different retention mechanisms. For instance, in some embodiments, the retention teeth are on the fusion member while the retention grooves are on the retention rod. Moreover, instead of, or in conjunction with, this tooth and groove approach, one of ordinary skill will realize that other embodiments use other retention structures (e.g., other male/female structures, other structures such as expandable clasps that encapsulate the lateral edges of the fusion member, other structures such as a clamp, etc.) to affix the delivery mechanism to the fusion member.

[00011] The retention mechanism is used in some embodiments as a way of controllably detaching the delivery mechanism from the fusion member after the medical practitioner (1) determines that the fusion member is placed at the desired position between two vertebral bodies, and (2) inserts the anchoring members into the vertebral bodies in order to affix the fusion member to the vertebral bodies. When the medical practitioner determines (e.g., by viewing x-ray images of the patient) that the fusion member is not placed at an appropriate position between two vertebral bodies, the medical practitioner can use the delivery mechanism to reposition the fusion member to the desired location. One of ordinary skill will realize that the delivery mechanism and/or retention mechanism of some embodiments can be used for delivery of any type of interbody fusion members between two vertebral bodies (e.g., even those that do not utilize anchoring members).

[00012] As mentioned above, the anchoring members (e.g., large gauge needles 1-10mm in outer diameter) are pushed through the channels of the delivery mechanism and the fusion member and into the marrow space of the vertebral bodies, in order to affix the fusion member to the vertebral bodies. Moreover, in some embodiments, polymethyl methacrylate (PMMA) or other bone cement or hardening polymer material, is injected through the anchoring members and into the vertebral bodies. In the marrow space of the vertebral bodies, this injected material forms a cloud around the tip of the anchoring member and hardens after a duration of time. Once this injected material hardens, it further solidifies the attachment of the fusion member to the vertebral bodies. To facilitate such injections, the anchoring members have hollow channels and perforated tips in some embodiments.

[00013] In some embodiments, the anchoring members are part of an anchoring mechanism that also includes driving members that advance the anchoring members through the fusion member channels into vertebral bodies. Some embodiments of the invention provide a coupling mechanism that couples each anchoring member to a corresponding driving member. In some embodiments, each driving member includes (1) a shaft that advances the anchoring member fully into the fusion member or withdraws the anchoring member from the fusion member and (2) a central lumen that provides a conduit for delivering polymers to the anchoring member.

[00014] The central lumen in the driving member aligns with the hollow channel (i.e., lumen) in its corresponding anchoring member once the anchoring member is in its desired position inside a vertebral body. Accordingly, once the driving members push the anchoring members into the vertebral bodies, hardening material (e.g., PMMA, bone cement, or other hardening polymer) may be injected through the central lumen of the driving and anchoring

members. The polymer flows from the central lumen of the driving member, through the central lumen of the anchoring member, and into the marrow space of the vertebral bodies. This material passes through the perforations (i.e., openings) of the anchoring member into the marrow space of the vertebral body, contiguous with or adjacent to the anchoring member tip that is inside the marrow space. The polymer clouds in some embodiments form a spherical or ellipsoidal "cloud" of PMMA contiguous with the anchoring member tip. Once the polymer cloud hardens, the surface contours of the anchoring member serve to anchor this member to the vertebral body and prevent it from being withdrawn from the trabecular bone, and thereby enhances the structural integrity of the inserted fusion device yielding solid mechanical fusion.

[00015] To enhance the structural integrity of the coupling between the fusion device and the vertebral bodies, some embodiments define various surface contours along the anchoring member's tip. Examples of such contours include angled teeth and backfacing ridges. These contours (e.g., angled teeth and backfacing ridge) allow the anchoring member to pass through the fusion member's channel and into the bone (i.e., into the adjacent vertebral body). In some embodiments, hardening material might not be injected through the anchoring members. Instead, the insertion of the anchoring members and particular variations for the anchoring tip contours prevent the anchoring members from being easily withdrawn from the bone.

[00016] In some embodiments, the anchoring member and driving member coupled together form a unified needle. In such an embodiment, the anchoring member is the embedded portion that is embedded in the vertebral bodies while the driving member is the retractable portion that is removed once the fusion member has been affixed to the vertebral bodies between which it is placed.

[00017] Once the anchoring members are in place, and the polymers have been injected into the marrow space of the vertebral bodies, the driving members and delivery mechanism may be removed, as mentioned above.

BRIEF DESCRIPTION OF THE DRAWINGS

[00018] The novel features of the invention are set forth in the appended claims. However, for purpose of explanation, several embodiments of the invention are set forth in the following figures.

[00019] **Figures 1A** provides a front perspective of the intervertebral apparatus.

[00020] **Figures 1B** and **1C** provide different perspectives of an exploded view of the intervertebral apparatus.

[00021] **Figures 2-3** illustrate the intervertebral apparatus in relation to two vertebral bodies between which the fusion member is placed.

[00022] **Figure 4** illustrates one perspective of the fusion member which includes channels through which anchoring mechanisms can be inserted and advanced.

[00023] **Figure 5A-5B** provide an illustration of the fusion member and retention grooves without the retention rods of the delivery mechanism.

[00024] **Figure 6** shows a perspective view of the delivery mechanism coupled with the fusion member.

[00025] **Figure 7A** illustrates the delivery housing from the perspective of the operator.

[00026] **Figures 7B-7C** illustrate the delivery housing with two retention rods in the delivery housing channels from the perspective of the operator and from the perspective opposite of the operator.

Figures 8-9 provide different perspectives of the retention rod of the delivery mechanism.

[00027] **Figures 10A-10C** (1) illustrate an example of the process of controllably detaching the delivery mechanism from the fusion member and (2) provide a detailed view of one of the retention rods.

[00028] **Figure 11** illustrates a detailed view of the retention rod teeth coupled with the retention groove.

[00029] **Figure 12** illustrates a cross-section of the retention rod coupled with the retention groove.

[00030] **Figure 13** shows alternative embodiments of retention teeth of the retention rods.

[00031] **Figure 14** shows two anchoring mechanisms in their initial configuration inside the channels of the delivery housing and fusion member.

[00032] **Figure 15** shows two anchoring mechanisms in their final configuration after the anchoring members have been advanced into the vertebral bodies.

[00033] **Figure 16** illustrates a perspective view of two anchoring members inside the fusion member channels.

[00034] **Figure 17** depicts two anchoring members that have almost been fully advanced through the fusion member channels.

[00035] **Figure 18** depicts the flexibility of the anchoring member.

[00036] **Figures 19-21** illustrate different views of the driving members and the anchoring members coupled and decoupled with the intervening members.

[00037] **Figures 22A-22B** illustrate exploded views of the pivoting mechanism from different perspectives.

[00038] **Figures 23A-23B** shows the driving members connecting directly with the anchoring members (i.e., no intervening member).

[00039] **Figures 24A-24B** shows different views and configurations of coupling mechanisms connected directly with the anchoring members and the driving members.

[00040] **Figures 25A-25D** provide detailed illustrations of the coupling mechanism.

[00041] **Figures 26A-C** show two anchoring members that have been inserted through the fusion member and into the vertebral bodies.

[00042] **Figures 27A-27B** depict the placement of one fusion member between adjacent vertebral bodies, a set of two anchoring members that have affixed the fusion member to the vertebral bodies, and the coalescence of the polymer collections that resulted following injections of the polymers via anchoring members.

[00043] **Figures 28A-28B** depict placement of two fusion members within the right and left paramedian disc space of adjacent vertebral bodies, multiple sets of anchoring members that have affixed the two fusion members to the vertebral bodies, and the coalescence of polymer clouds following the polymer injections.

[00044] **Figure 29** depicts a medical procedure that involves the insertion of the apparatus of some embodiments.

[00045] **Figures 30-33** illustrate different views of an interbody fusion member comprising curved tubular channels with distal openings on the superior block face and inferior block face.

[00046] **Figure 34** illustrates a detailed view of the anchoring member tips of one embodiment.

[00047] **Figures 35-36** illustrate different views of anchoring members that have been advanced through the semicircular tubular channels of the fusion member into the marrow space of the vertebral bodies.

[00048] **Figure 37** illustrates PMMA injections through the anchoring members above and below the fusion member.

[00049] **Figures 38-40** illustrate different views of an alternative fusion member embodiment with nonparallel angled curved channels extending to the inferior and superior block faces.

[00050] **Figures 41-42** illustrate different views of an alternative fusion member embodiment comprising oblique linear channels that are traversed by straight anchoring members which are rectangular in cross-sectional profile.

[00051] **Figure 43** illustrates the tip of the straight anchoring members which are rectangular in cross-sectional profile.

[00052] **Figures 44-45** illustrate different views of PMMA that has been injected and forms collections contiguous with the perforated, contoured tips of anchoring members within the marrow spaces of adjacent vertebral bodies.

[00053] **Figures 46A, 46B,** and **47** illustrate different views of an alternative fusion member embodiment comprising curved tubular channels that run in parallel planes with respect to each other but are nonparallel to the adjacent faces of the fusion block member.

[00054] **Figures 48A-48D** illustrate alternative anchoring member tips.

[00055] **Figure 49** illustrates various surface contours of the fusion member.

[00056] **Figure 50** illustrates an alternative retention rod with retention teeth of variable dimensions.

[00057] **Figure 51** illustrates an alternative retention rod with retention teeth of variable dimensions engaging retention grooves of matching profile in a fusion member. **Figure 52** shows a fusion member with four channels and four anchoring members that are advanced into these fusion member channels.

[00058] **Figure 53** shows four anchoring members that have been inserted through the fusion member and into the vertebral bodies.

[00059] **Figure 54** depicts the placement of one fusion member between adjacent vertebral bodies, a set of four anchoring members that have affixed the fusion member to the vertebral bodies, and the coalescence of the polymer collections that resulted following injections of the polymers via anchoring members.

[00060] **Figure 55** depicts placement of two fusion members within the right and left paramedian disc space of adjacent vertebral bodies, multiple sets of anchoring members that have affixed the two fusion members to the vertebral bodies, and the coalescence of polymer clouds following the polymer injections.

DETAILED DESCRIPTION OF THE INVENTION

[00061] In the following description, numerous details are set forth to provide a better understanding of the various embodiments of the invention. However, one of reasonable skill in the art will realize that the invention may be practiced without the use of the specific details presented herein. In some instances of describing the invention, well-known structures may be omitted or shown in block diagram form to avoid obscuring the description of the invention with unnecessary detail. Therefore, the examples provided herein for description and clarification should not be interpreted as in anyway limiting the language of the claims.

I. OVERVIEW

[00062] Some embodiments of the invention provide an apparatus that (1) delivers a fusion member between two vertebral bodies after at least a portion of the fibrocartilaginous disc between the vertebral bodies has been removed, and (2) affixes the fusion member to the vertebral bodies. In some embodiments, the apparatus includes (1) a fusion member that is delivered and positioned between the vertebral bodies, (2) a delivery mechanism that delivers and positions the fusion member between the vertebral bodies, and (3) an anchoring member that affixes the fusion member to vertebral bodies.

[00063] In some embodiments, the interbody fusion member is a shaped block (e.g., a rectangular or oblong block) with one or more channels (e.g., tubular channels). As mentioned above, this member is placed between endplates of adjacent vertebrae following a partial or complete discectomy. In this position, two or more sides of the fusion member are in contact with the opposed endplates. These contacting sides may be parallel to each other, or nonparallel such that the fusion member presents a tapered profile when viewed laterally so as to restore both disc height and physiologic lordosis. In this position, one or more anchoring members (e.g., one

or more open-tipped or close-tipped needles) can be pushed through the one or more channels of the fusion member and into the marrow space of one or more of the vertebral bodies, in order to affix the fusion member to the vertebral bodies. This is further described below.

[00064] In some embodiments, the delivery mechanism that delivers the fusion member between vertebral bodies includes (1) a delivery housing that houses the anchoring mechanism and (2) a retention mechanism that couples the delivery housing to the fusion member. In some embodiments, the delivery housing also includes channels that guide retention rods of the retention mechanism of some embodiments.

[00065] In some embodiments, the retention rods have retention teeth that mate with retention grooves on the fusion member. The retention rods, grooves, and teeth form the retention mechanism of some embodiments. Other embodiments might have different retention mechanisms. For instance, in some embodiments, the retention teeth are on the fusion member while the retention grooves are on the retention rod. Moreover, instead of, or in conjunction with, this tooth and groove approach, one of ordinary skill will realize that other embodiments use other retention structures (e.g., other male/female structures, other structures such as expandable clasps that encapsulate the lateral edges of the fusion member, other structures such as a clamp, etc.) to affix the delivery mechanism to the fusion member.

[00066] The retention mechanism is used in some embodiments as a way of controllably detaching the delivery mechanism from the fusion member after the medical practitioner (1) determines that the fusion member is placed at the desired position between two vertebral bodies, and (2) inserts the anchoring members into the vertebral bodies in order to affix the fusion member to the vertebral bodies. When the medical practitioner determines (e.g., by viewing x-ray images of the patient) that the fusion member is not placed at an appropriate position

between two vertebral bodies, he can use the delivery mechanism to reposition the fusion member to the desired location. One of ordinary skill will realize that the delivery mechanism and/or retention mechanism of some embodiments can be used for delivery of any type of interbody fusion members between two vertebral bodies (e.g., even those that do not utilize anchoring members and/or PMMA or bone cement).

[00067] As mentioned above, the anchoring members (e.g., large gauge needles 1-10mm in outer diameter) are pushed through the channels of the delivery mechanism and the fusion member and into the marrow space of the vertebral bodies, in order to affix the fusion member to the vertebral bodies. Moreover, in some embodiments, polymethyl methacrylate (PMMA) or other bone cement or hardening polymer material, is injected through the anchoring members and into the vertebral bodies. In the marrow space of the vertebral bodies, this injected material forms a cloud around the tip of the anchoring member and hardens after a duration of time. Once this injected material hardens, it further solidifies the attachment of the fusion member to the vertebral bodies. To facilitate such injections, the anchoring members have hollow channels and perforated tips in some embodiments.

[00068] In some embodiments, the anchoring members are part of an anchoring mechanism that also includes driving members that advance the anchoring members through the fusion member channels into vertebral bodies. Some embodiments of the invention provide a coupling mechanism that couples each anchoring member to a corresponding driving member. In some embodiments, each driving member includes (1) a shaft that advances the anchoring member fully into the fusion member or withdraws the anchoring member from the fusion member and (2) a central lumen that provides a conduit for delivering polymers to the anchoring member.

[00069] The central lumen in the driving member aligns with the hollow channel (i.e., lumen) in its corresponding anchoring member once the anchoring member is in its desired position inside a vertebral body. Accordingly, once the driving members push the anchoring members into the vertebral bodies, hardening material (e.g., PMMA, bone cement, or other hardening polymer) may be injected through the central lumen of the driving and anchoring members. The polymer flows from the central lumen of the driving member, through the central lumen of the anchoring member, and into the marrow space of the vertebral bodies. This material passes through the perforations (i.e., openings) of the anchoring member into the marrow space of the vertebral body, contiguous with or adjacent to the anchoring member tip that is inside the marrow space. The polymer clouds in some embodiments form a spherical or ellipsoidal "cloud" of PMMA contiguous with the anchoring member tip. Once the polymer cloud hardens, the surface contours of the anchoring member serve to anchor this member to the vertebral body and prevent it from being withdrawn from the trabecular bone, and thereby enhances the structural integrity of the inserted fusion device yielding solid mechanical fusion.

[00070] To enhance the structural integrity of the coupling between the fusion device and the vertebral bodies, some embodiments define various surface contours along the anchoring member's shaft. Examples of such contours include angled teeth and backfacing ridges. These contours (e.g., angled teeth and backfacing ridge) allow the anchoring member to pass through the fusion member's channel and into the bone (i.e., into the adjacent vertebral body). In some embodiments, hardening material might not be injected through the anchoring members. Instead, the insertion of the anchoring members and particular variations for the anchoring tip contours prevent the anchoring members from being easily withdrawn from the bone.

[00071] In some embodiments, the anchoring member and driving member coupled together form a unified entity, the anchoring member. In such an embodiment, the anchoring member is the embedded portion that is embedded in the vertebral bodies while the driving member is the retractable portion that is removed once the fusion member has been affixed to the vertebral bodies between which it is placed.

[00072] Once the anchoring members are in place, and the polymers have been injected into the marrow space of the vertebral bodies, the driving members and delivery mechanism may be removed, as mentioned above.

[00073] One of ordinary skill will realize that although several embodiments have been described above, other embodiments might be implemented or operated differently. For instance, before advancing the anchoring members into the vertebral bodies as described above, some embodiments first advance a smaller gauge anchoring member into the marrow space of the adjacent vertebral body before placement of the larger gauge anchoring member. This creates a guide to help ensure that the larger gauge anchoring member will be advanced into the proper position within the trabecular bone of the vertebral body.

[00074] To better understand these embodiments, it is helpful to understand relevant terminology and describe examples of the invention in use. Therefore, the following sections present relevant terminology, and provide an overview of an exemplary fusion procedure of some embodiments and of a number of more specific design features and variations.

II. DEFINITIONS AND TERMINOLOGY

[00075] The spinal column of humans and other vertebrates comprises vertebral bodies and posterior osseous elements that provide structural support and also serve to protect the spinal cord and other spinal canal contents. The vertebral bodies are the cylindrical segmental osseous

structures that form the anterior margin of the spinal canal and are separated from each other by fibrocartilaginous intervertebral discs. In the present discussion, the term "fusion member" refers to a device positioned between vertebral bodies. In some embodiments, the fusion member has one or more channels for the passage of contoured anchoring members and/or the retention and positioning of bone graft material or bone graft substitutes between adjacent vertebral bodies.

III. COMPONENTS OF THE FUSION MEMBER, DELIVERY MECHANISM, AND ANCHORING MEMBER(S)

[00076] Some embodiments of the invention provide an apparatus that (1) delivers a fusion member between two vertebral bodies after at least a portion of the fibrocartilaginous disc between the vertebral bodies has been removed, and (2) affixes the fusion member to the vertebral bodies.

[00077] **Figures 1-3** illustrate an example of one such apparatus according to some embodiments. **Figure 1A** provides a front view of the apparatus 110. **Figures 1B** and **1C** provide different perspectives of an exploded view of the apparatus 110. **Figure 2** provides a side view of the apparatus 110 in relation to two vertebral bodies 210-220 between which a fusion member 120 is placed. **Figure 3** provides a rear view of the apparatus 110 in relation to the two vertebral bodies 210-220 between which the fusion member 120 is placed.

[00078] As shown in these figures, the apparatus 110 includes (1) a fusion member 120 that is delivered and positioned between the vertebral bodies 210-220, (2) a delivery mechanism 130 that delivers and positions the fusion member 120 between the vertebral bodies 210-220, and (3) anchoring mechanisms 140 that affix the fusion member 120 to the vertebral bodies 210-220. Each of these components will be described in further detail below.

A. FUSION MEMBER

[00079] As mentioned above, the apparatus 110 includes a fusion member 120 that is delivered and positioned between the vertebral bodies 210-220. The fusion member 120 includes (1) two channels 170 through which two anchoring mechanisms can be advanced, and (2) retention grooves 150 of a retention mechanism for attaching the fusion member to the delivery mechanism.

[00080] **Figure 4** illustrates a perspective view of the fusion member 120 of some embodiments of the invention. In this and some of the subsequent figures, fusion members are shown transparently to facilitate an appreciation of the spatial relationships between multiple channels and their openings upon multiple faces of the fusion member.

[00081] As shown in **Figure 4**, the fusion member 120 includes channels 410 and 440 through which anchoring mechanisms can be inserted and advanced. Channel 410 has a distal opening 420 on the superior face 430 of the fusion member 120. Channel 440 has a distal opening 450 on the inferior face 460 of the fusion member 120. Channel 410 has a proximal opening 470 on the proximal face 490 of the fusion member 120. Channel 440 also has a proximal opening 480 on the proximal face 490 of the fusion member 120. Some embodiments of the fusion member provide a recess of increased diameter (e.g., flange cavity, anchoring member cavity, etc.) on the channel opening on the proximal face of the fusion member (one such example will be described below by referring to the anchoring member cavity 1685-1690 of **Figure 16** and the anchoring member cavity 1720 of **Figure 17**).

[00082] As shown in the example illustrated in **Figure 4**, the cross-sectional planes of the fusion member channels 410 and 440 are parallel to each other, but are not parallel to the right and left face of the fusion member 120. This allows the distal opening 420 of channel 410 to be

located on the center of the superior 430 face of the fusion member, and the distal opening 450 of channel 440 to be located on the center of the inferior 460 face of the fusion member even though their proximal opening 470 and 480 start on the same proximal face 490. Even though the fusion member channels shown in these figures are curved and tubular, one of ordinary skill in the art will know that the channels may be other shapes or configurations in other embodiments as later described in **Section V**.

[00083] **Figure 5A** provides an illustration of the fusion member 120 and two sets of retention grooves 150 located on the left side of the fusion member 120 without the retention rods of the delivery mechanism. The two sets of retention grooves on the right side of the fusion member are not shown in this figure. **Figure 5B** provides a front perspective of the fusion member 120 with the two sets of retention grooves 150 located on the left side of the fusion member 120 and two sets of retention grooves 150 located on the right side of the fusion member 120. The two sets of retention grooves couple with the retention rods of the delivery mechanism. Both the delivery mechanism and the retention rods will be described in further detail below.

[00084] As shown in **Figure 5A-5B**, each set of retention grooves 150 includes two subsets of grooves (i.e., indentations, cavities, etc.) that differ in diameter, a first set of grooves 520 having a smaller diameter than a second set of grooves 510. These figures show the first subset of grooves 520 with six indentations that are smaller in diameter than the second subset of grooves 510 with five indentations that are larger in diameter. The first subset of grooves 520 couples with the shaft of a retention rod while the second subset of grooves 510 couples with the teeth of the retention rod as further described below. In some embodiments, the retention grooves of the fusion member couple with retention rods of the delivery mechanism to form a retention mechanism. The retention teeth of the rods are the male coupling members of the retention

mechanism while the retention grooves of the fusion members are the female coupling members of this mechanism.

[00085] In the example illustrated in **Figures 5A-5B**, two subsets of retention grooves 150 are located on the left side of the fusion member and two subsets of retention grooves are located on the right side of the fusion member. However, one of ordinary skill in the art will realize that the retention mechanism and retention grooves can be in another location on the fusion member, such as in the interior of the fusion member, and can vary in shape, size, and number. Also, other embodiments might have different retention mechanisms. For instance, in some embodiments, the retention teeth are on the fusion member while the retention grooves are on the retention rod. Moreover, instead of, or in conjunction with, this tooth and groove approach, one of ordinary skill will realize that other embodiments use other retention structures (e.g., other male/female structures, other structures such as expandable clasps that encapsulate the lateral edges of the fusion member, other structures such as a clamp, etc.) to affix the delivery mechanism to the fusion member.

[00086] Also, in the example illustrated in **Figure 5B**, the cross-sectional view of the two channels 530 that go through the fusion member 120 are parallel to the right and left side of the fusion member 120. This is a different channel implementation than the channels 410 and 440 of the example illustrated in **Figure 4**. As mentioned above, the cross-section planes of those two channels 410 and 440 are not parallel to the right and left sides of the fusion member, even though they are parallel to each other.

[00087] In some embodiments, the fusion member can be composed of any number of materials, such as metals (e.g., stainless steel, titanium, or nitinol), various polymers (e.g., PMMA or polyetheretherketone), carbon fiber, etc. The fusion member can also be partially or

be completely made of bioabsorbable or biodegradable materials, so that it can be partially or be completely absorbed. In some embodiments, the fusion member's faces that are in contact with the vertebral endplates may have surface contours such as ridges to enhance stability. The fusion member can also include additional channels or cavities to be packed with bone graft material or bone graft substitutes to enhance progressive solid bony fusion. Bone graft material and bone graft substitutes can also be packed into the intervertebral space surrounding and between the fusion members to enhance progressive solid bony fusion. The fusion member can also be coated with or partially be composed of human bone morphogenetic protein or other bone growth inducing substances.

[00088] Typically, the fusion member is inserted between adjacent vertebral bodies after at least some of the fibrocartilaginous disc between the adjacent vertebral bodies is removed during a partial or complete discectomy. Once the fusion member is delivered to the proper location between adjacent vertebral bodies, two or more sides of the fusion member may be in contact with the opposed endplates of the adjacent vertebral bodies. These contacting sides in some embodiments restore both disc height and physiologic lordosis. In some embodiments, these sides are parallel to each other, whereas in other embodiments, these sides are nonparallel such that the fusion member presents a tapered profile when viewed laterally. The delivery mechanism that inserts the fusion member between the vertebral bodies will be described below.

B. DELIVERY MECHANISM

[00089] As mentioned above, the delivery mechanism delivers the fusion member between adjacent vertebral bodies. **Figure 6** shows a perspective view of the delivery mechanism 130 coupled with the fusion member 120. The delivery mechanism includes (1) a delivery housing 610 that houses the anchoring mechanism and retention rods 160, and (2) four retention

rods 160 that couple the delivery housing 610 with the fusion member 120. From this perspective, only three of the four retention rods can be seen.

[00090] **Figure 7A** illustrates the delivery housing 610 from the perspective of the operator during an operation (i.e., the backside of the delivery mechanism during an operation). **Figures 7B** and **7C** illustrate the delivery housing with two retention rods 160 in channels 710 from the perspective of the operator and from the perspective opposite of the operator during an operation (i.e., from the front side of the delivery mechanism during an operation).

[00091] As shown in **Figures 7A** and **7B**, the delivery housing 610 includes circular channels 710 and 720 that run the entire length of the delivery housing 610, from the distal end of the delivery housing to the proximal end of the delivery housing. In some embodiment, these channels have the same diameter throughout the entire length of the channel. The two channels 720 house and guide the anchoring mechanism (not pictured) to the proper channel opening of the fusion member, whereas the four channels 710 house and retain the retention rods. One of ordinary skill in the art will realize that any number of channels that house the retention rods and the anchoring mechanism can be used. The delivery housing channels can be of various shapes and sizes to accommodate the various shapes and sizes of the anchoring mechanism and retention rods. The anchoring mechanism will be described in further detail in **Section C**.

[00092] As mentioned above, the retention mechanism attaches the delivery housing to the fusion member. In some embodiments, the retention mechanism is used as a way of controllably detaching the delivery mechanism from the fusion member after the medical practitioner determines that the fusion member is placed at the desired position between two vertebral bodies.

[00093] The retention mechanism that is illustrated in **Figures 6-7** includes (1) retention rods 160 of the delivery mechanism 130, and (2) sets of retention grooves 150 of the fusion

member 120, which couple with retention rods 160 of the delivery mechanism 130. As shown in **Figures 8-9** each retention rod in some embodiments includes (1) a shaft 810 with a distal end that couples with the subset of smaller retention grooves 520, (2) retention teeth 815 on the distal end of the shaft 810 that couple with the subset of larger retention grooves 510, and (3) a handle 820 on the proximal end of the shaft that rotates the retention rod.

[00094] **Figures 10A-10C** step through an example of the process of controllably detaching the delivery mechanism 130 from the fusion member 120 once the delivery mechanism is no longer needed. **Figure 10A** shows the initial configuration of two retention rods 160 of the delivery mechanism 130 fully coupled with two sets of retention grooves of the fusion member 120. In this figure, the retention rod 160 is fully coupled with retention grooves of the fusion member 120. In this configuration, the delivery rod 160 and delivery housing (e.g., the delivery mechanism 130) is tightly coupled with the fusion member 120. This configuration allows the fusion member 120 to be delivered between adjacent vertebral bodies. After the fusion member 120 has been delivered, a medical practitioner determines (e.g., by viewing x-ray images of the patient) whether the fusion member is in the correct position. If a determination is made that fusion member is not in the correct position between two vertebral bodies, the delivery mechanism can be used to reposition the fusion member to the desired location. When the medical practitioner determines that the fusion member is placed at the desired position between two vertebral bodies, and anchoring members have affixed the fusion member to the vertebral bodies, the retention mechanism can be used to controllably detach the delivery mechanism 130 from the fusion member 120. The controllable detachment of the delivery mechanism from the fusion member is initiated by the uncoupling of each retention rod from each set of retention grooves.

[00095] **Figure 10B** shows a single retention rod 160 partially uncoupled from the retention grooves of the fusion member. In this configuration, the retention rod 160 is rotated 180 degrees so that the retention teeth 910 are disengaged from the subset of larger retention grooves 510. This configuration allows the retention rod 160 to be withdrawn from the retention grooves of the fusion member.

[00096] **Figure 10C** shows the distal end of the shaft of the retention rod 160 after the shaft has been pulled away from the fusion member so that it is barely in contact with the subset of smaller retention grooves 520 (i.e., it has been removed from all but the last smaller retention groove). Once the shaft of the retention rod has been withdrawn from the retention grooves and from the fusion member, the process can be repeated to uncouple the remaining retention rods from the fusion member. When all of the retention rods have been uncoupled from the fusion member, the delivery mechanism can be detached from the fusion member and removed from the patient.

[00097] **Figures 11-12** illustrate another example of the retention grove and teeth structures of some embodiments. In this example, the retention teeth 1115 encompass less than 180 degrees of the retention rod shaft. This facilitates clearance between the retention teeth 1115 and the larger-diameter retention grooves 1110 when uncoupling the retention teeth 1115 from these grooves 1110 and when withdrawing the retention rod 160 away from the fusion member and out of the smaller-diameter retention grooves 1120. This example also shows the flared shape of the subset of larger retention grooves 1110. The flared shape of the retention grooves 1110 match the flared shape of the retention teeth 1115 in order to secure the retention teeth 1115 to the retention grooves 1110.

[00098] **Figure 12** illustrates a cross-section of the retention teeth 1115 fully coupled with the larger-diameter retention grooves 1110 to show the flared shape of the retention teeth. The width of the retention teeth increases as the distance increases from its base 1210 (i.e., where the retention teeth 1115 attach to the retention rod 160). The tip 1220 of each retention tooth has the largest width while the base 1210 of each retention tooth has the smallest width. This flared shape prevents any movement of the retention rod along the plane of the x, y, or z axis (i.e., prevents any horizontal or vertical movement, including the outward lateral movement of the retention rod from the fusion member) when the teeth of the retention rod are fully coupled with the larger-diameter retention grooves.

[00099] One of ordinary skill in the art will realize that even more alternative structures can be used for the retention groove and teeth structures than those illustrated in **Figures 8-12**. For instance, **Figure 13** illustrates a number of other teeth structures that are used in some embodiments.

[000100] Moreover, one of ordinary skill in the art will also realize that different configurations and different numbers of retention teeth can be utilized to affix the delivery mechanism to the fusion member. In some embodiments, the retention teeth may be on the fusion member and the retention groove may be on the retention rod. Instead of, or in conjunction with, this tooth and groove approach, other embodiments of the invention can use other structures (e.g., other male/female structures, other structures such as expandable clasps that encapsulate the lateral edges of the fusion member, other structures such as a clamp, etc.) to affix the delivery mechanism to the fusion member.

[000101] As mentioned above, the delivery housing channels house and guide the anchoring mechanism to the proper location in the fusion member. Different embodiments have

different housing channels for guiding the anchoring mechanism to the proper location in the fusion member. In some embodiments, a circular channel with a constant diameter throughout its entire length can guide the anchoring mechanism as shown in **Figures 7A-7C**. Other embodiments have channels of different shapes and sizes. One such alternative embodiment is a square or rectangular channel with increasing and decreasing diameter towards the distal end of the delivery housing as will be described in the next section in reference to **Figure 14**.

C. ANCHORING MECHANISM

[000102] Different embodiments of the invention use different anchoring mechanisms. Some embodiments use an anchoring mechanism formed by three pieces – an anchoring/embedded member, an intervening member, and a driving/retractable member. In some embodiments, the anchoring/embedded member, intervening member, and the driving/retractable member couple with each other to form a unified needle.

[000103] Other embodiments use an anchoring mechanism formed by two pieces – an anchoring/embedded member and a driving/retractable member. In some embodiments, the anchoring/embedded member and the driving/retractable member couple with each other to form a unified needle. The different embodiments of the anchoring mechanism will now be described in detail below.

1. PIVOTING ANCHORING MECHANISM WITH INTERVENING MEMBER

[000104] As mentioned above, some embodiments use an anchoring mechanism formed by three pieces – an anchoring/embedded member, an intervening member, and a driving/retractable member. **Figure 14** shows one such embodiment of the anchoring mechanism. In this figure, two anchoring mechanisms are in their initial configuration inside the channels 1465 and 1475 of the delivery housing 610 and the fusion member 120. The anchoring mechanisms include (1)

anchoring members 1410-1420 that affix the fusion member 120 to adjacent vertebral bodies, (2) intervening members 1470 and 1480, and (3) driving members 1430-1440 that advance the anchoring members 1410-1420 through the fusion member channels into the vertebral bodies. The driving members 1430-1440 include (1) shafts that advance the anchoring members 1410-1420 fully into the fusion member 120 or withdraw the anchoring members 1410-1420 from the fusion member 120 and (2) central lumens that provide a conduit for delivering polymers to the anchoring members 1410-1420. The intervening members 1470 and 1480 have central lumens (e.g., channels) as well. The central lumen in the driving members 1430-1440 and intervening members 1470 and 1480 align with the hollow channels (i.e., lumen) of their corresponding anchoring members 1410-1420 once the anchoring members 1410-1420 are advanced to their desired position inside the vertebral bodies.

[000105] Two delivery housing channels are shown in this figure. The first channel is shown with an opening 1465 on the proximal end of the delivery housing. The second channel is shown with the opening 1475 also on the proximal end of the delivery housing. Moreover, in **Figure 14**, both channels are shown as transparent so that the second driving and anchoring members can be seen. However, these channels are similar to the channels 720 in **Figures 7A-7C**, except for their shape, which is further described below.

[000106] In some embodiments, the anchoring members are initially configured to be inserted in the entirety of the fusion member channels or in part of it, during the manufacturing of the fusion member delivery apparatus that contains these anchoring members. In other embodiments, they are initially configured to be fully contained in the housing of the delivery mechanism before they are inserted into the fusion member on their way for inserting into the vertebral bodies during an operation.

[000107] **Figure 15** shows the anchoring mechanisms in a configuration after the anchoring members 1410-1420 have been advanced into the vertebral bodies (which are not shown in this figure). When the anchoring mechanisms are fully advanced, the tips of the anchoring members 1410-1420 extend out of the fusion member channels and beyond the boundaries of the fusion member 120 into the marrow space of adjacent vertebral bodies. In this configuration, the anchoring members 1410-1420, the driving members 1430-1440, and intervening members 1470 and 1480 as well as their central lumens are aligned. This alignment provides an unobstructed pathway for the polymer to flow from the driving members 1430-1440 through the intervening members 1470 and 1480 and into the anchoring members 1410-1420.

[000108] **Figures 14** and **15** also show an alternative embodiment of the delivery housing channels as mentioned above. As shown in these figures, the delivery housing channels 1465 and 1475 has two sections 1510 and 1520. A first section 1510 of the delivery housing channel has a diameter that increases towards the distal end of the delivery housing 610 (i.e., has increasing cross sections along the anchoring mechanism's path of the movement). In this section, the top side and bottom side of the delivery housing channel taper away from each other (i.e., the top side inclines away from the proximal opening while the bottom side declines away from the proximal opening). The increasing diameter provides sufficient space to allow the anchoring members 1410 and 1420 and the intervening members 1470 and 1480 to be at an angle with the driving members 1430 and 1440 as shown in its initial configuration. In addition, the increased diameter provides sufficient space to allow the anchoring members 1410 and 1420 and the intervening members 1470 and 1480 to pivot with the driving members 1430 and 1440.

[000109] A second section 1520 of the delivery housing channel has a diameter that decreases towards the distal end of the delivery housing 610 (i.e., has decreasing cross sections

along the anchoring mechanism's path of movement). In this section, the top side and bottom side of the delivery housing channel taper toward each other (i.e., the top side declines towards the distal opening while the bottom side inclines towards the distal opening). The tapered (i.e. angled) top and bottom sides of this section (1) allow the anchoring member to pivot at an angle with the driving member and (2) guide the driving member towards the distal opening of the delivery housing channel. In some embodiments, each channel's longitudinal cross-section (i.e., cross-section that runs the length of the delivery housing) is in the shape of two trapezoids where the bases of the trapezoids are facing each other.

[000110] The transition of the anchoring mechanism from its initial configuration to its final configuration involves the tapered sides of the delivery housing channel's second section. As mentioned above, the tapered top and bottom sides of the second section allow the anchoring member to pivot with the driving member. While the anchoring mechanism is in its initial configuration illustrated in **Figure 14**, force can be applied to the driving member in a first direction illustrated in **Figure 14** to advance the driving member towards the distal end of the delivery housing channel. When the driving member is advanced to the tapered sides of the delivery housing channel's second section, the tapered sides cause the anchoring member to pivot at an angle with the driving member. As the driving member is further advanced in this first direction, the distal end of the driving member travels down the tapered side toward the distal opening of the delivery housing. Since the anchoring member is at an angle with the driving member, the anchoring member is advanced in a second curvilinear direction that is at an angle with the first direction. The anchoring member is advanced through the curved fusion member channel and into the vertebral body. As the fusion member channel is curved, the path that the anchoring member travels is also curved. In other words, the anchoring member

traverses in a second direction that is curved throughout its advancement through the fusion member channel. Accordingly, from the initial configuration of the anchoring mechanism to its final configuration, the tip of the anchoring member travels in a semi-circular path of movement.

[000111] Once the driving members 1430-1440 push the anchoring members 1410-1420 into the vertebral bodies, hardening material (e.g., PMMA, bone cement, or other hardening polymer) may be injected through the central lumen of the driving members, through the central lumen of the anchoring members, and into the marrow space of the vertebral bodies.

[000112] **Figure 16** illustrates a perspective view of the anchoring members 1410-1420. As shown in this figure, the anchoring members 1410-1420 have (1) several (e.g., three) distal perforations 1605-1630, (2) central lumens 1635-1640, (3) flanged bases 1645-1650, and (4) female coupling components 1655-1660 that couple with male coupling components of intervening or driving members, as further described below.

[000113] The distal perforations 1605-1630 of the anchoring members 1410-1420 communicate directly with the central lumens 1635-1640 of the anchoring member. These lumens 1635-1640 extend from the distal perforations 1605-1630 to the flanged bases 1645-1650 and their proximal openings 1665-1670. Polymer material can be injected through the central lumen of the driving and intervening members, into the openings 1665-1670 of the anchoring members 1410-1420, through the central lumens 1635-1640 of the anchoring members 1410-1420, and out of the perforations 1605-1630 to be delivered to the marrow space of vertebral bodies.

[000114] As shown in **Figure 16**, the anchoring members 1410-1420 in some embodiments have surface contours 1675-1680 along their distal segment. In some embodiments, these surface contours may be angled teeth, back-facing retention ridges, or other surface contours. These

surface contours assist in the retention of the anchoring members 1410-1420 within the vertebral bodies after injection and hardening of PMMA thereby further solidifying the anchoring of the fusion member 120 between the vertebral bodies.

[000115] As shown in **Figure 16**, flanges 1645-1650 at the base of the anchoring members 1410-1420 fit into recesses (i.e., flange cavity, anchoring member cavity, etc.) 1685-1690 of the fusion member channels locking the anchoring members 1410-1420 to the fusion member 120 once the anchoring members are fully advanced through the fusion member's channels. **Figure 17** illustrates the flange cavities 1720 at the proximal end of each fusion member channel 1730 that aid in affixing each anchoring member to the fusion member 120 when the anchoring members are fully advanced. In this figure, the anchoring members have not been fully advanced through the fusion member's channels to provide a clear illustration of fusion member's flange cavities 1720 and the flange bases 1710 of the anchoring members.

[000116] In some embodiments, the flange cavity's shape and the anchoring member's base shape may slightly differ. This shape difference still allows the anchoring member to be inserted into fusion member channel, but provides friction between the flange base of the anchoring member and the flange cavity of the fusion member channel, when the anchoring member has been fully advanced, to lock the anchoring member to the fusion member. In some embodiments, the flange cavity may have at least one tooth (not pictured) protruding toward the center of the cavity opening that locks the anchoring member to the fusion member when the anchoring member is fully advanced through the fusion member's channels. In addition, this tooth prevents the anchoring member from rotating when the driving member is uncoupled from the anchoring member, which will be described detail in **Figures 24A-24B**.

[000117] In some embodiments, the anchoring member can be composed of a material or a combination of materials that provides flexibility as shown in **Figure 18**. To provide flexibility, the anchoring member can be composed of materials such as nitinol, stainless steel, titanium or other metals, metallic alloys, or high density polymers, carbon fiber, collagen or other biological materials, completely absorbable or partially absorbable material, or of a combination of these materials. In some embodiments, the tip of the anchoring member may be open or closed.

[000118] As mentioned above, some embodiments of the invention provide coupling mechanisms that couple the anchoring members directly to their corresponding driving members 1430-1440. As illustrated in **Figure 14**, other embodiments include intervening members 1470-1480 that (1) couple the driving members 1430-1440 with the anchoring members 1410-1420 and (2) provide pivoting mechanisms 1490-1495 for enabling the anchoring members 1410-1420 and the intervening members 1470-1780 to pivot with the driving members 1430-1440. In some embodiments, the anchoring members, driving members, and intervening members all couple together to form a unified needle.

[000119] **Figures 19-21** illustrate the driving members 1900 and the anchoring members 1910 coupled with the intervening members 1920. As shown in these figures, each driving member includes a shaft 2030 that can advance the anchoring member 1910 fully into the fusion member (not pictured) and can withdraw the anchoring member 1910 partially or fully from the fusion member. Each driving member also includes two pins 2020 that mate with two holes in an intervening member 1920 to enable the pivoting of the intervening member 1920 about the driving member 1900. Lastly, each driving member includes a central lumen 2110 (as shown in **Figure 21**) that provides a conduit for delivering polymers to the anchoring member 1910. The

central lumen extends the entire length of the driving member 1900, the intervening member 1920, and the anchoring member 1910.

[000120] **Figures 20-21** show different views of the distal end of the driving member 1900 and the intervening member 1920 in relation to the anchoring member 1910. In these figures, the driving member 1900 and intervening member 1920 are shown in their coupled and decoupled configurations with the anchoring member 1910. The driving member 1900 and the intervening member 1920 couple via the coupling mechanism 1450. The coupling mechanism includes a male member 2010 located on the intervening member 1920 and a female member 2015 located on the anchoring member 1910. The male member 2010 includes a protruding stub encompassing the central lumen 2110 of the intervening member 1920. It also includes an arm 2040 and a slot 2060 behind the arm 2040. The female member 2015 includes an indentation that leads to the central lumen 2110 of the anchoring member 1910. It also includes an arm 2050 and a slot behind the arm 2070 that complements and rotatably couples with the slot 2060 and the arm 2040 of the male member 2010. To separate the coupling mechanism 1450, the intervening member 1920 may be rotated by rotating the driving member shaft 2030 until the interlocking arms 2040-2050 exit the slots 2060-2070 in which they were inserted, and the arms 2040 of the male member 2010 and arms 2050 of the female member 2015 clear each other, as further described below by reference to **Figures 24A-24B**.

[000121] The intervening member 1920 also includes two holes that mate with the two pins of the driving member. As mentioned above, the mating allows the intervening member 1920 to pivot with the driving member 1900 and additionally couples the driving member 1900 with the intervening member 1920. **Figures 22A-22B** illustrate exploded views of the pivoting mechanism from different perspectives. As shown in these figures, the pivoting mechanism

comprises protruding pegs (i.e., pins) 2210 on the distal end of the driving member shaft, and holes 2220 for engaging the pegs 2210. In some embodiments, the protruding pegs 2210, and the holes 2220 are round to allow the intervening member 1920 to pivot around the driving member 1900. In some embodiments, the distal end of the driving member shaft is rounded at the tip 2230, and fits into a rounded concave indentation 2240 of the intervening member 1920. This also facilitates the pivoting motion between the intervening member 1920 and the driving member 1900. The pivoting movement between the driving member 1900 and the intervening member 1920 facilitates the advancement of the anchoring members 1910 through the channels of the fusion member in a circular motion.

[000122] Once the anchoring member 1910 has been fully advanced through the fusion member channels and into the vertebral bodies, the pivoting mechanism aligns the driving members 1900, intervening members 1920, and the anchoring members 1910 as illustrated in **Figure 19**. This alignment allows the central lumens 2110 of the driving members 1900, the intervening members 1920, and the anchoring members 1910 to align, providing an unobstructed pathway for the delivery of polymer through the driving members 1900, the intervening members 1920, and the anchoring members 1910 into the vertebral bodies.

2. NON-PIVOTING ANCHORING MECHANISM

[000123] In some embodiments, the driving members 2320 connect directly to the anchoring members 2310 (i.e., no intervening member) as shown in **Figures 23A-23B**. When coupled together, the anchoring member and driving member form a unified entity, the anchoring needle. In some embodiments, the anchoring member is the embedded portion that is embedded in the vertebral bodies while the driving member is the retractable portion that is

removed once the fusion member has been affixed to the vertebral bodies between which it is placed.

[000124] In the embodiment illustrated in **Figures 23A-23B**, the driving member's distal end includes the male member 2510 which directly couples with the female member 2520 of the anchoring member 2310 (the male member 2510 and female member 2520 are shown clearly in **Figures 25A-25D**). The male member 2510 of the coupling mechanism is directly integrated into the distal end of the driving member. The female member of the coupling mechanism is directly integrated into the proximal end of the anchoring member.

[000125] In **Figures 24A-24B**, three configurations of the coupling mechanism 1450 are shown. These figures illustrate a fully coupled configuration 2450 of the anchoring member with the driving member, a partially coupled configuration 2460, and a fully decoupled configuration 2470. **Figures 25A-25D** provide detailed illustrations of the coupling mechanism.

[000126] As shown in **Figures 24-25**, the coupling mechanism 1450 couples the anchoring member with the driving member. A similar coupling mechanism 1450 was mentioned above for coupling intervening member 1920 and anchoring member 1910 of **Figure 19**. In **Figures 24-25**, the coupling mechanism includes a male member 2510 and a female member 2520. The male member includes a protruding stub encompassing the central lumen of the driving member. It also includes an arm 2530 and a slot 2550 behind the arm 2530. The female member 2520 includes an indentation that leads to the central lumen of the anchoring member. It also includes an arm 2540 and a slot 2560 behind the arm 2540 that complements and rotatably couples with the slot 2550 and the arm 2530 of the male member 2510.

[000127] As mentioned above, the coupling mechanism is integrated into the distal end of the driving member in some embodiments (e.g. anchoring needle in **Figures 24A-24B**), while

other embodiments utilize the intervening member and integrate the coupling mechanism into the intervening member. In either configuration, the anchoring member may detach from the driving member or intervening member by separating the coupling mechanism. To separate the coupling mechanism, the driving member shaft may be rotated until the interlocking arms 2530-2540 exit the slots 2550-2560 in which they were inserted, and the arms 2530 of the male member 2510 and arms 2540 of the female members 2520 clear each other, as shown in the configuration 2460 of **Figures 24A-24B**. Once the interlocking arms are clear of each other, the driving member and the intervening member may be pulled away and removed from the anchoring member, as shown in the configuration 2470. The separation of the coupling mechanism occurs when the fusion member has been properly positioned and after the polymer is injected (as further described by reference to **Figures 26-28**).

[000128] As mentioned above, the delivery housing channel of some embodiments can be circular and constant in diameter throughout the entire length of the channel as described above in **Figures 7A – 7C**. In some such embodiment, the flexibility of the anchoring member enables the anchoring member to be advanced through the curved channel of the fusion member.

[000129] **Figures 26-28** illustrate an example of the injection of PMMA, or other bone cement or hardening polymer, through the anchoring members and into the vertebral bodies. Any number of known techniques/procedures for injecting PMMA into the anchoring member can be used. One such technique involves injecting or pumping PMMA into the anchoring member through use of a needle or syringe.

[000130] In this example, two anchoring members are inserted into the two channels of a fusion member. One of ordinary skill will realize that the same operations can be performed for

the embodiments that use four anchoring members through a fusion block with four channels as further described in **Section V**.

[000131] In **Figures 26A-26C** provide different views of two anchoring members 2610 that are fully advanced through the fusion member channels and into the marrow space of adjacent vertebral bodies 2620 immediately above and below the fusion member 120. Polymer can be injected through the central lumen of the anchoring members and out of the perforations of the anchoring members into the immediate surrounding area within the marrow space of the penetrated vertebrae. **Figures 27A-27B** depict different views of the coalescence of the polymer collections 2710-2720 that result following injections of these polymers via anchoring members 2610, respectively. The coalescence 2710-2720 of these polymers forms a spherical or ellipsoidal "cloud" contiguous with the tip 2730-2740 of the anchoring members 2610. In its initial state, the polymer is in a semi-fluid state or in a gel-like state that allows it to flow through the anchoring member channel and the openings of its tip to fill in the marrow space of the vertebral body and the contours of the anchoring member tip. However, within a short period of time, the polymer hardens within the marrow space, resulting in a structural union between anchoring members 2610, vertebral bodies 2620, and the fusion member 120. The contoured tips of the anchoring members in conjunction with the hardened polymer prevent withdrawal of the anchoring member 2610 from the trabecular bone and enhances the structural integrity of the fusion member 120. The final result is an intervertebral fusion member 120 anchored via multiple anchoring members 2610 to collections of hardened polymer 2710-2720 (e.g., PMMA or other bone cement) and to the trabecular bone of adjacent vertebral bodies 2620 yielding solid mechanical fusion. Once the anchoring members are in place, and the polymer has been injected

into the marrow space of the vertebral bodies, the driving members may be disengaged from the anchoring members and removed from the patient.

[000132] Some embodiments insert more than one fusion member between a pair of adjacent vertebral bodies. One such example is illustrated in **Figures 28A-28B**. These figures depict (1) placement of two fusion members 2810-2820 within the right and left paramedian disc space of vertebral bodies 2870-2880, (2) multiple sets of anchoring members into the vertebral bodies 2870-2880, and (3) coalescence of polymer "clouds" 2830-2860 following the polymer injections. The resultant polymer clouds from adjacent tips of anchoring members may form upon polymerization. The clouds along with multiple contoured and perforated anchoring members lock the fusion members 2810-2820 to the trabecular bone of vertebral bodies 2870-2880.

3. ANCHORING MEMBER

[000133] As mentioned above in reference to **Figure 18**, the anchoring member can be composed of a material or a combination of materials that provides flexibility as shown in. To provide flexibility, the anchoring member can be composed of materials such as nitinol, stainless steel, titanium or other metals, metallic alloys, or high density polymers, carbon fiber, collagen or other biological materials, completely absorbable or partially absorbable material, or of a combination of these materials. In some embodiments, the tip of the anchoring member may be open or closed.

[000134] In some embodiments, the anchoring member can be composed of a bio-absorbable polymer (such as collagen). Bio-absorbable polymer (e.g., collagen) allows the anchoring member to be resorbed by the patient (e.g., three to four months in the case of collagen) after the anchoring member has been inserted into the vertebral body of the patient.

Some such bio-absorbable material (like collagen) also provides flexibility to allow the anchoring member to have a range of motion from 0 to 90 degrees. In some embodiments, the shaft of the anchoring member can be composed of bio-absorbable material (e.g., collagen) while the tip of the anchoring member can be composed of another material (e.g., nitinol) to facilitate penetration of the anchoring member into the vertebral body.

D. FUSION APPARATUS

[000135] In some embodiments, the intervertebral fusion apparatus that includes the anchoring member, fusion member, and delivery member is already pre-assembled. In some embodiments, the delivery housing and the retention rods are assembled to form the delivery mechanism. The fusion member is coupled to the delivery mechanism by the retention rods. The anchoring member is coupled to the driving member to form the anchoring mechanism.

[000136] However, in different embodiments, the fusion apparatus may be pre-assembled to different degrees. For instance, in some embodiments, the anchoring mechanism may be pre-assembled to varying degrees in relation to the fusion member and the delivery mechanism. In some embodiments, the tip of the anchoring member of the anchoring mechanism is partially inserted in the fusion member channel. In other embodiments, the tip of the anchoring member is inserted into the channel of the delivery housing but not in the fusion member channel. Yet, in other embodiments, the anchoring mechanism is not inserted at all in the fusion member channel or in the delivery housing channel and may be inserted into the apparatus when needed.

IV. EXAMPLE OF A FUSION PROCEDURE

[000137] The operation of apparatus 110 will now be described. **Figure 29** depicts a medical procedure 2905 that involves the insertion of the apparatus 110 of some embodiments of the invention. In this procedure, a medical practitioner (e.g., a physician) initially performs (at

2910) a partial or complete discectomy, which typically involves making an incision in a patient and removing some or all of the fibrocartilaginous disc between two adjacent vertebral bodies. Any number of known techniques/procedures can be used to remove the disc at 2910.

[000138] Next, the medical practitioner inserts the intervertebral fusion device (at 2915) and positions (at 2915) the fusion member (e.g., one of the blocks described above) between the endplates of adjacent vertebrae. Any number of known techniques/procedures for inserting a fusion member between two adjacent vertebrae can be used (at 2915) to insert the intervertebral fusion device and position the interbody fusion member between adjacent vertebrae. One technique for inserting the fusion member involves the use of one of the delivery mechanisms (e.g., apparatus 110 described above). In some embodiments, a radiograph or x-ray of the patient may be taken (at 2915) to determine if the fusion member is placed at an appropriate position between two vertebral bodies. If not, the medical practitioner can use (at 2915) the delivery mechanism to reposition the fusion member to the desired location.

[000139] Once the fusion member has been properly positioned, the medical practitioner passes (at 2920) at least one anchoring member (e.g., large gauge needle) through the fusion member channels (at 2915) and advances the anchoring member into the marrow space of the adjacent vertebral body by applying force on the proximal end of the driving member. In some embodiments, a flange at the base of each anchoring member fits into a recess of increased diameter where the tubular channel meets the exposed surface of the fusion member, in order to lock the anchoring member's position, anchoring it to the fusion member, as described above.

[000140] In some embodiments, the medical practitioner exerts force on the driving member by tapping, hammering, or simply pushing at its proximal end to advance the anchoring member into the vertebral body, which the anchoring member encounters as it exits the fusion

member channel in which it is inserted. To facilitate this penetration, the medical practitioner in some embodiments inserts a smaller gauge anchoring member into the channel of the fusion member and into the marrow space of the adjacent vertebral body before inserting the anchoring member at 2920. This creates a guide to help ensure the anchoring member will be advanced into the proper position within the trabecular bone of the vertebral body. In some embodiments, a radiograph may be taken of the anchoring members in relation to the marrow space of the vertebral bodies to determine if the anchoring members need to be repositioned. In other embodiments, a robotic arm may be used to advance the anchoring member into the vertebral body.

[000141] Once the anchoring member is in position, the medical practitioner (at 2925) injects polymethyl methacrylate (PMMA), other bone cement, or polymer through the central channels of the driving member, intervening member (if any) and the anchoring member, through the anchoring member's openings/perforations, and into the marrow space of the vertebral body. Ideally, the injected material forms a spherical or ellipsoidal cloud of polymer material (e.g., PMMA) contiguous with the tip of the anchoring member.

[000142] In some embodiments, multiple anchoring members coupled with the driving member(s) may be advanced through multiple channels of the delivery housing and the fusion member into the same vertebral body. PMMA or other bone cement or polymer may be injected through the central lumen of these additional anchoring members. Accordingly, after 2925, the medical practitioner determines (at 2930) whether additional anchoring members need to be inserted into the fusion member inserted (at 2920). If so, the medical practitioner inserts (at 2920) additional anchoring member(s) through another channel of the fusion member, and injects (at 2925) polymer material through the central lumen of the additional anchoring member

and through its openings/perforations into the marrow space of vertebral body. The resultant polymer (PMMA) clouds from adjacent tips of the anchoring member may unite to form a single larger cloud upon polymerization, with multiple contoured and perforated anchoring members locked to the fusion member and anchored to the solid PMMA and trabecular bone of the vertebral body. The final result is an intervertebral fusion member anchored via multiple contoured, perforated anchoring members to collections of PMMA and to the trabecular bone of adjacent vertebral bodies yielding solid mechanical fusion.

[000143] When a determination has been made that the insertion of additional anchoring members is not necessary, the medical practitioner (at 2935) uncouples the driving member from the anchoring member and removes the driving member from the delivery housing and from the patient. In some embodiments, robotic arms may be used to uncouple the driving member from the anchoring member and remove the driving member from the delivery housing.

[000144] Once the driving member has been removed from the patient and the delivery housing is no longer needed, the medical practitioner uncouples the retention rods from the fusion member. In some embodiments, this is achieved by rotating the retention rods 180 degrees so that the retention teeth of the retention rods disengage (at 2940) from the retention grooves of the fusion member. Once uncoupled, the retention rods may be separated from the fusion member, and the delivery housing along with the retention rods may then be removed (at 2940) from the patient. In some embodiments, robotic arms may be used to uncouple the retention rods from the fusion member and remove the retention rods from the delivery housing.

[000145] In some embodiments, more than one fusion member is inserted between two adjacent vertebral bodies. Accordingly, the medical practitioner determines (at 2945) whether another fusion member needs to be inserted between the vertebral bodies between which the last

fusion member was inserted (at 2915). If so, the medical procedure is repeated from 2915 to 2940. Also, in some embodiments, the medical procedure 2905 is performed multiple times to replace multiple discs between multiple pairs of vertebral bodies.

V. ALTERNATIVES SHAPES AND STRUCTURES

A. ARC SHAPED FUSION MEMBER CHANNELS TRAVERSING IN A PARALLEL CROSS-SECTIONAL PLANE

[000146] The shape and composition of the fusion members and the anchoring members are different in different embodiments of the invention. For instance, in some embodiments, the anchoring members and the fusion-member channels are in shape of an arc as depicted in **Figures 30-33.** In these figures, one set of tubular fusion member channels 3020 and 3030 follow concentric semi-circular arcs to reach the inferior face of fusion member 3010. The second set of tubular fusion member channels 3040 and 3050 follow concentric semi-circular arcs to reach the superior face of the fusion member 3010. Each set of concentric arcs traverse along a cross-sectional plane that runs parallel to one of the fusion member surfaces.

[000147] These channels can be traversed by semi-circular arc shaped anchoring members, as illustrated in **Figures 32-33**. Specifically, **Figures 32-33** show passage of anchoring members through these semicircular tubular channels with anchoring members 3200 and 3210 passing into the marrow space of the vertebral body (not pictured) beneath the fusion member, and anchoring members 3220 and 3230 passing into the vertebral body contiguous with the superior face of the fusion member (not pictured). Semi-circular arc-shaped channels and anchoring members simplify the process of inserting anchoring members into the channels, given the small space in which the fusion member is inserted between the vertebral bodies and the difficulty in accessing the proximal openings of the fusion member within the confines of the operative field. The

anchoring members 3200-3230 are flexible in some embodiments, while being rigid in other embodiments.

[000148] **Figure 34** provides a detailed view of an anchoring member tip 3400 of some of the arc-shaped embodiments. As shown in this figure, a central lumen 3410 of the arc-shaped anchoring member of some embodiments is in direct communication with perforations 3420 along the anchoring member shaft as well as the "teeth" or retention ridges 3430. This allows the polymer material to be delivered to the area adjacent to and between the angled teeth or retention ridges 3430, such that these surface contours can engage the polymer materials when it hardens, locking the anchoring member in position within the trabecular bone, thereby locking the fusion member to the vertebral body.

[000149] In **Figures 35-37**, an embodiment of the fusion member 3500 includes two curved semicircular channels 3510 and 3520.This figure shows curved anchoring members 3530 and 3540 fully advanced through these channels and into the marrow spaces of the vertebral bodies (not pictured) below and above the fusion member. In **Figure 37**, a polymer has been injected to form "clouds" 3700 and 3710 adjacent to the perforated, contoured tips of anchoring members 3530 and 3540 within the marrow spaces of the adjacent vertebral bodies (not pictured). In this series of figures, channels 3510 and 3520 traverse cross-sectional planes parallel to one another as well as the lateral fusion member surfaces.

B. FUSION MEMBER CHANNELS TRAVERSING IN NON-PARALLEL CROSS-SECTIONAL PLANES

[000150] One of ordinary skill in the art will realize that different configurations of the fusion member channels can traverse in x-, y-, and z- directions. **Figures 38-40** depict an alternate embodiment of the fusion member 3800 with curved channels 3810 and 3820 and curved channels 3830 and 3840 extending to inferior and superior faces of the fusion member,

respectively. Channels 3820 and 3840 traverse cross-sectional planes parallel to one another, as do channels 3810 and 3830. Both sets of channels traverse planes that are not parallel with any fusion member surface.

[000151] **Figures 41-42** depict an alternate embodiment of a fusion member that includes straight uncurled channels 4120. These channels traverse cross-sectional planes that are non-parallel with any surface of the fusion member, and additionally, traverse cross-sectional planes that are non-parallel with each other. The distal openings of these oblique, nonparallel channels 4120 are located at or near the geometric centers of the inferior and superior faces of the fusion member. As shown in these figures, the fusion member 4110 includes two channels 4120 that are traversed by anchoring members 4130 and 4140, which are rectangular in cross-sectional profile to match the cross-sectional profile of the channels. **Figure 43** provides a detailed view of the anchoring members depicting the direct communication of the central anchoring member lumen 4300 with perforations 4310 along the anchoring member shaft as well as the "teeth" or retention ridges 4320 and a beveled tip 4330. In **Figures 44-45**, polymer has been injected and forms "clouds" 4400 and 4410 contiguous with the perforated, contoured tips of anchoring members 4130 and 4140 within the marrow spaces of adjacent vertebral bodies (not pictured).

[000152] **Figures 46A**, **46B**, and **47** depict an alternate embodiment of the fusion member. Specifically, these figures depict a fusion member 4600, which is similar to the fusion member 120 of **Figure 4**. Channels 4610 and 4620 traverse in parallel cross-sectional planes with respect to each other but are non-parallel with respect to the faces of the fusion member. **Figure 46B** illustrates that each of the channels 4610 and 4620 trace circular arcs that are a portion of two conceptual circles which traverse planes that are parallel to each other and non-parallel to all faces of the fusion member. These channels are traversed by curved anchoring members (not

pictured). Although this embodiment provides for channels and anchoring members that trace the arcs of conceptual circles, other embodiments provide for alternative curved conceptual shapes (e.g. ellipses, parabolas, etc.). The distal openings of the channels 4610 and 4620 may be located at or near the geometric centers of the inferior and superior faces of the fusion member.

C. ALTERNATIVE ANCHORING MEMBER TIPS AND STRUCTURES

[000153] As shown above, different embodiments use different shapes for the anchoring members (e.g., arc-shape, angled-shape, semi-circular shape, straight, etc.). Different embodiments also use different types of anchoring members. **Figures 48A-48B** provide a detailed view of alternative embodiments 4801, 4802, and 4803 of anchoring member tips. As shown in the figures, the central lumen 4800-4810 of the anchoring members are in direct communication with perforations 4815, 4820, and 4825 along the anchoring member shaft as well as the "teeth", or retention ridges, 4830, 4835, and 4840. **Figure 48B** illustrates that in some embodiments, the anchoring members have beveled tips 4804.

[000154] In some embodiments, the maximum diameter or circumference of the segment of the anchoring member that includes retention ridges or other surface features intended to engage the polymer material (e.g., PMMA or bone cement) is less than or equal to the diameter or circumference of proximal and distal anchoring member segments. This allows the anchoring member to be hammered, tapped, or simply pushed into position within the marrow space of the vertebral bodies rather than being screwed into place.

[000155] **Figures 48C-48D** illustrate that the anchoring members of some embodiments have threads. As shown, the threads may run the entire length of the anchoring member, from the base of the anchoring member to the tip of the anchoring member. In other embodiments (not shown), the threads run through only a segment of the anchoring member (i.e., less than the

entire length of the anchoring member). The threads allow the anchoring members to be screwed into the desired position within the marrow space of the vertebral bodies. In some embodiments, the fusion member channels into which the anchoring members are advanced include grooves that compliment the threads of the anchoring members.

D. FUSION MEMBERS WITH RIDGES AND ADDITIONAL BONE-GRAFTING CHANNELS

[000156] **Figure 49** depicts various fusion member surface contour features including orthogonal ridges 4900, angled ridges 4910, and oblique parallel ridges 4920. Longitudinal channels 4930 and 4940 and transverse channels 4950 and 4960 for positioning and retention of bone graft material are also illustrated. These surface contours and retention channels may be combined with any of the fusion member channel configurations previously described. Bone grafting channels may be of any size and position and allow for the positioning of bone grafting material between and in contact with the opposed endplates of the adjacent vertebral bodies as well as extending from one lateral face to another lateral face of the fusion member. Placement of the bone graft material in the disc space surrounding the fusion member permits the progressive solid bony fusion between the fusion member and the adjacent vertebral bodies.

E. RETENTION TEETH AND RETENTION GROOVES OF VARIABLE DIMENSIONS

[000157] In some embodiments, retention teeth and retention grooves are of variable width and height. **Figures 50** and **51** illustrate a retention rod 5005 with retention teeth (only one tooth 5010 is shown) that engage with a set of larger diameter retention grooves 5120 of a retention groove set 5110 of a fusion member 5100. In **Figure 50**, the retention tooth 5010 includes a directional decrease in tooth height and a directional decrease in tooth width when traversing the contour of the tooth in the indicated direction of rotation. The width 5020 of the retention tooth's

leading edge is less than the width 5030 of the retention tooth's trailing edge. The height 5040 of the retention tooth's leading edge is less than the height 5050 of the retention tooth's trailing edge. The retention tooth tapers in two directions. Specifically the retention tooth (1) tapers in the radial direction (i.e. height), and (2) tapers in the lateral direction (i.e. width) when traversing the circumference of the tooth.

[000158] In **Figure 51**, the set of larger diameter retention grooves 5120 of the retention groove set 5110 also decreases in height and width when traversing the contour of the groove in the indicated direction of engagement to match the profile of the retention tooth 5010. Specifically, the retention tooth 5010 is inserted first into opening 5130, which exhibits greater height and width compared to opening 5140. When the tooth's leading edge with smaller dimensions is fully engaged with the opening 5140 with smaller dimensions and the tooth's trailing edge with larger dimensions is fully engaged with the opening 5130 with larger dimensions, the retention rod can no longer be rotated. The tooth's flared shape and matching flared profile of the larger-diameter retention grooves 5120 of the retention groove set 5110 prevent the retention rod from being withdrawn laterally from the fusion member 5100. When decoupling the retention rod from the fusion member 5100, the retention tooth's trailing edge with smaller dimensions is the last to clear the larger diameter retention grooves, facilitating clearance and removal of the retention rod.

F. VARIOUS CONFIGURATIONS OF FUSION MEMBERS AND ANCHORING MEMBERS

[000159] As mentioned above, some embodiments of the invention provide a fusion member with four channels and four anchoring members that are advanced into these fusion member channels as shown in **Figure 52**.

[000160] **Figures 53-55** illustrate an example of the injection of PMMA, or other bone cement or hardening polymer, through the anchoring members and into the vertebral bodies. In this example, four anchoring members are inserted into the four channels of a fusion block. One of ordinary skill will realize that the same operations can be performed for the embodiments that use two anchoring members through a fusion block with two channels.

[000161] In **Figure 53**, anchoring members 5310-5340 are fully advanced through the fusion member channels and into the marrow space of adjacent vertebral bodies 5360-5370 immediately above and below the fusion member 5350. Polymer can be injected through the central lumen of the anchoring members and out of the perforations of the anchoring members into the immediate surrounding area within the marrow space of the penetrated vertebrae. **Figure 54** depicts the coalescence of the polymer collections 5410-5420 that result following injections of these polymers via anchoring members 5310-5340, respectively. The coalescence 5410-5420 of these polymers forms a spherical or ellipsoidal "cloud" contiguous with the tip of the anchoring members 5310-5340. The polymer hardens within the marrow space, resulting in a structural union between anchoring members 5310-5340 in addition to anchoring each vertebral body 5360-5370 to the fusion member 5350. The contoured tips of the anchoring members in conjunction with the hardened polymer prevent withdrawal of the anchoring members 5310-5340 from the trabecular bone and enhances the structural integrity of the fusion member 5350. The final result is an intervertebral fusion member 5350 anchored via multiple anchoring members 5310-5340 to collections of hardened polymer (e.g., PMMA or other bone cement) and to the trabecular bone of adjacent vertebral bodies 5360-5370 yielding solid mechanical fusion. Once the anchoring members 5310-5340 are in place, and the polymer has been injected into the

marrow space of the vertebral bodies, the driving members may be disengaged from the anchoring members and removed from the patient.

[000162] Some embodiments insert more than one fusion member between a pair of adjacent vertebral bodies. One such example is illustrated in **Figure 55**. This figure depicts placement of two fusion members 5510-5520 within the right and left paramedian disc space of vertebral bodies 5570-5580, multiple sets of anchoring members advanced into the vertebral bodies 5570-5580, and coalescence of polymer "clouds" 5530-5560 following the polymer injections. The resultant polymer clouds from adjacent tips of anchoring members may unite to form a single larger cloud upon polymerization. The united cloud along with multiple contoured and perforated anchoring members locks the fusion members 5510-5520 to the trabecular bone of vertebral bodies 5570-5580.

VI. EMBODIMENTS THAT DO NOT USE POLYMER MATERIALS

[000163] While the invention has been described with reference to numerous specific details, one of ordinary skill in the art will recognize that the invention can be embodied in other specific forms without departing from the spirit of the invention. In some embodiments, the anchoring members may be without a central lumen or perforations along their shaft. In some embodiments, angled teeth, back-facing ridges, and other surface retention ridges may be greater in circumference or diameter than the more proximal or distal anchoring member segments. In these instances, after the anchoring members are advanced into the marrow space of the vertebral bodies, injection of polymer materials may not be needed to anchor the vertebral bodies to the fusion member. The surface contours of the anchoring members will anchor the vertebral bodies to the fusion member.

[000164] Also, in several of the above-described embodiments, the channels and anchoring members have circular-arc cross-sectional profiles. However, in other embodiments, the channels and anchoring members have alternative curved arc shapes.

CLAIMS

I claim:

1. A fusion device comprising:

a fusion member with at least one channel, said member for positioning between two vertebral bodies; and

at least one needle for insertion into a vertebral body through the channel,

wherein the needle has a curved shape and the channel has a curved shape.

2. A fusion device comprising:

a fusion member with at least one channel, said member for positioning between two vertebral bodies; and

at least one needle for insertion into a vertebral body through the channel,

wherein the channel has a non-linear shape and the needle is made of a flexible material to allow the needle to bend to traverse through the channel.

3. The fusion device of claim 2, wherein the needle comprises:

a flexible anchoring member for affixing the fusion member to the vertebral bodies;

a driving member for advancing the anchoring member into the vertebral bodies; and

a coupling mechanism for coupling the anchoring member with the driving member.

4. The fusion device of claim 3, wherein the coupling mechanism comprises a pivoting mechanism for allowing the anchoring member to pivot around the driving member.

5. The fusion device of claim 3, wherein the anchoring member, driving member, and coupling mechanism comprise a central lumen through which hardening polymer is injected when the anchoring member is in a desired position in the vertebral body, said hardening polymer depositing from a tip of the anchoring member into the vertebral body and hardening about said tip in order to solidify the anchoring of the needle within the vertebral body.

6. A fusion device comprising:

a fusion member comprising two channels, said member for positioning between two vertebral bodies; and

two needles for inserting into a vertebral body each through a different channel,

wherein each channel has a cross-sectional plane along an arc that is traversed by the channel through the fusion member, wherein the cross-sectional planes of the two channels are parallel to each other but are neither horizontal nor vertical.

7. The fusion device of claim 6, wherein each channel opens to at least two faces of the fusion member, wherein neither cross-sectional plane is parallel to either face to which the plane's associated channel opens.

8. The fusion device of claim 6, wherein neither cross-sectional plane is parallel to any side of the fusion member.

9. The fusion device of claim 6,

wherein the channels open to one side of the fusion member but traverse to two separate sides of the fusion member;

wherein the traversal of the channels through the fusion member allow the anchoring members to enter one side of the fusion member but exit two separate sides at desired

optimal locations on the two sides without hindering each other's traversal through the fusion member.

10. A fusion member for insertion between two vertebral bodies, the fusion member comprising:

a plurality of channels for guiding anchoring members into the vertebral bodies in order to anchor the fusion member to the vertebral bodies;

a plurality of grooves for coupling with teeth of a delivery mechanism for delivering the fusion member between vertebral bodies.

11. The fusion member of claim 10, wherein each groove comprises at least one indentation for rotatably receiving at least one tooth.

12. The fusion member of claim 10, wherein each groove comprises a plurality of indentations for rotatably receiving the plurality of teeth.

13. The fusion member of claim 12, wherein the width of each indentation and corresponding tooth varies along the direction of rotation in order to ensure that the tooth and groove unlock in only one direction of rotation.

14. The fusion member of claim 12, wherein the height of each indentation and corresponding tooth varies along the direction of rotation in order to ensure that the tooth and groove unlock in only one direction of rotation.

15. A fusion device comprising:

a fusion member with at least one channel, said member for positioning between two vertebral bodies;

at least one needle for insertion into a vertebral body through the channel,

wherein the needle has a lumen for receiving hardening material and supplying said material to the location where the needle is inserted into the vertebral body, said hardening material for bonding said needle to said vertebral body.

16. The device of claim 15, wherein the needle comprises perforations for delivering and supplying said hardening material to the location where the needle is inserted into the vertebral body.

17. A needle for affixing an apparatus to a vertebral body, said needle comprising:

a shaft comprising a hollow interior;

a tip comprising at least one perforation that is an outlet for said hollow interior;

said tip for penetrating into a vertebral body while said needle couples to said apparatus;

said hollow interior for receiving hardening material and depositing the hardening material out of said perforations at a location in the vertebral body that is penetrated by the tip, said deposited hardening material hardening to solidify the coupling of the apparatus to the vertebral body.

18. The needle of claim 17, wherein the tip comprises a plurality of perforations that are outlets for said hollow interior.

19. A needle for affixing an apparatus to a vertebral body, said needle comprising:

an embedding member for penetrating and anchoring within the vertebral body in a patient; and

a retractable member for coupling to the embedding member, driving the embedding member into the vertebral body, decoupling from the embedding member and retracting from the patient,

wherein when the embedding and retractable members couple to each other, said members form the single unified needle.

20. The needle of claim 19, wherein the retractable member has a first mating member, and the embedding member has a second mating member that mates with the first mating member to couple the retractable and embedding members.

21. The needle of claim 20, wherein the mating members couple by rotating one mating member into another mating member in a particular direction, wherein the mating members decouple by rotating the retractable member in a direction opposite to the particular direction.

22. The needle of claim 19, wherein when the embedding and retractable members are coupled, the retractable member is engaged to push the retractable member towards the embedding member in order to push the embedding member into the vertebral body.

23. The needle of claim 22, wherein an operator engages the retractable member to push the retractable member towards the embedding portion.

24. The needle of claim 22, wherein a robotic arm engages the retractable member to push the retractable member towards the embedding portion.

25. The needle of claim 19,

wherein the embedding member is partially within the apparatus when the embedding member anchors within the vertebral body;

wherein the retractable and embedding members both have hollow interiors for receiving hardening material for depositing within the vertebral body at a location about which the embedding portion anchors within the vertebral body, said deposited hardening material hardening to solidify the anchoring of the embedding member within the apparatus to the vertebral body.

26. The needle of claim 25,

wherein the retractable and embedding members hingably couple so that as the retractable member pushes the embedding member, the embedding member follows an angular path through the apparatus and into the vertebral body,

wherein when said embedding member is in a desired position within the vertebral body, said hollow interiors of said members aligning form a passageway for directing hardening material through the retractable member's hollow interior and into the embedding member's hollow interior.

27. The needle of claim 19, wherein the retractable and embedding members hingably couple so that as the retractable member pushes the embedding member, the embedding member follows an angular path through the apparatus and into the vertebral body.

28. A flexible needle for affixing an apparatus to a vertebral body, said needle comprising:

a tip for penetrating into a vertebral body;

a flexible shaft coupled to said tip, said flexible shaft bending through a passageway of said apparatus as the shaft is pushed through said passageway to propel the tip through the passageway, out of the apparatus, and into the vertebral body.

29. The needle of claim 28, wherein the shaft has a base that fits within a recess at one end of the passageway in order to maintain the shaft at least partially in the apparatus while said tip is inside the vertebral body.

30. The needle of claim 28, wherein the flexible shaft is formed at least partially by nitinol.

31. The needle of claim 28, wherein the flexible shaft is formed at least partially by steel.

32. The needle of claim 28, wherein the flexible shaft is formed at least partially by titanium.

33. A fusion device comprising:

a. a fusion member with at least one channel, said member for positioning between two vertebral bodies;

b. at least one anchoring member for insertion into a vertebral body through the channel, wherein the anchoring member is pushed to insert the anchoring member into the vertebral body.

34. The fusion device of claim 33, wherein said anchoring member is pushed by tapping one end of the anchoring member.

35. The fusion device of claim 33, wherein said anchoring member is pushed by applying pressure to one end of the anchoring member.

36. The fusion device of claim 33, wherein said anchoring member is pushed without rotating the anchoring member about the anchoring member's longitudinal axis.

37. A fusion device comprising:

a fusion member with at least one channel, said member for positioning between two vertebral bodies;

at least one needle for insertion into a vertebral body through the channel,

wherein the needle is tapped to insert the needle into the vertebral body.

38. An apparatus comprising:

a. a fusion member for positioning between two vertebral bodies, said fusion member having a channel;

b. an anchoring member traversing the channel of the fusion member and penetrating into one of said vertebral bodies; and

c. a delivery mechanism for delivering the fusion member between the vertebral bodies, said delivery member having a channel through which the anchoring member traverses to enter the channel of the fusion member.

39. The apparatus of claim 38, wherein the anchoring member is for affixing the fusion member to the penetrated vertebral body.

40. The apparatus of claim 38, wherein the delivery mechanism comprises:

a. a delivery housing for guiding the anchoring mechanism into the fusion member;

b. a retention mechanism for fixedly coupling the delivery housing to the fusion member.

41. The apparatus of claim 40, wherein the retention mechanism comprises a retention rod for coupling with the fusion member.

42. The apparatus of claim 38, wherein said anchoring member comprises a passageway for receiving a hardening polymer and depositing the hardening polymer about an area in the vertebral body in which the anchoring member is positioned.

43. A fusion device comprising:

a fusion member for positioning between two vertebral bodies, said fusion member comprising a plurality of grooves; and

a delivery mechanism for delivering the fusion member between the vertebral bodies, said delivery member comprising a plurality of retention rods,

each rod comprising at least one tooth for coupling with one of said grooves of the fusion member in order to couple the fusion member with the delivery mechanism while the delivery mechanism delivers the fusion member between vertebral bodies.

44. The fusion device of claim 43, wherein each rod comprises a plurality of teeth, wherein each groove comprises a plurality of indentations for rotatably receiving the plurality of teeth of a rod.

45. The fusion device of claim 44,

wherein each rod comprises (i) a shaft from which the rod's plurality of teeth protrude, and (ii) a handle coupled to said shaft;

wherein a handle of a rod is for allowing the rotation of the handle's shaft in a particular direction to decouple the shaft's protruding teeth from the groove;

wherein the decoupling of the teeth of all the rods from all the groove allows the delivery mechanism to decouple from the fusion member, in order to allow the delivery mechanism to be retracted from a patient while leaving the fusion member between the vertebral bodies.

46. The fusion device of claim 43, wherein the width of each indentation and corresponding tooth varies along the direction of rotation in order to ensure that the tooth and groove unlock in only one direction of rotation.

47. The fusion device of claim 43, wherein each groove comprises at least one indentation for rotatably receiving at least on tooth of a rod.

48. A medical procedure comprising:

inserting a fusion member between the two vertebral bodies, said fusion member having a curved channel;

advancing an anchoring member through the channel and partially into one of the vertebral bodies, while a portion of the anchoring member remains within the fusion member, in

order to couple the fusion member with the vertebral body, said anchoring member comprising a hollow interior and a tip with at least one opening that is an outlet for the hollow interior;

injecting hardening liquid material into the hollow material, said liquid material exiting said perforation and depositing within the vertebral body around said tip in order to solidify the anchoring of said anchoring member within the vertebral body.

49. A medical procedure comprising:

removing a disc between two vertebral bodies;

inserting a fusion member between the two vertebral bodies, said fusion member having a channel; and

advancing an anchoring member through the curved channel and partially into one of the vertebral bodies, while a portion of the anchoring member remains within the fusion member, in order to couple the fusion member with the vertebral body,

said advancing comprising pushing one end of the anchoring member towards the channel in order to force the anchoring member to penetrate the vertebral body.

50. The medical procedure of claim 49, wherein said pushing comprises tapping the end of the anchoring member.

51. The medical procedure of claim 49, wherein said pushing does not include rotating the anchoring member about the anchoring member's longitudinal axis.

52. A medical procedure comprising:

removing a disc between two vertebral bodies;

inserting a fusion member between the two vertebral bodies, said fusion member having a curved channel; and

advancing an anchoring member through the curved channel and partially into one of the vertebral bodies, while a portion of the anchoring member remains within the fusion member, in order to couple the fusion member with the vertebral body.

53. A medical procedure comprising:

removing a disc between two vertebral bodies;

using a delivery mechanism coupled to a fusion member to deliver the fusion member between the two vertebral bodies;

taking an intra-operative image to determine whether the fusion member is in a desired position between the vertebral bodies;

when the fusion member is not in a desired position between the vertebral bodies, using the delivery mechanism to move the fusion member to a new location between the vertebral bodies;

when the fusion member is in a desired position between the vertebral bodies, decoupling the delivery mechanism from the fusion member to remove the delivery mechanism from a patient.

ABSTRACT

Some embodiments of the invention provide an apparatus that (1) delivers a fusion member between two vertebral bodies after at least a portion of the fibrocartilaginous disc between the vertebral bodies has been removed, and (2) affixes the fusion member to the vertebral bodies. In some embodiments, the apparatus includes (1) a fusion member that is delivered and positioned between the vertebral bodies, (2) a delivery mechanism that delivers and positions the fusion member between the vertebral bodies, and (3) an anchoring member that affixes the fusion member to the vertebral bodies.

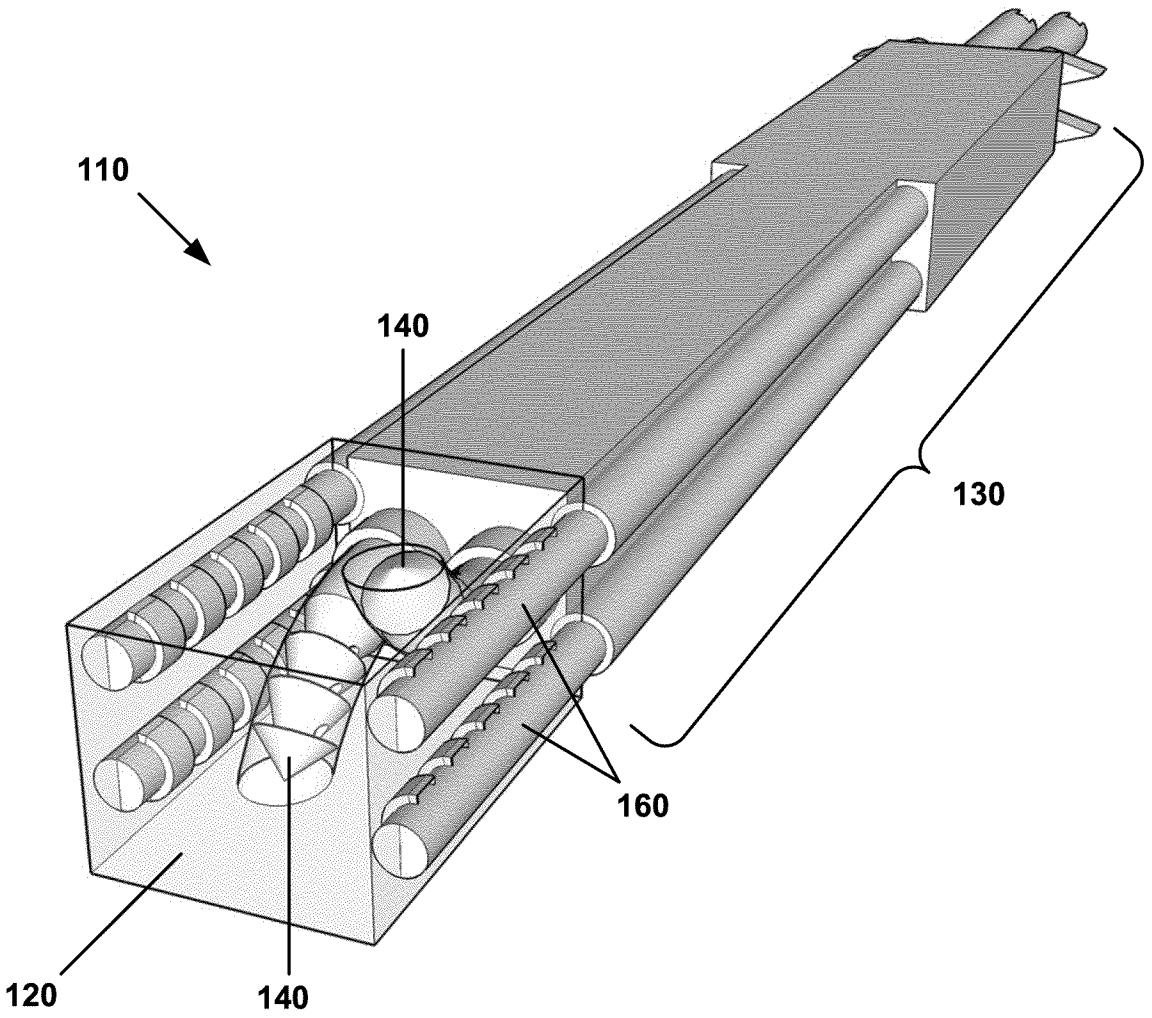


Figure 1A

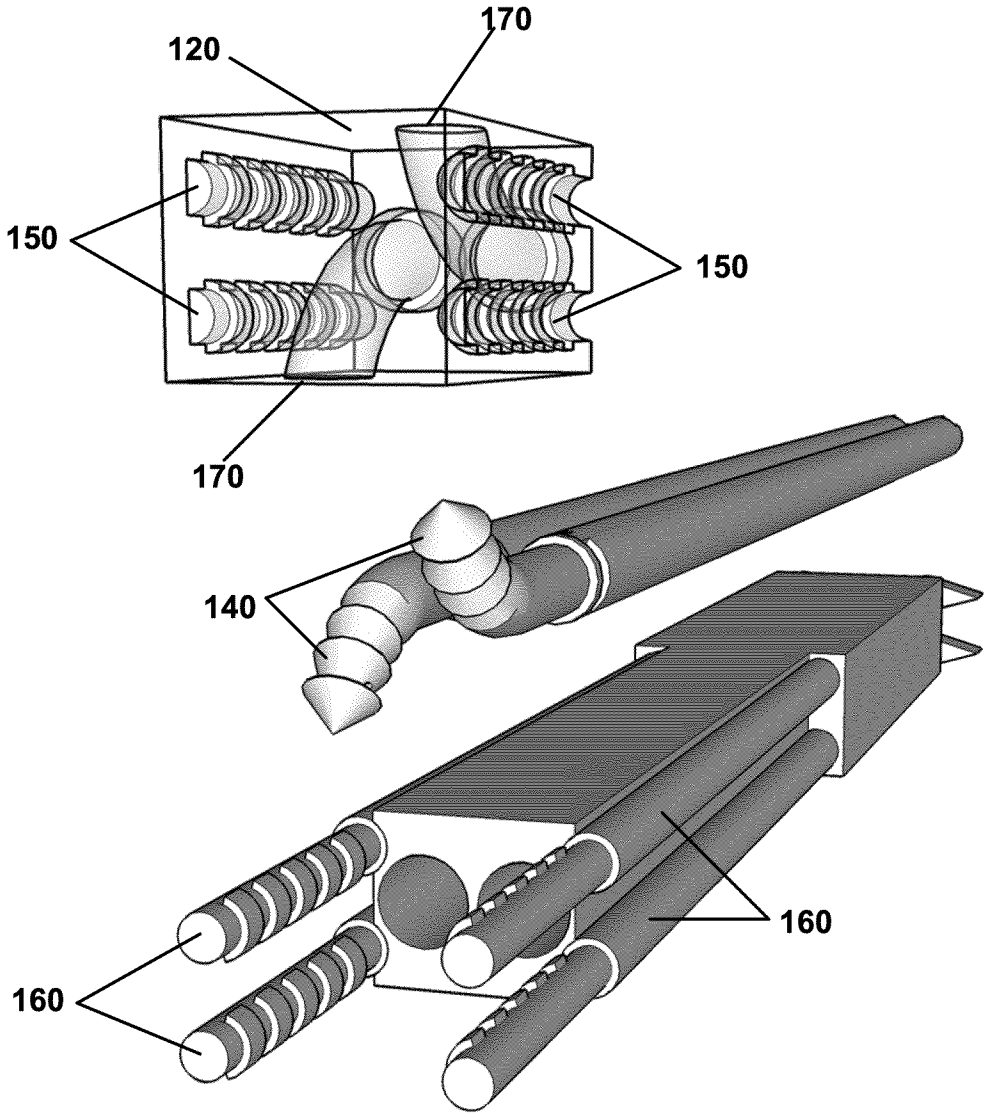


Figure 1B

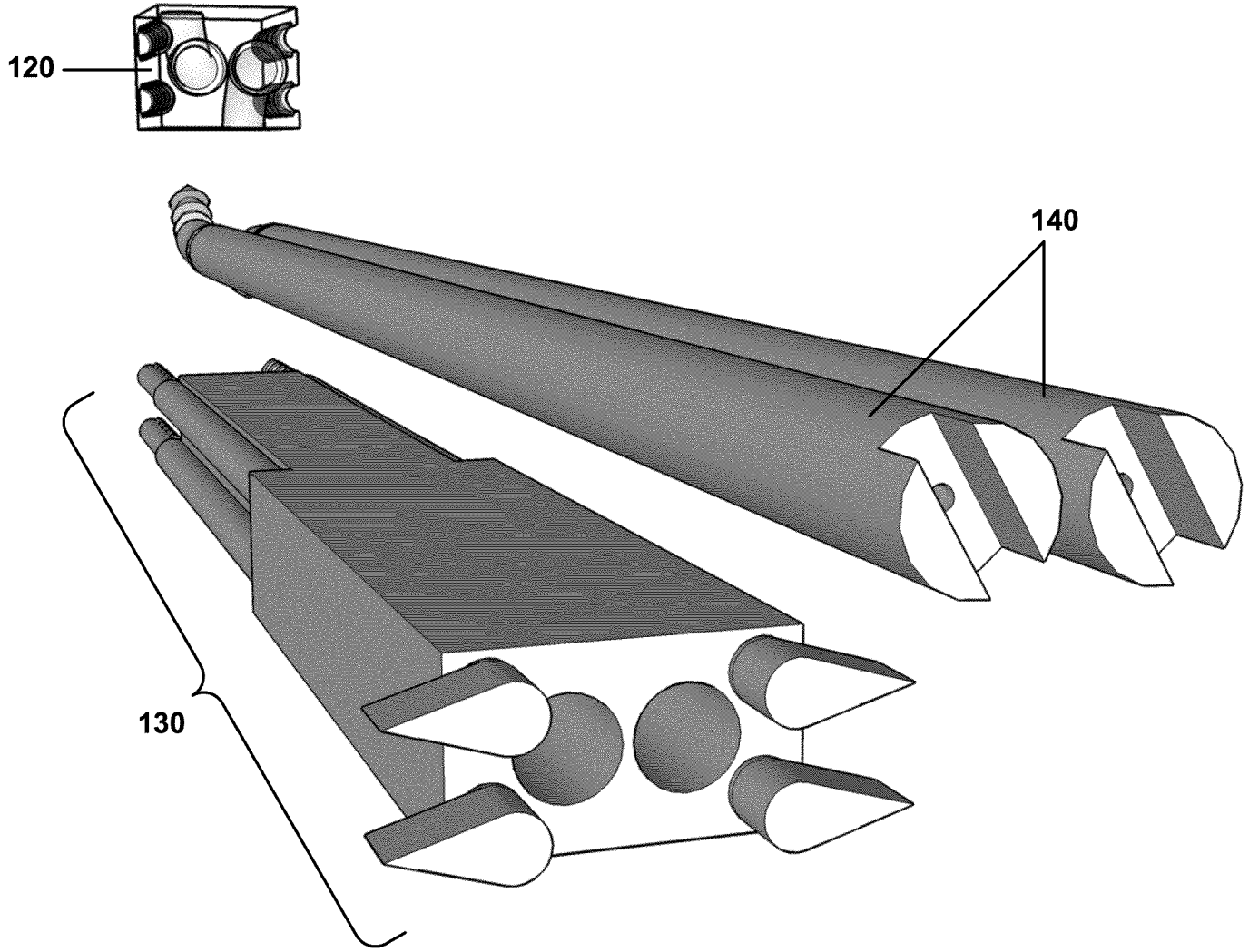


Figure 1C

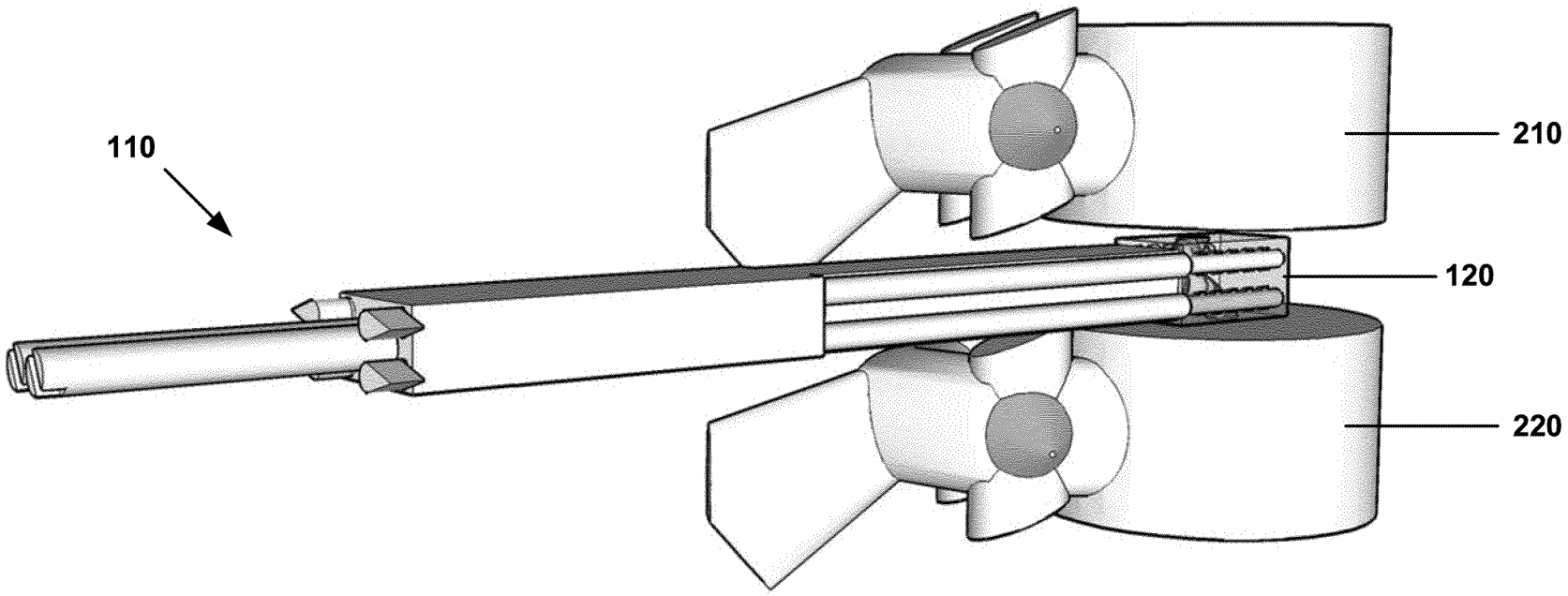


Figure 2

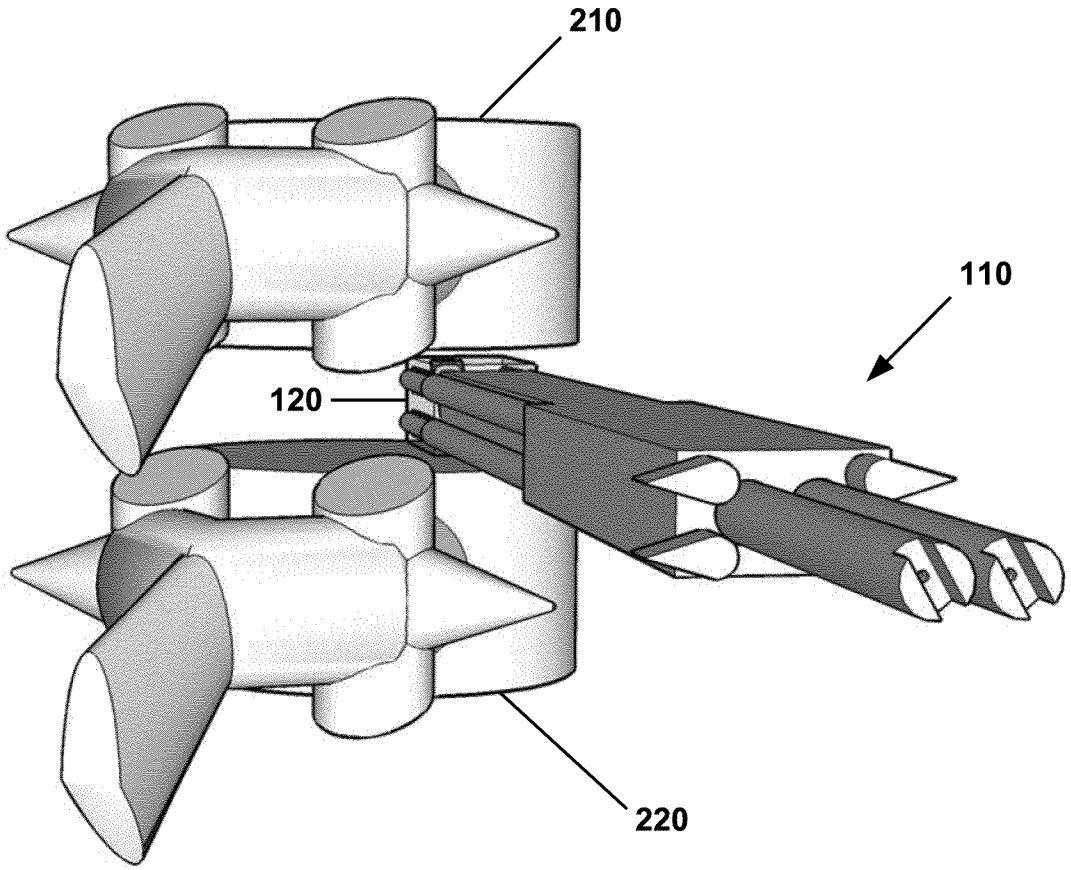


Figure 3

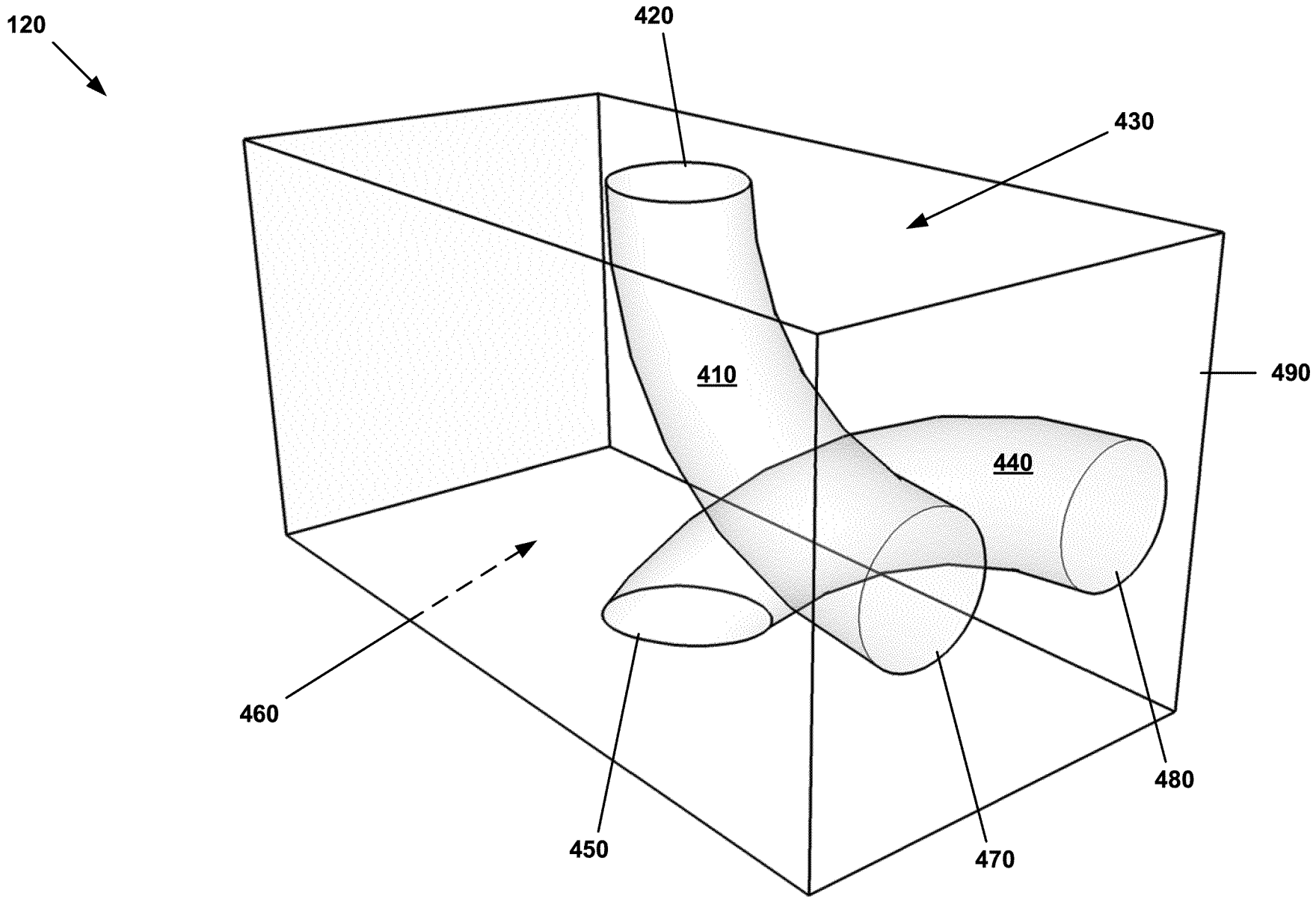


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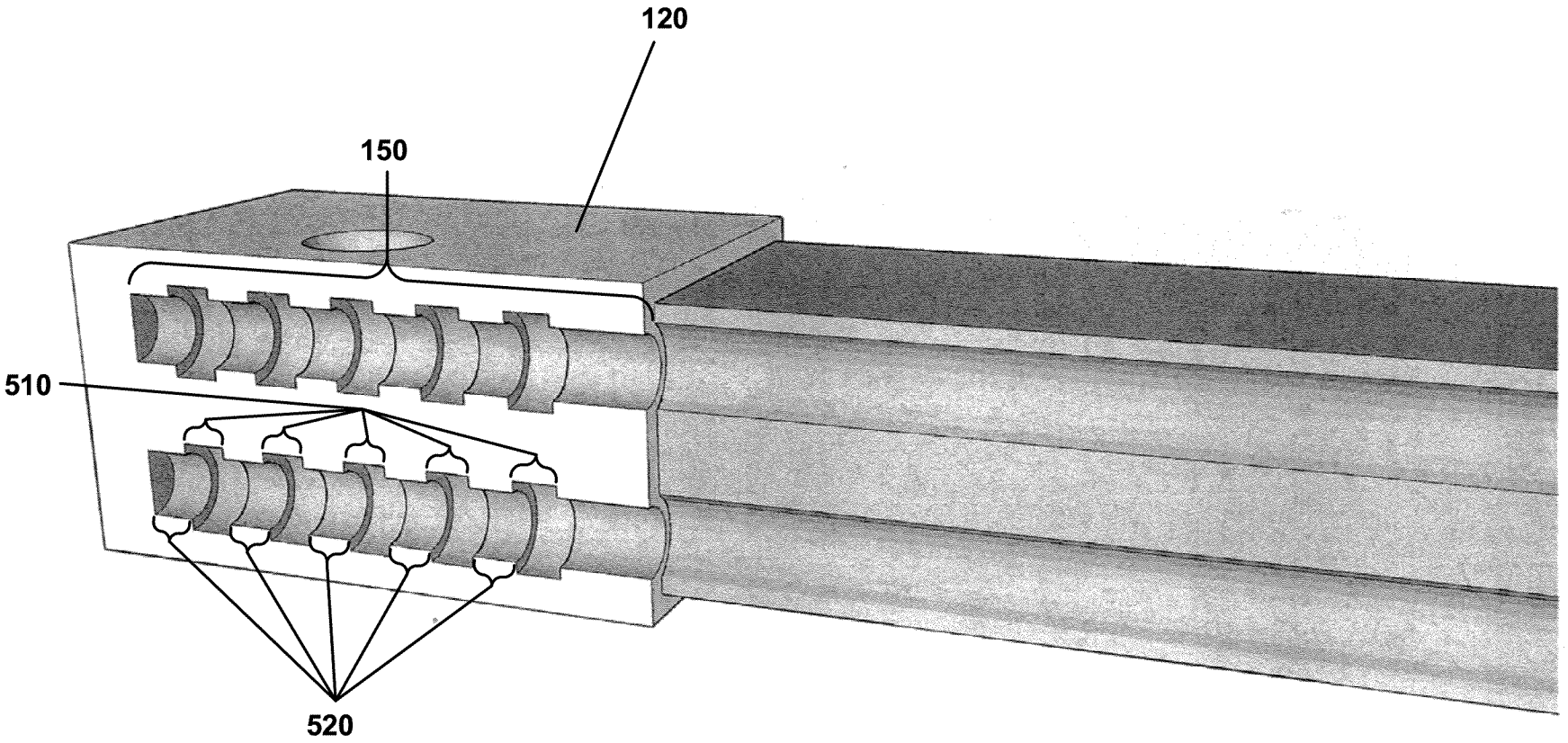


Figure 5A

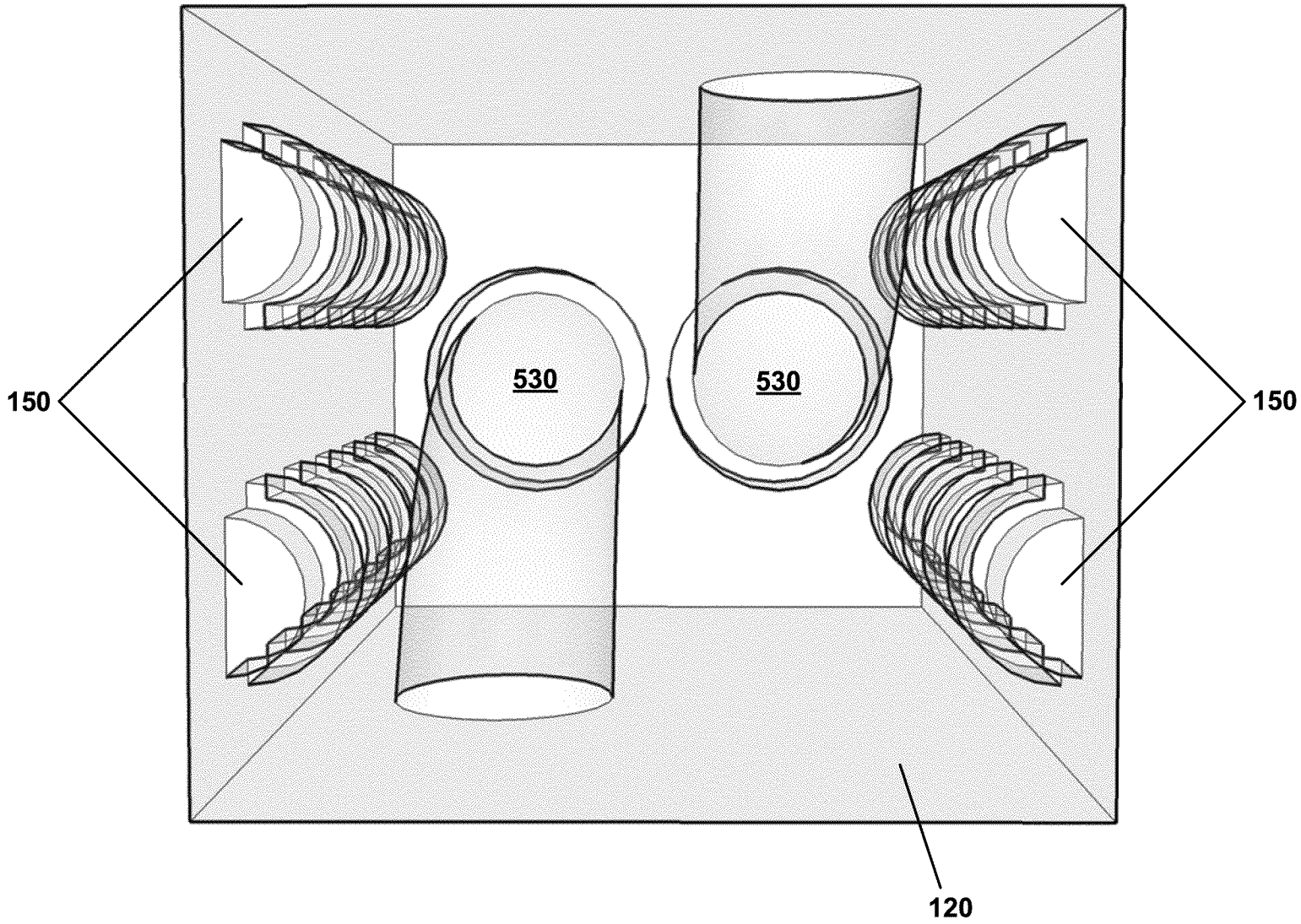


Figure 5B

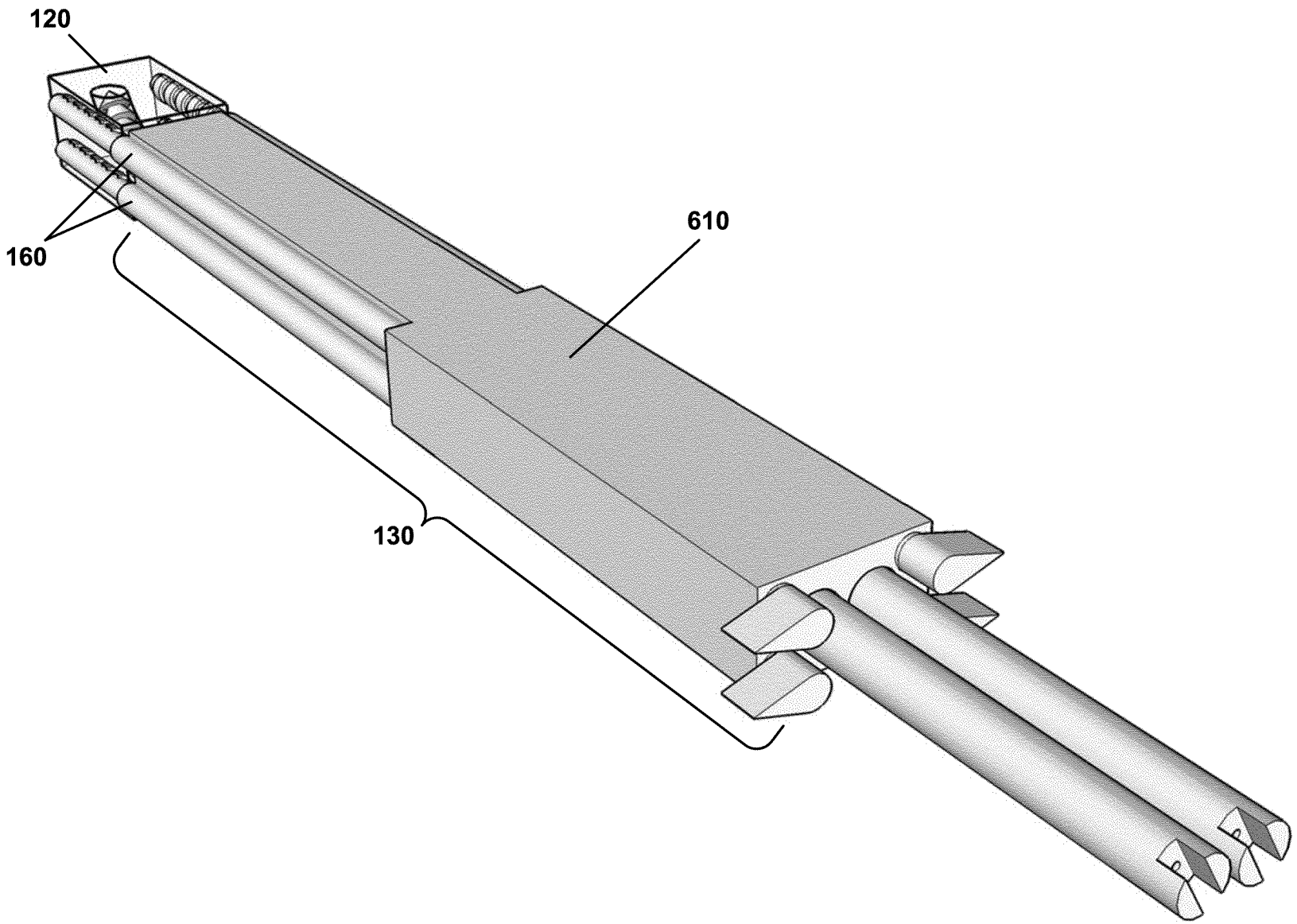


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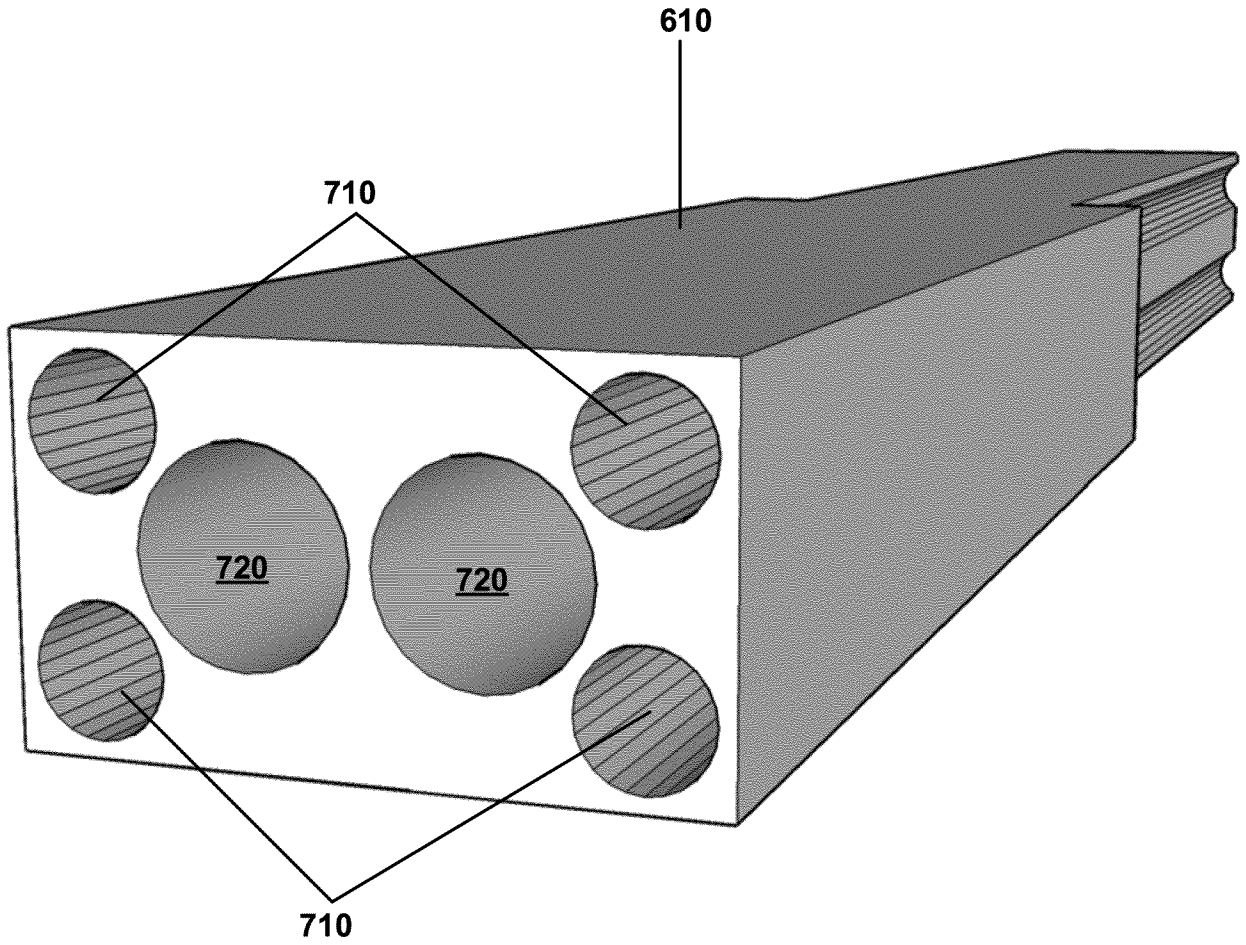


Figure 7A

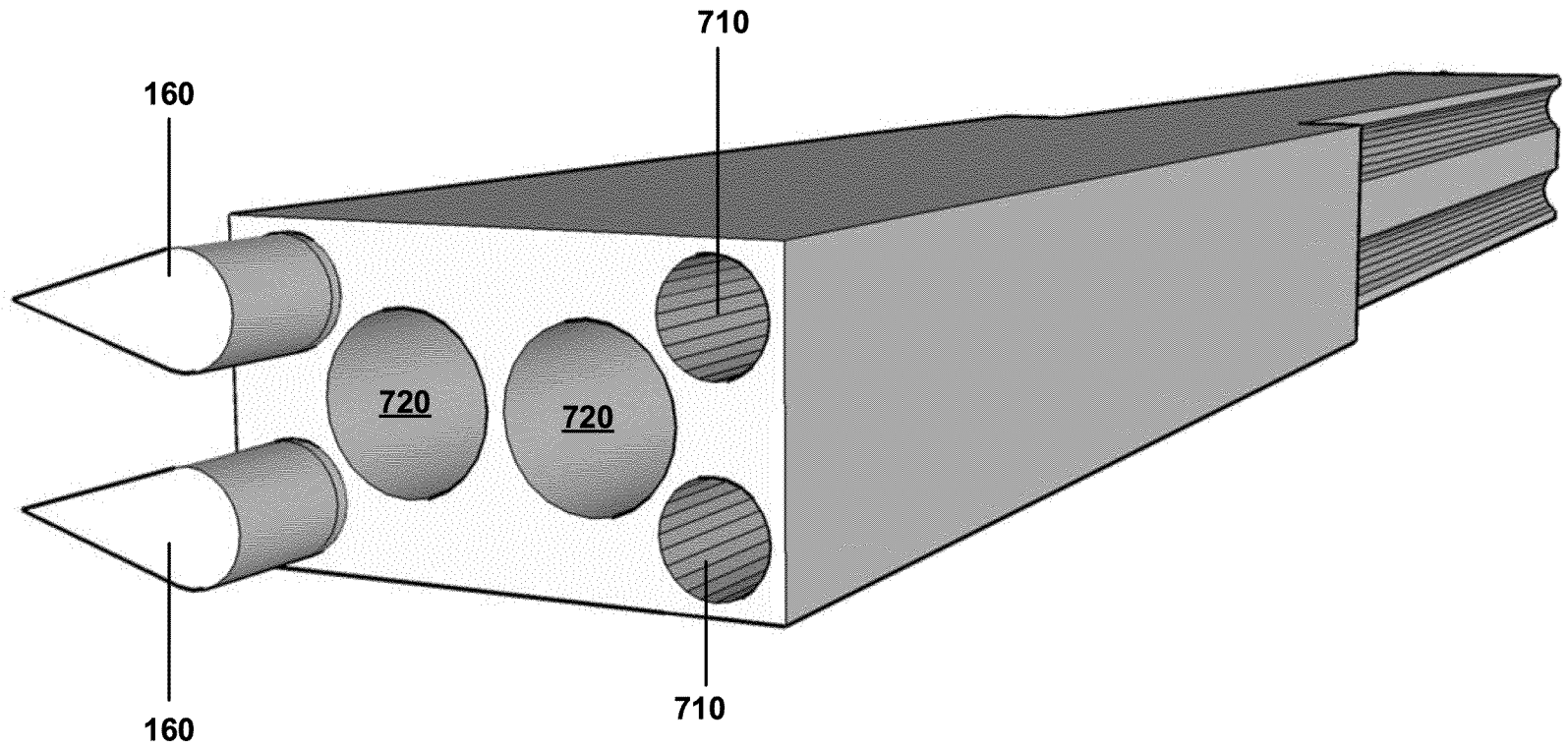


Figure 7B

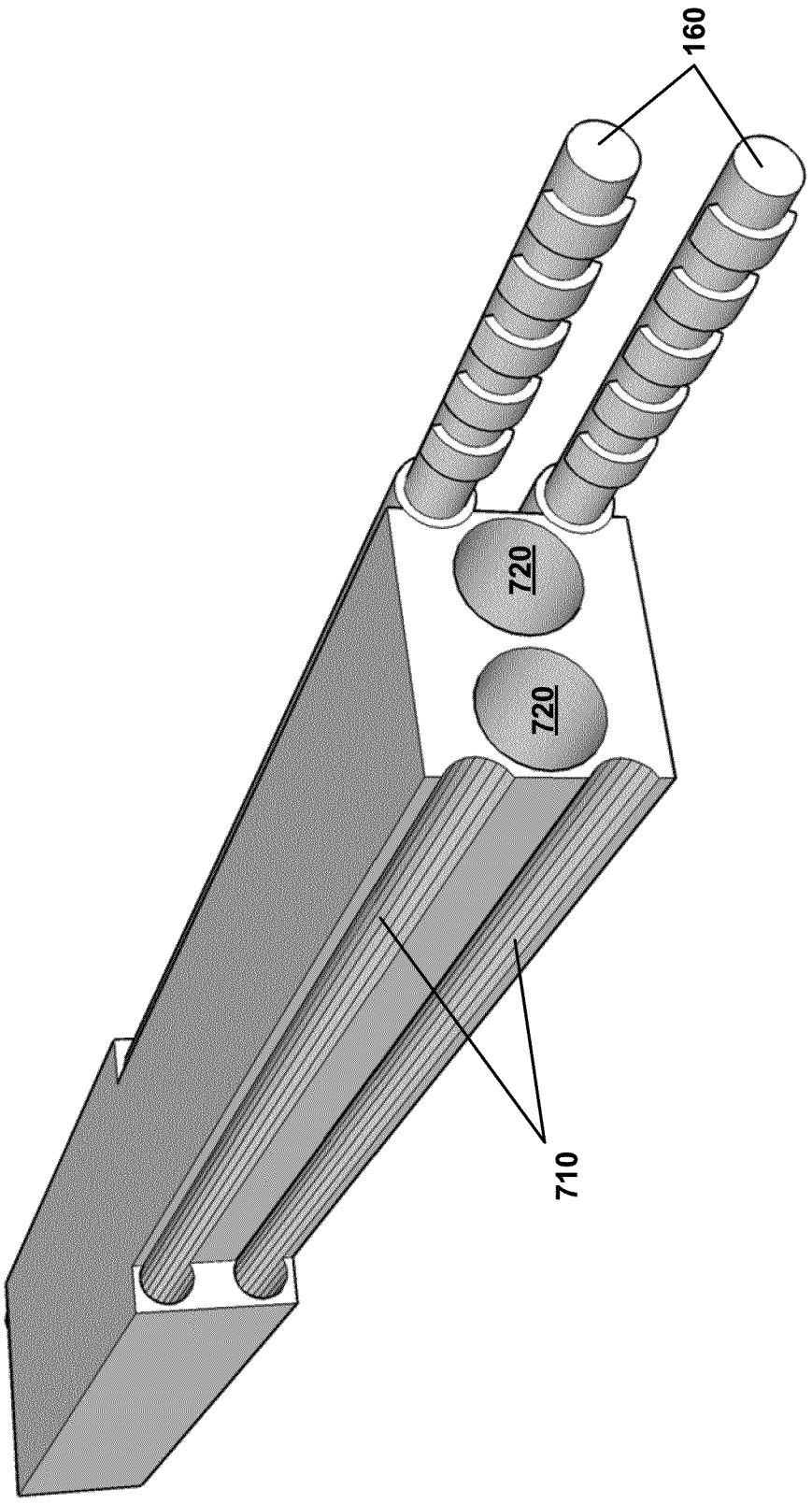


Figure 7C

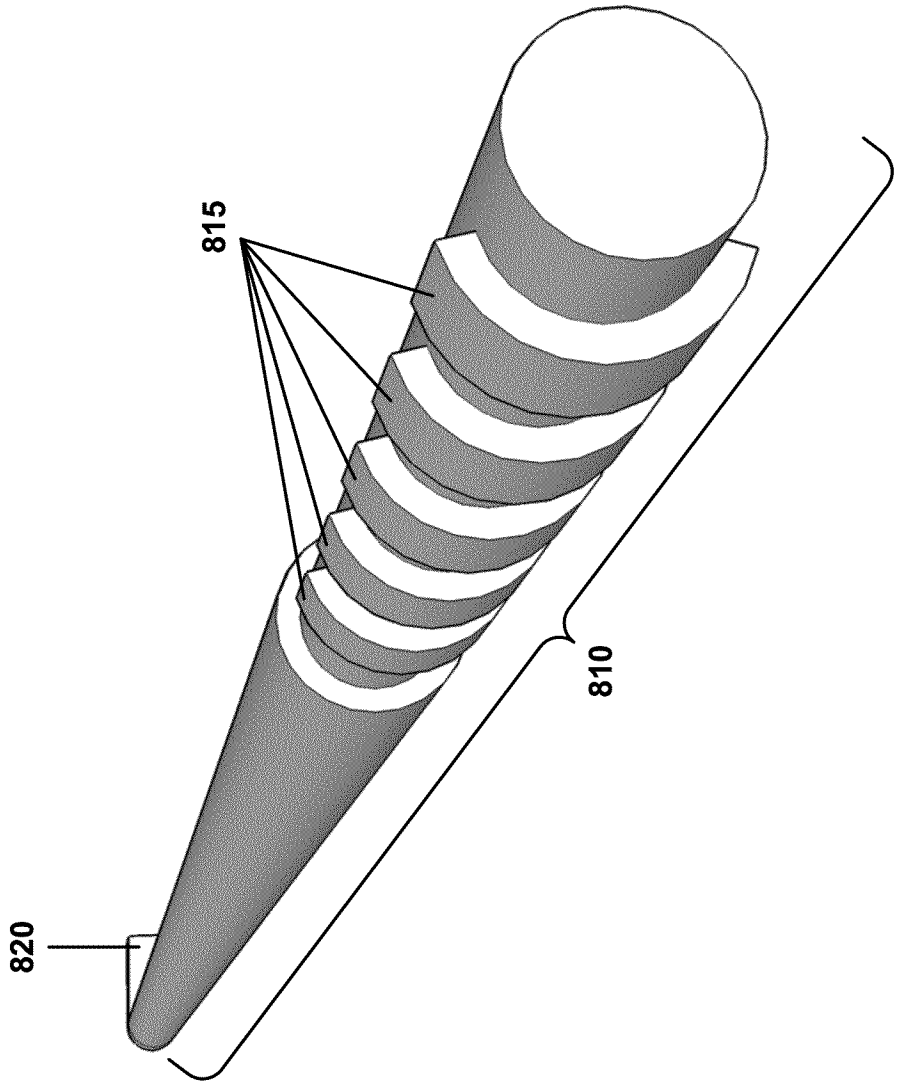


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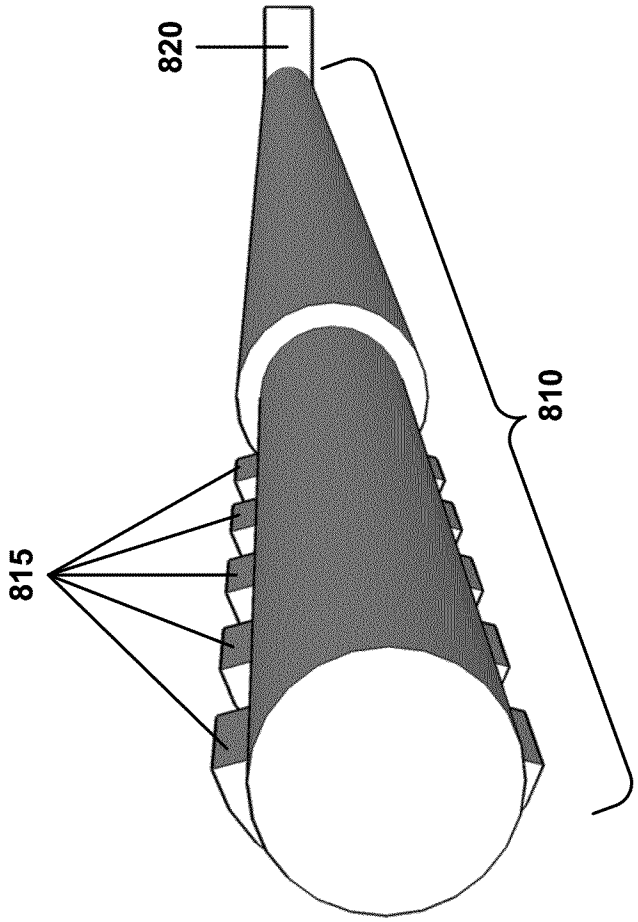


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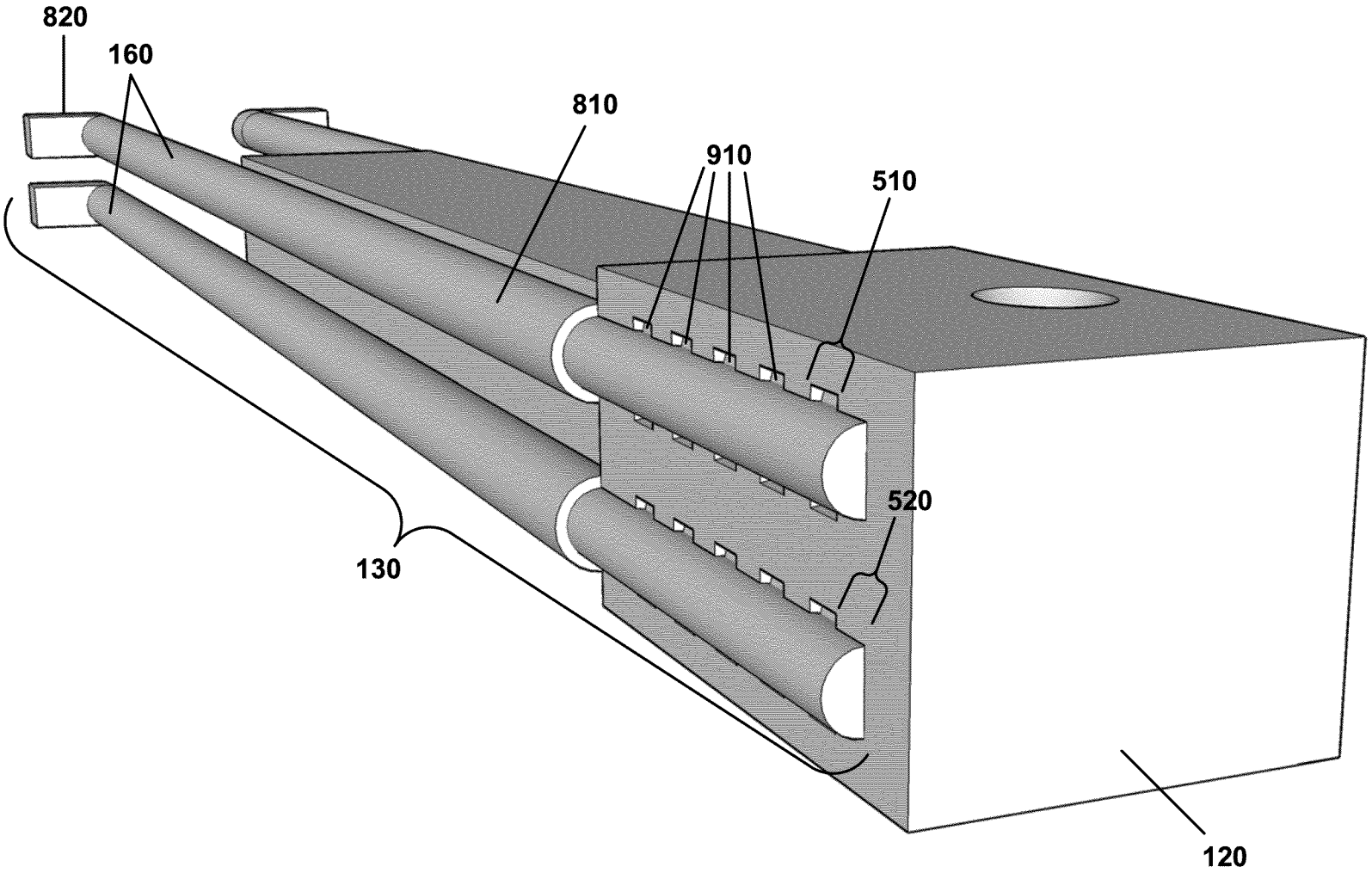


Figure 10A

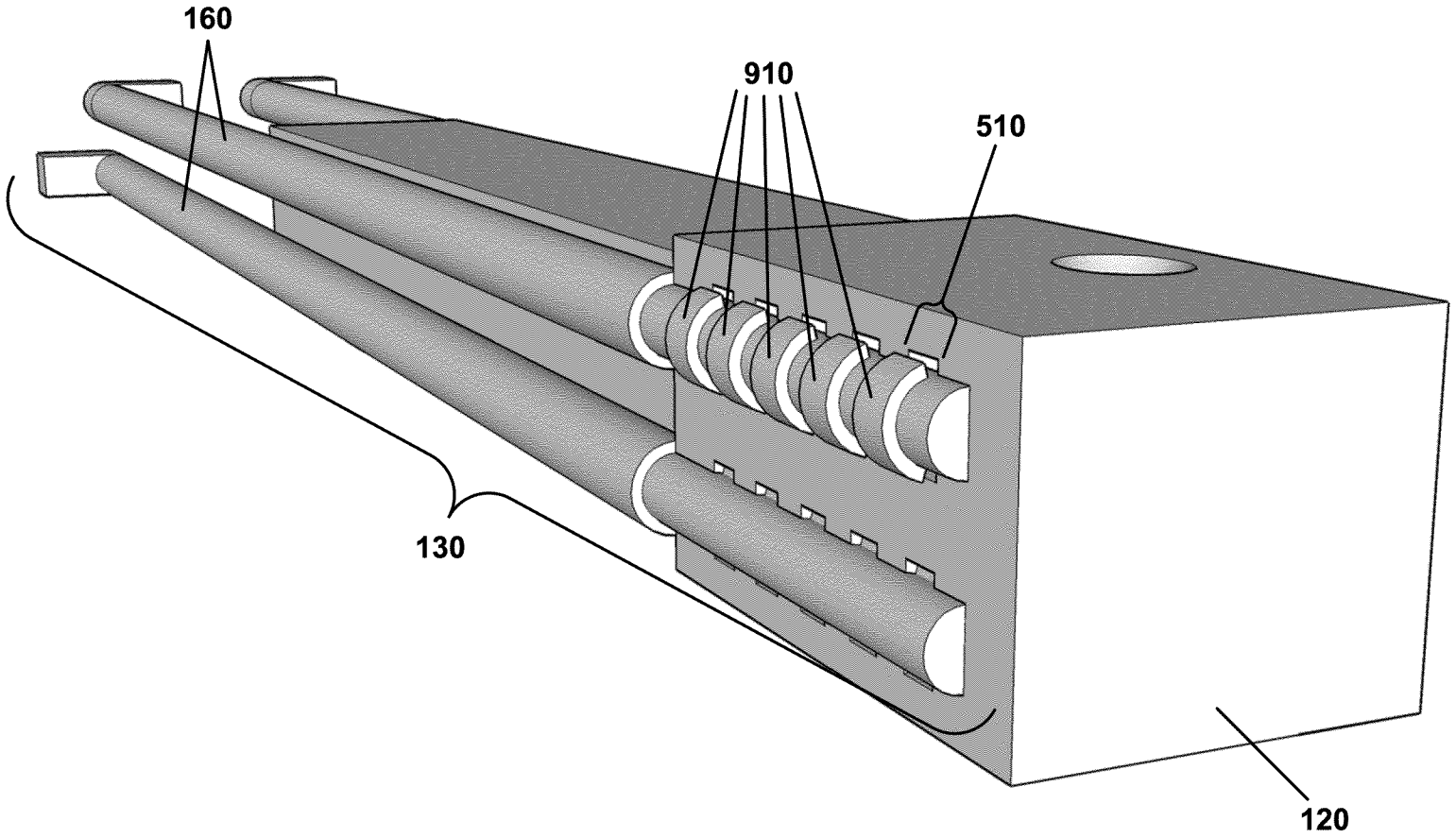


Figure 10B

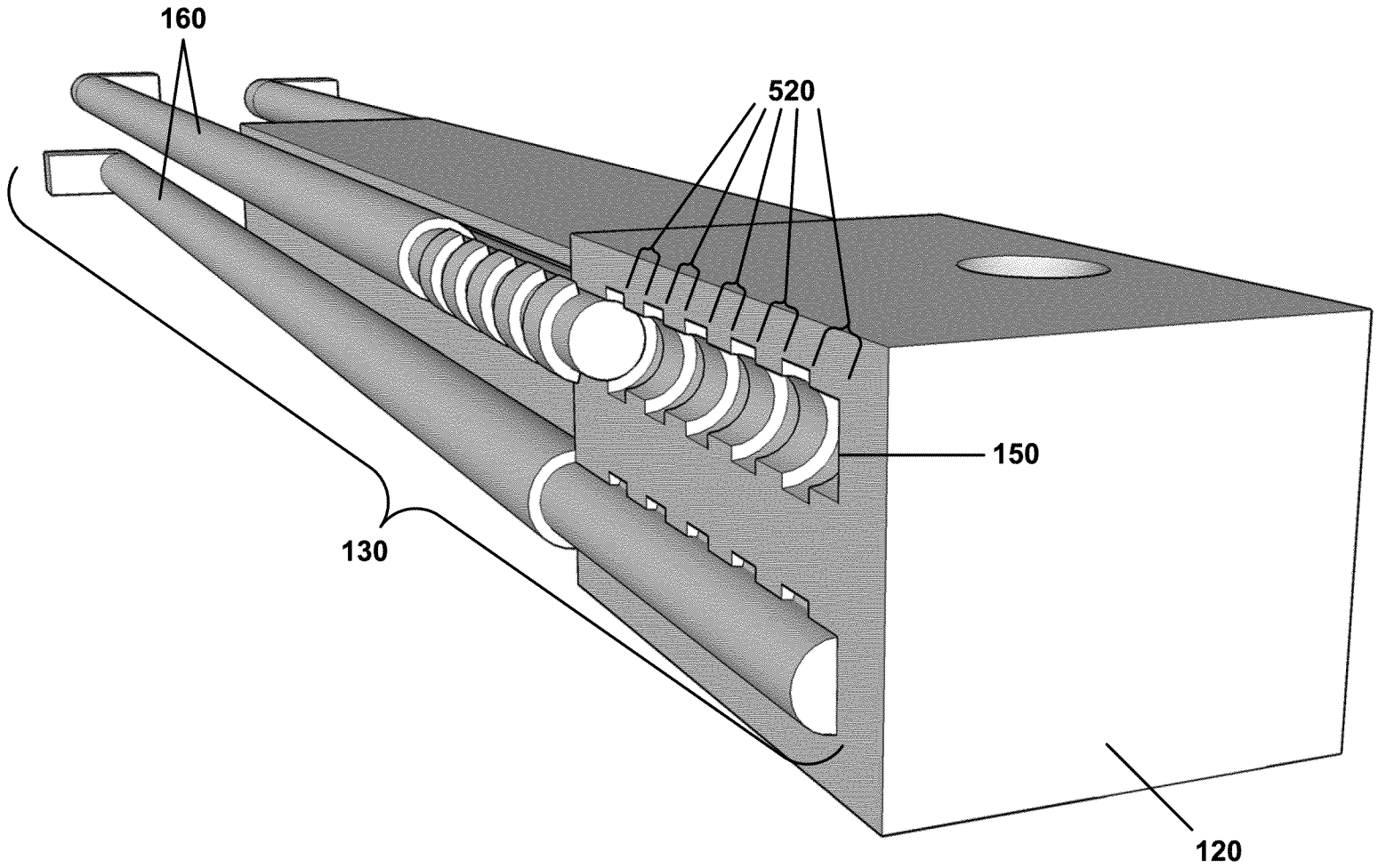


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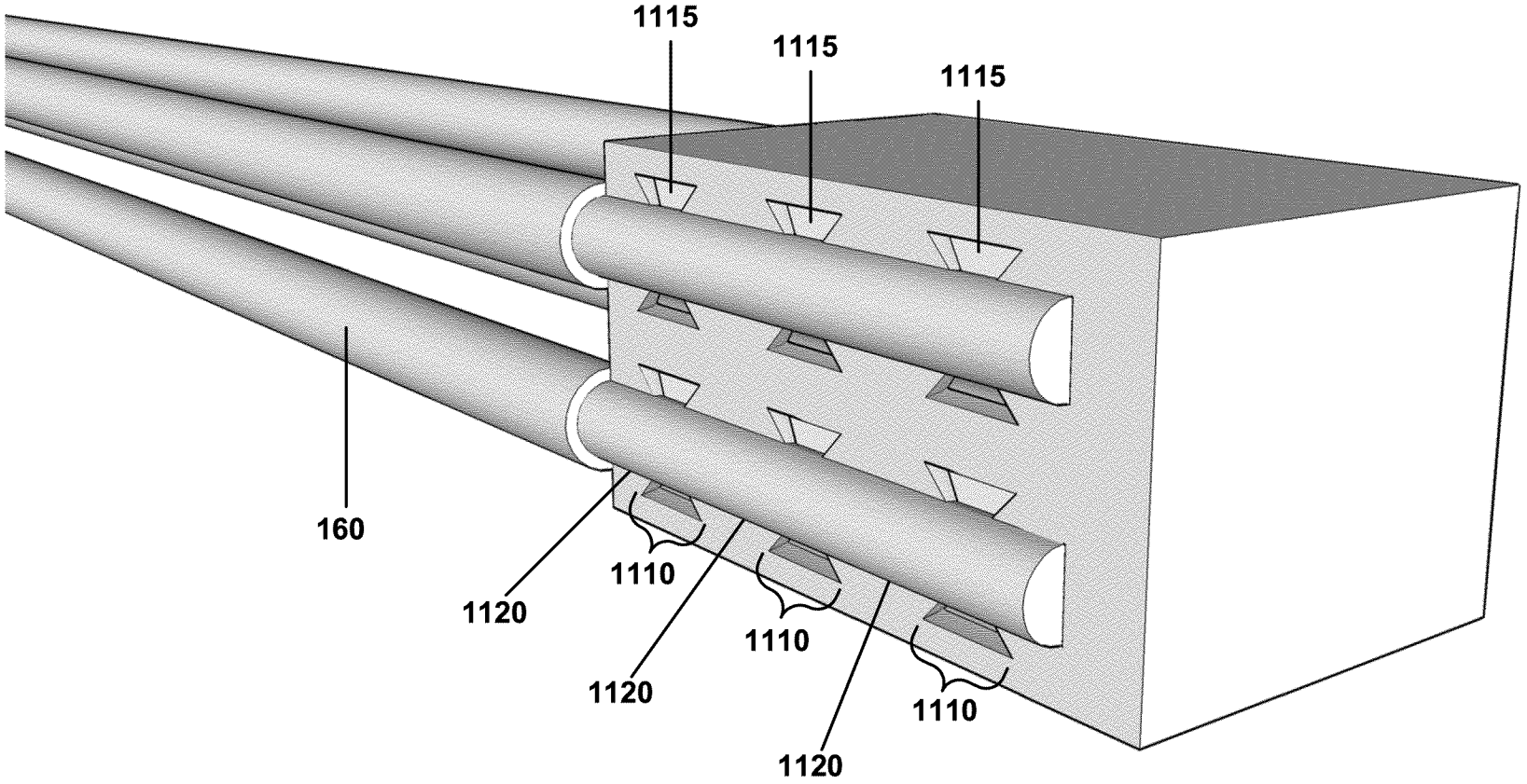


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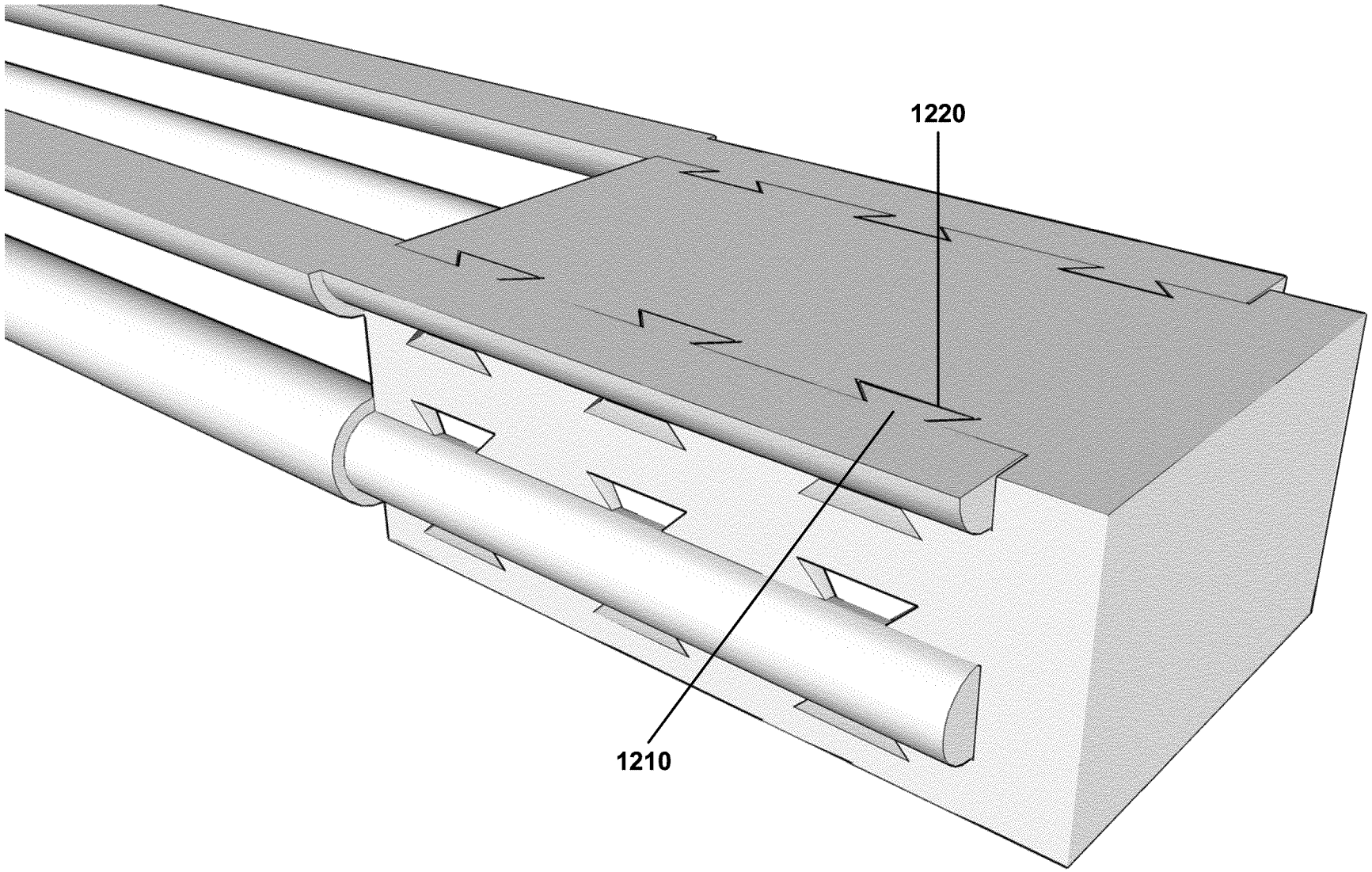


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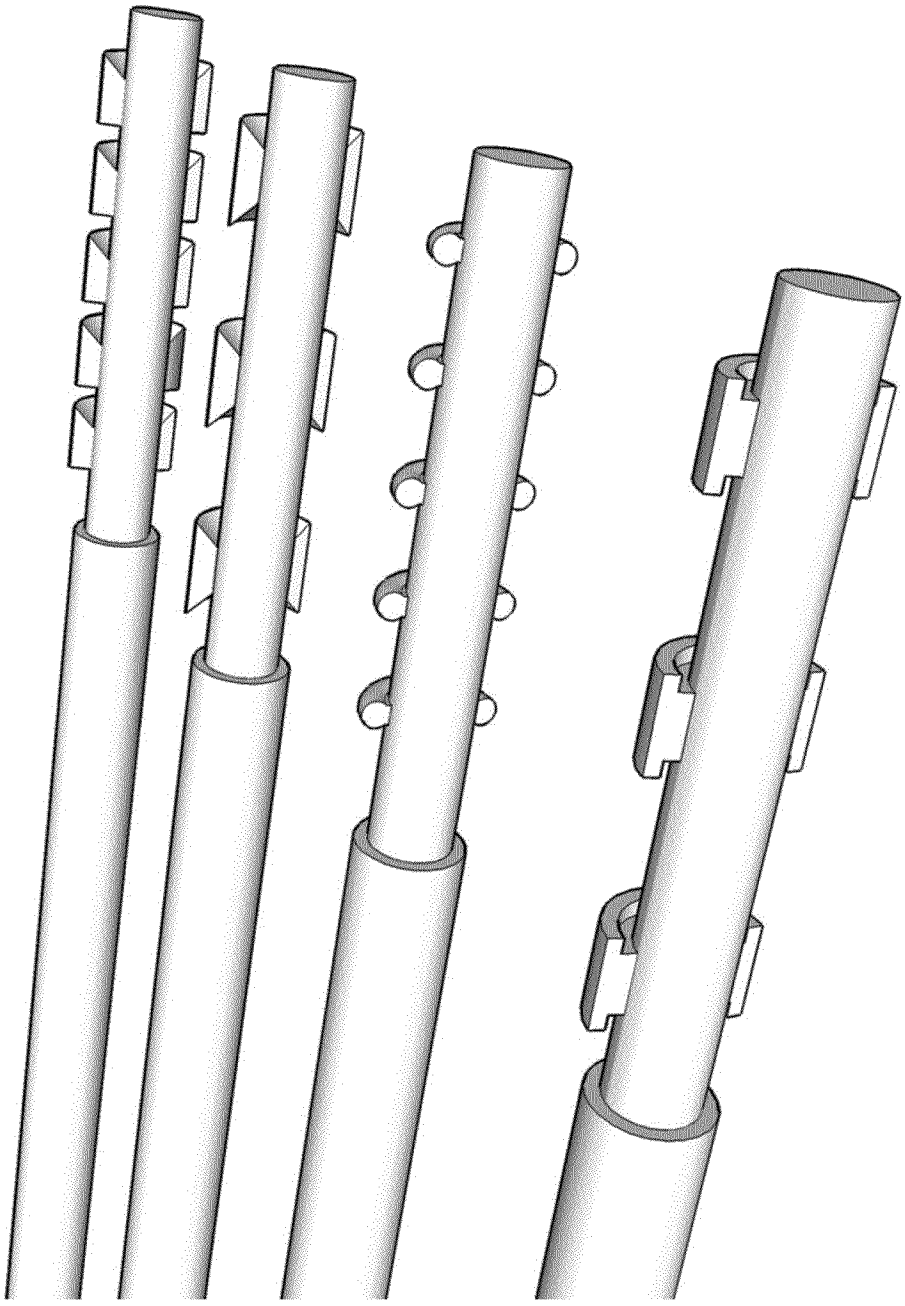


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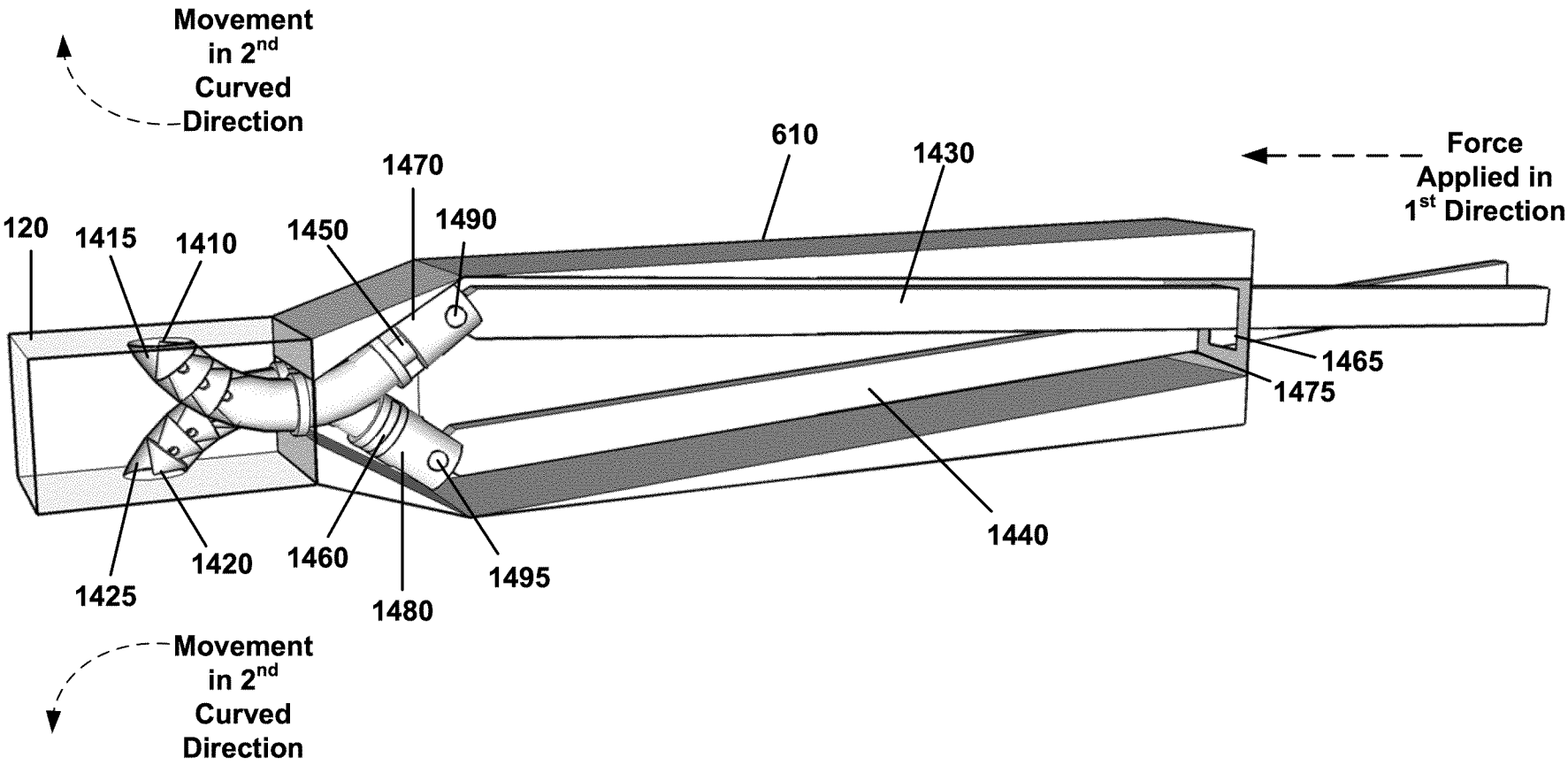

Movement in 2nd Curved Direction
610
1430
Force Applied in 1st Direction
1470
120
1415
1410
1450
1490
1465
1475
1440
1425
1420
1460
1480
1495
Movement in 2nd Curved Direction

Figure 14

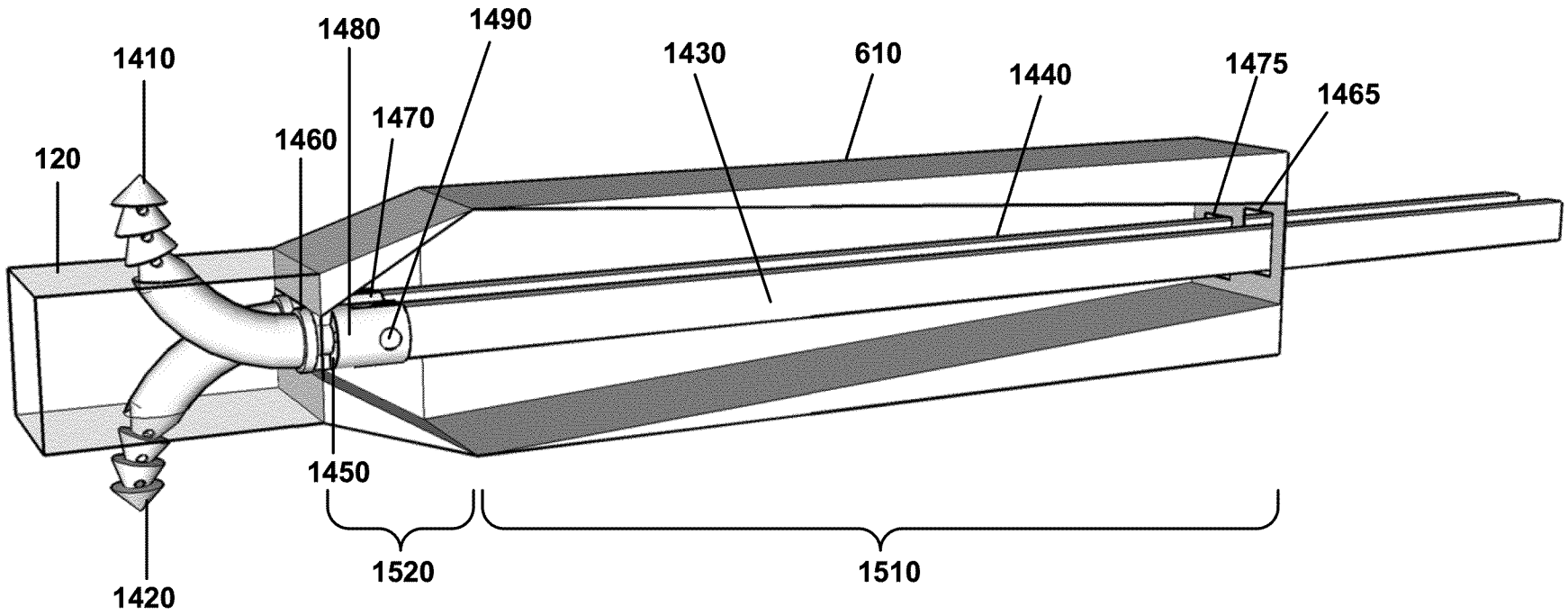

1410
1480
1490
1430
610
1440
1475
1465
120
1460
1470
1450
1520
1510
1420

Figure 15

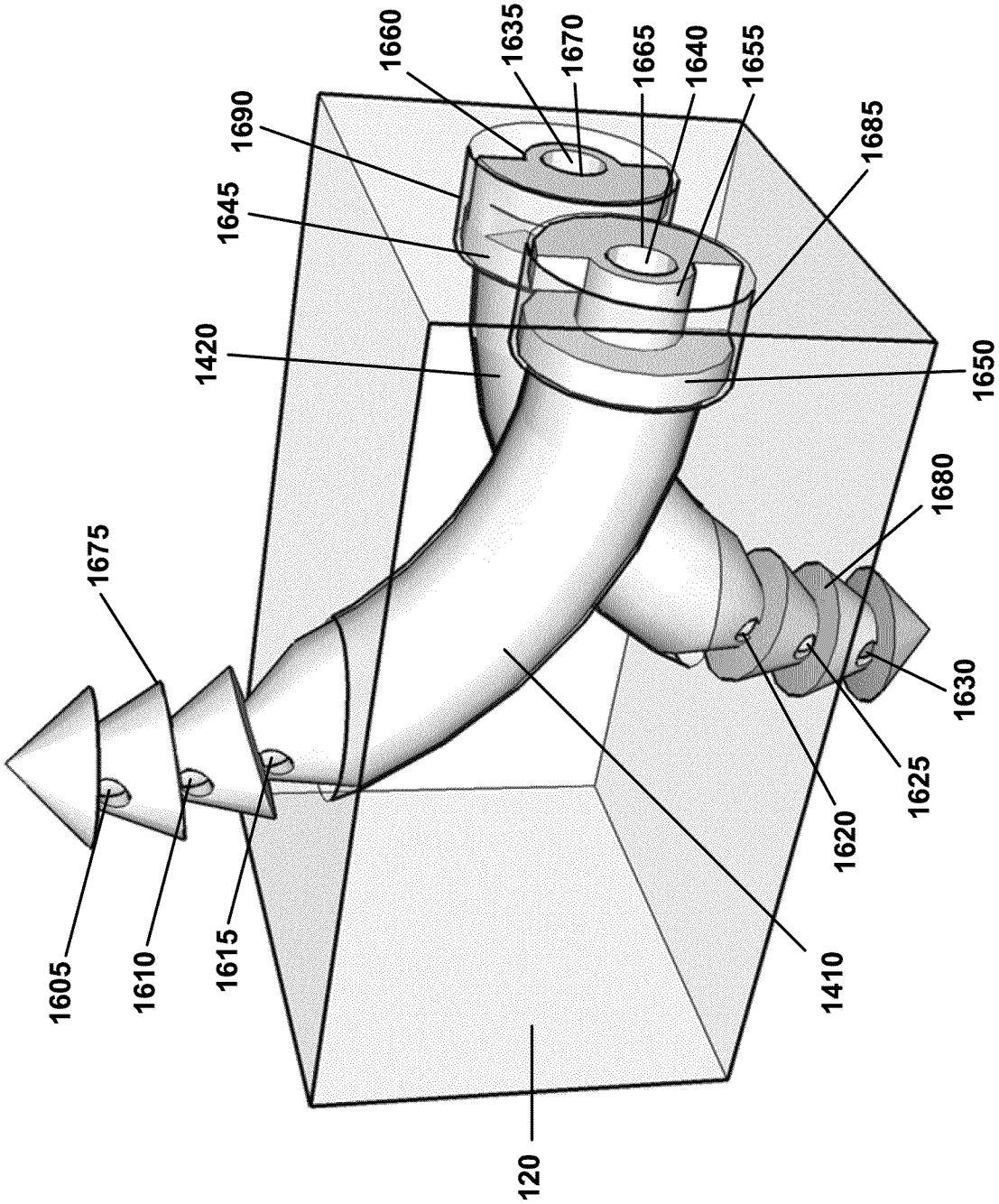

1660
1635
1670
1665
1640
1655
1690
1685
1645
1420
1650
1680
1675
1630
1625
1620
1605
1610
1615
1410
120

Figure 16

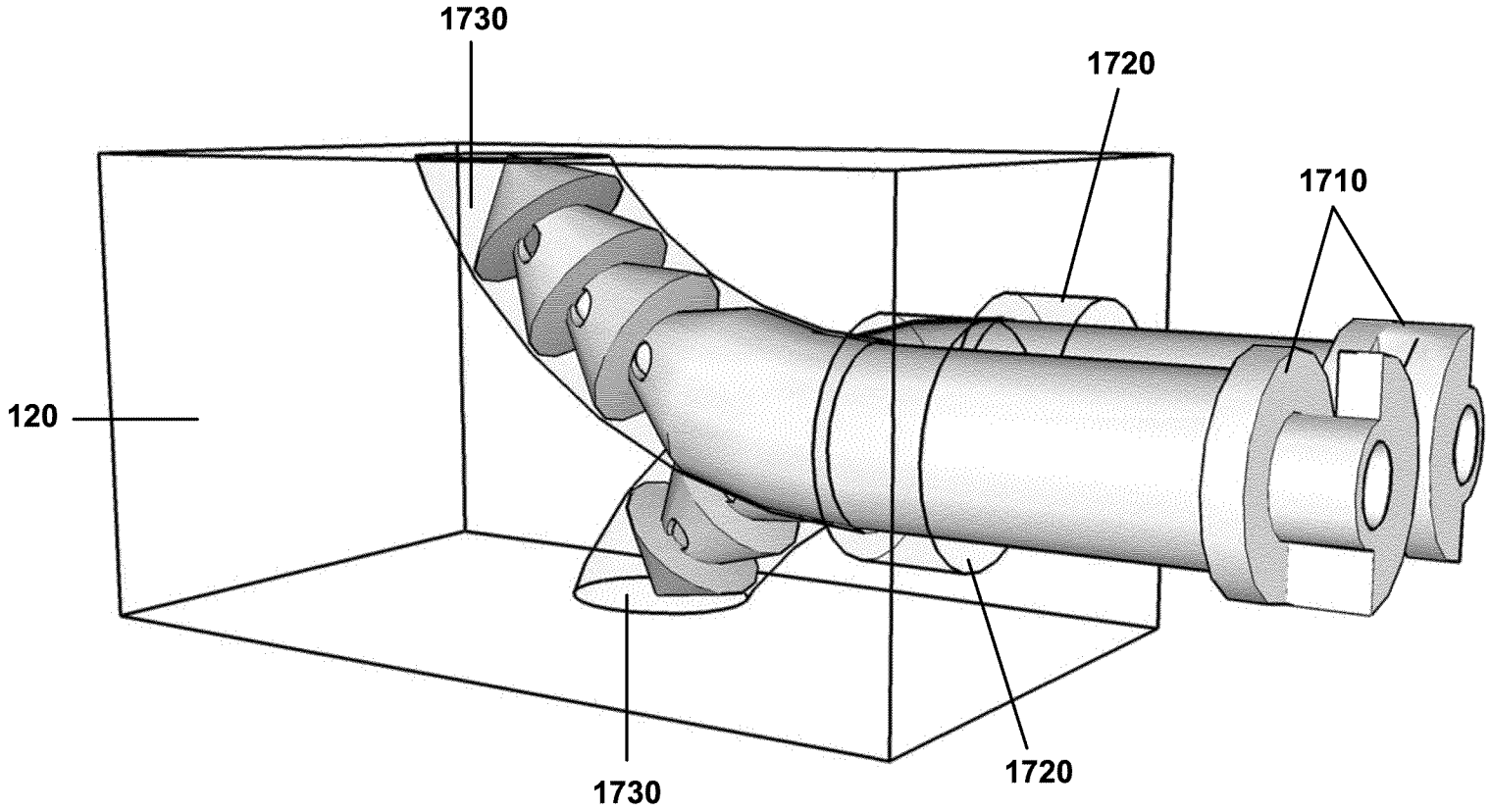


Figure 17

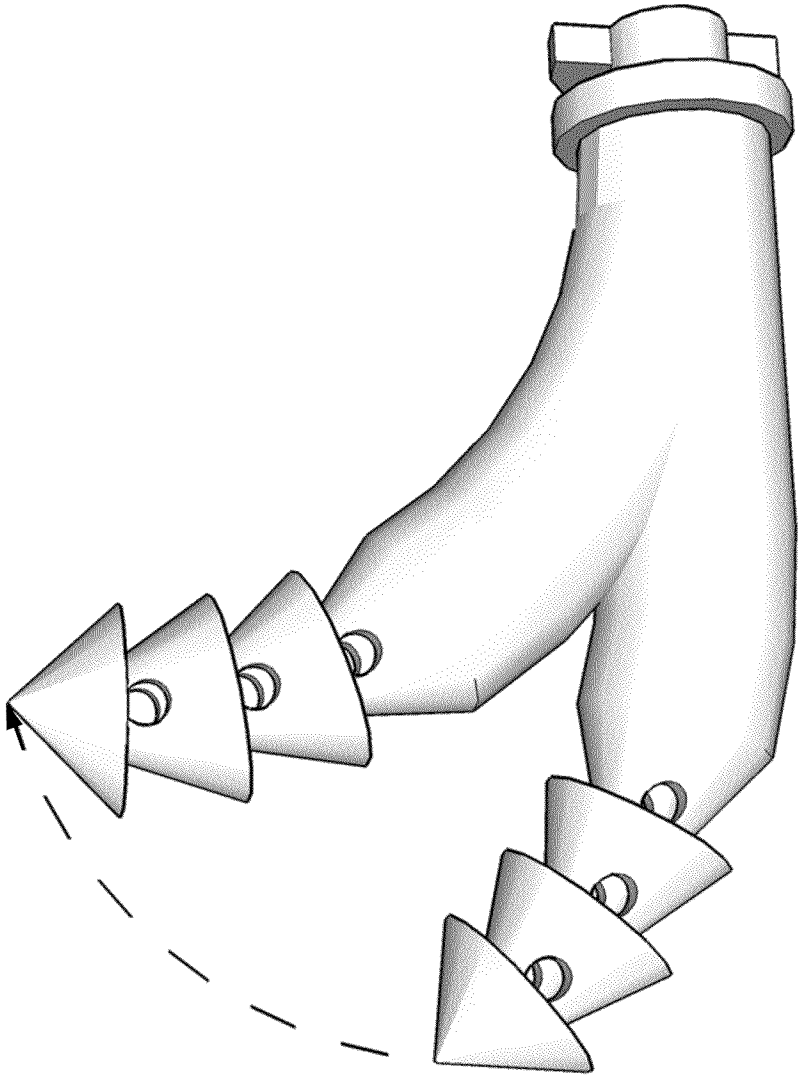


Figure 18

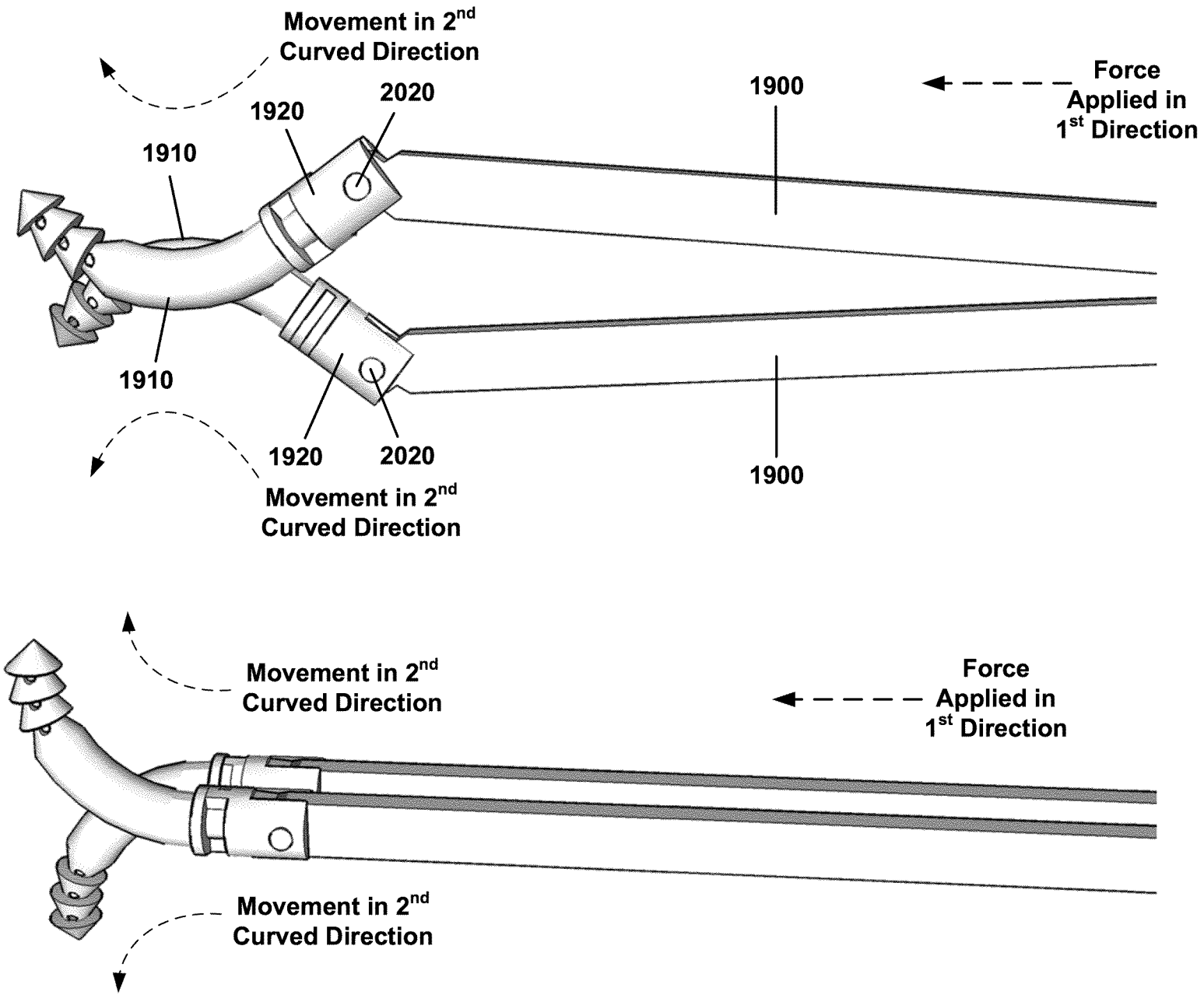

Movement in 2nd Curved Direction
2020
1920
1910
1900
Force Applied in 1st Direction
1910
1920
2020
Movement in 2nd Curved Direction
1900
Movement in 2nd Curved Direction
Force Applied in 1st Direction
Movement in 2nd Curved Direction

Figure 19

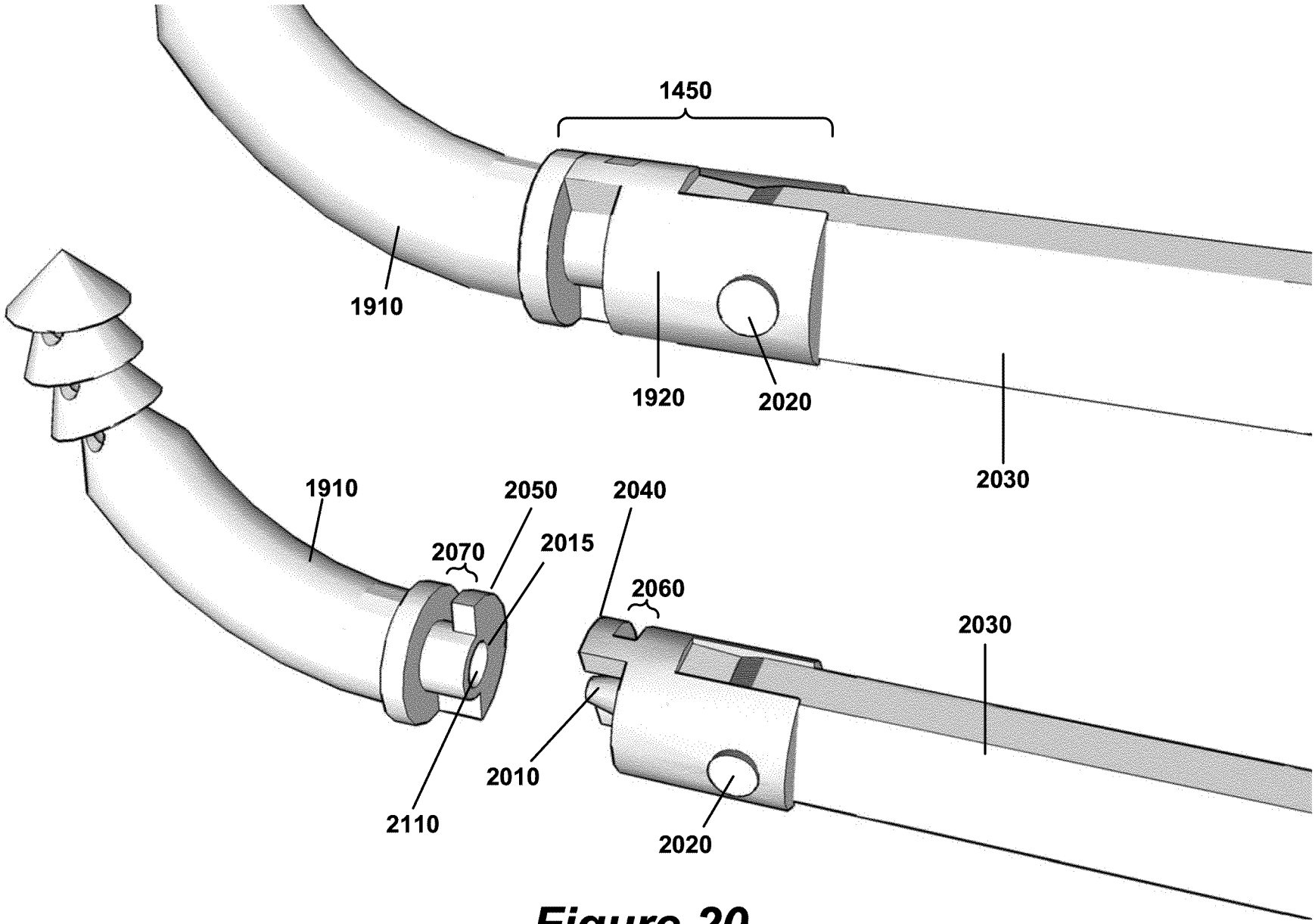

1450
1910
1920
2020
2030
1910
2050
2040
2070
2015
2060
2030
2010
2110
2020

Figure 20

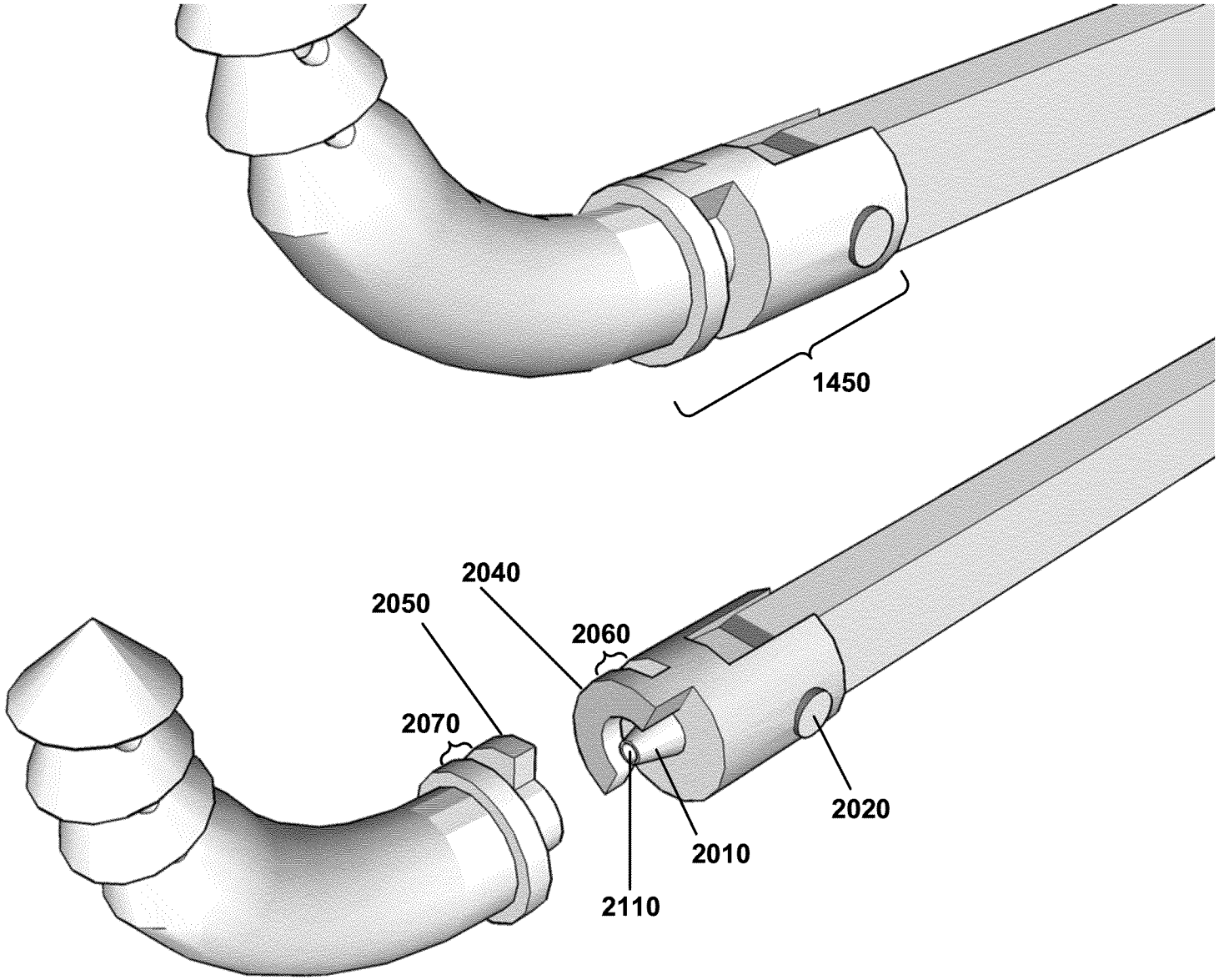


Figure 21

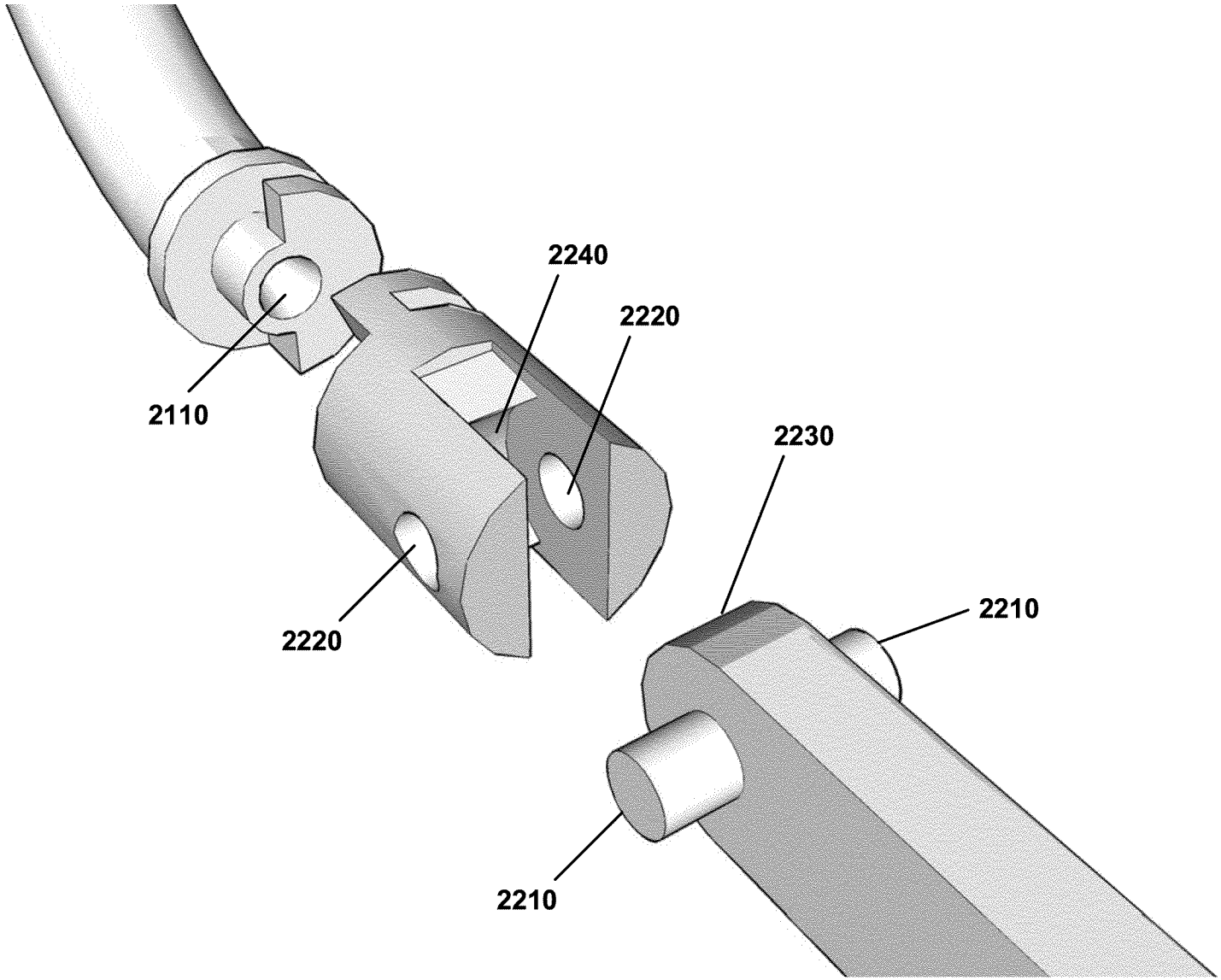


Figure 22A

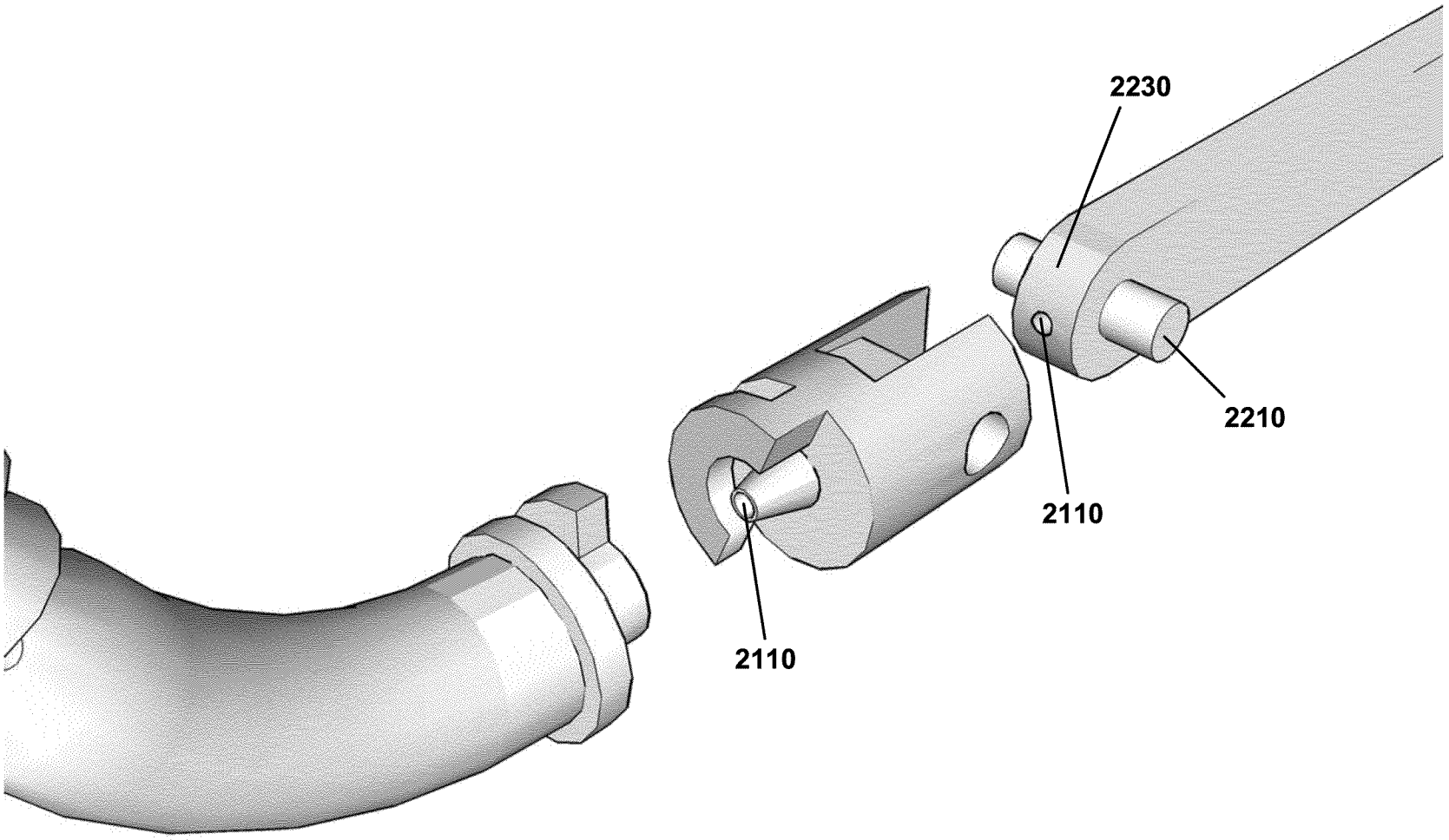


Figure 22B

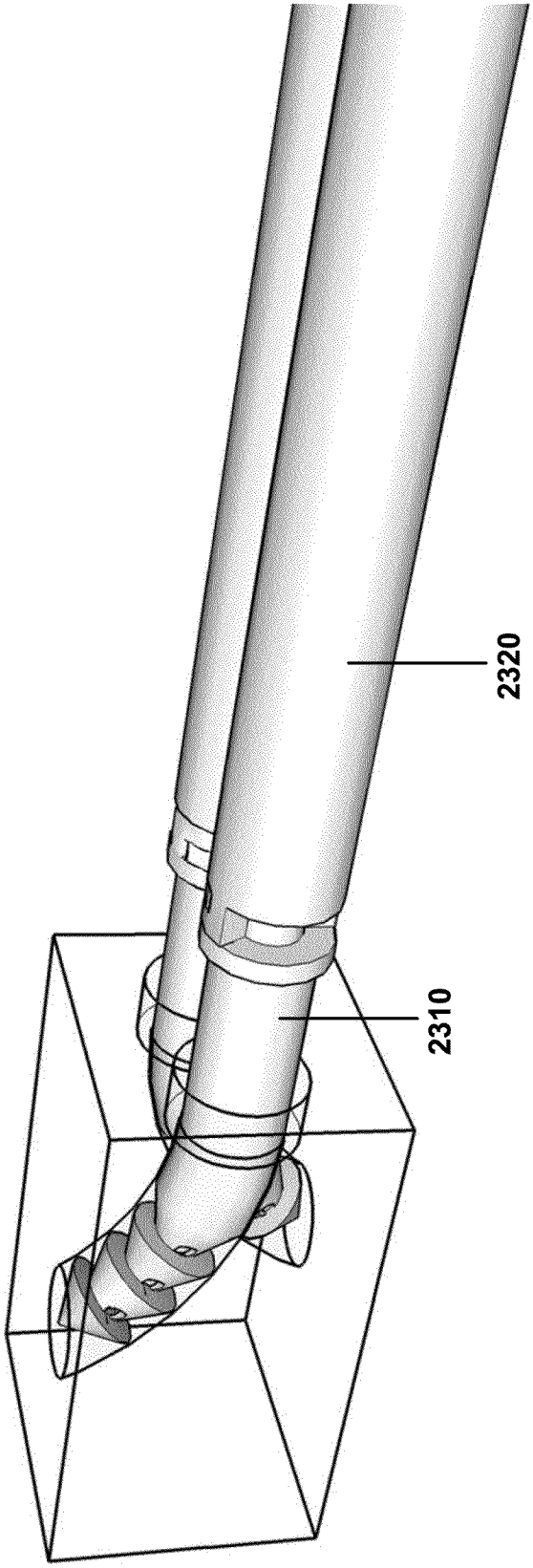


Figure 23A

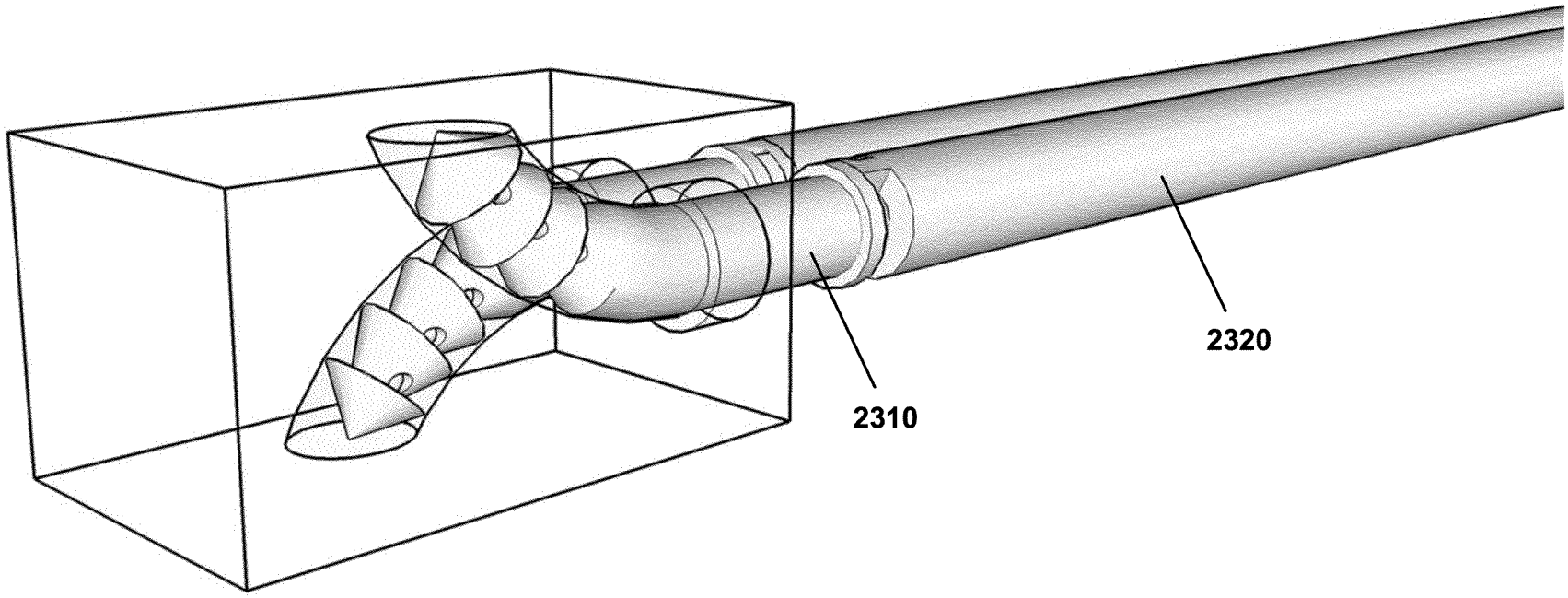


Figure 23B

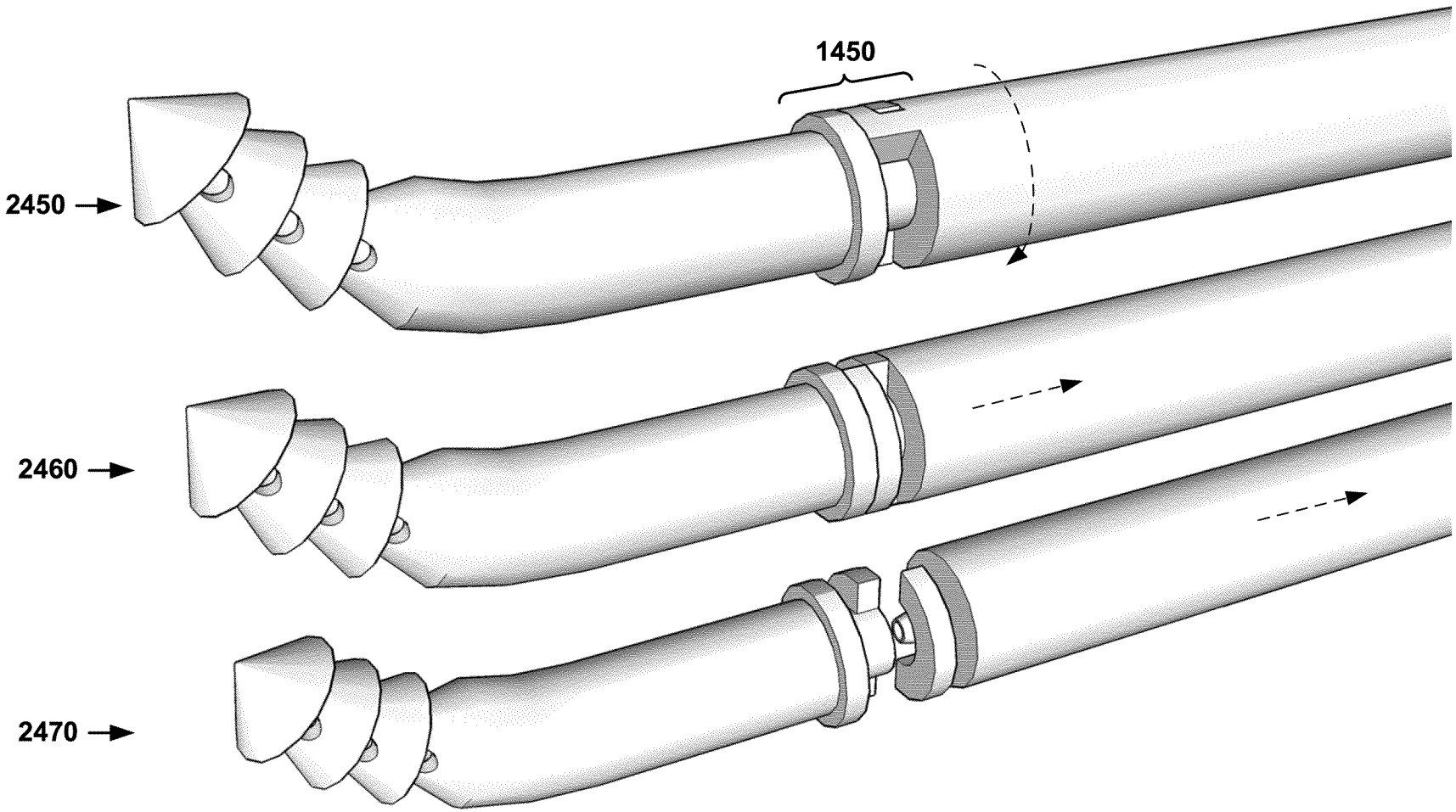


Figure 24A

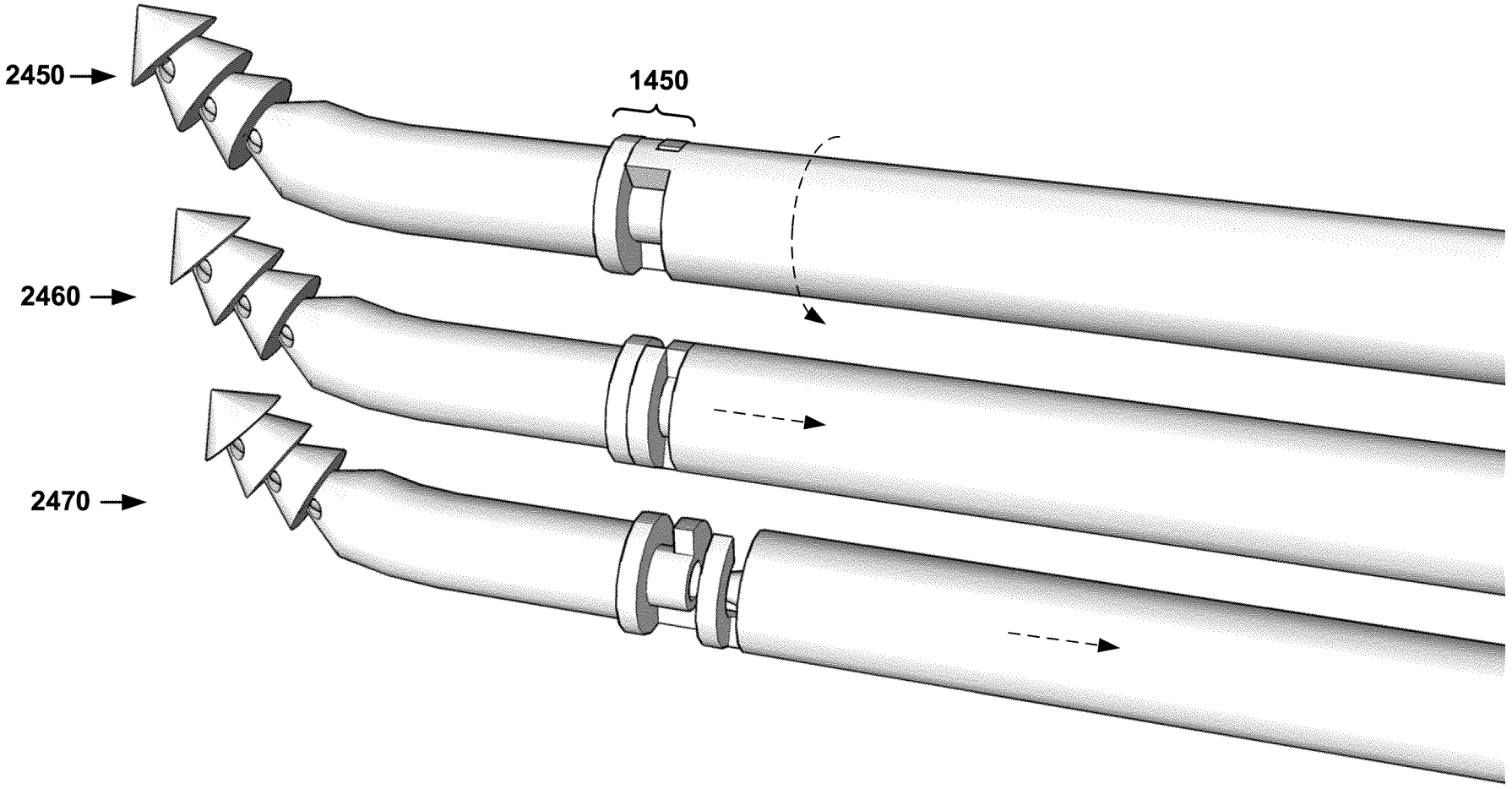


Figure 24B

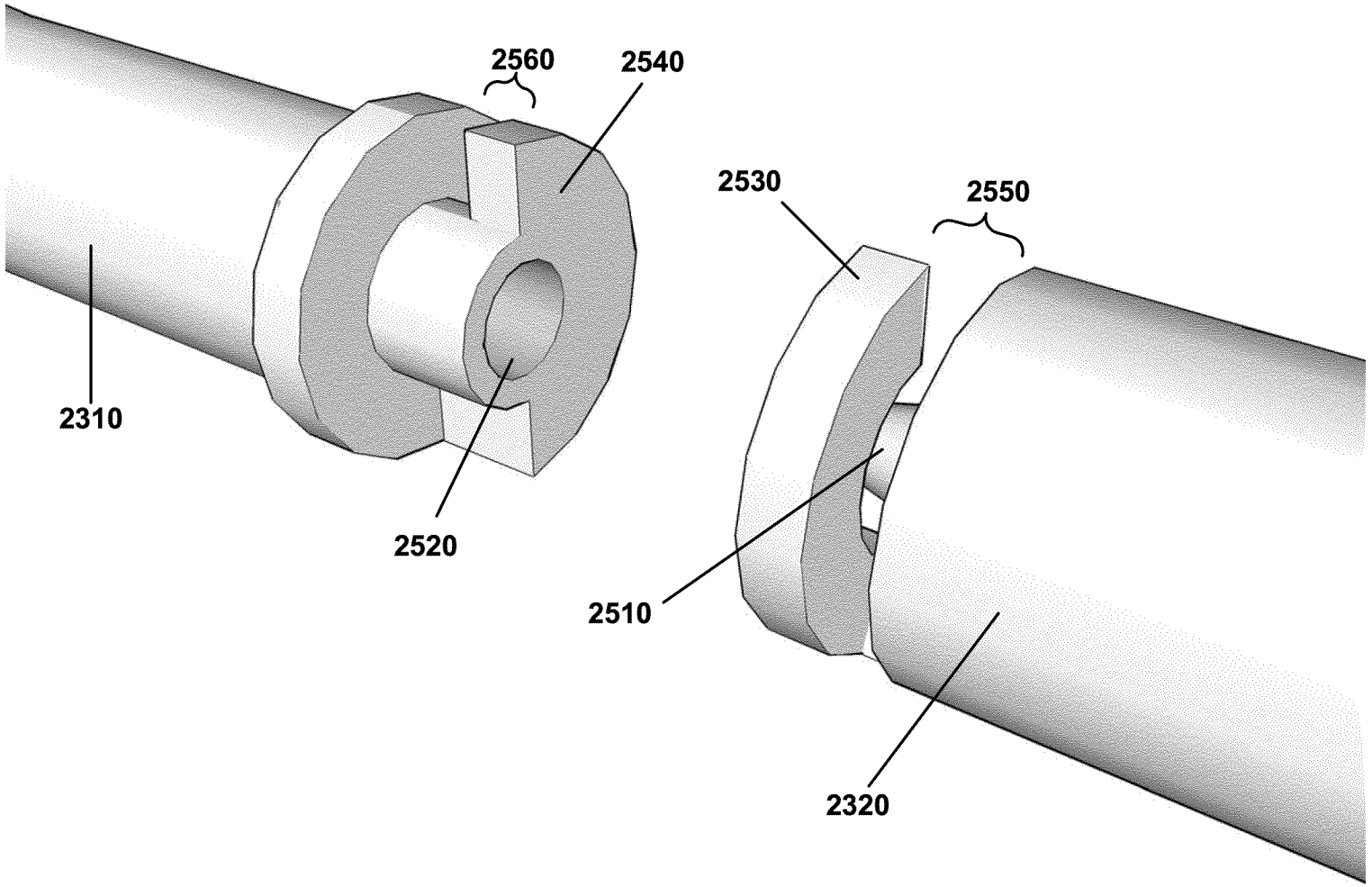


Figure 25A

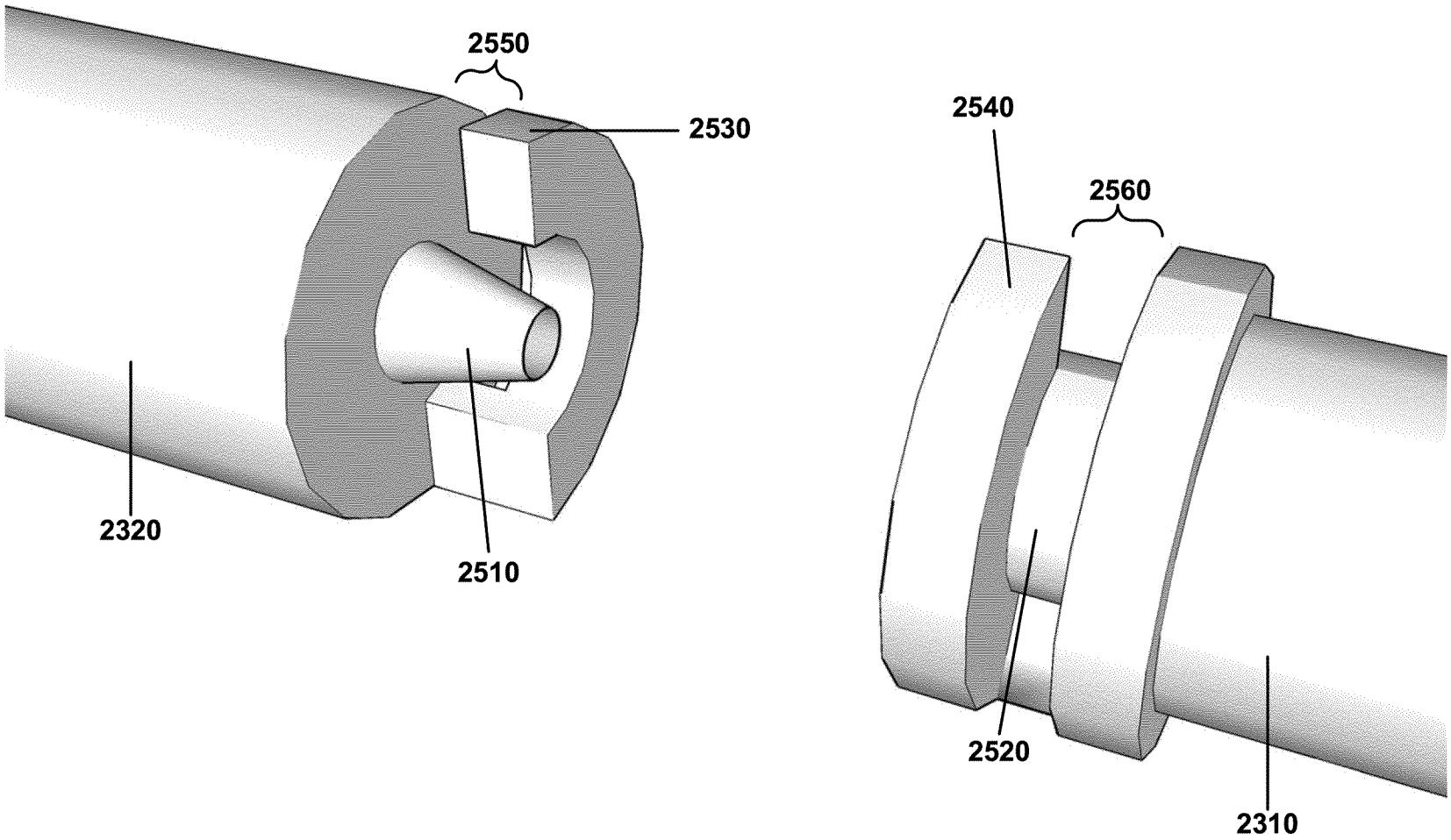


Figure 25B

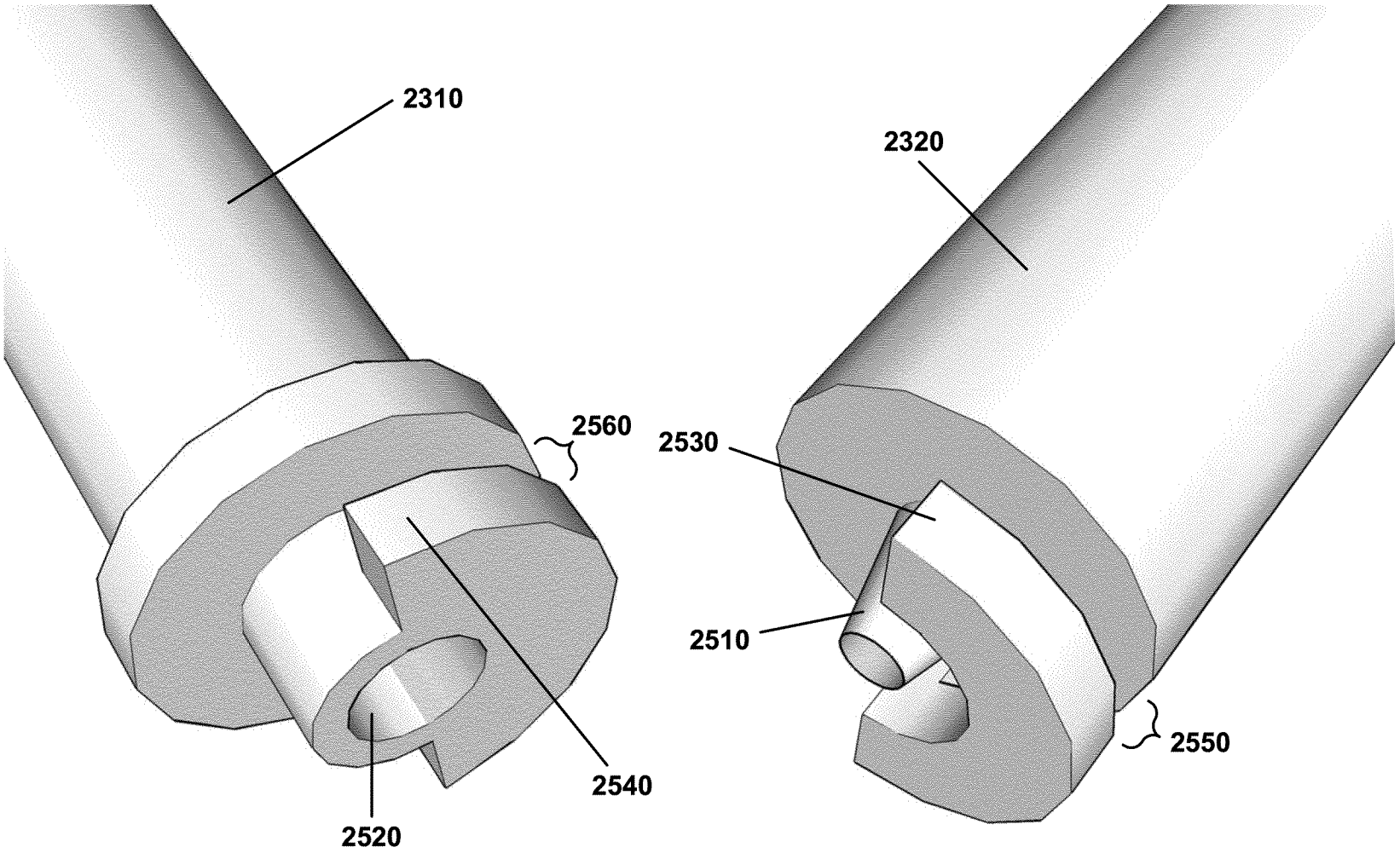


Figure 25C

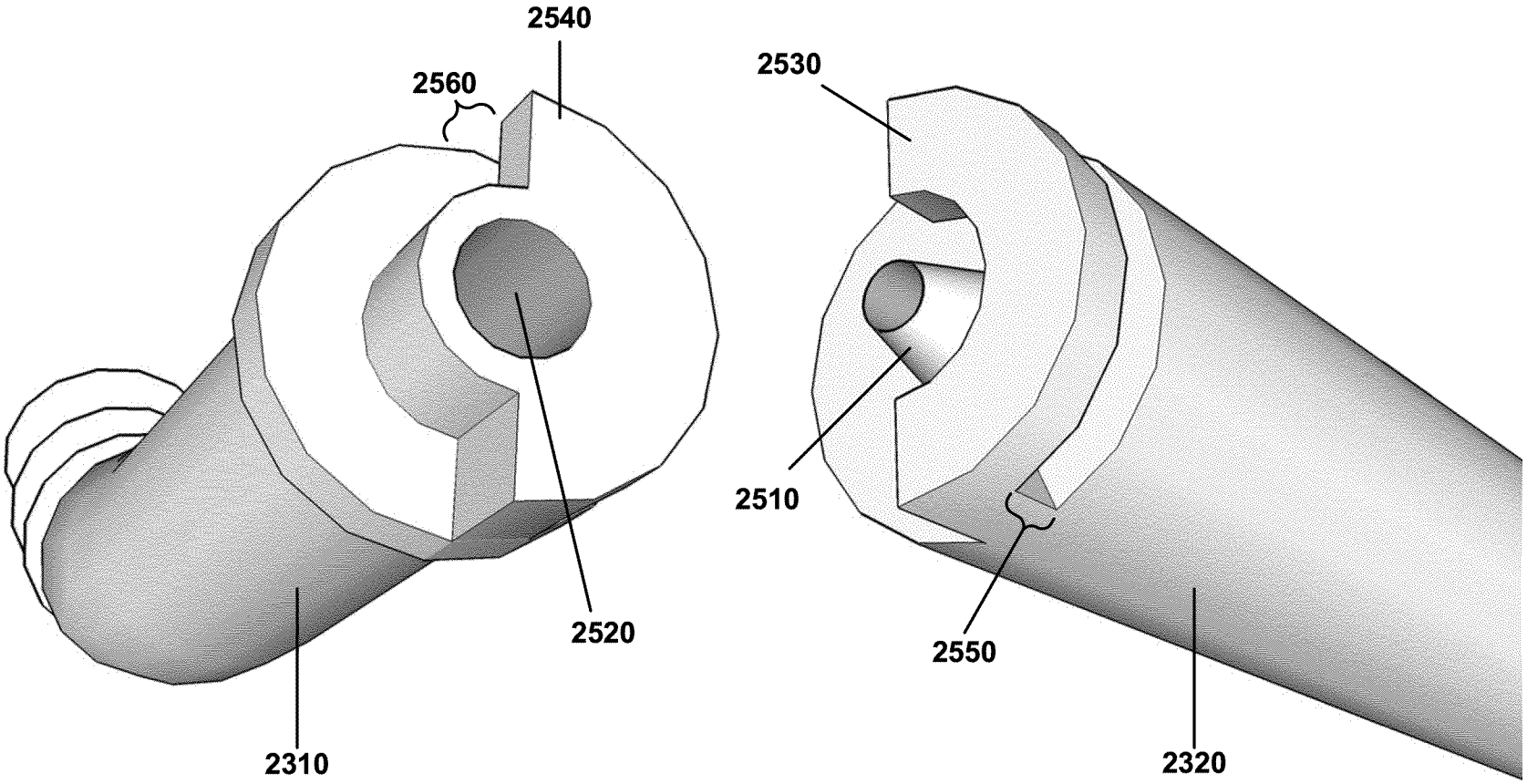


Figure 25D

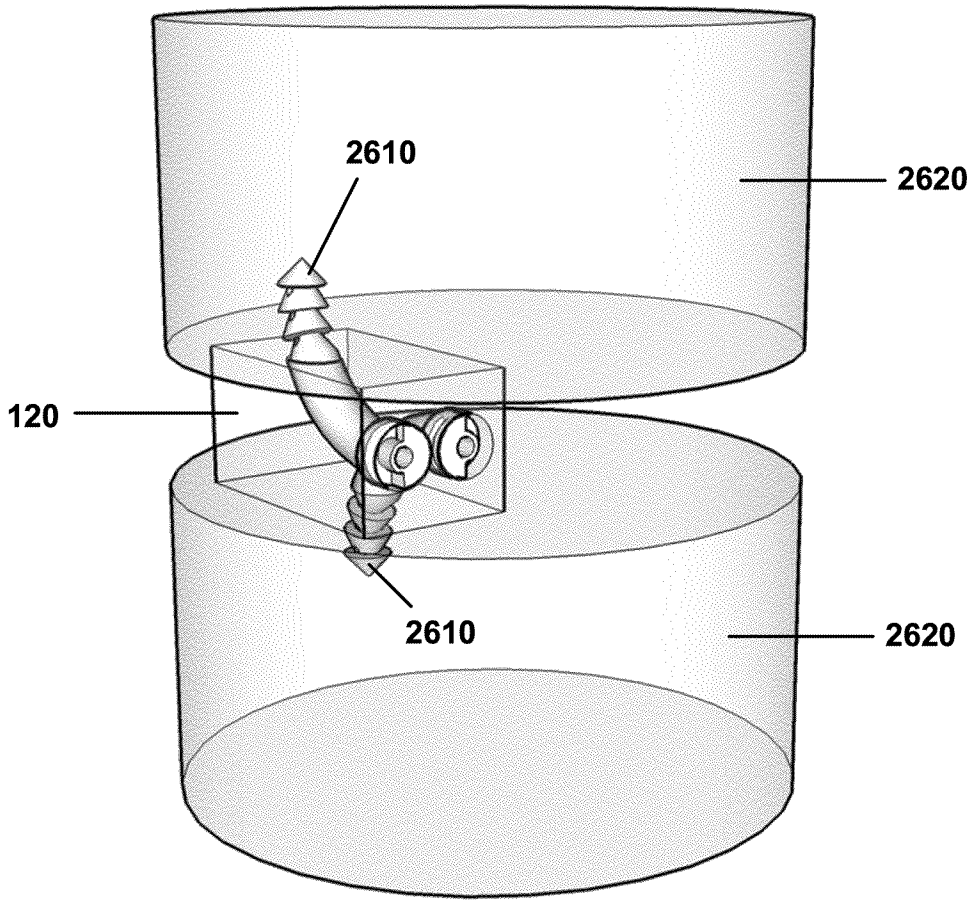


Figure 26A

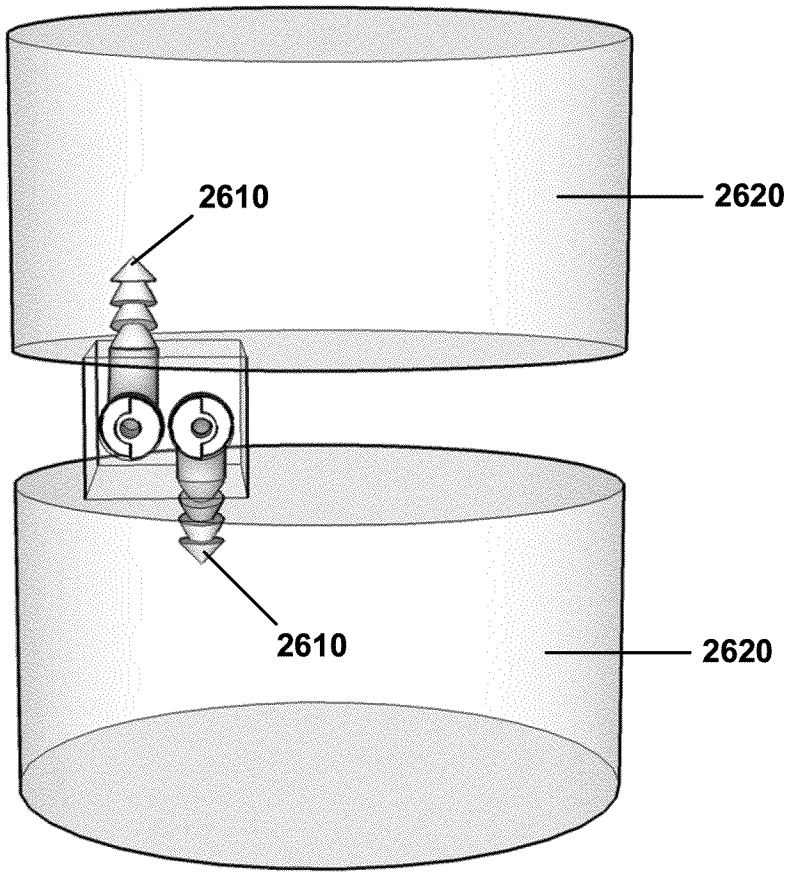


Figure 26B

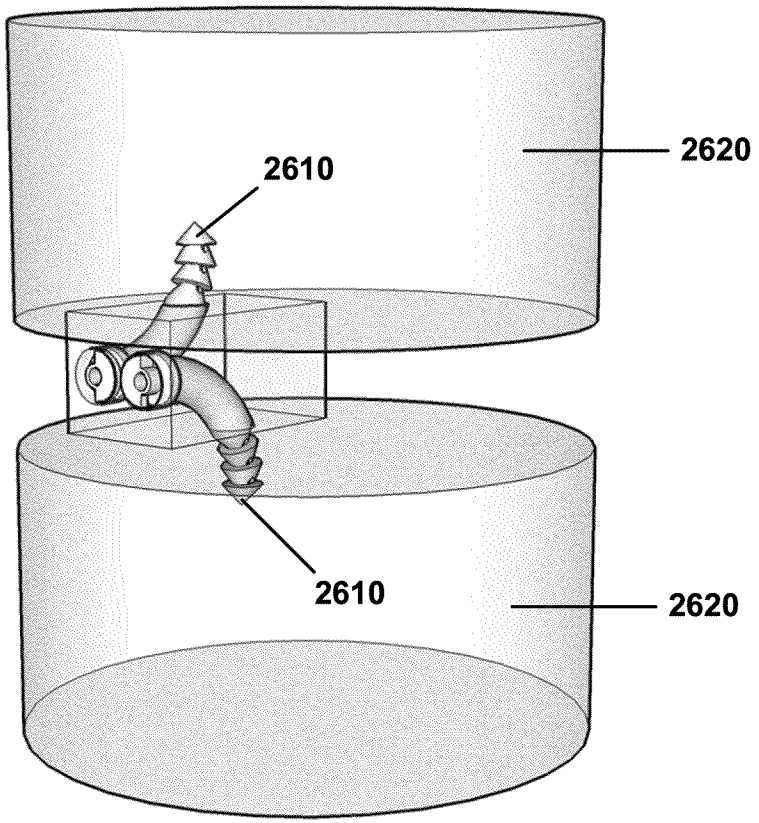


Figure 26C

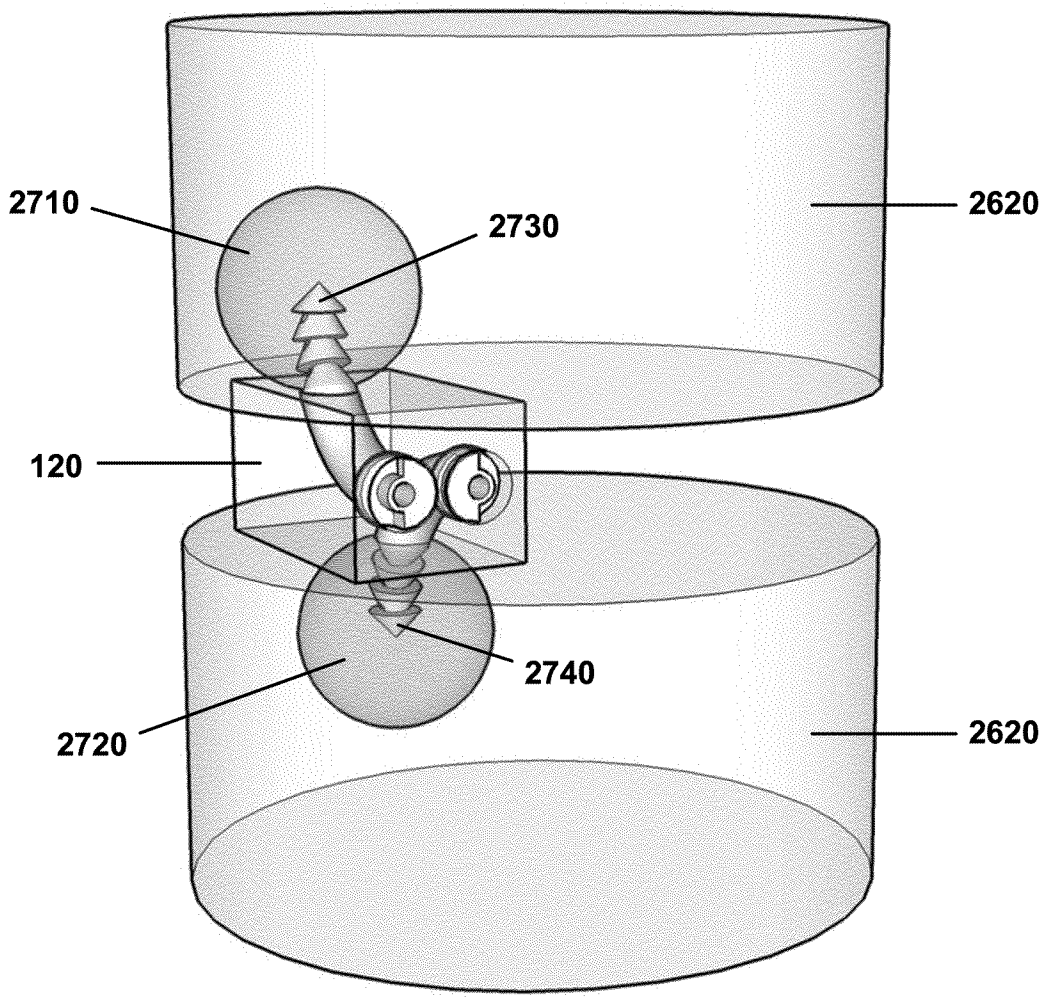


Figure 27A

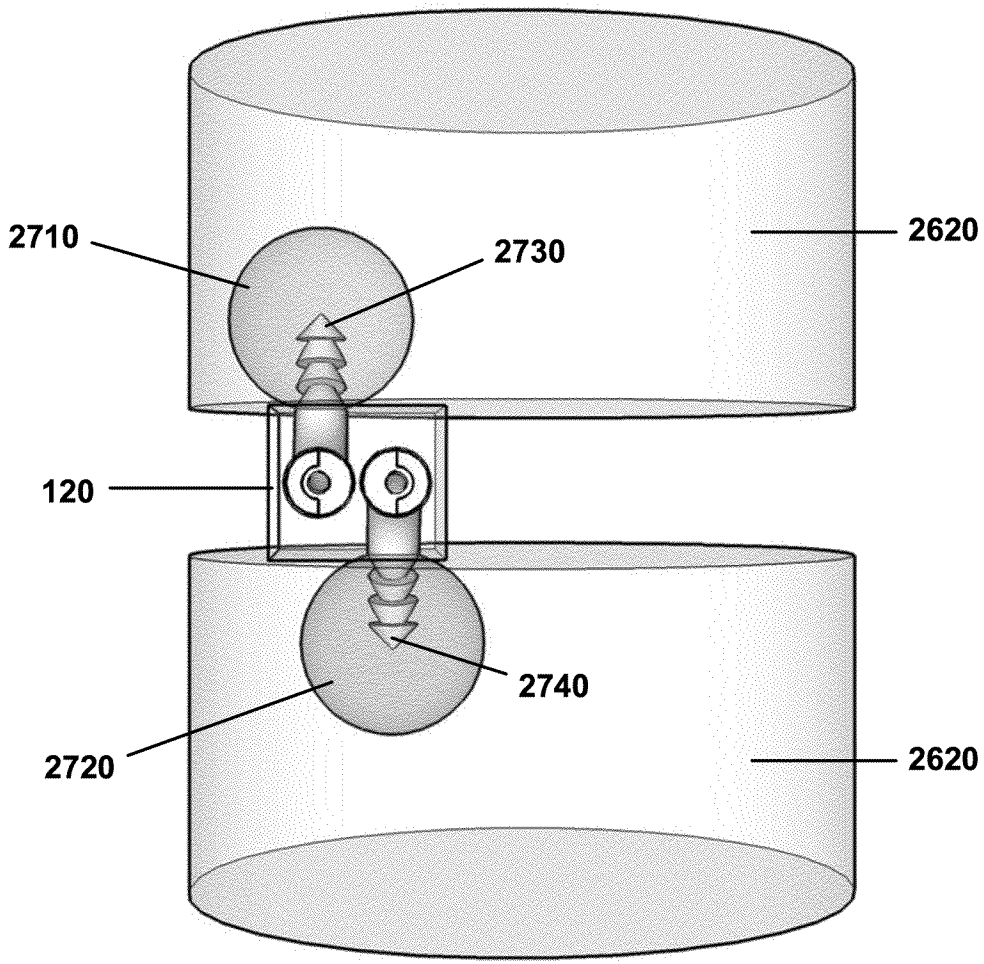


Figure 27B

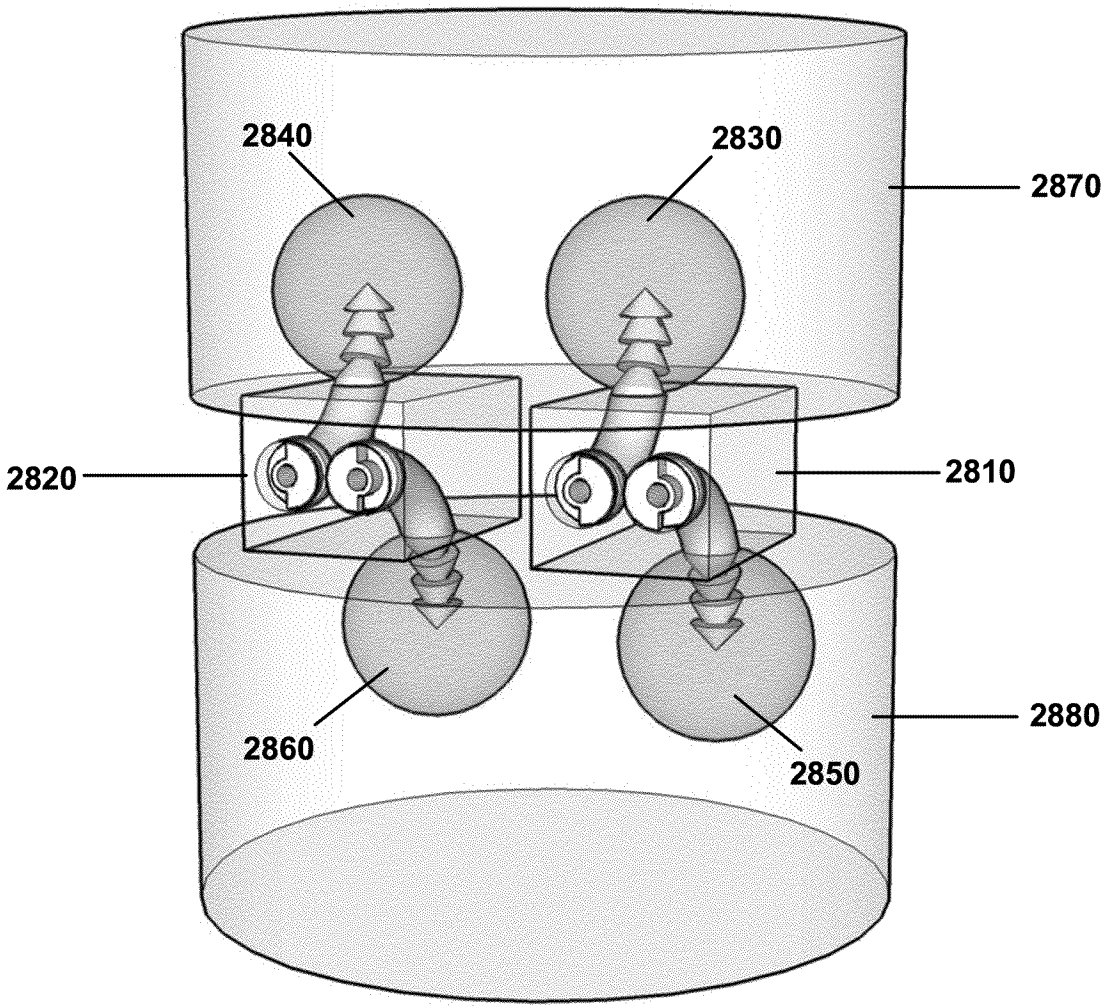


Figure 28A

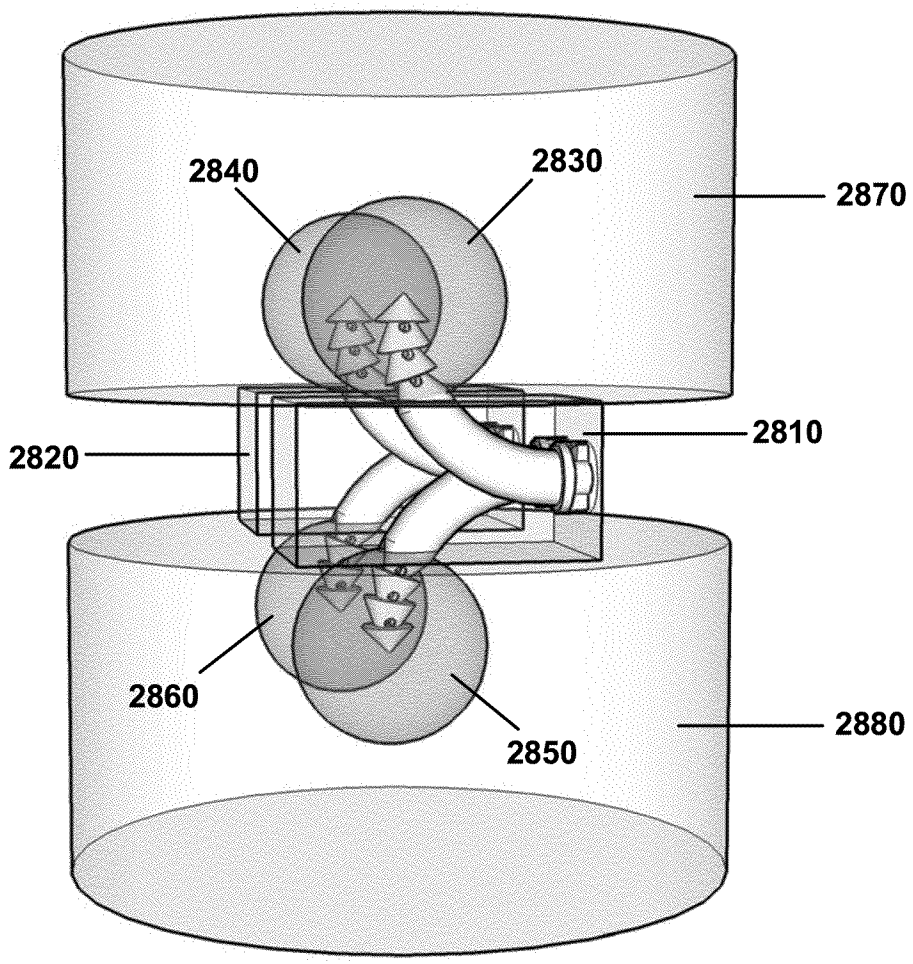


Figure 28B

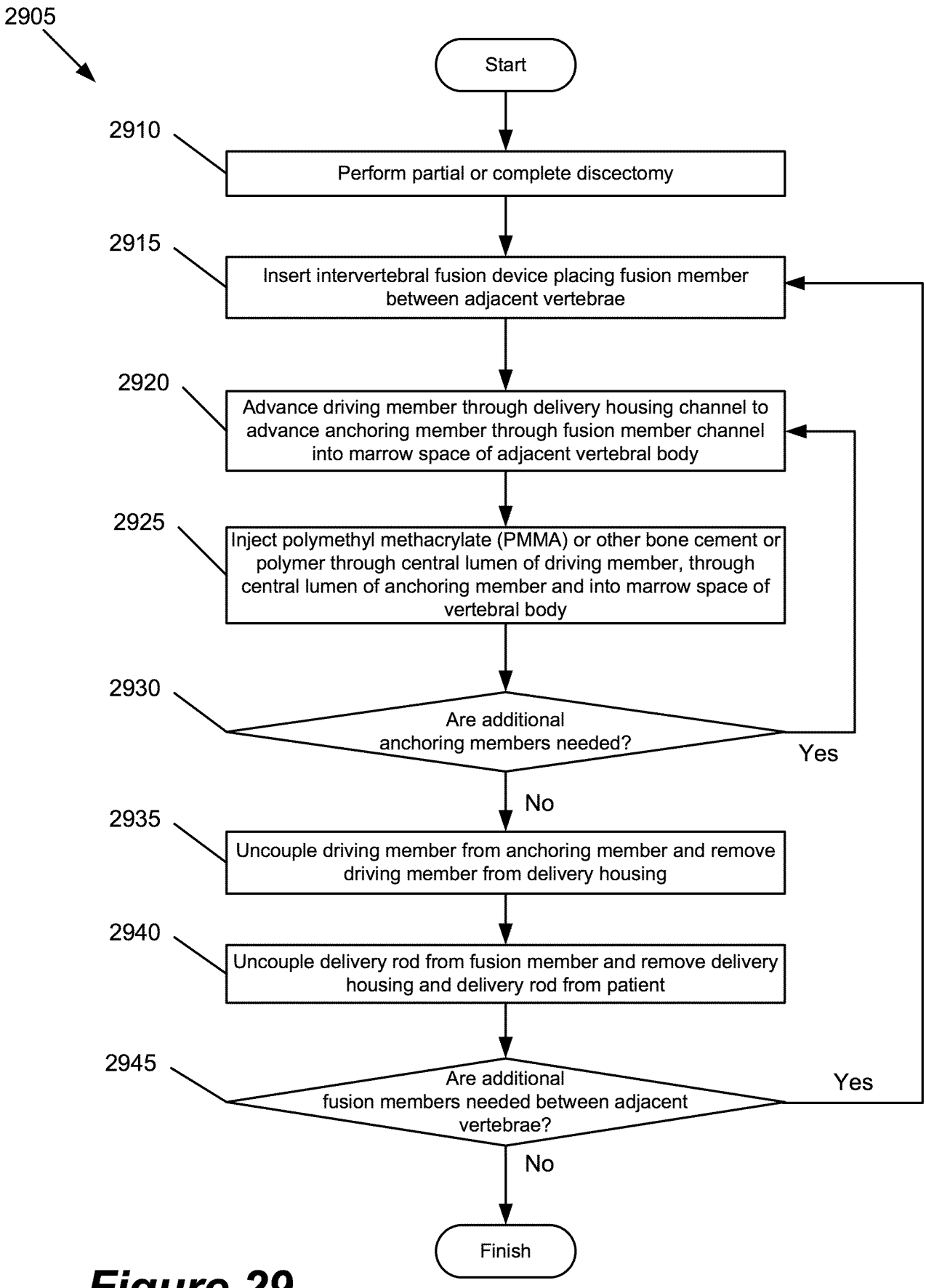

2905
Start
2910
Perform partial or complete discectomy
2915
Insert intervertebral fusion device placing fusion member between adjacent vertebrae
2920
Advance driving member through delivery housing channel to advance anchoring member through fusion member channel into marrow space of adjacent vertebral body
2925
Inject polymethyl methacrylate (PMMA) or other bone cement or polymer through central lumen of driving member, through central lumen of anchoring member and into marrow space of vertebral body
2930
Are additional anchoring members needed?
Yes
No
2935
Uncouple driving member from anchoring member and remove driving member from delivery housing
2940
Uncouple delivery rod from fusion member and remove delivery housing and delivery rod from patient
2945
Are additional fusion members needed between adjacent vertebrae?
Yes
No
Finish

Figure 29

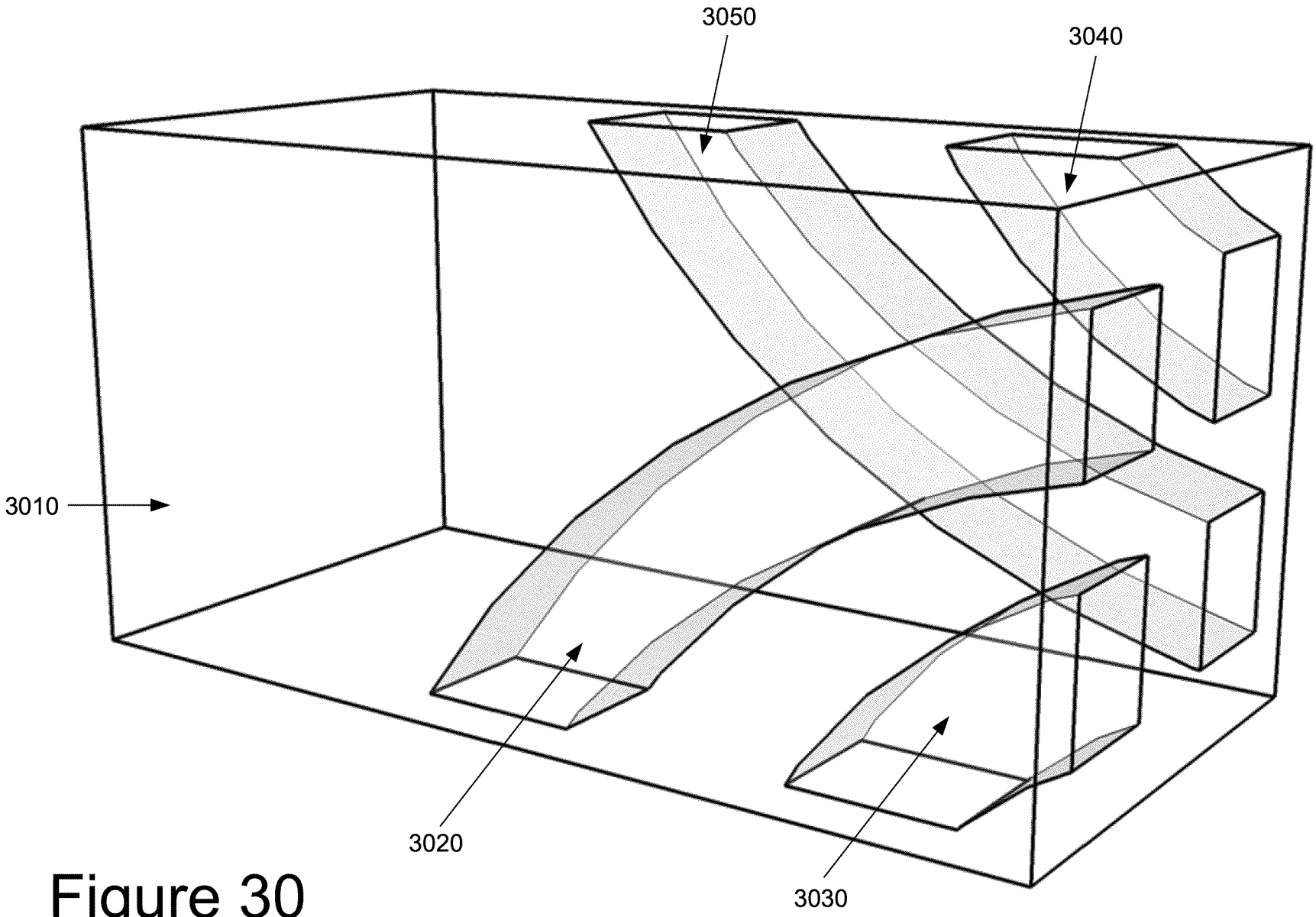


Figure 30

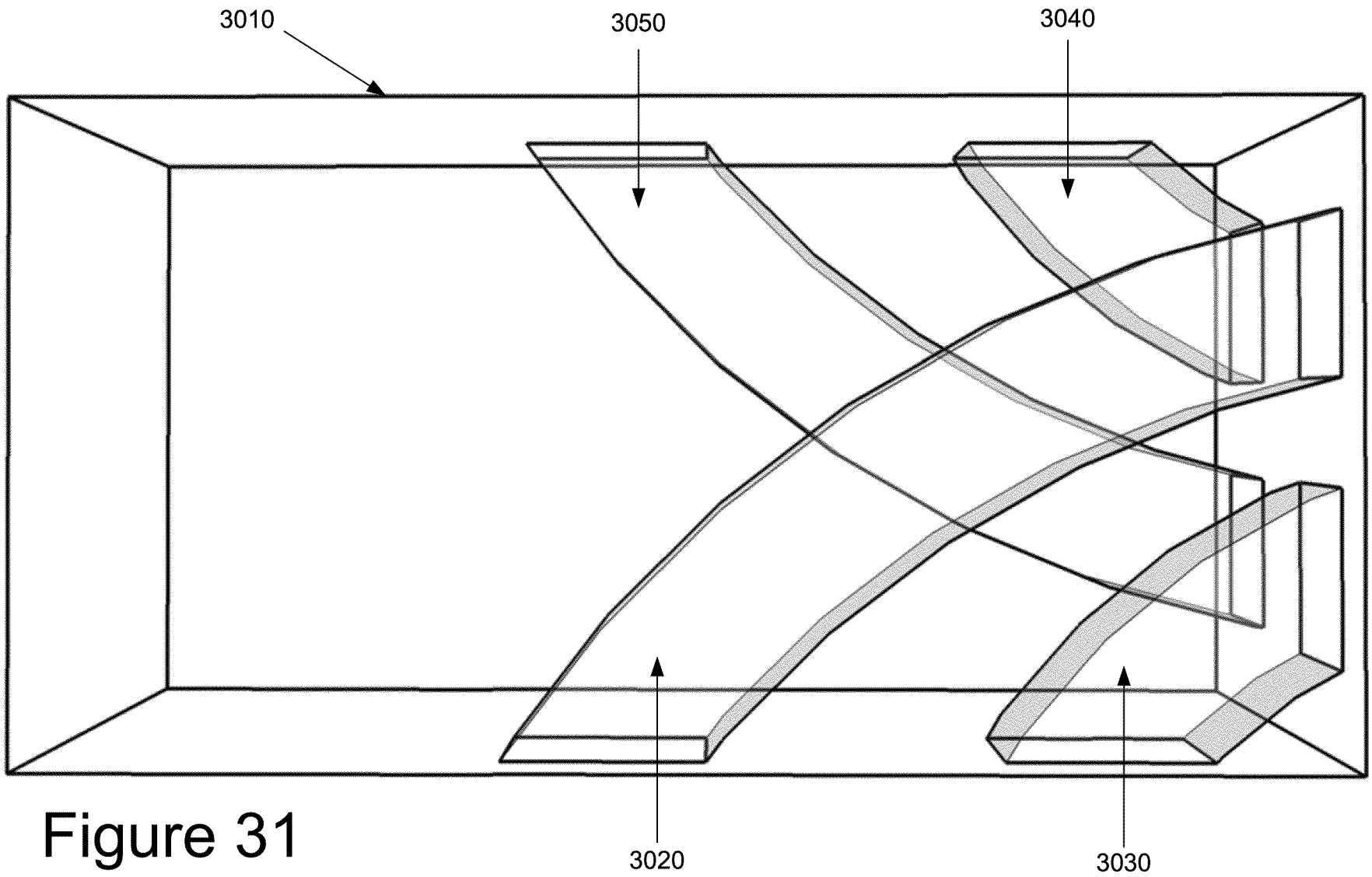


Figure 31

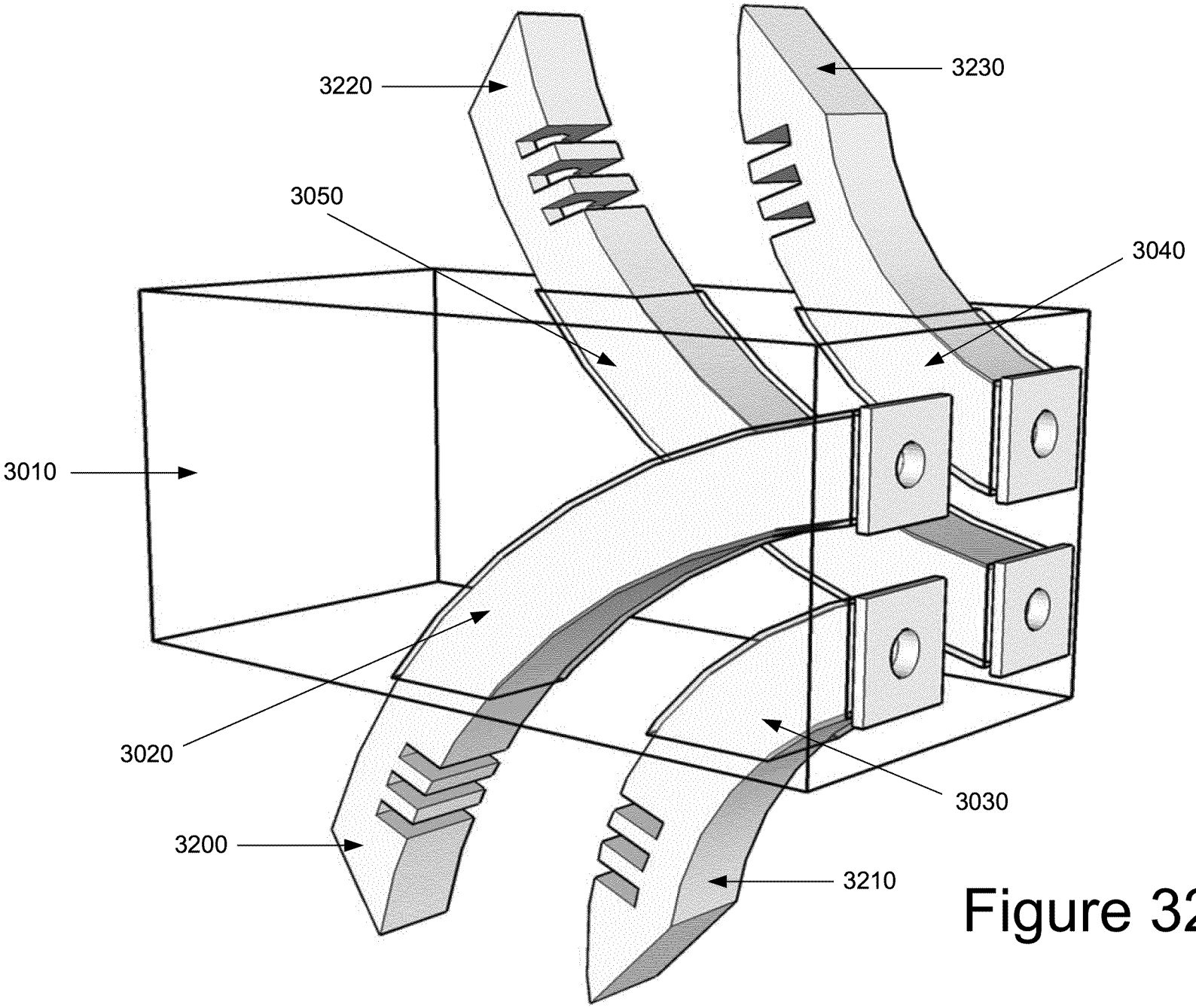


Figure 32

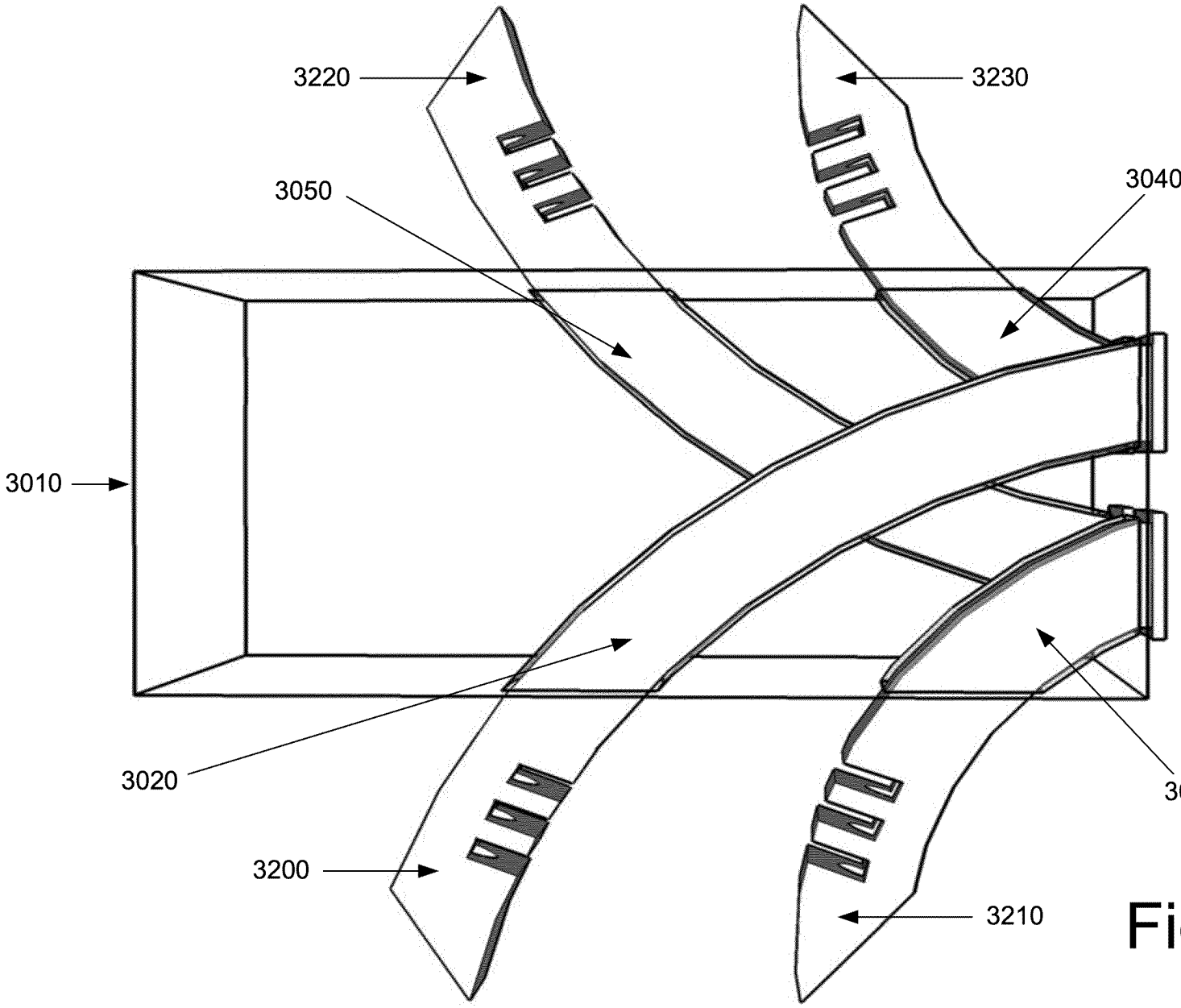


Figure 33

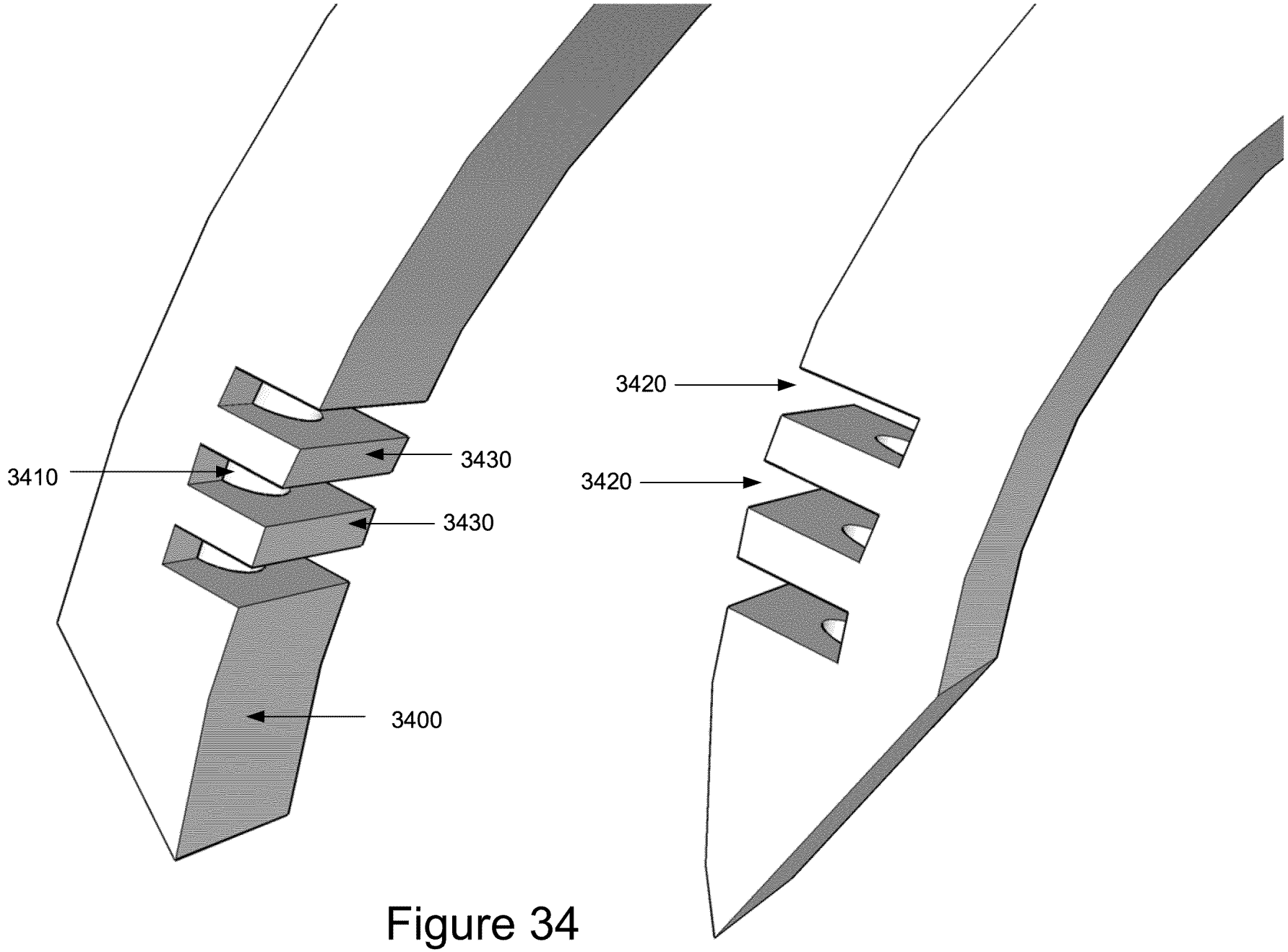


Figure 34

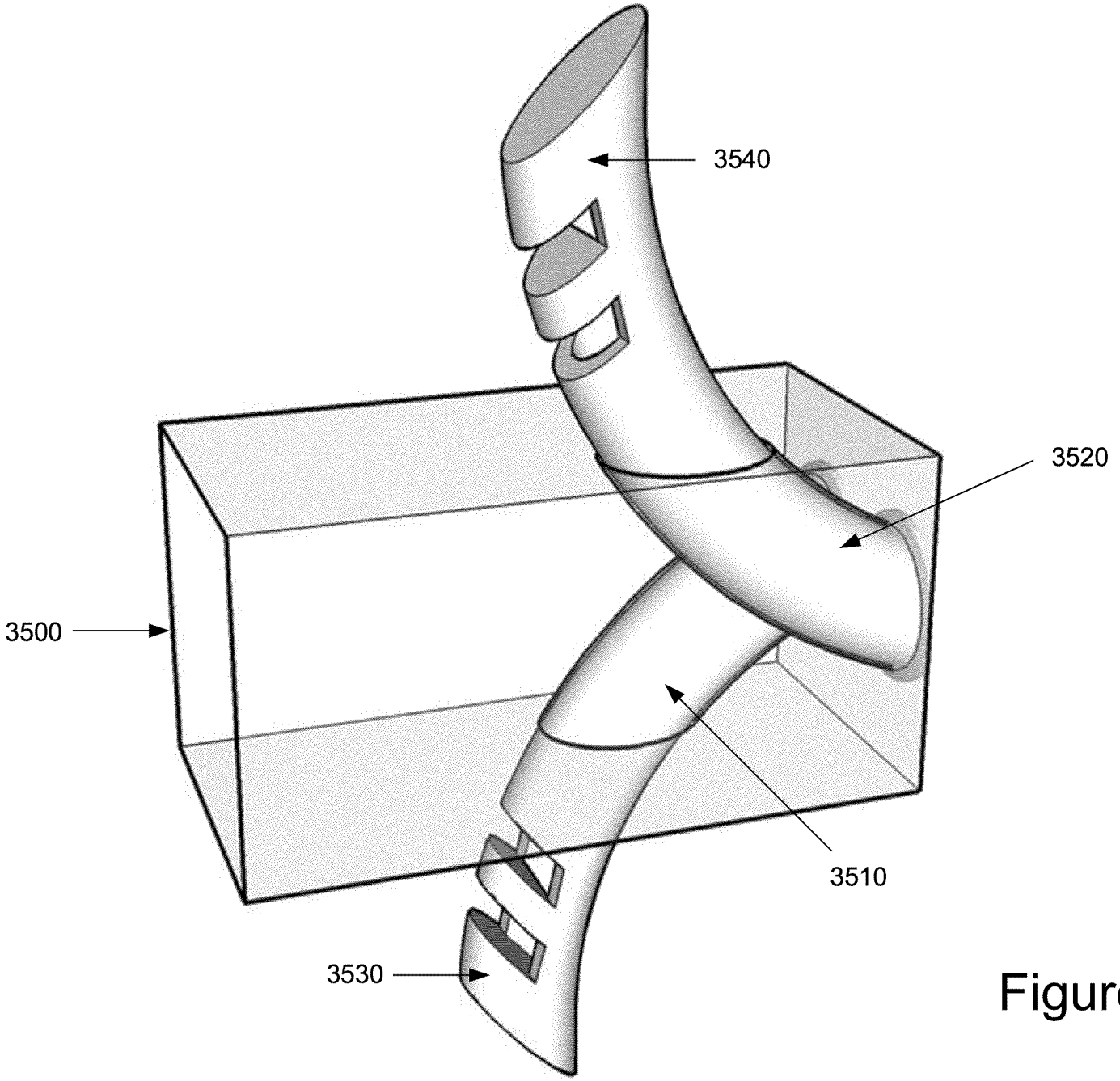


Figure 35

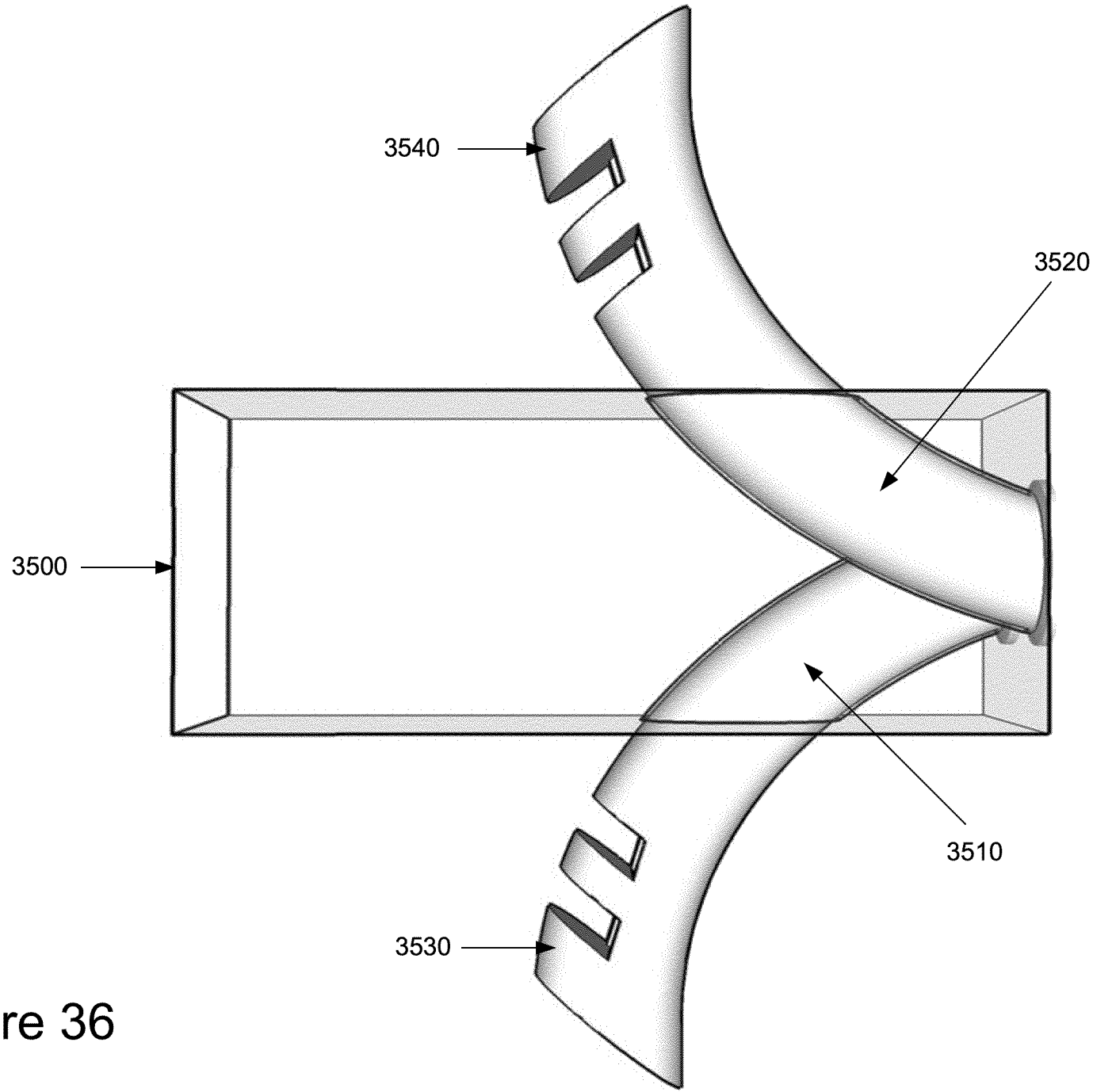


Figure 36

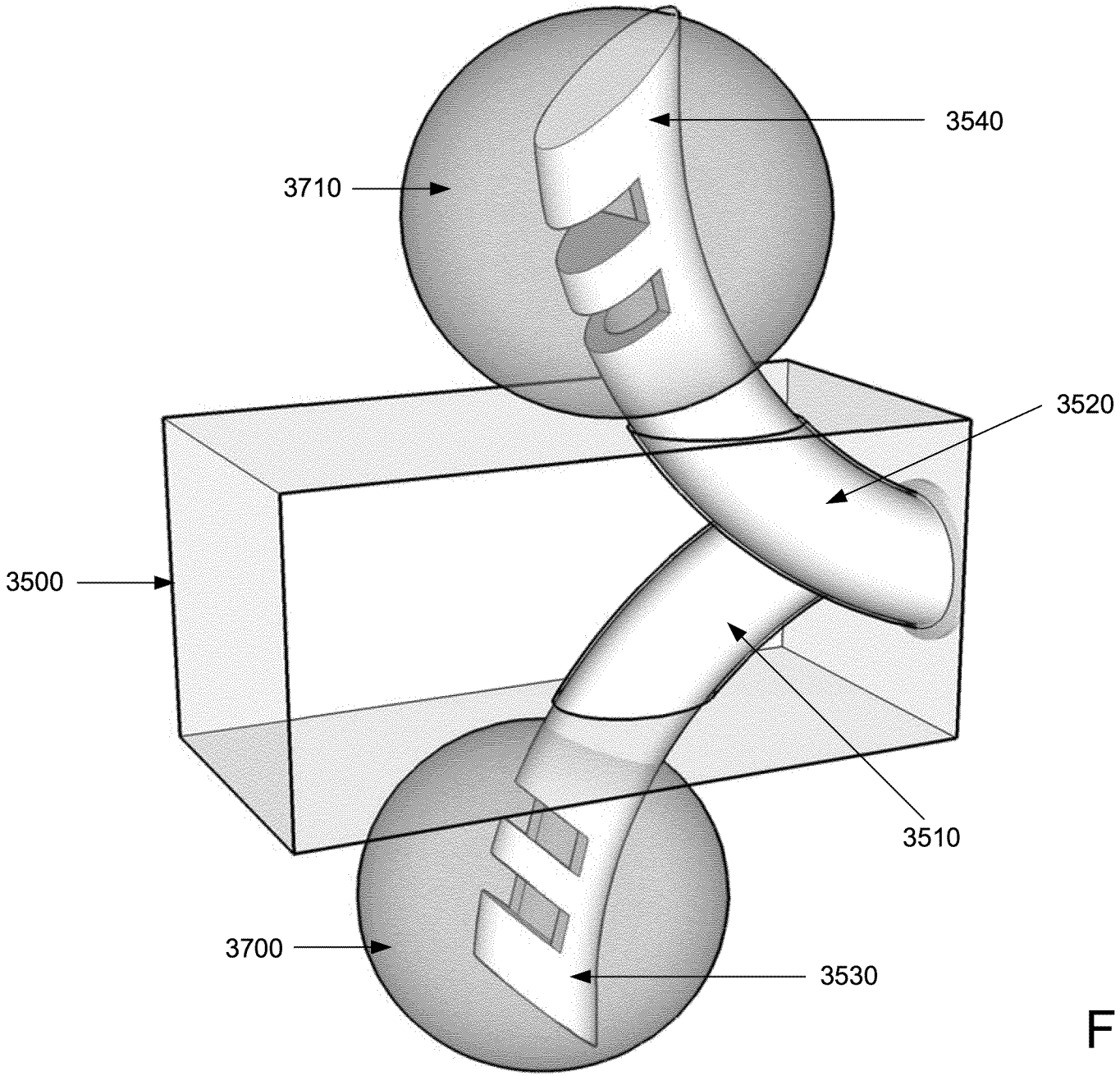


Figure 37

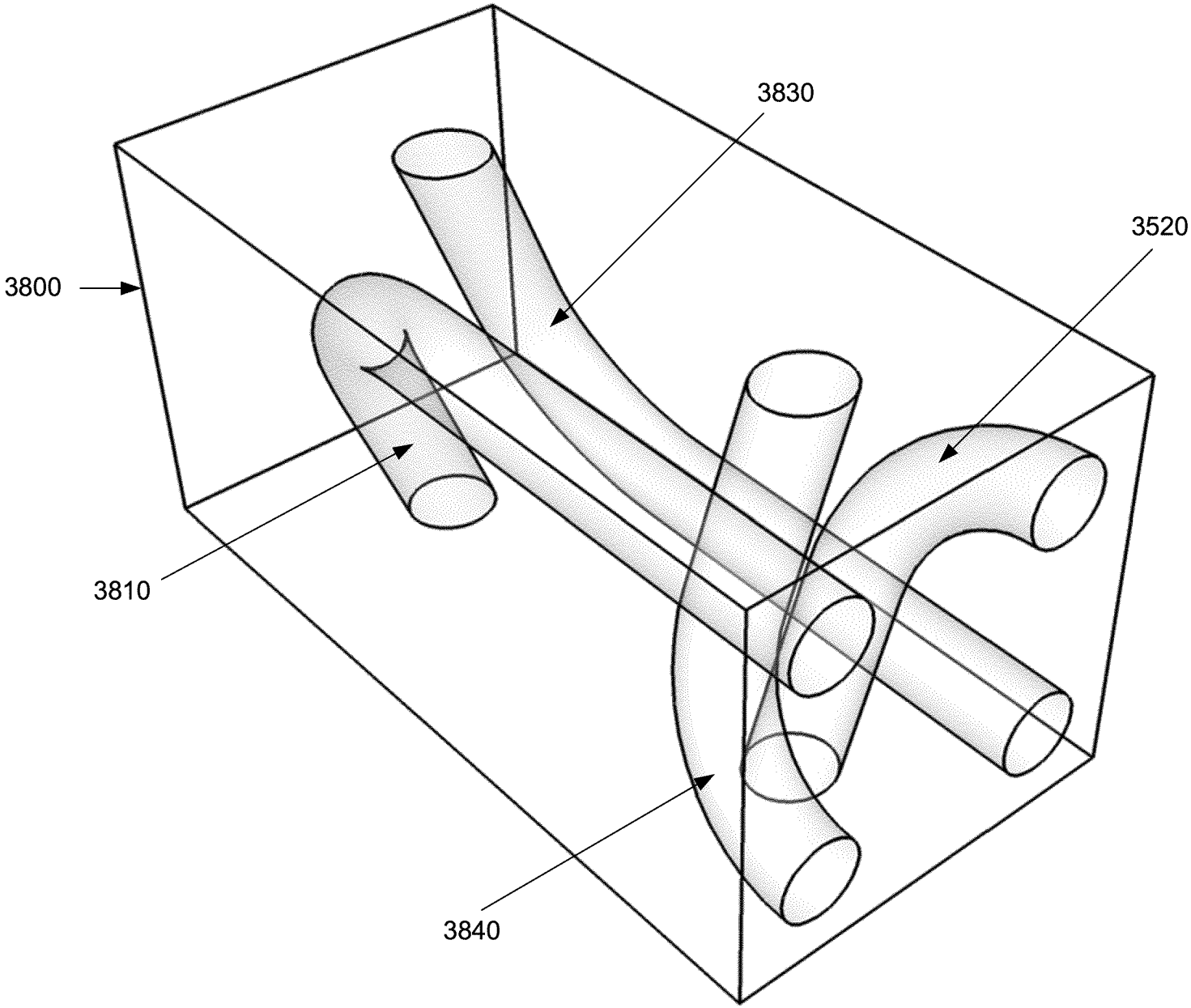


Figure 38

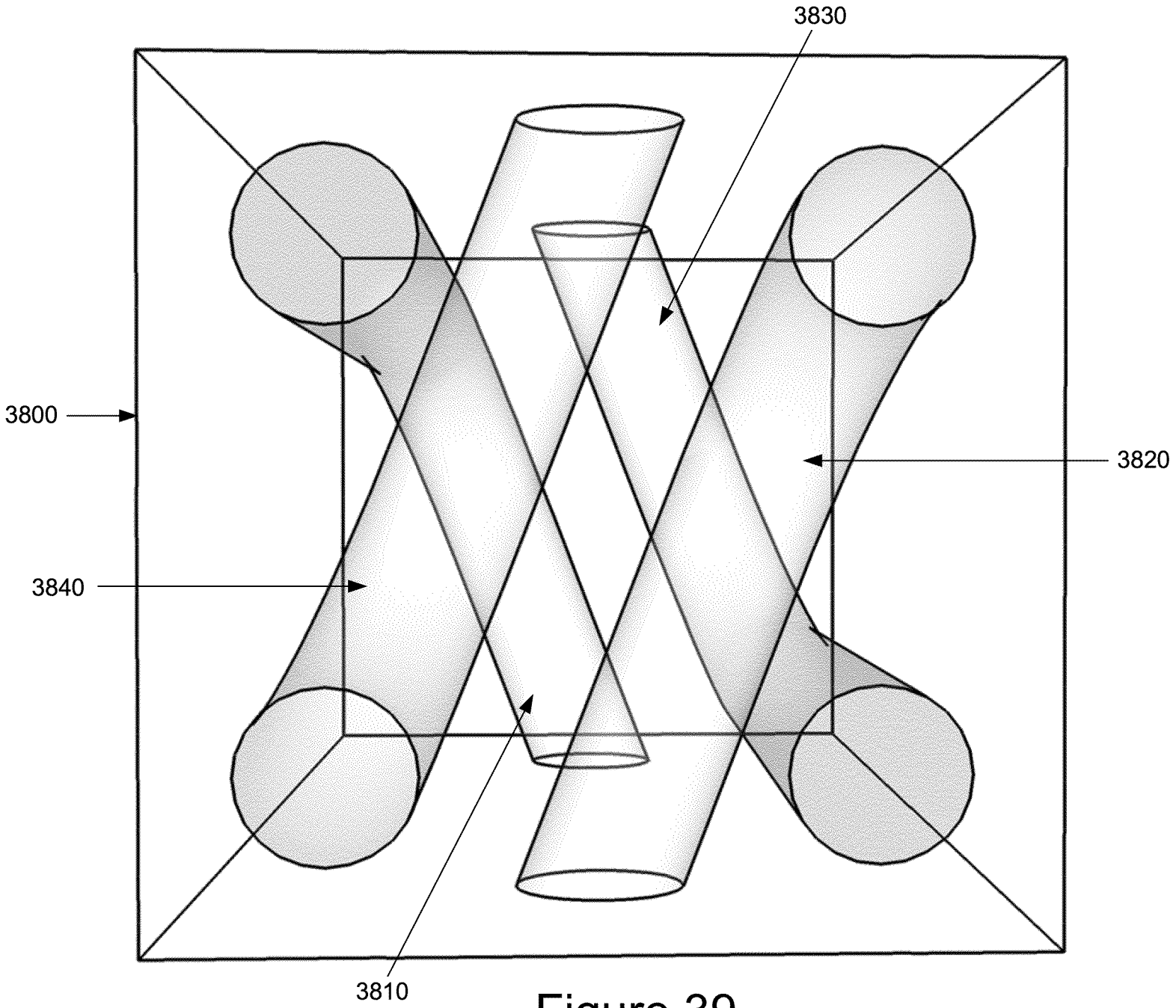


Figure 39

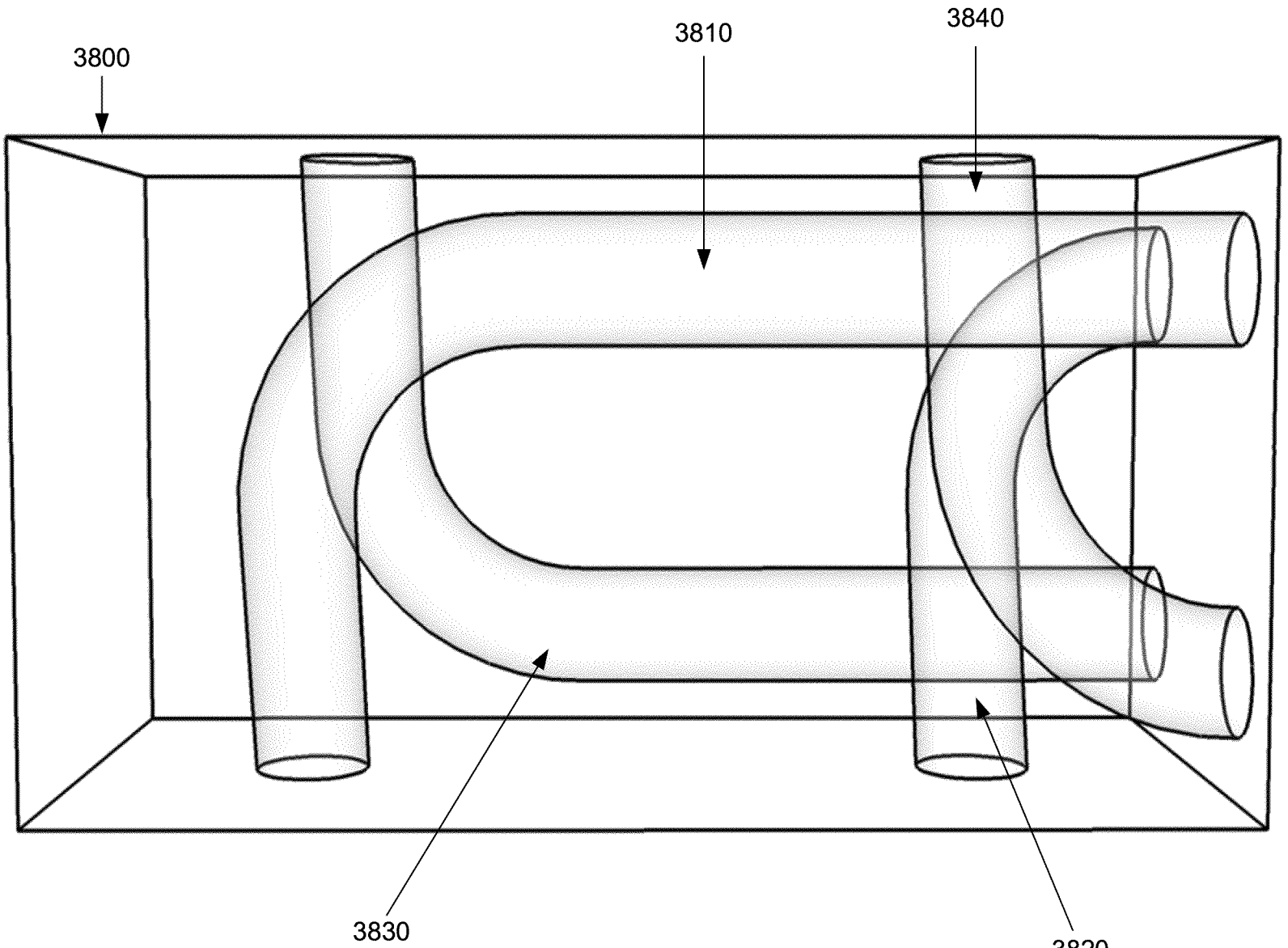


Figure 40

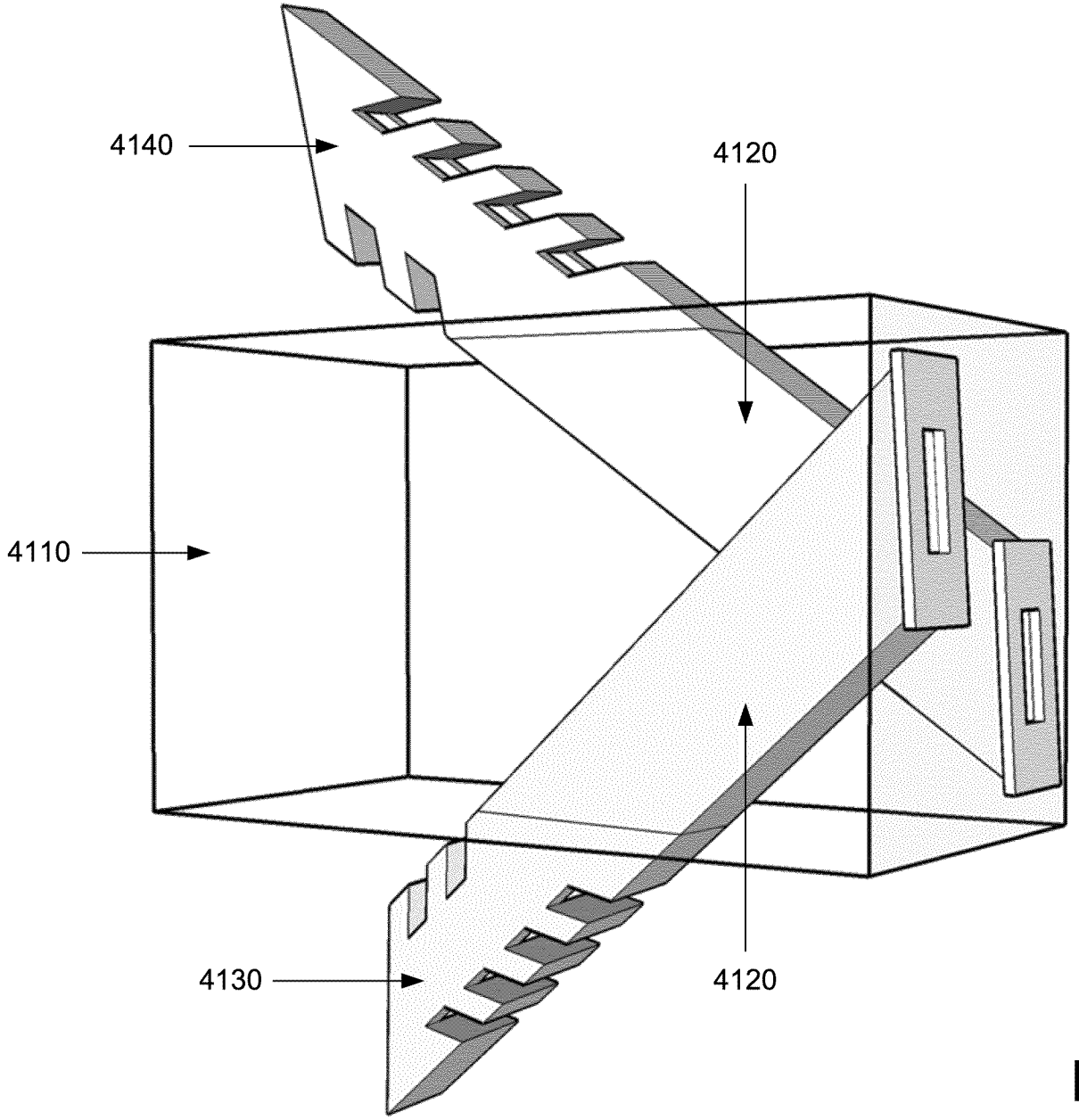


Figure 41

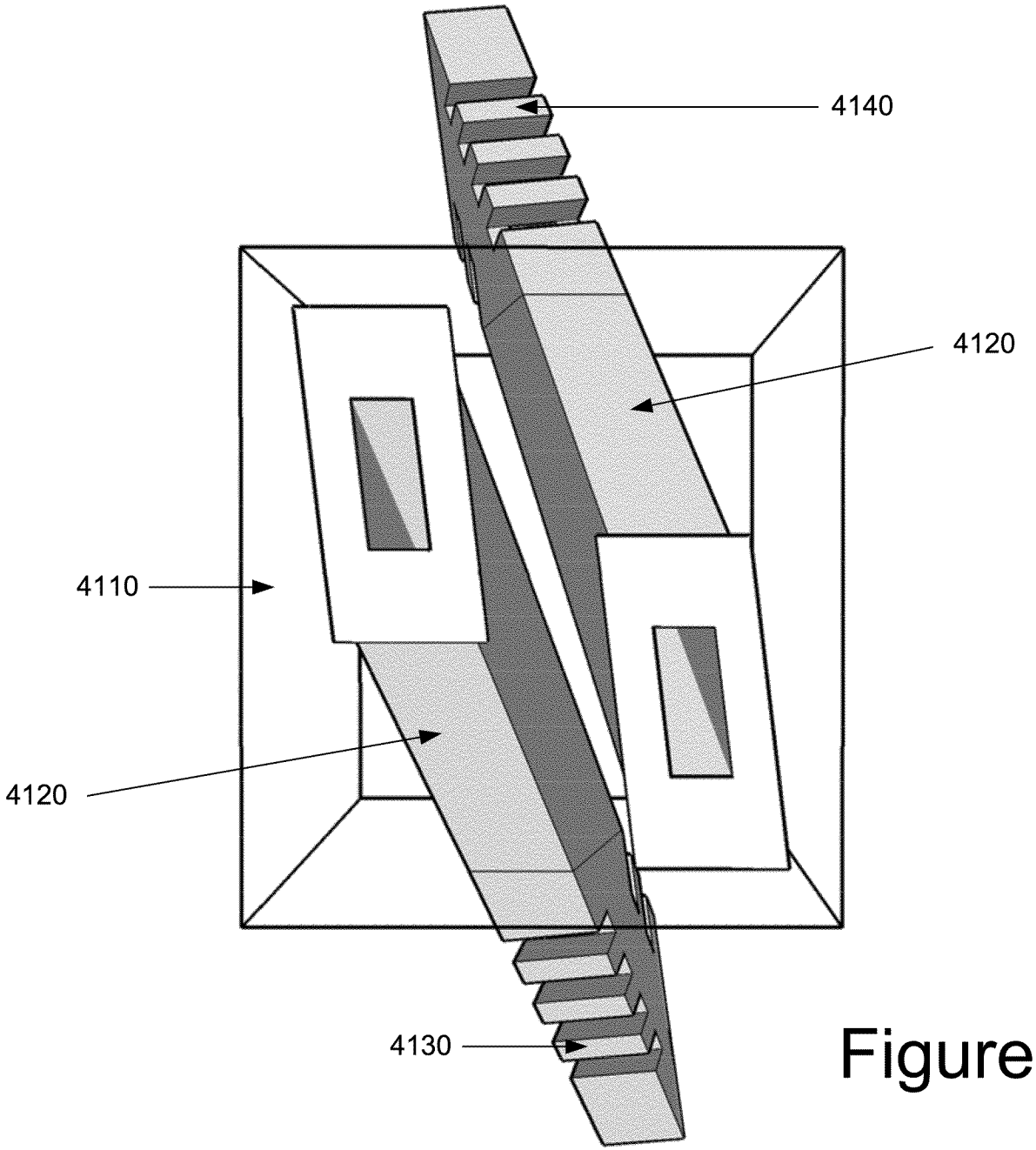


Figure 42

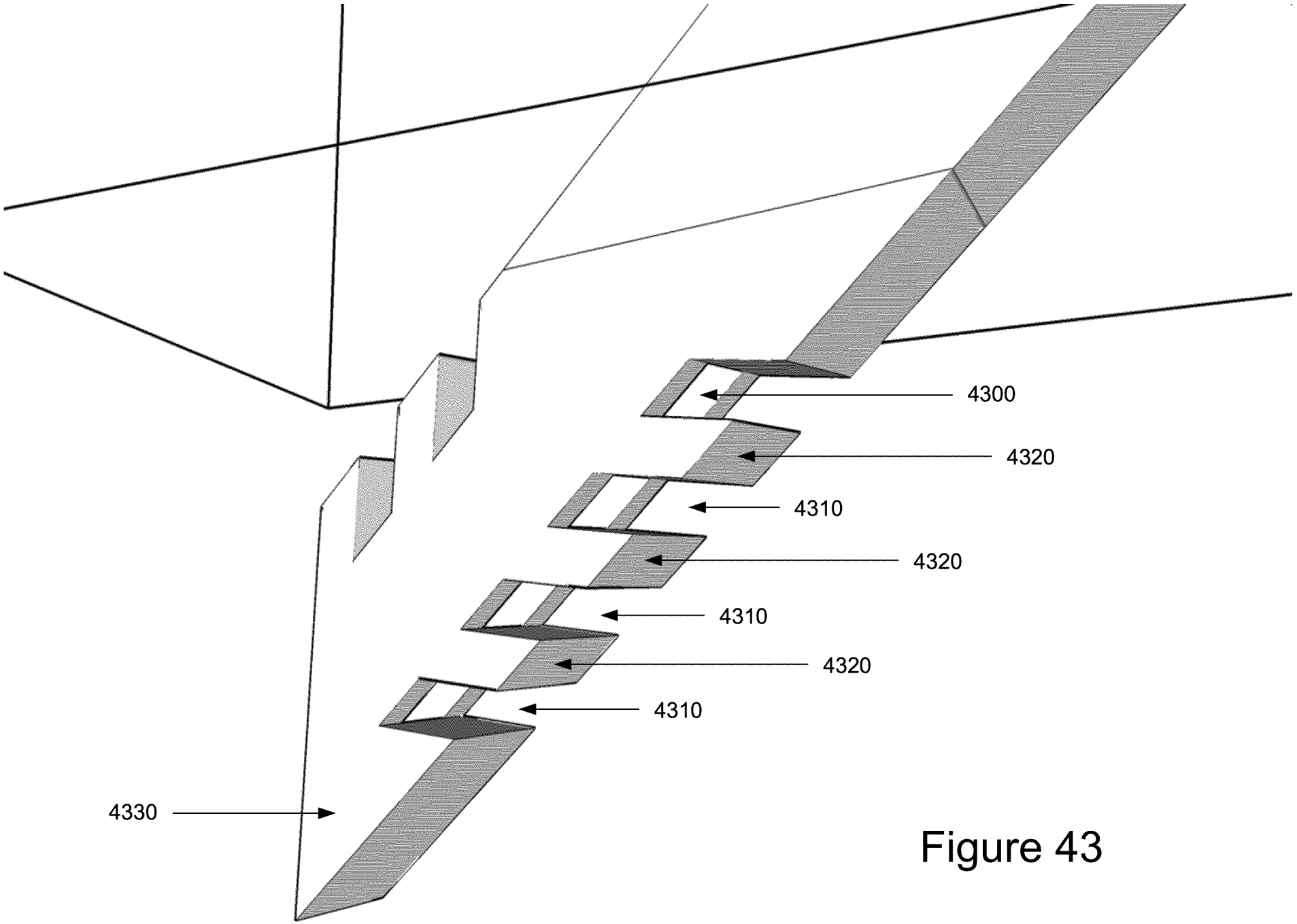


Figure 43

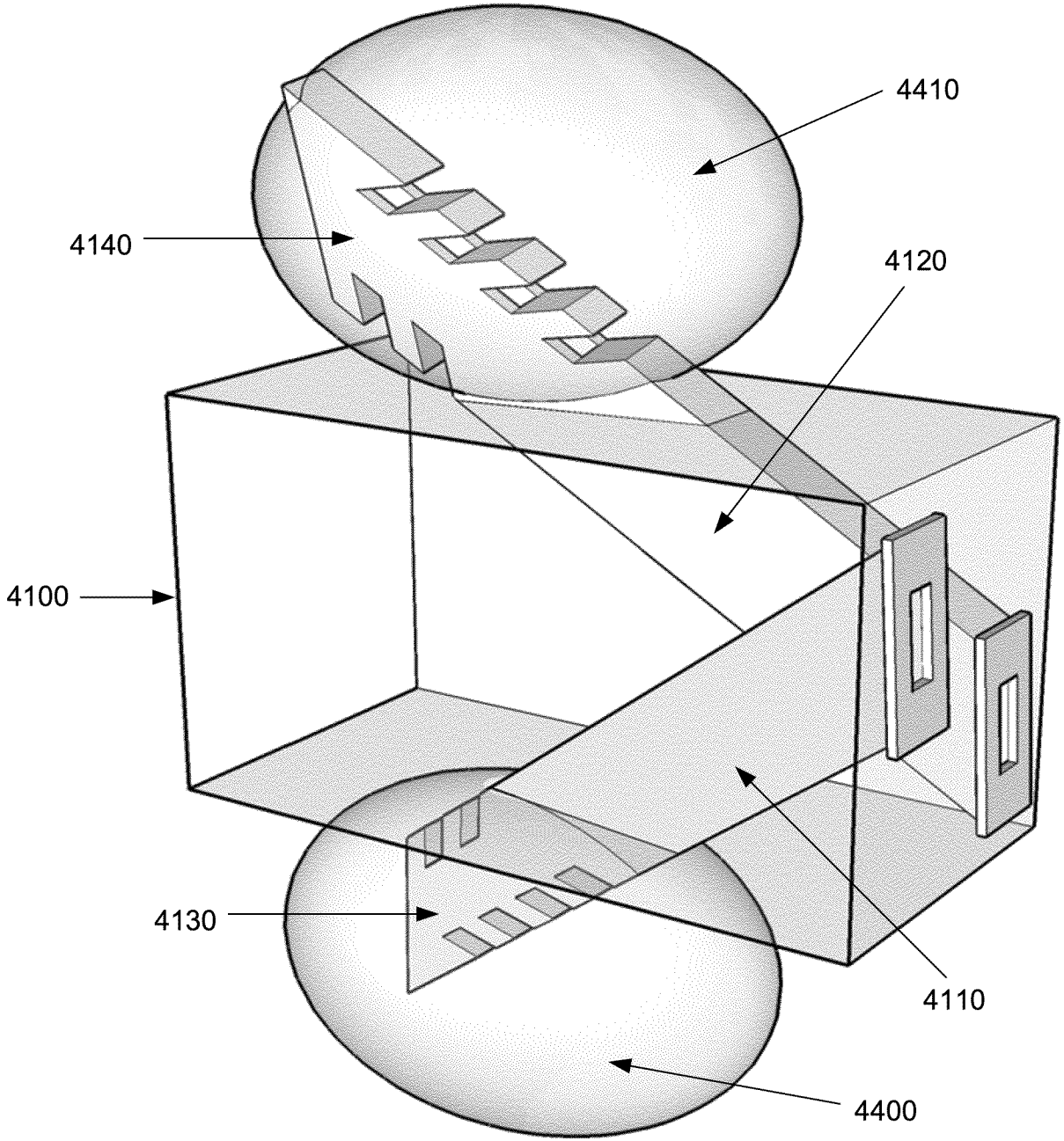


Figure 44

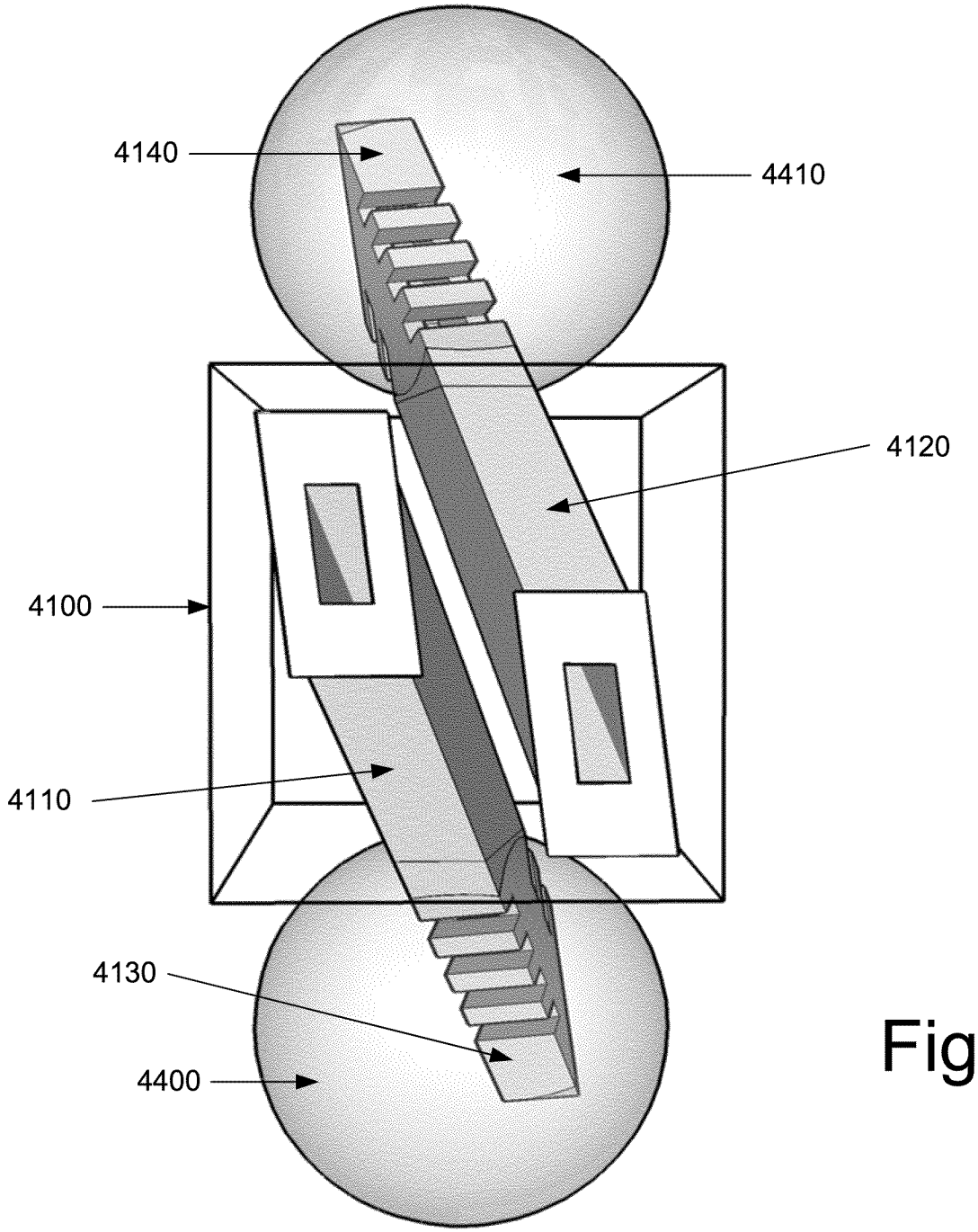


Figure 45

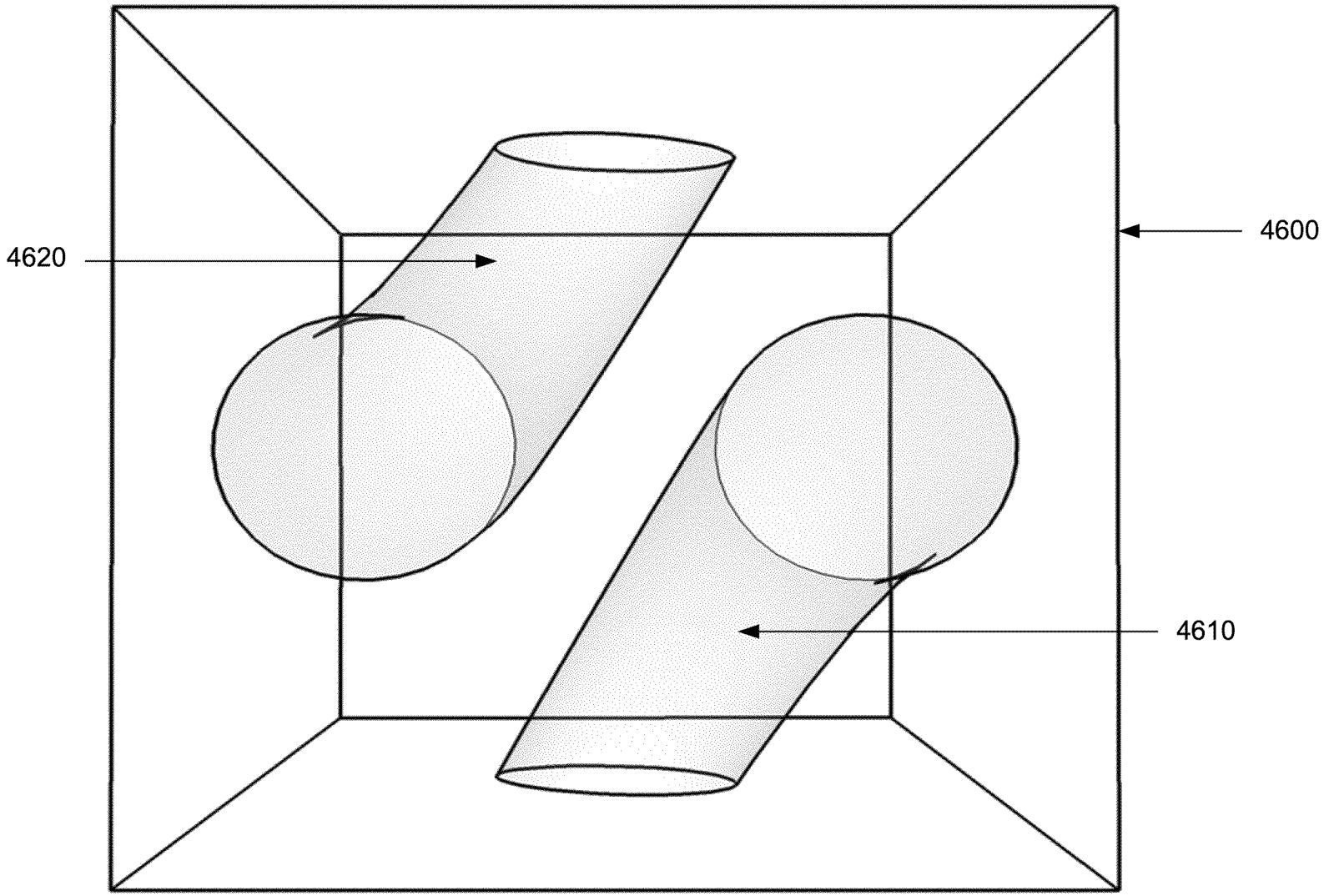


Figure 46A

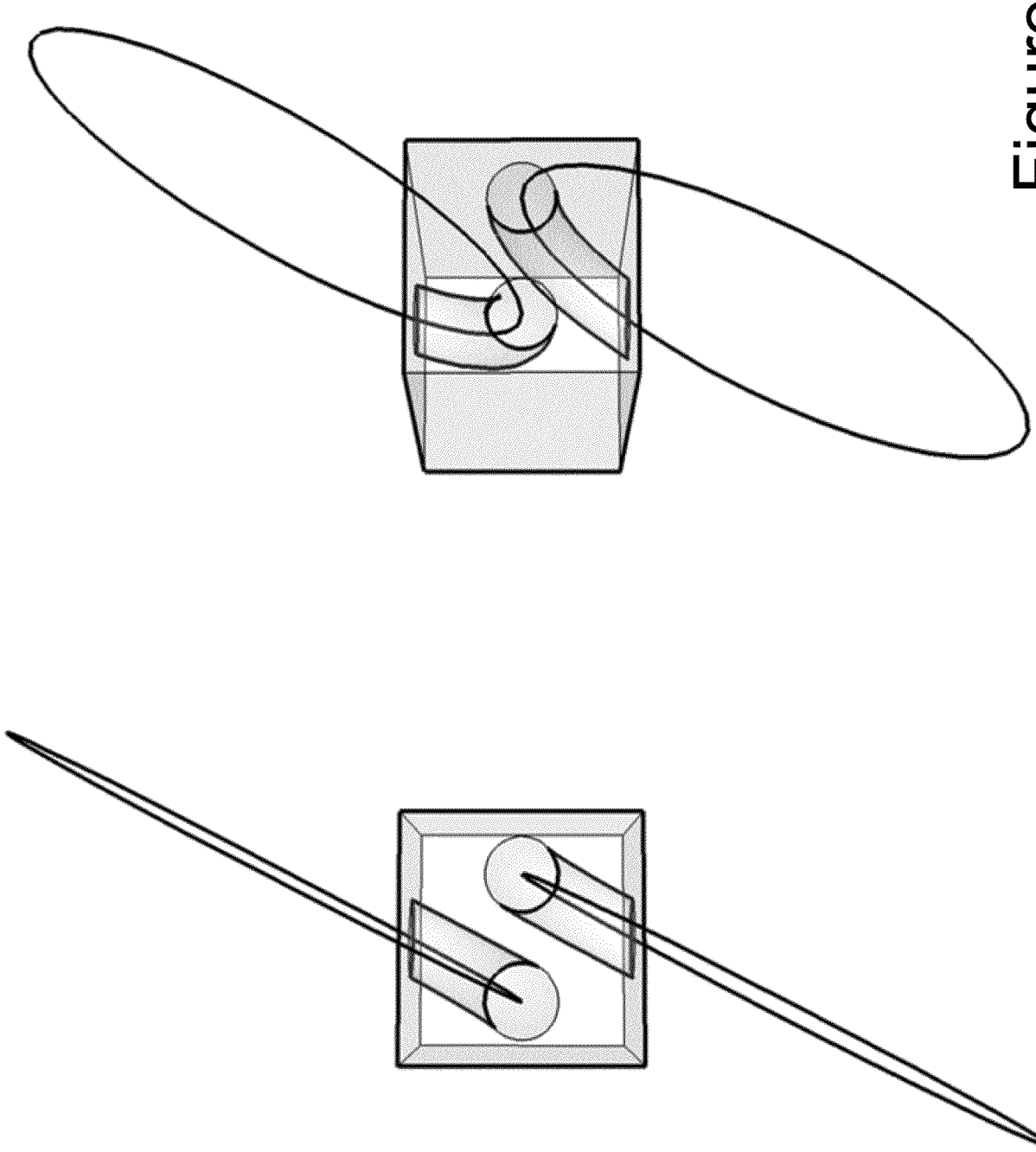


Figure 46B

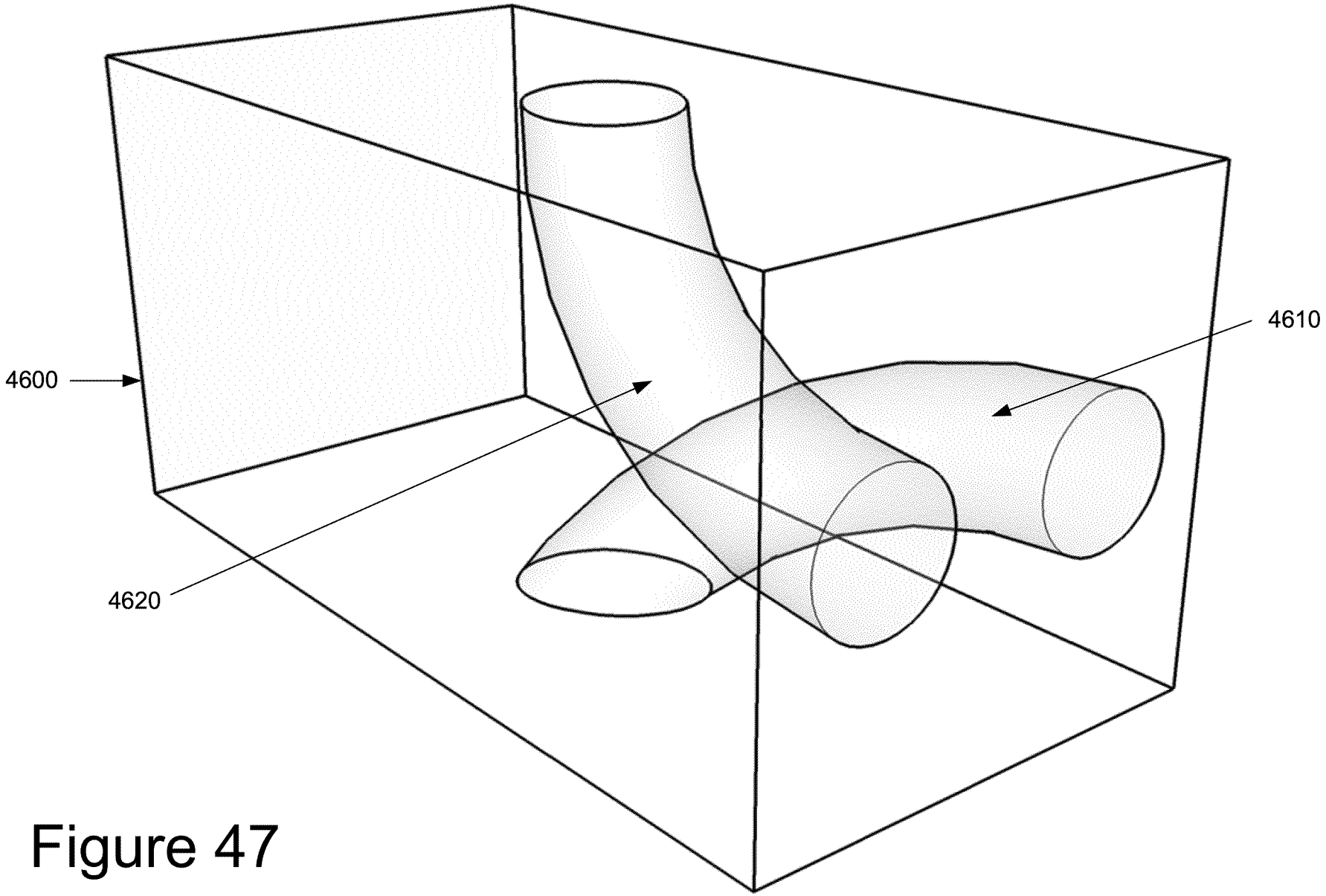


Figure 47

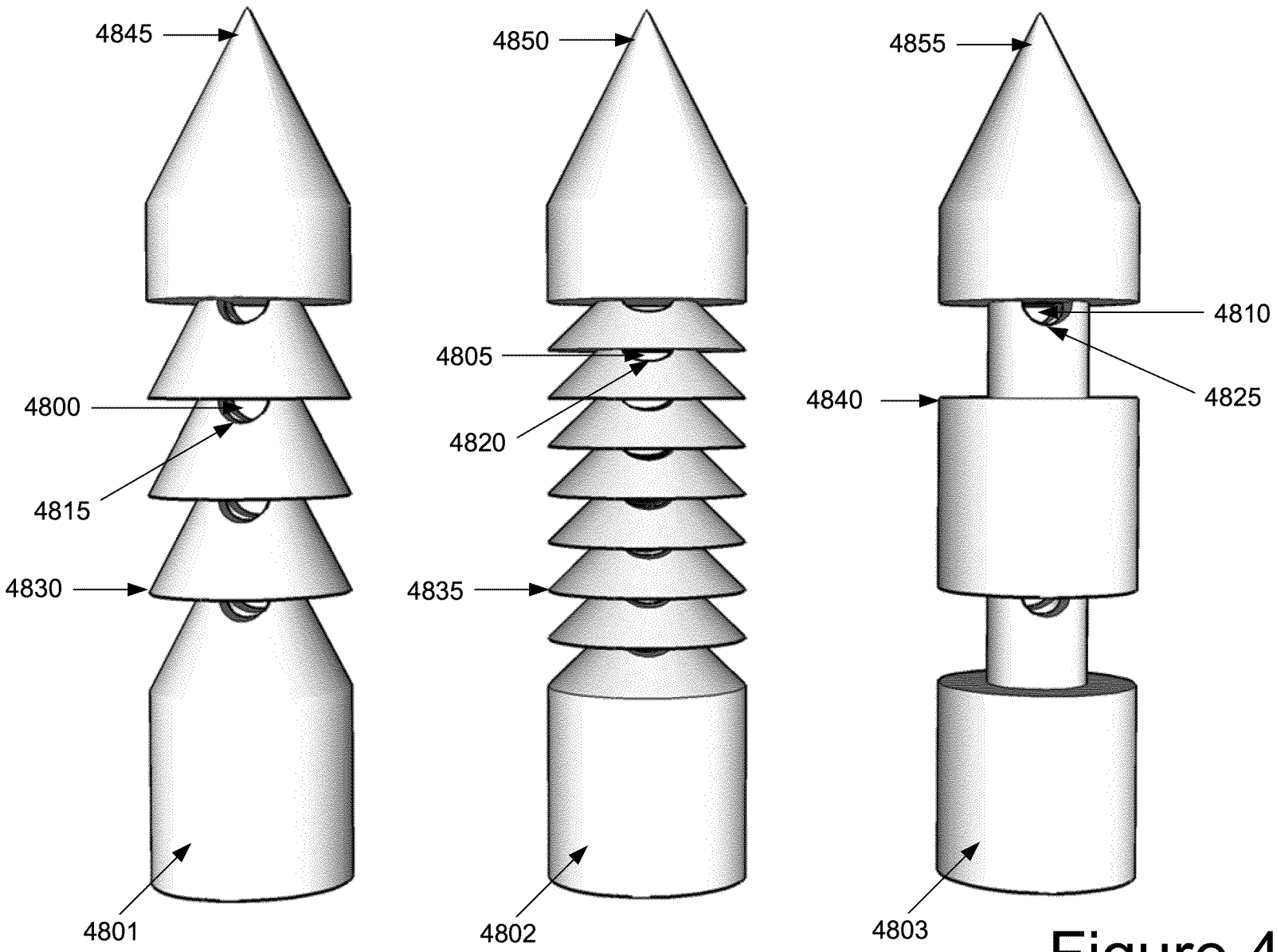

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Figure 48A

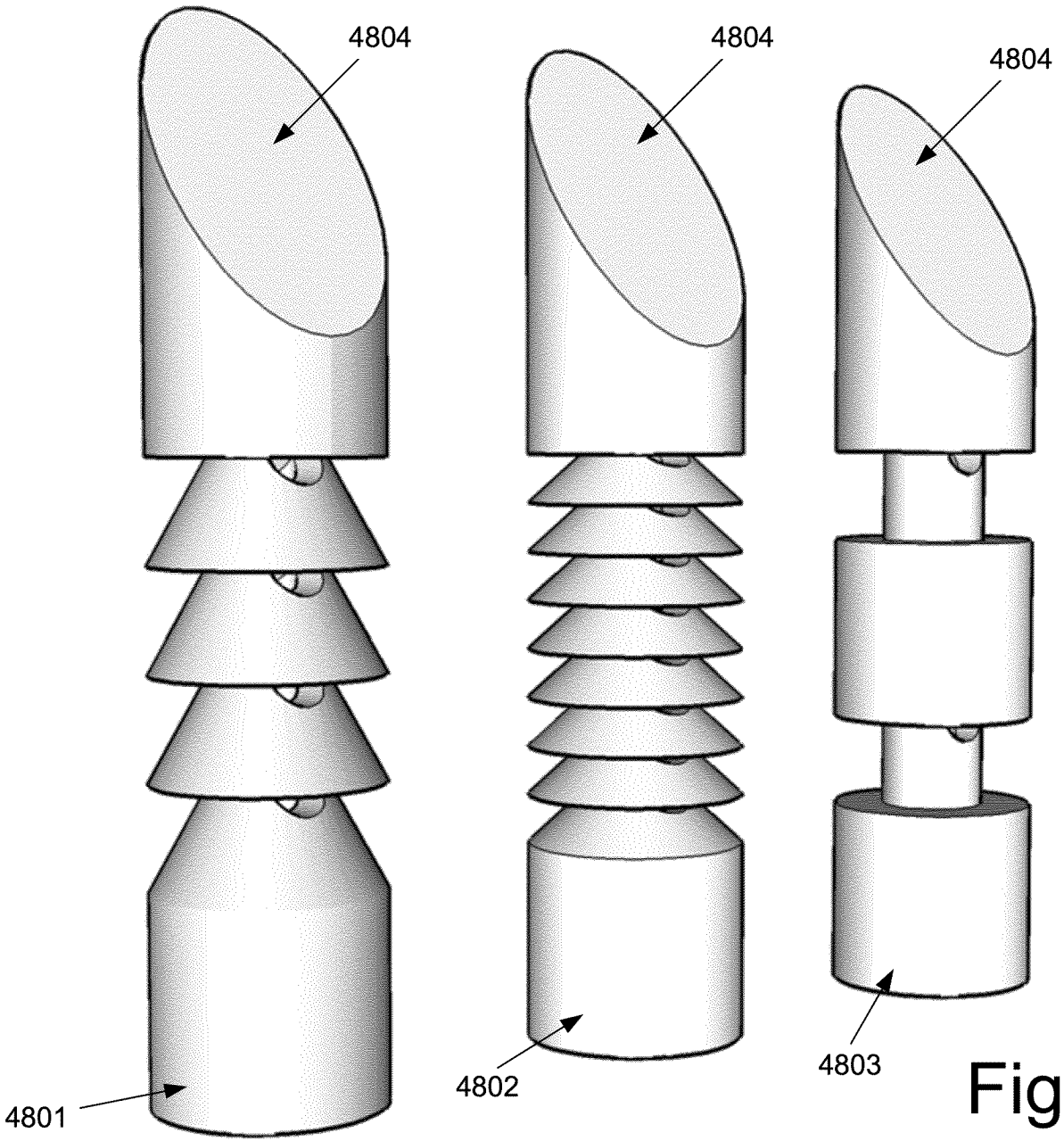


Figure 48B

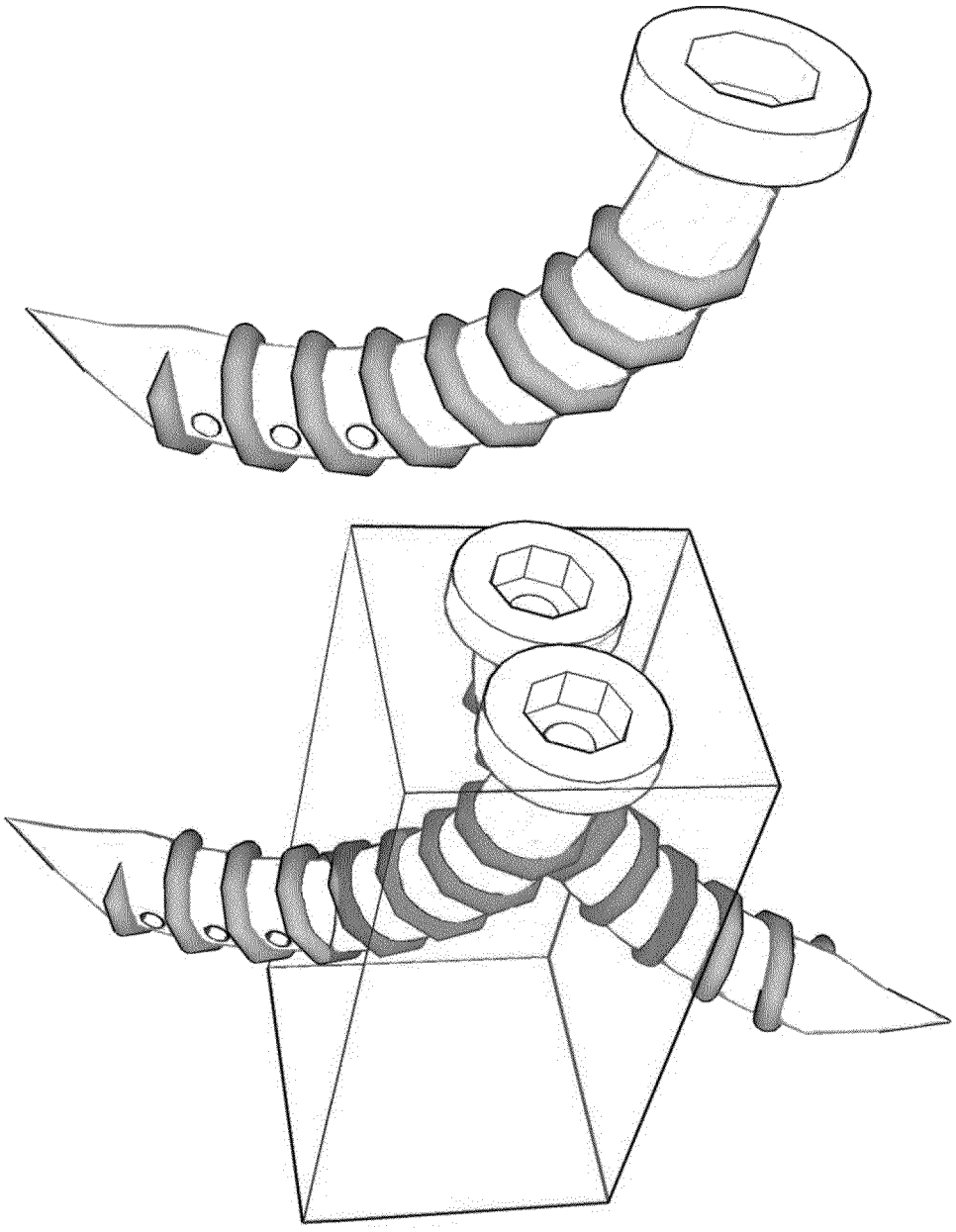


Figure 48C

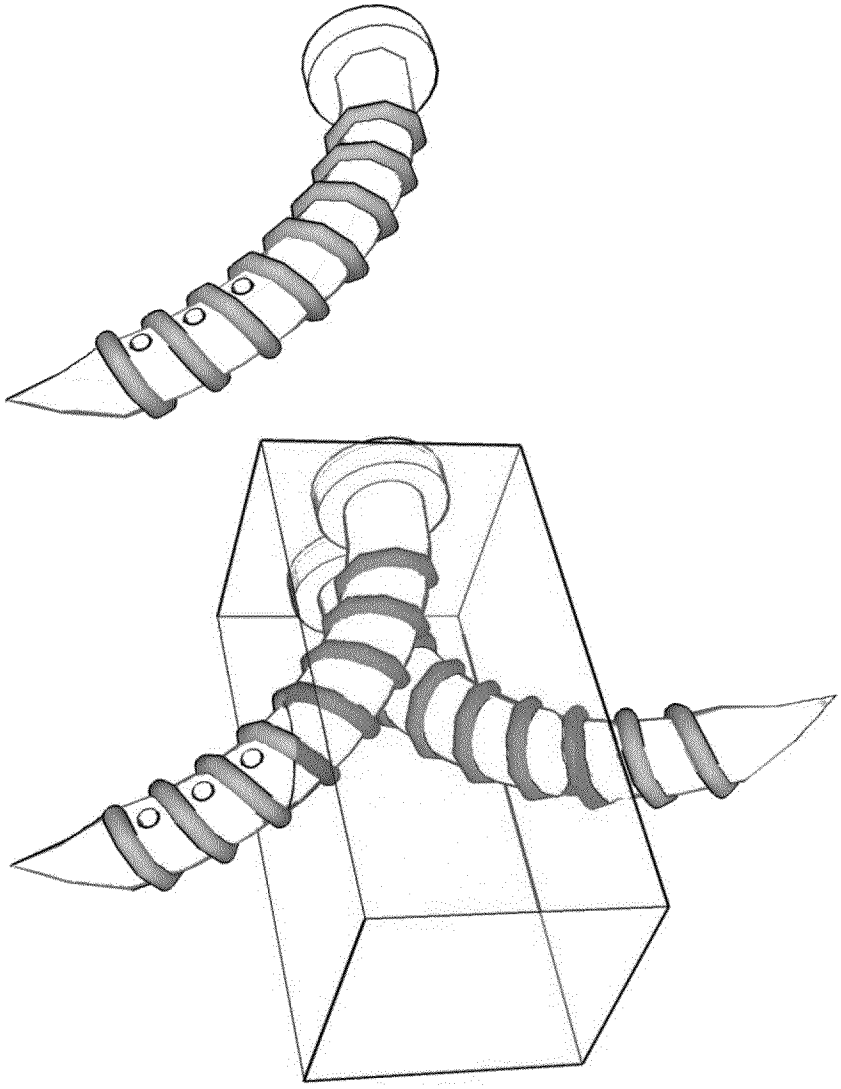


Figure 48D

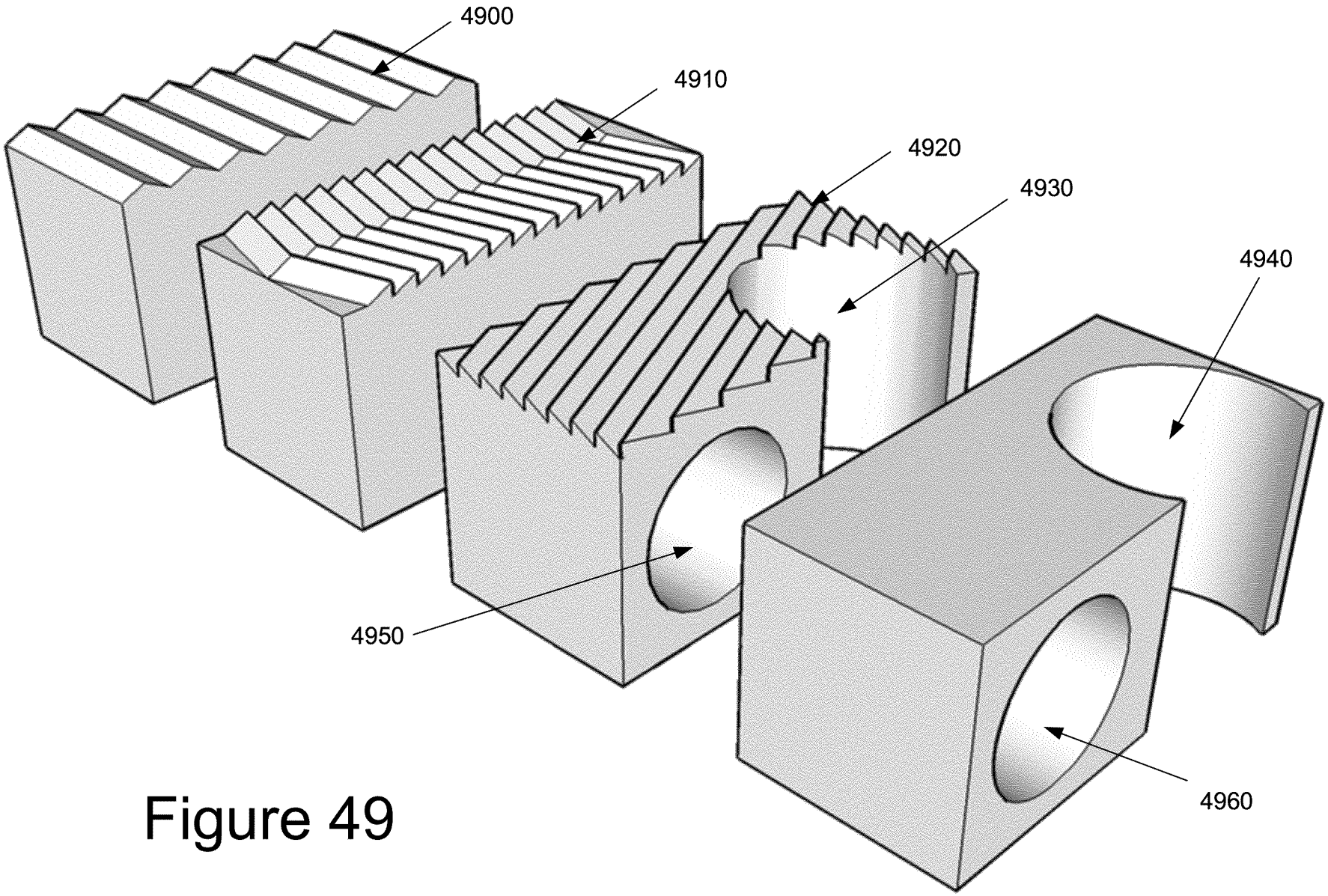


Figure 49

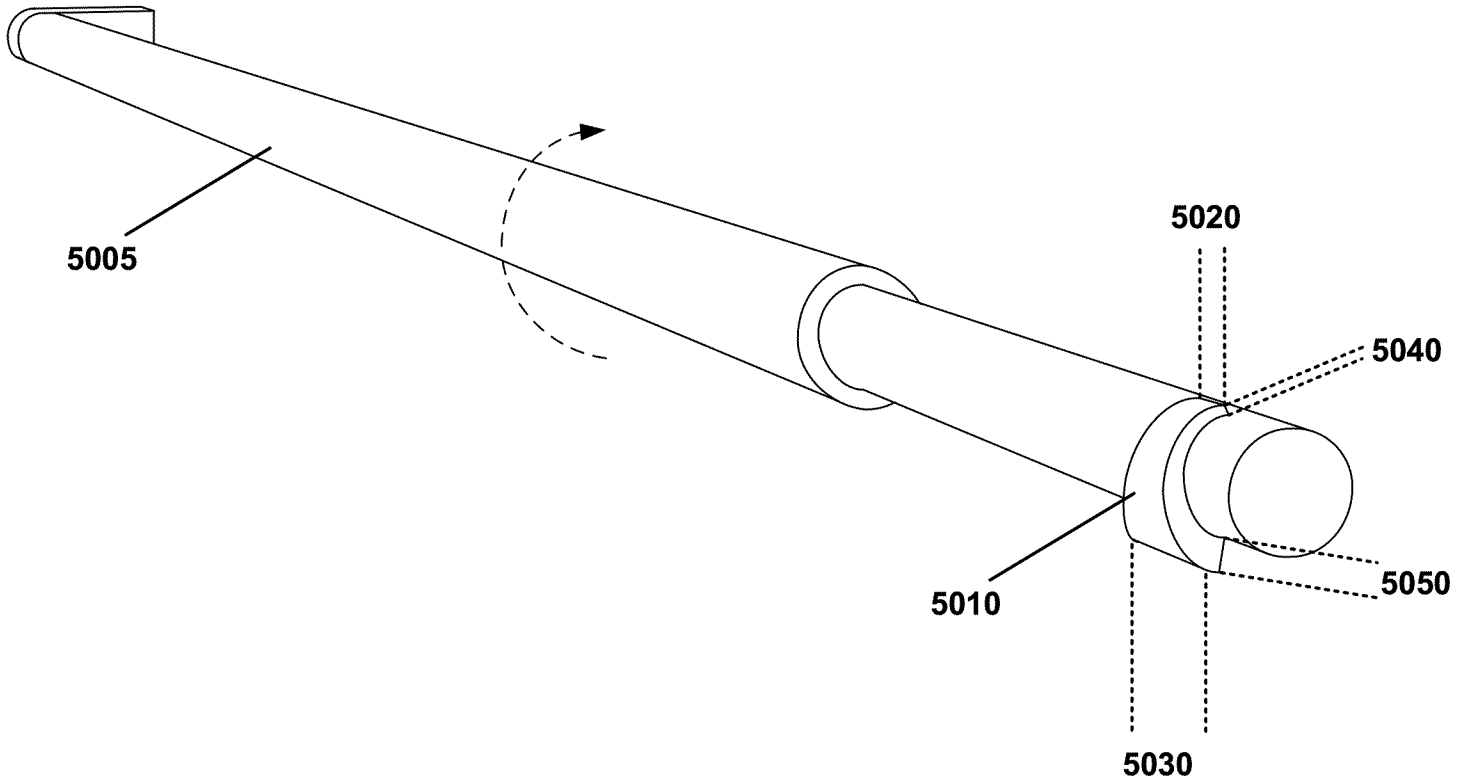


Figure 50

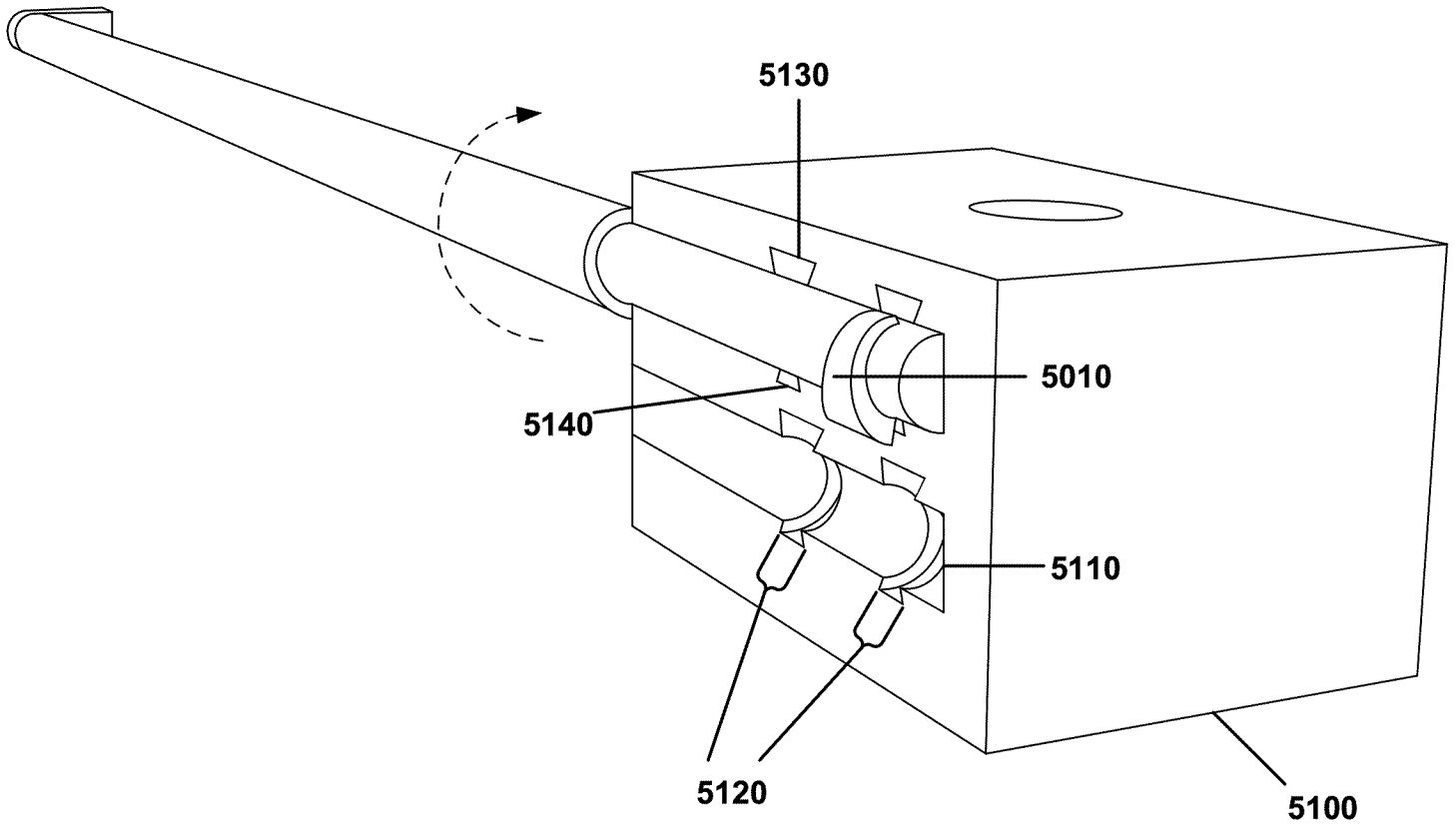


Figure 51

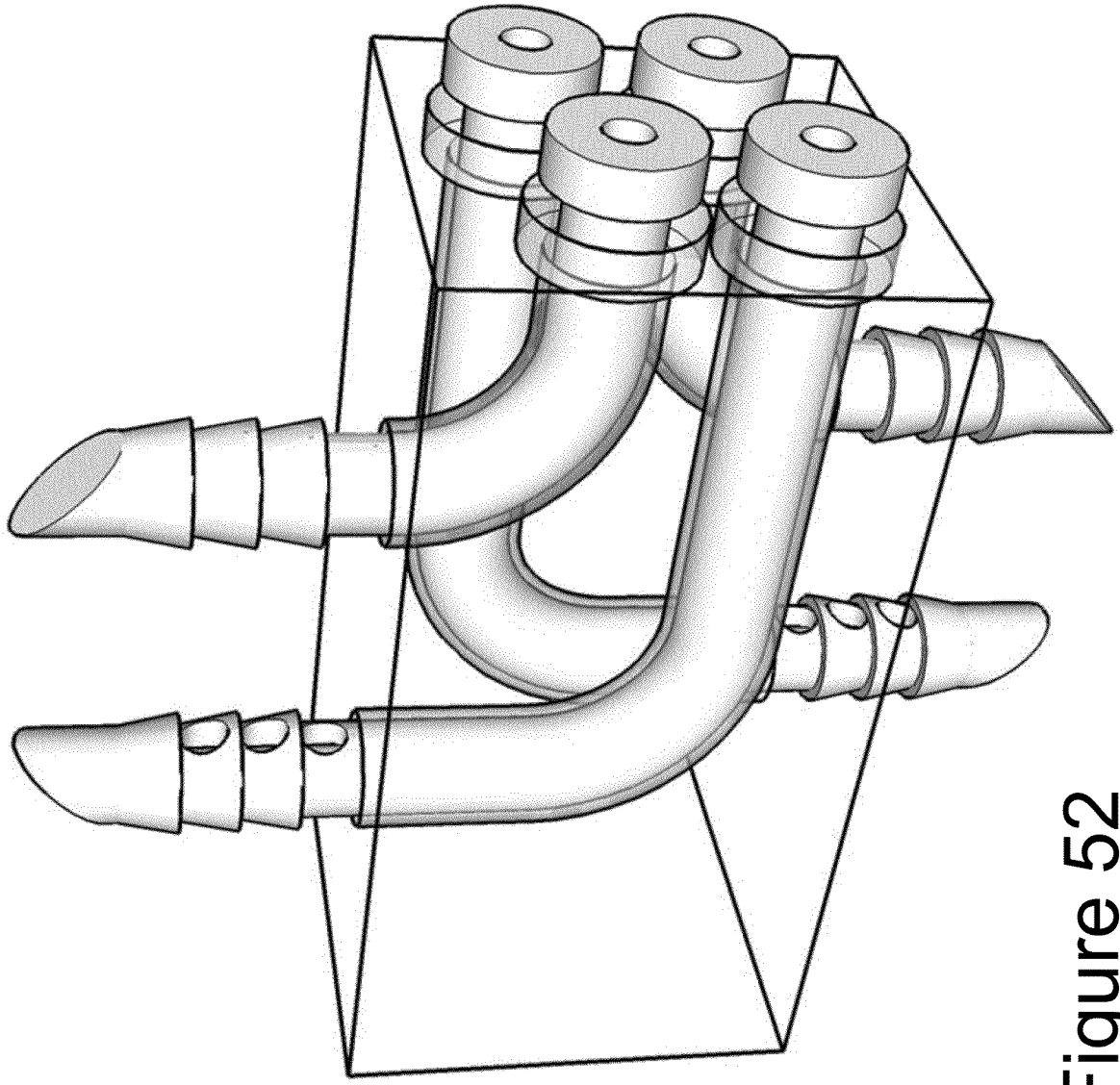


Figure 52

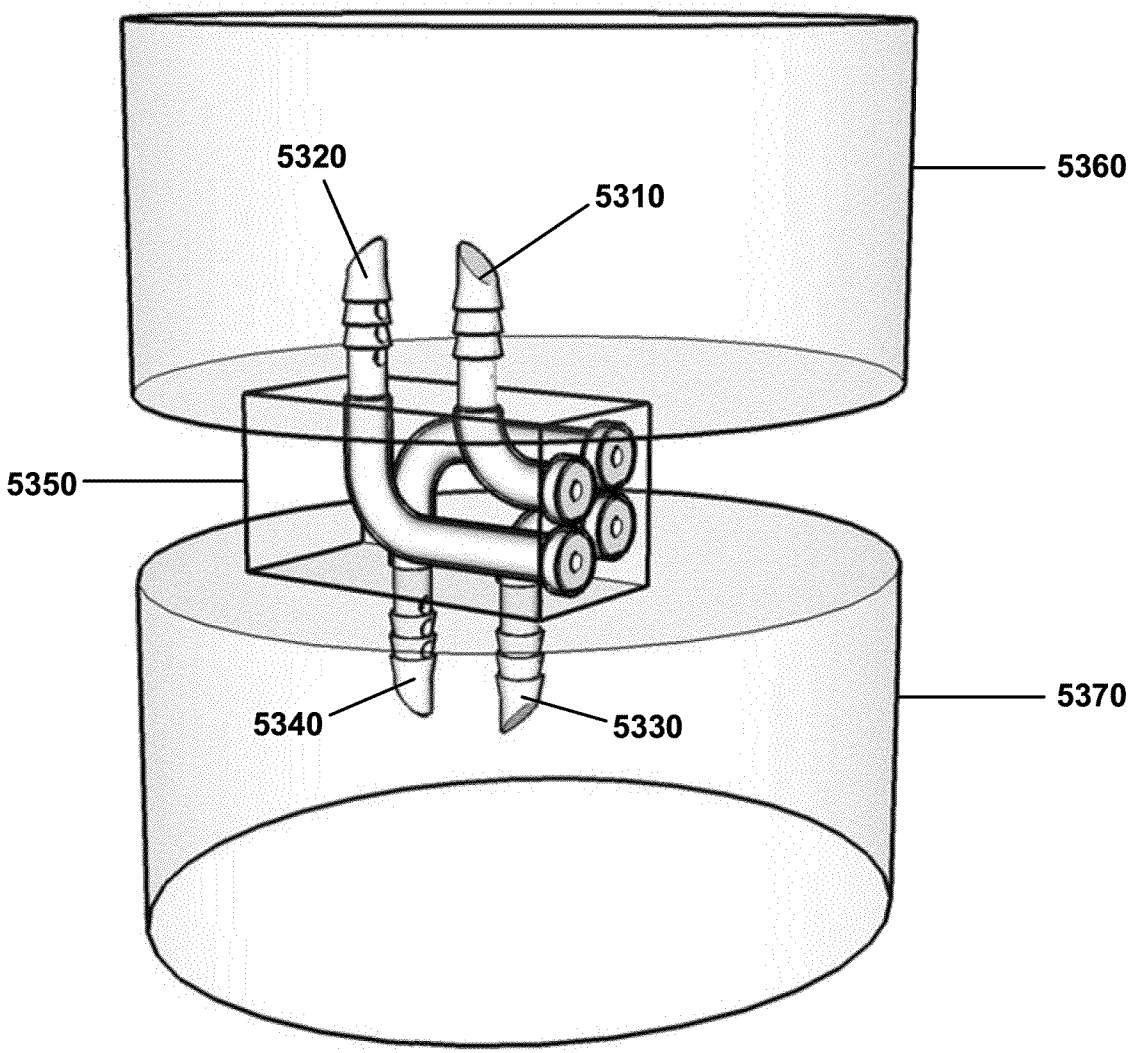


Figure 53

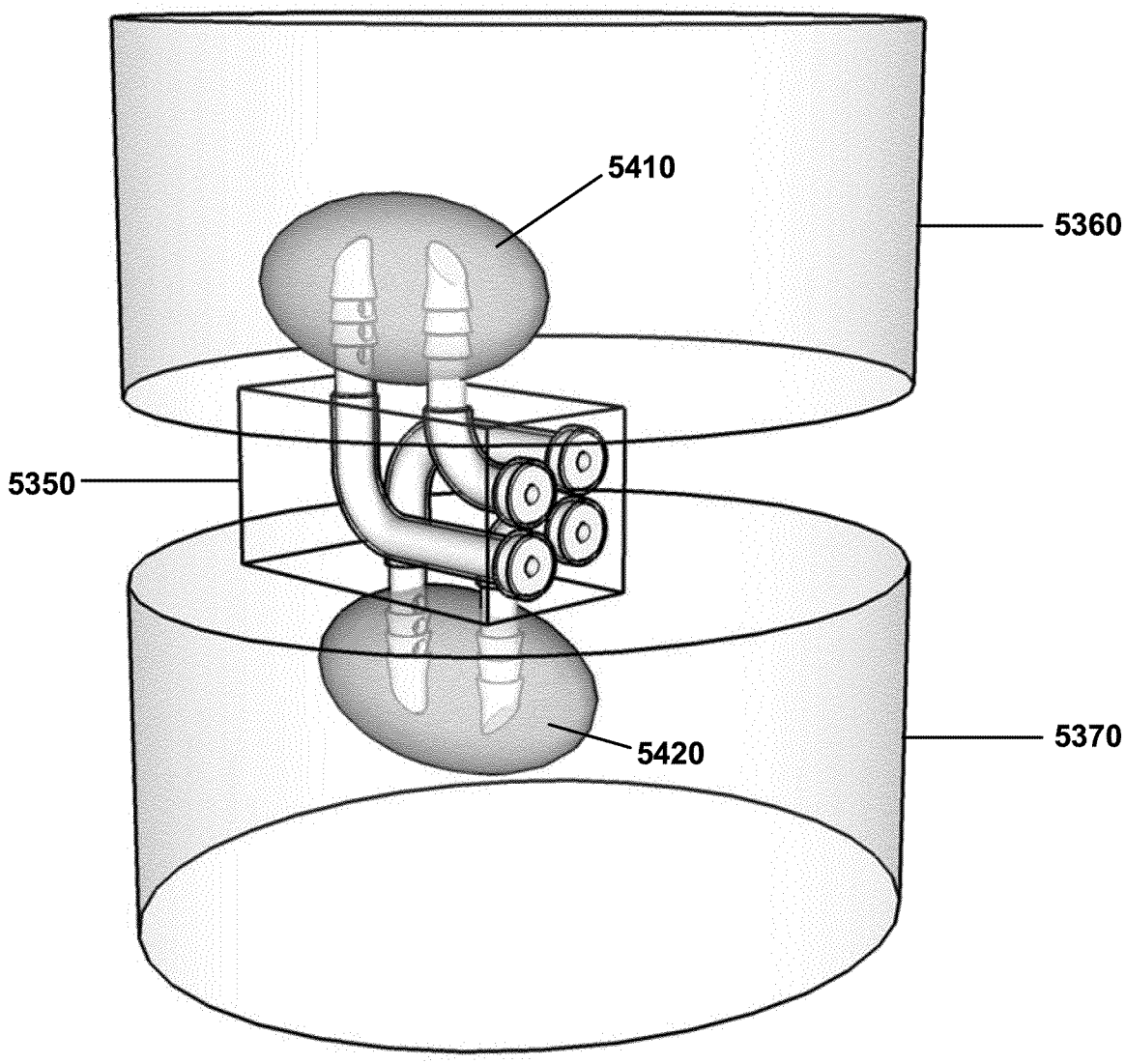


Figure 54

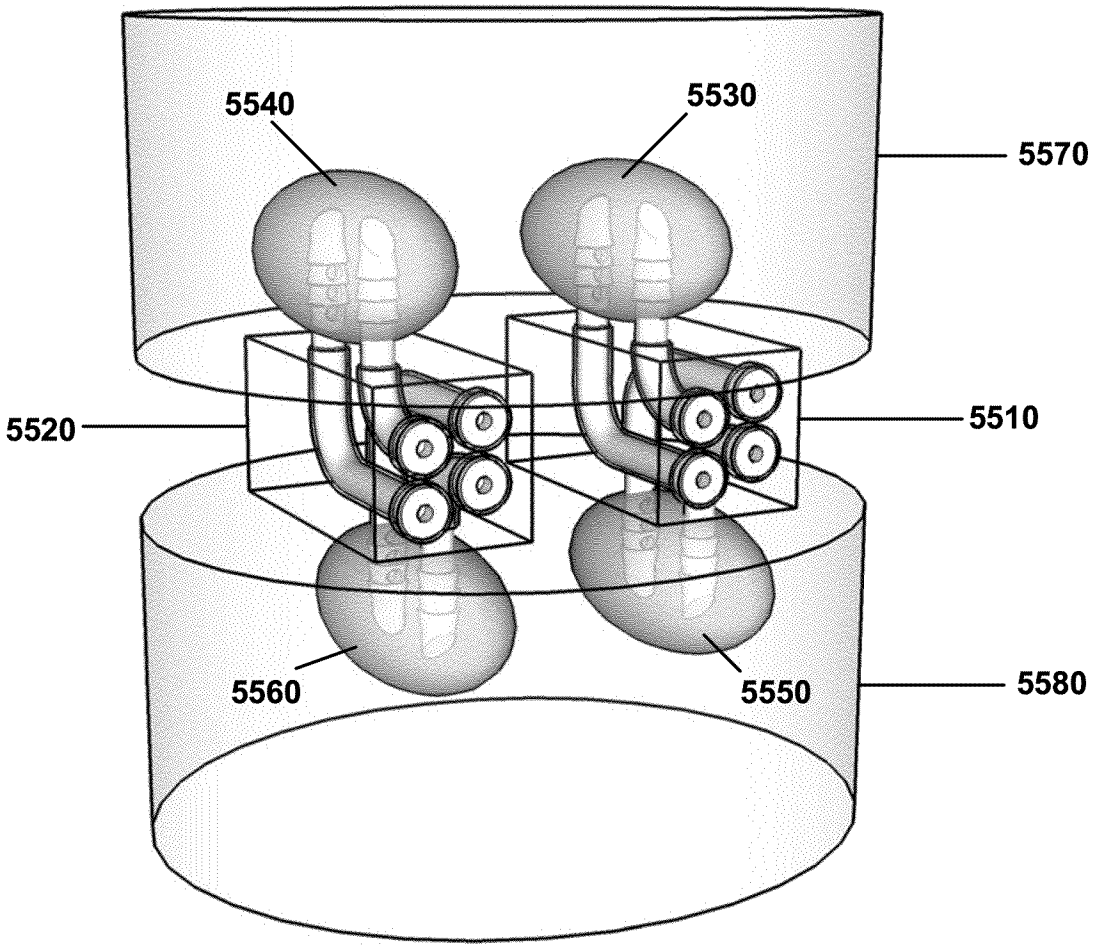


Figure 55

CERTIFICATE OF TRANSMISSION VIA EFS-WEB

I hereby certify that this correspondence is being transmitted via EFS-Web to the United States Patent and Trademark Office on February 15, 2010.

/Mani Adeli/
Mani Adeli

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

Jeffrey Paris Wensel

Serial No.: <Not Yet Assigned>

Filing Date: <Herewith>

For: FUSION MEMBER FOR INSERTION BETWEEN VERTEBRAL BODIES

Examiner: <Not Yet Assigned>

Group Art Unit: <Not Yet Assigned>

PRELIMINARY AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Preliminary Amendment is concurrently filed with the above-entitled application, which is a continuation application of United States Patent Application 12/383,950, entitled "Intervertebral Fusion Device and Method of Use," filed March 27, 2009. **Applicants respectfully request that claims 1-53 be canceled (pursuant to the amendment below) before calculation of the filing fee.**

Please amend the application as follows:

Amendments to the Specification begin on page 2 of this paper.

Amendments to the Claims begin on page 3 of this paper.

Remarks begin on page 9 of this paper.

AMENDMENTS TO THE SPECIFICATION

Please replace the current title, "INTERVERTEBRAL FUSION DEVICE AND METHOD OF USE," *with* "FUSION MEMBER FOR INSERTION BETWEEN VERTEBRAL BODIES."

Please amend the "Claim of Benefit to Prior Application" section header on page 1, line 3, to "Claim of Benefit to Prior Applications" as shown below:

~~**CLAIM OF BENEFIT TO PRIOR APPLICATION**~~

CLAIM OF BENEFIT TO PRIOR APPLICATIONS

Please amend the paragraph beginning on page 1, line 4, as follows:

This application is a continuation application of United States Patent Application 12/383,950, filed March 27, 2009. This application is also a continuation-in-part application of United States Patent Application 12/113,362, filed on May 1, 2008. United States Patent Application 12/383,950 ~~This application~~ claims benefit to United States Provisional Patent Application 61/040,136, filed on March 27, 2008; United States Provisional Patent Application 61/109,175, filed October 28, 2008; and United States Provisional Patent Application 61/148,036, filed January 28, 2009. United States Patent Application 12/113,362 claims benefit to United States Provisional Patent Application 61/040,136, filed March 27, 2008. The above-mentioned applications, namely United States Patent Applications 12/383,950 and 12/113,362, and United States Provisional Patent Applications 61/040,136, 61/109,175, and 61/148,036, ~~The above-mentioned United States Provisional Patent Applications~~ are incorporated herein by reference.

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. The following listing provides the amended claims with deleted material crossed out and new material underlined to show the changes made.

1-53. (Canceled)

54. (New) A fusion device comprising:

a fusion member configured to position between first and second vertebral bodies, the fusion member comprising a first channel and a second channel;

a first anchoring member configured to insert through the first channel and partially into the first vertebral body while a portion of the first anchoring member remains within the fusion member, in order to couple the fusion member with the first vertebral body; and

a second anchoring member configured to insert through the second channel and partially into the second vertebral body while a portion of the second anchoring member remains within the fusion member, in order to couple the fusion member with the second vertebral body,

wherein the first channel has a first cross-sectional plane along a first path that is traversed by the first channel through the fusion member and the second channel has a second cross-sectional plane along a second path that is traversed by the second channel through the fusion member, wherein the first and second cross-sectional planes are parallel to each other.

55. (New) The fusion device of claim 54, wherein the first and second cross-planes are parallel to at least one surface of the fusion member.

56. (New) The fusion device of claim 54, wherein neither of the first and second cross-sectional planes is parallel to any surface of the fusion member.

57. (New) The fusion device of claim 54,

wherein the first channel opens to at least two surfaces of the fusion member and the second channel opens to at least two surfaces of the fusion member,

wherein the first cross-sectional plane is not parallel to either of the two surfaces to which the first channel opens and the second cross-sectional plane is not parallel to either of the two surfaces to which the second channel opens.

58. (New) The fusion device of claim 54,

wherein the first and second channels open to a first surface of the fusion member but the first channel traverses to a second surface of the fusion member and the second channel traverses to a third surface of the fusion member;

wherein the traversal of the first and second channels through the fusion member allows (i) the first anchoring member to enter the first surface of the fusion member but exit the second surface of the fusion member at a first desired location on the second surface of the fusion member and (ii) the second anchoring member to enter the first surface of the fusion member but exit the third surface of the fusion member at a second desired location on the second surface without hindering the first anchoring member's traversal through the fusion member.

59. (New) The fusion device of claim 58, wherein the first desired location is the geometric center of the second surface of the fusion member and the second desired location is the geometric center of the third surface of the fusion member.

60. (New) The fusion device of claim 58, wherein the first and second channels are curved.

61. (New) The fusion device of claim 54,

wherein each anchoring member is configured to couple to a driving member,

wherein the driving member is configured to drive the anchoring member into the vertebral body and decouple from the anchoring member.

62. (New) The fusion device of claim 54, wherein the first and second anchoring members are made of a flexible material to allow the first and second anchoring members to bend to traverse through the first and second channels.

63. (New) The fusion device of claim 54,

wherein each channel of the fusion member has an opening on a surface of the fusion member and the opening has a recess,

wherein each anchoring member has a base that fits within the recess of the channel associated with the anchoring member in order to maintain the anchoring member at least partially in the fusion member while the anchoring member is inserted into the vertebral body.

64. (New) The fusion device of claim 54, wherein each anchoring member comprises a perforation for delivering the hardening material to a location where the anchoring member is inserted into the corresponding vertebral body.

65. (New) A fusion device comprising:

a fusion member for positioning between first and second vertebral bodies, the fusion member comprising a first channel and a second channel;

a first anchoring member for inserting through the first channel and partially into the first vertebral body while a portion of the first anchoring member remains within the fusion member, in order to couple the fusion member with the first vertebral body; and

a second anchoring member for inserting through the second channel and partially into the second vertebral body while a portion of the second anchoring member remains within the fusion member, in order to couple the fusion member with the second vertebral body,

wherein the first channel has a first cross-sectional plane along a first path that is traversed by the first channel through the fusion member and the second channel has a second cross-sectional plane along a second path that is traversed by the second channel through the fusion member,

wherein the first and second cross-sectional planes are not parallel to each other and neither of the first and second cross-sectional planes is parallel to any surface of the fusion member.

66. (New) The fusion device of claim 65,

wherein the first and second channels open to a first surface of the fusion member but the first channel traverses to a second surface of the fusion member and the second channel traverses to a third surface of the fusion member;

wherein the traversal of the first and second channels through the fusion member allows (i) the first anchoring member to enter the first surface of the fusion member but exit the second surface of the fusion member at a first desired location on the second surface of the fusion member and (ii) the second anchoring member to enter the first surface of the fusion member but exit the third surface of the fusion member at a second desired location on the second surface without hindering each other's traversal through the fusion member.

67. (New) The fusion device of claim 66, wherein the first desired location is the geometric center of the second surface of the fusion member and the second desired location is the geometric center of the third surface of the fusion member.

68. (New) The fusion device of claim 65,

wherein each channel of the fusion member has an opening on a surface of the fusion member and the opening has a recess,

wherein each anchoring member has a base that fits within the recess of the channel associated with the anchoring member in order to maintain the anchoring member at least partially in the fusion member while the anchoring member is inserted into the vertebral body.

69. (New) The fusion device of claim 65, wherein each anchoring member comprises a perforation for delivering the hardening material to a location where the anchoring member is inserted into the corresponding vertebral body.

70. (New) A fusion device comprising:

a fusion member for positioning between first and second vertebral bodies, the fusion member comprising a first channel and a second channel;

a first anchoring member for inserting through the first channel and partially into the first vertebral body while a portion of the first anchoring member remains within the fusion member, in order to couple the fusion member with the first vertebral body; and

a second anchoring member for inserting through the second channel and partially into the first vertebral body while a portion of the second anchoring member remains within the fusion member, in order to couple the fusion member with the first vertebral body,

wherein the first channel has a first cross-sectional plane along a first path that is traversed by the first channel through the fusion member and the second channel has a second cross-sectional plane along a second path that is traversed by the second channel through the

fusion member, wherein the first and second cross-sectional planes are the same plane and the same plane is parallel to a surface of the fusion member.

71. (New) The fusion device of claim 70, wherein the first anchoring member and the second anchoring member enter a first surface of the fusion member and exit second surface of the fusion number and the first and second surfaces are adjacent to each other.

72. (New) The fusion device of claim 70, wherein the first anchoring member and the second anchoring member are curved.

73. (New) The fusion device of claim 72, wherein the first and second anchoring members are arc-shaped.

74. (New) The fusion device of claim 65, the fusion device further comprising:

a first driving member for advancing the first anchoring member into the vertebral body;

a first coupling mechanism for coupling the first anchoring member with the first driving member;

a second driving member for advancing the second anchoring member into the vertebral body;

a second coupling mechanism for coupling the second anchoring member with the second driving member;

wherein the first coupling mechanism comprises a first pivoting mechanism for allowing the first anchoring member to pivot around the first driving member and the second coupling mechanism comprises a second pivoting mechanism for allowing the second anchoring member to pivot around the second driving member.

REMARKS

This Preliminary Amendment is concurrently filed with the above-entitled application, which is a continuation application of United States Patent Application 12/383,950, filed March 27, 2009. In this Preliminary Amendment, Applicant has amended the title, and amended the "Claim of Benefit to Prior Applications" paragraph on the first page of the specification. Applicant has also canceled claims 1-53, and added claims 54-74. Accordingly, claims 54-74 will be pending in this application after entry of this Preliminary Amendment.

Accordingly, Applicant believes that no additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required for the submission of this Preliminary Amendment. However, in the unlikely event that the Commissioner determines that additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required, Applicant hereby makes such petitions as are required, requests such extensions of time and other forms of relief as are required, and authorizes the Commissioner to charge the cost of such petitions for extensions of time, other petitions, and/or other forms of relief to **Deposit Account No. 50-3804** referencing **SPNE.P0006**.

Respectfully submitted,

ADELI & TOLLEN LLP

Dated: February 15, 2010

/Mani Adeli/
Mani Adeli
Reg. No. 39,585

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Los Angeles, CA 90049
Tel. (310) 442-9300
Fax. (310) 442-9330

SCORE Placeholder Sheet for IFW Content

Application Number: 12705972 Document Date: 2/15/2010

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

- Drawings – Other than Black and White Line Drawings

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

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- Examiners may access SCORE content via the eDAN interface.
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Form Revision Date: February 8, 2006

Date: 02/15/10

Approved for use through 7/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 12/705,972

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	82		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	270		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	110		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	21 minus 20 =	1	x$26	26	OR	x$52	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*	x$110			x$220	
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $260 ($130 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR			135			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))			195			390	
			TOTAL	623		TOTAL	

* If the difference in column 1 is less than zero, enter "0" in column 2.

APPLICATION AS AMENDED – PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					N/A		OR	N/A	
					TOTAL ADD'T FEE		OR	TOTAL ADD'T FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					N/A		OR	N/A	
					TOTAL ADD'T FEE		OR	TOTAL ADD'T FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 12/705,972	Filing Date 02/15/2010	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	02/15/2010	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 21	Minus	** 21	= 0	X $26 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $110 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/RENEE HAWKINS/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/705,972	02/15/2010	Jeffrey Paris Wensel	SPNE.P0006

CONFIRMATION NO. 9747

48947
ADELI & TOLLEN, LLP
11940 San Vicente Blvd., Suite 100
LOS ANGELES, CA 90049

FORMALITIES LETTER

OC000000040365132

Date Mailed: 03/02/2010

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
  *Applicant must submit $**82** to complete the basic filing fee for a small entity.*
- The oath or declaration is missing.
  A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.
  Note: If a petition under 37 CFR 1.47 is being filed, an oath or declaration in compliance with 37 CFR 1.63 signed by all available joint inventors, or if no inventor is available by a party with sufficient proprietary interest, is required.

The applicant needs to satisfy supplemental fees problems indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- Additional claim fees of $**26** as a small entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due.
- To avoid abandonment, a surcharge (for late submission of filing fee, search fee, examination fee or oath or declaration) as set forth in 37 CFR 1.16(f) of $**65** for a small entity in compliance with 37 CFR 1.27, must be submitted with the missing items identified in this notice.

SUMMARY OF FEES DUE:

Total additional fee(s) required for this application is $**688** for a small entity
- $**82** Statutory basic filing fee.
- $**65** Surcharge.
- The application search fee has not been paid. Applicant must submit $**270** to complete the search fee.

- The application examination fee has not been paid. Applicant must submit $**110** to complete the examination fee for a small entity in compliance with 37 CFR 1.27.
- The specification and drawings submitted electronically contain the equivalent of more than 100 pages. Applicant owes $**135** for **10** pages in excess of **100** pages for a small entity in compliance with 37 CFR 1.27.
- Total additional claim fee(s) for this application is $**26**
  - $**26** for **1** total claims over 20.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web.
https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at **1-866-217-9197** or visit our website at http://www.uspto.gov/ebc.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

/ldvan/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
12/705,972	02/15/2010	3733	0.00	SPNE.P0006	21	3

CONFIRMATION NO. 9747

48947
ADELI & TOLLEN, LLP
11940 San Vicente Blvd., Suite 100
LOS ANGELES, CA 90049

FILING RECEIPT

OC000000040365131

Date Mailed: 03/02/2010

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

Jeffrey Paris Wensel, Residence Not Provided;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 12/383,950 03/27/2009
and is a CIP of 12/113,362 05/01/2008
and said 12/383,950 03/27/2009
claims benefit of 61/040,136 03/27/2008
and claims benefit of 61/109,175 10/28/2008
and claims benefit of 61/148,036 01/28/2009
and said 12/113,362 05/01/2008
claims benefit of 61/040,136 03/27/2008

Foreign Applications

If Required, Foreign Filing License Granted: 03/01/2010

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 12/705,972**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No
** **SMALL ENTITY** **

Title

Fusion Member for Insertion Between Vertebral Bodies

Preliminary Class

623

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

CERTIFICATE OF TRANSMISSION VIA EFS-WEB

I hereby certify that this correspondence is being transmitted via EFS-Web to the United States Patent and Trademark Office on May 03, 2010.

/Mani Adeli/
Mani Adeli

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

Jeffrey Paris Wensel

Serial No.: 12/705,972

Filing Date: February 15, 2010

For: FUSION MEMBER FOR INSERTION BETWEEN VERTEBRAL BODIES

Examiner: <Not Yet Assigned>

Group Art Unit: 3733

RESPONSE TO NOTICE TO FILE MISSING PARTS OF APPLICATION

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In complete response to the Notice to File Missing Parts of Nonprovisional Application dated 3/02/2010, Applicant submits this Response within two months from the mailing date of the Notice (05/02/2010 being a Sunday). Please find attached the following:

1. Copy of Notice to File Missing Parts of Nonprovisional Application (2 pages);
2. Declaration for Utility Patent Application (3 pages); and
3. Electronic Fee Payment Form (2 pages).

☑ The Applicant hereby claims small entity status.

The filing fee has been calculated as follows:

FOR	Number of claims - Number paid by base fee	Number of extra claims	Extra claim rate	CALCULATIONS
TOTAL CLAIMS	21 – 20 =	1	x $26	$26
INDEPENDENT CLAIMS	3 – 3 =	0	x $110	$0
BASIC FILING FEE				$82
UTILITY APPLICATION SIZE FEE				$135
UTILITY EXAMINATION FEE				$110
UTILITY SEARCH FEE				$270
SURCHARGE FOR LATE SUBMISSION OF FILING FEE				$65
		TOTAL OF ABOVE CALCULATIONS =		$688
			TOTAL =	**$688**

Applicant has submitted all known required fees and petitions. Accordingly, Applicant believes that no additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required for the submission of this Response to Notice to File Missing Parts of Nonprovisional Application. However, in the unlikely event that the Commissioner determines that additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required, Applicant hereby makes such petitions as are required, requests such extensions of time and other forms of relief as are required, and authorizes the Commissioner to charge the cost of such petitions for extensions of time, other petitions, and/or other forms of relief to **Deposit Account No. 50-3804** referencing **SPNE.P0006**.

Respectfully submitted,

ADELI & TOLLEN LLP

Dated: May 03, 2010

/Mani Adeli/
Mani Adeli
Reg. No. 39,585

Adeli & Tollen LLP
11940 San Vicente Blvd., Suite 100
Los Angeles, CA 90049
Tel. (310) 442-9300 x301
Fax. (310) 442-9330

Electronic Patent Application Fee Transmittal

Application Number:	12705972
Filing Date:	15-Feb-2010
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
First Named Inventor/Applicant Name:	Jeffrey Paris Wensel
Filer:	Bum C. Pak
Attorney Docket Number:	SPNE.P0006

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	82	82
Utility Search Fee	2111	1	270	270
Utility Examination Fee	2311	1	110	110
Pages:				
Utility Appl Size fee per 50 sheets >100	2081	1	135	135
Claims:				
Claims in excess of 20	2202	1	26	26
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Late filing fee for oath or declaration	2051	1	65	65
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**688**

Electronic Acknowledgement Receipt

EFS ID:	7529918
Application Number:	12705972
International Application Number:	
Confirmation Number:	9747
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
First Named Inventor/Applicant Name:	Jeffrey Paris Wensel
Customer Number:	48947
Filer:	Bum C. Pak/Jason Shen
Filer Authorized By:	Bum C. Pak
Attorney Docket Number:	SPNE.P0006
Receipt Date:	04-MAY-2010
Filing Date:	15-FEB-2010
Time Stamp:	02:31:29
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$688
RAM confirmation Number	12938
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1	Miscellaneous Incoming Letter	SPNEP6_Notice_of_MP.pdf	79994 5bde9f855b0113cf150f097fdf8f8d2928141be4	no	2
Warnings:					
Information:					
2	Oath or Declaration filed	SPNEP6_Oath.pdf	148104 67aa386ac836c2bf5503a4d0426a810f44a7d48b	no	3
Warnings:					
Information:					
3	Applicant Response to Pre-Exam Formalities Notice	SPNEP0006_ResponseToMissingParts.pdf	471841 327b03b3557ef1eecc17b93312fdb0f94307510a	no	3
Warnings:					
Information:					
4	Fee Worksheet (PTO-875)	fee-info.pdf	40300 9c9b78f2356a3f8c1711b852805175cd29df5955	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	740239		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/705,972	02/15/2010	Jeffrey Paris Wensel	SPNE.P0006

CONFIRMATION NO. 9747

48947
ADELI & TOLLEN, LLP
11940 San Vicente Blvd., Suite 100
LOS ANGELES, CA 90049

FORMALITIES LETTER

OC000000040365132

Date Mailed: 03/02/2010

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
  *Applicant must submit $**82** to complete the basic filing fee for a small entity.*
- The oath or declaration is missing.
  A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.
  Note: If a petition under 37 CFR 1.47 is being filed, an oath or declaration in compliance with 37 CFR 1.63 signed by all available joint inventors, or if no inventor is available by a party with sufficient proprietary interest, is required.

The applicant needs to satisfy supplemental fees problems indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- Additional claim fees of $**26** as a small entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due.
- To avoid abandonment, a surcharge (for late submission of filing fee, search fee, examination fee or oath or declaration) as set forth in 37 CFR 1.16(f) of $**65** for a small entity in compliance with 37 CFR 1.27, must be submitted with the missing items identified in this notice.

SUMMARY OF FEES DUE:

Total additional fee(s) required for this application is $**688** for a small entity
- $**82** Statutory basic filing fee.
- $**65** Surcharge.
- The application search fee has not been paid. Applicant must submit $**270** to complete the search fee.

- The application examination fee has not been paid. Applicant must submit $**110** to complete the examination fee for a small entity in compliance with 37 CFR 1.27.
- The specification and drawings submitted electronically contain the equivalent of more than 100 pages. Applicant owes $**135** for **10** pages in excess of **100** pages for a small entity in compliance with 37 CFR 1.27.
- Total additional claim fee(s) for this application is $**26**
  - $**26** for **1** total claims over 20.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web.
https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at **1-866-217-9197** or visit our website at http://www.uspto.gov/ebc.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

/ldvan/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)		
☐ Declaration Submitted With Initial Filing *OR* ☒ Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16 (e)) required)	Attorney Docket Number	SPNE.P0004
	First Named Inventor	Jeffrey Paris Wensel
	COMPLETE IF KNOWN	
	Application Number	12/383,950
	Filing Date	March 27, 2009
	Art Unit	3733
	Examiner Name	<Not Yet Assigned>

I hereby declare that:

(1) Each inventor's residence, mailing address, and citizenship are as stated below next to their name; and

(2) I believe the inventor(s) named below to be the original and first inventor(s) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Intervertebral Fusion Device and Method of Use

(Title of the Invention)

the specification of which

☐ is attached hereto

OR

☒ was filed on (MM/DD/YYYY) 03/27/2009 as United States Application Number or PCT International Application Number 12/383,950 and was amended on (MM/DD/YYYY) _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose all information known to me to be material to patentability as defined in 37 CFR 1.56 (See Appendix), including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35 U.S.C. § 119(a)-(d) or (f), or § 365(b) of any foreign application(s) for patent, inventor's or plant breeder's rights certificate(s), or § 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent, inventor's or plant breeder's rights certificate(s), or any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached? YES	NO
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐

☐ Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto:

WILLAMETTE VALLEY IMG Fax:541-344-9510 Jun 17 2009 04:29pm P003/005

DECLARATION – Utility or Design Patent Application

Direct all correspondence to:	[X] The address associated with Customer Number:	48947	*OR* [ ] Correspondence address below

Name
Mani Adeli

Address
11940 San Vicente Blvd., Suite 100

City	State	ZIP
Los Angeles	**CA**	**90049**

Country	Telephone	Email
USA	**(310) 442-9300**	**mail@adelitollen.com**

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

NAME OF SOLE OR FIRST INVENTOR:	[ ] A petition has been filed for this unsigned inventor
Given Name (first and middle [if any]) **Jeffrey Paris**	Family Name or Surname **Wensel**
Inventor's Signature	Date 6/17/09

Residence: City	State	Country	Citizenship
Eugene	**OR**	**USA**	**USA**

Mailing Address
1430 Willamette, PMB 27

City	State	Zip	Country
Eugene	**OR**	**97401**	**USA**

[ ]

WILLAMETTE VALLEY IMG Fax:541-344-9510 Jun 17 2009 04:30pm P004/005

APPENDIX

Title 37, Code of Federal Regulations, Section 1.56
A. Duty to Disclose Information Material to Patentability

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is cancelled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

(1) Prior art cited in search reports of a foreign patent office in a counterpart application, and

(2) The closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and

(1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or

(2) It refutes, or is inconsistent with, a position the applicant takes in:

(i) Opposing an argument of unpatentability relied on by the Office, or

(ii) Asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

(1) Each inventor named in the application;

(2) Each attorney or agent who prepares or prosecutes the application; and

(3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.

(d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.

(e) In any continuation-in-part application, the duty under this section includes the duty to disclose to the Office all information known to the person to be material to patentability, as defined in paragraph (b) of this section, which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

WILLAMETTE VALLEY IMG Fax:541-344-9510 Jun 17 2009 04:30pm P005/005

CERTIFICATE OF TRANSMISSION VIA EFS-WEB

I hereby certify that this correspondence is being transmitted via EFS-Web to the United States Patent and Trademark Office on May 03, 2010.

/Mani Adeli/
Mani Adeli

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

Jeffrey Paris Wensel

Serial No.: 12/705,972

Filing Date: February 15, 2010

For: FUSION MEMBER FOR INSERTION BETWEEN VERTEBRAL BODIES

Examiner: <Not Yet Assigned>

Group Art Unit: 3733

RESPONSE TO NOTICE TO FILE MISSING PARTS OF APPLICATION

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In complete response to the Notice to File Missing Parts of Nonprovisional Application dated 3/02/2010, Applicant submits this Response within two months from the mailing date of the Notice (05/02/2010 being a Sunday). Please find attached the following:

1. Copy of Notice to File Missing Parts of Nonprovisional Application (2 pages);
2. Declaration for Utility Patent Application (3 pages); and
3. Electronic Fee Payment Form (2 pages).

05/11/2010 VVAN11 00000024 503804 12705972
01 FC:2251 65.00 DA

☑ The Applicant hereby claims small entity status.

The filing fee has been calculated as follows:

FOR	Number of claims - Number paid by base fee	Number of extra claims	Extra claim rate	CALCULATIONS
TOTAL CLAIMS	21 – 20 =	1	x $26	$26
INDEPENDENT CLAIMS	3 – 3 =	0	x $110	$0
BASIC FILING FEE				$82
UTILITY APPLICATION SIZE FEE				$135
UTILITY EXAMINATION FEE				$110
UTILITY SEARCH FEE				$270
SURCHARGE FOR LATE SUBMISSION OF FILING FEE				$65
		TOTAL OF ABOVE CALCULATIONS =		$688
			TOTAL =	**$688**

Applicant has submitted all known required fees and petitions. Accordingly, Applicant believes that no additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required for the submission of this Response to Notice to File Missing Parts of Nonprovisional Application. However, in the unlikely event that the Commissioner determines that additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required, Applicant hereby makes such petitions as are required, requests such extensions of time and other forms of relief as are required, and authorizes the Commissioner to charge the cost of such petitions for extensions of time, other petitions, and/or other forms of relief to **Deposit Account No. 50-3804** referencing **SPNE.P0006**.

Respectfully submitted,

ADELI & TOLLEN LLP

Dated: May 03, 2010

/Mani Adeli/
Mani Adeli
Reg. No. 39,585

Adeli & Tollen LLP
11940 San Vicente Blvd., Suite 100
Los Angeles, CA 90049
Tel. (310) 442-9300 x301
Fax. (310) 442-9330

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
12/705,972	02/15/2010	3733	688	SPNE.P0004	21	3

CONFIRMATION NO. 9747

48947
ADELI & TOLLEN, LLP
11940 San Vicente Blvd., Suite 100
LOS ANGELES, CA 90049

UPDATED FILING RECEIPT

OC000000041584644

Date Mailed: 05/14/2010

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

Jeffrey Paris Wensel, Eugene, OR;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 12/383,950 03/27/2009
and is a CIP of 12/113,362 05/01/2008
and said 12/383,950 03/27/2009
claims benefit of 61/040,136 03/27/2008
and claims benefit of 61/109,175 10/28/2008
and claims benefit of 61/148,036 01/28/2009
and said 12/113,362 05/01/2008
claims benefit of 61/040,136 03/27/2008

Foreign Applications

If Required, Foreign Filing License Granted: 03/01/2010

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 12/705,972**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No
** **SMALL ENTITY** **

Title

Fusion Member for Insertion Between Vertebral Bodies

Preliminary Class

623

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

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This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

CERTIFICATE OF TRANSMISSION VIA EFS-WEB

I hereby certify that this correspondence is being transmitted via EFS-Web to the United States Patent and Trademark Office on July 27, 2010.

/Mani Adeli/
Mani Adeli

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

Jeffrey Paris Wensel

Serial No.: 12/705,972

Filing Date: February 15, 2010

For: FUSION MEMBER FOR INSERTION BETWEEN VERTEBRAL BODIES

Examiner: <Not Yet Assigned>

Group Art Unit: 3733

PRELIMINARY AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Please amend the application as follows:

Amendments to the Specification begin on page 2 of this paper.

Remarks begin on page 3 of this paper.

AMENDMENTS TO THE SPECIFICATION

Please amend the "Claim of Benefit to Prior Applications" paragraph beginning on page 1, line 3, as follows:

CLAIM OF BENEFIT TO PRIOR APPLICATIONS

This application claims benefit to United States Provisional Patent Application 61/211,484, filed on March 27, 2009. This application is a continuation application of United States Patent Application 12/383,950, filed March 27, 2009. This application is also a continuation-in-part application of United States Patent Application 12/113,362, filed on May 1, 2008. United States Patent Application 12/383,950 claims benefit to United States Provisional Patent Application 61/040,136, filed on March 27, 2008; United States Provisional Patent Application 61/109,175, filed October 28, 2008; and United States Provisional Patent Application 61/148,036, filed January 28, 2009. United States Patent Application 12/113,362 claims benefit to United States Provisional Patent Application 61/040,136, filed March 27, 2008. The above-mentioned applications, namely United States Patent Applications 12/383,950 and 12/113,362, and United States Provisional Patent Applications 61/211,484, 61/040,136, 61/109,175, and 61/148,036, are incorporated herein by reference.

REMARKS

In this Preliminary Amendment, Applicant has amended the "Claim of Benefit to Prior Applications" paragraph on the first page of the specification.

Accordingly, Applicant believes that no additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required for the submission of this Preliminary Amendment. However, in the unlikely event that the Commissioner determines that additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required, Applicant hereby makes such petitions as are required, requests such extensions of time and other forms of relief as are required, and authorizes the Commissioner to charge the cost of such petitions for extensions of time, other petitions, and/or other forms of relief to **Deposit Account No. 50-3804** referencing **SPNE.P0006**.

Respectfully submitted,

ADELI & TOLLEN LLP

Dated: July 27, 2010

/Mani Adeli/
Mani Adeli
Reg. No. 39,585

Adeli & Tollen LLP
11940 San Vicente Blvd., Suite 100
Los Angeles, CA 90049
Tel. (310) 442-9300 x301
Fax. (310) 442-9330

Electronic Acknowledgement Receipt

EFS ID:	8102362
Application Number:	12705972
International Application Number:	
Confirmation Number:	9747
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
First Named Inventor/Applicant Name:	Jeffrey Paris Wensel
Customer Number:	48947
Filer:	Bum C. Pak/Jason Shen
Filer Authorized By:	Bum C. Pak
Attorney Docket Number:	SPNE.P0006
Receipt Date:	27-JUL-2010
Filing Date:	15-FEB-2010
Time Stamp:	19:28:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		SPNEP0006_PreliminaryAmendment.pdf	482077 8c850586e2c61c0f5573ddf03b8d7e05c9af8fa6	yes	3

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Preliminary Amendment	1	1
	Specification	2	2
	Applicant Arguments/Remarks Made in an Amendment	3	3
Warnings:			
Information:			
	Total Files Size (in bytes):	482077	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 12/705,972	Filing Date 02/15/2010	☐ To be Mailed

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☒ RATE ($)	SMALL ENTITY ☒ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	07/27/2010	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 21	Minus	** 21	= 0	X $26 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $110 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/VANESSA BARBER/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

CERTIFICATE OF TRANSMISSION VIA EFS-WEB

I hereby certify that this correspondence is being transmitted via EFS-Web to the United States Patent and Trademark Office on May 03, 2010.

/Mani Adeli/
Mani Adeli

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

Jeffrey Paris Wensel

Serial No.: 12/705,972

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For: FUSION MEMBER FOR INSERTION BETWEEN VERTEBRAL BODIES

Examiner: <Not Yet Assigned>

Group Art Unit: 3733

RESPONSE TO NOTICE TO FILE MISSING PARTS OF APPLICATION

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In complete response to the Notice to File Missing Parts of Nonprovisional Application dated 3/02/2010, Applicant submits this Response within two months from the mailing date of the Notice (05/02/2010 being a Sunday). Please find attached the following:

1. Copy of Notice to File Missing Parts of Nonprovisional Application (2 pages);
2. Declaration for Utility Patent Application (3 pages); and
3. Electronic Fee Payment Form (2 pages).

05/11/2010 VVAN11 00000024 503804 12705972

01 FC:2251 65.00 DA

Adjustment date: 10/19/2010 VVAN11
05/11/2010 VVAN11 00000024 503804 12705972
01 FC:2251 65.00 CR

☑ The Applicant hereby claims small entity status.

The filing fee has been calculated as follows:

FOR	Number of claims - Number paid by base fee	Number of extra claims	Extra claim rate	CALCULATIONS
TOTAL CLAIMS	21 – 20 =	1	x $26	$26
INDEPENDENT CLAIMS	3 – 3 =	0	x $110	$0
BASIC FILING FEE				$82
UTILITY APPLICATION SIZE FEE				$135
UTILITY EXAMINATION FEE				$110
UTILITY SEARCH FEE				$270
SURCHARGE FOR LATE SUBMISSION OF FILING FEE				$65
		TOTAL OF ABOVE CALCULATIONS =		$688
			TOTAL =	$688

Applicant has submitted all known required fees and petitions. Accordingly, Applicant believes that no additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required for the submission of this Response to Notice to File Missing Parts of Nonprovisional Application. However, in the unlikely event that the Commissioner determines that additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required, Applicant hereby makes such petitions as are required, requests such extensions of time and other forms of relief as are required, and authorizes the Commissioner to charge the cost of such petitions for extensions of time, other petitions, and/or other forms of relief to **Deposit Account No. 50-3804** referencing **SPNE.P0006**.

Respectfully submitted,

ADELI & TOLLEN LLP

Dated: May 03, 2010

/Mani Adeli/
Mani Adeli
Reg. No. 39,585

Adeli & Tollen LLP
11940 San Vicente Blvd., Suite 100
Los Angeles, CA 90049
Tel. (310) 442-9300 x301
Fax. (310) 442-9330

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Los Angeles, CA 90049
Tel. (310) 442-9300
Fax. (310) 442-9330

Adeli & Tollen LLP

Fax

To:	Refunds Department	**From:**	Mani Adeli
Fax:	571-273-6500	**Pages:**	11 - including coversheet
Phone:	571-272-6500	**Date:**	August 16, 2010

Re: Request for Refund for Improper Charge of Deposit Account

Serial No.: 12/705,972

Filing Date: February 15, 2010

Title: FUSION MEMBER FOR INSERTION BETWEEN VERTEBRAL BODIES

Please find attached, copies of the (1) Request for Refund for Improper Charge of Deposit Account; (2) Electronic Patent Application Fee Transmittal; (3) Electronic Acknowledgement Receipt; (4) Response to Notice to File Missing Parts of Application; and (5) Deposit Account Statement for the month of May 2010 showing the overcharge of $65.00 for Application 12/705,972.

Attorney Docket No.: SPNE.P0006
USPTO Serial No.:12/705,972

CERTIFICATE OF TRANSMISSION VIA FACSIMILE

I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office (Fax 571-273-8300) on 08/16/2010.

Mary Adeli

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

Jeffrey Paris Wensel

Serial No.: 12/705,972

Filing Date: February 15, 2010

For: FUSION MEMBER FOR INSERTION BETWEEN VERTEBRAL BODIES

Examiner: Not Yet Assigned

Group Art Unit: 3733

Confirmation Number: 9747

Customer Number: 48947

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REQUEST FOR REFUND FOR IMPROPER CHARGE OF DEPOSIT ACCOUNT

Sir:

This is a Request for Refund for an Improper Charge of Deposit Account No. 50-3804 in the amount of $65.00, as shown on the Deposit Account Statement for the month of May, 2010 for the above identified patent application, wherein the Applicant qualifies as a small entity.

In complete response to the Notice to File Missing Parts of Nonprovisional Application, dated 03/02/2010, total fees in the amount of $688.00, as required in the Notice, were submitted on 05/03/2010 (05/02/2010 being a Sunday). However, an additional $65.00 was charged to the USPTO Deposit Account for the present application (fee code 2251, Extension for response within first month) on 05/11/2010 as listed on the Deposit Account Statement (attached).

Applicant respectfully submits that an extension of time is not needed as the Response to Notice to File Missing Parts of Nonprovisional Application was filed on 05/03/2010 before

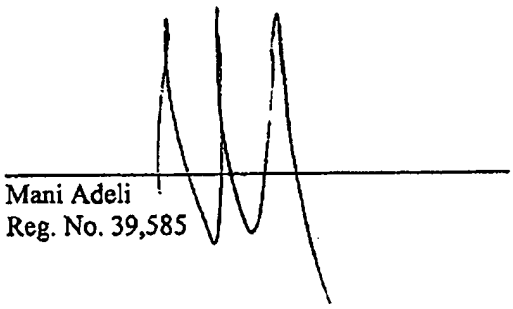
midnight, local time, which is within two months of the date of the Notice to File Missing Parts per 37 CFR § 1.8(a)(1)(i) and as amended in the USPTO Official Gazette dated February 13, 2007.

Accordingly, Applicant respectfully requests a refund totaling $65.00 for the aforementioned improper charge on May 11, 2010. In support of this request are attached copies of the Electronic Patent Application Fee Transmittal, Electronic Acknowledgement Receipt, Response to Notice to File Missing Parts of Nonprovisional Application, and Deposit Account Statement.

Authorization is given to credit Deposit Account No. 50-3804, referencing SPNE.P0006, in the amount of $65.00.

Respectfully submitted,

ADELI & TOLLEN LLP



Dated: August 16, 2010

Mani Adeli
Reg. No. 39,585

Adeli & Tollen LLP
11940 San Vicente Blvd., Suite 100
Los Angeles, CA 90049
Tel. (310) 442-9300 x301
Fax. (310) 442-9330

Electronic Patent Application Fee Transmittal

Application Number:	12705972
Filing Date:	15-Feb-2010
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
First Named Inventor/Applicant Name:	Jeffrey Paris Wensel
Filer:	Bum C. Pak
Attorney Docket Number:	SPNE.P0006
Filed as Small Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	82	82
Utility Search Fee	2111	1	270	270
Utility Examination Fee	2311	1	110	110
Pages:				
Utility Appl Size fee per 50 sheets >100	2081	1	135	135
Claims:				
Claims in excess of 20	2202	1	26	26
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Late filing fee for oath or declaration	2051	1	65	65
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	688

Electronic Acknowledgement Receipt

EFS ID:	7529918
Application Number:	12705972
International Application Number:	
Confirmation Number:	9747
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
First Named Inventor/Applicant Name:	Jeffrey Paris Wensel
Customer Number:	48947
Filer:	Bum C Pak/Jason Shen
Filer Authorized By:	Bum C. Pak
Attorney Docket Number:	SPNE.P0006
Receipt Date:	04-MAY-2010
Filing Date:	15-FEB-2010
Time Stamp:	02:31:29
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$688
RAM confirmation Number	12938
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1	Miscellaneous Incoming Letter	SPNEP6_Notice_of_MP.pdf	79994	no	2
Warnings:					
Information:					
2	Oath or Declaration filed	SPNEP6_Oath.pdf	148104	no	3
Warnings:					
Information:					
3	Applicant Response to Pre-Exam Formalities Notice	SPNEP0006_ResponseToMissingParts.pdf	471841	no	3
Warnings:					
Information:					
4	Fee Worksheet (PTO-875)	fee-info.pdf	40300	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	740239		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

CERTIFICATE OF TRANSMISSION VIA EFS-WEB

I hereby certify that this correspondence is being transmitted via EFS-Web to the United States Patent and Trademark Office on May 03, 2010.

/Mani Adeli/
Mani Adeli

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

Jeffrey Paris Wensel

Serial No.: 12/705,972

Filing Date: February 15, 2010

For: FUSION MEMBER FOR INSERTION BETWEEN VERTEBRAL BODIES

Examiner: <Not Yet Assigned>

Group Art Unit: 3733

RESPONSE TO NOTICE TO FILE MISSING PARTS OF APPLICATION

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In complete response to the Notice to File Missing Parts of Nonprovisional Application dated 3/02/2010, Applicant submits this Response within two months from the mailing date of the Notice (05/02/2010 being a Sunday). Please find attached the following:

1. Copy of Notice to File Missing Parts of Nonprovisional Application (2 pages);
2. Declaration for Utility Patent Application (3 pages); and
3. Electronic Fee Payment Form (2 pages).

05/11/2010 WAN11 00000024 503804 12705972
01 FC:2251 65.00 DA

Attorney Docket No.: SPNE.P0006
USPTO Serial No.: 12/705,972

☑ The Applicant hereby claims small entity status.

The filing fee has been calculated as follows:

FOR	Number of claims Number paid by base fee	Number of extra claims	Extra claim rate	CALCULATIONS
TOTAL CLAIMS	21 – 20 =	1	x $26	$26
INDEPENDENT CLAIMS	3 – 3 =	0	x $110	$0
BASIC FILING FEE				$82
UTILITY APPLICATION SIZE FEE				$135
UTILITY EXAMINATION FEE				$110
UTILITY SEARCH FEE				$270
SURCHARGE FOR LATE SUBMISSION OF FILING FEE				$65
		TOTAL OF ABOVE CALCULATIONS =		$688
			TOTAL =	$688

PAGE 9/11 * RCVD AT 8/16/2010 6:05:47 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/29 * DNIS:2736500 * CSID:Adeli Law Group PLC * DURATION (mm-ss):05-22

Applicant has submitted all known required fees and petitions. Accordingly, Applicant believes that no additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required for the submission of this Response to Notice to File Missing Parts of Nonprovisional Application. However, in the unlikely event that the Commissioner determines that additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required, Applicant hereby makes such petitions as are required, requests such extensions of time and other forms of relief as are required, and authorizes the Commissioner to charge the cost of such petitions for extensions of time, other petitions, and/or other forms of relief to Deposit Account No. 50-3804 referencing SPNE.P0006.

Respectfully submitted,

ADELI & TOLLEN LLP

Dated: May 03, 2010

/Mani Adeli/
Mani Adeli
Reg. No. 39,585

Adeli & Tollen LLP
11940 San Vicente Blvd., Suite 100
Los Angeles, CA 90049
Tel. (310) 442-9300 x301
Fax. (310) 442-9330

United States Patent and Trademark Office

Return To USPTO Home Page | Finance Online Shopping Page

Deposit Account Statement

Requested Statement Month:	May 2010
Deposit Account Number:	503804
Name:	SJA LAW CORPORATION
Attention:	MANI ADELI
Street Address 1:	11940 SAN VICENTE BLVD. SUITE 100
Street Address 2:	
City:	LOS ANGELES
State:	CA
Zip:	90049
Country:	UNITED STATES

DATE SEQ	POSTING REF TXT	ATTORNEY DOCKET NBR	FEE CODE	AMT	BAL
05/04 15315	E-REPLENISHMENT		9203	-$2,000.00	$10,120.00
05/11 62	12705972	SPNE.P0006	2251	$65.00	$10,055.00
05/11 63	12705970	SPNE.P0005	2251	$65.00	$9,990.00
05/11 64	12705974	SPNE.P0007	2251	$65.00	$9,925.00
05/20 8	12685673	TBUL.P0009C2	2202	$26.00	$9,899.00

START BALANCE	SUM OF CHARGES	SUM OF REPLENISH	END BALANCE
$8,120.00	$221.00	$2,000.00	$9,899.00

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PAGE 11/11 * RCVD AT 8/16/2010 6:05:47 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/29 * DNIS:2738500 * CSID:Adeli Law Group PLC * DURATION (mm-ss):05-22

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	1	of	3	Attorney Docket Number	SPNE.P0006

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	6,558,423		05-06-2003	Michelson, Gary K.	
	2.	7,118,579		10-10-2006	Michelson, Gary K.	
	3.	7,166,107		01-23-2007	Anderson, Greg D.	
	4.	7,320,686		01-22-2008	Serhan, Hassan, et al.	
	5.	7,354,442		04-08-2008	Sasso, Ricardo C., et al.	

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	6.	2005/0137707		06-23-2005	Malek, Michel H.	

COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	7.	12/113,362		05-01-2008 (filing date)	Wensel, Jeffrey Paris	Non-published commonly owned U.S. Patent Application 12/113,362 (SPNE.P0001).
	8.	12/361,525		01-28-2009 (filing date)	Wensel, Jeffrey Paris	Non-published commonly owned U.S. Patent Application 12/361,525 (SPNE.P0003).
	9.	12/383,950		03-27-2009 (filing date)	Wensel, Jeffrey Paris	Non-published commonly owned U.S. Patent Application 12/383,950 (SPNE.P0004).
	10.	12/705,970		02-15-2010 (filing date)	Wensel, Jeffrey Paris	Non-published commonly owned U.S. Patent Application 12/705,970 (SPNE.P0005).
	11.	12/705,974		02-15-2010 (filing date)	Wensel, Jeffrey Paris	Non-published commonly owned U.S. Patent Application 12/705,974 (SPNE.P0007).
	12.	12/705,978		02-15-2010 (filing date)	Wensel, Jeffrey Paris	Non-published commonly owned U.S. Patent Application 12/705,978 (SPNE.P0008).
	13.	13/032,634		02-22-2011 (filing date)	Wensel, Jeffrey Paris	Non-published commonly owned U.S. Patent Application 13/032,634 (SPNE.P0012).

Examiner Signature		Date Considered	

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	2	of	3	Attorney Docket Number	SPNE.P0006

COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	U.S. Patent Document Kind Code (if known)	Mailing Date of Last Action, Response, or Amendment MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	14.	Portions of prosecution history of 12/113,362		03-28-2011	Wensel, Jeffrey Paris	Portions of prosecution history of commonly owned U.S. Patent Application 12/113,362 (SPNE.P0001), listed as item #7 above, including action(s) dated 03-28-2011; and response(s)/amendment(s) filed 07-24-2009 (10 pages).
	15.	Portions of prosecution history of 12/361,525		07-08-2011	Wensel, Jeffrey Paris	Portions of prosecution history of commonly owned U.S. Patent Application 12/361,525 (SPNE.P0003), listed as item #8 above, including action(s) dated 07-08-2011; and response(s)/amendment(s) filed 07-24-2009 (10 pages).
	16.	Portions of prosecution history of 12/383,950		07-21-2011	Wensel, Jeffrey Paris	Portions of prosecution history of commonly owned U.S. Patent Application 12/383,950 (SPNE.P0004), listed as item #9 above, including action(s) dated 07-21-2011; and response(s)/amendment(s) filed 08-24-2009 (14 pages).
	17.	Portions of prosecution history of 12/705,970		07-27-2010	Wensel, Jeffrey Paris	Portions of prosecution history of commonly owned U.S. Patent Application 12/705,970 (SPNE.P0005), listed as item #10 above, including response(s)/amendment(s) filed 07-27-2010 (3 pages).
	18.	Portions of prosecution history of 12/705,974		07-27-2010	Wensel, Jeffrey Paris	Portions of prosecution history of commonly owned U.S. Patent Application 12/705,974 (SPNE.P0007), listed as item #11 above, including response(s)/amendment(s) filed 07-27-2010 (3 pages).
	19.	Portions of prosecution history of 12/705,978		07-27-2010	Wensel, Jeffrey Paris	Portions of prosecution history of commonly owned U.S. Patent Application 12/705,978 (SPNE.P0008), listed as item #12 above, including response(s)/amendment(s) filed 07-27-2010 (3 pages).

Examiner Signature		Date Considered	

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	3	of	3	Attorney Docket Number	SPNE.P0006

FOREIGN PATENT DOCUMENTS							
Examiner Initials	Cite No.	Foreign Patent Document			Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Office	Number	Kind Code (if known)			
	20.	DE	19944681		03-01-2001	Metz-Stavenhagen, Peter, Dr. med.	

Examiner Signature		Date Considered	

CERTIFICATE OF TRANSMISSION VIA EFS-WEB

I hereby certify that this correspondence is being transmitted via EFS-Web to the United States Patent and Trademark Office on August 9, 2011.

/Mani Adeli/
Mani Adeli

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Jeffrey Paris Wensel
Application No.:	12/705,972
Filed:	February 15, 2010
Title:	FUSION MEMBER FOR INSERTION BETWEEN VERTEBRAL BODIES

Art Unit: 3738

Examiner: Seema Swaminathan

Conf. No.: 9747

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 C.F.R. § 1.97 and § 1.98, Applicant submits with this Information Disclosure Statement the attached modified Form PTO-1449, and any necessary copies of documents listed in the modified 1449 form for consideration by the Examiner. The Examiner is requested to make these documents of record. Applicant would appreciate the Examiner initialing and returning the modified Form PTO-1449, indicating that the information has been considered and made of record herein.

This Information Disclosure Statement under 37 C.F.R. § 1.97 is not to be construed as a representation that: (i) a complete search has been made; (ii) additional information material to the examination of this application does not exist; (iii) the information, protocols, results and the

like reported by third parties are accurate or enabling; or (iv) the above information constitutes prior art to the subject invention.

This Information Disclosure Statement is submitted before the mailing of a first Office Action on the merits. Accordingly, Applicant believes a fee is not required.

Applicant has submitted all known required fees and petitions. Accordingly, Applicant believes that no additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required for the submission of this Information Disclosure Statement. However, in the unlikely event that the Commissioner determines that additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required, Applicant hereby makes such petitions as are required, requests such extensions of time and other forms of relief as are required, and authorizes the Commissioner to charge the cost of such petitions for extensions of time, other petitions, and/or other forms of relief to **Deposit Account No. 50-3804** referencing **SPNE.P0006**.

Respectfully Submitted,

Date: August 9, 2011

/Mani Adeli/
Mani Adeli
Reg. No. 39,585

Adeli & Tollen LLP
11940 San Vicente Blvd., Suite 100
Los Angeles, CA 90049
Tel. (310) 442-9300 x301
Fax. (310) 442-9330

(19) BUNDESREPUBLIK DEUTSCHLAND

DEUTSCHES PATENT- UND MARKENAMT

(12) **Offenlegungsschrift**

(10) **DE 199 44 681 A 1**

(51) Int. Cl.[7]:
A 61 L 27/54
A 61 F 2/28
A 61 F 2/44

(21) Aktenzeichen: 199 44 681.4
(22) Anmeldetag: 17. 9. 1999
(43) Offenlegungstag: 1. 3. 2001

DE 199 44 681 A 1

(66) Innere Priorität:
199 39 534. 9 20. 08. 1999

(71) Anmelder:
Metz-Stavenhagen, Peter, Dr.med., 34537 Bad Wildungen, DE

(74) Vertreter:
Walther, Walther & Hinz, 34130 Kassel

(72) Erfinder:
gleich Anmelder

(56) Entgegenhaltungen:

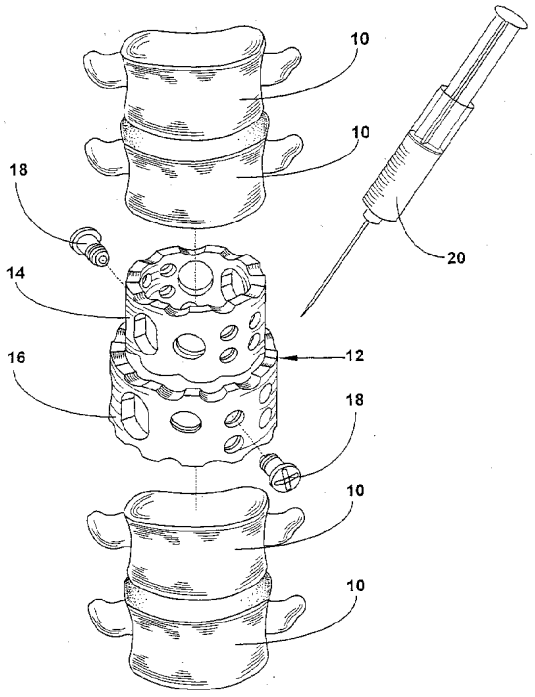
DE	196 47 853 A1
DE	42 42 889 A1
DE	41 30 546 A1
DE	38 10 803 A1
US	57 11 957 A
WO	98 17 330 A1
WO	95 15 776 A1

Die folgenden Angaben sind den vom Anmelder eingereichten Unterlagen entnommen

Prüfungsantrag gem. § 44 PatG ist gestellt

(54) Knochenersatzstoff zur Implantation im menschlichen oder tierischen Körper

(57) Gegenstand der Erfindung ist ein Knochenersatzstoff zur Implantation im menschlichen oder tierischen Körper gebildet aus Osteozyten gegebenenfalls unter Beigabe einer Nährlösung. Einen Knochenersatzstoff zu schaffen, der ohne oder zumindest durch einen reduzierten traumatischen Eingriff beim Patienten gewonnen werden kann, wird durch Zugabe eines Growing-Factors erhalten.



DE 199 44 681 A 1

BUNDESDRUCKEREI 01.01 002 069/975/1

Beschreibung

Die vorliegende Erfindung betrifft einen aus Osteozyten gebildeten Knochenersatzstoff zur Implantation im menschlichen oder tierischen Körper und einen Wirbelkörper-Platzhalter mit einem solchen Knochenersatzstoff.

Bei Frakturen der Wirbelsäule oder bei Beschädigungen der Bandscheibe kommt es häufig vor, dass Teile des Wirbelkörpers der menschlichen Wirbelsäule ersetzt werden müssen. Dabei werden die schadhaften Stellen operativ entfernt und an deren Stelle wird beispielsweise ein Wirbelkörper-Platzhalter eingesetzt, wie er aus dem DE 29 61 6778 und dem EP 0 832 622 bekannt ist. Dieser Wirbelkörper-Platzhalter wird in benachbarte Wirbelkörper eingetrieben, um dort eine wirksame Verwachsung zu erhalten. Die hohle Ausführung der Wirbelkörper-Platzhalter dient der Aufnahme von Knochenmaterial, welches durch entsprechende Öffnungen im Wirbelkörper-Platzhalter herauswachsen kann, um mit dem restlichen Wirbelkörper zu verwachsen und somit eine stabile und dauerhafte Fixierung des Implantates in der menschlichen Wirbelsäule zu erreichen. Üblicherweise wird das hierzu benötigte Knochenmaterial dem Patienten an anderer Stelle, beispielsweise am Becken, entnommen und unter Zumischung von Korallenkalk (Hydroxylapatit) in den Hohlraum des Wirbelkörper-Platzhalters eingefügt, bevor beides dann in die Wirbelsäule implantiert wird. Die Entnahme des körpereigenen Knochenmaterials führt zwangsläufig zu einem weiteren, traumatischen Eingriff beim Patienten, durch den dieser zusätzlich belastet wird.

Davon ausgehend liegt der vorliegenden Erfindung die Aufgabe zugrunde, einen Knochenersatzstoff zu schaffen, der ohne oder zumindest durch einen reduzierten traumatischen Eingriff beim Patienten gewonnen werden kann.

Als technische Lösung dieser Aufgabe wird erfindungsgemäß vorgeschlagen, den eingangs genannten Knochenersatzstoff durch Zugabe eines Growing-Factors zu erhalten.

Eine nach dieser technischen Lehre ausgebildeter Knochenersatzstoff hat den Vorteil, dass die vorhandenen Osteozyten durch den Growing-Factor zu einem beschleunigten Aussprossen angeregt werden, wodurch ein schnelles Wachstum der Osteozyten und eine schnelle Neubildung des gewünschten Knochenmaterials erreicht wird. Durch dieses schnelle Wachstum des vorhandenen Knochenmaterials braucht dem Patienten an anderer Stelle deutlich weniger Knochen entnommen werden, was zu einer deutlichen Verringerung des traumatischen Eingriffes führt. Durch Zugabe einer geeigneten Nährlösung, beispielsweise Korallenkalk (Hydroxylapatit) kann dieser Effekt noch weiter verstärkt werden.

Es hat sich als vorteilhaft erwiesen, einen Growing-Factor einzusetzen, der Proteine zur Beschleunigung der Zellteilung aufweist, denn durch eine beschleunigte Zellteilung wird ein weiter beschleunigtes Wachstum des Knochenmaterials erreicht.

In einer bevorzugten Ausführungsform wird der Knochenersatzstoff durch Verwendung von körperfremden Osteozyten erhalten. Dies hat den Vorteil, dass hierdurch kein traumatischer Eingriff beim ohnehin schon gesundheitlich belasteten Patienten notwendig ist. Es versteht sich, dass hierzu bevorzugt Knochenmaterial von Menschen gleicher Blutgruppe und gleicher Gewebestruktur eingesetzt wird, um die Wahrscheinlichkeit des Anwachsens des Knochenersatzstoffes im Körper des Patienten zu erhöhen. In einer bevorzugten Weiterbildung werden die vorzugsweise körperfremden Osteozyten derart transgen behandelt, dass die Osteozyten nach der gentechnischen Manipulation die gleiche Blutgruppe, insbesondere die gleiche Blutuntergruppe, und/oder die gleiche Gewebestruktur und/oder die gleiche Knochenstruktur aufweisen, wie die menschliche Wirbelsäule des Patienten. Hierdurch wird das erfolgreiche Anwachsen des Knochenersatzstoffes in der menschlichen Wirbelsäule positiv beeinflusst und die Wahrscheinlichkeit des Abstoßens des Implantates durch den menschlichen Körper reduziert.

In einer besonders vorteilhaften Weiterbildung des erfindungsgemäßen Knochenersatzstoffes wird dieser durch Osteozyten vom Schwein oder vom Schaf gegebenenfalls unter Beigabe einer Nährlösung, insbesondere Hydroxylapatit, und unter Zugabe eines Growing-Factors erhalten. Durch eine vorherige, gentechnische Manipulation der tierischen Osteozyten werden diese dem menschlichen Körper des Patienten angepasst, so dass auch Knochenmaterial vom Schwein oder Schaf als Implantat eingesetzt werden kann. Hierdurch ist es für den Patienten in besonders schonender Weise möglich, nahezu jede beliebige Menge Knochenmaterial zu erzeugen, ohne dass hierbei große Kosten entstehen. Auch kann hierdurch im Voraus geeignetes Knochenmaterial bereitgestellt werden, so dass die eigentliche Operation schneller durchgeführt werden kann.

Der nach der oben genannten technischen Lehre gebildete Knochenersatzstoff kann in vorteilhafter Weise in einen hohlen Wirbelkörper-Platzhalter eingesetzt werden und zusammen mit diesem in die menschliche Wirbelsäule implantiert werden. Hierdurch wird die Wirbelsäule in bekannter Weise abgestützt und ein Verwachsen des neuen Knochenmaterials zusammen mit dem Wirbelkörper-Platzhalter in der Wirbelsäule erleichtert.

Weitere Vorteile des erfindungsgemäßen Knochenersatzstoffes ergeben sich aus der beigefügten Zeichnung und den nachfolgend beschriebenen Ausführungsformen. Ebenso können die vorstehend genannten und die noch weiter ausgeführten Merkmale erfindungsgemäß jeweils einzeln oder in beliebigen Kombinationen miteinander verwendet werden. Die erwähnten Ausführungsformen sind nicht als abschließende Aufzählung zu verstehen, sondern haben vielmehr beispielhaften Charakter. Es zeigen

Fig. 1 einen mit dem erfindungsgemäßen Knochenersatzstoff auszustattenden hohlzylindrischen Wirbelkörper-Platzhalter;

Fig. 2 einen mit dem erfindungsgemäßen Knochenersatzstoff auszustattendes Wirbelsäulenimplantat zur Anbringung eines Wirbelsäulenkorrektursystems.

In **Fig.** 1 ist ein schematischer Ausschnitt einer menschlichen Wirbelsäule in Explosionsdarstellung abgebildet, bei der zwischen zwei Wirbelkörpern **10** ein zweiteiliger, hohlzylindrischer Wirbelkörper-Platzhalter **12** angeordnet ist. Dieser Wirbelkörper-Platzhalter **12** umfasst einen kleineren, inneren Zylinder **14** und einen größeren, äußeren Zylinder **16**, wobei letzterer den inneren Zylinder **14** passgenau teleskopartig aufnimmt. Durch zwei Fixierschrauben **18** können die beiden Zylinder **14, 16** in der vom operierenden Arzt gewünschten Position zueinander fixiert werden, um eine optimale Stellung der Wirbelsäule zu erreichen. Weitere Einzelheiten betreffend diesen Wirbelkörper-Platzhalter **12** können dem DE 29 61 6778 bzw. der EP 832 622 entnommen werden, auf die an dieser Stelle voll inhaltlich Bezug genommen wird.

Zur Substitution der schadhaften, entfernten Bandscheibe und/oder zur Substitution von schadhaften Teilen des Wirbelkörpers wird vor der Operation eine ausreichende Menge des erfindungsgemäßen Knochenersatzstoffes erzeugt.

Dies geschieht beispielsweise durch Entnahme einer möglichst geringen Menge gesunden Knochenmaterials vom Patienten an einer gesundheitlich unbedenklichen Stelle. Diese derart erhaltenen Osteozyten werden dann

durch Vermischen mit Korallenkalk (Hydroxylapatit) und Zugabe von knochenmorphogenen Proteinen (Growing-Factor) zu einem beschleunigten Wachstum angeregt. Hierdurch wird das Aussprossen der Osteozyten beschleunigt, so dass innerhalb kürzester Zeit ein Vielfaches der Knochenmenge als Knochenersatzstoff zur Verfügung steht. Es hat sich als vorteilhaft erwiesen, den gesamten Wachstumsprozess des Knochenersatzstoffes bereits im Hohlraum des Wirbelkörper-Platzhalters durchzuführen, da hierdurch bereits eine teilweise Verwachsung mit dem aus körperverträglichem Metall hergestellten Wirbelkörper-Platzhalter erreicht wird. Das so vorbereitete Implantat kann dann in einem operativen Eingriff in an sich bekannter Weise in die menschliche Wirbelsäule eingesetzt werden.

Um eine weitere Schwächung des Patienten durch die Entnahme von Knochenmaterial zu verhindern, kann der Knochenersatzstoff auch durch genmanipulierte Osteozyten eines anderen Menschen oder eines Tieres, insbesondere eines Schafes oder eines Schweines, erhalten werden. Hierbei werden die von einem fremden Körper erhaltenen Osteozyten derart gentechnisch manipuliert, dass der entstehende Knochenersatzstoff die gleiche Blutgruppe, insbesondere Blutuntergruppe, die gleiche Gewebestruktur und die gleiche Knochenstruktur aufweist wie der Patient. Auch bei dieser Variante ist es vorteilhaft, den Knochenersatzstoff bereits im Hohlraum des Wirbelkörper-Platzhalters heranzuziehen, um eine möglichst intensive Verwachsung zu erreichen.

In einer anderen Ausführungsform wird das Knochenmaterial des Patienten oder der transgene, auf die Bedürfnisse des Patienten zugeschnittenen Knochenersatzstoff in den Hohlraum des Wirbelkörper-Platzhalters eingeführt, bevor dieser in die Wirbelsäule implantiert wird. Gemäß dieser Ausführungsform wird erst zum jetzigen Zeitpunkt, d. h. nachdem der mit Knochenmaterial bzw. Knochenersatzstoff gefüllte Wirbelkörper-Platzhalter in die Wirbelsäule implantiert wurde, die gewünschte Menge des Growing-Factors mittels einer Injektionsspritze in den durch das Knochenmaterial bzw. den Knochenersatzstoff gefüllten Hohlraum des Wirbelkörper-Platzhalters injiziert. Auch hierdurch wird das Wachstum des Knochenmaterials bzw. des Knochenersatzstoffes beschleunigt, so dass ein gründliches und schnelles Verwachsen des Implantates mit der Wirbelsäule gewährleistet ist.

Es hat sich als vorteilhaft erwiesen, neben dem Knochenmaterial bzw. dem Knochenersatzstoff auch eine Nährlösung, beispielsweise Korallenkalk (Hydroxylapatit) in den Hohlraum des Wirbelkörper-Platzhalters mit einzubringen, bevor das so vorbereitete Implantat mit dem Growing-Factor getränkt wird.

Fig. 2 zeigt ein handelsübliches System zur Korrektur und/oder Fixierung einer menschlichen oder tierischen Wirbelsäule, wie es beispielsweise aus der DE 29 60 0879 U1 oder aus der EP 784 967 A2 bekannt ist. Hierbei werden die Wirbelsäulenimplantate **22** in den Wirbelkörper des Patienten eingesetzt, bevor die Distraktions- oder Kompressionsstange **24** in die dafür vorgesehen Schlitze **26** eingelegt und durch die Madenschrauben **28** fixiert wird.

Um ein besseres und schnelleres verwachsen der Wirbelsäulenimplantate **22** mit den Wirbelkörpern **10** zu erreichen, können die Wirbelsäulenimplantate **22** ebenfalls mit dem erfindungsgemäßen Knochenersatzstoff gefüllt werden. Das oben zum Wirbelkörper-Platzhalter gesagte gilt für das Wirbelsäulenimplantat **22** analog.

Bezugszeichenliste

10 Wirbelkörper
12 Wirbelkörper-Platzhalter
14 innerer Zylinder
16 äußerer Zylinder
18 Fixierschrauben
20 Injektionsspritze
22 Wirbelsäulenimplantat
24 Stange
26 Schlitz
28 Madenschraube

Patentansprüche

1. Knochenersatzstoff zur Implantation im menschlichen oder tierischen Körper gebildet aus Osteozyten erhältlich durch Zugabe eines Growing-Factors.
2. Knochenersatzstoff nach Anspruch 1, weiterhin erhältlich durch Beigabe einer Nährlösung, insbesondere Hydroxylapatit (Korallenkalk).
3. Knochenersatzstoff nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, dass der Growing-Factor Proteine, insbesondere knochenmorphogene Proteine, zur Beschleunigung der Zellteilung aufweist.
4. Knochenersatzstoff nach einem der vorangehenden Ansprüche, weiterhin erhältlich durch Verwendung von körperfremden Osteozyten.
5. Knochenersatzstoff nach Anspruch 4, dadurch gekennzeichnet, dass die Osteozyten transgen behandelt sind.
6. Knochenersatzstoff nach einem der Ansprüche 4 oder 5, dadurch gekennzeichnet, dass die Osteozyten vom Schwein oder Schaf stammen.
7. Wirbelkörper-Platzhalter mit einem Öffnungen aufweisenden Hohlkörper aus körperverträglichem Metall oder Kunststoff dadurch gekennzeichnet, dass im Wirbelkörper-Platzhalter ein Knochenersatzstoff gemäß einem der Ansprüche 1 bis 6 vorgesehen ist.

Hierzu 2 Seite(n) Zeichnungen

- Leerseite -

Nummer: DE 199 44 681 A1
Int. Cl.[7]: A 61 L 27/54
Offenlegungstag: 1. März 2001

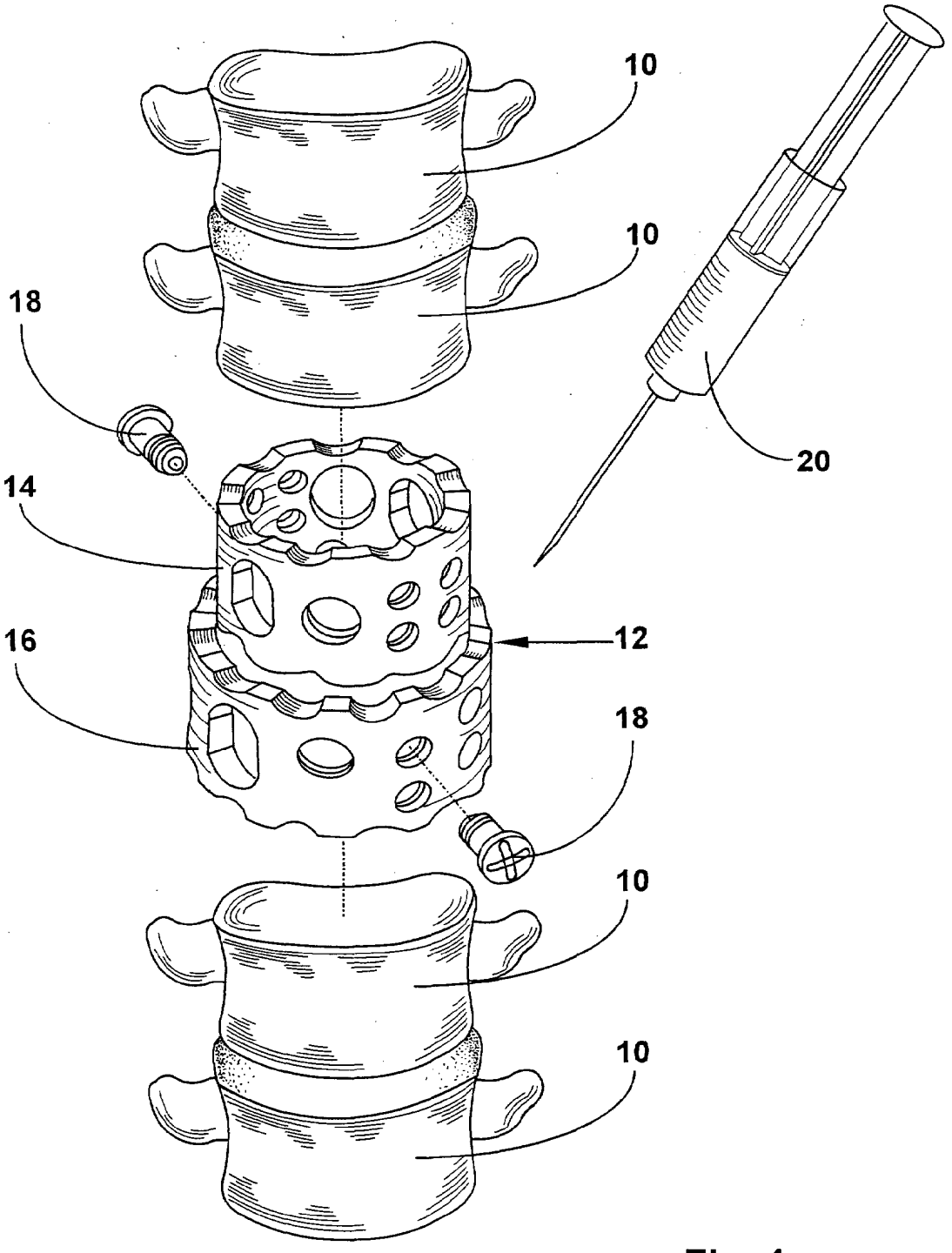


Fig. 1

Nummer: DE 199 44 681 A1
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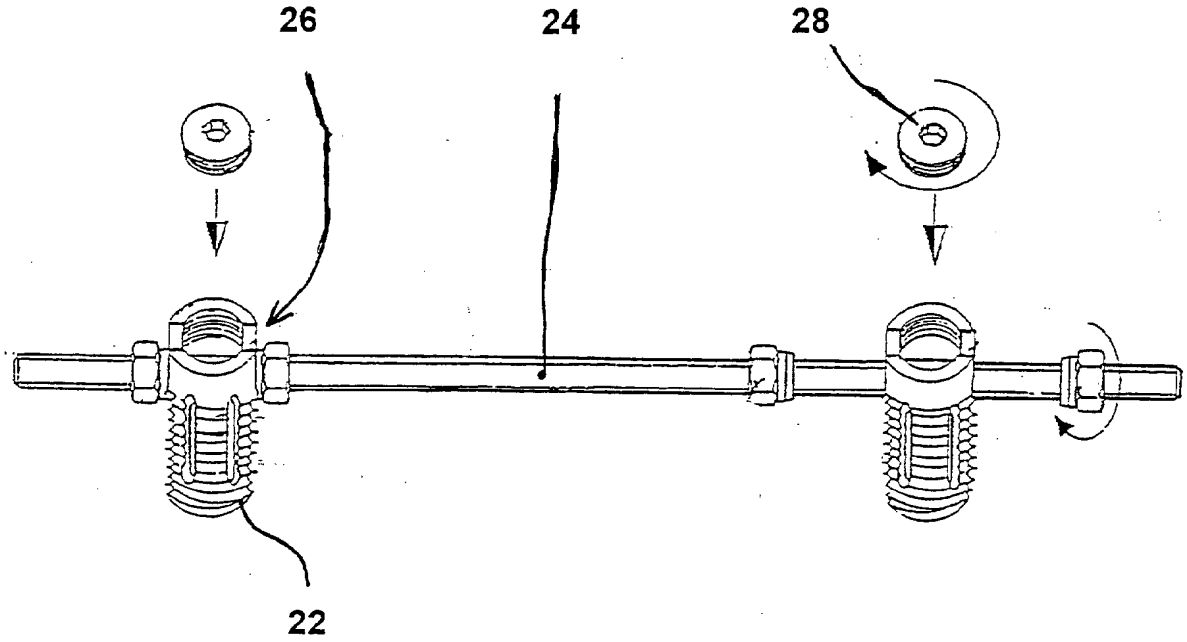


Fig. 2

Electronic Acknowledgement Receipt

EFS ID:	10697640
Application Number:	12705972
International Application Number:	
Confirmation Number:	9747
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
First Named Inventor/Applicant Name:	Jeffrey Paris Wensel
Customer Number:	48947
Filer:	Bum C. Pak/Jason Shen
Filer Authorized By:	Bum C. Pak
Attorney Docket Number:	SPNE.P0006
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Time Stamp:	17:54:53
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	SPNEP6_1449.pdf	32114 48e1dc64dd1c905c3c4fd54e1cb00ef6ed0b69e2	no	3

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2	Transmittal Letter	SPNEP6_Letter.pdf	460292 5bddf6e81b1765056632b9a61c61a0e165c2d509	no	2
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4	Non Patent Literature	SPNEP0001_ProsHist.pdf	270424 5454be8bd2f8f6ec326562652ae3360a0e93465e	no	10
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10	Non Patent Literature	SPNEP0001_CommonlyOwned Application.pdf	6136306 de8fdcc66cd5719cfcb243cb1b8f6d987e55f848	no	59

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13	Non Patent Literature	SPNEP0005_CommonlyOwned Application.pdf	2555259 b3378b723f883aa4d12ef351f031e0cbdd745860	no	148
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16	Non Patent Literature	SPNEP0007_CommonlyOwned Application.pdf	2528483 fb50d2de2fd5ec0bc4f6dc9bad780291954ac009	no	147
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			Total Files Size (in bytes):	30181065	

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	1	of	6	Attorney Docket Number	SPNE.P0006

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Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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Examiner Signature		Date Considered	

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				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	2	of	6	Attorney Docket Number	SPNE.P0006

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Examiner Signature		Date Considered	

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
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Sheet	3	of	6	Attorney Docket Number	SPNE.P0006

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Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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	66.	6,923,810		08-02-2005	Michelson, Gary K.	
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	68.	6,962,606		11-08-2005	Michelson, Gary K.	
	69.	6,972,019		12-06-2005	Michelson, Gary K.	
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	71.	6,981,975		01-03-2006	Michelson, Gary K.	
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	73.	7,008,453		03-07-2006	Michelson, Gary K.	
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	82.	7,094,239		08-22-2006	Michelson, Gary K.	
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	87.	7,128,760		10-31-2006	Michelson, Gary K.	
	88.	7,156,875		01-02-2007	Michelson, Gary K.	
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	95.	7,288,093		10-30-2007	Michelson, Gary K.	
	96.	7,291,149		11-06-2007	Michelson, Gary K.	

Examiner Signature		Date Considered	

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	4	of	6	Attorney Docket Number	SPNE.P0006

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	97.	7,326,214		02-05-2008	Michelson, Gary K.	
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	99.	7,387,643		06-17-2008	Michelson, Gary K.	
	100.	7,396,365		07-08-2008	Michelson, Gary K.	
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	103.	7,431,722		10-07-2008	Michelson, Gary K.	
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	126.	7,794,502		09-14-2010	Michelson, Gary K.	
	127.	7,828,800		11-09-2010	Michelson, Gary K.	
	128.	7,887,565		02-15-2011	Michelson, Gary K.	

Examiner Signature		Date Considered	

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	5	of	6	Attorney Docket Number	SPNE.P0006

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	129.	7,892,286		02-22-2011	Michelson, Gary K.	
	130.	7,914,530		03-29-2011	Michelson, Gary K.	
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	132.	7,922,729		04-12-2011	Michelson, Gary K.	
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	139.	7,976,566		07-12-2011	Michelson, Gary K.	

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Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	140.	2008/0281428		11-13-2008	Meyers, John E., et al.	

COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Mailing Date of Last Action, Response, or Amendment MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	141.	Updated portions of prosecution history of 12/113,362		11-10-2011	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/113,362 (SPNE.P0001), listed as item #7 in the 1449 filed 08-09-2011, including action(s) dated 11-10-2011; and response(s)/amendment(s) filed 09-28-2011 (28 pages).
	142.	Updated portions of prosecution history of 12/361,525		10-04-2011	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/361,525 (SPNE.P0003), listed as item #8 in the 1449 filed 08-09-2011, including response(s)/amendment(s) filed 10-04-2011 (6 pages).

Examiner Signature		Date Considered	

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	6	of	6	Attorney Docket Number	SPNE.P0006

COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	U.S. Patent Document Kind Code (if known)	Mailing Date of Last Action, Response, or Amendment MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	143.	Updated portions of prosecution history of 12/383,950		10-28-2011	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/383,950 (SPNE.P0004), listed as item #9 in the 1449 filed 08-09-2011, including action(s) dated 10-28-2011; and response(s)/amendment(s) filed 09-21-2011 (12 pages).

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Document Office	Foreign Patent Document Number	Foreign Patent Document Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	144.	RU	2004218		12-15-1993	Doktro Implants Res Practical Centre, et al.	

NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
	145.	U.S. provisional application no. 60/916,414, filed on May 7, 2007.	

Examiner Signature		Date Considered	

CERTIFICATE OF TRANSMISSION VIA EFS-WEB

I hereby certify that this correspondence is being transmitted via EFS-Web to the United States Patent and Trademark Office on November 28, 2011.

/Mani Adeli/
Mani Adeli

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Jeffrey Paris Wensel
Application No.:	12/705,972
Filed:	February 15, 2010
Title:	FUSION MEMBER FOR INSERTION BETWEEN VERTEBRAL BODIES

Art Unit: 3738

Examiner: Seema Swaminathan

Conf. No.: 9747

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 C.F.R. § 1.97 and § 1.98, Applicant submits with this Information Disclosure Statement the attached modified Form PTO-1449, and any necessary copies of documents listed in the modified 1449 form for consideration by the Examiner. The Examiner is requested to make these documents of record. Applicant would appreciate the Examiner initialing and returning the modified Form PTO-1449, indicating that the information has been considered and made of record herein.

This Information Disclosure Statement under 37 C.F.R. § 1.97 is not to be construed as a representation that: (i) a complete search has been made; (ii) additional information material to the examination of this application does not exist; (iii) the information, protocols, results and the

like reported by third parties are accurate or enabling; or (iv) the above information constitutes prior art to the subject invention.

This Information Disclosure Statement is submitted before the mailing of a first Office Action on the merits. Accordingly, Applicant believes a fee is not required.

Applicant has submitted all known required fees and petitions. Accordingly, Applicant believes that no additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required for the submission of this Information Disclosure Statement. However, in the unlikely event that the Commissioner determines that additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required, Applicant hereby makes such petitions as are required, requests such extensions of time and other forms of relief as are required, and authorizes the Commissioner to charge the cost of such petitions for extensions of time, other petitions, and/or other forms of relief to **Deposit Account No. 50-3804** referencing **SPNE.P0006**.

Respectfully Submitted,

Date: November 28, 2011

/Mani Adeli/
Mani Adeli
Reg. No. 39,585

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Fax. (310) 442-9330

Electronic Acknowledgement Receipt

EFS ID:	11455804
Application Number:	12705972
International Application Number:	
Confirmation Number:	9747
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
First Named Inventor/Applicant Name:	Jeffrey Paris Wensel
Customer Number:	48947
Filer:	Mani Adeli/Amir Bahrami
Filer Authorized By:	Mani Adeli
Attorney Docket Number:	SPNE.P0006
Receipt Date:	28-NOV-2011
Filing Date:	15-FEB-2010
Time Stamp:	19:03:01
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	SPNEP1_Pros_Hist.pdf	1077093 256c874a3f0a211972fd2cbff4ab0a5879b2216e	no	28

Warnings:	
Information:	

2	Non Patent Literature	SPNEP3_Pros_Hist.pdf	218088 38dd28e6123d2f9a4045ef18ca52b5b89a0bf74f	no	6
Warnings:					
Information:					
3	Non Patent Literature	SPNEP4_Pros_Hist.pdf	436387 342c27f9668b67c1ca8a3a4d81d74fc1a9453a78	no	12
Warnings:					
Information:					
4	Non Patent Literature	Provisional_Application_60916414.pdf	1385197 3e7141a0ee963797c955733065c41434f8fdc92f	no	28
Warnings:					
Information:					
5	Foreign Reference	RU2004218C1.pdf	379416 0813993ad762bcd352b70d6045bd7255ac2b5ff7	no	8
Warnings:					
Information:					
6	Information Disclosure Statement (IDS) Form (SB08)	SPNEP6_1449.pdf	64585 907aab373b059da0e427cc895bafbfbf51bf507c	no	6
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
7	Transmittal Letter	SPNEP6_Letter.pdf	22724 5fe567f61ba967f6eaa68fff684f14f000e36fd0	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	3583490		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

DERWENT-ACC-NO: 1994-115910
DERWENT-WEEK: 199414
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TITLE: Spondylodesis device has two opposite side facets of rod set at slant to plane of base and towards each other, and have longitudinal slits

INVENTOR: RATKIN I K ; TYULKIN O N

PATENT-ASSIGNEE:

ASSIGNEE	CODE
DOKTRO IMPLANTS RES PRACTICAL CENTRE	DOKTR
NOVOK DOCTORS TRAINING INST	NKDOR

PRIORITY-DATA: 1991SU-4911798 (February 15, 1991)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
RU 2004218 C1	December 15, 1993	RU

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
RU 2004218C1	February 15, 1991	1991SU-4911798	

INT-CL-CURRENT:

TYPE	IPC	DATE
CIPS	A61 F 2/44	20060101

ABSTRACTED-PUB-NO: RU 2004218 C1
BASIC-ABSTRACT:

The two opposite side facets (2) of the rod (1) are set at a slant to the plane of the base and towards each other, and each of them has longitudinal slits (3). Each facet of the rod (1) has transverse slits (4). Inside the rod (1) along its longitudinal axis there is a double canal (6) with ends emerging on the outer surface of the side facets (20.

USE/ADVANTAGE - For spondylodesis, reducing the time taken to rehabilitate patients with fracture of the atlas. Bul.45-46/15.12.93.

ABSTRACTED-PUB-NO: RU 2004218 C1
EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.1/4

TITLE-TERMS: SPONDYLODESIS DEVICE TWO OPPOSED SIDE FACET ROD SET SLANT PLANE BASE LONGITUDE SLIT

DERWENT-CLASS: P32

SECONDARY-ACC-NO:
Non-CPI Secondary Accession Numbers: 1994-090770

(19) RU (11) 2004218 C1

(51) 5 A 61 F 2/44

Комитет Российской Федерации
по патентам и товарным знакам

ВСЕСОЮЗНАЯ ПАТЕНТНО-ТЕХНИЧЕСКАЯ БИБЛИОТЕКА

ОПИСАНИЕ ИЗОБРЕТЕНИЯ

К ПАТЕНТУ

(21) 4911798/14
(22) 15.02.91
(46) 15.12.93 Бюл. № 45-46
(71) Новокузнецкий государственный институт усовершенствования врачей
(72) Раткин И.К.; Тюлькин О.Н.
(73) Научно-практический центр имплантатов с памятью формы "Доктор"

(54) УСТРОЙСТВО ДЛЯ СПОНДИЛОДЕЗА

(57) Применение: в нейротравматологии, нейроортопедии и травматологии. Цель – повышение надежности фиксации отломков атланта между собой и атланта с аксисом, сокращение сроков реабилитации больных с растрескивающимися переломами атланта при минимальном ограничении движений головы и шеи. Сущность изобретения: устройство содержит стержень, выполненный в виде прямой призмы. У стержня имеются две боковые противоположные грани, наклоненные к плоскости основания навстречу друг другу и на каждой из них выполнены продольные прорези. При этом также на каждой грани стержня выполнены поперечные прорези, а внутри стержня вдоль его продольной оси выполнен Л-образный канал, разведенные концы которого выведены на наружную поверхность наклоненных боковых граней, и внутри которого расположена вилка из литого никелида титана с эффектом памяти формы, а стержень выполнен из пористого никелида титана. 4 ил.

(19) RU (11) 2004218 C1

Изобретение относится к травматологии.

При растрескивающихся переломах атланта – переломах Джеферсона, наряду с переломами передней и задней дуг атлантов, повреждается его поперечная связка, что приводит к расхождению отломков боковых масс атланта в стороны и часто к переднему вывиху атланта. Общепринятым методом лечения переломов Джеферсона является длительная иммобилизация позвоночника торакокраниальной гипсовой повязкой, что приводит в лучшем случае к срастанию атланта с аксисом в порочном положении, так как закрытым способом репанировать отломки атланта невозможно. Подобная тактика приводит к длительной нетрудоспособности больных и ограничивает их трудоспособность на всю оставшуюся жизнь. Часто больные нуждаются в последующем в сложных реконструктивных декомпримирующе-стабилизирующих операциях.

Поэтому правильное сопоставление отломков атланта и надежная их фиксация между собой оперативным способом является залогом успешного лечения больных с растрескивающимися переломами атланта, что позволяет вернуть им трудоспособность в кратчайшие сроки.

Известно устройство для стабилизации растрескивающихся переломов атланта из пластины никелида титана с эффектом памяти формы, содержащее дугообразно изогнутые ножки, верхнюю кромку с двумя компрессионными петлями, изогнутыми к верхней кромке под углом 90°, нижнюю кромку с компрессионной петлей, соединенную в своей вершине с отогнутым кзади незамкнутым кольцевым фиксирующим элементом с помощью изогнутой пластины, причем кольцевой элемент расположен в плоскости, перпендикулярной компрессионной петле.

Данное устройство имеет ряд недостатков:

в связи со строго заданными параметрами фиксирующих элементов устройства последнее необходимо подбирать во время операции в каждом конкретном случае соответственно размерам атланта и зубовидного отростка аксиса, что значительно удлиняет время операции;

для установки устройства необходимо высверливать отверстия в боковых массах атланта и резецировать переднюю дугу атланта, что ослабляет опорные свойства верхних шейных позвонков и может приводить к остеомиелиту атланта и аксиса;

изогнутые ножки устройства в результате давления на костную ткань, вызывают атрофию подлежащей кости до наступления костного блока в области перелома, что ведет к несостоятельности спондилодеза;

при дефекте костной ткани передней дуги атланта в области перелома применение устройства невозможно, так как оно не прорастает костной тканью;

при двойном или тройном переломах передней дуги атланта применение устройства также невозможно, так как оно не предназначено для фиксации дополнительных костных отломков передней дуги атланта;

применение устройства не приводит к атланто-аксиальному спондилодезу в том случае, если костный блок в области перелома не образовался по тем или иным причинам.

Известно также устройство для переднего спондилодеза, состоящее из имплантанта в виде стержня цилиндрической формы из пористого никелида титана, на боковой поверхности которого выполнены пазы в радиальном направлении под углом 100–150°.

Данное устройство имеет следующие недостатки:

Из-за цилиндрической формы устройство невозможно фиксировать боковые массы атланта после их сопоставления между собой, т.е. боковые массы атланта после операции вновь разойдутся в разные стороны;

проволочные скобы для фиксации стержня применить на данном уровне невозможно, так как зона хирургического действия во время атланто-аксиального спондилодеза позволяет манипулировать только кпереди от верхних шейных позвонков и имплантанта;

цилиндрической формы имплантант при незначительных движениях головы без дополнительной фиксации имеет тенденцию к выпадению, что приводит к несостоятельности спондилодеза;

малая площадь соприкосновения концов цилиндра с костной тканью атланта и аксиса затрудняет и замедляет прорастание имплантанта костной тканью, что может приводит к формированию ложного сустава и несостоятельности спондилодеза;

применение устройства не обеспечивает первично надежного атланто-аксиального спондилодеза, что потребует длительной иммобилизации позвоночника торакокраниальной гипсовой повязкой.

Известно устройство для межсуставного атланто-аксиального спондилодеза у больных с растрескивающимися переломами атланта, состоящее из двух кортикальных костных трансплантантов, выполненных в виде прямой призмы с одной наклонной гранью, принятое за прототип.

Костные трансплантанты помещаются в пазы, сформированные по их форме в атланто-аксиальных суставах с обоих сторон после правильного сопоставления отломков между собой. Причем трансплантанты устанавливаются таким образом, чтобы наклонная грань была обращена к линии перелома передней дуги атланта, со скосом, направленным каудально.

Устройство имеет ряд существенных недостатков:

изготовление устройства сложной формы в виде прямой призмы из кости во время операции представляет определенные трудности и значительно удлиняет время операции;

отсутствие дополнительных фиксирующих элементов не позволяет прочно зафиксировать трансплантанты в полости атланто-аксиальных суставов;

в виду частого инфицирования костного трансплантанта, применение его при трансоральном доступе имеет большой риск развития остеомиелита верхних шейных позвонков, а нередко и менингита, энцефаломиелита, что резко ограничивает применение устройства;

во время перестройки костного трансплантанта последний размягчается, что часто приводит к его перелому, отторжению и несостоятельности спондилодеза;

применение костных трансплантатов не обеспечивает надежного спондилодеза и требует длительной жесткой иммобилизации позвоночника тракокраниальным гипсовым корсетом на срок до 8–10 мес. При незначительных качательных движениях в оперированных сегментах формируется ложный сустав, что требует повторной операции. Даже при надежной внешней иммобилизации нередко костный блок в области операции не образуется, что ведет к несостоятельности спондилодеза;

при переднем вывихе атланта, который часто наблюдается при переломах Джефферсона применить данное устройство невозможно из-за несоответствия суставных фасеток атланта и аксиса между собой;

длительная иммобилизация шейно-черепной области после операции нередко приводит к формированию костного блока – анкилоза в атланто-затылочных и суставах позвоночника, что резко ограничивает движения головы и шеи и инвалидизирует больных на продолжительное время.

Таким образом с помощью перечисленных известных устройств выполнить надежный атланто-аксиальный спондилодез наряду с фиксацией отломков атланта между собой у больных с растрескивающимися переломами атланта невозможно.

Целью изобретения является повышение надежности фиксации отломков атланта между собой и атланта с аксисом, сокращение сроков реабилитации больных с растрескивающимися переломами атланта при минимальном ограничении движения головы и шеи.

Указанная цель достигается тем, что у стержня две боковые противоположные грани наклонены к плоскости основания и навстречу друг другу и на каждой из них выполнены продольные прорези, при этом также на каждой грани стержня выполнены поперечные прорези, а внутри стержня вдоль его продольной оси выполнен Λ-образный канал, раздвоенные концы которого выведены на наружную поверхность наклоненных боковых граней и внутри которого расположена вилка из литого никелида титана с эффектом памяти формы, а стержень выполнен из пористого никелида титана.

По сравнению с прототипом заявляемое устройство обладает рядом существенных преимуществ:

выполнение устройства из пористого никелида титана облегчает его использование во время операции, сокращает время основного этапа операции;

благодаря свойствам никелида титана при использовании устройства при трансоральном доступе значительно уменьшается опасность его инфицирования и возможность развития инфекционных осложнений;

увеличение площади соприкосновения устройства с костной тканью позволяет ускорить прорастание имплантата костной тканью и исключить возможность формирования ложного сустава;

форма устройства в виде прямой призмы с двумя наклонными гранями исключает расхождение отломков атланта в стороны и смещение атланта кпереди;

наличие поперечных и продольных прорезей позволяет увеличить площадь соприкосновения устройства с костной тканью и более надежно зафиксировать имплантат в пазах атланто-аксиальных суставов;

Наличие дополнительного фиксирующего элемента Λ-образной скобки из никелида титана с эффектом памяти формы исключает разворот или выпадение имплантата, повышает надежность спондилодеза;

выполнение устройства из пористого литого никелида титана единым блоком облегчает его использование;

устройство обладает универсальностью – его можно использовать у больных с раз-

личными размерами атланта и аскиса, так как для надежной фиксации устройства достаточно сформировать соответствующей формы и размеров пазы в атланто-аксиальных суставах;

применение устройства обеспечивает первично-надежный атланто-аксиальный спондилодез, что исключает необходимость внешней иммобилизации позвоночника, существенно сокращает срок нетрудоспособности больных и незначительно ограничивает движения головы и шеи.

На фиг. 1 изображено устройство, общий вид; на фиг. 2 – то же, поперечный разрез; на фиг. 3 – то же, продольный разрез; на фиг. 4 – схема применение устройства.

Устройство содержит стержень из пористого никелида титана, выполненный в виде прямой призмы 1 с двумя боковыми противоположными гранями 2, наклоненными к плоскости основания и навстречу друг другу. На наклонных гранях выполнены продольные прорези 3, а на каждой грани стержня – кольцевые поперечные прорези 4. Внутри стержня со стороны вершины призмы 5 выполнен Λ-образный канал 6, раздвоенные концы которого 7 выведены на наружную поверхность наклонных боковых прорезей 2. Внутри канала 6 расположена вилка из литого никелида титана 8.

Стержень устройства выполнен из пористого никелида титана со сквозными порами диаметром 150–250 мкм с коэффициентом пористости 50–60%. Размеры стержня 12x10x10 мм. Вилка 8 устройства выполнена из сплава никелида титана ТЭН-10.

Используется устройство следующим образом. Под общим обезболиванием в положении больного на спине подчелюстном или трансоральным доступом осуществляется доступ к передней поверхности верхних шейных позвонков. В атланто-аксиальных суставах электрической фрезой и костной ложкой формируются пазы трапециевидной формы со скосом, направленным к средней линии. Устройство орошается хлорэтилом в течение 2–3 мин до температуры -30°С, затем из Λ-образного канала 6 подтягивается вилка 8 и устройство плотно вбивается в пазы в атланто-аксиальном суставе 9 с одной стороны и с другой. Вилка 8 при нагревании от смежных тканей стремится принять первоначально заданную форму и прочно "вонзается" одним концом в боковую массу атланта 10, другим – в суставной отросток аксиса 11, надежно фиксируя позвонки между собой и исключая выпадение или разворот устройства в полости атланто-аксиального сустава. Рана ушивается наглухо.

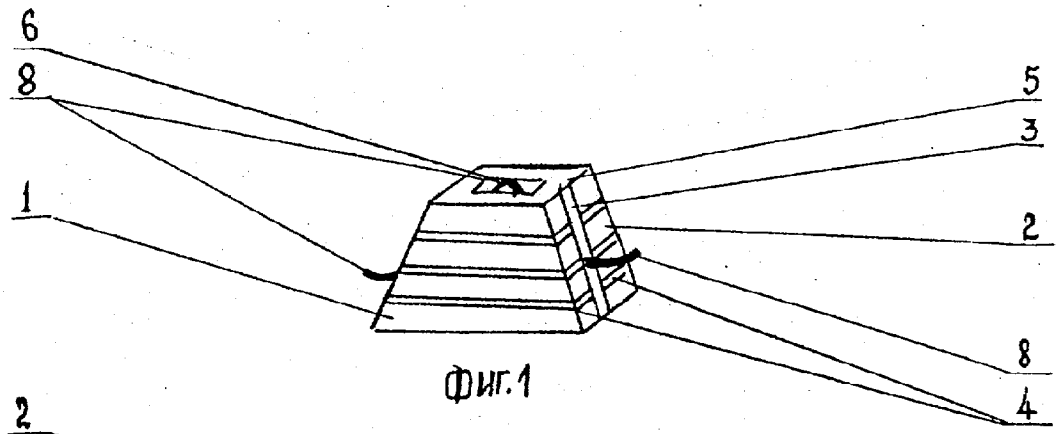
Таким образом применение предлагаемого устройства позволяет выполнить первично-надежный атланто-аксиальный спондилодез в физиологически правильном положении в данном сегменте, фиксировать отломки атланта между собой, исключить необходимость внешней иммобилизации позвоночника, значительно сократить срок временной нетрудоспособности больных с переломами Джиферсона, не ограничивает трудоспособность их в последующем, сохранить достаточный объем движения головы и шеи.

Изготовление устройства большего размера даст возможность использовать его при травматическом повреждения тел шейных, грудных и поясничных позвонков.

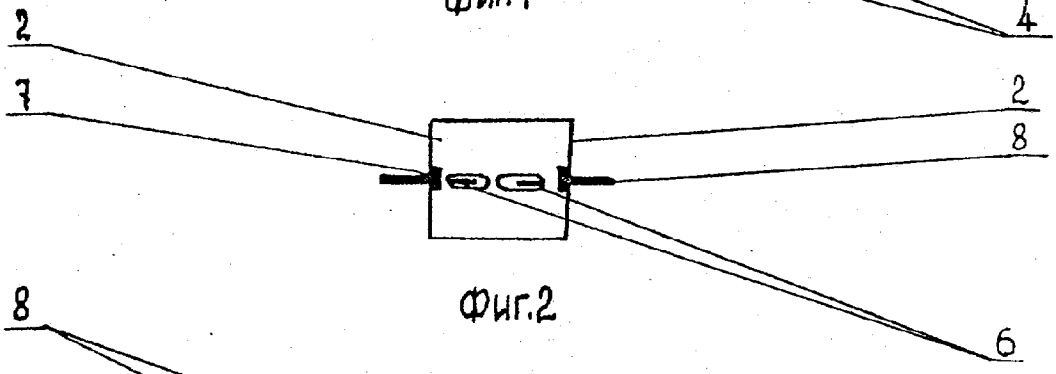
(56) Авторское свидетельство СССР № 657812, кл. А 61 F 2/44, 1979.

Формула изобретения

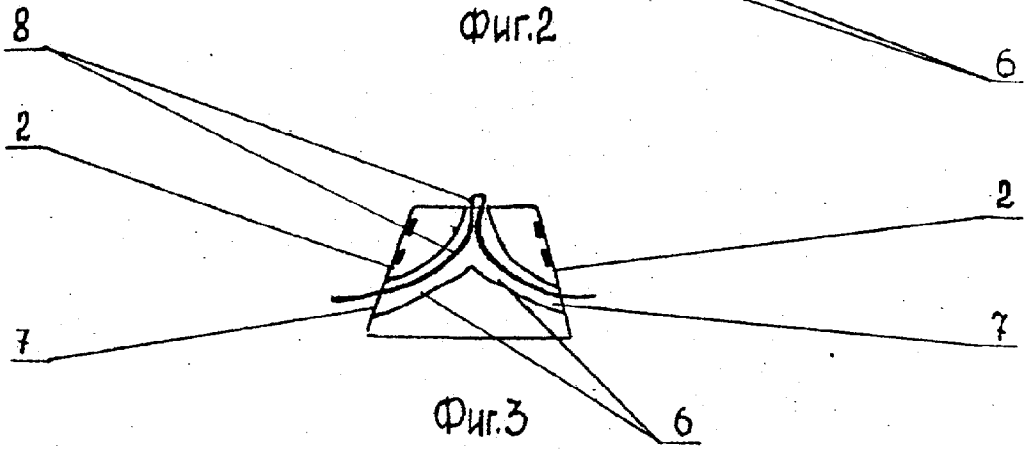
УСТРОЙСТВО ДЛЯ СПОНДИЛОДЕЗА, содержащее стержень в виде прямой призмы, отличающееся тем, что, с целью повышения надежности фиксации отломков атланта между собой и атланта с аксисом, сокращения сроков реабилитации больных с растрескивающимися переломами атланта при минимальном ограничении движений головы и шеи, две боковые противоположные грани стержня наклонены к плоскости основания и навстречу одна другой и на каждой из них выполнены продольные прорези, при этом на каждой грани стержня выполнены поперечные прорези, причем внутри стержня вдоль его продольной оси выполнен раздвоенный канал, концы которого выведены на наружную поверхность боковых граней, и внутри которого расположена вилка из литого никелида титана с эффектом памяти формы, а стержень выполнен из пористого никелида титана.



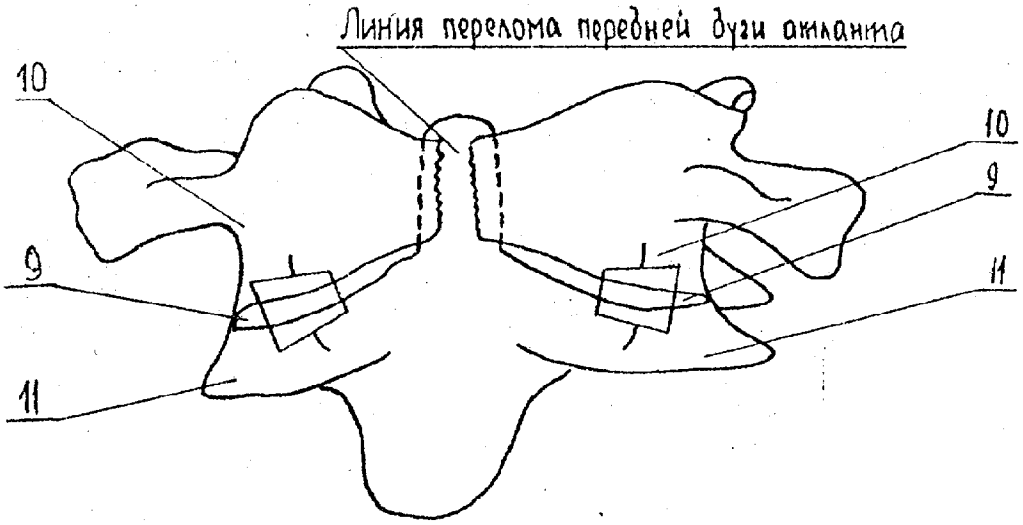
Фиг.1



Фиг.2



Фиг.3



Фиг. 4

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/705,972	02/15/2010	Jeffrey Paris Wensel	SPNE.P0006	9747

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EXAMINER	
SWAMINATHAN, SEEMA	
ART UNIT	PAPER NUMBER
3738	
MAIL DATE	DELIVERY MODE
04/12/2012	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	12/705,972	WENSEL, JEFFREY PARIS	
	Examiner	Art Unit	
	SEEMA SWAMINATHAN	3738	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *1* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02/15/2010*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-53* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☐ Claim(s) _____ is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☒ Claim(s) *1-53* are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-16, 33-47, drawn to a fusion device, classified in class 623, subclass 17.11.

II. Claims 17-32, drawn to a needle, classified in class 604, subclass 121.

III. Claims 48-53, drawn to a medical procedure, classified in class 623, subclass 17.11.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the subcombination requires the needle to have a shaft comprising of a hollow interior and a tip comprising of at least one perforation that is an outlet for said hollow interior and a tip for penetrating into a vertebral body. The subcombination has separate utility such as in U.S. publication 2009/0216202, Kern teaches a needle apparatus having a shaft comprising of a hollow interior and a tip for penetration without the need for a fusion device.

The examiner has required restriction between combination and subcombination invention. Where applicant elects a subcombination, and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the

allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Inventions I and III are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case the product as claimed can be used in a materially different process of using that product, such that the product can be used as a model to illustrate the functions and role of the product.

Inventions II and III are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case the product as claimed can be used in a materially different process of using that product, such that the product can be used as a model to illustrate the functions and role of the product.

This application contains claims directed to the following patentably distinct species:

Anchoring members

a. Figure 34

b. Figure 35-36

c. Figure 43

d. Figure 48A

e. Figure 48B

f. Figures 48C-48D

The species are independent or distinct because the species listed above are different embodiments of anchoring members having arc shape, angled shape, semi-circular shape, straight, members having retention ridges, having beveled tips. In addition, these species are not obvious variants of each other based on the current record.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species, or a single grouping of patentably indistinct species, for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claim appears to be generic.

There is a search and/or examination burden for the patentably distinct species as set forth above because at least the following reason(s) apply:

The species listed above requires different text search.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or a grouping of patentably indistinct species to be examined even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the**

claims encompassing the elected species or grouping of patentably indistinct species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

The election may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the election of species requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected species or grouping of patentably indistinct species.

Should applicant traverse on the ground that the species, or groupings of patentably indistinct species from which election is required, are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing them to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the species unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other species.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SEEMA SWAMINATHAN whose telephone number is (571)270-1452. The examiner can normally be reached on Monday-Friday 8:30 am -5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, please contact the examiner's supervisor, SPE, Tom Sweet at (571) 272-4761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SEEMA SWAMINATHAN/
Examiner, Art Unit 3738
/THOMAS J SWEET/
Supervisory Patent Examiner, Art Unit 3738

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	1	of	2	Attorney Docket Number	SPNE.P0006

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	5,653,761		08-05-1997	Pisharodi, Madhavan	
	2.	6,159,215		12-12-2000	Urbahns, David J., et al.	
	3.	7,618,423		11-17-2009	Valentine, Keith, et al.	

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	4.	2002/0099378		07-25-2002	Michelson, Gary Karlin	
	5.	2003/0191371		10-09-2003	Smith, Maurice M., et al.	
	6.	2007/0225813		09-27-2007	Haines, Timothy	
	7.	2009/0149959		06-11-2009	Conner, Scott E., et al.	

COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Mailing Date of Last Action, Response, or Amendment MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	8.	Updated portions of prosecution history of 12/113,362		04-19-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/113,362 (SPNE.P0001), listed as item #7 in the 1449 filed 08-09-2011, including action(s) dated 01-19-2012 and 01-06-2012; and response(s)/amendment(s) filed 04-19-2012 and 01-10-2012 (21 pages).
	9.	Updated portions of prosecution history of 12/361,525		02-14-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/361,525 (SPNE.P0003), listed as item #8 in the 1449 filed 08-09-2011, including action(s) dated 02-14-2012 (15 pages).

Examiner Signature		Date Considered	

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	2	of	2	Attorney Docket Number	SPNE.P0006

COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	U.S. Patent Document Kind Code (if known)	Mailing Date of Last Action, Response, or Amendment MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	10.	Updated portions of prosecution history of 12/705,970		03-22-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,970 (SPNE.P0005), listed as item #10 in the 1449 filed 08-09-2011, including action(s) dated 01-23-2012; and response(s)/amendment(s) filed 03-22-2012 (18 pages).
	11.	Updated portions of prosecution history of 12/705,978		03-22-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,978 (SPNE.P0008), listed as item #12 in the 1449 filed 08-09-2011, including action(s) dated 01-23-2012; and response(s)/amendment(s) filed 03-22-2012 (14 pages).

NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
	12.	U.S. Provisional Application No. 60/989,100, filed on November 19, 2007.	

Examiner Signature		Date Considered	

Electronic Acknowledgement Receipt

EFS ID:	12575561
Application Number:	12705972
International Application Number:	
Confirmation Number:	9747
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
First Named Inventor/Applicant Name:	Jeffrey Paris Wensel
Customer Number:	48947
Filer:	Mani Adeli/Amir Bahrami
Filer Authorized By:	Mani Adeli
Attorney Docket Number:	SPNE.P0006
Receipt Date:	19-APR-2012
Filing Date:	15-FEB-2010
Time Stamp:	19:49:27
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	SPNEP6_Letter.pdf	22704 a1a07784e03b92f8218ef63de7ed22fbe2eda054	no	2

Warnings:	
Information:	

2	Non Patent Literature	NPL_USPROVISIONAL60989100.pdf	6952488 5f2e34632e37ef9f3b00dbe5ced4389a55056820	no	108
Warnings:					
Information:					
3	Non Patent Literature	SPNEP3_Pros_Hist.pdf	518199 736bb2b147e890cfc6c199ef6142d5b16460435f	no	15
Warnings:					
Information:					
4	Non Patent Literature	SPNEP5_Pros_Hist.pdf	598143 f9e53ba7b22c9d95008a1d9314b0a089fa0563e4	no	18
Warnings:					
Information:					
5	Non Patent Literature	SPNEP8_Pros_Hist.pdf	471818 9a20f64c9bdaecc2c880d18cf87fd84642e0c7d4	no	14
Warnings:					
Information:					
6	Non Patent Literature	SPNEP1_Pros_Hist.pdf	728108 365290c00fdf0c0f8fc59e7f5f8fe97ec3476b02	no	21
Warnings:					
Information:					
7	Information Disclosure Statement (IDS) Form (SB08)	SPNEP6_1449.pdf	28077 fb538a62c18b4676d2d23e8838904855c438112c	no	2
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
			Total Files Size (in bytes):	9319537	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

CERTIFICATE OF TRANSMISSION VIA EFS-WEB
I hereby certify that this correspondence is being transmitted via EFS-Web to the United States Patent and Trademark Office on April 19, 2012.
/Mani Adeli/
Mani Adeli

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Jeffrey Paris Wensel
Application No.:	12/705,972
Filed:	February 15, 2010
Title:	FUSION MEMBER FOR INSERTION BETWEEN VERTEBRAL BODIES

Art Unit: 3738

Examiner: Seema Swaminathan

Conf. No.: 9747

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 C.F.R. § 1.97 and § 1.98, Applicant submits with this Information Disclosure Statement the attached modified Form PTO-1449, and any necessary copies of documents listed in the modified 1449 form for consideration by the Examiner. The Examiner is requested to make these documents of record. Applicant would appreciate the Examiner initialing and returning the modified Form PTO-1449, indicating that the information has been considered and made of record herein.

This Information Disclosure Statement under 37 C.F.R. § 1.97 is not to be construed as a representation that: (i) a complete search has been made; (ii) additional information material to the examination of this application does not exist; (iii) the information, protocols, results and the

like reported by third parties are accurate or enabling; or (iv) the above information constitutes prior art to the subject invention.

This Information Disclosure Statement is submitted before the mailing of a first Office Action on the merits. Accordingly, Applicant believes a fee is not required.

Applicant has submitted all known required fees and petitions. Accordingly, Applicant believes that no additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required for the submission of this Information Disclosure Statement. However, in the unlikely event that the Commissioner determines that additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required, Applicant hereby makes such petitions as are required, requests such extensions of time and other forms of relief as are required, and authorizes the Commissioner to charge the cost of such petitions for extensions of time, other petitions, and/or other forms of relief to **Deposit Account No. 50-3804** referencing **SPNE.P0006**.

Respectfully Submitted,

Date: April 19, 2012

/Mani Adeli/
Mani Adeli
Reg. No. 39,585

Adeli & Tollen LLP
11859 Wilshire Blvd., Suite 500
Los Angeles, CA 90025
Tel. (310) 442-9300 ext. 301
Fax. (310) 442-9330

CERTIFICATE OF TRANSMISSION VIA EFS-WEB

I hereby certify that this correspondence is being transmitted via EFS-Web to the United States Patent and Trademark Office on May 14, 2012

/Michael Park/
Michael Park

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

Jeffrey Paris Wensel

Serial No.: 12/705,972

Filing Date: February 15, 2010

For: FUSION MEMBER FOR INSERTION BETWEEN VERTEBRAL BODIES

Group Art Unit: 3738

Examiner: Seema Swaminathan

Conf. No.: 9747

RESPONSE TO RESTRICTION REQUIREMENT

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Office Action of April 12, 2012, Applicant submits this Response within one month of the date of the Office Action (May 12, 2012 being a Saturday).

Remarks begin on page 2 of this paper.

REMARKS

The Office Action issued a restriction requirement. Specifically, the Office Action restricted the application based on the following grouping (all descriptions are those found in the Office Action):

Group I:	Claims 1-16, 33-47, drawn to Fusion device, classified in class 623, subclass 17.11
Group II:	Claims 17-32, drawn to a needle, classified in class 604, subclass 121
Group III:	Claims 48-53, drawn to a medical procedure, classified in class 623, subclass 17.11

The Office Action also issued another restriction requirement based on the following grouping:

Group (a)	Figure 34
Group (b)	Figure 35-36
Group (c)	Figure 43
Group (d)	Figure 48A
Group (e)	Figure 48B
Group (f)	Figures 48C-48D

Specifically, the Office Action states that groups (a)-(f) contain species that are independent or distinct because the species are different embodiments of anchoring members having arch shape, angled shape, semi-circular shape, straight, members having retention ridges, having beveled tips. The Office Action also states that these species are not obvious variants of each other.

I. Restriction Election and Claim Amendments

a. Groups I-III

Applicant respectfully submits that the restriction requirement on claims 1-53 is improper because claims 1-53 had been canceled when the current application was filed on Febrary 15, 2010.

b. Groups (a)-(f)

Applicant respectfully disagrees with the restriction requirement based on groups (a)-(f). However, in order to expedite prosecution, Applicant elects group (b), namely figures 35-36, with traverse. Applicant respectfully submits that it would not be an undue burden to search the other groupings indicated by the Office Action. Furthermore, Applicant respectfully submits that the restriction requirement based on groups (a)-(f) is improper because the pending claims do not specifically cover a particular specie of the groups (a)-(f) and therefore the pending claims cannot be categorized into groups (a)-(f).

II. Rescission of any Prior Disclaimers and Request to Revisit Art

Applicant does not surrender any equivalents to any amended limitation or elements of any claim. In reviewing the claims that are submitted with this Amendment, Applicant respectfully requests that the Examiner review each particular claim in this application on its own without reference to past amendments to and arguments in support of unrelated claims in this application. Moreover, in reviewing the claims that are submitted with this Amendment, Applicant respectfully requests that the Examiner review each particular claim in this application on its own without reference to past claim amendments and arguments in any application related to this application.

CONCLUSION

In view of the foregoing, claims 54-74 will be pending after entry of this Amendment.

Applicant has submitted all known required fees and petitions. Accordingly, Applicant believes that no additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required for the submission of this Amendment and Response. However, in the unlikely event that the Commissioner determines that additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required, Applicant hereby makes such petitions as are required, requests such extensions of time and other forms of relief as are required, and authorizes the Commissioner to charge the cost of such petitions for extensions of time, other petitions, and/or other forms of relief to **Deposit Account No. 50-3804** referencing **SPNE.P0006**.

Respectfully submitted,

ADELI & TOLLEN LLP

Dated: May 14, 2012

/Michael Park/
Michael Park
Reg. No. 62,435

Adeli & Tollen LLP
11859 Wilshire Blvd., Suite 500
Los Angeles, CA 90025
Tel. (310) 442-9300
Fax. (310) 442-9330

Electronic Acknowledgement Receipt

EFS ID:	12776663
Application Number:	12705972
International Application Number:	
Confirmation Number:	9747
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
First Named Inventor/Applicant Name:	Jeffrey Paris Wensel
Customer Number:	48947
Filer:	Michael Sungjoon Park
Filer Authorized By:	
Attorney Docket Number:	SPNE.P0006
Receipt Date:	14-MAY-2012
Filing Date:	15-FEB-2010
Time Stamp:	23:06:36
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Response to Election / Restriction Filed	SPNEP0006_PRR_5-14-2012.pdf	84535 5516d7f8ac3361e1c17d29e40c1d0efe3dcc1535	no	4

Warnings:	
Information:	

Total Files Size (in bytes):	84535

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	1	of	1	Attorney Docket Number	SPNE.P0006

COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	U.S. Patent Document Kind Code (if known)	Mailing Date of Last Action, Response, or Amendment MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	1.	Updated portions of prosecution history of 12/361,525		06-14-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/361,525 (SPNE.P0003), listed as item #8 in the 1449 filed 08-09-2011, including response(s)/amendment(s) filed 06-14-2012 (7 pages).

Examiner Signature		Date Considered	

Electronic Acknowledgement Receipt

EFS ID:	13044052
Application Number:	12705972
International Application Number:	
Confirmation Number:	9747
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
First Named Inventor/Applicant Name:	Jeffrey Paris Wensel
Customer Number:	48947
Filer:	Mani Adeli/Amir Bahrami
Filer Authorized By:	Mani Adeli
Attorney Docket Number:	SPNE.P0006
Receipt Date:	18-JUN-2012
Filing Date:	15-FEB-2010
Time Stamp:	20:53:57
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	SPNEP6_Letter.pdf	22692 fafaaa581c1167b4eee724873786366fa577a041	no	2

Warnings:	
Information:	

2	Information Disclosure Statement (IDS) Form (SB08)	SPNEP6_1449.pdf	18202 3be245180e0fa429716a9721b817c792b3e28278	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Non Patent Literature	SPNEP3_Pros_Hist.pdf	211460 af74f5a4d960bd4f4515c763c7ff2e64679fde20	no	7
Warnings:					
Information:					
		Total Files Size (in bytes):	252354		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

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National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

CERTIFICATE OF TRANSMISSION VIA EFS-WEB
I hereby certify that this correspondence is being transmitted via EFS-Web to the United States Patent and Trademark Office on June 18, 2012.
/Mani Adeli/
Mani Adeli

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Jeffrey Paris Wensel
Application No.:	12/705,972
Filed:	February 15, 2010
Title:	FUSION MEMBER FOR INSERTION BETWEEN VERTEBRAL BODIES

Art Unit: 3738

Examiner: Seema Swaminathan

Conf. No.: 9747

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 C.F.R. § 1.97 and § 1.98, Applicant submits with this Information Disclosure Statement the attached modified Form PTO-1449, and any necessary copies of documents listed in the modified 1449 form for consideration by the Examiner. The Examiner is requested to make these documents of record. Applicant would appreciate the Examiner initialing and returning the modified Form PTO-1449, indicating that the information has been considered and made of record herein.

This Information Disclosure Statement under 37 C.F.R. § 1.97 is not to be construed as a representation that: (i) a complete search has been made; (ii) additional information material to the examination of this application does not exist; (iii) the information, protocols, results and the

like reported by third parties are accurate or enabling; or (iv) the above information constitutes prior art to the subject invention.

This Information Disclosure Statement is submitted before the mailing of a first Office Action on the merits. Accordingly, Applicant believes a fee is not required.

Applicant has submitted all known required fees and petitions. Accordingly, Applicant believes that no additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required for the submission of this Information Disclosure Statement. However, in the unlikely event that the Commissioner determines that additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required, Applicant hereby makes such petitions as are required, requests such extensions of time and other forms of relief as are required, and authorizes the Commissioner to charge the cost of such petitions for extensions of time, other petitions, and/or other forms of relief to **Deposit Account No. 50-3804** referencing **SPNE.P0006**.

Respectfully Submitted,

Date: June 18, 2012

/Mani Adeli/
Mani Adeli
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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	1	of	1	Attorney Docket Number	SPNE.P0006

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	4,554,914		11-26-1985	Kapp, John P., et al.	

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	2.	2010/0114317		05-06-2010	Lambrecht, Gregory, et al.	

COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Mailing Date of Last Action, Response, or Amendment MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	3.	Updated portions of prosecution history of 12/383,950		06-20-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/383,950 (SPNE.P0004), listed as item #9 in the 1449 filed 08-09-2011, including action(s) dated 06-20-2012 (11 pages).
	4.	Updated portions of prosecution history of 12/705,974		06-19-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,974 (SPNE.P0007), listed as item #11 in the 1449 filed 08-09-2011, including action(s) dated 06-19-2012 (7 pages).

Examiner Signature		Date Considered	

Electronic Acknowledgement Receipt

EFS ID:	13086795
Application Number:	12705972
International Application Number:	
Confirmation Number:	9747
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
First Named Inventor/Applicant Name:	Jeffrey Paris Wensel
Customer Number:	48947
Filer:	Mani Adeli/Amir Bahrami
Filer Authorized By:	Mani Adeli
Attorney Docket Number:	SPNE.P0006
Receipt Date:	22-JUN-2012
Filing Date:	15-FEB-2010
Time Stamp:	20:10:07
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	SPNEP6_Letter.pdf	22696 2a878447414d9214933b2c57dfd051d34e248248	no	2

Warnings:	
Information:	

2	Non Patent Literature	SPNEP4_Pros_Hist.pdf	430830 c1aa91fd539275f0d37f14822b14e54bf5809918	no	11
Warnings:					
Information:					
3	Non Patent Literature	SPNEP7_Pros_Hist.pdf	244561 4792948fd9f27dddd9bd3ae0cf8a0703db9b66d7	no	7
Warnings:					
Information:					
4	Information Disclosure Statement (IDS) Form (SB08)	SPNEP6_1449.pdf	20235 71c905e6d8567a12435878bd74c26c308ae51314	no	1
Warnings:					
Information:					
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		Total Files Size (in bytes):	718322		

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<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

CERTIFICATE OF TRANSMISSION VIA EFS-WEB
I hereby certify that this correspondence is being transmitted via EFS-Web to the United States Patent and Trademark Office on June 22, 2012.
/Mani Adeli/
Mani Adeli

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Jeffrey Paris Wensel
Application No.:	12/705,972
Filed:	February 15, 2010
Title:	FUSION MEMBER FOR INSERTION BETWEEN VERTEBRAL BODIES

Art Unit: 3738

Examiner: Seema Swaminathan

Conf. No.: 9747

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 C.F.R. § 1.97 and § 1.98, Applicant submits with this Information Disclosure Statement the attached modified Form PTO-1449, and any necessary copies of documents listed in the modified 1449 form for consideration by the Examiner. The Examiner is requested to make these documents of record. Applicant would appreciate the Examiner initialing and returning the modified Form PTO-1449, indicating that the information has been considered and made of record herein.

This Information Disclosure Statement under 37 C.F.R. § 1.97 is not to be construed as a representation that: (i) a complete search has been made; (ii) additional information material to the examination of this application does not exist; (iii) the information, protocols, results and the

like reported by third parties are accurate or enabling; or (iv) the above information constitutes prior art to the subject invention.

This Information Disclosure Statement is submitted before the mailing of a first Office Action on the merits. Accordingly, Applicant believes a fee is not required.

Applicant has submitted all known required fees and petitions. Accordingly, Applicant believes that no additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required for the submission of this Information Disclosure Statement. However, in the unlikely event that the Commissioner determines that additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required, Applicant hereby makes such petitions as are required, requests such extensions of time and other forms of relief as are required, and authorizes the Commissioner to charge the cost of such petitions for extensions of time, other petitions, and/or other forms of relief to **Deposit Account No. 50-3804** referencing **SPNE.P0006**.

Respectfully Submitted,

Date: June 22, 2012

/Mani Adeli/
Mani Adeli
Reg. No. 39,585

Adeli & Tollen LLP
11859 Wilshire Blvd., Suite 500
Los Angeles, CA 90025
Tel. (310) 442-9300 ext. 301
Fax. (310) 442-9330

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	1	of	1	Attorney Docket Number	SPNE.P0006

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	2005/0283246		12-22-2005	Cauthen III, Joseph C., et al.	
	2.	2006/0036322		02-16-2006	Reiley, Mark A.	

COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Mailing Date of Last Action, Response, or Amendment MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	3.	Updated portions of prosecution history of 12/113,362		07-12-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/113,362 (SPNE.P0001), listed as item #7 in the 1449 filed 08-09-2011, including action(s) dated 07-12-2012 (7 pages).
	4.	Updated portions of prosecution history of 12/361,525		07-03-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/361,525 (SPNE.P0003), listed as item #8 in the 1449 filed 08-09-2011, including action(s) dated 07-03-2012 (7 pages).
	5.	Updated portions of prosecution history of 12/705,970		07-11-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,970 (SPNE.P0005), listed as item #10 in the 1449 filed 08-09-2011, including action(s) dated 07-11-2012 (6 pages).
	6.	Updated portions of prosecution history of 12/705,974		07-20-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,974 (SPNE.P0007), listed as item #11 in the 1449 filed 08-09-2011, including response(s)/amendment(s) filed 07-20-2012 (8 pages).
	7.	Updated portions of prosecution history of 12/705,978		07-03-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,978 (SPNE.P0008), listed as item #12 in the 1449 filed 08-09-2011, including action(s) dated 07-03-2012 (11 pages).

Examiner Signature		Date Considered	

CERTIFICATE OF TRANSMISSION VIA EFS-WEB
I hereby certify that this correspondence is being transmitted via EFS-Web to the United States Patent and Trademark Office on August 1, 2012.
/Matthew Chavez/
Matthew Chavez

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Jeffrey Paris Wensel	
Application No.:	12/705,972	Art Unit: 3738
Filed:	February 15, 2010	Examiner: Seema Swaminathan
Title:	FUSION MEMBER FOR INSERTION BETWEEN VERTEBRAL BODIES	Conf. No: 9747

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 C.F.R. § 1.97 and § 1.98, Applicant submits with this Information Disclosure Statement the attached modified Form PTO-1449, and any necessary copies of documents listed in the modified 1449 form for consideration by the Examiner. The Examiner is requested to make these documents of record. Applicant would appreciate the Examiner initialing and returning the modified Form PTO-1449, indicating that the information has been considered and made of record herein.

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like reported by third parties are accurate or enabling; or (iv) the above information constitutes prior art to the subject invention.

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Respectfully Submitted,

Date: August 1, 2012

/Matthew Chavez/
Matthew Chavez
Reg. No. 68,318

Adeli & Tollen LLP
11859 Wilshire Blvd., Suite 500
Los Angeles, CA 90025
Tel. (310) 442-9300
Fax. (310) 442-9330

Electronic Acknowledgement Receipt

EFS ID:	13341758
Application Number:	12705972
International Application Number:	
Confirmation Number:	9747
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
First Named Inventor/Applicant Name:	Jeffrey Paris Wensel
Customer Number:	48947
Filer:	Matthew Francis Chavez/Amir Bahrami
Filer Authorized By:	Matthew Francis Chavez
Attorney Docket Number:	SPNE.P0006
Receipt Date:	01-AUG-2012
Filing Date:	15-FEB-2010
Time Stamp:	22:00:30
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	SPNE_P6_1449.pdf	20562 37444cb116b7b74614620f50b3a104d23a7b2086	no	1

Warnings:	
Information:	

This is not an USPTO supplied IDS fillable form					
2	Non Patent Literature	SPNE_P1_ph.pdf	377844 48ccd478b4f033f88dd8e6cec0f2ef53b471a0c9	no	7
Warnings:					
Information:					
3	Non Patent Literature	SPNE_P3_ph.pdf	396607 9284d44c0a6ce8af09b8a9b322ba9519f5daab15	no	7
Warnings:					
Information:					
4	Non Patent Literature	SPNE_P5_ph.pdf	206044 c9df1c42a3b81a4daab22e93ab0b925963f1f224	no	6
Warnings:					
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5	Non Patent Literature	SPNE_P7_ph.pdf	255903 7cb0364dd597d19ce929116ddb659085778281d4	no	8
Warnings:					
Information:					
6	Non Patent Literature	SPNE_P8_ph.pdf	415851 be48c4753e81fecf067b6628391cb3e9ce62dade	no	11
Warnings:					
Information:					
7	Transmittal Letter	SPNE_P6_letter.pdf	22711 b71ae6c1d5baacdda7b0ab3f5e004738d1d42049	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	1695522	

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/705,972	02/15/2010	Jeffrey Paris Wensel	SPNE.P0006	9747

48947 7590 10/04/2012

ADELI & TOLLEN, LLP
11859 Wilshire Blvd., Suite 500
LOS ANGELES, CA 90025

EXAMINER	
MATHEW, SEEMA	
ART UNIT	PAPER NUMBER
3738	
MAIL DATE	DELIVERY MODE
10/04/2012	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	12/705,972	WENSEL, JEFFREY PARIS	
	Examiner	Art Unit	
	SEEMA SWAMINATHAN	3738	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 May 2012*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *54-74* is/are pending in the application.

5a) Of the above claim(s) *65-69* is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *54-59,61-64 and 70-72* is/are rejected.

8)☒ Claim(s) *60, 73-74* is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *15 February 2010* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/09/2011, 11/28/11, 04/19/12, 06/18/12, 06/22/12; 08/01/12*
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of group b, figures 35-36 in the reply filed on 05/14/2012 is acknowledged. The traversal is on the ground(s) that there would not be an undue burden to search the other groupings. This is not found persuasive because the restriction was deemed necessary because of the species disclosed in the specification. In addition, the examiner feels that the restriction between the species are appropriate because the species would require different text search as the species are drawn to anchoring members that require different structural characteristics (ex. shape, tip arrangement). The requirement is still deemed proper and is therefore made FINAL.

2. Claims 65-69 are withdrawn from consideration as drawn to a non-elected species. Applicant elected species b, drawn to figures 35-36 having first and second cross sectional planes that are parallel to each other. Claims 65-69 are drawn to a first and second cross-sectional planes are not parallel to each other and neither of the first and second cross-sectional planes is parallel to any surface of the fusion member

Claim Objections

The following is a quotation of the fourth paragraph of 35 U.S.C. 112:

Subject to the [fifth paragraph of 35 U.S.C. 112], a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.

Claims 56 and 57 are objected to because of the following informalities: dependent claims does not further limit the independent claim 54, wherein claim 54 already establishes the first and second cross-sectional planes are parallel to each other. Appropriate correction is required.

Allowable Subject Matter

Claims 60 and 73-74 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 102

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. **Claims 54-55, 61-63 and 70-71 are rejected under 35 U.S.C. 102(b) as being anticipated by Michelson U.S. publication 2006/0079961.**

2. With respect to Claims 54, 70, Michelson discloses a fusion device 100 comprising a fusion member 102, 104 configured to position between first and second vertebral bodies (abstract and page 1, paragraphs [0007] and [0009]), the fusion member 102, 104 comprising a first channel 126 and a second channel 126; a first anchoring member 128 configured to insert through the first channel 126 and partially into the first vertebral body while a portion of the first anchoring member 128 remains within the fusion member 104, in order to couple the fusion member with the first vertebral body; and a second anchoring member 128 configured to insert through the second channel 126 and partially into the second vertebral body while a portion of the second anchoring member 128 remains within the fusion member 104, in order to couple the fusion member with the second vertebral body, wherein the first channel 126 has a first cross-

sectional plane along a first path that is traversed by the first channel 126 through the fusion member 104 and the second channel 126 has a second cross-sectional plane along a second path that is traversed by the second channel through the fusion member 104 wherein the first and second cross-sectional planes are parallel to each other (as seen in Figures 1-9 and abstract and page 3, paragraph [0040] and page 4, paragraph [0042]).

3. With respect to Claim 55, 71, Michelson discloses wherein the first and second cross-planes are parallel to at least one surface of the fusion member 102, 104 (as seen in Figures 1-9).

4. With respect to Claim 61, Michelson discloses wherein each anchoring member 128 is configured to couple to a driving member 172, wherein the driving member 172 is configured to drive the anchoring member 128 into the vertebral body and decouple from the anchoring member 128 (Figure 9 and page 4, paragraph [0053] and page 5, paragraphs [0062-0063]).

5. With respect to Claim 62, Michelson discloses wherein the first and second anchoring members 128 are made of a flexible material to allow the first and second anchoring members 128 to bend to traverse through the first and second channels 126 (as seen in Figures 1-9]).

6. With respect to Claim 63, Michelson discloses wherein each channel 126 of the fusion member 104 has an opening on a surface of the fusion member 104 and the opening has a recess (as seen in Figures 1-9), wherein each anchoring member 128 has a base that fits within the recess of the channel associated with the anchoring member 128 in order to maintain the anchoring member at least partially in the fusion member while

the anchoring member is inserted into the vertebral body (abstract and page 4, paragraphs [0042-0043]).

7. **Claims 54-55, 58-59 and 70 are rejected under 35 U.S.C. 102 (e) as being anticipated by Mathieu U.S. publication 2007/0219635.**

8. With respect to Claims 54, 70, Mathieu discloses a fusion device 10 comprising a fusion member as seen in Figures 1-6 configured to position between first and second vertebral bodies (abstract and page 1, paragraphs [0017]), the fusion member comprising a first channel 9 and a second channel 9; a first anchoring member 20 configured to insert through the first channel 9 and partially into the first vertebral body while a portion of the first anchoring member 20 remains within the fusion member in order to couple the fusion member with the first vertebral body (as seen in Figures 1-4 and page 2, paragraphs [0021], [0024] and [0037-0041]); and a second anchoring member 20 configured to insert through the second channel 9 and partially into the second vertebral body while a portion of the second anchoring member 20 remains within the fusion member in order to couple the fusion member with the second vertebral body (as seen in Figures 1-4 and page 2, paragraphs [0021], [0024] and [0037-0041]), wherein the first channel 9 has a first cross-sectional plane along a first path that is traversed by the first channel 9 through the fusion member and the second channel 9 has a second cross-sectional plane along a second path that is traversed by the second channel through the fusion member wherein the first and second cross-sectional planes are parallel to each other (as seen in Figures 1-6).

9. With respect to Claim 55, Mathieu et al. discloses wherein the first and second cross-planes are parallel to at least one surface 5 of the fusion member (as seen in Figures 1-6).

10. With respect to Claim 58, Mathieu et al. discloses wherein the first and second channels 9 open to a first surface 5 of the fusion member but the first channel 9 traverses to a second surface 1 of the fusion member and the second channel traverses 9 to a third surface 2 of the fusion member (as seen in Figures 1-6 and page 2, paragraphs [0037-0038]); wherein the traversal of the first and second channels 9 through the fusion member allows the first anchoring member 20 to enter the first surface 5 of the fusion member but exit the second surface 1 of the fusion member at a first desired location on the second surface of the fusion member and the second anchoring member 20 to enter the first surface 5 of the fusion member but exit the third surface 2 of the fusion member at a second desired location on the second surface without hindering the first anchoring member's traversal through the fusion member (as seen in Figures 1-6 and page 2, paragraphs [0034-0041]).

11. With respect to Claim 59, Mathieu et al. discloses wherein the first desired location is the geometric center of the second surface 1 of the fusion member and the second desired location is the geometric center of the third surface 2 of the fusion member (as seen in Figure 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. **Claims 64 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Michelson U.S. publication 2006/0079961 in view of Metz-Stavenhagen DE19944681.**

13. With respect to Claim 64, Michelson does not expressly disclose wherein each anchoring member comprises a perforation for delivering the hardening material to a location where the anchoring member is inserted into the corresponding vertebral body. Metz- Stavenhagen teaches a fusion device in Figure 1 comprising of a anchoring member 20 (the end portion having a tapered anchor that engages with the fusion member) having a perforation for delivering the hardening material to the location where the anchoring member is inserted (as seen in Figure 1 and column 2, lines 45-60) for the purpose of providing securement of the fusion member to the vertebral body. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Michelson's anchoring member to further include an a perforation for delivering a hardening material as taught by Metz-Stavenhagen for the purpose of providing securement of the fusion member to the vertebral body.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SEEMA SWAMINATHAN whose telephone number is (571)270-1452. The examiner can normally be reached on Monday-Friday 8:30 am -5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, please contact the examiner's supervisor, SPE, Tom Sweet at (571) 272-4761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SEEMA SWAMINATHAN/
Examiner, Art Unit 3738
/THOMAS J SWEET/
Supervisory Patent Examiner, Art Unit 3738

Notice of References Cited	Application/Control No. 12/705,972	Applicant(s)/Patent Under Reexamination WENSEL, JEFFREY PARIS	
	Examiner SEEMA SWAMINATHAN	Art Unit 3738	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2006/0079961	04-2006	Michelson, Gary K.	623/017.11
*	B	US-2007/0219635	09-2007	Mathieu et al.	623/017.16
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	1	of	1	Attorney Docket Number	SPNE.P0006

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Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	2005/0283246		12-22-2005	Cauthen III, Joseph C., et al.	
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COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Mailing Date of Last Action, Response, or Amendment MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	3.	Updated portions of prosecution history of 12/113,362		07-12-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/113,362 (SPNE.P0001), listed as item #7 in the 1449 filed 08-09-2011, including action(s) dated 07-12-2012 (7 pages).
	4.	Updated portions of prosecution history of 12/361,525		07-03-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/361,525 (SPNE.P0003), listed as item #8 in the 1449 filed 08-09-2011, including action(s) dated 07-03-2012 (7 pages).
	5.	Updated portions of prosecution history of 12/705,970		07-11-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,970 (SPNE.P0005), listed as item #10 in the 1449 filed 08-09-2011, including action(s) dated 07-11-2012 (6 pages).
	6.	Updated portions of prosecution history of 12/705,974		07-20-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,974 (SPNE.P0007), listed as item #11 in the 1449 filed 08-09-2011, including response(s)/amendment(s) filed 07-20-2012 (8 pages).
	7.	Updated portions of prosecution history of 12/705,978		07-03-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,978 (SPNE.P0008), listed as item #12 in the 1449 filed 08-09-2011, including action(s) dated 07-03-2012 (11 pages).

Examiner Signature	/Seema Swaminathan/	Date Considered	09/27/2012

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.S./

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	244	("20050137707" | "6558423" | "5741253" | "6136001" | "6210412" | "6241770" | "6350283" | "6436098" | "6767367" | "6972035" | "7156875" | "7264622" | "7503933" | "7540882" | "7655027" | "7686805" | "7691148" | "7789914" | "7892286" | "7922729" | "D312309" | "D377096" | "D377527" | "RE37161" | "20030191371" | "20100114317" | "20060036322" | "7118579" | "7320686" | "5484437" | "6264656" | "6770074" | "6849093" | "6989031" | "7288093" | "7291149" | "7396365" | "7569054" | "7771475" | "7935116" | "7942933" | "7618423" | "5593409" | "5609635" | "5797909" | "6120503" | "6139551" | "6270498" | "6485517" | "6500205" | "6730127" | "6733535" | "6808537" | "7118598" | "7326248" | "7387643" | "7399303" | "7431722" | "7435262" | "7611536" | "7637954" | "7914530" | "7976566" | "D377095" | "7166107" | "7354442" | "5522899" | "5772661" | "6447547" | "6478823" | "7008453" | "7022137" | "7041135" | "7056342" | "7094239" | "7410501" | "7445636" | "7455692" | "7462195" | "7722619" | "7935149" | "D425989" | "20020099378" | "20070225813" | "5015247" | "5860973" | "6224595" | "6224607" | "6758849" | "6793676" | "6827740" | "6923810" | "6923830" | "6962606" | "7112206" | "7128760" | "7166129" | "7326214" | "7491205" | "7534254" | "7794502" | "5505732" | "6080155" | "6096038" | "6302914" | "6447544" | "6582432" | "6605089" | "6666890" | "6709458" | "6749636" | "6814756" | "6890355" | "7033394" | "7063702" | "7115128" | "7115143" | "7163561" | "7207991" | "7637951" | "7828800" | "7931840" | "7972365" | "RE37005" | "6159215" | "4554914" | "6190388" | "6537320" | "6554836" | "6652584" | "6716247" | "6875213" | "6981975" | "7051417" | "7063701" | "7066961" | "7255698" | "7442209" | "7455672" | "7608107" | "7887565" | "7972381" | "D392387" | "5653761" | "5785710" | "6120502" | "6123705" | "6149650" | "6565574" | "6972019" | "7244275" | "7452359" | "7914554" | "20090149959" | "20050283246").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/21 17:26

L14	930	kapp.inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/21 23:40
L15	65	kapp.inv. and harden$6	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/21 23:40
S3	2954	623/17.11.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/06/18 11:03
S4	358	623/17.11.ccls. AND needle$6	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/06/18 11:03
S5	145	623/17.12.ccls. AND needle$6	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/06/18 11:25
S15	666	623/17.11.ccls. AND (methacrylate or ("PMMA") or cement or (polymethyl near3 methacrylate))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/07/01 13:45
S16	697	623/17.11.ccls. AND (methacrylate or ("PMMA") or cement$5 or (polymethyl near3 methacrylate))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/07/01 13:45
S35	5	623/17.11.ccls. AND (needle$6 near9 (bioabsorb$6, collagen))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/07/01 19:22
S36	0	623/17.12.ccls. AND (needle$6 near9 (bioabsorb$6, collagen))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2012/07/01 19:24

			DERWENT; IBM_TDB			
S37	9	623/17.16.ccls. AND (needle$6 near9 (bioabsorb$6, collagen))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/07/01 19:24
S50	18	"623"/17.16.ccls. AND ((anchor$5) near9 (collagen$2))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/07/01 22:30
S70	2979	623/17.11.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/07/24 19:59
S71	1256	606/99.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/07/24 19:59
S72	883	623/17.15.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/07/24 20:03
S73	444	623/17.11.ccls. AND ((delivery, retention) near9 (mechanism, rod$2, device$2))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/07/24 20:18
S75	2979	623/17.11.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/07/25 10:08

EAST Search History (Interference)

< This search history is empty>

9/21/2012 11:51:00 PM
C:\Users\sswaminathan\Documents\EAST\Workspaces\12705970.wsp

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12705972	WENSEL, JEFFREY PARIS
	Examiner	Art Unit
	SEEMA MATHEW	3738

SEARCHED			
Class	Subclass	Date	Examiner
623	17.11, 17.15, 17.16	09/12-09/13/2012	ss

SEARCH NOTES		
Search Notes	Date	Examiner
conducted class, subclass, text, backward, forward search using EAST	09/12-09/13/2012	ss

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	1	of	6	Attorney Docket Number	SPNE.P0006

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	DES 312,309		11-20-1990	Michelson, Gary K.	
	2.	5,015,247		05-14-1991	Michelson, Gary K.	
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Examiner Signature	/Seema Swaminathan/	Date Considered	09/28/2012

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.S./

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
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Sheet	2	of	6	Attorney Docket Number	SPNE.P0006

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Examiner Signature	/Seema Swaminathan/	Date Considered	09/28/2012

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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
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Sheet	3	of	6	Attorney Docket Number	SPNE.P0006

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Examiner Signature	/Seema Swaminathan/	Date Considered	09/28/2012

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.S./

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
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				First Named Inventor	Jeffrey Paris Wensel
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				Examiner Name	Seema Swaminathan
Sheet	4	of	6	Attorney Docket Number	SPNE.P0006

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Examiner Signature	/Seema Swaminathan/	Date Considered	09/28/2012

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.S./

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	5	of	6	Attorney Docket Number	SPNE.P0006

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	134.	7,935,116		05-03-2011	Michelson, Gary K.	
	135.	7,935,149		05-03-2011	Michelson, Gary K.	
	136.	7,942,933		05-17-2011	Michelson, Gary K.	
	137.	7,972,365		07-05-2011	Michelson, Gary K.	
	138.	7,972,381		07-05-2011	Michelson, Gary K.	
	139.	7,976,566		07-12-2011	Michelson, Gary K.	

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	140.	2008/0281428		11-13-2008	Meyers, John E., et al.	

COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Mailing Date of Last Action, Response, or Amendment MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	141.	Updated portions of prosecution history of 12/113,362		11-10-2011	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/113,362 (SPNE.P0001), listed as item #7 in the 1449 filed 08-09-2011, including action(s) dated 11-10-2011; and response(s)/amendment(s) filed 09-28-2011 (28 pages).
	142.	Updated portions of prosecution history of 12/361,525		10-04-2011	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/361,525 (SPNE.P0003), listed as item #8 in the 1449 filed 08-09-2011, including response(s)/amendment(s) filed 10-04-2011 (6 pages).

Examiner Signature	/Seema Swaminathan/	Date Considered	09/28/2012

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.S./

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	6	of	6	Attorney Docket Number	SPNE.P0006

COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	U.S. Patent Document Kind Code (if known)	Mailing Date of Last Action, Response, or Amendment MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	143.	Updated portions of prosecution history of 12/383,950		10-28-2011	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/383,950 (SPNE.P0004), listed as item #9 in the 1449 filed 08-09-2011, including action(s) dated 10-28-2011; and response(s)/amendment(s) filed 09-21-2011 (12 pages).

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Document Office	Foreign Patent Document Number	Foreign Patent Document Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	144.	RU	2004218		12-15-1993	Doktro Implants Res Practical Centre, et al.	

NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
	145.	U.S. provisional application no. 60/916,414, filed on May 7, 2007.	

Examiner Signature	/Seema Swaminathan/	Date Considered	09/28/2012

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.S./

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	1	of	1	Attorney Docket Number	SPNE.P0006

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	4,554,914		11-26-1985	Kapp, John P., et al.	

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	2.	2010/0114317		05-06-2010	Lambrecht, Gregory, et al.	

COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Mailing Date of Last Action, Response, or Amendment MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	3.	Updated portions of prosecution history of 12/383,950		06-20-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/383,950 (SPNE.P0004), listed as item #9 in the 1449 filed 08-09-2011, including action(s) dated 06-20-2012 (11 pages).
	4.	Updated portions of prosecution history of 12/705,974		06-19-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,974 (SPNE.P0007), listed as item #11 in the 1449 filed 08-09-2011, including action(s) dated 06-19-2012 (7 pages).

Examiner Signature	/Seema Swaminathan/	Date Considered	09/27/2012

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.S./

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	1	of	3	Attorney Docket Number	SPNE.P0006

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	6,558,423		05-06-2003	Michelson, Gary K.	
	2.	7,118,579		10-10-2006	Michelson, Gary K.	
	3.	7,166,107		01-23-2007	Anderson, Greg D.	
	4.	7,320,686		01-22-2008	Serhan, Hassan, et al.	
	5.	7,354,442		04-08-2008	Sasso, Ricardo C., et al.	

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	6.	2005/0137707		06-23-2005	Malek, Michel H.	

COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	7.	12/113,362		05-01-2008 (filing date)	Wensel, Jeffrey Paris	Non-published commonly owned U.S. Patent Application 12/113,362 (SPNE.P0001).
	8.	12/361,525		01-28-2009 (filing date)	Wensel, Jeffrey Paris	Non-published commonly owned U.S. Patent Application 12/361,525 (SPNE.P0003).
	9.	12/383,950		03-27-2009 (filing date)	Wensel, Jeffrey Paris	Non-published commonly owned U.S. Patent Application 12/383,950 (SPNE.P0004).
	10.	12/705,970		02-15-2010 (filing date)	Wensel, Jeffrey Paris	Non-published commonly owned U.S. Patent Application 12/705,970 (SPNE.P0005).
	11.	12/705,974		02-15-2010 (filing date)	Wensel, Jeffrey Paris	Non-published commonly owned U.S. Patent Application 12/705,974 (SPNE.P0007).
	12.	12/705,978		02-15-2010 (filing date)	Wensel, Jeffrey Paris	Non-published commonly owned U.S. Patent Application 12/705,978 (SPNE.P0008).
	13.	13/032,634		02-22-2011 (filing date)	Wensel, Jeffrey Paris	Non-published commonly owned U.S. Patent Application 13/032,634 (SPNE.P0012).

Examiner Signature	/Seema Swaminathan/	Date Considered	09/28/2012

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.S./

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	2	of	3	Attorney Docket Number	SPNE.P0006

COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	U.S. Patent Document Kind Code (if known)	Mailing Date of Last Action, Response, or Amendment MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	14.	Portions of prosecution history of 12/113,362		03-28-2011	Wensel, Jeffrey Paris	Portions of prosecution history of commonly owned U.S. Patent Application 12/113,362 (SPNE.P0001), listed as item #7 above, including action(s) dated 03-28-2011; and response(s)/amendment(s) filed 07-24-2009 (10 pages).
	15.	Portions of prosecution history of 12/361,525		07-08-2011	Wensel, Jeffrey Paris	Portions of prosecution history of commonly owned U.S. Patent Application 12/361,525 (SPNE.P0003), listed as item #8 above, including action(s) dated 07-08-2011; and response(s)/amendment(s) filed 07-24-2009 (10 pages).
	16.	Portions of prosecution history of 12/383,950		07-21-2011	Wensel, Jeffrey Paris	Portions of prosecution history of commonly owned U.S. Patent Application 12/383,950 (SPNE.P0004), listed as item #9 above, including action(s) dated 07-21-2011; and response(s)/amendment(s) filed 08-24-2009 (14 pages).
	17.	Portions of prosecution history of 12/705,970		07-27-2010	Wensel, Jeffrey Paris	Portions of prosecution history of commonly owned U.S. Patent Application 12/705,970 (SPNE.P0005), listed as item #10 above, including response(s)/amendment(s) filed 07-27-2010 (3 pages).
	18.	Portions of prosecution history of 12/705,974		07-27-2010	Wensel, Jeffrey Paris	Portions of prosecution history of commonly owned U.S. Patent Application 12/705,974 (SPNE.P0007), listed as item #11 above, including response(s)/amendment(s) filed 07-27-2010 (3 pages).
	19.	Portions of prosecution history of 12/705,978		07-27-2010	Wensel, Jeffrey Paris	Portions of prosecution history of commonly owned U.S. Patent Application 12/705,978 (SPNE.P0008), listed as item #12 above, including response(s)/amendment(s) filed 07-27-2010 (3 pages).

Examiner Signature	/Seema Swaminathan/	Date Considered	09/28/2012

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.S./

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	3	of	3	Attorney Docket Number	SPNE.P0006

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Document			Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Office	Number	Kind Code (if known)			
	20.	DE	19944681		03-01-2001	Metz-Stavenhagen, Peter, Dr. med.	

Examiner Signature	/Seema Swaminathan/	Date Considered	09/28/2012

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.S./

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Swaminathan
Sheet	1	of	1	Attorney Docket Number	SPNE.P0006

COMMONLY OWNED U.S. PATENT DOCUMENTS

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	1.	Updated portions of prosecution history of 12/361,525		06-14-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/361,525 (SPNE.P0003), listed as item #8 in the 1449 filed 08-09-2011, including response(s)/amendment(s) filed 06-14-2012 (7 pages).

Examiner Signature	/Seema Swaminathan/	Date Considered	09/28/2012

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.S./

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
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				Group Art Unit	3738
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Sheet	1	of	2	Attorney Docket Number	SPNE.P0006

U.S. PATENT DOCUMENTS

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	1.	5,653,761		08-05-1997	Pisharodi, Madhavan	
	2.	6,159,215		12-12-2000	Urbahns, David J., et al.	
	3.	7,618,423		11-17-2009	Valentine, Keith, et al.	

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	4.	2002/0099378		07-25-2002	Michelson, Gary Karlin	
	5.	2003/0191371		10-09-2003	Smith, Maurice M., et al.	
	6.	2007/0225813		09-27-2007	Haines, Timothy	
	7.	2009/0149959		06-11-2009	Conner, Scott E., et al.	

COMMONLY OWNED U.S. PATENT DOCUMENTS

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	8.	Updated portions of prosecution history of 12/113,362		04-19-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/113,362 (SPNE.P0001), listed as item #7 in the 1449 filed 08-09-2011, including action(s) dated 01-19-2012 and 01-06-2012; and response(s)/amendment(s) filed 04-19-2012 and 01-10-2012 (21 pages).
	9.	Updated portions of prosecution history of 12/361,525		02-14-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/361,525 (SPNE.P0003), listed as item #8 in the 1449 filed 08-09-2011, including action(s) dated 02-14-2012 (15 pages).

Examiner Signature	/Seema Swaminathan/	Date Considered	09/28/2012

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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
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Sheet	2	of	2	Attorney Docket Number	SPNE.P0006

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	10.	Updated portions of prosecution history of 12/705,970		03-22-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,970 (SPNE.P0005), listed as item #10 in the 1449 filed 08-09-2011, including action(s) dated 01-23-2012; and response(s)/amendment(s) filed 03-22-2012 (18 pages).
	11.	Updated portions of prosecution history of 12/705,978		03-22-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,978 (SPNE.P0008), listed as item #12 in the 1449 filed 08-09-2011, including action(s) dated 01-23-2012; and response(s)/amendment(s) filed 03-22-2012 (14 pages).

NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
	12.	U.S. Provisional Application No. 60/989,100, filed on November 19, 2007.	

Examiner Signature	/Seema Swaminathan/	Date Considered	09/28/2012

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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Mathew
Sheet	1	of	2	Attorney Docket Number	SPNE.P0006

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	1.	2003/0187436		10-02-2003	Bolger, Ciaran, et al.	
	2.	2004/0010316		01-15-2004	William, Lytton, et al.	
	3.	2005/0010294		01-13-2005	Michelson, Gary K.	
	4.	2005/0070913		03-31-2005	Milbocker, Michael T., et al.	
	5.	2009/0164020		06-25-2009	Janowski, Brian, et al.	
	6.	2009/0265007		10-22-2009	Colleran, Dennis	
	7.	2010/0168861		07-01-2010	Yundt, Kent D.	
	8.	2010/0249935		09-30-2010	Slivka, Michael A., et al.	
	9.	2011/0196494		08-11-2011	Yedlicka, Joseph W., et al.	
	10.	2011/0208311		08-25-2011	Janowski, Brian P.	

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	11.	Updated portions of prosecution history of 12/113,362		10-17-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/113,362 (SPNE.P0001), listed as item #7 in the 1449 filed 08-09-2011, including action(s) dated 10-17-2012; and response(s)/amendment(s) filed 10-11-2012 (6 pages).
	12.	Updated portions of prosecution history of 12/361,525		10-03-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/361,525 (SPNE.P0003), listed as item #8 in the 1449 filed 08-09-2011, including response(s)/amendment(s) filed 10-03-2012 (4 pages).
	13.	Updated portions of prosecution history of 12/383,950		10-12-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/383,950 (SPNE.P0004), listed as item #9 in the 1449 filed 08-09-2011, including action(s) dated 10-12-2012; and response(s)/amendment(s) 09-19-2012 (20 pages).

Examiner Signature		Date Considered	

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				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Mathew
Sheet	2	of	2	Attorney Docket Number	SPNE.P0006

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	14.	Updated portions of prosecution history of 12/705,970	10-11-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,970 (SPNE.P0005), listed as item #10 in the 1449 filed 08-09-2011, including response(s)/amendment(s) filed 10-11-2012 (5 pages).
	15.	Updated portions of prosecution history of 12/705,974	10-10-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,974 (SPNE.P0007), listed as item #11 in the 1449 filed 08-09-2011, including action(s) dated 10-10-2012 (16 pages).
	16.	Updated portions of prosecution history of 12/705,978	10-03-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,978 (SPNE.P0008), listed as item #12 in the 1449 filed 08-09-2011, including response(s)/amendment(s) filed 10-03-2012 (8 pages).

Examiner Signature		Date Considered	

CERTIFICATE OF TRANSMISSION VIA EFS-WEB

I hereby certify that this correspondence is being transmitted via EFS-Web to the United States Patent and Trademark Office on November 13, 2012.

/Matthew Chavez/
Matthew Chavez

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Jeffrey Paris Wensel
Application No.:	12/705,972
Filed:	February 15, 2010
Title:	FUSION MEMBER FOR INSERTION BETWEEN VERTEBRAL BODIES

Art Unit: 3738

Examiner: Seema Mathew

Conf. No.: 9747

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 C.F.R. § 1.97 and § 1.98, Applicant submits with this Information Disclosure Statement the attached modified Form PTO-1449, and any necessary copies of documents listed in the modified 1449 form for consideration by the Examiner. The Examiner is requested to make these documents of record. Applicant would appreciate the Examiner initialing and returning the modified Form PTO-1449, indicating that the information has been considered and made of record herein.

This Information Disclosure Statement under 37 C.F.R. § 1.97 is not to be construed as a representation that: (i) a complete search has been made; (ii) additional information material to the examination of this application does not exist; (iii) the information, protocols, results and the

like reported by third parties are accurate or enabling; or (iv) the above information constitutes prior art to the subject invention.

This Information Disclosure Statement is submitted after the mailing of a first Office Action on the merits but before the mailing of a Final Office Action or Notice of Allowance. Accordingly, a fee is required. A fee in the amount of $180 is enclosed.

Applicant has submitted all known required fees and petitions. Accordingly, Applicant believes that no additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required for the submission of this Information Disclosure Statement. However, in the unlikely event that the Commissioner determines that additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required, Applicant hereby makes such petitions as are required, requests such extensions of time and other forms of relief as are required, and authorizes the Commissioner to charge the cost of such petitions for extensions of time, other petitions, and/or other forms of relief to **Deposit Account No. 50-3804** referencing **SPNE.P0006**.

Respectfully Submitted,

Date: November 13, 2012

/Matthew Chavez/
Matthew Chavez
Reg. No. 68,318

Adeli & Tollen LLP
11859 Wilshire Blvd., Suite 500
Los Angeles, CA 90025
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Electronic Patent Application Fee Transmittal

Application Number:	12705972
Filing Date:	15-Feb-2010
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
First Named Inventor/Applicant Name:	Jeffrey Paris Wensel
Filer:	Matthew Francis Chavez/Faraz Amirani
Attorney Docket Number:	SPNE.P0006

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt

EFS ID:	14197365
Application Number:	12705972
International Application Number:	
Confirmation Number:	9747
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
First Named Inventor/Applicant Name:	Jeffrey Paris Wensel
Customer Number:	48947
Filer:	Matthew Francis Chavez
Filer Authorized By:	
Attorney Docket Number:	SPNE.P0006
Receipt Date:	13-NOV-2012
Filing Date:	15-FEB-2010
Time Stamp:	13:30:44
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$180
RAM confirmation Number	20103
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1	Information Disclosure Statement (IDS) Form (SB08)	SPNE_P6_1449.pdf	27269 3e985a2d61a3bc0de25556516b88989386 27ea75	no	2
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
2	Non Patent Literature	SPNE_P1_ph.pdf	150382 2587168292374387d44f26c433e14e8e4afd 9b5e	no	6
Warnings:					
Information:					
3	Non Patent Literature	SPNE_P3_ph.pdf	126614 5b5ff2a3c02b2399d47f691c48d49c2393fa e0a1	no	4
Warnings:					
Information:					
4	Non Patent Literature	SPNE_P4_ph.pdf	864531 aff8e4ce20c1e3c9e4cfc31175aa9b31469eb 933	no	20
Warnings:					
Information:					
5	Non Patent Literature	SPNE_P5_ph.pdf	180989 6381a636b19b3100acdefec5126b92a1e5fa b297	no	5
Warnings:					
Information:					
6	Non Patent Literature	SPNE_P7_ph.pdf	629171 696c80a2fff10e4f1c4fed7f47dd1819cb8d1 924	no	16
Warnings:					
Information:					
7	Non Patent Literature	SPNE_P8_ph.pdf	288716 8e9db4b0f43841e40fc97b9b046feb37d88 bb804	no	8
Warnings:					
Information:					
8	Transmittal Letter	SPNE_P6_Letter.pdf	23030 2f657452b14d614ff01ca743cfd28b0c61aa 0fc7	no	2
Warnings:					
Information:					
9	Fee Worksheet (SB06)	fee-info.pdf	30264 d4998ac764d8d10601f95baeb07acc0e4c8f 67c6	no	2

Warnings:	
Information:	
Total Files Size (in bytes):	2320966

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

CERTIFICATE OF TRANSMISSION VIA EFS-WEB

I hereby certify that this correspondence is being transmitted via EFS-Web to the United States Patent and Trademark Office on December 17, 2012.

/Michael Park/
Michael Park

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Jeffrey Paris Wensel
Application No.:	12/705,972
Filed:	2/15/2010
Title:	FUSION MEMBER FOR INSERTION BETWEEN VERTEBRAL BODIES

Art Unit: 3738

Examiner: Seema Mathew

Conf. No: 9747

AMENDMENT AND RESPONSE TO OFFICE ACTION

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Office Action of October 4, 2012, please amend this application as follows:

Amendments to the Claims are reflected in the listing of claims, which begins on page 2 of this paper.

Remarks begin on page 6 of this response.

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. The following listing provides the amended claims with deleted material crossed out and new material underlined to show the changes made.

1-53. (Canceled)

54. (Currently Amended) A fusion device comprising:

a fusion member configured to position between first and second vertebral bodies, the fusion member comprising a first curved channel and a second curved channel;

a first anchoring member configured to insert through the first curved channel and partially into the first vertebral body while a portion of the first anchoring member remains within the fusion member, in order to couple the fusion member with the first vertebral body; and

a second anchoring member configured to insert through the second curved channel and partially into the second vertebral body while a portion of the second anchoring member remains within the fusion member, in order to couple the fusion member with the second vertebral body,

wherein the first curved channel has a first cross-sectional plane along a first path that is traversed by the first curved channel through the fusion member and the second curved channel has a second cross-sectional plane along a second path that is traversed by the second curved channel through the fusion member, wherein the first and second cross-sectional planes are parallel to each other.

55. (Previously Presented) The fusion device of claim 54, wherein the first and second cross-planes are parallel to at least one surface of the fusion member.

56. (Currently Amended) The fusion device of claim 54, wherein neither of the first and second cross-sectional planes is parallel to ~~any~~ at least one surface of the fusion member.

57. (Currently Amended) The fusion device of claim 54,

wherein the first curved channel opens to at least two surfaces of the fusion member and the second curved channel opens to at least two surfaces of the fusion member,

wherein the first cross-sectional plane is not parallel to either of the two surfaces to which the first curved channel opens and the second cross-sectional plane is not parallel to either of the two surfaces to which the second curved channel opens.

58. (Currently Amended) The fusion device of claim 54,

wherein the first and second curved channels open to a first surface of the fusion member but the first curved channel traverses to a second surface of the fusion member and the second curved channel traverses to a third surface of the fusion member;

wherein the traversal of the first and second curved channels through the fusion member allows (i) the first anchoring member to enter the first surface of the fusion member but exit the second surface of the fusion member at a first desired location on the second surface of the fusion member and (ii) the second anchoring member to enter the first surface of the fusion member but exit the third surface of the fusion member at a second desired location on the second surface without hindering the first anchoring member's ~~traversal~~ insertion through the fusion member.

59. (Previously Presented) The fusion device of claim 58, wherein the first desired location is the geometric center of the second surface of the fusion member and the second desired location is the geometric center of the third surface of the fusion member.

60. (Canceled)

61. (Currently Amended) The fusion device of claim 54,

wherein each anchoring member is configured to couple to a driving member,

wherein the driving member is configured to drive the anchoring member into the corresponding vertebral body and decouple from the anchoring member.

62. (Currently Amended) The fusion device of claim 54, wherein the first and second anchoring members are made of a flexible material to allow the first and second anchoring members to bend to traverse through the first and second curved channels.

63. (Previously Presented) The fusion device of claim 54,

wherein each channel of the fusion member has an opening on a surface of the fusion member and the opening has a recess,

wherein each anchoring member has a base that fits within the recess of the channel associated with the anchoring member in order to maintain the anchoring member at least partially in the fusion member while the anchoring member is inserted into the vertebral body.

64. (Currently Amended) The fusion device of claim 54, wherein each anchoring member comprises a perforation for delivering ~~the~~ a hardening material to a location where the anchoring member is inserted into the corresponding vertebral body.

65-69. (Canceled)

70. (Currently Amended) A fusion device comprising:

a fusion member for positioning between first and second vertebral bodies, the fusion member comprising a first channel and a second channel;

a first arc-shaped anchoring member for inserting through the first channel and partially into the first vertebral body while a portion of the first arc-shaped anchoring member remains within the fusion member, in order to couple the fusion member with the first vertebral body; and

a second arc-shaped anchoring member for inserting through the second channel and partially into the first vertebral body while a portion of the second arc-shaped anchoring member remains within the fusion member, in order to couple the fusion member with the first vertebral body,

wherein the first channel has a first cross-sectional plane along a first path that is traversed by the first channel through the fusion member and the second channel has a second cross-sectional plane along a second path that is traversed by the second channel through the fusion member, wherein the first and second cross-sectional planes are the same plane and the same plane is parallel to a surface of the fusion member.

71. (Currently Amended) The fusion device of claim 70, wherein the first arc-shaped anchoring member and the second arc-shaped anchoring member enter a first surface of the fusion member and exit a second surface of the fusion number and the first and second surfaces are adjacent to each other.

72. (Canceled)

73. (Canceled)

74. (Currently Amended) The fusion device of claim ~~65~~ 70, the fusion device further comprising:

a first driving member for advancing the first arc-shaped anchoring member into the first vertebral body;

a first coupling mechanism for coupling the first arc-shaped anchoring member with the first driving member;

a second driving member for advancing the second arc-shaped anchoring member into first the vertebral body;

a second coupling mechanism for coupling the second arc-shaped anchoring member with the second driving member;

wherein the first coupling mechanism comprises a first pivoting mechanism for allowing the first arc-shaped anchoring member to pivot around the first driving member and the second coupling mechanism comprises a second pivoting mechanism for allowing the second arc-shaped anchoring member to pivot around the second driving member.

REMARKS

The Office Action rejected claims 54-55, 61-63 and 70-71 under 35 U.S.C. § 102(b) as being anticipated by United States Patent Publication number 2006/0079961 by Michelson. The Office Action also rejected claims 54-55, 58-59 and 70 under 35 U.S.C. § 102(e) as being anticipated by United States Patent Publication number 2007/0219635 by Mathieu. The Office Action also rejected claim 64 under 35 U.S.C. § 103(a) as being unpatentable over Michelson in view of Metz-Stavenhagen DE19944681. The Office Action also objected to claims 56 and 57 because of informalities. The Office Action also objected to claims 60 and 73-74 as dependent upon a rejected base claim, but would be allowable if rewritten in independent form. Applicant thanks the Examiner for allowing these claims.

In this Amendment, Applicant has amended claims 54, 56-58, 61, 62, 64, 70, 71, and 74. Applicant has canceled claims 60, 65-69, 72, and 73. Applicant does not surrender any equivalents to any amended limitation or elements of any claim. Accordingly, claims 54-59, 61-64, 70, 71, and 74 will be pending after entry of this Amendment. Applicant respectfully requests reconsideration of the rejections.

I. Applicant's Statement of the Substance of the Interview

Applicant's representative Michael Park (Reg. No. 62,435) had a telephone interview with Examiner Seema Mathew on December 12, 2012. During the telephone interview, Applicant's representatives discussed several pending claims, namely claims 54, 56, 58, 60, 73, and 74. Applicant thanks the Examiners for the courtesies extended during the interview. Applicant's statement of the substance of the interview is being timely submitted with this response to the pending Office Action.

II. Objection to Claims 56 and 57 under § 112

The Office Action objected to Claims 56 and 57 due to formalities. Specifically, the Office Action states that the dependent claims do not further limit the independent claim 54. Claim 56 was

amended to recite "at least one" rather than "any." Applicant respectfully submits that the limitations of claim 57 address whether the cross-sectional planes are parallel to particular surfaces of the fusion member, which is not addressed in the independent claim 54. In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the objection to claims 56 and 57.

III. Rejection of Claims 54-64

The Office Action rejected claim 54 under 35 U.S.C. § 102(b) as being anticipated by Michelson and under 35 U.S.C. § 102(e) as being anticipated Mathieu. Applicant has amended claim 54 to incorporate the limitations of claim 73 without the limitations of intervening claim 72 as agreed during the Examiner Interview. Accordingly, Applicant respectfully submits that the cited references do not render claim 54 unpatentable. As claims 55-59 and 61-64 are dependent directly or indirectly on claim 54, Applicant respectfully submits that claims 55-59 and 61-64 are patentable over the cited references for at least the reasons that were discussed above for claim 54. In view of the foregoing, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 54-59 and 61-64.

IV. Rejection of Claims 70-74

The Office Action rejected claim 70 under 35 U.S.C. § 102(b) as being anticipated by Michelson and under 35 U.S.C. § 102(e) as being anticipated Mathieu. Applicant has amended claim 70 to incorporate the limitations of claim 60 without the limitations of intervening claim 58 as agreed during the Examiner Interview. Accordingly, Applicant respectfully submits that the cited references do not render claim 70 unpatentable. As claims 71 and 74 are dependent directly or indirectly on claim 70, Applicant respectfully submits that claims 71 and 74 are patentable over the cited references for at least the reasons that were discussed above for claim 70. In view of the foregoing, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 70, 71, and 74.

V. Rescission of any Prior Disclaimers and Request to Revisit Art

Applicant does not surrender any equivalents to any amended limitation or elements of any claim. In reviewing the claims that are submitted with this Amendment, Applicant respectfully requests that the Examiner review each particular claim in this application on its own without reference to past or future amendments to and arguments in support of unrelated claims in this application. For a particular claim, unrelated claims are claims that are not in the same claim set as the particular claim. A claim set includes only the claims that depend directly or indirectly from one independent claim as well as the independent claim itself. Moreover, in reviewing the claims that are submitted with this Amendment, Applicant respectfully requests that the Examiner review each particular claim in this application on its own without reference to past or future claim amendments and arguments in any application related to this application. Furthermore, in reviewing any amended claim that was previously amended, Applicant respectfully requests that the Examiner disregard prior amendments to the claim that have been removed in this Amendment or substantially modified in this amendment so as to effectively remove these prior amendments. Accordingly, any prior art listed or referenced in this or any parent applications may need to be revisited.

CONCLUSION

In view of the foregoing, Applicant respectfully submits that all the claims, namely claims 54-59, 61-64, 70, 71, and 74, are in condition for allowance. Reconsideration of the rejections is requested. Allowance is earnestly solicited at the earliest possible date.

Applicant has submitted all known required fees and petitions. Accordingly, Applicant believes that no additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required for the submission of this Amendment and Response. However, in the unlikely event that the Commissioner determines that additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required, Applicant hereby makes such petitions as are required, requests such extensions of time and other forms of relief as are required, and authorizes the Commissioner to charge the cost of such petitions for extensions of time, other petitions, and/or other forms of relief to **Deposit Account No. 50-3804** referencing **SPNE.P0006**.

Respectfully Submitted,

December 17, 2012
Date

/Michael Park/
Michael Park
Reg. No. 69,375

Adeli & Tollen LLP
11859 Wilshire Blvd., Suite 500
Los Angeles, CA 90025
Tel. (310) 442-9300
Fax. (310) 442-9330

Electronic Acknowledgement Receipt

EFS ID:	14487585
Application Number:	12705972
International Application Number:	
Confirmation Number:	9747
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
First Named Inventor/Applicant Name:	Jeffrey Paris Wensel
Customer Number:	48947
Filer:	Michael Sungjoon Park
Filer Authorized By:	
Attorney Docket Number:	SPNE.P0006
Receipt Date:	17-DEC-2012
Filing Date:	15-FEB-2010
Time Stamp:	15:44:21
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		SPNE_P0006_ROA.pdf	111673 e60cf0a6e64d28bbce01ae1ace265d082c633a1d	yes	9

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	5
	Applicant Arguments/Remarks Made in an Amendment	6	9
Warnings:			
Information:			
	Total Files Size (in bytes):	111673	

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National Stage of an International Application under 35 U.S.C. 371
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New International Application Filed with the USPTO as a Receiving Office
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PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 12/705,972	Filing Date 02/15/2010	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
	12/17/2012	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	* 13	Minus	** 21	= 0	X $31 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X $125 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

		(Column 1)		(Column 2)	(Column 3)					
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/EFREM WARREN/

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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Matthew
Sheet	1	of	2	Attorney Docket Number	SPNE.P0006

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	5,397,364		05-14-1995	Kozak, Jeffrey, et al.	
	2.	6,315,795		11-13-2001	Scarborough, Nelson, et al.	
	3.	6,468,276		10-22-2002	McKay, Douglas William	
	4.	7,195,643		05-27-2007	Jackson, Roger P.	
	5.	7,662,184		02-16-2010	Edwards, Jean T., et al.	

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	6.	2005/0065519		03-24-2005	Michelson, Gary Karlin	
	7.	2005/0065607		03-24-2005	Gross, Jeffrey M.	
	8.	2006/0122623		06-08-2006	Truckai, Csaba, et al.	
	9.	2007/0055376		03-08-2007	Michelson, Gary K.	
	10.	2008/0221695		09-11-2008	Jacofsky, Marc C., et al.	
	11.	2009/0292316		11-26-2009	Hess, Harold	

COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	12.	13/655,412		10-18-2012 (filing date)	Wensel, Jeffrey Paris	Non-published commonly owned U.S. Patent Application 13/655,412 (SPNE.P0003C).
	13.	13/663,472		10-30-2012 (filing date)	Wensel, Jeffrey Paris	Non-published commonly owned U.S. Patent Application 13/663,472 (SPNE.P0001C).
	14.	8,313,528		11-20-2012	Wensel, Jeffrey Paris	Issued commonly owned U.S. Patent Application 12/113,362 (SPNE.P0001), listed as item #7 in the 1449 filed 08-09-2011.
	15.	8,333,804		12-18-2012	Wensel, Jeffrey Paris	Issued commonly owned U.S. Patent Application 12/361,525 (SPNE.P0003), listed as item #8 in the 1449 filed 08-09-2011.

Examiner Signature		Date Considered	

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Matthew
Sheet	2	of	2	Attorney Docket Number	SPNE.P0006

COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number / Kind Code (if known)	Mailing Date of Last Action, Response, or Amendment MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	16.	Updated portions of prosecution history of 12/361,525	11-14-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/361,525 (SPNE.P0003), listed as item #15 above, including action(s) 11-14-2012 (2 pages).
	17.	Updated portions of prosecution history of 12/383,950	01-14-2013	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/383,950 (SPNE.P0004), listed as item #9 in the 1449 filed 08-09-2011, including response(s)/amendment(s) filed 01-14-2013 (7 pages).
	18.	Updated portions of prosecution history of 12/705,970	12-13-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,970 (SPNE.P0005), listed as item #10 in the 1449 filed 08-09-2011, including action(s) dated 12-13-2012 (11 pages).
	19.	Updated portions of prosecution history of 12/705,974	12-17-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,974 (SPNE.P0007), listed as item #11 in the 1449 filed 08-09-2011, including response(s)/amendment(s) filed 12-17-2012 (11 pages).
	20.	Portions of prosecution history of 13/032,634	12-05-2012	Wensel, Jeffrey Paris	Portions of prosecution history of commonly owned U.S. Patent Application 13/032,634 (SPNE.P0012), listed as item #13 in the 1449 filed 08-09-2011, including action(s) dated 12-05-2012 (12 pages).

Examiner Signature		Date Considered	

Electronic Patent Application Fee Transmittal

Application Number:	12705972
Filing Date:	15-Feb-2010
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
First Named Inventor/Applicant Name:	Jeffrey Paris Wensel
Filer:	Matthew Francis Chavez
Attorney Docket Number:	SPNE.P0006

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt

EFS ID:	14720528
Application Number:	12705972
International Application Number:	
Confirmation Number:	9747
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
First Named Inventor/Applicant Name:	Jeffrey Paris Wensel
Customer Number:	48947
Filer:	Matthew Francis Chavez
Filer Authorized By:	
Attorney Docket Number:	SPNE.P0006
Receipt Date:	16-JAN-2013
Filing Date:	15-FEB-2010
Time Stamp:	21:34:28
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$180
RAM confirmation Number	8878
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1	Non Patent Literature	1C_app.pdf	6512064 2d4c3e10643fe24ff806599ab7577d1457d70832	no	70
Warnings:					
Information:					
2	Non Patent Literature	3C_app.pdf	6622077 1283c1c48faf0a770f31f0fe7d4bd939b04f421f	no	134
Warnings:					
Information:					
3	Non Patent Literature	3ph.pdf	42302 6a78ddfc8f8d27aac4ad512b96e3cb4c262471dc	no	2
Warnings:					
Information:					
4	Non Patent Literature	5PH.pdf	403615 284f04f77654d8a462da3e90f31fbd62c650beb8	no	11
Warnings:					
Information:					
5	Non Patent Literature	7ph.pdf	402709 e0c5c8ad11a6f096bd84ea796f3345c38bc80e0e	no	11
Warnings:					
Information:					
6	Non Patent Literature	12.pdf	383453 670cb58ceb0f8609e1e1dc3aa68e090f95131b9e	no	12
Warnings:					
Information:					
7	Transmittal Letter	P6_letter.pdf	23016 2bd2d187f2075196b31cf10ae42de5f0e138369b	no	2
Warnings:					
Information:					
8	Non Patent Literature	SPNE_P4_Pros_Hist.pdf	262270 69e6ba625c53d004e5d934c1d6a7b930479ed0f6	no	7
Warnings:					
Information:					
9	Information Disclosure Statement (IDS) Form (SB08)	SPNE_P6_1449.pdf	28306 fd0b3d3ef1e57468768ba0e378ddd4cb3fd604c1	no	2
Warnings:					
Information:					

This is not an USPTO supplied IDS fillable form					
10	Fee Worksheet (SB06)	fee-info.pdf	30160 08a5ee721bcec5bba45db13f2529ac9e922f d969	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	14709972	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

CERTIFICATE OF TRANSMISSION VIA EFS-WEB
I hereby certify that this correspondence is being transmitted via EFS-Web to the United States Patent and Trademark Office on January 16, 2013.
/Matthew Chavez/
Matthew Chavez

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Jeffrey Paris Wensel	
Application No.:	12/705,972	Art Unit: 3738
Filed:	February 15, 2010	Examiner: Seema Matthew
Title:	FUSION MEMBER FOR INSERTION BETWEEN VERTEBRAL BODIES	Conf. No: 9747

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 C.F.R. § 1.97 and § 1.98, Applicant submits with this Information Disclosure Statement the attached modified Form PTO-1449, and any necessary copies of documents listed in the modified 1449 form for consideration by the Examiner. The Examiner is requested to make these documents of record. Applicant would appreciate the Examiner initialing and returning the modified Form PTO-1449, indicating that the information has been considered and made of record herein.

This Information Disclosure Statement under 37 C.F.R. § 1.97 is not to be construed as a representation that: (i) a complete search has been made; (ii) additional information material to the examination of this application does not exist; (iii) the information, protocols, results and the

like reported by third parties are accurate or enabling; or (iv) the above information constitutes prior art to the subject invention.

This Information Disclosure Statement is submitted after the mailing of a first Office Action on the merits but before the mailing of a Final Office Action or Notice of Allowance. Accordingly, a fee is required. A fee in the amount of $180 is enclosed.

Applicant has submitted all known required fees and petitions. Accordingly, Applicant believes that no additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required for the submission of this Information Disclosure Statement. However, in the unlikely event that the Commissioner determines that additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required, Applicant hereby makes such petitions as are required, requests such extensions of time and other forms of relief as are required, and authorizes the Commissioner to charge the cost of such petitions for extensions of time, other petitions, and/or other forms of relief to **Deposit Account No. 50-3804** referencing **SPNE.P0006**.

Respectfully Submitted,

Date: January 16, 2013

/Matthew Chavez /
Matthew Chavez
Reg. No. 68,318

Adeli & Tollen LLP
11859 Wilshire Blvd., Suite 500
Los Angeles, CA 90025
Tel. (310) 442-9300
Fax. (310) 442-9330

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

48947 7590 01/30/2013

ADELI & TOLLEN, LLP
11859 Wilshire Blvd., Suite 500
LOS ANGELES, CA 90025

EXAMINER
MATHEW, SEEMA

ART UNIT	PAPER NUMBER
3738	

DATE MAILED: 01/30/2013

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/705,972	02/15/2010	Jeffrey Paris Wensel	SPNE.P0006	9747

TITLE OF INVENTION: Fusion Member for Insertion Between Vertebral Bodies

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$885	$0	$0	$885	04/30/2013

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

48947 7590 01/30/2013

ADELI & TOLLEN, LLP
11859 Wilshire Blvd., Suite 500
LOS ANGELES, CA 90025

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/705,972	02/15/2010	Jeffrey Paris Wensel	SPNE.P0006	9747

TITLE OF INVENTION: Fusion Member for Insertion Between Vertebral Bodies

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$885	$0	$0	$885	04/30/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
MATHEW, SEEMA	3738	623-017110

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/705,972	02/15/2010	Jeffrey Paris Wensel	SPNE.P0006	9747

48947 7590 01/30/2013

ADELI & TOLLEN, LLP
11859 Wilshire Blvd., Suite 500
LOS ANGELES, CA 90025

EXAMINER	
MATHEW, SEEMA	
ART UNIT	PAPER NUMBER
3738	

DATE MAILED: 01/30/2013

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 304 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 304 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No.	Applicant(s)	
	12/705,972	WENSEL, JEFFREY PARIS	
	Examiner	Art Unit	
	SEEMA MATHEW	3738	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *Applicant's arguments and remarks filed on 12/17/2012*.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are *54-59,61-64,70,71 and 74*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 11/13/2012; 01/16/2013
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
5. ☐ Examiner's Amendment/Comment
6. ☒ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/SEEMA MATHEW/ Examiner, Art Unit 3738	/THOMAS J SWEET/ Supervisory Patent Examiner, Art Unit 3738

Allowable Subject Matter

Claims 54-59, 61-64, 70-71 and 74 are allowed.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: the prior art of record fails to teach nor render obvious a fusion device comprising a fusion member configured to position between first and second vertebral bodies, the fusion member comprising a first curved channel and a second curved channel; a first anchoring member configured to insert through the first curved channel and partially into the first vertebral body while a portion of the first anchoring member remains within the fusion member, in order to couple the fusion member with the first vertebral body; and a second anchoring member configured to insert through the second curved channel and partially into the second vertebral body while a portion of the second anchoring member remains within the fusion member, in order to couple the fusion member with the second vertebral body, wherein the first curved channel has a first cross-sectional plane along a first path that is traversed by the first curved channel through the fusion member and the second curved channel has a second cross-sectional plane along a second path that is traversed by the second curved channel through the fusion member, wherein the first and second cross-sectional planes are parallel to each other.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SEEMA MATHEW whose telephone number is (571)270-1452. The examiner can normally be reached on Monday-Friday 9:30 am -6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, please contact the examiner's supervisor, SPE, Tom Sweet at (571) 272-4761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SEEMA MATHEW/
Examiner, Art Unit 3738
/THOMAS J SWEET/
Supervisory Patent Examiner, Art Unit 3738

Notice of References Cited	Application/Control No. 12/705,972	Applicant(s)/Patent Under Reexamination WENSEL, JEFFREY PARIS	
	Examiner SEEMA MATHEW	Art Unit 3738	Page 1 of 2

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2008/0065215	03-2008	Reiley, Mark A.	623/017.11
*	B	US-2009/0138015	05-2009	CONNER et al.	606/80
*	C	US-4,554,914	11-1985	Kapp et al.	606/86A
*	D	US-7,255,713	08-2007	Malek, Michel H.	623/17.12
*	E	US-2011/0166660	07-2011	Laurence, Lawton	623/17.16
*	F	US-2010/0204796	08-2010	Bae et al.	623/17.16
*	G	US-2009/0164020	06-2009	Janowski et al.	623/17.16
*	H	US-2008/0015694	01-2008	Tribus, Clifford	623/017.11
*	I	US-2007/0050030	03-2007	Kim, Richard C.	623/017.11
*	J	US-2006/0009850	01-2006	Frigg et al.	623/017.13
*	K	US-5,314,477	05-1994	Marnay, Thierry	623/17.15
*	L	US-2010/0286777	11-2010	Errico et al.	623/17.11
*	M	US-2010/0268339	10-2010	Malinin et al.	623/17.11

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Notice of References Cited	Application/Control No. 12/705,972	Applicant(s)/Patent Under Reexamination WENSEL, JEFFREY PARIS	
	Examiner SEEMA MATHEW	Art Unit 3738	Page 2 of 2

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2007/0043441	02-2007	Pisharodi, Madhavan	623/017.11
*	B	US-2006/0106460	05-2006	Messerli et al.	623/017.11
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L7	10	("5,397,364".pn. or "6,315,795".pn. or "6,468,276".pn. or "7,195,643".pn. or "7,662,184".pn.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/01/28 11:05
L6	5	("5,397,364".pn. or "6,315,795".pn. or "6,468,276".pn. or "7,195,643".pn. or "7,662,184".pn.)	USPAT	OR	ON	2013/01/28 11:05
L4	19	("20030187436" | "20040010316" | "20050010294" | "20050070913" | "20090164020" | "20090265007" | "20100168861" | "20100249935" | "20110196494" | "20110208311").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/01/28 11:02
L5	3	("2010/0249935").URPN.	USPAT	OR	ON	2013/01/28 11:02
S188	3094	623/17.11.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/01/26 01:19
S187	82	("3486505" | "3848601" | "3875595" | "4341206" | "4834757" | "4878915" | "4961740" | "5015247" | "5026373" | "5484437" | "5489307" | "5489308" | "5571109" | "5609636" | "5653761" | "5669909" | "5766252" | "5797909").PN. OR ("6086595").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2013/01/26 01:04
S182	860	("7833271".pn. or "6923810".pn. or "7166110".pn. or "200700276377" or "7670") and (biodegrad$6, bioabsorb$6, polymer, polymeric, polymer$6)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/01/09 03:34
S184	4	("7833271".pn. or "6923810".pn. or "7166110".pn. or "200700276377" or "7670359.pn.") and (biodegrad$6, bioabsorb$6)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/01/09 03:34
S183	4	("7833271".pn. or "6923810".pn. or "7166110".pn. or "200700276377" or "7670359.pn.") and (biodegrad$6,	US-PGPUB; USPAT; USOCR;	OR	ON	2013/01/09 03:34

		bioabsorb$6, polymer, polymeric, polymer$6)	FPRS; EPO; JPO; DERWENT; IBM_TDB			
S181	6	("7833271".pn. or "6923810".pn. or "7166110".pn. or "20070276377") and (biodegrad$6, bioabsorb$6, polymer, polymeric, polymer$6)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/01/09 03:31
S179	1670	623/17.11.ccls. and (fusion, fixation, fusion$2) and (biodegrad$6, bioabsorb$6, polymer, polymeric, polymer$6)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/01/09 03:26
S180	141	623/17.11.ccls. and (fusion, fixation, fusion$2) near9 (biodegrad$6, bioabsorb$6, polymer, polymeric, polymer$6)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/01/09 03:26
S169	1167	"606"/$.ccls. and (cement, "PMMA") near9 (anchors, anchoring, screws, fusion, screw, screw$6)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/01/09 02:43
S167	7238	"606"/$.ccls. and (cement, "PMMA" or methacrylate$9)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/01/09 02:42
S168	1199	"606"/$.ccls. and (cement, "PMMA" or methacrylate$9) near9 (anchors, anchoring, screws, fusion, screw, screw$6)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/01/09 02:42
S166	14	("20060247642" or "8317825".pn. or "8251998".pn. or "5522817") and (cement, "PMMA" or methacrylate$9)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/01/09 02:40
S152	1458	(bioabsorb$9, collagen, bioabsorbable) near9 (anchors, anchor, anchoring, screws, screw$3, shaft$2) and (stainless, steel, titanium)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/01/08 12:56
S151	839	"606"/$.ccls. and (bioabsorb$9,	US-PGPUB;	OR	ON	2013/01/07

		collagen, bioabsorbable) near9 (anchors, anchor, anchor$4, anchoring, screws, screw$3) and (stainless, steel, titanium)	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			14:57
S138	265	623/17.16.ccls. and (bioabsorb$6)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/01/06 21:47
S139	39	623/17.16.ccls. and (bioabsorb$6) near9 (screw$2, anchor$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/01/06 21:47

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L3	3117	623/17.11.ccls.	US-PGPUB; USPAT; UPAD	OR	ON	2013/01/28 09:41
L2	927	623/17.15.ccls.	US-PGPUB; USPAT; UPAD	OR	ON	2013/01/28 09:09

1/28/2013 11:08:45 AM
C:\Users\sswaminathan\Documents\EAST\Workspaces\12705970.wsp

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12705972	WENSEL, JEFFREY PARIS
	Examiner	**Art Unit**
	SEEMA MATHEW	3738

CPC		
Symbol	**Type**	**Version**

CPC Combination Sets				
Symbol	**Type**	**Set**	**Ranking**	**Version**

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION										
CLASS	**SUBCLASS**	**CLAIMED**					**NON-CLAIMED**					
623	17.16	A	6	1	F	2 / 44 (2006.0)						
CROSS REFERENCE(S)												
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**											
623	17.11											
623	17.15											

/SEEMA MATHEW/ Examiner.Art Unit 3738 (Assistant Examiner)	01/28/2013 (Date)	**Total Claims Allowed:** 13	
/THOMAS J SWEET/ Supervisory Patent Examiner.Art Unit 3738 (Primary Examiner)	01/28/2013 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 35

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12705972	WENSEL, JEFFREY PARIS
	Examiner	**Art Unit**
	SEEMA MATHEW	3738

/SEEMA MATHEW/ Examiner.Art Unit 3738	01/28/2013	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	13	
/THOMAS J SWEET/ Supervisory Patent Examiner.Art Unit 3738	01/28/2013	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	35

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12705972	WENSEL, JEFFREY PARIS
	Examiner	**Art Unit**
	SEEMA MATHEW	3738

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
-	1	-	17	-	33	-	49	-	65						
-	2	-	18	-	34	-	50	-	66						
-	3	-	19	-	35	-	51	-	67						
-	4	-	20	-	36	-	52	-	68						
-	5	-	21	-	37	-	53	-	69						
-	6	-	22	-	38	1	54	11	70						
-	7	-	23	-	39	2	55	12	71						
-	8	-	24	-	40	3	56	-	72						
-	9	-	25	-	41	4	57	-	73						
-	10	-	26	-	42	5	58	13	74						
-	11	-	27	-	43	6	59								
-	12	-	28	-	44	-	60								
-	13	-	29	-	45	7	61								
-	14	-	30	-	46	8	62								
-	15	-	31	-	47	9	63								
-	16	-	32	-	48	10	64								

/SEEMA MATHEW/ Examiner.Art Unit 3738 (Assistant Examiner)	01/28/2013 (Date)	**Total Claims Allowed:** 13	
/THOMAS J SWEET/ Supervisory Patent Examiner.Art Unit 3738 (Primary Examiner)	01/28/2013 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 35

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12705972	WENSEL, JEFFREY PARIS
	Examiner	Art Unit
	SEEMA MATHEW	3738

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
623	17.11, 17.15, 17.16	09/12-09/13/2012; 01/25/2013; 01/27-01/28/2013	ss

SEARCH NOTES		
Search Notes	Date	Examiner
conducted class, subclass, text, backward, forward search using EAST	09/12-09/13/2012; 01/25/2013; 01/27-01/28/2013	ss

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
	623/17.11, 17.15	01/28/2013	SM

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Mathew
Sheet	1	of	2	Attorney Docket Number	SPNE.P0006

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	2003/0187436		10-02-2003	Bolger, Ciaran, et al.	
	2.	2004/0010316		01-15-2004	William, Lytton, et al.	
	3.	2005/0010294		01-13-2005	Michelson, Gary K.	
	4.	2005/0070913		03-31-2005	Milbocker, Michael T., et al.	
	5.	2009/0164020		06-25-2009	Janowski, Brian, et al.	
	6.	2009/0265007		10-22-2009	Colleran, Dennis	
	7.	2010/0168861		07-01-2010	Yundt, Kent D.	
	8.	2010/0249935		09-30-2010	Slivka, Michael A., et al.	
	9.	2011/0196494		08-11-2011	Yedlicka, Joseph W., et al.	
	10.	2011/0208311		08-25-2011	Janowski, Brian P.	

COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Mailing Date of Last Action, Response, or Amendment MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	11.	Updated portions of prosecution history of 12/113,362		10-17-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/113,362 (SPNE.P0001), listed as item #7 in the 1449 filed 08-09-2011, including action(s) dated 10-17-2012; and response(s)/amendment(s) filed 10-11-2012 (6 pages).
	12.	Updated portions of prosecution history of 12/361,525		10-03-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/361,525 (SPNE.P0003), listed as item #8 in the 1449 filed 08-09-2011, including response(s)/amendment(s) filed 10-03-2012 (4 pages).
	13.	Updated portions of prosecution history of 12/383,950		10-12-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/383,950 (SPNE.P0004), listed as item #9 in the 1449 filed 08-09-2011, including action(s) dated 10-12-2012; and response(s)/amendment(s) 09-19-2012 (20 pages).

Examiner Signature	/Seema Swaminathan/	Date Considered	01/28/2013

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.S./

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Mathew
Sheet	2	of	2	Attorney Docket Number	SPNE.P0006

COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	U.S. Patent Document Kind Code (if known)	Mailing Date of Last Action, Response, or Amendment MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	14.	Updated portions of prosecution history of 12/705,970		10-11-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,970 (SPNE.P0005), listed as item #10 in the 1449 filed 08-09-2011, including response(s)/amendment(s) filed 10-11-2012 (5 pages).
	15.	Updated portions of prosecution history of 12/705,974		10-10-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,974 (SPNE.P0007), listed as item #11 in the 1449 filed 08-09-2011, including action(s) dated 10-10-2012 (16 pages).
	16.	Updated portions of prosecution history of 12/705,978		10-03-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,978 (SPNE.P0008), listed as item #12 in the 1449 filed 08-09-2011, including response(s)/amendment(s) filed 10-03-2012 (8 pages).

Examiner Signature	/Seema Swaminathan/	Date Considered	01/28/2013

UNITED STATES PATENT AND TRADEMARK OFFICE

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www.uspto.gov

BIB DATA SHEET

CONFIRMATION NO. 9747

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/705,972	02/15/2010 RULE	623	3738	SPNE.P0006

APPLICANTS

Jeffrey Paris Wensel, Eugene, OR;

**** CONTINUING DATA ***************************

This application is a CON of 12/383,950 03/27/2009
and is a CIP of 12/113,362 05/01/2008 PAT 8,313,528
and said 12/383,950 03/27/2009
claims benefit of 61/040,136 03/27/2008
and claims benefit of 61/109,175 10/28/2008
and claims benefit of 61/148,036 01/28/2009
and said 12/113,362 05/01/2008
claims benefit of 61/040,136 03/27/2008

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
03/01/2010

Foreign Priority claimed	35 USC 119(a-d) conditions met	Verified and Acknowledged	Met after Allowance	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
☐ Yes ☑ No	☐ Yes ☑ No	/SEEMA MATHEW/ Examiner's Signature	☐ Initials	OR	76	21	3

ADDRESS

ADELI & TOLLEN, LLP
11859 Wilshire Blvd., Suite 500
LOS ANGELES, CA 90025
UNITED STATES

TITLE

Fusion Member for Insertion Between Vertebral Bodies

FILING FEE RECEIVED		
688	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

BIB (Rev. 05/07).

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Matthew
Sheet	1	of	2	Attorney Docket Number	SPNE.P0006

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	5,397,364		05-14-1995	Kozak, Jeffrey, et al.	
	2.	6,315,795		11-13-2001	Scarborough, Nelson, et al.	
	3.	6,468,276		10-22-2002	McKay, Douglas William	
	4.	7,195,643		05-27-2007	Jackson, Roger P.	
	5.	7,662,184		02-16-2010	Edwards, Jean T., et al.	

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	6.	2005/0065519		03-24-2005	Michelson, Gary Karlin	
	7.	2005/0065607		03-24-2005	Gross, Jeffrey M.	
	8.	2006/0122623		06-08-2006	Truckai, Csaba, et al.	
	9.	2007/0055376		03-08-2007	Michelson, Gary K.	
	10.	2008/0221695		09-11-2008	Jacofsky, Marc C., et al.	
	11.	2009/0292316		11-26-2009	Hess, Harold	

COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	12.	13/655,412		10-18-2012 (filing date)	Wensel, Jeffrey Paris	Non-published commonly owned U.S. Patent Application 13/655,412 (SPNE.P0003C).
	13.	13/663,472		10-30-2012 (filing date)	Wensel, Jeffrey Paris	Non-published commonly owned U.S. Patent Application 13/663,472 (SPNE.P0001C).
	14.	8,313,528		11-20-2012	Wensel, Jeffrey Paris	Issued commonly owned U.S. Patent Application 12/113,362 (SPNE.P0001), listed as item #7 in the 1449 filed 08-09-2011.
	15.	8,333,804		12-18-2012	Wensel, Jeffrey Paris	Issued commonly owned U.S. Patent Application 12/361,525 (SPNE.P0003), listed as item #8 in the 1449 filed 08-09-2011.

Examiner Signature	/Seema Swaminathan/	Date Considered	01/28/2013

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.S./

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Matthew
Sheet	2	of	2	Attorney Docket Number	SPNE.P0006

COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number / Kind Code (if known)	Mailing Date of Last Action, Response, or Amendment MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	16.	Updated portions of prosecution history of 12/361,525	11-14-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/361,525 (SPNE.P0003), listed as item #15 above, including action(s) 11-14-2012 (2 pages).
	17.	Updated portions of prosecution history of 12/383,950	01-14-2013	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/383,950 (SPNE.P0004), listed as item #9 in the 1449 filed 08-09-2011, including response(s)/amendment(s) filed 01-14-2013 (7 pages).
	18.	Updated portions of prosecution history of 12/705,970	12-13-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,970 (SPNE.P0005), listed as item #10 in the 1449 filed 08-09-2011, including action(s) dated 12-13-2012 (11 pages).
	19.	Updated portions of prosecution history of 12/705,974	12-17-2012	Wensel, Jeffrey Paris	Updated portions of prosecution history of commonly owned U.S. Patent Application 12/705,974 (SPNE.P0007), listed as item #11 in the 1449 filed 08-09-2011, including response(s)/amendment(s) filed 12-17-2012 (11 pages).
	20.	Portions of prosecution history of 13/032,634	12-05-2012	Wensel, Jeffrey Paris	Portions of prosecution history of commonly owned U.S. Patent Application 13/032,634 (SPNE.P0012), listed as item #13 in the 1449 filed 08-09-2011, including action(s) dated 12-05-2012 (12 pages).

Examiner Signature	/Seema Swaminathan/	Date Considered	01/28/2013

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.S./

CERTIFICATE OF TRANSMISSION VIA EFS-WEB

I hereby certify that this correspondence is being transmitted via EFS-Web to the United States Patent and Trademark Office on April 18, 2013.

/Ali Makoui/
Ali Makoui

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Jeffrey Paris Wensel	
Application No.:	12/705,972	Art Unit: 3738
Filed:	February 15, 2010	Examiner: Seema Mathew
Title:	FUSION MEMBER FOR INSERTION BETWEEN VERTEBRAL BODIES	Confirmation No.: 9747

REQUEST FOR CORRECTED FILING RECEIPT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicant respectfully requests a correction to the Filing Receipt mailed May 14, 2010 for the above-mentioned patent application. Specifically, Applicant notes the "Atty Docket No" section needs to read "SPNE.P0006" not "SPNE.P0004". Also, Applicant notes that the "Domestic Priority data as claimed by applicant" section needs to be corrected to also include claiming benefit of "61/211,484 03/27/2009" as it is indicated in the amendment to the Specification in the Preliminary Amendment dated July 27, 2010 of the present U.S. Non-Provisional application. Accordingly, the "Domestic Priority data as claimed by applicant" section of the Filing Receipt should read:

"This application is a CON of 12/383,950 03/27/2009"

"and is a CIP of 12/113,362 05/01/2008"

"and claims benefit of 61/211,484 03/27/2009"

"and said 12/383,950 03/27/2009"

"claims benefit of 61/040,136 03/27/2008"

"and claims benefit of 61/109,175 10/28/2008"

"and claims benefit of 61/148,036 01/28/2009"

"and said 12/113,362 05/01/2008"

"claims benefit of 61/040,136 03/27/2008"

Accompanying this Request is a marked-up copy of the first page of the Filing Receipt mailed May 14, 2010, which indicates the correction to the "Atty Docket No" and "Domestic Priority data as claimed by applicant" specified above.

Applicant has submitted all known required fees and petitions. Accordingly, Applicant believes that no additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required for the submission of this Request. However, in the unlikely event that the Commissioner determines that additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required, Applicant hereby makes such petitions as are required, requests such extensions of time and other forms of relief as are required, and authorizes the Commissioner to charge the cost of such petitions for extensions of time, other petitions, and/or other forms of relief to **Deposit Account No. 50-3804** referencing **SPNE.P0006**.

Respectfully Submitted,

Date: April 18, 2013

/Ali Makoui/
Ali Makoui
Reg. No. 45,536

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
12/705,972	02/15/2010	3733	688	~~SPNE.P0004~~ SPNE.P0006	21	3

CONFIRMATION NO. 9747

48947
ADELI & TOLLEN, LLP
11940 San Vicente Blvd., Suite 100
LOS ANGELES, CA 90049

UPDATED FILING RECEIPT

OC000000041584644

Date Mailed: 05/14/2010

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

Jeffrey Paris Wensel, Eugene, OR;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 12/383,950 03/27/2009
and is a CIP of 12/113,362 05/01/2008
and said 12/383,950 03/27/2009
claims benefit of 61/040,136 03/27/2008
and claims benefit of 61/109,175 10/28/2008
and claims benefit of 61/148,036 01/28/2009
and said 12/113,362 05/01/2008
claims benefit of 61/040,136 03/27/2008

and claims benefit of 61/211,484 03/27/2009

Foreign Applications

If Required, Foreign Filing License Granted: 03/01/2010

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 12/705,972**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No
** **SMALL ENTITY** **

Electronic Acknowledgement Receipt

EFS ID:	15552351
Application Number:	12705972
International Application Number:	
Confirmation Number:	9747
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
First Named Inventor/Applicant Name:	Jeffrey Paris Wensel
Customer Number:	48947
Filer:	Ali Makoui.
Filer Authorized By:	
Attorney Docket Number:	SPNE.P0006
Receipt Date:	18-APR-2013
Filing Date:	15-FEB-2010
Time Stamp:	14:11:24
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Corrected Filing Receipt	SPNE_P6_RCF.pdf	23162 63a073c29b64bde3f7313b9a920d137b50bf3230	no	3

Warnings:	
Information:	

2	Miscellaneous Incoming Letter	SPNE_P6_CorrectedFR.pdf	57915 d0ec5dac316b5977f7bdc8b1a7357d97aa60f0a6	no	1

Warnings:	
Information:	
Total Files Size (in bytes):	81077

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
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New International Application Filed with the USPTO as a Receiving Office
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
12/705,972	02/15/2010	3738	688	SPNE.P0006	21	3

CONFIRMATION NO. 9747

CORRECTED FILING RECEIPT

48947
ADELI & TOLLEN, LLP
11859 Wilshire Blvd., Suite 500
LOS ANGELES, CA 90025



Date Mailed: 04/23/2013

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Jeffrey Paris Wensel, Eugene, OR;

Applicant(s)

Jeffrey Paris Wensel, Eugene, OR;

Power of Attorney: None

Domestic Priority data as claimed by applicant

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and is a CIP of 12/113,362 05/01/2008 PAT 8313528
and claims benefit of 61/211,484 03/27/2009
and said 12/383,950 03/27/2009
claims benefit of 61/040,136 03/27/2008
and claims benefit of 61/109,175 10/28/2008
and claims benefit of 61/148,036 01/28/2009
and said 12/113,362 05/01/2008
claims benefit of 61/040,136 03/27/2008

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 03/01/2010
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 12/705,972**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No
** SMALL ENTITY **
Title

Fusion Member for Insertion Between Vertebral Bodies

Preliminary Class

623

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications:

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

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Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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NOT GRANTED

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CERTIFICATE OF TRANSMISSION VIA EFS-WEB

I hereby certify that this correspondence is being transmitted via EFS-Web to the United States Patent and Trademark Office on April 30, 2013.

/Ali Makoui/
Ali Makoui

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Jeffrey Paris Wensel
Application No.:	12/705,972
Filed:	2/15/2010
Title:	FUSION MEMBER FOR INSERTION BETWEEN VERTEBRAL BODIES

Art Unit: 3738

Examiner: Seema Mathew

Conf. No: 9747

AMENDMENT AFTER NOTICE OF ALLOWANCE

Mail Stop Issue Fees
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Amendment is filed pursuant to 37 CFR §1.312 and before payment of the issue fee. Please amend the patent application as follows:

Amendments to the Specification begin on page 2 of this paper.

Amendments to the Claims are reflected in the listing of claims, which begin on page 3 of this paper.

Remarks begin on page 7 of this paper.

AMENDMENTS TO THE SPECIFICATION

Please amend the "Claim of Benefit to Prior Applications" paragraph beginning on page 1, line 3, as follows:

CLAIM OF BENEFIT TO PRIOR APPLICATIONS

This application claims benefit to United States Provisional Patent Application 61/211,484, filed on March 27, 2009. This application is a continuation application of United States Patent Application 12/383,950, filed March 27, 2009, now issued as U.S. Patent No. 8,382,839. This application is also a continuation-in-part application of United States Patent Application 12/113,362, filed on May 1, 2008, now issued as U.S. Patent No. 8,313,528. United States Patent Application 12/383,950 claims benefit to United States Provisional Patent Application 61/040,136, filed on March 27, 2008; United States Provisional Patent Application 61/109,175, filed October 28, 2008; and United States Provisional Patent Application 61/148,036, filed January 28, 2009. United States Patent Application 12/113,362 claims benefit to United States Provisional Patent Application 61/040,136, filed March 27, 2008. The above-mentioned applications, namely United States Patent ~~Applications~~ Application 12/383,950, now issued as United State Patent No. 8,382,839 and United States Patent Application 12/113,362, now issued as United State Patent No. 8,313,528, and United States Provisional Patent Applications 61/211,484, 61/040,136, 61/109,175, and 61/148,036, are incorporated herein by reference.

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. The following listing provides the amended claims with deleted material crossed out and new material underlined to show the changes made.

1-53. (Canceled)

54. (Previously Presented) A fusion device comprising:

a fusion member configured to position between first and second vertebral bodies, the fusion member comprising a first curved channel and a second curved channel;

a first anchoring member configured to insert through the first curved channel and partially into the first vertebral body while a portion of the first anchoring member remains within the fusion member, in order to couple the fusion member with the first vertebral body; and

a second anchoring member configured to insert through the second curved channel and partially into the second vertebral body while a portion of the second anchoring member remains within the fusion member, in order to couple the fusion member with the second vertebral body,

wherein the first curved channel has a first cross-sectional plane along a first path that is traversed by the first curved channel through the fusion member and the second curved channel has a second cross-sectional plane along a second path that is traversed by the second curved channel through the fusion member, wherein the first and second cross-sectional planes are parallel to each other.

55. (Currently Amended) The fusion device of claim 54, wherein the first and second ~~cross-planes~~ cross-sectional planes are parallel to at least one surface of the fusion member.

56. (Previously Presented) The fusion device of claim 54, wherein neither of the first and second cross-sectional planes is parallel to at least one surface of the fusion member.

57. (Previously Presented) The fusion device of claim 54,

wherein the first curved channel opens to at least two surfaces of the fusion member and the second curved channel opens to at least two surfaces of the fusion member,

wherein the first cross-sectional plane is not parallel to either of the two surfaces to which the first curved channel opens and the second cross-sectional plane is not parallel to either of the two surfaces to which the second curved channel opens.

58. (Previously Presented) The fusion device of claim 54,

wherein the first and second curved channels open to a first surface of the fusion member but the first curved channel traverses to a second surface of the fusion member and the second curved channel traverses to a third surface of the fusion member;

wherein the traversal of the first and second curved channels through the fusion member allows (i) the first anchoring member to enter the first surface of the fusion member but exit the second surface of the fusion member at a first desired location on the second surface of the fusion member and (ii) the second anchoring member to enter the first surface of the fusion member but exit the third surface of the fusion member at a second desired location on the second surface without hindering the first anchoring member's insertion through the fusion member.

59. (Previously Presented) The fusion device of claim 58, wherein the first desired location is the geometric center of the second surface of the fusion member and the second desired location is the geometric center of the third surface of the fusion member.

60. (Canceled)

61. (Previously Presented) The fusion device of claim 54,

wherein each anchoring member is configured to couple to a driving member,

wherein the driving member is configured to drive the anchoring member into the corresponding vertebral body and decouple from the anchoring member.

62. (Previously Presented) The fusion device of claim 54, wherein the first and second anchoring members are made of a flexible material to allow the first and second anchoring members to bend to traverse through the first and second curved channels.

63. (Previously Presented) The fusion device of claim 54,

wherein each channel of the fusion member has an opening on a surface of the fusion member and the opening has a recess,

wherein each anchoring member has a base that fits within the recess of the channel associated with the anchoring member in order to maintain the anchoring member at least partially in the fusion member while the anchoring member is inserted into the vertebral body.

64. (Previously Presented) The fusion device of claim 54, wherein each anchoring member comprises a perforation for delivering a hardening material to a location where the anchoring member is inserted into the corresponding vertebral body.

65-69. (Canceled)

70. (Previously Presented) A fusion device comprising:

a fusion member for positioning between first and second vertebral bodies, the fusion member comprising a first channel and a second channel;

a first arc-shaped anchoring member for inserting through the first channel and partially into the first vertebral body while a portion of the first arc-shaped anchoring member remains within the fusion member, in order to couple the fusion member with the first vertebral body; and

a second arc-shaped anchoring member for inserting through the second channel and partially into the first vertebral body while a portion of the second arc-shaped anchoring member remains within the fusion member, in order to couple the fusion member with the first vertebral body,

wherein the first channel has a first cross-sectional plane along a first path that is traversed by the first channel through the fusion member and the second channel has a second cross-sectional plane along a second path that is traversed by the second channel through the fusion member, wherein the first and second cross-sectional planes are the same plane and the same plane is parallel to a surface of the fusion member.

71. (Previously Presented) The fusion device of claim 70, wherein the first arc-shaped anchoring member and the second arc-shaped anchoring member enter a first surface of the fusion member and exit a second surface of the fusion number and the first and second surfaces are adjacent to each other.

72. (Canceled)

73. (Canceled)

74. (Previously Presented) The fusion device of claim 70, the fusion device further comprising:

a first driving member for advancing the first arc-shaped anchoring member into the first vertebral body;

a first coupling mechanism for coupling the first arc-shaped anchoring member with the first driving member;

a second driving member for advancing the second arc-shaped anchoring member into first the vertebral body;

a second coupling mechanism for coupling the second arc-shaped anchoring member with the second driving member;

wherein the first coupling mechanism comprises a first pivoting mechanism for allowing the first arc-shaped anchoring member to pivot around the first driving member and the second coupling mechanism comprises a second pivoting mechanism for allowing the second arc-shaped anchoring member to pivot around the second driving member.

REMARKS

After the receipt of the Notice of Allowance dated January 30, 2013, Applicant noted that claim 55 requires amendments to address certain typographical and/or antecedent issues. In this amendment, claim 55 is amended to correct these typographical and/or antecedent issues. Applicant has not added or changed the scope of the allowed claims. Applicant also noted that the Claim of Benefit To Prior Applications paragraph in the specification contain references to related U.S. Patent applications by application numbers. These related Applications have been patented after the filing date of this application. In this amendment, the specification is amended to include the corresponding patent numbers for these related applications. No new matter has been added. Applicant requests that the above amendments be entered pursuant to 37 CFR §1.312.

1. Why the amendment is needed

The Amendment is needed to correct certain typographical and/or antecedent issues in some of the claims.

2. Why the proposed amended claims require no additional search or examination

The Examiner has already stated in the Notice of Allowance that all of the claims as provided in the notice of allowance are allowed. The Amendment does not introduce new subject matter and correcting the typographical and/or antecedent issues in some of the claims does not change the scope of the claims and therefore requires no additional search.

3. Why the claims are patentable

The Examiner has already stated that the claims as provided above are allowable. Applicant has not added or changed the scope of the allowed claims. Therefore, the claims are patentable.

4. Why the claims were not presented earlier

Upon receiving the Notice of Allowance, Applicant recognized some of the claims require amendment to correct certain typographical and/or antecedent issues. Therefore, this amendment is being submitted in compliance with §1.312.

CONCLUSION

In view of the foregoing, Applicant respectfully requests that the amendments to the above claims be entered pursuant to §1.312. Applicant has submitted all known required fees and petitions. Accordingly, Applicant believes that no additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required for the submission of this Amendment. However, in the unlikely event that the Commissioner determines that additional fees, petitions for extensions of time, other petitions, and/or other forms of relief are required, Applicant hereby makes such petitions as are required, request such extensions of time and other forms of relief as are required, and authorize the Commissioner to charge the cost of such petitions for extensions of time, other petitions, and/or other forms of relief to **Deposit Account No. 50-3804**, referencing **SPNE.P0006**.

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Respectfully Submitted,

April 30, 2013
Date

/Ali Makoui/
Ali Makoui
Reg. No. 45,536

Adeli & Tollen LLP
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Electronic Acknowledgement Receipt

EFS ID:	15658118
Application Number:	12705972
International Application Number:	
Confirmation Number:	9747
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
First Named Inventor/Applicant Name:	Jeffrey Paris Wensel
Customer Number:	48947
Filer:	Ali Makoui.
Filer Authorized By:	
Attorney Docket Number:	SPNE.P0006
Receipt Date:	30-APR-2013
Filing Date:	15-FEB-2010
Time Stamp:	22:40:11
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		2013_04_30_SPNE_P0006_312.pdf	118269 f5a9247dd91045d4b9bea92ca03205bcfed910a1	yes	8

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment after Notice of Allowance (Rule 312)	1	1
	Claims	2	6
	Applicant Arguments/Remarks Made in an Amendment	7	8
Warnings:			
Information:			
	Total Files Size (in bytes):	118269	

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PART B - FEE(S) TRANSMITTAL

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Commissioner for Patents
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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

Ali Makoui	(Depositor's name)
/Ali Makoui/	(Signature)
April 30, 2013	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/705,972	02/15/2010	Jeffrey Paris Wensel	SPNE.P0006	9747

TITLE OF INVENTION: Fusion Member for Insertion Between Vertebral Bodies

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	~~$885~~ $890	$0	$0	~~$885~~ $890	04/30/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
MATHEW, SEEMA	3738	623-017110

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 ADELI & TOLLEN LLP
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Spinelogik, Inc.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Eugene, Oregon

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
- ☒ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ☐ A check is enclosed.
- ☒ Payment by credit card. ~~Form PTO-2038 is attached.~~
- ☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 50-3804 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
- ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature /Ali Makoui/ Date April 30, 2013

Typed or printed name Ali Makoui Registration No. 45,536

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Electronic Patent Application Fee Transmittal

Application Number:	12705972
Filing Date:	15-Feb-2010
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
First Named Inventor/Applicant Name:	Jeffrey Paris Wensel
Filer:	Ali Makoui.
Attorney Docket Number:	SPNE.P0006

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl Issue Fee	2501	1	890	890
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**890**

Electronic Acknowledgement Receipt

EFS ID:	15658515
Application Number:	12705972
International Application Number:	
Confirmation Number:	9747
Title of Invention:	Fusion Member for Insertion Between Vertebral Bodies
First Named Inventor/Applicant Name:	Jeffrey Paris Wensel
Customer Number:	48947
Filer:	Ali Makoui.
Filer Authorized By:	
Attorney Docket Number:	SPNE.P0006
Receipt Date:	30-APR-2013
Filing Date:	15-FEB-2010
Time Stamp:	23:00:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$890
RAM confirmation Number	8535
Deposit Account	503804
Authorized User	ADELI, MANI

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	SPNEP0006Trans.pdf	1761675 d30084485dadf4efd0c7de5db11ff29595f330db	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	29981 d088a0eb5c1a23753f41ae7f76c59df42fc9f648	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1791656		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/705,972	02/15/2010	Jeffrey Paris Wensel	SPNE.P0006	9747

48947 7590 05/15/2013

ADELI & TOLLEN, LLP
11859 Wilshire Blvd., Suite 500
LOS ANGELES, CA 90025

EXAMINER	
MATHEW, SEEMA	
ART UNIT	PAPER NUMBER
3738	

NOTIFICATION DATE	DELIVERY MODE
05/15/2013	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PatentOfficeMail@adelitollen.com

Response to Rule 312 Communication	Application No.	Applicant(s)
	12/705,972	WENSEL, JEFFREY PARIS
	Examiner	Art Unit
	SEEMA MATHEW	3738

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

1. ☒ The amendment filed on *30 April 2013* under 37 CFR 1.312 has been considered, and has been:

a) ☐ entered.

b) ☒ entered as directed to matters of form not affecting the scope of the invention.

c) ☐ disapproved because the amendment was filed after the payment of the issue fee.

Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.

d) ☐ disapproved. See explanation below.

e) ☐ entered in part. See explanation below.

The amendments presented did not affect the scope of the claims and were to correct typographical issues of claim 55 and to correct typographical issues in the specification.

/THOMAS J SWEET/ Supervisory Patent Examiner, Art Unit 3738	/SEEMA MATHEW/ Examiner, Art Unit 3738

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	12/705,972
				Filing Date	February 15, 2010
				First Named Inventor	Jeffrey Paris Wensel
				Group Art Unit	3738
				Examiner Name	Seema Matthew
Sheet	1	of	2	Attorney Docket Number	SPNE.P0006

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	5,397,364		~~05-14-1995~~	Kozak, Jeffrey, et al.	March 14, 1995
	2.	6,315,795		11-13-2001	Scarborough, Nelson, et al.	
	3.	6,468,276		10-22-2002	McKay, Douglas William	
	4.	7,195,643		~~05-27-2007~~	Jackson, Roger P.	March 27, 2007
	5.	7,662,184		02-16-2010	Edwards, Jean T., et al.	

Change(s) ~~applied~~ to document, /D.D./ 2/13/2013

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	6.	2005/0065519		03-24-2005	Michelson, Gary Karlin	
	7.	2005/0065607		03-24-2005	Gross, Jeffrey M.	
	8.	2006/0122623		06-08-2006	Truckai, Csaba, et al.	
	9.	2007/0055376		03-08-2007	Michelson, Gary K.	
	10.	2008/0221695		09-11-2008	Jacofsky, Marc C., et al.	
	11.	2009/0292316		11-26-2009	Hess, Harold	

COMMONLY OWNED U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document Number	Kind Code (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Commonly Owned Application Data
	12.	13/655,412		10-18-2012 (filing date)	Wensel, Jeffrey Paris	Non-published commonly owned U.S. Patent Application 13/655,412 (SPNE.P0003C).
	13.	13/663,472		10-30-2012 (filing date)	Wensel, Jeffrey Paris	Non-published commonly owned U.S. Patent Application 13/663,472 (SPNE.P0001C).
	14.	8,313,528		11-20-2012	Wensel, Jeffrey Paris	Issued commonly owned U.S. Patent Application 12/113,362 (SPNE.P0001), listed as item #7 in the 1449 filed 08-09-2011.
	15.	8,333,804		12-18-2012	Wensel, Jeffrey Paris	Issued commonly owned U.S. Patent Application 12/361,525 (SPNE.P0003), listed as item #8 in the 1449 filed 08-09-2011.

Examiner Signature	/Seema Swaminathan/	Date Considered	01/28/2013

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.S./

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/705,972	06/11/2013	8460385	SPNE.P0006	9747

48947 7590 05/22/2013

ADELI & TOLLEN, LLP
11859 Wilshire Blvd., Suite 500
LOS ANGELES, CA 90025

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 404 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Jeffrey Paris Wensel, Eugene, OR;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court for the Eastern District of Texas on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
2:23-cv-296	6/22/2023	for the Eastern District of Texas

PLAINTIFF	DEFENDANT
SPINELOGIK, INC.	CHOICE SPINE, LLC,

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	8,460,385	6/11/2013	Spinelogik Inc
2			
3			
4			
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 120 (Rev. 08/10)

TO:	Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court for the Eastern District of Texas on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
2:23-cv-297	6/22/2023	for the Eastern District of Texas

PLAINTIFF	DEFENDANT
SPINELOGIK, INC.	GENESYS ORTHOPEDICS SYSTEMS, L.L.C.,

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	8,460,385	6/11/2013	Spinelogik Inc
2			
3			
4			
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director **Copy 3—Upon termination of action, mail this copy to Director**
Copy 2—Upon filing document adding patent(s), mail this copy to Director **Copy 4—Case file copy**

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court for the Eastern District of Texas on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
2:23-cv-298	6/22/2023	for the Eastern District of Texas

PLAINTIFF	DEFENDANT
SPINELOGIK, INC.	ZIMMER BIOMET SPINE, INC. AND ZIMVIE, INC.,

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	8,460,385	6/11/2013	Spinelogik Inc
2			
3			
4			
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director **Copy 3—Upon termination of action, mail this copy to Director**
Copy 2—Upon filing document adding patent(s), mail this copy to Director **Copy 4—Case file copy**