



September 30, 2019

Attorney Docket No.: 46440-0020004

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

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Fish & Richardson P.C.
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Minneapolis, MN 55402

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Presented for filing is a new continuation patent application of:

Inventor(s): AHMNON D. MOSKOWITZ, MOSHEH T. MOSKOWITZ, PABLO A.
VALDIVIA Y. ALVARADO, ERIC SUGALSKI AND NATHAN C.
MOSKOWITZ

Title: ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR
DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR
THEIR PLACEMENT AND EXPANSION

Enclosed are the following papers, including those required to receive a filing date under 37
CFR 1.53(b):

	<u>Pages</u>
Specification	29
Claims	3
Abstract	1
Declaration	5
Drawing(s)	38

Enclosures:

- Application Data Sheet, 12 pages.
- Information disclosure statement, 1 pages.
PTO-1449, 13 pages.
- Power of Attorney, 2 pages.

The applicant claims small entity status under 37 CFR 1.27.

No filing fee is being paid now.

I hereby authorize the USPTO to communicate in response to email communications from the undersigned and practitioners under Customer No. 26191 in accordance with 37 CFR 1.33 and 37 CFR 1.34 concerning any subject matter of this application via email. I understand that a copy of these communications will be made of record in the application file. (MPEP 502.03).

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Commissioner for Patents
September 30, 2019
Page 2

If this application is considered to be incomplete, or if a telephone conference would otherwise be helpful, call the undersigned at (612) 337-2538.

Send all correspondence to:

26191
Customer Number

Respectfully submitted,

/Stuart A. Nelson/

Stuart A. Nelson
Registration No. 63,947

Enclosures

SWN/aur
62113882.doc

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	46440-0020004
		Application Number	
Title of Invention	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2:

☐	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
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Inventor Information:

Inventor	1				Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Ahmnnon	D.	Moskowitz			
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service						
City	Rockville	State/Province	MD	Country of Residence	US	
Mailing Address of Inventor:						
Address 1	212 North Adams St.					
Address 2						
City	Rockville	State/Province	MD			
Postal Code	20850	Country i	US			
Inventor	2				Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Mosheh	T.	Moskowitz			
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service						
City	Rockville	State/Province	MD	Country of Residence	US	
Mailing Address of Inventor:						
Address 1	212 North Adams St.					
Address 2						
City	Rockville	State/Province	MD			
Postal Code	20850	Country i	US			
Inventor	3				Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Pablo	A. Valdivia Y.	Alvarado			
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service						

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	46440-0020004
		Application Number	
Title of Invention	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION		

City	Cambridge	State/Province	MA	Country of Residence	US
------	-----------	----------------	----	----------------------	----

Mailing Address of Inventor:

Address 1	13 Lancaster St. #2
-----------	---------------------

Address 2	
-----------	--

City	Cambridge	State/Province	MA
------	-----------	----------------	----

Postal Code	02139	Country	US
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Inventor	4	Remove
----------	---	------------------------

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Eric		Sugalski	

Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service

City	Arlington	State/Province	MA	Country of Residence	US
------	-----------	----------------	----	----------------------	----

Mailing Address of Inventor:

Address 1	128 Blossom Street
-----------	--------------------

Address 2	
-----------	--

City	Arlington	State/Province	MA
------	-----------	----------------	----

Postal Code	02474	Country	US
-------------	-------	---------	----

Inventor	5	Remove
----------	---	------------------------

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Nathan	C.	Moskowitz	

Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service

City	Rockville	State/Province	MD	Country of Residence	US
------	-----------	----------------	----	----------------------	----

Mailing Address of Inventor:

Address 1	212 North Adams Street
-----------	------------------------

Address 2	
-----------	--

City	Rockville	State/Province	MD
------	-----------	----------------	----

Postal Code	20850	Country	US
-------------	-------	---------	----

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. [Add](#)**Correspondence Information:**

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).
☐ An Address is being provided for the correspondence Information of this application.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	46440-0020004	
		Application Number		
Title of Invention	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION			
Customer Number	26191			
Email Address	apsi@fr.com		Add Email	Remove Email

Application Information:

Title of the Invention	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION			
Attorney Docket Number	46440-0020004	Small Entity Status Claimed ☒		
Application Type	Nonprovisional			
Subject Matter	Utility			
Total Number of Drawing Sheets (if any)	38	Suggested Figure for Publication (if any)		

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☐ Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and 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.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.			
Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	26191		

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	46440-0020004
		Application Number	
Title of Invention	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status		Pending	Remove			
Application Number		Continuity Type		Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)	
		Continuation of		16/025667	2018-07-02	
Prior Application Status		Patented	Remove			
Application Number	Continuity Type		Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16/025667	Continuation of		15820232	2017-11-21	10016284	2018-07-10
Prior Application Status		Patented	Remove			
Application Number	Continuity Type		Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15820232	Continuation of		14063197	2013-10-25	9848993	2017-12-26
Prior Application Status		Expired	Remove			
Application Number		Continuity Type		Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)	
14063197		Claims benefit of provisional		61801783	2013-03-15	
Prior Application Status		Expired	Remove			
Application Number		Continuity Type		Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)	
14063197		Claims benefit of provisional		61718707	2012-10-25	
Prior Application Status		Patented	Remove			
Application Number	Continuity Type		Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14063197	Continuation in part of		13210150	2011-08-15	9867719	2018-01-16
Prior Application Status		Patented	Remove			
Application Number	Continuity Type		Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14063197	Continuation in part of		13210157	2011-08-15	9889022	2018-02-13
Prior Application Status		Patented	Remove			
Application Number	Continuity Type		Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14063197	Continuation in part of		13210162	2011-08-15	9895238	2018-02-20

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number		46440-0020004	
		Application Number			
Title of Invention		ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION			

Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14063197	Continuation in part of	13210168	2011-08-15	9907674	2018-03-06
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14063197	Continuation in part of	13741361	2013-01-14	9301854	2016-04-05
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13210150	Continuation of	13084543	2011-04-11	8353913	2013-01-15
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13210150	Continuation of	13108982	2011-05-16	9005293	2015-04-14
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13210157	Continuation of	13084543	2011-04-11	8353913	2013-01-15
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13210157	Continuation of	13108982	2011-05-16	9005293	2015-04-14
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13210162	Continuation of	13084543	2011-04-11	8353913	2013-01-15
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13210162	Continuation of	13108982	2011-05-16	9005293	2015-04-14
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13210168	Continuation of	13084543	2011-04-11	8353913	2013-01-15
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13210168	Continuation of	13108982	2011-05-16	9005293	2015-04-14

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number		46440-0020004	
		Application Number			
Title of Invention	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION				

Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13741361	Continuation of	13084543	2011-04-11	8353913	2013-01-15
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13741361	Continuation of	13108982	2011-05-16	9005293	2015-04-14
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13084543	Continuation of	11842855	2007-08-21	7942903	2011-05-17
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13108982	Continuation of	11842855	2007-08-21	7942903	2011-05-17
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
11842855	Continuation in part of	11536815	2006-09-29	7846188	2010-12-07
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
11536815	Continuation in part of	11208644	2005-08-23	7704279	2010-04-27
Prior Application Status		Expired		Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
11208644	Claims benefit of provisional	60670231	2005-04-12		
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)¹ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	46440-0020004
		Application Number	
Title of Invention	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION		

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ^j (if applicable)	Remove

Additional Foreign Priority Data may be generated within this form by selecting the [Add](#) button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013. NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	46440-0020004
		Application Number	
Title of Invention	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	46440-0020004
		Application Number	
Title of Invention	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.			
Applicant	1	Remove	
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.			
		Clear	
☐ Assignee	☐ Legal Representative under 35 U.S.C. 117		☐ Joint Inventor
Person to whom the inventor is obligated to assign.		Person who shows sufficient proprietary interest	
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:			
Name of the Deceased or Legally Incapacitated Inventor:			
If the Applicant is an Organization check here. ☒			
Organization Name	Moskowitz Family LLC		
Mailing Address Information For Applicant:			
Address 1	212 North Adams Street		
Address 2			
City	Rockville	State/Province	MD
Country	US	Postal Code	20850
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button. Add			

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	46440-0020004
		Application Number	
Title of Invention	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION		

Assignee 1				
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
Remove				
If the Assignee or Non-Applicant Assignee is an Organization check here. ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1				
Address 2				
City		State/Province		
Country ⁱ		Postal Code		
Phone Number		Fax Number		
Email Address				
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add				

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the **INITIAL** filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Stuart A. Nelson/		Date (YYYY-MM-DD)	2019-09-30
First Name	Stuart A.	Last Name	Nelson	Registration Number 63,947
Additional Signature may be generated within this form by selecting the Add button. Add				

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	46440-0020004
		Application Number	
Title of Invention	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION		

This collection of information is required by 37 CFR 1.76. 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 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet 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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**ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR
DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR
PLACEMENT AND EXPANSION**

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a Continuation-in-part Application of each of co-pending application Serial No. 13/210,150, filed on August 15, 2011, co-pending application Serial No. 13/210,157, filed on August 15, 2011, co-pending application Serial No. 13/210,162, filed on August 15, 2011, co-pending application Serial No. 13/210,168, filed on August 15, 2011, co-pending application Serial No. 13/741,361, filed on January 14, 2013, each of which is a Continuation Application of application Serial No. 13/084,543, filed on April 11, 2011, now U.S. Patent No. 8,353,913 issued on January 15, 2013, which is a Divisional Application of application Serial No. 11/842,855, filed on August 21, 2007, now U.S. Patent No. 7,942,903 issued on May 17, 2011, and a Continuation Application of application Serial No. 13/108,982, filed on May 16, 2011, which also is a Continuation Application of application Serial No. 11/842,855, filed on August 21, 2007, now U.S. Patent No. 7,942,903 issued on May 17, 2011, which is a Continuation-In-Part Application of application Serial No. 11/536,815, filed on September, 29, 2006, now U.S. Patent No. 7,846,188 issued on December 7, 2010, which is a Continuation-In-Part Application of application Serial No. 11/208,644, filed on August 23, 2005, now U.S. Patent No. 7,704,279 issued on April 27, 2010, for which priority is claimed under 35 U.S.C. §120; and this application also claims priority under 35 U.S.C. § 119(e) of U.S. provisional application No. 61/801,783, filed on March 15,

2013, U.S. provisional application No. 61/718,707, filed on October 25, 2012, and U.S. provisional application No. 60/670,231, filed on April 12, 2005; the entire contents of all the above identified patent applications are hereby incorporated by reference.

[0002] U.S. Patent Application Serial Nos. 13/084,543, filed on April 11, 2011 (Attorney Docket No. 3003/0105PUS2), 11/842,855, filed on August 21, 2007 (Attorney Docket No. 3003/0105PUS1), 11/536,815, filed on September 29, 2006 (Attorney Docket No. 3003/0104PUS2), and 11/208,644, filed on August 23, 2005 (Attorney Docket No. 3003/0104PUS1), each claim the benefit of priority under 35 U.S.C. § 119(e) of U.S. Provisional Application No. 60/670,231, filed on April 12, 2005 (Attorney Docket No. 3003/0102PR01), and this application hereby incorporates the claim of priority to this provisional application under 35 U.S.C. § 119(e) from the aforementioned intermediate applications (for which priority of each intermediate application is claimed under 35 U.S.C. § 120); and the entire contents of all of the above identified patent applications are hereby incorporated by reference in their entirety.

FIELD OF DISCLOSURE

[0003] The present invention relates to unique, universal Zero-Profile Expandable Intervertebral Spacer (ZP-EIS) devices for fusion and distraction throughout the entire spine which can be inserted via anterior, anterolateral, lateral, far lateral or posterior surgical approaches dependent on the need and preference. Multiple ZP-EIS embodiments each with unique mechanisms of calibrated expansion are presented. Two of these embodiments incorporate bi-directional fixating transvertebral (BDFT) screws

and five other embodiments do not incorporate BDFT screws. A universal tool for their intervertebral placement and device expansion is also described.

[0004] The ZP-EIS embodiments with incorporated BDFT screws can be used as stand-alone intervertebral devices. These exemplary embodiments combine the dual functions of intervertebral calibrated expandable distraction, and segmental vertebral body spinal fusion. These embodiments can include bone cavities which can be filled with bone fusion material(s) to promote segmental spinal fusion.

[0005] The calibrated ZP-EIS embodiments without incorporated BDFT screws can also be used as stand-alone devices for calibrated intervertebral expansion and segmental vertebral body fusion. The exemplary devices can include bone cavities which can be filled with bone fusion material. If desirable, the exemplary devices can be supplemented with other forms of screw stabilization.

[0006] The exemplary ZP-EIS embodiments, especially those with incorporated BDFT screws, may obviate the need for supplemental pedicle screw fixation in many situations. The exemplary embodiments allow nuanced, fine-tuned incremental and calibrated distraction of the disc space to allow nerve root decompression in a minimally invasive and safe manner, as well as promoting segmental spinal fusion.

[0007] In the related applications in the Cross-Reference to Related Applications, Applicants first introduced the terminology “zero-profile” relating to spinal fusion devices. Applicants also have described zero-profile non-expandable and expandable stand-alone intervertebral spinal fusion device embodiments with incorporated BDFT screws. As described in greater detail below, exemplary embodiments of advanced ZP-EIS devices with BDFT screws are provided which have an improved contoured body

with tapered edges to more precisely insert into and conform to the biconcave disc space. The present application also provides exemplary embodiments of more advanced ZP-EIS devices without accompanying BDFT screws each with very unique calibrated expandable mechanisms allowing minimally invasive intervertebral expansion, vertebral body distraction and segmental spinal fusion. An exemplary embodiment of a universal tool also is described that can be adapted to implant one or more (e.g., all) of the intervertebral device embodiments herein described into the intervertebral space, and mechanically expand them.

BACKGROUND

[0008] The history and evolution of instrumented spinal fusion in the entire human spine has been reviewed in Applicants' copending applications set forth in the Cross-Reference to Related Applications (for example in U.S. Serial No. 11/536,815, filed on September, 29, 2006, and Serial No. 11/208,644, filed on August 23, 2005). Currently, the majority of spinal fusion techniques are typically supplemented with posterior pedicle screw placement and/or anterior (or lateral) plating. Complications of pedicle screw placement in the spine may include duration of procedure, significant tissue dissection and muscle retraction, misplaced screws with neural and/or vascular injury, excessive blood loss, need for transfusions, prolonged recovery, incomplete return to work, and excess rigidity leading to adjacent segmental disease requiring further fusions and re-operations. Recent advances in pedicle screw fixation including minimally invasive and image-guided technology, and the development of flexible rods, imperfectly may address some but not all of these issues.

[0009] Anterior/and or lateral plating because of the plates' elevated profiles can be complicated by esophageal, or major vascular injury. The zero-profile devices described herein with reference to the exemplary embodiments avoid these complications.

[0010] Current non-expandable intervertebral spacers must be manufactured with different heights, and the most appropriate sized spacer is selected for insertion. In these situations, the vertebral bodies are forcefully distracted to allow placement of an imperfectly fitting spacer. These are most often supplemented with pedicle screw and/or or plate fixation.

SUMMARY

[0011] The exemplary embodiments described herein can allow a more precisely tailored complimentary fit between spacer and disc space, allowing the spacer to expand gradually in a calibrated manner, and to incrementally achieve the precise fit and degree of distraction desirable. Thus, the process according to the present invention can be more individualized for every patient and apply less forceful disruption to the intervertebral space thereby improving safety and enhancing effectiveness of the placement of intervertebral spacers. The exemplary embodiments are zero-profile, and thus, do not damage or indent overlying soft tissue or vascular structures further decreasing morbidity.

[0012] Herein described are exemplary embodiments of multiple ZP-EIS devices which combine in a single construct the dual functions of calibrated expandable

intervertebral spacer distraction maintaining disc space height, and simultaneous segmental vertebral body spinal fusion.

[0013] To achieve safe, effective zero-profile and minimally invasive segmental spinal fusion, the exemplary embodiments of the present invention use of novel zero-profile calibrated expandable spacer (ZP-EIS) devices with or without BDFT screws which can be strategically inserted into the intervertebral disc space via anterior, anterio-lateral, lateral, far lateral or posterior surgical approaches.

[0014] In Applicants' applications set forth in the Cross-Reference to Related Applications, exemplary embodiments are directed to expanding intervertebral spacers which incorporated BDFT screws. One of these embodiments includes two sliding triangular bases to house two screws driven in two opposing directions which can be expanded in two simultaneous directions, height and depth, by turning a built-in screw adjuster. This was facilitated by a combined external drill/screw guide/cage expander to further enhance trajectory precision and to simultaneously expand the screw box in height and depth to custom-fit the individual disc space height. Applicants' copending applications set forth in the Cross-Reference to Related Applications further describe an exemplary embodiment of a universal tool and the adaptability of the tool, for example, to exemplary embodiments of sliding boxes, as well as to the exemplary embodiments described herein, including those with and without BDFT screws.

[0015] The evolved zero-profile expandable intervertebral spacer (ZP-EIS) embodiments with incorporated BDFT screws presented herein are more finely tapered and contoured to more easily allow insertion and conformation to the biconcave disc space.

[0016] The exemplary embodiments of ZP-EIS devices without incorporated BDFT screws described herein have the ability to incrementally and uniformly separate and distract the vertebral bodies. Each embodiment has a very unique mechanically designed mechanism of incremental expansion. The devices are all designed with cavities for bone fusion giving the surgeon the option to use these as stand-alone fusion/spacer devices or as supplemental devices if other screw fixation is deemed necessary. These innovations represent a continued evolution of our concept of zero-profile calibrated expandable intervertebral distraction/fusion spacers described in Applicants' applications, for example, as set forth in the Cross-Reference to Related Applications.

[0017] In the exemplary ZP-EIS embodiments with incorporated BDFT screws, a rostral-directed screw is passed through one built-in screw guide of the device which then is inserted and screwed into the superior vertebral body. Next, a caudally directed screw is passed through an adjacent built-in screw guide, which then is inserted and screwed into the inferior vertebral body. One of many novel features of this design is the built-in prescribed angles of the integral screw guides which allow the transvertebral penetration into the vertebral bodies. This is a truly amazing feat accomplished particularly in the posterior or lateral/far lateral lumbar spine considering the small anatomically restricted work zone within which to work, which is very narrowly prescribed by obtuse angulations between screw and intervertebral bone surfaces, and by nerve root, facet joint and pedicle. Applicants' applications set forth in the Cross-Reference to Related Applications included an angled screw driver specifically designed to fit these devices if

a straight screw driver impedes screw placement. Hence, these external tools can provide the means in any circumstance to accomplish precision screw trajectory.

[0018] The exemplary zero-profile embodiments of the present invention can provide enhanced individualized intervertebral conformation, and multiple methods of finely calibrating intervertebral expansion, and vertebral body distraction further reducing morbidity and enabling more minimally invasive surgical methods of vertebral body distraction and segmental fusion compared to Applicants' applications set forth in the Cross-Reference to Related Applications.

[0019] The exemplary embodiments of box casings can include perforations to allow bone packing for fusion. These exemplary devices can prevent subsidence. In an exemplary embodiment, both the inside of the denuded intervertebral space, and the devices can be packed with autologous or allograft bone, BMP, DBX or similar osteoconductive material.

[0020] The zero-profile EIS embodiments, in particular those with incorporated BDFT screws, can provide as strong or stronger segmental fusion as pedicle screws without the complications arising from pedicle screw placement which include screw misplacement with potential nerve and/or vascular injury, violation of healthy facets, possible pedicle destruction, blood loss, and overly rigid fusions. In the case of the posterior Lumbar spine by placing screws across the intervertebral space from vertebral body to vertebral body, engaging anterior and middle spinal columns, and not the vertebral bodies via the transpedicular route, the healthy facet joints, if they exist, are preserved. Because the exemplary techniques accomplish both anterior and middle column fusion, without rigidly fixating the posterior column, the exemplary embodiments

in essence create a flexible fusion. This exemplary devices therefore can provide a flexible fusion device because the preserved posterior facet joints retain their function achieving at least a modicum of mobility and hence a less rigid (i.e. a flexible) fusion.

[0021] The very advantage of transpedicular screws which facilitate a strong solid fusion by rigidly engaging all three spinal columns is the same mechanical mechanism whereby complete inflexibility of all columns is incurred thereby leading to increasing rostral and caudal segmental stress which leads to an increased rate of re-operation.

[0022] Transvertebral fusion also leads to far less muscle retraction, blood loss, and significant reduction in operating room (O.R.) time. Thus, the complication of pedicular screw pull-out and hence high re-operation rate associated with the conventional flexible fusion pedicle screws/rods is obviated.

[0023] Although the exemplary embodiments can be supplemented with transpedicular screws, there would be no absolute need for supplemental pedicle screw fixation with these operative techniques. The expandable spacers without BDFT screws can be supplemented with other screw stabilization if desired.

[0024] Because the exemplary embodiments are zero-profile, these devices also obviate the morbidity involved with profiled anterior or lateral plating. Multi-level fusions can be performed with all of the exemplary embodiments described herein.

[0025] Currently failed anterior lumbar arthroplasties are salvaged by combined anterior and posterior fusions. The exemplary ZP-EIS embodiments with incorporated BDFT screws could be utilized as a one-step salvage operation for failed/extruded anteriorly placed lumbar artificial discs obviating the above salvage procedure which has far greater morbidity.

BRIEF DESCRIPTION OF DRAWINGS

[0026] These and other aspects and features of embodiments of the present invention will be better understood after a reading of the following detailed description, together with the attached drawings, wherein:

[0027] FIGS. 1A-1B illustrate an exemplary embodiment (Embodiment I) of a non-tapered sliding base ZP-EIS device with incorporated BDFT screws in sagittal-oblique (FIG. 1A), and exploded (FIG. 1B) views.

[0028] FIGS. 2A-2D illustrate an exemplary embodiment (Embodiment II) of a tapered sliding base ZP-EIS device with incorporated BDFT screws in closed (FIG. 2A), semi-expanded (FIG. 2B), and fully expanded (FIG. 2C) positions, and in an exploded view (FIG. 2D).

[0029] FIGS. 3A-3D illustrate an exemplary embodiment (Embodiment III) of a scissors jack driven ZP-EIS device without incorporated BDFT screws in closed (FIG. 3A), semi-expanded (FIG. 3B), and fully expanded (FIG. 3C) positions, and in exploded view (FIG. 3D).

[0030] FIGS. 4A-4C illustrate an exemplary embodiment (Embodiment IV) of a tapered thread driven ZP-EIS device without incorporated BDFT screws in closed (FIG. 4A), semi-expanded/fully expanded positions (FIG. 4B), and in cross-sectional view (FIG. 4C).

[0031] FIGS. 5A-5D illustrate an exemplary embodiment (Embodiment V) of a dry anchor driven ZP-EIS device without incorporated BDFT screws in closed (FIG. 5A),

semi- expanded (FIG. 5B), and fully expanded (FIG. 5C) positions, and in an exploded view (FIG. 5D).

[0032] FIGS. 6A-6D illustrate an exemplary embodiment (Embodiment VI) of a modified wedge driven ZP-EIS device without incorporated BDFT screws in closed (FIG. 6A), semi-expanded (FIG. 6B), and fully expanded (FIG. 6C) positions, and in an exploded view (FIG. 6D).

[0033] FIGS. 7A-7D illustrate an exemplary embodiment (Embodiment VII) of a worm drive ZP-EIS device without incorporated BDFT screws in closed (FIG. 7A), semi-expanded (FIG. 7B), and fully expanded (FIG. 7C) positions, and in an exploded view (FIG. 7D).

[0034] FIGS. 7C(i) and 7C(ii) illustrate top, perspective views of an intervertebral cage construct according to an exemplary embodiment of the invention.

[0035] FIGS. 7D illustrates a top, perspective, exploded view of a positioning tool/screw guide/box expander according to an exemplary embodiment.

[0036] FIG. 7E illustrates a superior oblique perspective view of the positioning tool/drill guide/box expander component according to an exemplary embodiment.

[0037] FIG. 8A-8C illustrate a positioning tool/screw guide/box expander in oblique perspective (FIG. 8A), lateral (FIG. 8B), and exploded (FIG. 8C) views according to an exemplary embodiment, which is shown coupled to the exemplary non-tapered sliding base ZP-EIS device illustrated in FIGS. 1A-1B.

[0038] FIG. 8D(i) and 8D(ii) illustrate superior oblique perspective views of the positioning tool/drill guide/box expander component, according to an exemplary

embodiment, which may be optionally used for the exemplary embodiments illustrated in FIGS. 1A-1B and 2A-2D.

[0039] FIGS. 8E-8G illustrate sequential steps (I-III: Step I (FIG. 8E), step II (FIG. 8F), and step III (FIG. 8G)) of the positioning tool/screw guide/box expander assembly according to an exemplary embodiment.

[0040] FIGS. 8H-8I illustrate three-dimensional views of positioning tools, according to exemplary embodiments, for impaction and placement of two transvertebral screws, for example, of the exemplary embodiments illustrated in FIGS. 1A-1B and 2A-2D.

[0041] FIGS. 8J-8K illustrate the insertion of expandable Lumbar bi-directional screw box with two BDFT screws into the Lumbar spine in oblique (FIG. 8J) and lateral (FIG. 8K) views.

DETAILED DESCRIPTION OF THE INVENTION

[0042] The present invention now is described more fully hereinafter with reference to the accompanying drawings, in which embodiments of the invention are shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art.

1. THE MEDICAL DEVICE

[0043] Referring now to the drawings, Figures 1A-8K illustrate exemplary embodiments of ZP-EIS devices that can solve the above described problems and others

in the spine by insertion of the ZP-EIS devices into the denuded intervertebral disc space according to the features illustrated in the exemplary embodiments (I-VII).

[0044] FIGS. 1A-1B illustrate three-dimensional views of a ZP-EIS device 100 according to embodiment I, with two BDFT screws 101, 102.

[0045] The expandable ZP-EIS device 100 includes of top and bottom triangular sliding bases 103, 104 (FIGS. 1A-1B). The superior and inferior segments of the height/depth adjusting screw 105 are integrated and connected to the two separate top and bottom triangular bases 103, 104, respectively. By turning this adjusting (rotation) screw 105 back and forth, i.e. clock-wise, and counter clockwise, the sliding rails 106 of the top triangular base 103 (FIGS. 1A-1B) slide up and down the rail inserts 107 on the bottom triangular base 104 (FIGS. 1A-1B). This action will simultaneously alter the intervertebral height and depth of the device 100 allowing individualized custom fitting of the ZPEIS device 100 conforming to the dimensions of the disc space.

[0046] A transvertebral screw 101 penetrates the top base 103, and a transvertebral screw 102 traverses the bottom base 104 of the screw box (device 100). The two screws 101, 102 traverse the screw box 100 in opposing directions, bi-directionally. The external edges of the triangular bases 103, 104 in contact with vertebral body surfaces can include ridges 107, which facilitates the ZP-EIS device 100 incorporation into and fusion with the superior and inferior vertebral bodies (FIGS. 1A-1B). Both top and bottom ZP-EIS bases 103, 104 can be perforated with holes 108 to allow bone placement for fusion. In an exemplary embodiment, the entire construct, furthermore, can be hollow to allow filling with bone filling material. Hence, the

exemplary device functions as both an intervertebral bone fusion spacer and bi-directional transvertebral screw fusion device.

[0047] FIGS. 2A-D illustrate a ZP-EIS device 200 according to exemplary embodiment II. This exemplary device 200 incorporates BDFT screws and employs a fusion wedge mechanism of expansion.

[0048] The device 200 includes a contoured top 208 and bottom 206 housing which have tapered edges and are coupled to each other by a diagonal dovetail interface 204 which constrains the components 208, 206 to translate linearly relative to each other. The linear translation causes a vertical separation of the top 208 and bottom 206 housing surfaces which are parallel to each other. The position is secured and adjusted by a threaded rotation screw 220 coupled to a nut 224 and a retaining ring 222 and passed through the top 208 and bottom 206 housing pieces. As the threaded rotation screw 220 is rotated further into the nut 224, the housing pieces 208, 206 expand vertically.

[0049] By turning this adjusting (rotation) screw 220 back and forth i.e. clockwise, and counter clockwise, the sliding rails 210 of the top housing piece 208 slide up and down the rail inserts 212 on the bottom housing piece 206. This action will simultaneously alter the intervertebral height and depth of the device 200 allowing individualized custom fitting of the ZP-EIS conforming to the dimensions of the disc space. A transvertebral screw 101 penetrates the top housing piece 208, and a transvertebral screw 102 traverses the bottom housing piece 206 of the device 200. The two screws 101, 102 traverse the device 200 in opposing directions, bi-directionally. The external edges of the housing pieces in contact with vertebral body surfaces include ridges 216. This facilitates the ZP-EIS device 200 incorporation into and fusion with the

superior and inferior vertebral bodies (FIGS. 2A-D). Both top and bottom ZP-EIS housing bases 208, 206 are perforated with holes 214 to allow bone placement for fusion. The entire device 200, furthermore, can be hollow to allow bone filling. Hence, the exemplary device 200 functions as both an intervertebral bone fusion spacer and bi-directional transvertebral screw fusion device.

[0050] The device 200 can include a tapered edge 226 (shown for example in FIGS. 2A-2B), which allows easier introduction and insertion of the device 200 into the disc space.

[0051] FIGS. 3A-3D illustrate a ZP-EIS device 300 according to exemplary embodiment III, which employs a scissor jack expansion mechanism.

[0052] In this embodiment the top 302 and bottom 304 housing are attached by one internal linkage arm 310, and two external linkage arms 308. The device 300 can include indentations 306 on each lateral side close to the top of the device 300 to mate with the prongs of the universal tool (for example, as described in FIGS. 8A-8I) to assist in grasping, inserting and impacting the device 300. A lead screw or rotation screw 314 is mounted in the bottom housing 304 and secured in place with a retaining ring 316. When the lead (rotation) screw 314 is rotated by an external tool (for example, as described in FIGS. 8A-8I), the screw 314 causes the linear displacement of the separation block 318 which is hinged to the internal linkage 310. The horizontal motion of the separation block causes the top 302 and bottom 304 housing pieces to separate vertically. The separation distance depends on the amount of rotation of the lead (rotation) screw 314, and is limited by the freedom of the separation block 318 to move within the bottom housing 304. The exemplary embodiment can include a plurality of pins, such as eight

pins 320, 322, 324, to secure the external linkage arms 308 to the top 302 and bottom 304 housing units and to the separation block 318. The top housing 302 and bottom housing 304 can include one or more cavities 312 for bone incorporation/fusion.

[0053] FIGS. 4A-4C illustrate a ZP-EIS device 400 according to exemplary embodiment IV, which employs a tapered thread mechanism of expansion.

[0054] The exemplary device 400 can include a top housing 402 and bottom housing 404, which can be attached by one or more pins, such as two pins 412, which allow rotation of the top housing 402 and bottom housing 404 relative to each other about the axis of the pins 412. The top housing 402 and/o bottom housing 404 can include indentations 406 on their lateral sides close to the top of the device 400 to mate with the prongs of a tool or universal tool (e.g., prongs 806 in FIGS. 8A-8I) to assist in grasping, inserting and impacting the device 400. The bottom housing 404 can include a mount for the rotation screw 410 (FIG. 4C), which can control the relative angular orientation of the two housing pieces 402, 404. When the screw 410 is rotated by an external tool (e.g. as shown in FIGS. 8A-8I), the screw 410 engages the internal teeth/ridges 414 of the top housing 402 and acts as a wedge to rotate the top housing 402 away from the bottom housing 404. More particularly, the device 400 can include a sloped ridge 414, as exemplary illustrated in FIG. 4C. When the rotating screw 410 advances, the top housing 402 rotates further and further away from the bottom housing 404. The device 400 can include one or more bone cavities in the top housing 402 and bottom housing 404 for bone fusion.

[0055] FIGS. 5A-5D illustrate exemplary embodiments of a ZP-EIS device according to embodiment V, which employs an anchor mechanism of expansion.

[0056] The top housing 502 and bottom housing 504 can be coupled or attached by one or more pins, such as two pins 512, which allow rotation of the top housing 502 and bottom housing 504 relative to each other about the axis of the pins 512. The top housing 502 and/or the bottom housing 504 can include indentations 506 on their lateral sides close to the top of the device 500 to mate with the prongs of a tool or universal tool (e.g. see FIGS. 8A-8I) to assist in grasping, inserting and impacting the device 500. The bottom housing 504 can include, for example, a mount for the lead (rotation) screw 510, which can control the relative angular orientation of the two housing pieces 502, 504. The lead (rotation) screw 510 can be secured with one or more retaining rings, such as two retaining rings 518. When the screw 510 is rotated by an external tool (not illustrated)(e.g., such as the tool shown in FIGS. 8A-8I), the screw 510 causes lateral motion of a translation nut 516, which is attached to two linkage bars 514 to a second nut 516 fixed to the bottom housing. A plurality of pins, such as six pins 512, can secure the linkage bars or arms 514 to each other and to translation nuts 516. When the translation nuts 516 move, the linkage bars or arms 514 extend outside of the bottom housing 504, pushing against the top housing 502. Alternatively, in other embodiments, the linkage bars or arms 514 can be replaced by a solid material such as spring steel which can bend to produce the same effect. The device 500 can include one or more bone cavities that can be incorporated into the top housing 502 and the bottom housing 504 for bone fusion.

[0057] FIGS. 6A-6D illustrate exemplary embodiments of a ZP-EIS device 600 according to embodiment VI which employs a modified wedge expansion mechanism.

[0058] The device 600 includes a top housing 602 and a bottom housing 604 that can be attached or coupled by one or more pins, such as two pins 612, which allow

rotation of the top housing 602 and the bottom housing 604 relative to each other about the axis of the pins 612. The top housing 602 and/or the bottom housing 604 can include indentations 606 on their lateral sides close to the top of the device 600 to mate with the prongs of a tool, such as prongs 806 of the universal tool shown in FIGS. 8A-8I, to assist in grasping, inserting and impacting the device 600. The bottom housing 604 can include a mount for the lead (rotation) screw 610, which can control the relative angular orientation of the two housing pieces 602, 604. The lead (rotation) screw 610 can be secured with one or more retaining rings, such as two retaining rings 618. When the screw 610 is rotated by an external tool (e.g., the tool shown in FIGS. 8A-8I), the screw 610 causes lateral motion of a wedge-shaped translation nut 616. The nut 616 engages an inner tapered surface of the top housing 602 and forces the top housing piece 602 to rotate away from the bottom housing 604. The device 600 can include one or more bone cavities 608 incorporated into the top housing 602 and/or bottom housing 604 for bone fusion.

[0059] FIGS. 7A-7D illustrate exemplary embodiments of a ZP-EIS device 700 according to embodiment VII, which employs a worm drive (gear) mechanism.

[0060] According to the invention, the device 700 includes a worm drive design that allows a user to rotate a worm gear/drive 712 with an external tool (FIG. 8) to control the translation of the top housing 702 relative to the bottom housing 704a, 704b. The worm gear drive 712 engages a spur gear mount 714 which has internal threading for engaging a corresponding part, such as a threaded stud of bolt 720, to couple the spur gear mount 714 to the top housing 702. The top housing 702 can include a plurality of pins, such as four pins 712, which extend into the bottom housing 704a, 704b. These

pins 712 prevent the top housing 702 from rotating with the spur gear 714, and constrain the spur gear 714 to translate linearly. The bottom housing 704 can include two halves 704a, 704b to secure the worm drive 710 and spur mount 714 in place. A worm retaining ring and a spur retaining ring 716 also can be used to secure the worm gear drive 710 and the spur gear mount 714. The device 700 can include one or more bone cavities 708 that are incorporated into the top housing 702 and/or bottom housing 704a, 704b for bone fusion. The top housing 702 and/or bottom housing 704a, 704b can include one or more indentations 706 on its lateral sides close to the top of the device 700 to mate with prongs of a tool, such as prongs 806 of the universal tool 800 in FIGS. 8A-8I, to assist in grasping, inserting and impacting the device 700.

[0061] FIGS. 8A-8C illustrate three-dimensional views of exemplary embodiments of the external drill/screw guide-box expander universal tool 800 which can be used to assist in both screw trajectory and box expansion of an expandible device, such as the exemplary embodiments of devices illustrated in embodiments I and II, and for device expansion of the devices illustrated in embodiments III - VII. The same universal tool 800 can be utilized for all the exemplary embodiments illustrated in embodiments I-VII. In some embodiments, the external drill/screw guide 850 may not be needed or used for embodiments II-VII. The prongs 806 can be inserted into the indentations (e.g., 202, 306, 406, 506, 606, 706) of the sides of the devices (e.g., 100, 200, 300, 400, 500, 600, 700) according to one or all of the exemplary embodiments illustrated in embodiments I-VII, and implant the device into the intervertebral space. Once implanted and impacted, an Allen key (e.g., as shown in FIG. 8) can be used to

expand the device (e.g., 100, 200, 300, 400, 500, 600, 700) by turning the adjustment (rotation) screw (e.g., 105, 220, 314, 410, 510, 610, 710).

[0062] The exemplary tool can include, among other things, an Allen key 801, a spring 802, a handle 803, a griper 804 and a screw guide 805. The Allen key 801, when inserted in the insertion 814 and turned, can turn the rotation screws (e.g., 105, 220, 314, 410, 510, 610, 710) of one or all of the exemplary embodiments I-VII. The griper 804 includes griper prongs 806, which insert into grooves 509 of the screw guide 805 and the screw box indentations (e.g., 202) in the exemplary embodiment illustrated in embodiment I (as shown in FIGS 8A-8D), as well as in similar indentations (e.g., 306, 406, 506, 606, 706) of devices (e.g., 100, 200, 300, 400, 500, 600, 700) illustrated in embodiments II-VII (not shown).

[0063] As shown in FIG. 8C, each longitudinal end of the screw box 100 can include a slot or indentation 108 formed adjacent to an edge of an upper surface of the screw box 100 for engaging a protuberant extension of a tool, such as the protuberant extension 807 of the tool 800.

[0064] FIG. 8D illustrates a superior oblique view of the screw guide 805 demonstrating insertions 809 for griper prong 086, built-in trajectory guides 811, 812 for insertion of screws 101 and 102, and the Allen key 801. This exemplary embodiment can be limited, for example, to use with the devices of embodiments I and II, which includes BDFT screws.

[0065] FIGS. 8E-8G illustrate three-dimensional views of the sequential steps necessary for the external guide assembly. FIG. 8E illustrates the insertion of the Allen key 801 into the handle 803. FIG. 5F illustrates the insertion of the handle 803 through

the spring 802 and griper 804. FIG. 8G illustrates insertion of the griper 804 into the screw guide 805. The griper prongs 806 can include medially oriented male protuberant extensions 807 that engage the slot or indentation of a device, such as indentation 108 of device 100, thereby perfectly aligning the prongs 805 of the tool 800 with the device (e.g., 100, 200, 300, 400, 500, 600, 700). This exemplary embodiment can be limited, for example, to use with the devices of embodiments I and II.

[0066] FIG. 8H illustrates a three-dimensional view of another exemplary embodiment of a positioning tool 800 for impaction and placement of two transvertebral screws 201, 202 for example, for use with the exemplary embodiments I and II.

[0067] With reference again to FIGS. 8A-8K, the screw guide 805 can include insertions 809 for receiving the griper prong 806, built-in trajectory guides 811, 812 for insertion of screws 101 and 102, and the Allen key 801.

[0068] The driver assembly 850 can include a screw driver 851, a flexible shaft 852 and a square recess bit 853. This exemplary device can facilitate turning the screws 101, 102 into the bone. The flexible shaft 852 can facilitate the avoidance of spinous processes which might hinder the screw driving if the shaft 852 were straight. The positioning tool 800 can have a rectangular handle, as shown for example in Embodiment I, or a circular handle, as exemplary shown in Embodiment II. This exemplary embodiment can serve to position a screw box within the intervertebral space, and screws 101, 102 within the screw box or device. Once positioned, the screw box or device (e.g., 100, 200, 300, 400, 500, 600, 700) can be impacted by tapping the handle 803 with a mallet (not shown). The griper handle 803 inserts into the screw guide and the screw box or device (e.g., 100, 200, 300, 400, 500, 600, 700), which maintains alignment.

2. THE SURGICAL METHOD

[0069] Exemplary embodiments of a surgical method for utilizing the exemplary devices described herein, will now be described. The procedures can be performed open, microscopic, closed tubular or endoscopic. Fluoroscopic guidance can be used with any of these procedures.

[0070] An exemplary embodiment of a ZP-EIS device, as illustrated in embodiments (I-VII), can be inserted into the intervertebral space (for example as shown in FIGS. 8J and 8K) after an adequate discectomy is performed in any disc space throughout the entire spine upon their exposure anteriorly, antero-laterally, laterally, far laterally or posteriorly.

[0071] For exemplary embodiments I-II of the ZP-EIS devices can be inserted into the disc space by a tool or universal tool, such as the universal tool 800 in FIGS. 8A-8I. In operation, the grab prongs of tool 800 can attach to the insets or indentations (e.g., 202, 306, 406, 506, 606, 706) on the side of the devices. Once in the disc space, the rotation screw (e.g., 105, 220, 314, 410, 510, 610, 710) of each embodiment is turned by rotating the Allen key 801 of the tool 800 to expand the device (e.g., 100, 200, 300, 400, 500, 600, 700) to the desirable disc height achieving the desirable intervertebral distraction deemed necessary for the individual patient and disc space. Once this is achieved, BDFT screws 101, 102 are inserted and screwed into the vertebral body above and below securing the device (e.g., 100, 200, 300, 400, 500, 600, 700) to the vertebral bodies with screws 101, 102. Prior to implantation of the device (e.g., 100, 200, 300, 400,

500, 600, 700), the bone cavities of each device can be filled with any type of bone fusion material.

[0072] For the exemplary embodiments III-VII, the ZP-EIS device (e.g., 100, 200, 300, 400, 500, 600, 700) can be inserted into the disc space by the same universal tool, such as tool 800. The grabs prongs 806 of the tool 800 attach to the insets or indentations (e.g., 202, 306, 406, 506, 606, 706) on the side of the devices (e.g., 100, 200, 300, 400, 500, 600, 700) on the side of the devices (e.g., 100, 200, 300, 400, 500, 600, 700). Once in the disc space, the rotation screw (e.g., 105, 220, 314, 410, 510, 610, 710) is turned by rotating the Allen key 801 of the tool 800 expanding the device (e.g., 100, 200, 300, 400, 500, 600, 700) to the desirable disc height achieving the desirable intervertebral distraction deemed necessary for the individual patient and disc space. Prior to implantation of the device (e.g., 100, 200, 300, 400, 500, 600, 700) the bone cavities of each device (e.g., 100, 200, 300, 400, 500, 600, 700) can be filled with any type of bone fusion material.

[0073] The exemplary embodiments of the present invention may provide effective and safe techniques that overcome the problems associated with current transpedicular and/or plated fusion technology employed for many degenerative stable and unstable spine diseases. These exemplary embodiments may replace much pedicle screw-based and plated based instrumentation in many but not all degenerative spine conditions.

[0074] The speed and simplicity of the surgical implantation of the exemplary embodiments of the ZP-EIS devices far exceeds that of conventional pedicle screw technology. Furthermore, the exemplary embodiments of zero-profile devices can

provide markedly significantly decreased risk of misguided screw placement, and hence decreased risk of neural and vascular injury, and blood loss. The exemplary embodiments can provide decreased recovery and back to work time. The exemplary embodiments of devices may lead to similar if not equal fusion with significantly less morbidity, and hence overall make the exemplary devices a major advance in the evolution of spinal instrumented technology leading to advances in the care of the spinal patient.

[0075] According to the exemplary embodiments, such as the embodiments in embodiments I and II, an intervertebral fusion device is provided that uses a threaded rod mechanism located at the peripheral of the box to control expansion of the device. The device can include a cavity within the walls for placement of bone material for fusion.

[0076] In another embodiment, an intervertebral fusion device can include a threaded rod which can obstruct (inhibit) expansion of the device when it is not being turned. The threaded rod can be disposed at the front anterior part of the box or device.

[0077] In yet another embodiment, an intervertebral fusion device can include a threaded rod, which exerts a clamping force to expand the device until the device properly accommodates the dimensions of the intervertebral disc space and distracts the space based on individual anatomy and surgical judgment. The device can include a cavity for bone in-between the walls of the box.

[0078] In another embodiment, an expandable intervertebral fusion device can include indentations on its sides to accommodate a placement tool.

[0079] In another embodiment, an expandable intervertebral fusion device can be adjusted by using a threaded rod as a wedge to pivot components within the device. The threaded rod can be accessible from the front anterior of the box or device.

[0080] In another embodiment, an expandable fusion device can include a threaded rod to expand a spacer. The threaded rod can be used as a wedge to mechanically separate the pieces. The threaded rod can be accessible from the front anterior of the box or device.

[0081] In another embodiment, an expandable fusion device can include wedge components which translate relative to each other along a contact. The degree of expansion can be determined by an adjustment rod located at the peripheral of the box or device.

[0082] In another embodiment, an expandable fusion device includes components which are mechanically linked together. The expansion of the device is controlled by the user via an adjustment rod coupled to a mechanical transmission that causes mechanical components within the device to separate. The threaded rod is accessible from the front anterior of the box or device.

[0083] In another embodiment, an expandable fusion device can be provide wherein the position of the device is secured and adjusted by a threaded rod that is mechanically linked to housing pieces. When the threaded rod is rotated, the threaded rod forces the pieces to separate.

[0084] In another embodiment, an intervertebral fusion device is provide wherein the two internal screw guides are in the top housing unit.

[0085] In another embodiment, an intervertebral fusion expansile device is provided wherein the center of the two internal screw guides could be in quadrants I and III or II and IV.

[0086] In another embodiment, an expandable fusion device can be provided that uses a threaded rod (rotation screw) to expand the device using a metal driver as the wedge to mechanically separate the pieces.

[0087] In another embodiment, an expandable fusion device can be adjusted by using a threaded rod (rotation screw) as a wedge to offset the opposing cages.

[0088] In another embodiment, an expandable intervertebral fusion device can be provided wherein its position is secured and adjusted by a threaded rod (rotation screw) coupled to a nut and passed through the top and bottom housing pieces. As the threaded rod is rotated further into the nut, the pieces separate.

[0089] In another embodiment, an expandable intervertebral fusion device can include a tapered edge to allow contoured insertion into the disc space.

[0090] In another embodiment, an intervertebral fusion device can be provided wherein the internal screw guides for screw insertion within the device are diagonal to each other within the xyz plane.

[0091] In another embodiment, an intervertebral fusion device wherein the internal screw guides can be adjacent and somewhat diagonal to each other within the xyz plane.

[0092] In another embodiment, an intervertebral fusion device can be provided wherein the majority each of the 2 screw holes can be in quadrant I and III or II and IV within the xyz plane.

[0093] In another embodiment, an intervertebral fusion device can be provided wherein the screw guides can have approximately the same xy coordinates and have different z coordinates or vice versa.

[0094] In another embodiment, an intervertebral fusion device can be provided wherein the center of the two internal screw guides could be in quadrants I and III or II and IV within the xyz plane.

[0095] In another embodiment, an intervertebral fusion device can be provided wherein one screw guide is in the top housing unit, and another screw guide is in the bottom housing unit.

[0096] In another embodiment, an intervertebral fusion device can be provided that uses a threaded rod (rotation screw) to engage a moveable component which engages a linkage to expand the device.

[0097] In another embodiment, an intervertebral fusion device can be provided that uses a threaded rod (rotation screw) to engage a wedge which engages its attaching linkages to expand the device.

[0098] In another embodiment, an expandable fusion device can be provided that can be adjusted using a threaded rod (rotation screw) coupled to a scissor-jack linkage.

[0099] In another embodiment, an expandable fusion device can be held together with fastener (s). These fasteners constrain the box to one degree of freedom. Part of the mechanism contains a mount for the rotation screw, which can control the movement of the pieces. As the screw is turned, it engages the teeth of the mechanism and acts as a wedge to rotate the pieces away from each other.

[00100] In another embodiment, an expandable fusion device adjusted by using a threaded rod (rotation screw) can be used as a wedge to offset the opposing cage surfaces.

[00101] In another embodiment, an expandable fusion device can be provided that uses a threaded rod (rotation screw) to expand the device using a metal driver as the wedge to mechanically separate the pieces.

[00102] In another embodiment, an expandable fusion device can be provided that can be adjusted by a threaded rod (rotation screw) coupled to a nut which translates to deform an elastomeric material used to force the expansion of the device.

[00103] In another embodiment, an expandable fusion device can be provided that has a threaded rod (rotation screw) that engages a wedge to control the expansion of the device.

[00104] In another embodiment, an expandable fusion device can be provided that can be contained by fasteners and retaining rings.

[00105] In another embodiment, an expandable fusion device can be provided that can be adjusted by a threaded rod (rotation screw) coupled to a wedge that can move the opposing cage surfaces.

[00106] In another embodiment, an expandable fusion device can be provided that uses a worm drive to turn a gear that acts as a wedge to expand the device.

[00107] In another embodiment, an expandable fusion device can be provided that includes fasteners and retaining rings containing and constraining the device pieces.

[00108] In another embodiment, an expandable fusion device can be provided that can be adjusted by a worm gear coupled to an internally threaded spur gear which, upon rotation, linearly advances a threaded component.

[00109] In another embodiment, a tool includes a handle, a gripper cooperating with the handle and having a plurality of prongs, a screw guide held in place the plurality of prongs, for controlling the direction of self-drilling screws that are screwed into the vertebral bodies, and an Allen key which expands expandable intervertebral devices.

[00110] The present invention has been described herein in terms of several preferred embodiments. However, modifications and additions to these embodiments will become apparent to those of ordinary skill in the art upon a reading of the foregoing description. It is intended that all such modifications and additions comprise a part of the present invention to the extent that they fall within the scope of the several claims appended hereto.

We claim:

1. An expandible intervertebral fusion device comprising:
a first movable portion;
a second movable portion; and
a mechanism that moves the first movable portion and the second movable portion with respect to each other to expand a dimension of the expandible intervertebral fusion device.
2. The device of claim 1, wherein the first movable portion slides with respect to the second movable portion.
3. The device of claim 1, wherein the first movable portion pivots with respect to the second movable portion.
4. The device of claim 1, wherein the first movable portion translates linearly away from the second movable portion.
5. The device of claim 1, wherein the first movable portion slides at an angle with respect to the second movable portion.
6. The device of claim 1, wherein mechanism includes a threaded rod mechanism.
7. The device of claim 1, wherein one of the first movable portion and the second movable portion includes a cavity for placement of bone material for fusion.

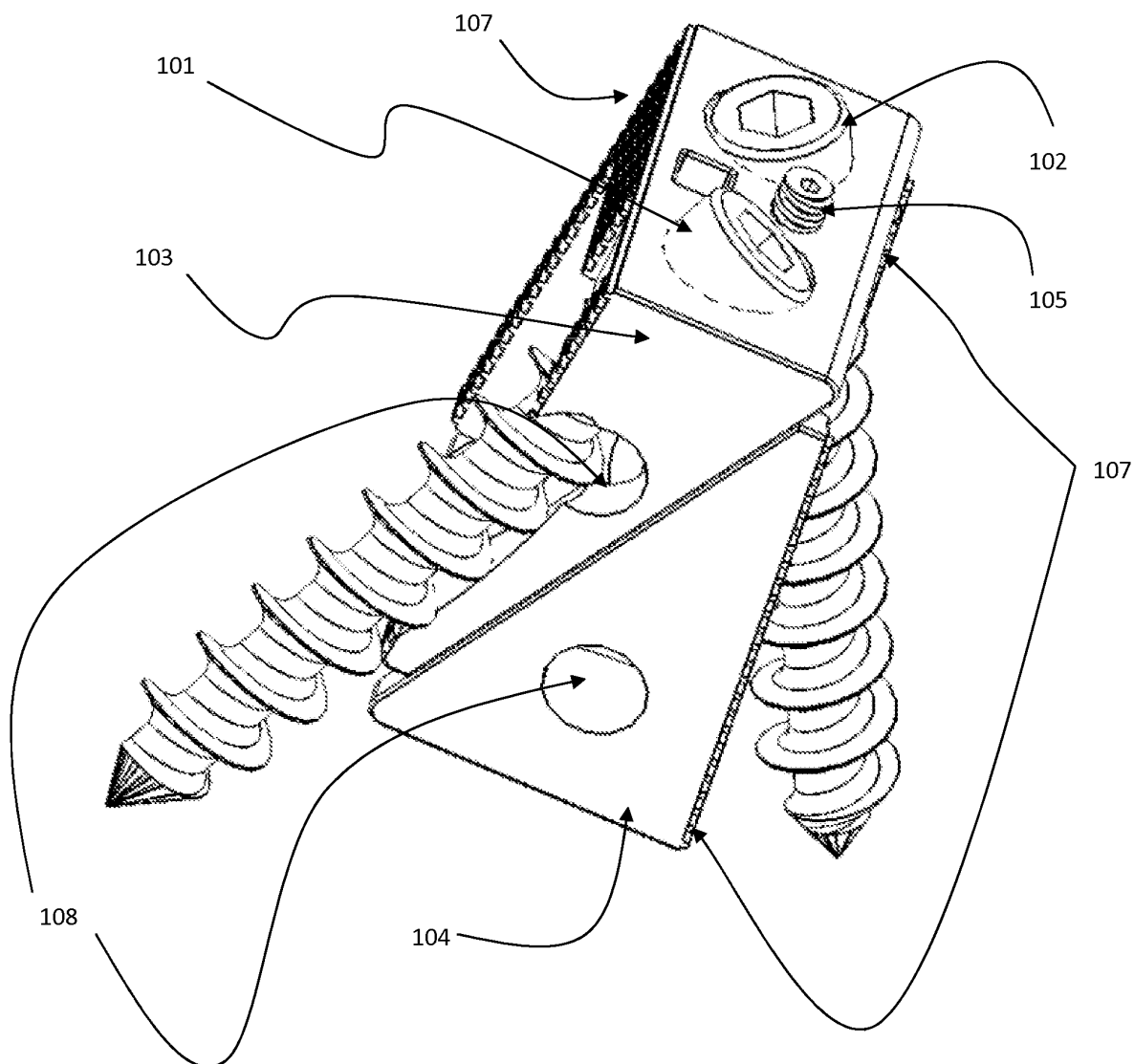
8. The device of claim 1, wherein one of the first movable portion and the second movable portion includes an indentation to accommodate a component of a placement tool.
9. The device of claim 1, wherein the first movable portion and the second movable portion can be adjusted by using a threaded rod as a wedge to pivot components within the device.
10. The device of claim 1, wherein the first movable portion and the second movable portion can be adjusted using a wedge device.
11. The device of claim 1, wherein the mechanism separates the first movable portion from the second movable portion.
12. The device of claim 1, wherein one of the first movable portion and the second movable portion includes an internal screw guides.
13. The device of claim 1, wherein one of the first movable portion and the second movable portion includes a tapered edge to allow contoured insertion into the disc space.
14. The device of claim 1, wherein the first movable portion and the second movable portion can be adjusted using a threaded rod (rotation screw) coupled to a scissor-jack linkage.
15. The device of claim 1, wherein the first movable portion and the second movable portion can be held together by fasteners.
16. The device of claim 1, wherein mechanism includes a worm drive or a worm gear.

17. The device of claim 1, wherein mechanism includes a worm drive that turns a gear that acts as a wedge to expand the device.
18. The device of claim 1, further comprising fasteners and retaining rings containing and constraining the device pieces.
19. The device of claim 1, wherein mechanism includes a worm drive to turn a gear that acts as a wedge to expand the device.
20. The device of claim 1, wherein the first movable portion and the second movable portion can be adjusted by a worm gear coupled to an internally threaded spur gear which, upon rotation, linearly advances a threaded component.

ABSTRACT

A unique, universal Zero-Profile Expandable Intervertebral Spacer (ZP-EIS) device for fusion and distraction throughout the entire spine is provided which can be inserted via anterior, anterolateral, lateral, far lateral or posterior surgical approaches dependent on the need and preference. Multiple ZP-EIS embodiments each with unique mechanisms of calibrated expansion are provided. Two of these embodiments incorporate bi-directional fixating transvertebral (BDFT) screws and five other embodiments do not incorporate BDFT screws. A tool for implantation into the intervertebral device and calibrated device expansion is also disclosed.

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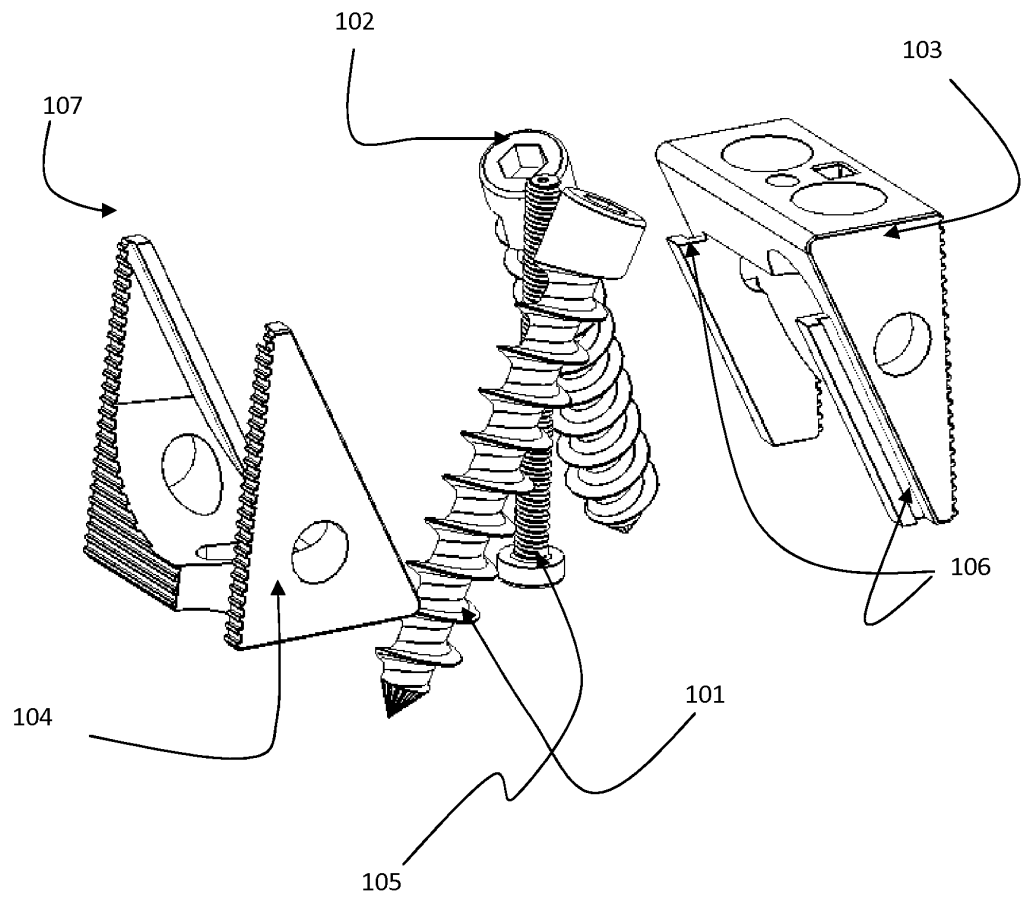


Fig. 1B

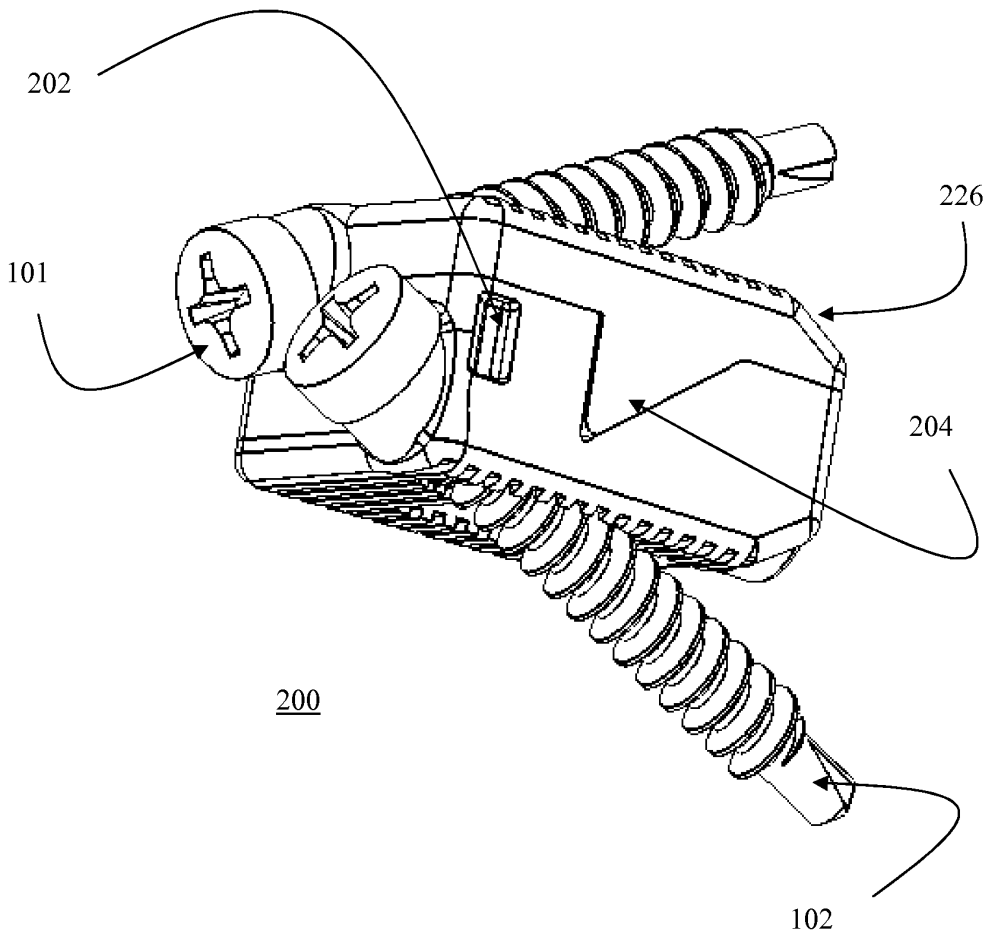


Fig. 2A

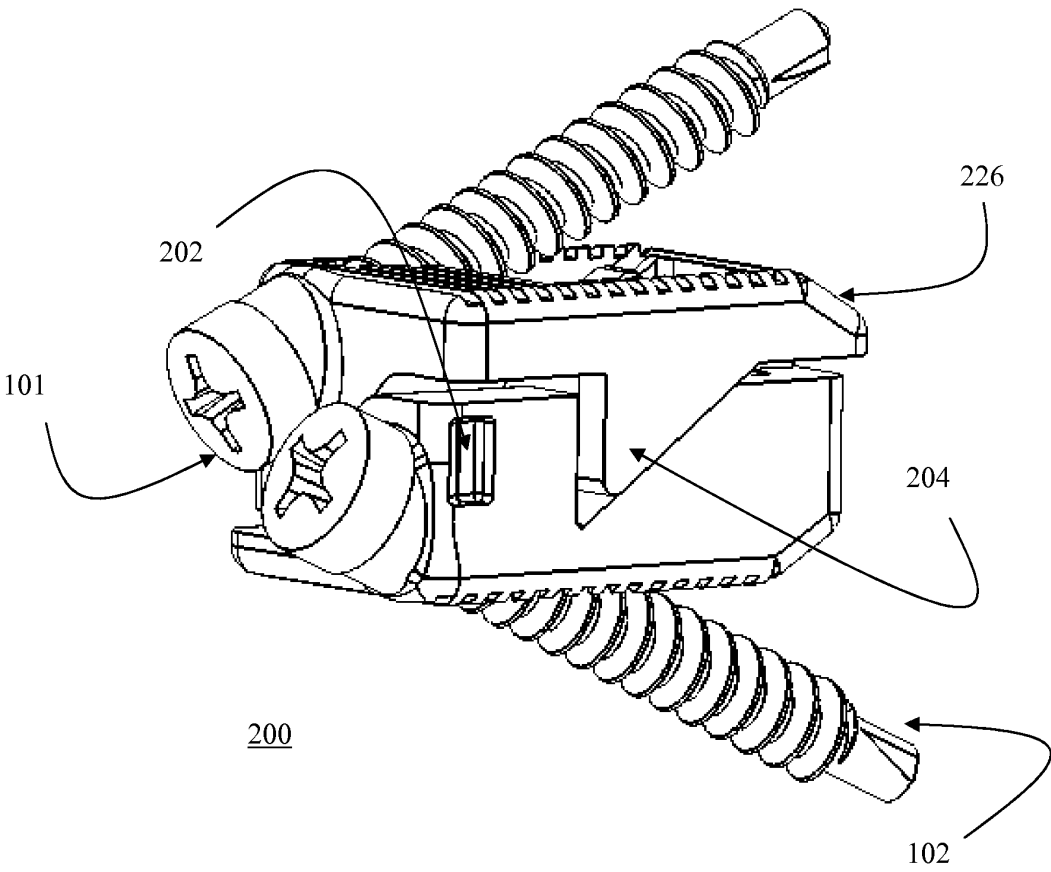


Fig. 2B

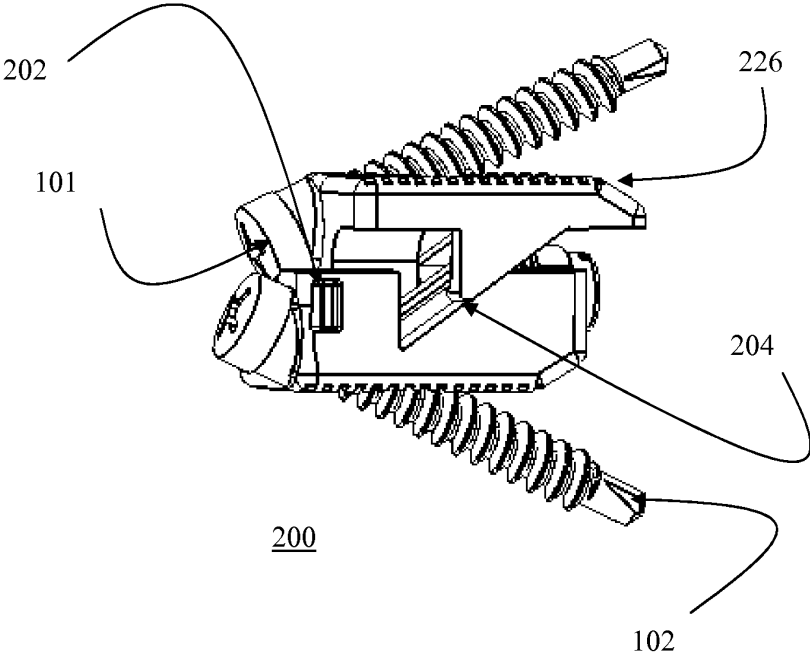


Fig. 2C

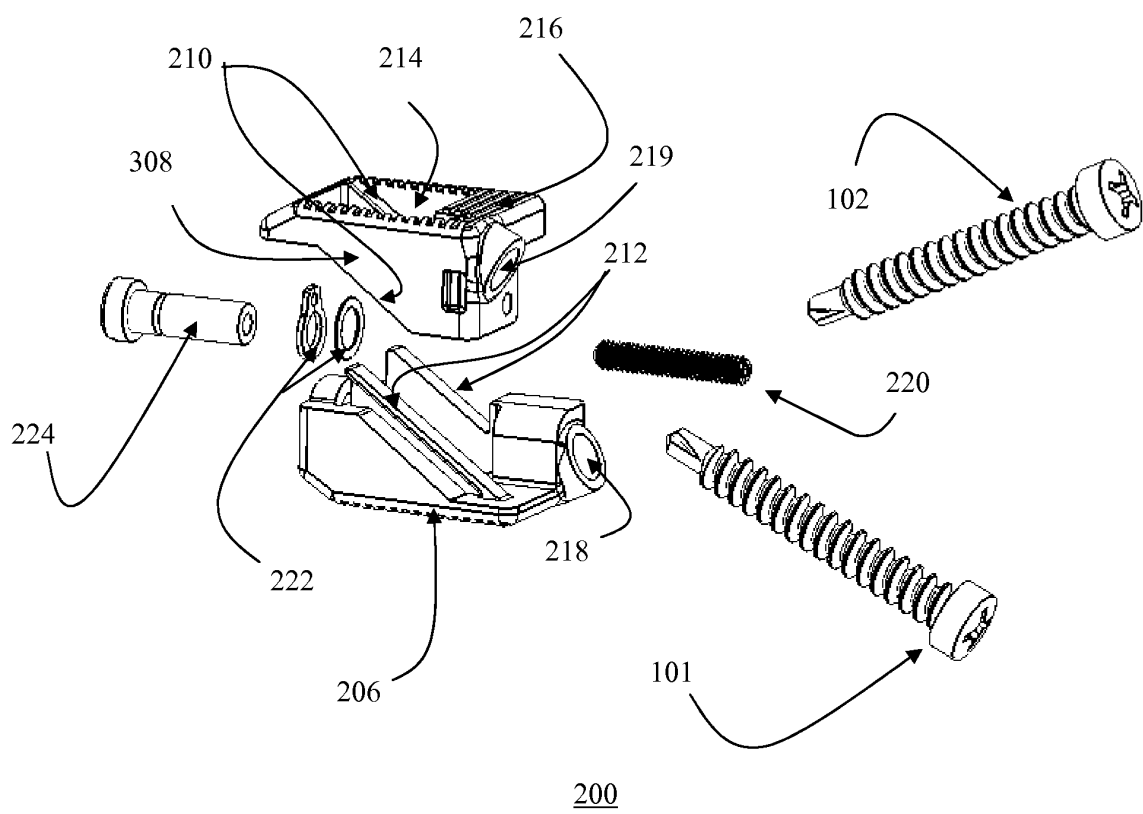


Fig. 2D

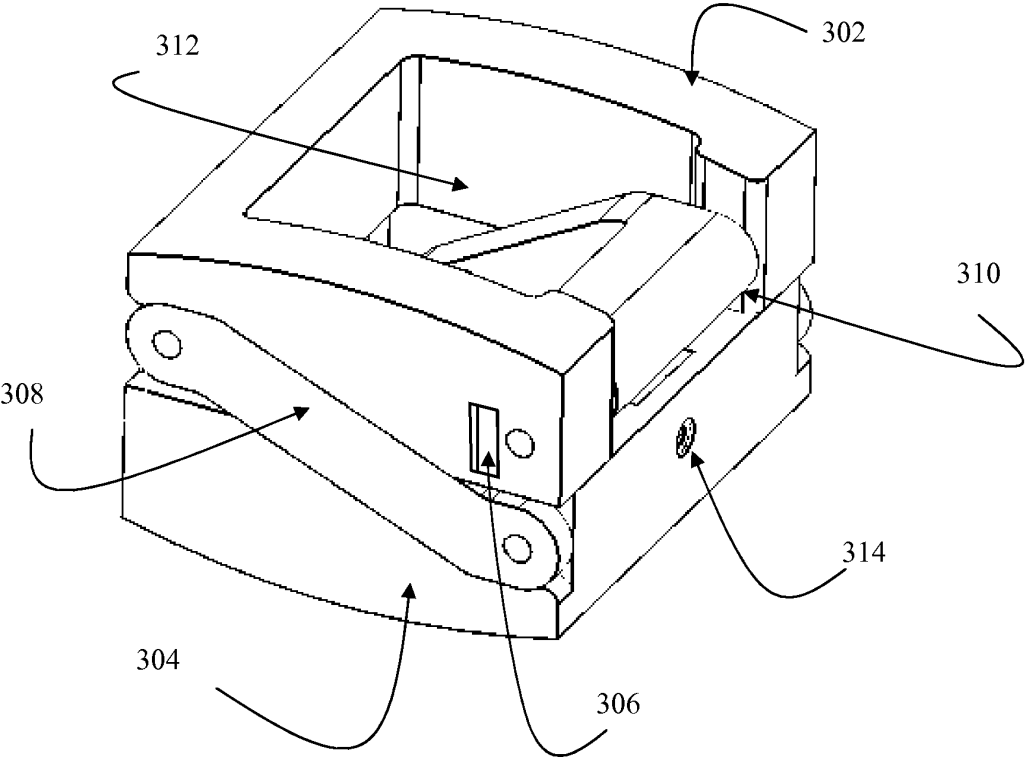


Fig. 3A

300

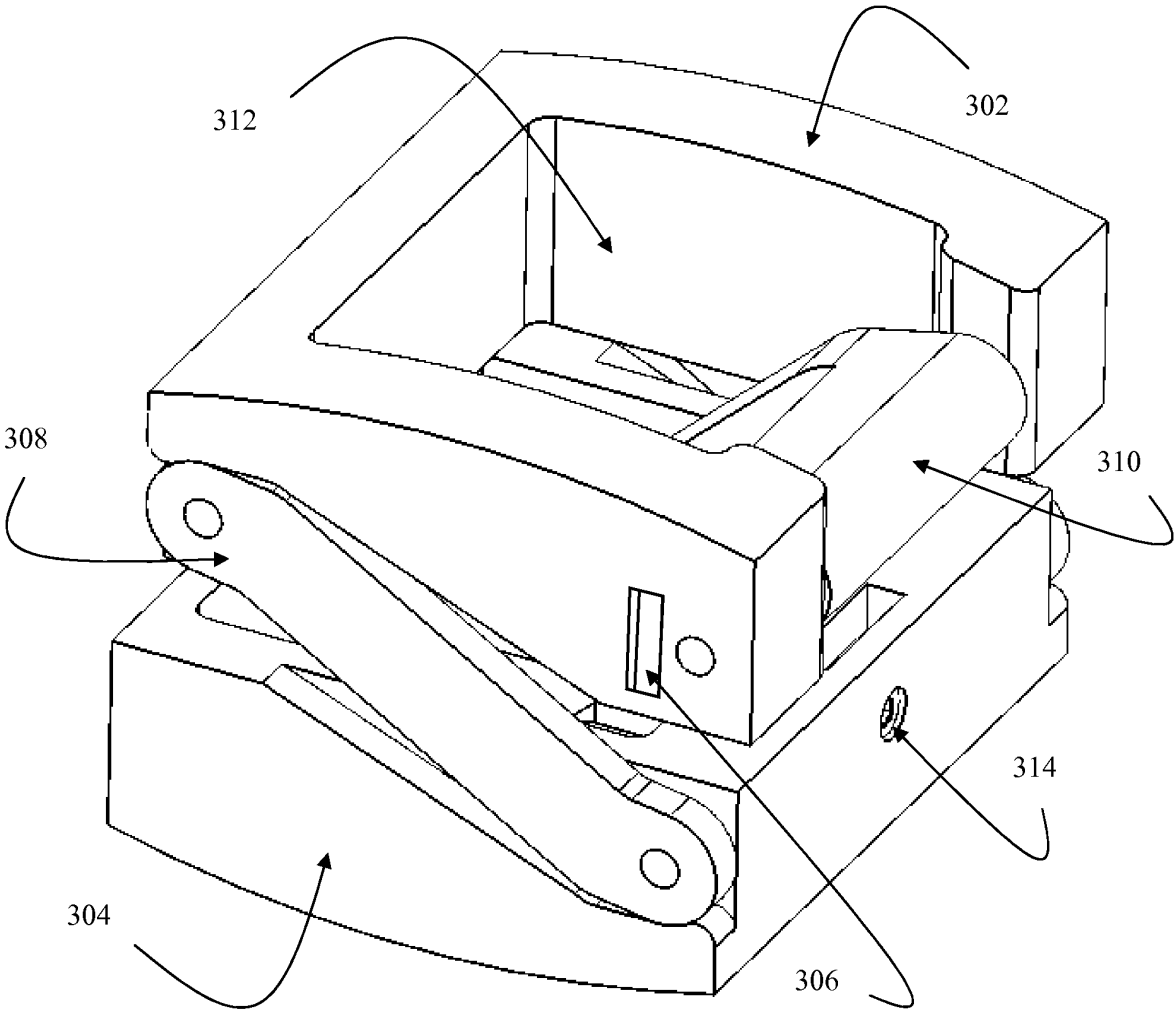


Fig. 3B

300

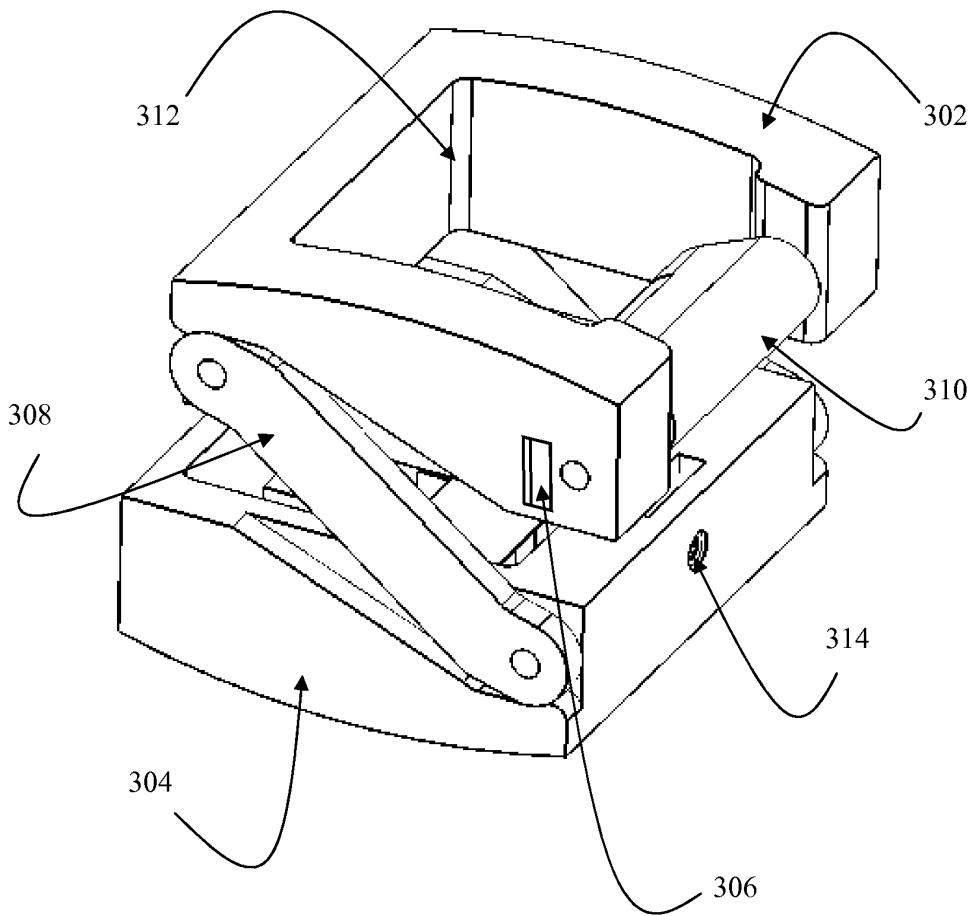


Fig. 3C

400

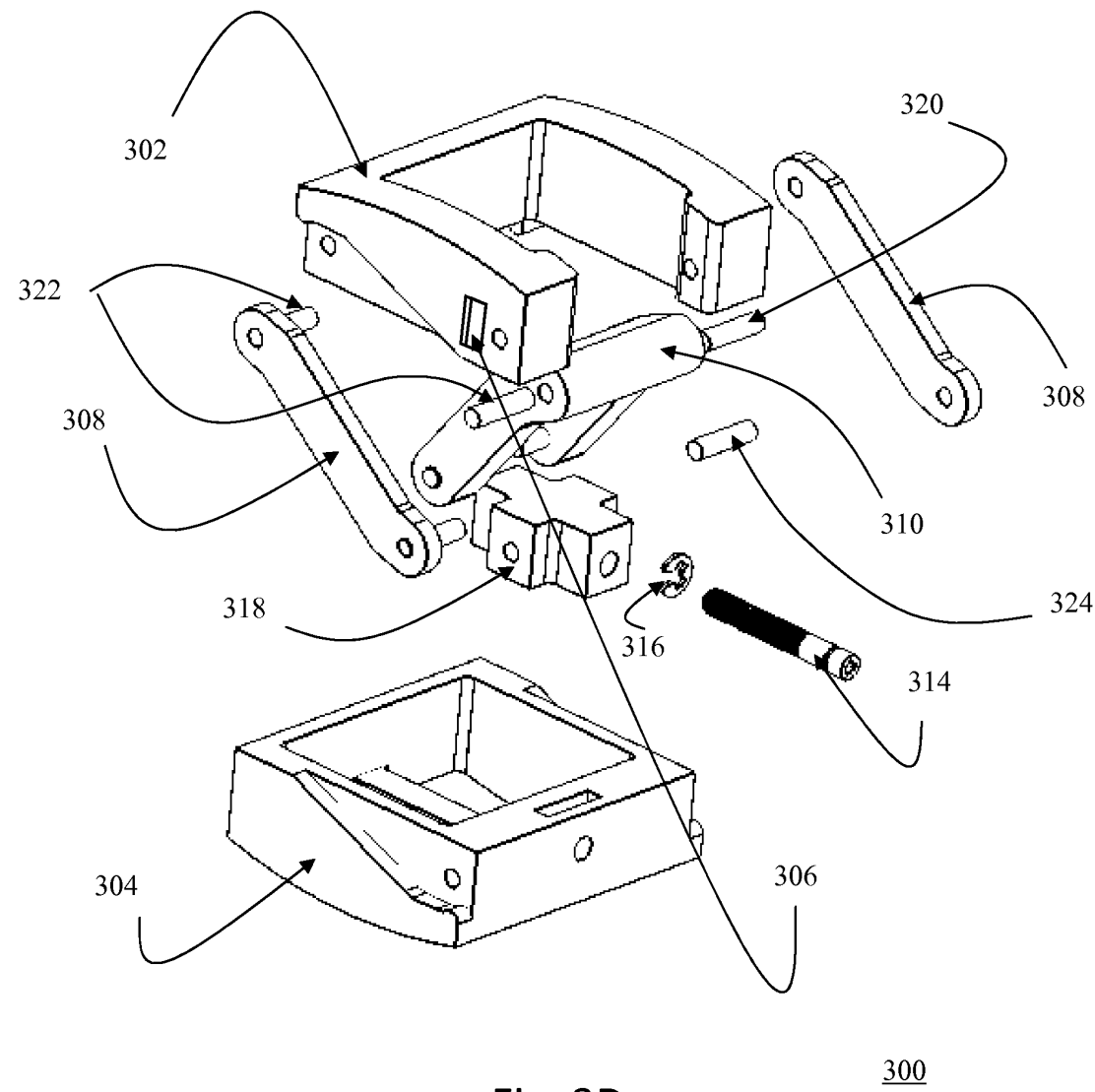


Fig. 3D

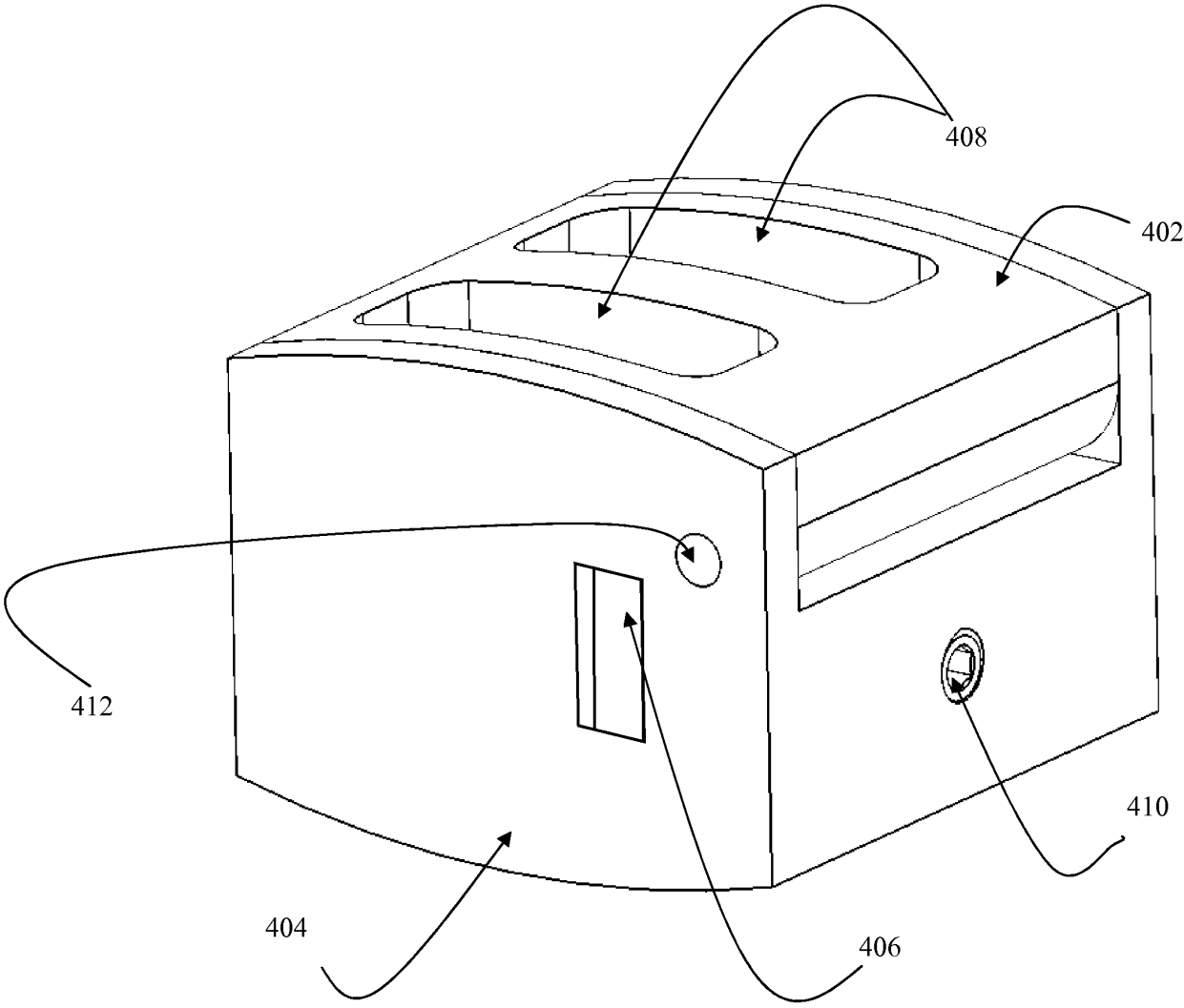


Fig. 4A

400

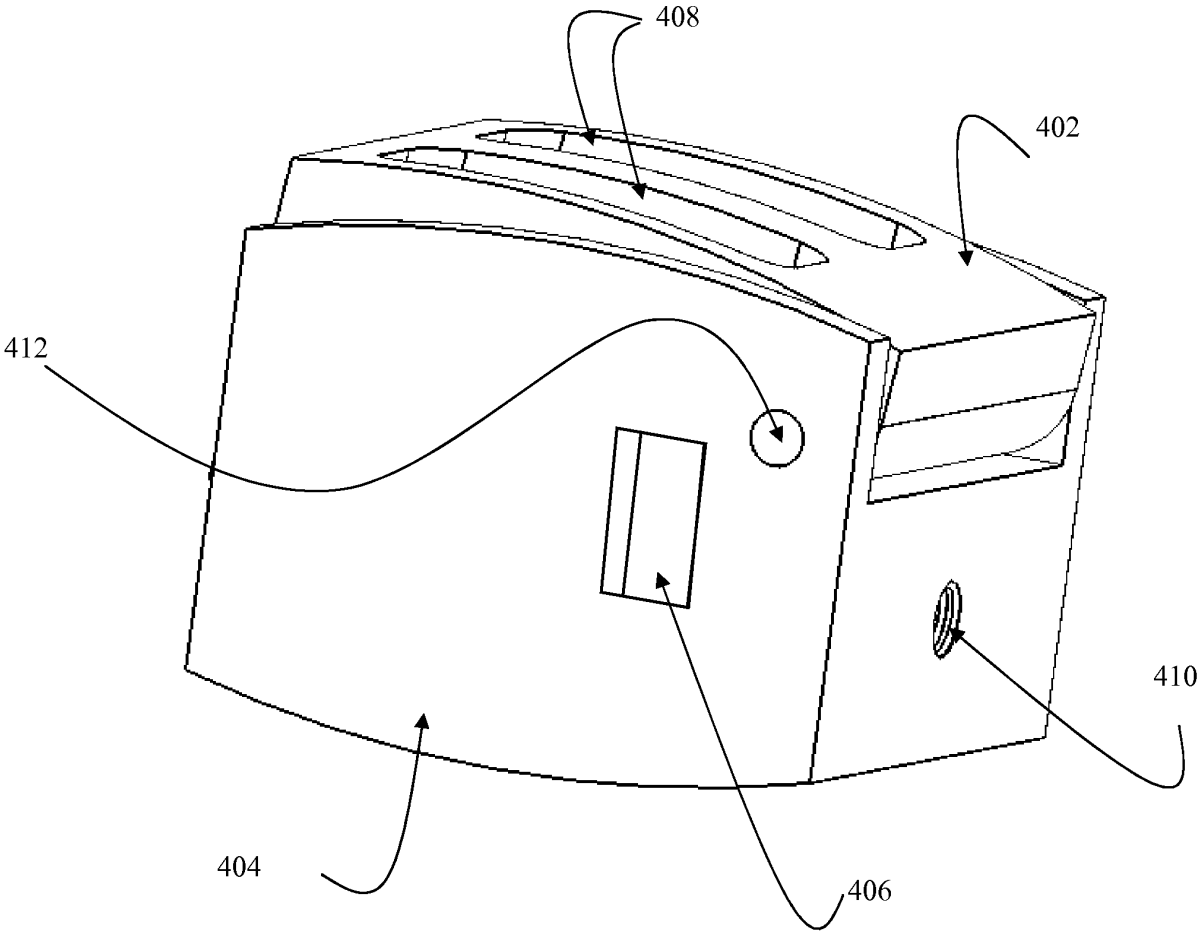
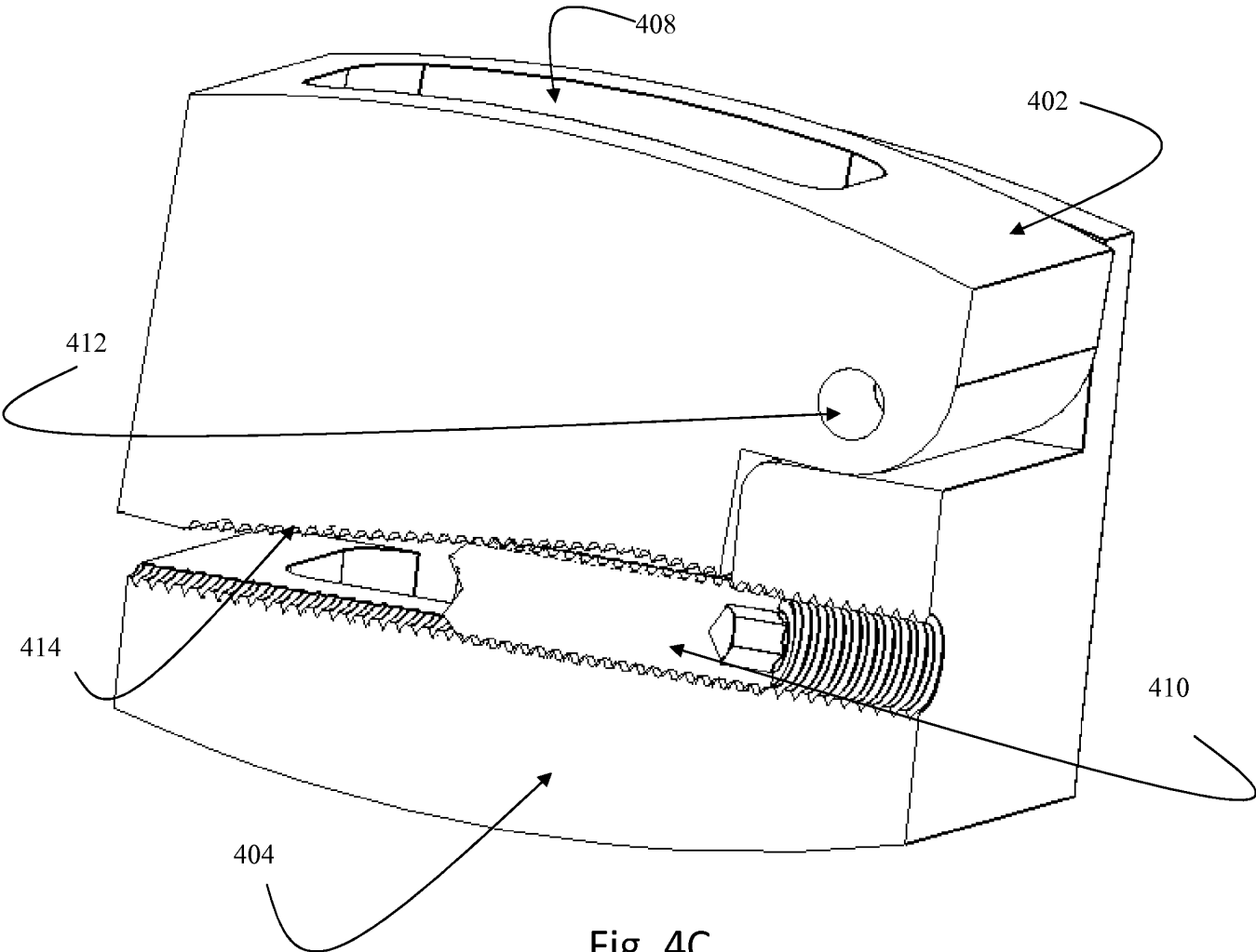


Fig. 4B

400



400

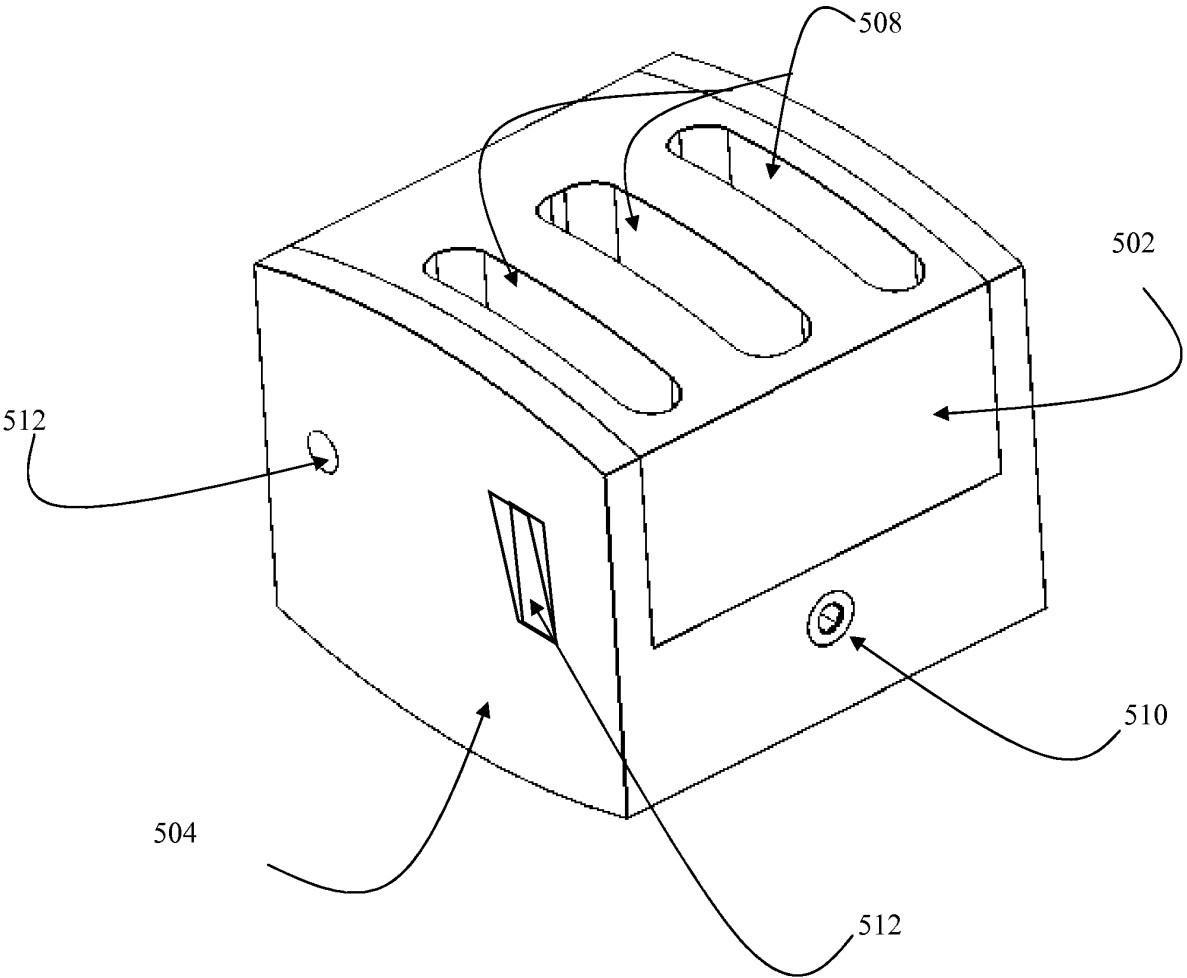
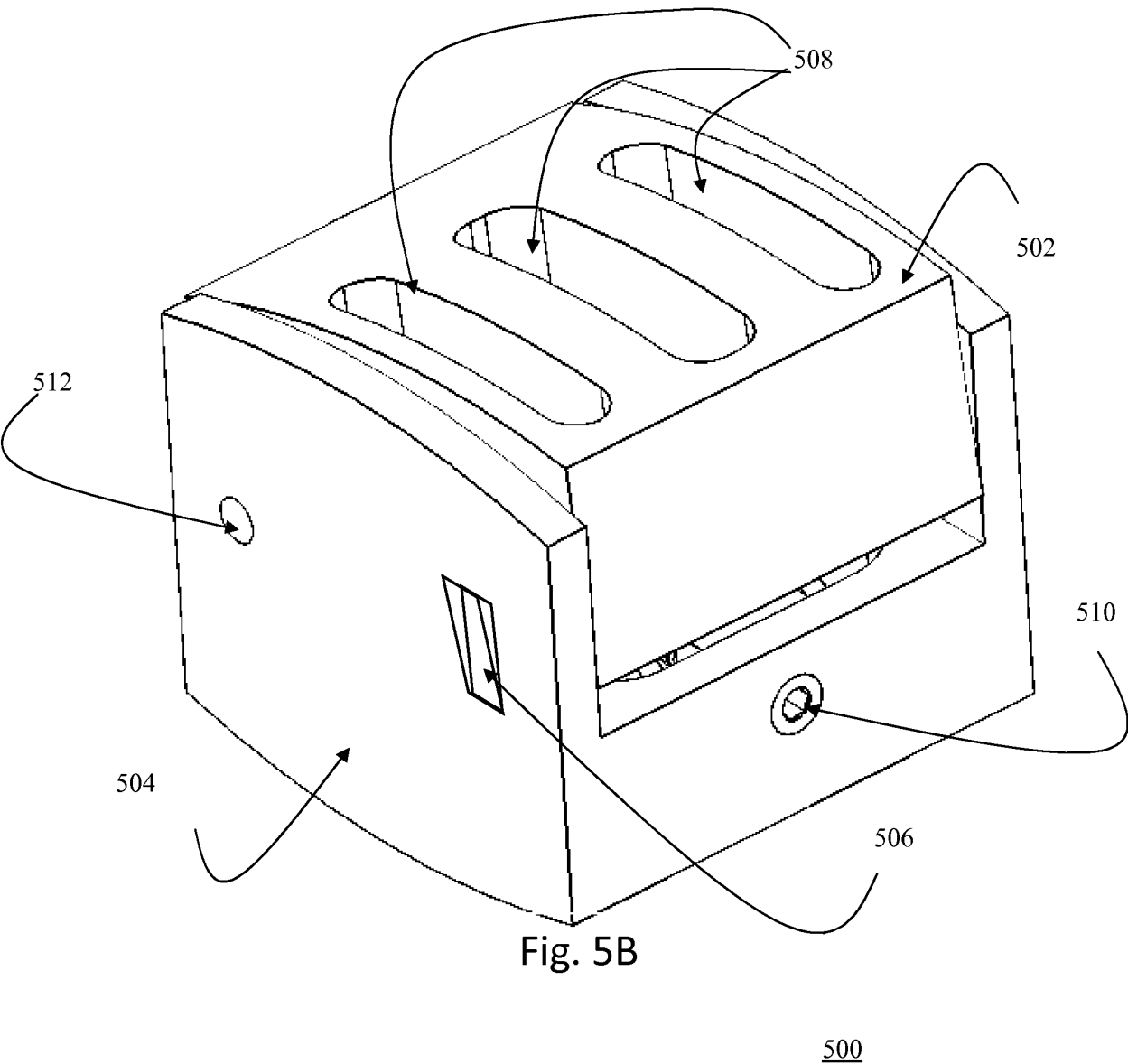


Fig. 5A

500



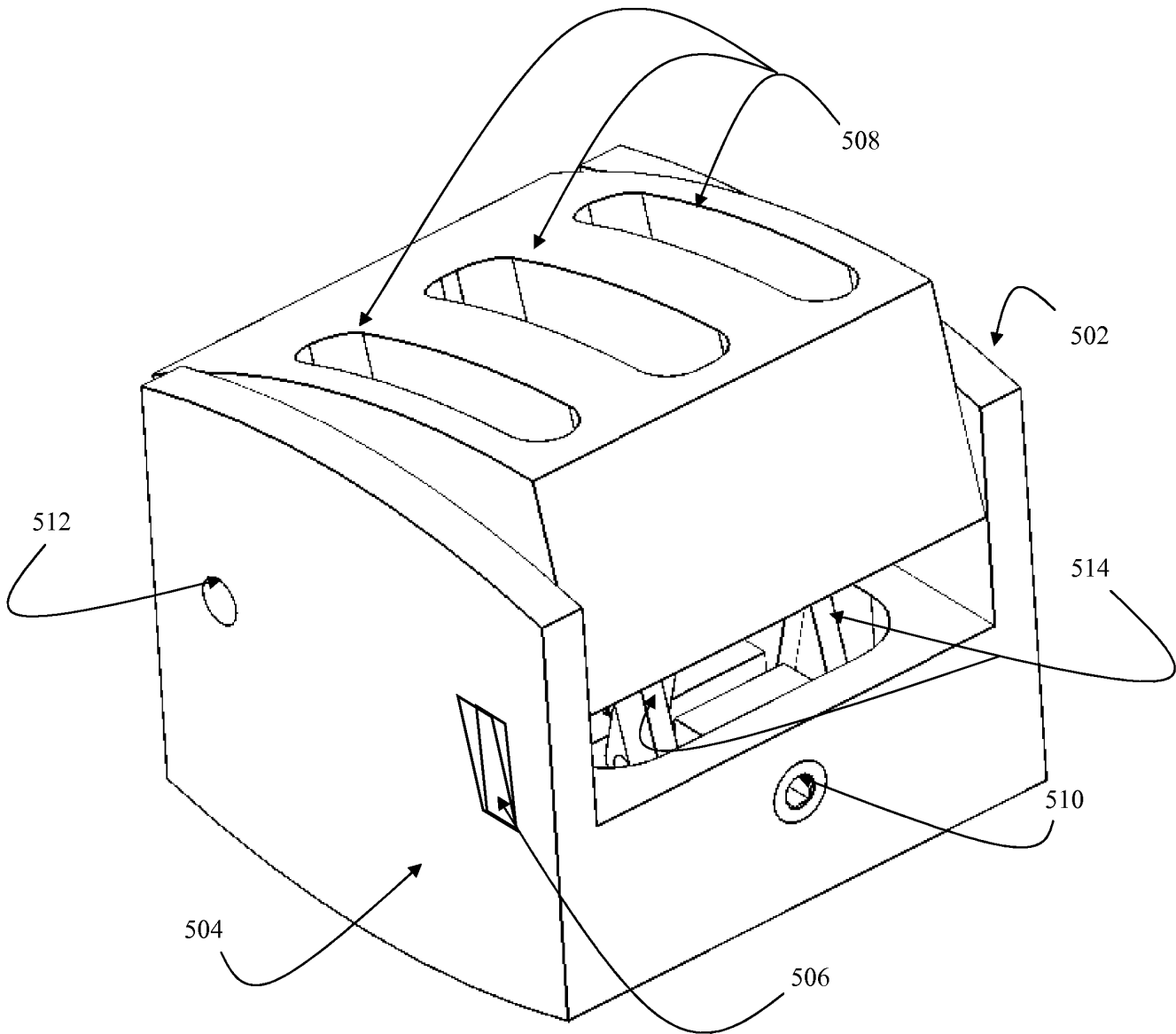


Fig. 5C

500

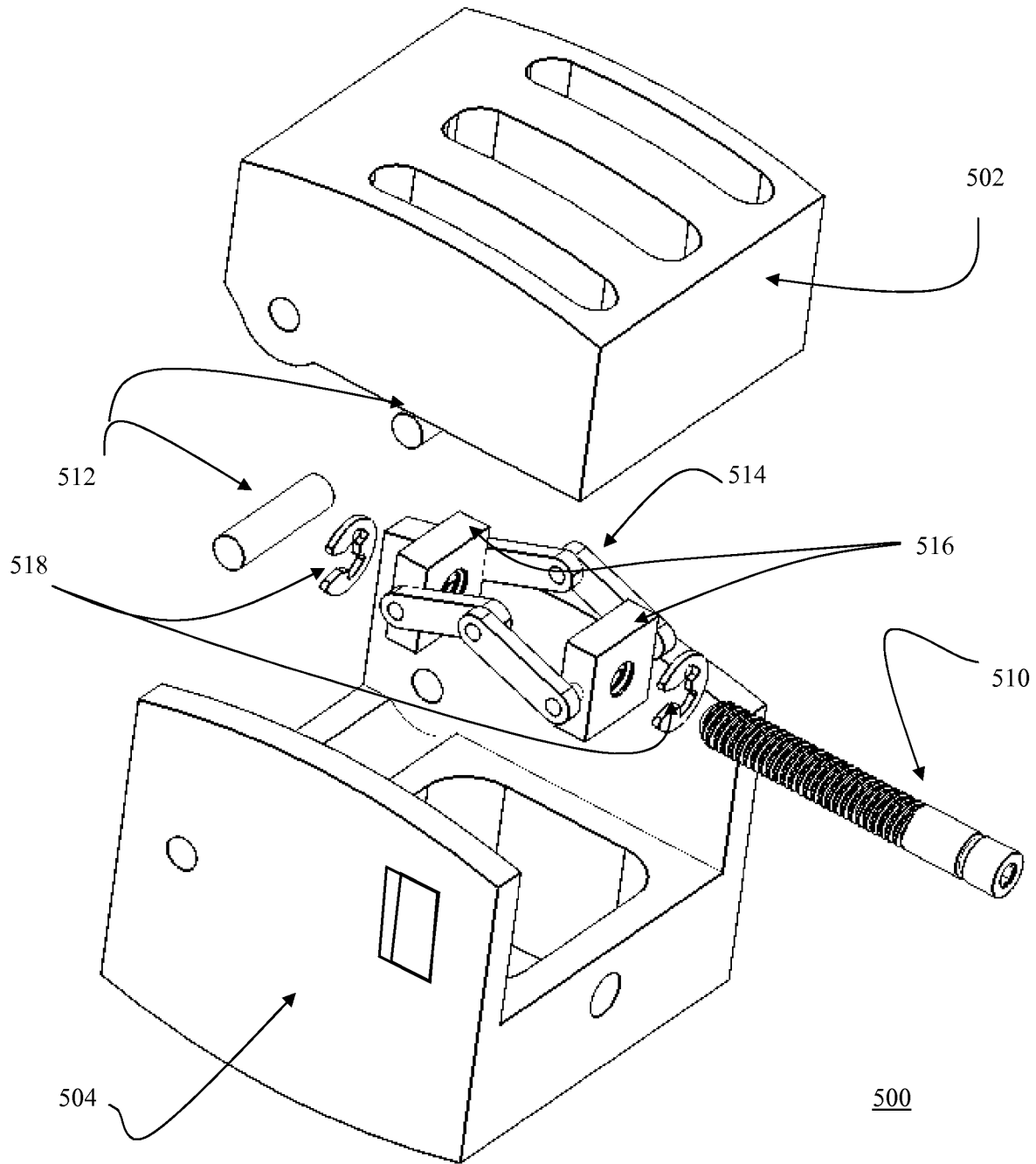


Fig. 5D

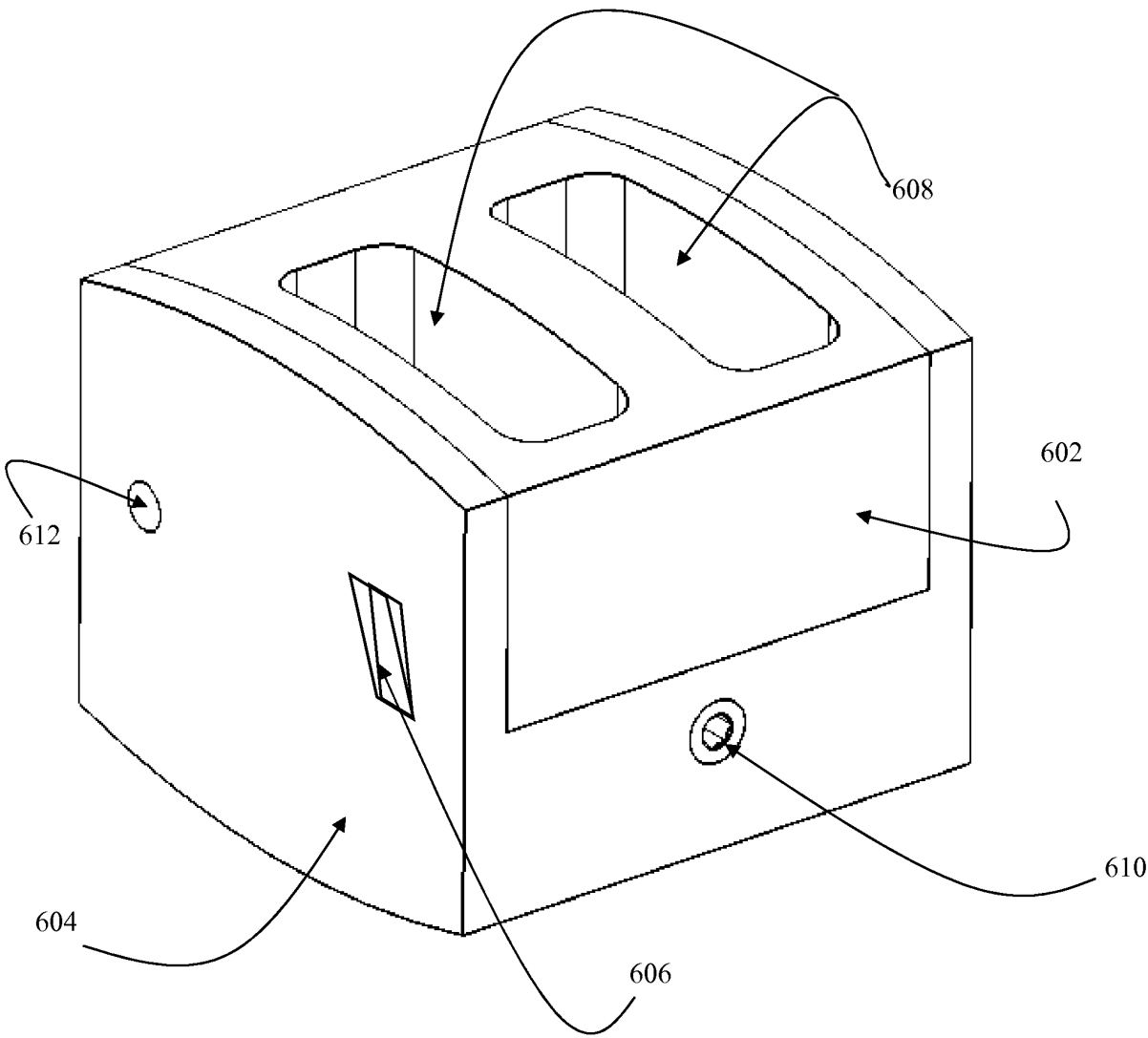
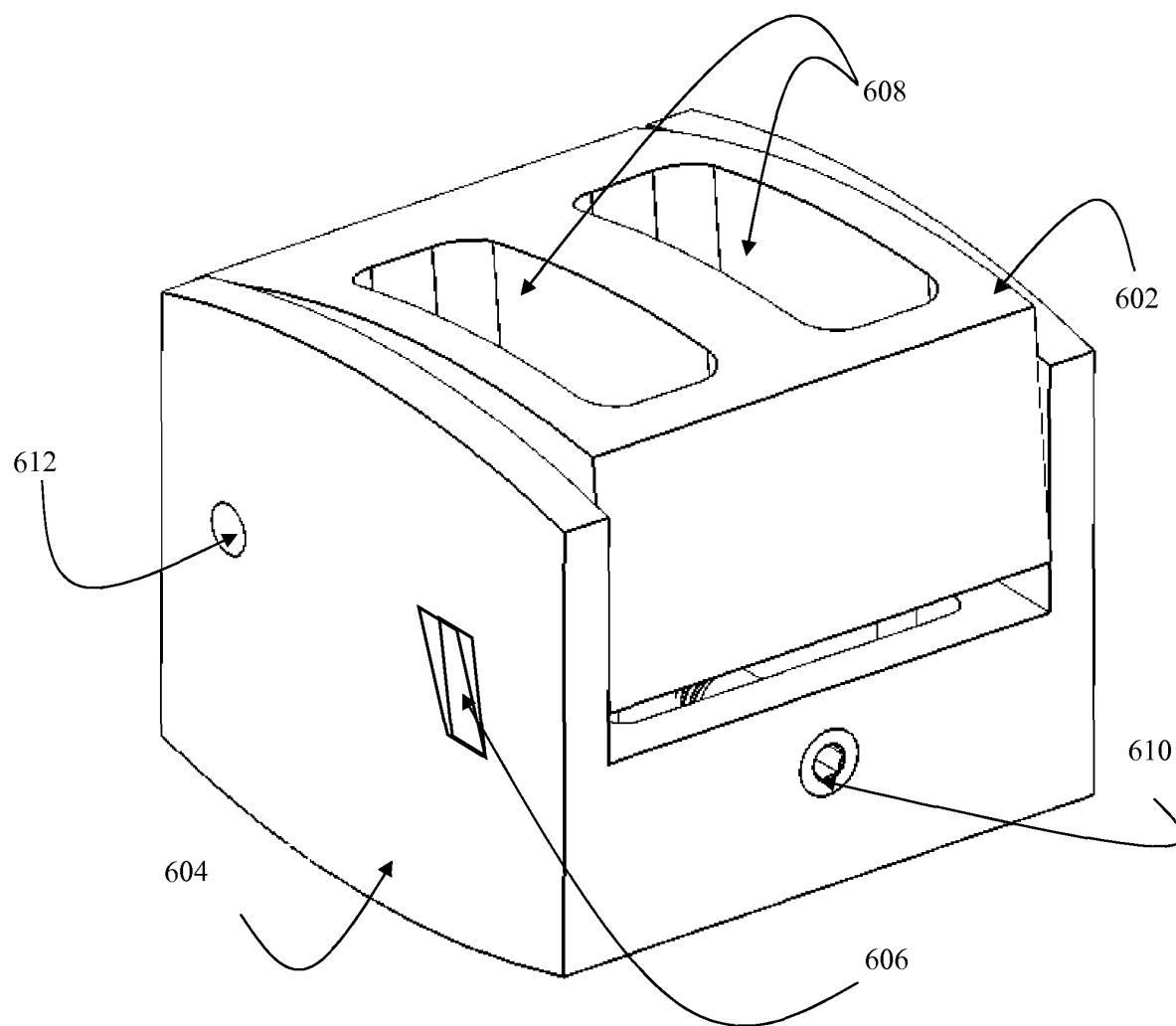


Fig. 6A

600



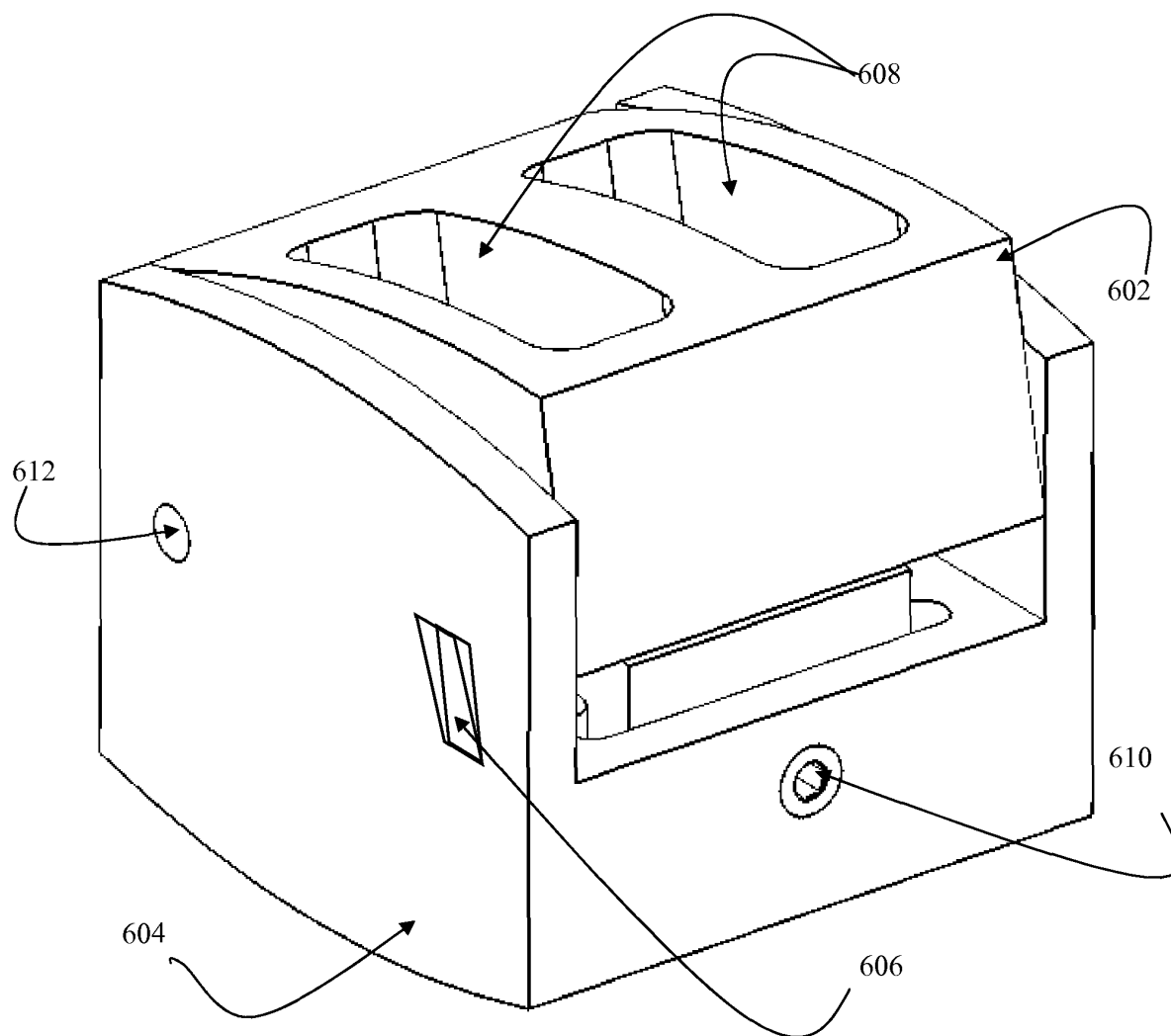


Fig. 6C

600

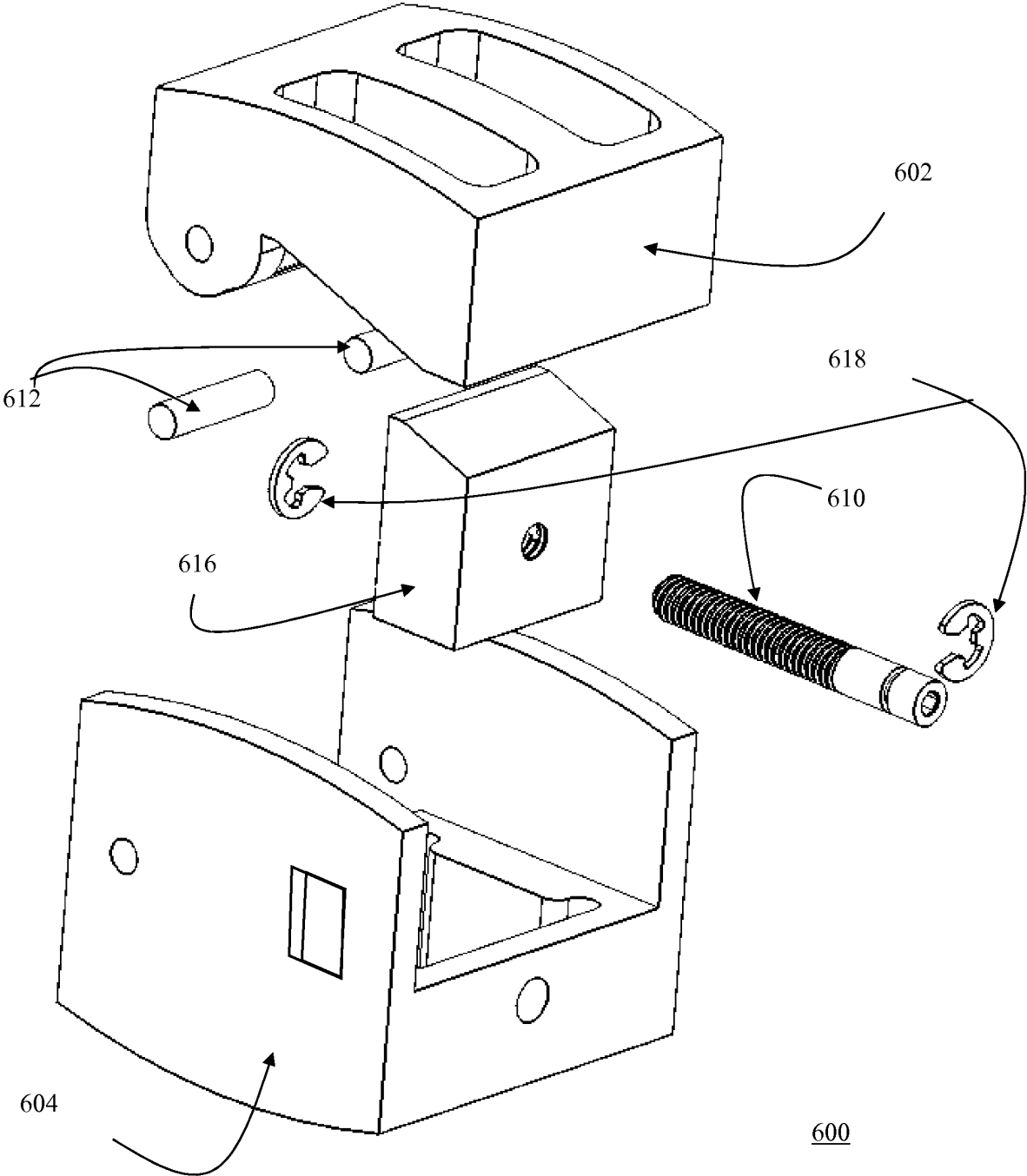


Fig. 6D

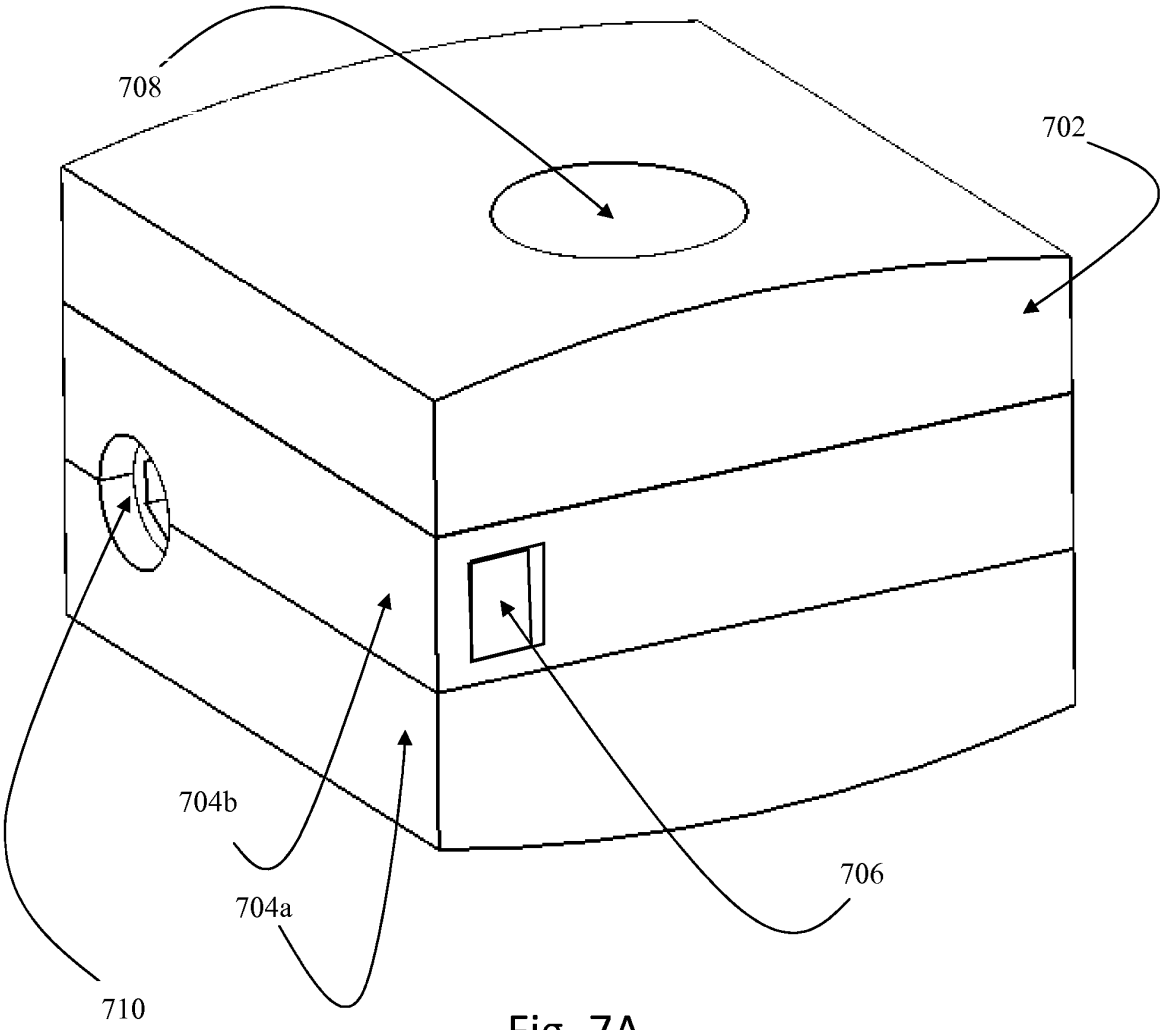


Fig. 7A

700

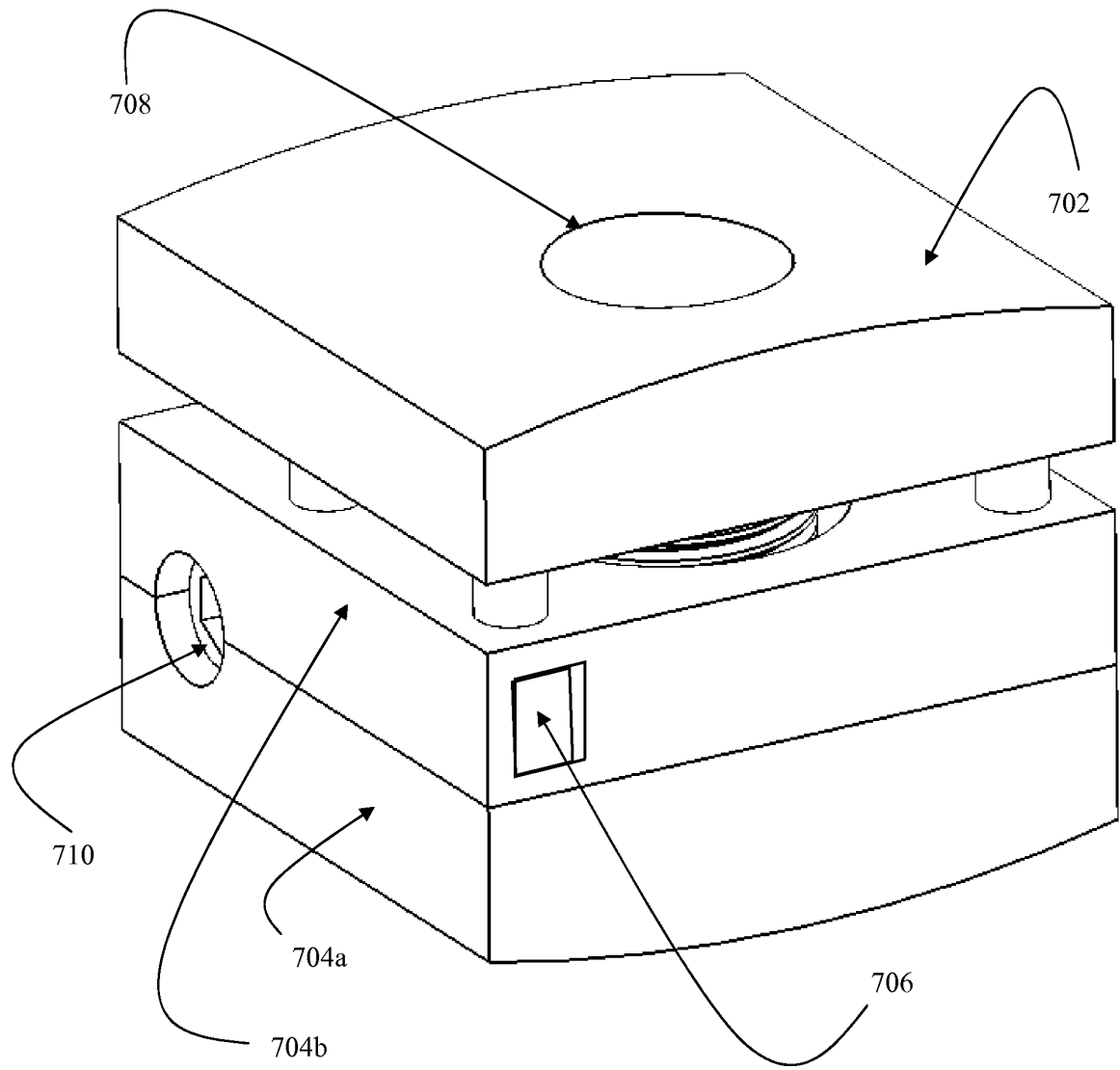
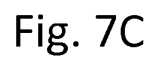
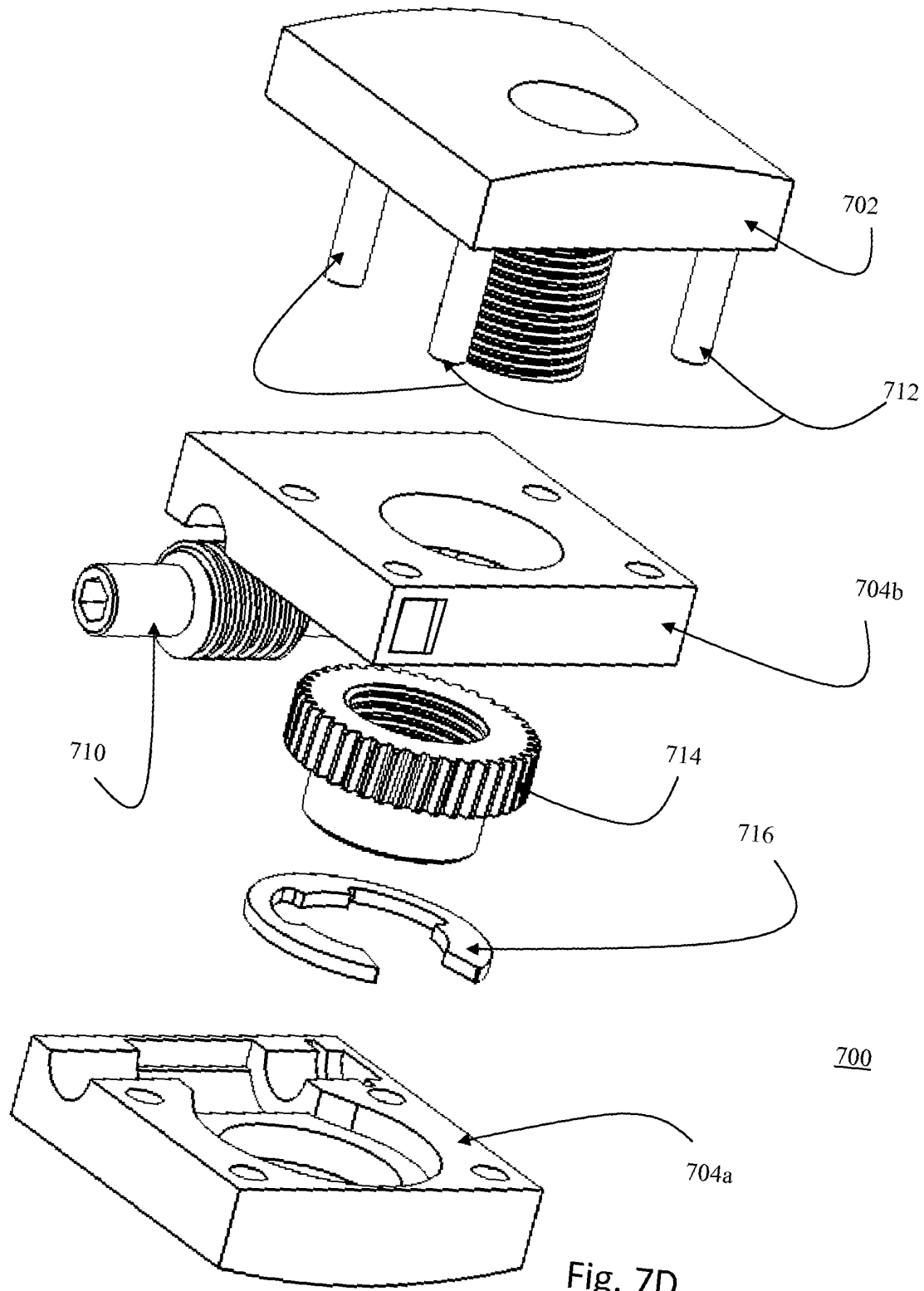


Fig. 7B

700



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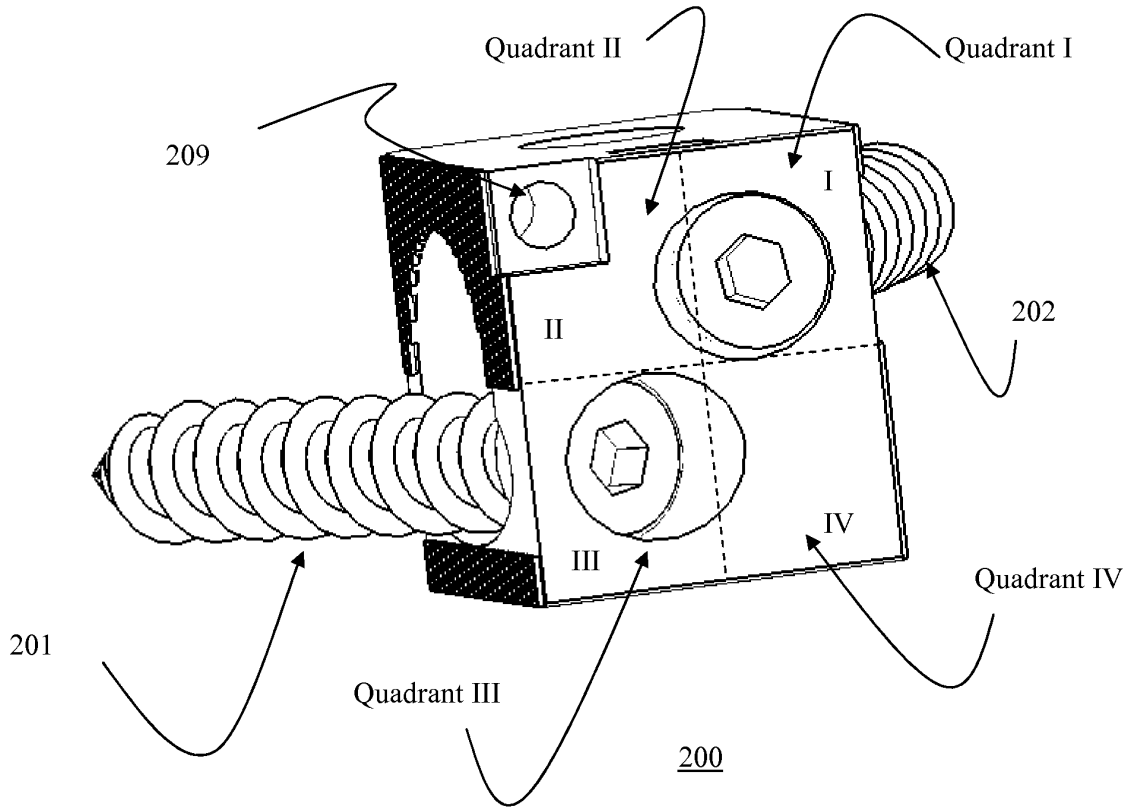


Fig. 7E(i)

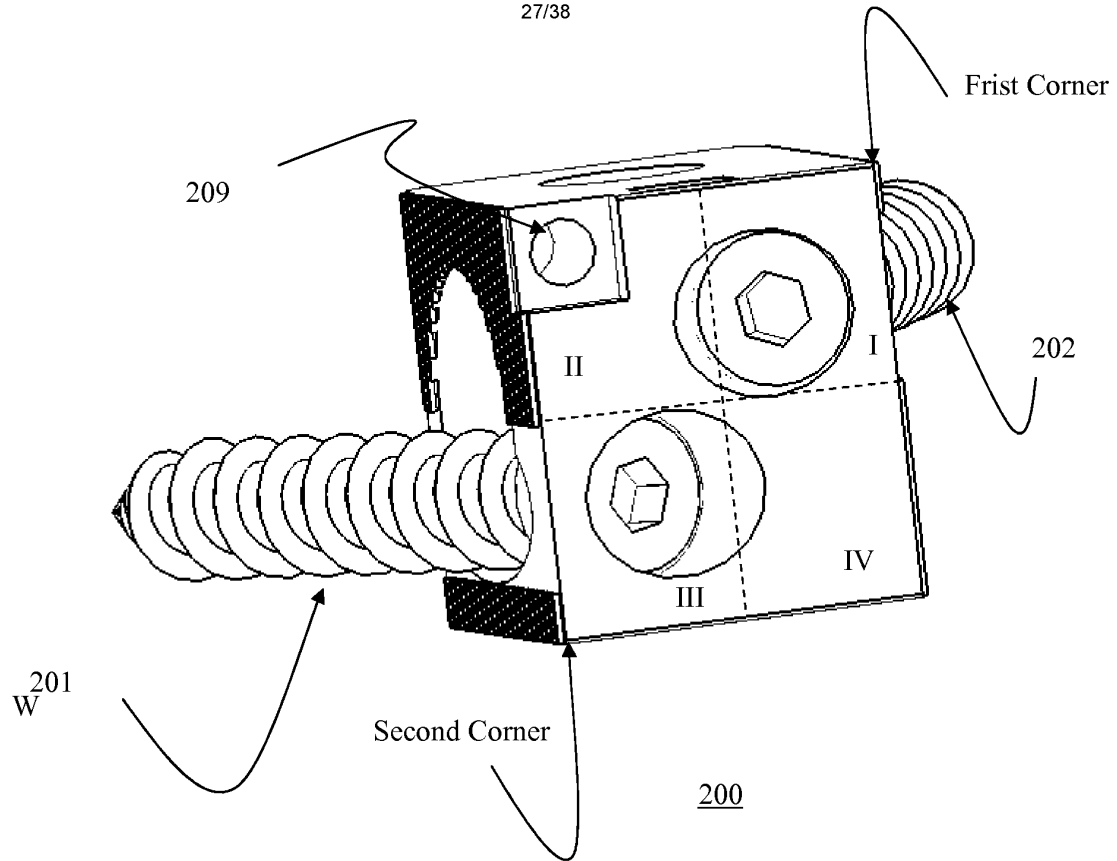


Fig. 7E(ii)

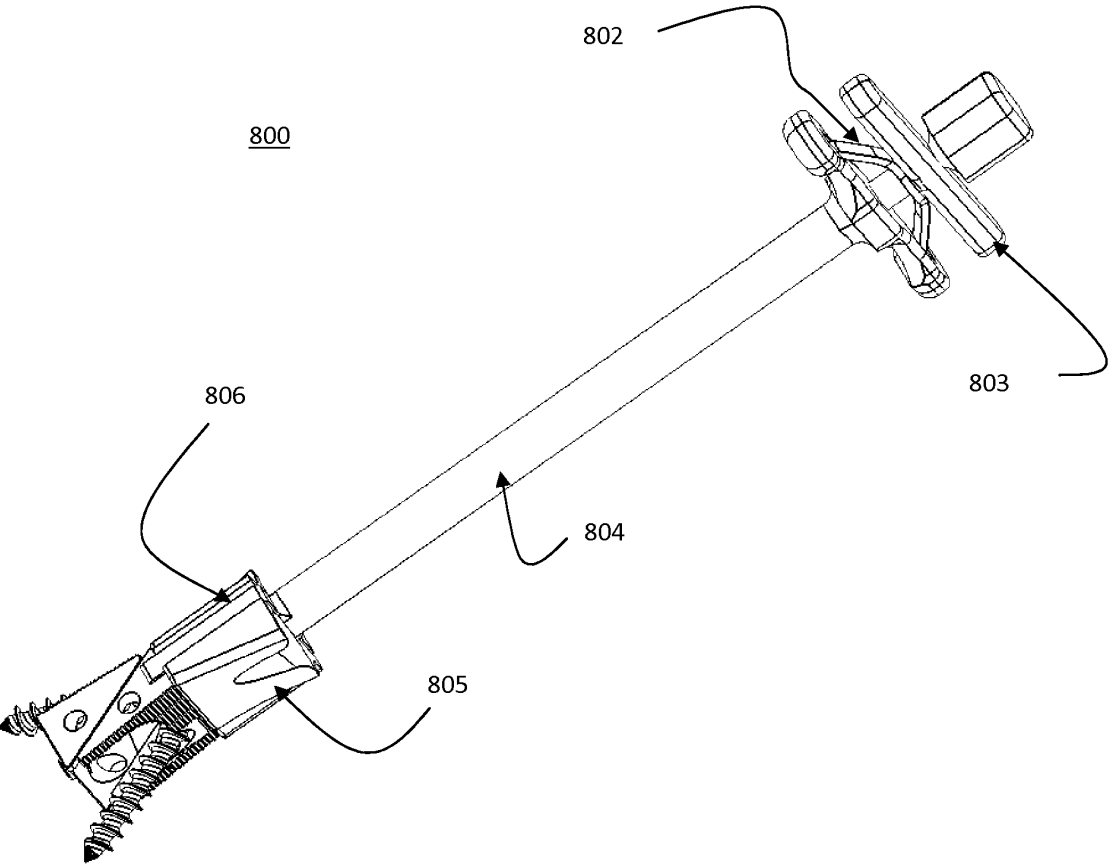


Fig. 8A

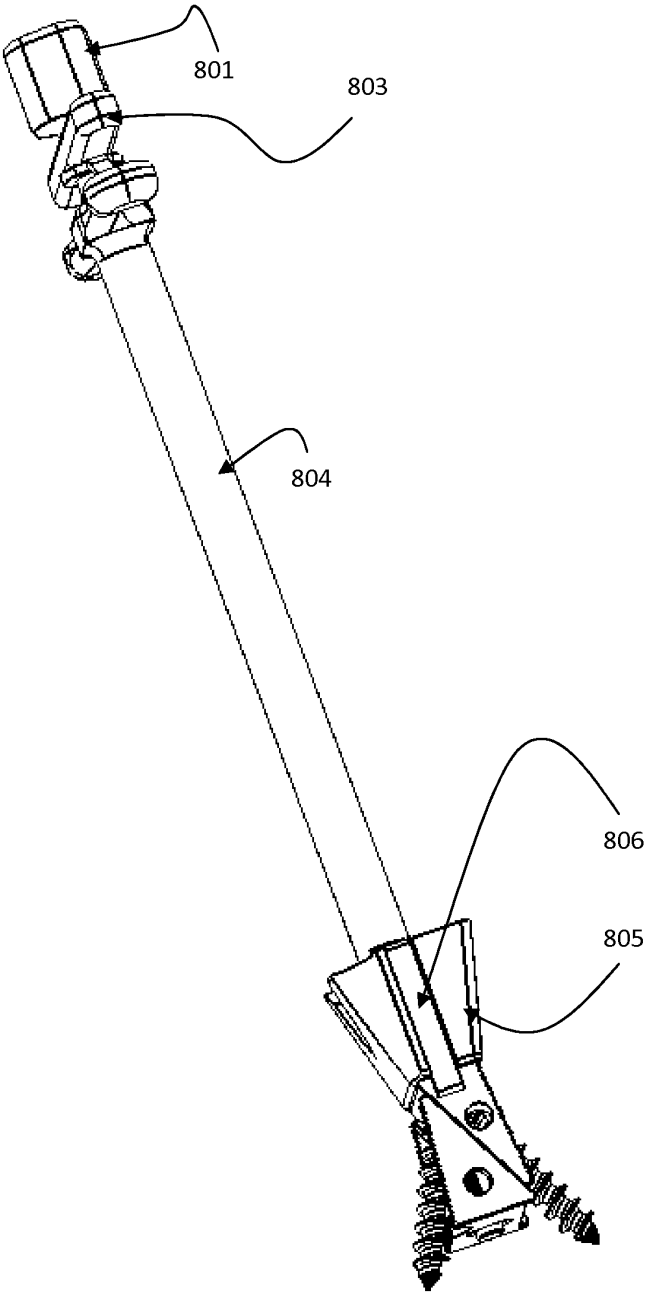


Fig. 8B

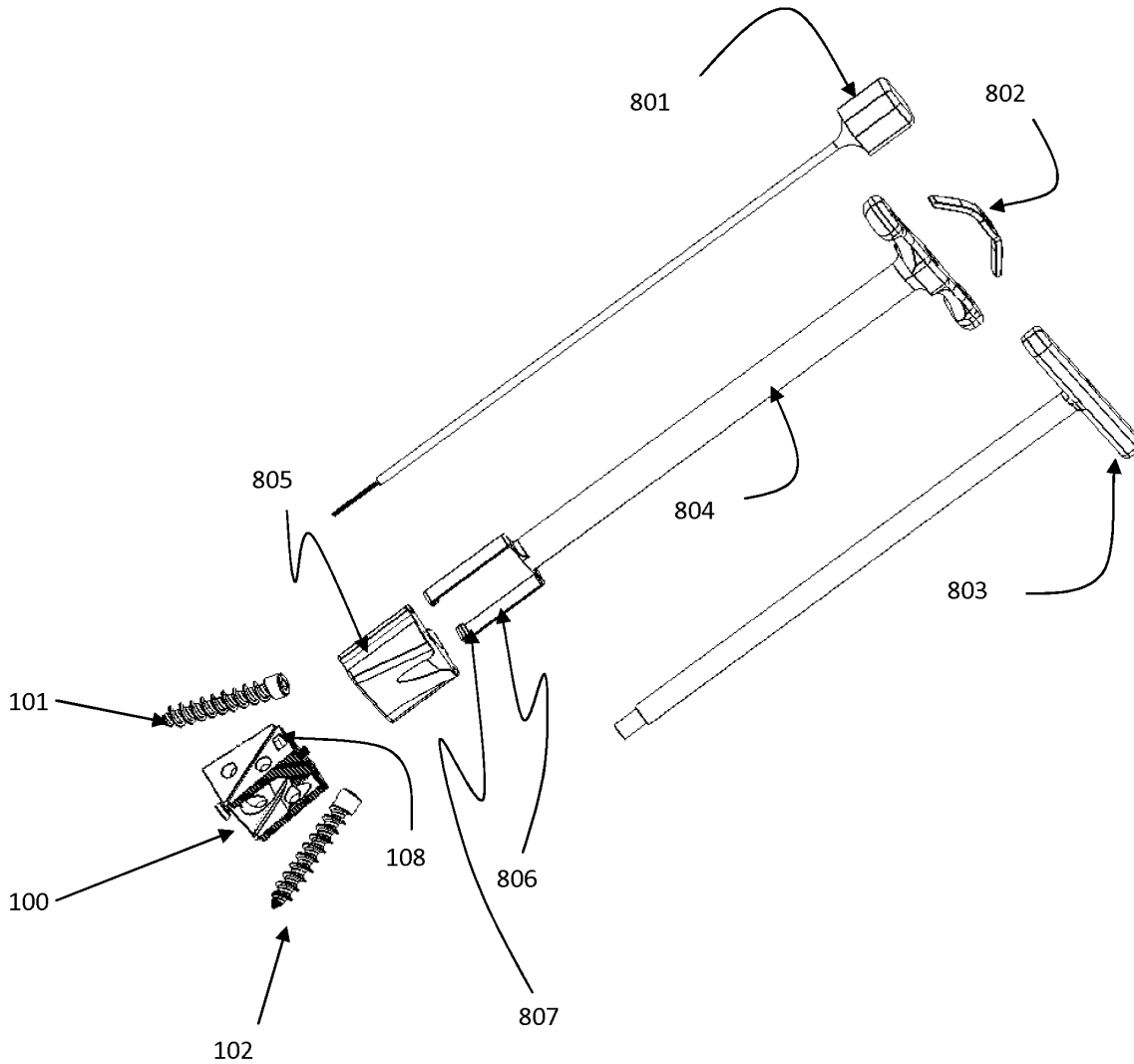


Fig. 8C

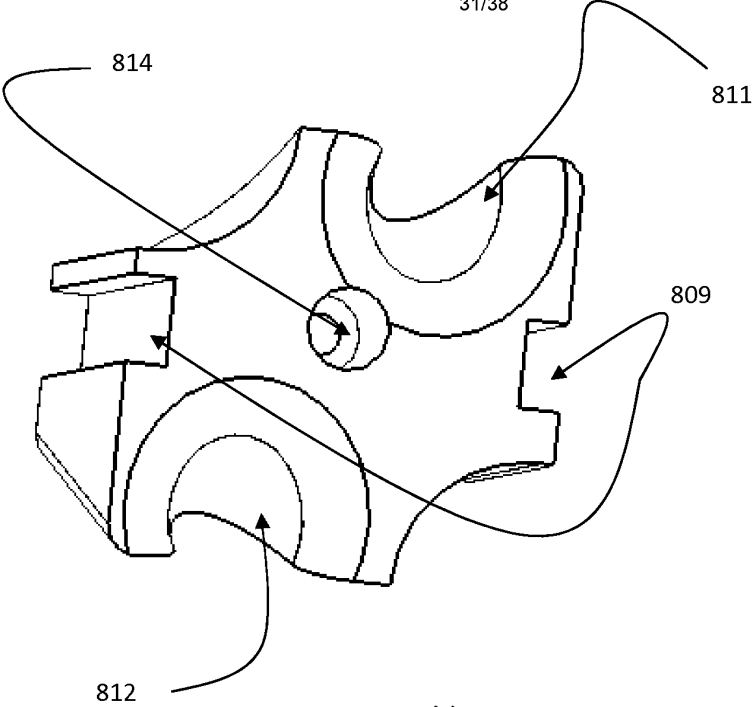


Fig. 8D(i)

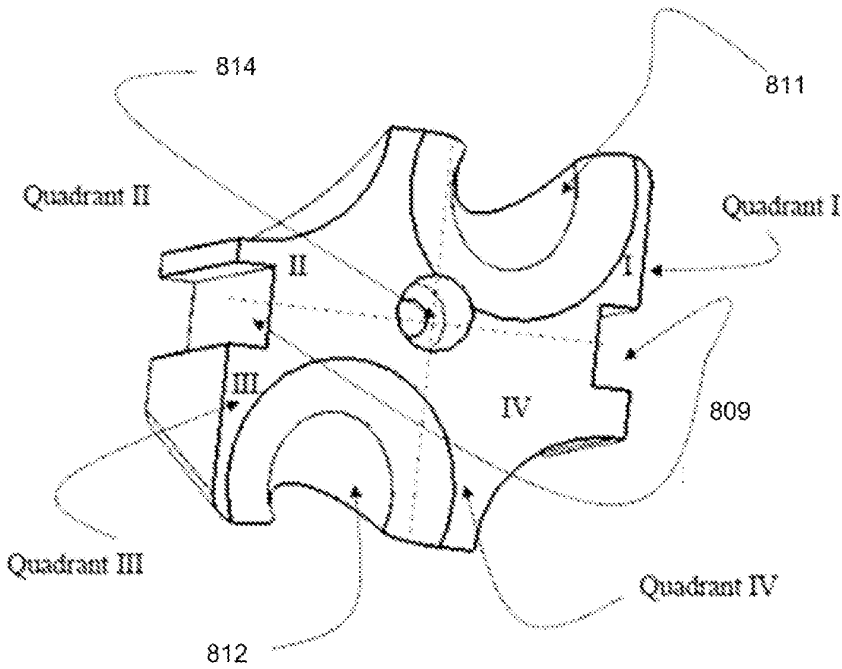


Fig. 8D(ii)

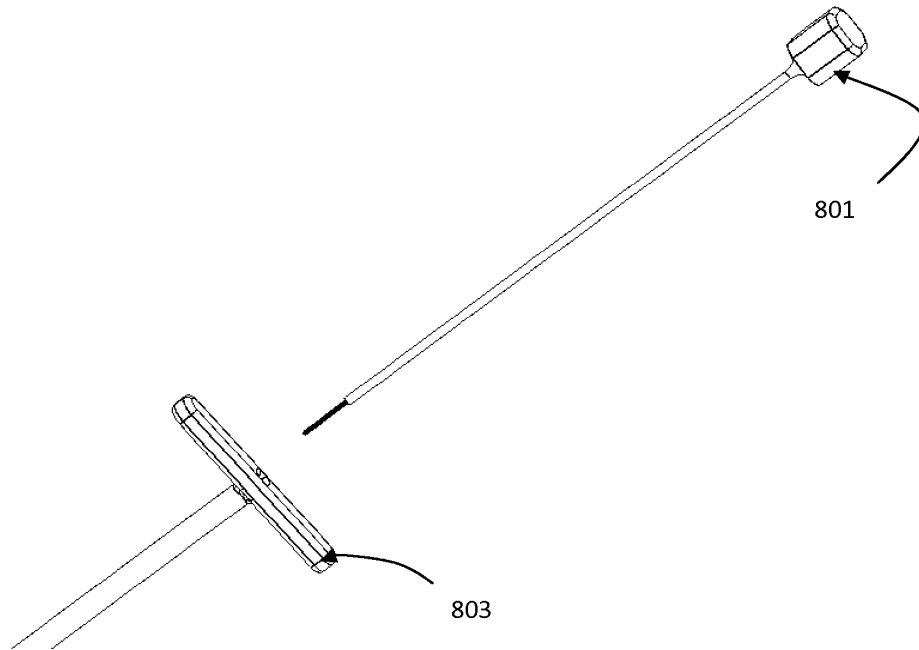


Fig. 8E

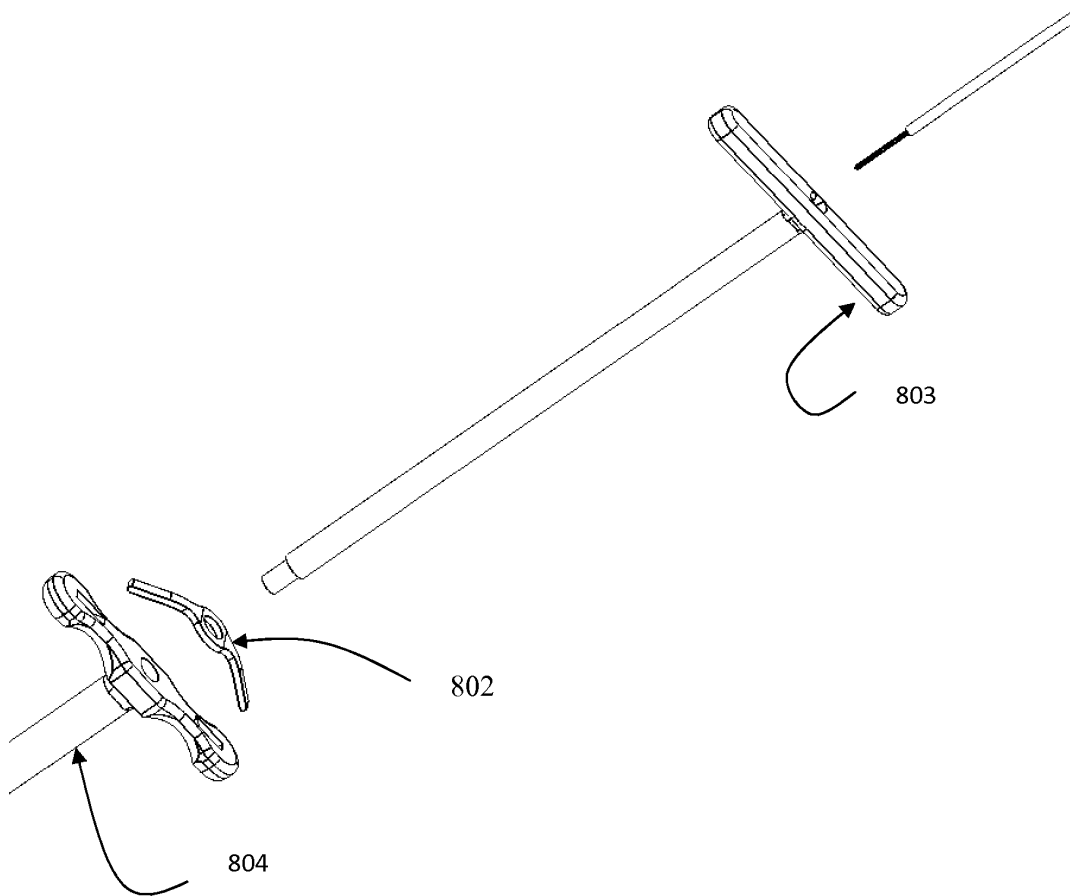


Fig. 8F

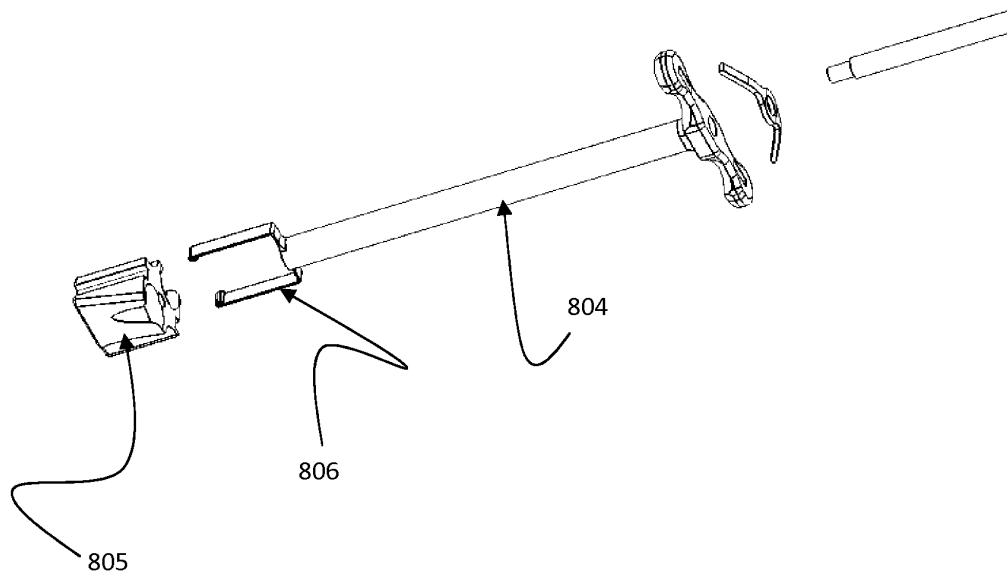


Fig. 8G

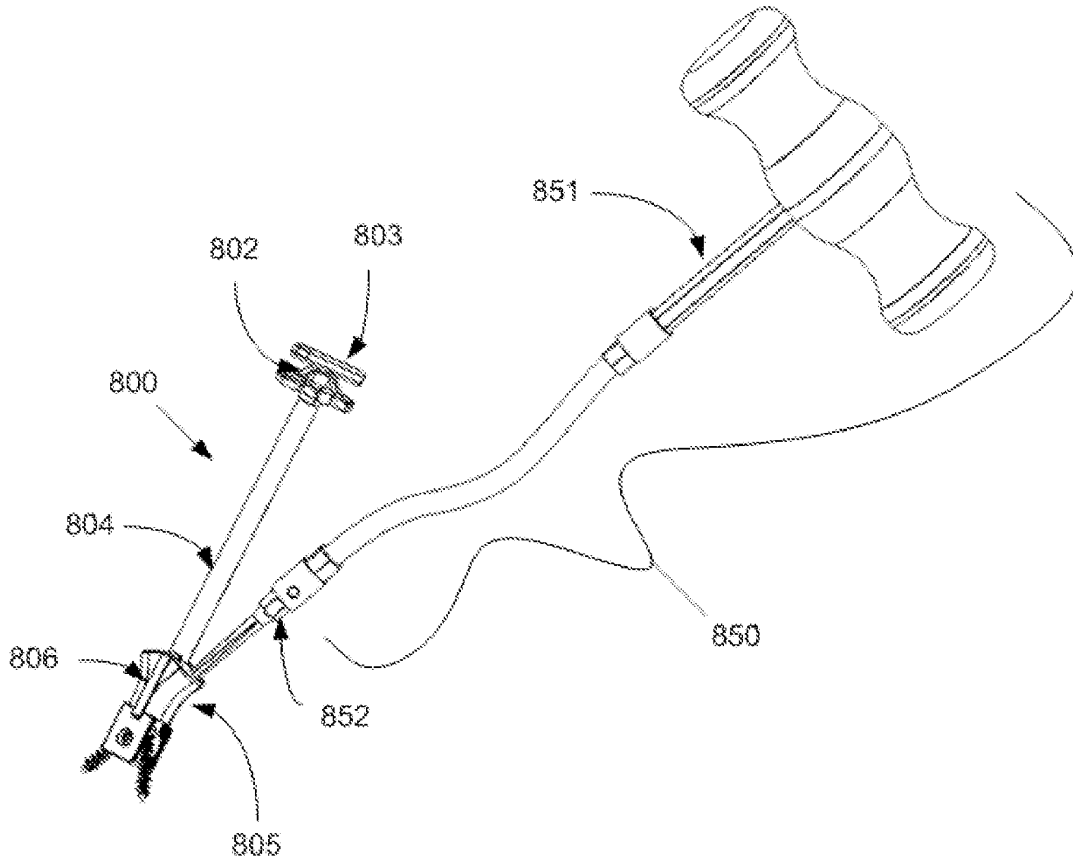


Fig. 8H

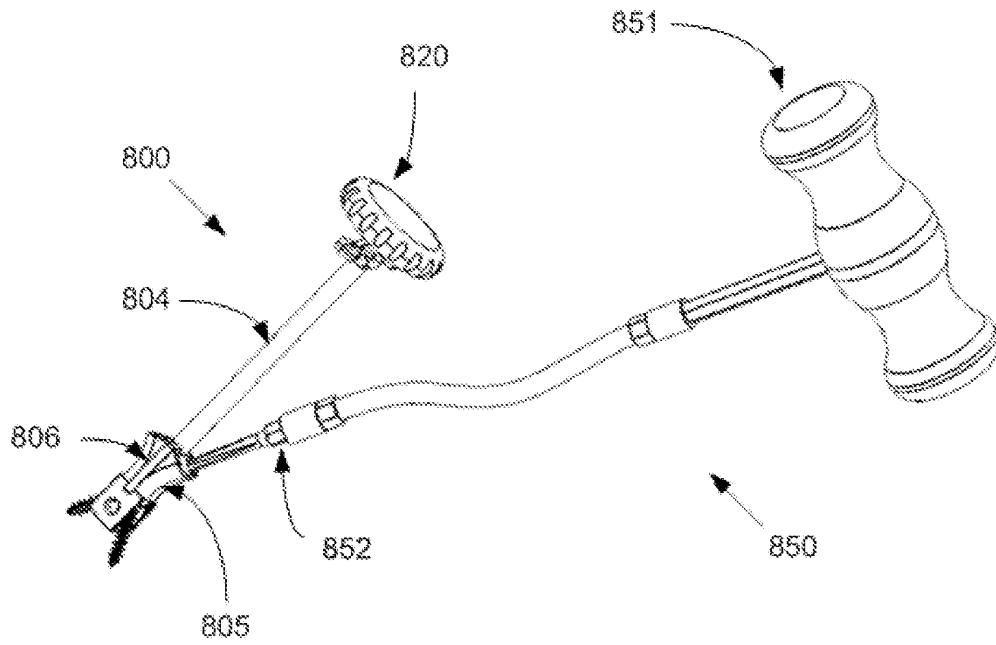


Fig. 8I

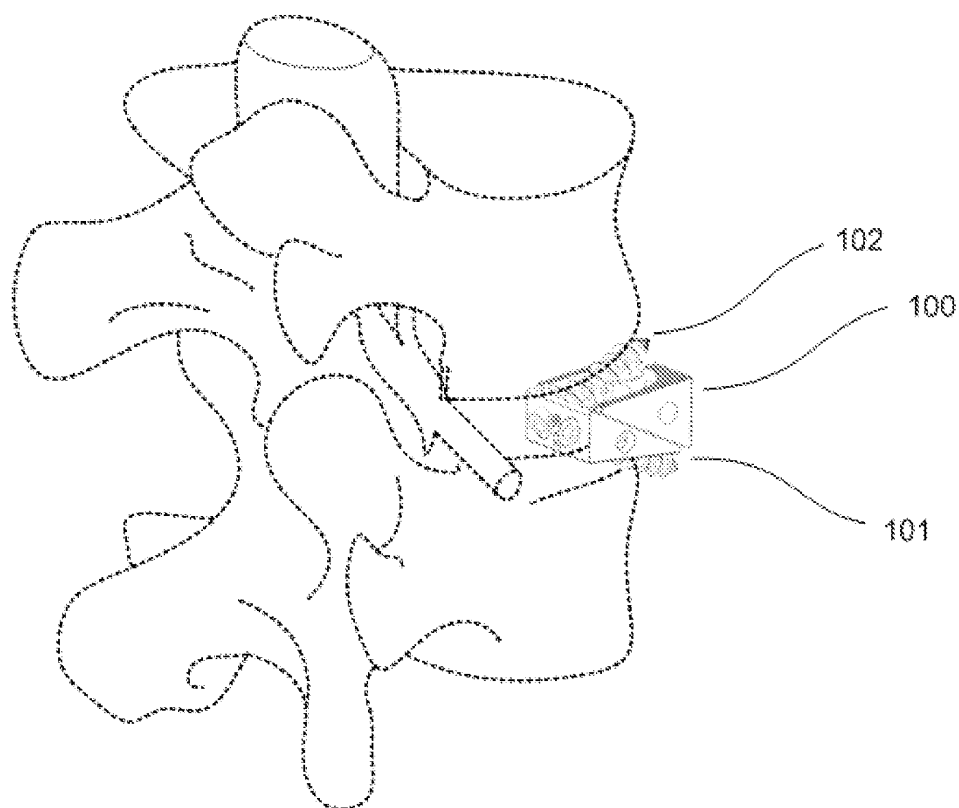


Fig. 8J

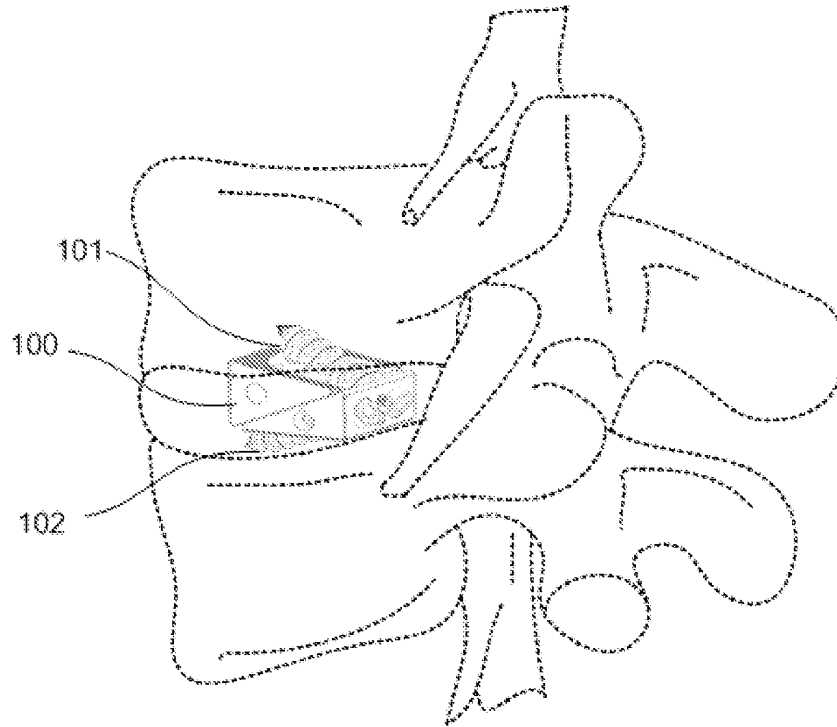


Fig. 8K

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

Application Number	To Be Assigned		
Filing Date	Herewith		
First Named Inventor	Ahmnon D. Moskowitz		
Title	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION		
Art Unit	Unknown		
Examiner Name	Unknown		
Attorney Docket Number	46440-0020004		
SIGNATURE of Applicant or Patent Practitioner			
Signature	/Stuart A. Nelson/	Date (Optional)	9/30/2019
Name	Stuart A. Nelson	Registration Number	63,947
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			
NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.			
☐ *Total of _____ forms are submitted.			

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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on the Transmittal.)

- ☒ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter, which may be an application filed after the date of this power of attorney, or identified above:

26191

OR

- ☐ I hereby appoint Practitioner(s) named in the attached list as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter, which may be an application filed after the date of this power of attorney, or identified above.

Please recognize or change the correspondence address for the application identified in the attached transmittal letter to:

- ☐ The address associated with the above-mentioned Customer Number

OR

- ☒ The address associated with Customer Number: 26191

OR

Firm or Individual Name			
Address			
City	State	Zip	
Country			
Telephone	Email		

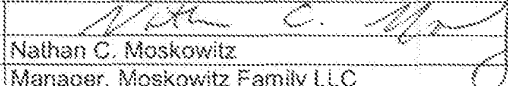
I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Moskowitz Family LLC

- ☐ Inventor or Joint Inventor (title not required below)
- ☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
- ☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
- ☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature		Date (Optional)	7/17/16
Name	Nathan C. Moskowitz		
Title	Manager, Moskowitz Family LLC		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ *Total of _____ forms are submitted.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor : Ahmnon D. Moskowitz Art Unit : Unknown
Application No. : Examiner : Unknown
Filed :
Title : ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER
DEVICES FOR DISTRACTION AND SPINAL FUSION AND A
UNIVERSAL TOOL FOR THEIR PLACEMENT AND
EXPANSION

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

INFORMATION DISCLOSURE STATEMENT

Please consider the documents listed on the disclosure form submitted with this statement. Copies of the documents are being submitted with this statement to the extent required under 37 C.F.R. § 1.98(a)(2). A copy of a communication from a foreign patent office in a counterpart application is also being submitted.

Under 35 U.S.C. § 120, this application relies on the earlier filing date of application number 16,025,667, filed on July 2, 2018. All listed documents were submitted to and/or cited by the Office in the prior application, and so copies of those documents are not provided in this application.

This statement is being filed with the application.

Please contact the undersigned if there are any questions regarding this statement.

Respectfully submitted,

Date: 9/30/2019

/Stuart A. Nelson/
Stuart A. Nelson
Reg. No. 63,947

Customer Number 26191
Fish & Richardson P.C.
Telephone: (612) 337-2538
Facsimile: (877) 769-7945

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Substitute Disclosure Form U.S. Department of Commerce Patent and Trademark Office Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))	Attorney Docket No. 46440-0020004	Application No.
	Applicant Moskowitz Family LLC	
	Filing Date	Group Art Unit

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	1.	2,360,942	10/24/1944	Ellerstein			
	2.	4,064,881	12/27/1977	Meredith			
	3.	4,554,914	11/26/1985	Kapp			
	4.	4,599,086	7/8/1986	Doty			
	5.	4,636,217	1/13/1987	Ogilvie			
	6.	4,904,261	2/27/1990	Dove			
	7.	4,960,420	10/2/1990	Goble			
	8.	4,997,432	3/5/1991	Keller			
	9.	5,005,749	4/9/1991	Aranyi			
	10.	5,062,850	11/5/1991	Macmillan			
	11.	5,123,926	6/23/1992	Pisharodi			
	12.	5,290,312	3/1/1994	Kojimoto			
	13.	5,405,391	4/11/1995	Henderson			
	14.	5,413,583	5/9/1995	Wohlers			
	15.	5,454,819	10/3/1995	Knoepfler			
	16.	5,514,180	5/7/1996	Heggeness			
	17.	5,653,763	8/5/1997	Errico			
	18.	5,658,336	8/19/1997	Pisharodi			
	19.	5,660,188	8/26/1997	Groiso			
	20.	5,665,122	9/9/1997	Kambin			
	21.	5,667,472	9/7/1997	Finn			
	22.	5,713,912	2/3/1998	Porter			
	23.	5,782,832	7/21/1998	Larsen			
	24.	5,865,848	2/2/1999	Baker			
	25.	5,888,223	3/30/1999	Bray, Jr.			
	26.	5,916,224	6/29/1999	Esplin			

Examiner Signature	Date Considered
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	Filing Date	Group Art Unit

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	27.	5,951,574	9/14/1999	Stefanchik			
	28.	5,960,522	10/5/1999	Boe			
	29.	5,968,054	10/19/1999	Yeatts			
	30.	5,976,136	11/2/1999	Bailey			
	31.	5,980,522	11/9/1999	Koros			
	32.	6,102,950	8/15/2000	Vaccaro			
	33.	6,126,689	10/3/2000	Brett			
	34.	6,190,414	2/20/2001	Young			
	35.	6,193,757	2/27/2001	Foley			
	36.	6,224,602	5/1/2001	Hayes			
	37.	6,235,034	5/22/2001	Bray, Jr.			
	38.	6,299,642	10/9/2001	Chan			
	39.	6,322,562	11/27/2001	Wolter			
	40.	6,342,074	1/29/2002	Simpson			
	41.	6,368,350	4/9/2002	Erickson			
	42.	6,368,351	4/9/2002	Glenn			
	43.	6,375,682	4/23/2002	Fleischman			
	44.	6,419,704	7/16/2002	Ferree			
	45.	6,419,705	4/9/2002	Glenn			
	46.	6,432,106	8/13/2002	Fraser			
	47.	6,454,807	9/24/2002	Jackson			
	48.	6,458,159	10/1/2002	Thalgott			
	49.	6,491,724	12/10/2002	Ferree			
	50.	6,527,804	3/4/2003	Gauchet			
	51.	6,533,818	3/18/2003	Weber			
	52.	6,558,423	5/6/2003	Michelson			

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U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	53.	6,572,653	6/3/2003	Simonson			
	54.	6,579,318	6/17/2003	Varga			
	55.	6,582,468	6/24/2003	Gauchet			
	56.	6,613,055	9/2/2003	Di Emidio			
	57.	6,629,998	10/7/2003	Lin			
	58.	6,641,614	11/4/2003	Wagner			
	59.	6,655,243	12/2/2003	Anderson			
	60.	6,716,247	4/6/2004	Michelson			
	61.	6,719,794	4/13/2004	Gerber			
	62.	6,723,126	4/20/2004	Berry			
	63.	6,733,532	5/11/2004	Gauchet			
	64.	6,764,491	7/20/2004	Frey			
	65.	6,770,094	8/3/2004	Fehling			
	66.	6,824,564	11/30/2004	Crozet			
	67.	6,835,206	12/28/2004	Jackson			
	68.	6,852,117	2/8/2005	Orlowski			
	69.	6,890,355	5/10/2005	Michelson			
	70.	6,904,308	6/7/2005	Frisch			
	71.	6,953,477	10/11/2005	Berry			
	72.	6,955,671	10/18/2005	Uchikubo			
	73.	6,955,691	10/18/2005	Ayyanathan			
	74.	6,962,606	11/8/2005	Michelson			
	75.	6,972,019	12/6/2005	Michelson			
	76.	6,974,480	12/13/2005	Messerli			
	77.	7,030,904	4/18/2006	Adair			
	78.	7,033,394	4/25/2006	Michelson			

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	Applicant Moskowitz Family LLC	
	Filing Date	Group Art Unit

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	79.	7,037,258	5/2/2006	Chatenever			
	80.	7,044,971	5/16/2006	Suddaby			
	81.	7,070,598	7/4/2006	Lim			
	82.	7,077,864	7/18/2006	Byrd			
	83.	7,087,055	8/8/2006	Lim			
	84.	7,097,615	8/29/2006	Banik			
	85.	7,118,579	10/10/2006	Michelson			
	86.	7,135,043	11/14/2006	Nakahara			
	87.	7,211,112	5/1/2007	Baynham			
	88.	7,214,243	5/8/2007	Taylor			
	89.	7,232,464	6/19/2007	Mathieu			
	90.	7,238,203	7/3/2007	Bagga			
	91.	7,320,555	1/22/2008	Chang			
	92.	7,326,248	2/5/2008	Michelson			
	93.	7,410,501	8/12/2008	Michelson			
	94.	7,442,209	10/28/2008	Michelson			
	95.	7,442,299	10/28/2008	Lee			
	96.	7,445,636	11/4/2008	Michelson			
	97.	7,615,059	11/10/2009	Watschke			
	98.	7,618,456	11/17/2009	Mathieu			
	99.	7,628,816	12/8/2009	Magerl			
	100.	7,655,027	2/2/2010	Michelson			
	101.	7,655,046	2/2/2010	Dryer			
	102.	7,704,279	4/27/2010	Moskowitz			
	103.	7,722,674	5/25/2010	Grotz			
	104.	7,727,246	6/1/2010	Sixto			

Examiner Signature	Date Considered
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

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	Applicant Moskowitz Family LLC	
	Filing Date	Group Art Unit

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	105.	7,753,958	7/13/2010	Gordon			
	106.	7,763,078	7/27/2010	Peterman			
	107.	7,776,047	8/17/2010	Fanger			
	108.	7,776,093	8/17/2010	Wolek			
	109.	7,799,081	9/21/2010	McKinley			
	110.	7,803,162	9/28/2010	Marnay			
	111.	7,828,849	11/9/2010	Lim			
	112.	7,846,185	12/7/2010	Carls			
	113.	7,846,207	12/7/2010	Lechmann			
	114.	7,850,733	12/14/2010	Baynham			
	115.	7,862,616	1/4/2011	Lechmann			
	116.	7,875,078	1/25/2011	Wysocki			
	117.	7,887,591	2/15/2011	Aebi			
	118.	7,909,869	3/22/2011	Gordon			
	119.	7,942,903	5/17/2011	Moskowitz			
	120.	7,959,675	6/14/2011	Gately			
	121.	7,972,363	7/5/2011	Moskowitz			
	122.	7,985,255	7/26/2011	Bray			
	123.	8,029,512	10/4/2011	Paltzer			
	124.	8,034,060	10/11/2011	Keren			
	125.	8,062,375	11/22/2011	Glerum			
	126.	8,105,358	1/31/2012	Phan			
	127.	8,105,367	1/31/2012	Austin			
	128.	8,105,382	1/31/2012	Olmos			
	129.	8,114,162	2/14/2012	Bradley			
	130.	8,123,810	2/28/2012	Gordon			

Examiner Signature	Date Considered
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	Applicant Moskowitz Family LLC	
	Filing Date	Group Art Unit

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	131.	8,133,232	3/13/2012	Levy			
	132.	8,137,405	3/20/2012	Kostuik			
	133.	8,167,949	5/1/2012	Tyber			
	134.	8,187,332	5/29/2012	McLuen			
	135.	8,267,939	9/18/2012	Cipoletti			
	136.	8,268,000	9/18/2012	Waugh			
	137.	8,273,127	9/25/2012	Jones			
	138.	8,328,872	12/11/2012	Duffield			
	139.	8,353,913	11/15/2013	Moskowitz			
	140.	8,382,842	2/26/2013	Greenhalgh			
	141.	8,394,145	3/12/2013	Weiman			
	142.	8,398,713	3/19/2013	Weiman			
	143.	8,403,986	3/26/2013	Michelson			
	144.	8,403,990	3/26/2013	Dryer			
	145.	8,414,651	4/9/2013	Tyber			
	146.	8,419,797	4/16/2013	Biedermann			
	147.	8,425,607	4/23/2013	Waugh			
	148.	8,435,298	5/17/2013	Weiman			
	149.	8,491,659	7/23/2013	Weiman			
	150.	8,496,706	7/30/2013	Ragab			
	151.	8,518,120	8/27/2013	Glerum			
	152.	8,523,944	9/3/2013	Jimenez			
	153.	8,535,380	9/17/2013	Greenhalgh			
	154.	8,540,774	9/24/2013	Kucenzi			
	155.	8,556,979	10/15/2013	Glerum			
	156.	8,568,481	10/29/2013	Olmos			

Examiner Signature	Date Considered
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Substitute Disclosure Form

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	Applicant Moskowitz Family LLC	
	Filing Date	Group Art Unit

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	157.	8,603,170	12/10/2013	Cipoletti			
	158.	8,613,761	12/24/2013	Lindemann			
	159.	8,628,577	1/14/2014	Jimenez			
	160.	8,628,578	1/14/2014	Miller			
	161.	8,632,595	1/21/2014	Weiman			
	162.	8,663,329	3/4/2014	Ernst			
	163.	8,679,183	3/25/2014	Glerum			
	164.	8,685,095	4/1/2014	Miller			
	165.	8,685,098	4/1/2014	Glerum			
	166.	8,709,086	4/29/2014	Glerum			
	167.	8,721,723	5/13/2014	Hansell			
	168.	8,728,165	5/20/2014	Parry			
	169.	8,778,025	7/15/2014	Ragab			
	170.	8,790,405	7/29/2014	Biedermann			
	171.	8,795,366	8/5/2014	Varela			
	172.	8,845,731	9/30/2014	Weiman			
	173.	8,845,732	9/30/2014	Weiman			
	174.	8,845,734	9/30/2014	Weiman			
	175.	8,888,853	11/18/2014	Glerum			
	176.	8,888,854	11/18/2014	Glerum			
	177.	8,894,711	11/25/2014	Varela			
	178.	8,894,712	11/25/2014	Varela			
	179.	8,926,704	1/6/2015	Glerum			
	180.	8,940,049	1/27/2015	Jimenez			
	181.	9,034,045	5/19/2015	Davenport			
	182.	9,039,771	5/26/2015	Glerum			

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U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	183.	9,119,730	9/1/2015	Glerum			
	184.	9,198,772	12/1/2015	Weiman			
	185.	9,445,919	9/20/2016	Palmatier			
	186.	9,848,993	12/26/2017	Moskowitz			
	187.	10,016,284	7/10/2018	Moskowitz			
	188.	10,426,633	10/1/2019	Moskowitz			
	189.	2002/0068976	6/6/2002	Jackson			
	190.	2002/0068977	6/6/2002	Jackson			
	191.	2002/0143338	10/3/2002	Orbay			
	192.	2003/0130737	7/10/2003	McGahan			
	193.	2004/0010315	1/15/2004	Song			
	194.	2004/0087947	5/6/2004	Lim			
	195.	2004/0088054	5/6/2004	Berry			
	196.	2004/0177531	9/16/2004	Dibenedetto			
	197.	2004/0186569	9/23/2004	Berry			
	198.	2004/0193272	9/30/2004	Zubok			
	199.	2004/0220571	11/4/2004	Assaker			
	200.	2004/0249466	12/9/2004	Liu			
	201.	2004/0254644	12/16/2004	Taylor			
	202.	2005/0027362	2/3/2005	Williams			
	203.	2005/0049590	3/3/2005	Alleyne			
	204.	2005/0113916	5/26/2005	Branch			
	205.	2005/0113917	5/26/2005	Chae			
	206.	2005/0177235	8/11/2005	Baynham			
	207.	2005/0216084	9/29/2005	Fleischman			
	208.	2005/0256576	11/17/2005	Moskowitz			

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	Filing Date	Group Art Unit

U.S. Patent Documents							
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	209.	2005/0261769	11/24/2005	Moskowitz			
	210.	2005/0273170	12/8/2005	Navarro			
	211.	2005/0278026	12/15/2005	Gordon			
	212.	2006/0155285	7/13/2006	Anderson			
	213.	2006/0206207	9/14/2006	Dryer			
	214.	2006/0241621	10/26/2006	Moskowitz			
	215.	2006/0241643	10/26/2006	Lim			
	216.	2006/0241770	10/26/2006	Rhoda			
	217.	2006/0247778	11/2/2006	Ferree			
	218.	2007/0049943	3/1/2007	Moskowitz			
	219.	2007/0167678	7/19/2007	Moskowitz			
	220.	2007/0198089	8/23/2007	Moskowitz			
	221.	2007/0213820	9/13/2007	Magerl			
	222.	2007/0250167	10/25/2007	Bray			
	223.	2007/0250172	10/25/2007	Moskowitz			
	224.	2007/0270968	11/22/2007	Baynham			
	225.	2007/0276498	11/29/2007	Aebi			
	226.	2008/0033440	2/7/2008	Moskowitz			
	227.	2008/0058938	3/6/2008	Mujwid			
	228.	2008/0177307	7/24/2008	Moskowitz			
	229.	2008/0183293	7/31/2008	Parry			
	230.	2008/0249569	10/9/2008	Waugh			
	231.	2008/0249575	10/9/2008	Waugh			
	232.	2008/0249625	10/9/2008	Waugh			
	233.	2008/0281424	11/13/2008	Parry			
	234.	2008/0281425	11/13/2008	Thalgott			

Examiner Signature	Date Considered
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Substitute Disclosure Form

Substitute Disclosure Form U.S. Department of Commerce Patent and Trademark Office Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))	Attorney Docket No. 46440-0020004	Application No.
	Applicant Moskowitz Family LLC	
	Filing Date	Group Art Unit

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	235.	2009/0030520	1/29/2009	Biederman			
	236.	2009/0080997	3/26/2009	Johnson			
	237.	2009/0105830	4/23/2009	Jones			
	238.	2009/0105831	4/23/2009	Jones			
	239.	2009/0112271	4/30/2009	Moskowitz			
	240.	2009/0112319	4/30/2009	O'Neil			
	241.	2009/0171461	7/2/2009	Conner			
	242.	2009/0182430	7/16/2009	Tyber			
	243.	2009/0187218	7/23/2009	Schaffhausen			
	244.	2009/0210062	8/20/2009	Thalgott			
	245.	2009/0224023	9/10/2009	Moskowitz			
	246.	2009/0234455	9/17/2009	Moskowitz			
	247.	2009/0292361	11/26/2009	Lopez			
	248.	2009/0299478	12/3/2009	Carls			
	249.	2010/0057208	3/4/2010	Dryer			
	250.	2010/0145460	6/10/2010	McDonough			
	251.	2010/0168862	7/1/2010	Edie			
	252.	2010/0204795	8/12/2010	Greenhalgh			
	253.	2010/0286780	11/11/2010	Dryer			
	254.	2010/0292796	11/18/2010	Greenhalgh			
	255.	2010/0305704	12/2/2010	Messerli			
	256.	2010/0318189	12/16/2010	Edie			
	257.	2010/0324606	12/23/2010	Moskowitz			
	258.	2011/0015742	1/20/2011	Hong			
	259.	2011/0029082	2/3/2011	Hall			
	260.	2011/0054621	3/3/2011	Lim			

Examiner Signature	Date Considered
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	Filing Date	Group Art Unit

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	261.	2011/0093074	4/21/2011	Glerum			
	262.	2011/0125269	5/26/2011	Moskowitz			
	263.	2011/0137349	6/9/2011	Moskowitz			
	264.	2011/0172721	7/14/2011	Frigg			
	265.	2011/0172774	7/14/2011	Varela			
	266.	2011/0178600	7/21/2011	Moskowitz			
	267.	2011/0208312	8/25/2011	Moskowitz			
	268.	2011/0288646	11/24/2011	Moskowitz			
	269.	2011/0295327	12/1/2011	Moskowitz			
	270.	2011/0295371	12/1/2011	Moskowitz			
	271.	2011/0307011	12/15/2011	Moskowitz			
	272.	2011/0319935	12/29/2011	Moskowitz			
	273.	2012/0010714	1/12/2012	Moskowitz			
	274.	2012/0035729	2/9/2012	Glerum			
	275.	2012/0109319	5/3/2012	Perisic			
	276.	2012/0150304	6/14/2012	Glerum			
	277.	2012/0150305	6/14/2012	Glerum			
	278.	2012/0158146	6/21/2012	Glerum			
	279.	2012/0158147	6/21/2012	Glerum			
	280.	2012/0158148	6/21/2012	Glerum			
	281.	2012/0271419	10/25/2012	Marik			
	282.	2012/0271423	10/25/2012	Wallenstein			
	283.	2012/0277865	11/1/2012	Trieu			
	284.	2012/0277870	11/1/2012	Wolters			
	285.	2012/0323330	12/20/2012	Kueenzi			
	286.	2012/0330419	12/27/2012	Moskowitz			

Examiner Signature	Date Considered
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Substitute Disclosure Form

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	Applicant Moskowitz Family LLC	
	Filing Date	Group Art Unit

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	287.	2013/0018468	1/17/2013	Moskowitz			
	288.	2013/0018469	1/17/2013	Moskowitz			
	289.	2013/0018470	1/17/2013	Moskowitz			
	290.	2013/0023991	1/24/2013	Moskowitz			
	291.	2013/0023992	1/24/2013	Moskowitz			
	292.	2013/0053962	2/28/2013	Moskowitz			
	293.	2013/0060339	3/7/2013	Duffield			
	294.	2013/0073044	3/21/2013	Gamache			
	295.	2013/0144388	6/6/2013	Emery			
	296.	2013/0158663	6/20/2013	Miller			
	297.	2013/0158664	6/20/2013	Palmatier			
	298.	2013/0173002	7/4/2013	Moskowitz			
	299.	2013/0211526	8/15/2013	Alheidt			
	300.	2013/0282017	10/24/2013	Moskowitz			
	301.	2014/0088714	3/27/2014	Miller			
	302.	2014/0121774	5/1/2014	Glerum			
	303.	2014/0249628	9/4/2014	Weiman			
	304.	2014/0249629	9/4/2014	Moskowitz			
	305.	2014/0324171	10/30/2014	Glerum			
	306.	2015/0025637	1/22/2015	Moskowitz			
	307.	2015/0105824	4/16/2015	Moskowitz			
	308.	2015/0148847	5/28/2015	Moskowitz			
	309.	2016/0374830	12/29/2016	Moskowitz			
	310.	2017/0252178	9/7/2017	Moskowitz			
	311.	2018/0078383	3/22/2018	Moskowitz			
	312.	2018/0318103	11/8/2018	Moskowitz			

Examiner Signature	Date Considered
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

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	Applicant Moskowitz Family LLC	
	Filing Date	Group Art Unit

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	313.	D626233	10/26/2010	Cipoletti			

Foreign Patent Documents or Published Foreign Patent Applications								
Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation	
							Yes	No
	314.	FR 2727003	5/24/1996	FR			English abstract	
	315.	WO 2004093749	11/4/2004	WO			English abstract	
	316.	WO 2006091503	8/31/2006	WO				

Other Documents (include Author, Title, Date, and Place of Publication)		
Examiner Initial	Desig. ID	Document
	317.	Grob, et al., "Clinical Experience With the Dynesys Semirigid Fixation System for the Lumbar Spine," SPINE, Vol. 30, No. 3, 2005, pp. 324-331
	318.	Guyer, et al., "Intervertebral Disc Prostheses," Spine, Volume 28, Number 15S, Supp. To 8/1/03, pages S15-S23
	319.	International Search Report and Written Opinion of the International Searching Authority, 03 December 2007, International Application No. PCT/US 07/05005
	320.	International Search Report and Written Opinion of the International Searching Authority, 09 July 2008, International Application No. PCT/US2007021013
	321.	International Search Report and Written Opinion of the International Searching Authority, 21 May 2008, International Application No. PCT/US2007/021015
	322.	Traynelis, "Prosthetics and Biologics: The Wave of the Future," CLINICAL NEUROSURGERY, Volume 50, Proceedings of the Congress of Neurological Surgeons, Philadelphia, PA 2002, Chapter 9, pages 207-219
	323.	Wai, et al., "Disk Replacement Arthroplasties: Can The Success of Hip and Knee Replacements be Repeated in the Spine?," Seminars in Spine Surgery, Vol. 15, No. 4 (December) 2003, pp 473-482

Examiner Signature	Date Considered
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Substitute Disclosure Form

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

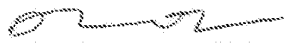
Title of Invention	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION		
As the below named inventor, I hereby declare that: This declaration is directed to: ☐ The attached application, or ☒ United States application or PCT international application number <u>14/063,197</u> filed on <u>October 25, 2013.</u> The above-identified application was made or authorized to be made by me. I believe that I am the original inventor or an original joint inventor of a claimed invention in the application. I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both. 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. LEGAL NAME OF INVENTOR Inventor: <u>Ahmnnon D. Moskowitz</u> Date (Optional): <u>9/25/17</u> Signature: <u></u> Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.			

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. 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 1.11 and 1.14. This collection is estimated to take 1 minute 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-3199 and select option 2.

61565955.doc

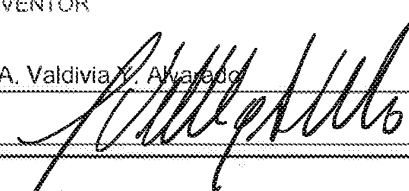
DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION
As the below named inventor, I hereby declare that: This declaration is directed to: ☐ The attached application, or ☒ United States application or PCT international application number <u>14/063,197</u> filed on <u>October 25, 2013.</u>	
The above-identified application was made or authorized to be made by me. I believe that I am the original inventor or an original joint inventor of a claimed invention in the application. I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.	
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-2036 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-2036 submitted for payment purposes are not retained in the application file and therefore are not publicly available.	
LEGAL NAME OF INVENTOR Inventor: <u>Mosheh T. Moskowitz</u> Date (Optional): <u>11/24/13</u> Signature: 	
Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.	

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If you need assistance in completing this form, call 1-800-PTO-8199 and select option 2.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION		
As the below named inventor, I hereby declare that:			
This declaration is directed to:		☐ The attached application, or ☒ United States application or PCT international application number <u>14/063,197</u> filed on <u>October 25, 2013.</u>	
The above-identified application was made or authorized to be made by me.			
I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.			
I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
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.			
LEGAL NAME OF INVENTOR			
Inventor: <u>Pablo A. Valdivia Y. Alvarado</u>		Date (Optional): <u>OCT-10-2017</u>	
Signature: 			
Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.			

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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION		
As the below named inventor, I hereby declare that:			
This declaration is directed to:			
☐		The attached application, or	
☒		United States application or PCT international application number	
		14/063,197	
filed on October 25, 2013.			
The above-identified application was made or authorized to be made by me.			
I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.			
I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
WARNING:			
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LEGAL NAME OF INVENTOR			
Inventor:		Eric Sugalski  Date (Optional): 09 / 27 / 2017	
Signature:			
Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.			

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Title of Invention	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION
--------------------	--

As the below named inventor, I hereby declare that:

This declaration is directed to: ☐ The attached application, or ☒ United States application or PCT international application number 14/063,197

filed on October 25, 2013.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

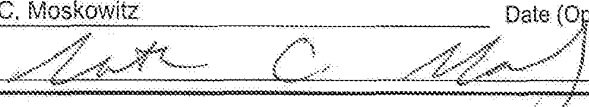
I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

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LEGAL NAME OF INVENTOR

Inventor: Nathan C. Moskowitz Date (Optional): 9/25/17

Signature: 

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

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Electronic Acknowledgement Receipt	
EFS ID:	37318745
Application Number:	16587993
International Application Number:	
Confirmation Number:	8319
Title of Invention:	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION
First Named Inventor/Applicant Name:	Ahmnon D. Moskowitz
Customer Number:	26191
Filer:	Stuart A. Nelson/Abby Remer
Filer Authorized By:	Stuart A. Nelson
Attorney Docket Number:	46440-0020004
Receipt Date:	30-SEP-2019
Filing Date:	
Time Stamp:	15:53:51
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 of New Application	PapTrans.pdf	83409 ddb215d1cd2b1fc1244d1c16618c58ec5ffb1ca8	no	2
Warnings:					

Information:					
2	Application Data Sheet	ADS.pdf	1257464	no	12
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Information:					
3		Application.pdf	164291	yes	33
			eefa22c8bc1c30f3f2d9f6e21f5efc9ac2977aa1f		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	29	
	Claims		30	32	
	Abstract		33	33	
Warnings:					
Information:					
4	Drawings-only black and white line drawings	Drawings.pdf	2595905	no	38
			8a484808b7eb4917476242e679ac725f04e1f364		
Warnings:					
Information:					
5	Power of Attorney	POA.pdf	754291	no	2
			ad474625913928367db68ec3c21b0881bbd7f000		
Warnings:					
Information:					
6	Information Disclosure Statement (IDS) Form (SB08)	IDSTrans.pdf	52850	no	1
			73c14de53dcfc44282613c0caf84e1e9103d3a37		
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					

7	Information Disclosure Statement (IDS) Form (SB08)	1449Doc.pdf	191504	no	13
			98a049bb0f03b99d0eb7a26b678f3c83869df172		
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
8	Oath or Declaration filed	Declarations.pdf	7080729	no	5
			9fa8bdd2285b2b52c3bc34a4fcac6592ab7bf9fe		
Warnings:					
Information:					
Total Files Size (in bytes):			12180443		
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.					



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/587,993	09/30/2019	Ahmnnon D. Moskowitz	46440-0020004

CONFIRMATION NO. 8319

FORMALITIES LETTER



26191
FISH & RICHARDSON P.C. (TC)
PO BOX 1022
MINNEAPOLIS, MN 55440-1022

Date Mailed: 10/25/2019

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 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 application is informal since it does not comply with the regulations for the reason(s) indicated below.

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

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
 - More than one figure is present and one or more figure appears to be unnumbered or misnumbered in comparison to the brief description of the figures. See Figure(s) 7C(i), 7C(ii). The figures must be labeled "Fig." with a consecutive Arabic numeral (1, 2, etc.) or an Arabic numeral and capital letter in the English alphabet (A, B, etc.) and correspond with a brief description having the same figure number. See 37 CFR 1.84(u)(1).
 - (1) To correct the figure numbering, replacement figures must be submitted.
 - (2) To add a brief description of an unnumbered figure, or correct the reference in the specification to the figures, a proper substitute specification in compliance with 37 CFR 1.121(b)(3) and 1.125, providing a brief description of each drawing figure presented, added or amended to correspond to the corrected numbering of the figures, must be submitted. See also 37 CFR 1.77(b)(9).

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

- The statutory basic filing fee is missing.

- The application search fee must be submitted.
- The application examination fee must be submitted.
- Surcharge as set forth in 37 CFR 1.16(f) must be submitted.

The surcharge is due for any one of:

- late submission of the basic filing fee, search fee, or examination fee,
- late submission of inventor's oath or declaration,
- filing an application that does not contain at least one claim on filing, or
- submission of an application filed by reference to a previously filed application.

SUMMARY OF FEES DUE:

The fee(s) required within **TWO MONTHS** from the date of this Notice to avoid abandonment is/are itemized below. Small entity discount is in effect. If applicant is qualified for micro entity status, an acceptable Certification of Micro Entity Status must be submitted to establish micro entity status. (See 37 CFR 1.29 and forms PTO/SB/15A and 15B.)

- \$ **75** basic filing fee.
- \$ **80** surcharge.
- \$ **330** search fee.
- \$ **380** examination fee.
- \$(**0**) previous unapplied payment amount.
- \$ **865** TOTAL FEE BALANCE DUE.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

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, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice".
<https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

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

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/hnguyen/

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 16/587,993			
APPLICATION AS FILED - PART I									
(Column 1)		(Column 2)		SMALL ENTITY		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	75		N/A			
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	330		N/A			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	380		N/A			
TOTAL CLAIMS (37 CFR 1.16(i))	20	minus 20 = *	x 50 =	0.00					
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1	minus 3 = *	x 230 =	0.00					
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 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).			0.00					
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00					
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	785		TOTAL			
APPLICATION AS AMENDED - PART II									
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)	
	Total (37 CFR 1.16(i))	*	Minus **	x	=		x	=	
	Independent (37 CFR 1.16(h))	*	Minus ***	x	=		x	=	
	Application Size Fee (37 CFR 1.16(s))								
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
			TOTAL ADD'L FEE			TOTAL ADD'L FEE			
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)	
	Total (37 CFR 1.16(i))	*	Minus **	x	=		x	=	
	Independent (37 CFR 1.16(h))	*	Minus ***	x	=		x	=	
	Application Size Fee (37 CFR 1.16(s))								
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
			TOTAL ADD'L FEE			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 found in the appropriate box in column 1.									



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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
16/587,993	09/30/2019		0.00	46440-0020004	20	1

CONFIRMATION NO. 8319

FILING RECEIPT



0000000112142737

26191
FISH & RICHARDSON P.C. (TC)
PO BOX 1022
MINNEAPOLIS, MN 55440-1022

Date Mailed: 10/25/2019

Receipt is acknowledged of this non-provisional utility 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 FIRST INVENTOR, 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 corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction 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 provided that the request is grantable.

Inventor(s)

Ahmnnon D. Moskowitz, Rockville, MD;
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Pablo A. Valdivia Y. Alvarado, Cambridge, MA;
Eric Sugalski, Arlington, MA;
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Applicant(s)

Moskowitz Family LLC, Rockville, MD;

Power of Attorney: The patent practitioners associated with Customer Number 26191

Domestic Priority data as claimed by applicant

This application is a CON of 16/025,667 07/02/2018 PAT 10426633
which is a CON of 15/820,232 11/21/2017 PAT 10016284
which is a CON of 14/063,197 10/25/2013 PAT 9848993
which claims benefit of 61/801,783 03/15/2013
and claims benefit of 61/718,707 10/25/2012
and is a CIP of 13/210,150 08/15/2011 PAT 9867719
and is a CIP of 13/210,157 08/15/2011 PAT 9889022
and is a CIP of 13/210,162 08/15/2011 PAT 9895238
and is a CIP of 13/210,168 08/15/2011 PAT 9907674
and is a CIP of 13/741,361 01/14/2013 PAT 9301854
and said 13/210,150 08/15/2011
is a CON of 13/084,543 04/11/2011 PAT 8353913

and is a CON of 13/108,982 05/16/2011 PAT 9005293
and said 13/210,157 08/15/2011
is a CON of 13/084,543 04/11/2011 PAT 8353913
and is a CON of 13/108,982 05/16/2011 PAT 9005293
and said 13/210,162 08/15/2011
is a CON of 13/084,543 04/11/2011 PAT 8353913
and is a CON of 13/108,982 05/16/2011 PAT 9005293
and said 13/210,168 08/15/2011
is a CON of 13/084,543 04/11/2011 PAT 8353913
and is a CON of 13/108,982 05/16/2011 PAT 9005293
and said 13/741,361 01/14/2013
is a CON of 13/084,543 04/11/2011 PAT 8353913
and is a CON of 13/108,982 05/16/2011 PAT 9005293
and said 13/084,543 04/11/2011
is a CON of 11/842,855 08/21/2007 PAT 7942903
and said 13/108,982 05/16/2011
is a CON of 11/842,855 08/21/2007 PAT 7942903
which is a CIP of 11/536,815 09/29/2006 PAT 7846188
which is a CIP of 11/208,644 08/23/2005 PAT 7704279
which claims benefit of 60/670,231 04/12/2005

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.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 10/24/2019

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/587,993**

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

page 2 of 4

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.

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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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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor :	Ahmnon D. Moskowitz	Art Unit :	Unknown
Application No. :	16/587,993	Examiner :	Unknown
Filed :	September 30, 2019	Conf. No. :	8319
Title :	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION		

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

PRELIMINARY AMENDMENT

Prior to examination, please amend the application as indicated on the following pages.

First Named Inventor : Ahmnon D. Moskowitz
Application No. : 16/587,993
Filed : September 30, 2019
Page : 2 of 10

Attorney Docket: 46440-0020004

Amendments to the Specification:

Please replace the paragraph [0034] with the following amended paragraph:

FIG. 7C illustrates a ~~FIGS. 7C(i) and 7C(ii) illustrate~~ top, perspective [[views]] view of an intervertebral cage construct according to an exemplary embodiment of the invention.

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-20 (Cancelled)

21. (New) An expandable intervertebral fusion device comprising:

a first movable portion extending from a first end to a second end, wherein the first movable portion has first and second end portions positioned at the first and second ends, respectively, and has first and second side portions extending between the first and second end portions, wherein the first movable portion has a first vertebral body engagement surface and has a first interior surface positioned on an opposite side of the first movable portion from the first vertebral body engagement surface, wherein the first movable portion defines a first gap at the first end between the first and second side portions, wherein the first movable portion defines first and second linkage arm connection holes;

a second movable portion extending from a third end to a fourth end, wherein the second movable portion has third and fourth end portions positioned at the third and fourth ends, respectively, and has third and fourth side portions extending between the third and fourth end portions, wherein the second movable portion has a second vertebral body engagement surface and has a second interior surface positioned on an opposite side of the second movable portion from the second vertebral body engagement surface, wherein the second movable portion defines a second through-hole between the third and fourth end portions and between the third and fourth side portions that extends through the second movable portion in a direction from the second vertebral body engagement surface to the second interior surface, wherein the second movable portion defines third and fourth linkage arm connection holes, wherein the first movable portion is aligned with the second movable portion such that the first end of the first movable portion is

axially aligned with the third end of the second movable portion and the second end of the first movable portion is axially aligned with the fourth end of the second movable portion; and
an expansion mechanism configured to move the first movable portion and the second movable portion with respect to each other to expand the expandable intervertebral fusion device, wherein the expansion mechanism comprises:

a plurality of linkage arms connected to the first and second movable portions at the first, second, third, and fourth linkage arm connection holes;

a rotation screw having a first screw end and a second screw end, wherein the rotation screw has a tool receiving indentation at the first screw end and has a threaded shaft portion extending along at least part of the rotation screw between the first screw end and the second screw end, wherein the rotation screw extends along and rotates about a rotation screw axis; and

a linkage connector positioned inside a space defined between the first and second movable portions, wherein the linkage connector is operably connected to the rotation screw, wherein the linkage connector is operably connected to a first end of at least a first linkage arm of the plurality of linkage arms such that the first end of the first linkage arm is pivotably connected to the linkage connector and a second end of the first linkage arm is pivotably connected to the first and second linkage arm connection holes of the first movable portion, and wherein rotation of the rotation screw forces the linkage connector to move along the rotation screw axis and pivot the first linkage arm to push the first movable portion away from the second movable portion to expand the expandable intervertebral fusion device.

22. (New) The device of claim 21, wherein the linkage connector defines one or more pin holes and wherein the first linkage arm is connected to the linkage connector via one or more pins positioned in the one or more pin holes.

23. (New) The device of claim 21, wherein the first linkage arm comprises first and second pins positioned at the second end of the first linkage arm, wherein the first and second pins

extend through the first and second linkage arm connection holes to pivotably connect the first linkage arm with the first movable portion.

24. (New) The device of claim 21, and further comprising means for retaining the rotation screw to the second movable portion.

25. (New) The device of claim 21, and further comprising means for mating the expandable intervertebral fusion device with prongs of a tool.

26. (New) The device of claim 21, wherein the linkage connector defines a threaded rotation screw hole sized for receiving the threaded shaft portion of the rotation screw.

27. (New) The device of claim 21, wherein the linkage connector is a block.

28. (New) The device of claim 21, wherein the linkage connector is a separation block.

29. (New) The device of claim 21, wherein the linkage connector has a middle portion and has first and second side linkage connection portions on the sides of the middle portion.

30. (New) The device of claim 21, and further comprising a first retaining ring connected to the rotation screw so as to retain the rotation screw in place when the rotation screw rotates.

31. (New) The device of claim 21, wherein expandable intervertebral fusion device defines first and second indentations that extend into but not through the expandable intervertebral fusion device and that are configured to be grabbed by an insertion tool.

32. (New) A system comprising:
the device of claim 31;
means for gripping and inserting the device; and

means for turning the rotation screw with respect to the first movable portion, the second movable portion, and the linkage connector.

33. (New) A system comprising:

the device of claim 21, wherein the device defines first and second tool engagement indentations;

a first tool having a first proximal end, a first distal end, and a first elongate body between the first proximal end and the first distal end, wherein the first tool defines a first tool axis from the first proximal end to the first distal end, wherein the first tool includes first and second engagement prongs positioned at the first distal end on opposite sides of the first tool axis, wherein the first tool defines a first tool passage that extends through the first tool from a first tool passage inlet at the first proximal end to a first tool passage outlet at the first distal end, wherein the first tool outlet is positioned between the first and second engagement prongs;

a second tool having a second proximal end, a second distal end, and a second elongate body between the second proximal end and the second distal end, wherein the second tool defines a second tool passage that extends through the second tool from a second tool passage inlet at the second proximal end to a second tool passage outlet at the second distal end, and wherein an outer diameter of the second elongate body is less than an inner diameter of the first tool passage of the first tool such that the second elongate body can pass through the first tool passage; and

a third adjusting tool having a third proximal end and a third distal end, wherein the third adjusting tool includes a third handle positioned at the third proximal end, a screw engagement portion positioned at the third distal end, and a third shaft extending from the third handle to the screw engagement portion, and wherein an outer diameter of the third shaft is less than an inner diameter of the second tool passage of the second tool such that the third shaft can extend through the second tool passage while the second tool is positioned in the first tool passage of the first tool.

34. (New) The system of claim 33, wherein the first and second engagement prongs of the first tool are sized and configured to engage and hold the first and second tool engagement

indentations of the device while the third adjusting tool engages and turns the rotation screw of the expansion mechanism to expand the device.

35. (New) A method of operating the device of claim 21, the method comprising:
inserting the device in a target surgical location between two vertebrae of a human patient; and
turning the rotation screw to drive the linkage connector to push the first linkage against the first movable portion to push the first movable portion away from the second movable portion while the device is positioned between the vertebrae of the human patient; and
packing bone material into the device.

36. (New) A system comprising:
an expandable intervertebral fusion device comprising first and second movable portions and an expansion mechanism configured to move the first movable portion with respect to the second movable portion, wherein the expansion mechanism comprises at least a rotation screw having a screw head and a threaded shaft, wherein the expandable intervertebral fusion device defines first and second tool engagement indentations on first and second sides of the expandable intervertebral fusion device;

a first tool having a first proximal end, a first distal end, and a first elongate body between the first proximal end and the first distal end, wherein the first tool defines a first tool axis from the first proximal end to the first distal end, wherein the first tool includes first and second engagement prongs positioned at the first distal end on opposite sides of the first tool axis, wherein the first tool defines a first tool passage that extends through the first tool from a first tool passage inlet at the first proximal end to a first tool passage outlet at the first distal end, wherein the first tool outlet is positioned between the first and second engagement prongs;

a second tool having a second proximal end, a second distal end, and a second elongate body between the second proximal end and the second distal end, wherein the second tool defines a second tool passage that extends through the second tool from a second tool passage inlet at the second proximal end to a second tool passage outlet at the second distal end, and wherein an outer diameter of the second elongate body is less than an inner diameter of the first

tool passage of the first tool such that the second elongate body can pass through the first tool passage; and

a third adjusting tool having a third proximal end and a third distal end, wherein the third adjusting tool includes a third handle positioned at the third proximal end, a screw engagement portion positioned at the third distal end, and a third shaft extending from the third handle to the screw engagement portion, and wherein an outer diameter of the third shaft is less than an inner diameter of the second tool passage of the second tool such that the third shaft can extend through the second tool passage while the second tool is positioned in the first tool passage of the first tool.

37. (New) The system of claim 36, wherein the first movable portion extends from a first end to a second end, wherein the first movable portion has first and second end portions positioned at the first and second ends, respectively, and has first and second side portions extending between the first and second end portions, wherein the first movable portion has a first vertebral body engagement surface and has a first interior surface positioned on an opposite side of the first movable portion from the first vertebral body engagement surface, wherein the first movable portion defines a first gap at the first end between the first and second side portions, wherein the first movable portion defines first and second linkage arm connection holes;

a second movable portion extending from a third end to a fourth end, wherein the second movable portion has third and fourth end portions positioned at the third and fourth ends, respectively, and has third and fourth side portions extending between the third and fourth end portions, wherein the second movable portion has a second vertebral body engagement surface and has a second interior surface positioned on an opposite side of the second movable portion from the second vertebral body engagement surface, wherein the second movable portion defines a second through-hole between the third and fourth end portions and between the third and fourth side portions that extends through the second movable portion in a direction from the second vertebral body engagement surface to the second interior surface, wherein the second movable portion defines third and fourth linkage arm connection holes, wherein the first movable portion is aligned with the second movable portion such that the first end of the first movable portion is

axially aligned with the third end of the second movable portion and the second end of the first movable portion is axially aligned with the fourth end of the second movable portion.

38. (New) The system of claim 36, wherein the expansion mechanism further includes:

a plurality of linkage arms pivotably connected to the first and second movable portions;
and

a linkage connector positioned inside a space defined between the first and second movable portions, wherein the linkage connector is operably connected to the rotation screw and one or more of the linkage arms such that rotation of the rotation screw forces the linkage connector to move along a rotation screw axis and pivot a first linkage arm to push the first movable portion away from the second movable portion to expand the expandable intervertebral fusion device.

39. (New) The system of claim 36, wherein the expansion mechanism further comprises an angled wedge surface defined by the first movable portion of the expandable intervertebral fusion device and a wedge engagement portion operably connected to the rotation screw such that rotation of the rotation screw causes the wedge engagement portion to slide along an axis of the rotation screw to push against the angled wedge surface of the first movable portion to expand the first movable portion with respect to the second movable portion.

40. (New) The system of claim 36, wherein the expansion mechanism further comprises a translation nut having a threaded hole and first and second linkage bars, wherein the first linkage bar is pivotably connected to the second linkage bay via a pin.

First Named Inventor : Ahmnon D. Moskowitz
Application No. : 16/587,993
Filed : September 30, 2019
Page : 10 of 10

Attorney Docket: 46440-0020004

REMARKS

With this amendment, claims 1-20 are cancelled without prejudice and claims 21-40 are added. Applicant asks that all claims be examined in view of the amendment to the claims.

Please apply any necessary charges or credits to Deposit Account 06-1050, referencing the above attorney docket number.

Respectfully submitted,

Date: 1/23/2020

/Stuart A. Nelson/
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Reg. No. 63,947

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62229376.doc

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor : Ahmnon D. Moskowitz Art Unit : Unknown
Application No. : 16/587,993 Examiner : Unknown
Filed : September 30, 2019 Conf. No. : 8319

Title : ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER
DEVICES FOR DISTRACTION AND SPINAL FUSION AND A
UNIVERSAL TOOL FOR THEIR PLACEMENT AND
EXPANSION

MAIL STOP MISSING PARTS

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

REPLY TO NOTICE TO FILE MISSING PARTS OF APPLICATION

In response to the Notice to File Missing Parts of Application under 37 CFR §1.53(b) dated October 25, 2019, applicant claims small entity status (see 37 CFR §1.27) and submits herewith the following:

- ☒ A Preliminary Amendment amending the specification so that the drawings correspond with the specification, thus obviating the need for replacement drawings;
- ☒ Payment of the basic filing fee of \$75;
- ☒ Payment of the search fee of \$330;
- ☒ Payment of the examination fee of \$380;
- ☒ Payment of the surcharge of \$80 for late filing of the basic filing fee and/or declaration;

The fees in the amount of \$865 are being paid with this reply on the Electronic Filing System. Apply any necessary charges or credits to Deposit Account 06-1050, referencing the above attorney docket number.

First Named Inventor : Ahmnon D. Moskowitz
Application No. : 16/587,993
Filed : September 30, 2019
Page : 2 of 2

Attorney Docket: 46440-0020004

Respectfully submitted,

Date: 1/23/2020

/Stuart A. Nelson/

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62230082.doc

Electronic Patent Application Fee Transmittal				
Application Number:		16587993		
Filing Date:		30-Sep-2019		
Title of Invention:		ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION		
First Named Inventor/Applicant Name:		Ahmnon D. Moskowitz		
Filer:		Stuart A. Nelson/Emily Whitcomb		
Attorney Docket Number:		46440-0020004		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	75	75
UTILITY SEARCH FEE	2111	1	330	330
UTILITY EXAMINATION FEE	2311	1	380	380
Pages:				
Claims:				
Miscellaneous-Filing:				
LATE FILING FEE FOR OATH OR DECLARATION	2051	1	80	80
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 1 month with \$0 paid	2251	1	100	100
Miscellaneous:				
Total in USD (\$)				965

Electronic Acknowledgement Receipt	
EFS ID:	38374237
Application Number:	16587993
International Application Number:	
Confirmation Number:	8319
Title of Invention:	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION
First Named Inventor/Applicant Name:	Ahmnon D. Moskowitz
Customer Number:	26191
Filer:	Stuart A. Nelson/Emily Whitcomb
Filer Authorized By:	Stuart A. Nelson
Attorney Docket Number:	46440-0020004
Receipt Date:	23-JAN-2020
Filing Date:	30-SEP-2019
Time Stamp:	09:38:13
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$965
RAM confirmation Number	E20201M038463715
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		PrelimAmend.pdf	89181	yes	10
			d573558d978aaa441eb2180057b6787f5d1c8268		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Preliminary Amendment		1	1	
	Specification		2	2	
	Claims		3	9	
	Applicant Arguments/Remarks Made in an Amendment		10	10	
Warnings:					
Information:					
2	Applicant Response to Pre-Exam Formalities Notice	MissingPartsResponse.pdf	79233	no	2
			c36b763d2f2067e6742c8bdd02443d9675dc28d67		
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	39574	no	2
			801a279cfe397c5536ae857031bbe0df72422c30		
Warnings:					
Information:					
Total Files Size (in bytes):			207988		

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.

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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

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 16/587,993			
APPLICATION AS FILED - PART I									
(Column 1)		(Column 2)		SMALL ENTITY		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	75		N/A			
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	330		N/A			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	380		N/A			
TOTAL CLAIMS (37 CFR 1.16(i))	20	minus 20 = *	x 50 =	0.00	OR				
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2	minus 3 = *	x 230 =	0.00	OR				
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 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).			0.00					
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00					
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	785		TOTAL			
APPLICATION AS AMENDED - PART II									
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	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))					OR			
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR			
			TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE			
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	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))					OR			
	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 found in the appropriate box in column 1.									



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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
16/587,993	09/30/2019		865	46440-0020004	20	2

CONFIRMATION NO. 8319

UPDATED FILING RECEIPT



0000000114201573

26191

FISH & RICHARDSON P.C. (TC)
PO BOX 1022
MINNEAPOLIS, MN 55440-1022

Date Mailed: 01/30/2020

Receipt is acknowledged of this non-provisional utility 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 FIRST INVENTOR, 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 corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction 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 provided that the request is grantable.

Inventor(s)

Ahmnnon D. Moskowitz, Rockville, MD;
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Pablo A. Valdivia Y. Alvarado, Cambridge, MA;
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Nathan C. Moskowitz, Rockville, MD;

Applicant(s)

Moskowitz Family LLC, Rockville, MD;

Power of Attorney: The patent practitioners associated with Customer Number 26191

Domestic Priority data as claimed by applicant

This application is a CON of 16/025,667 07/02/2018 PAT 10426633
which is a CON of 15/820,232 11/21/2017 PAT 10016284
which is a CON of 14/063,197 10/25/2013 PAT 9848993
which claims benefit of 61/801,783 03/15/2013
and claims benefit of 61/718,707 10/25/2012
and is a CIP of 13/210,150 08/15/2011 PAT 9867719
and is a CIP of 13/210,157 08/15/2011 PAT 9889022
and is a CIP of 13/210,162 08/15/2011 PAT 9895238
and is a CIP of 13/210,168 08/15/2011 PAT 9907674
and is a CIP of 13/741,361 01/14/2013 PAT 9301854
and said 13/210,150 08/15/2011
is a CON of 13/084,543 04/11/2011 PAT 8353913

and is a CON of 13/108,982 05/16/2011 PAT 9005293
and said 13/210,157 08/15/2011
is a CON of 13/084,543 04/11/2011 PAT 8353913
and is a CON of 13/108,982 05/16/2011 PAT 9005293
and said 13/210,162 08/15/2011
is a CON of 13/084,543 04/11/2011 PAT 8353913
and is a CON of 13/108,982 05/16/2011 PAT 9005293
and said 13/210,168 08/15/2011
is a CON of 13/084,543 04/11/2011 PAT 8353913
and is a CON of 13/108,982 05/16/2011 PAT 9005293
and said 13/741,361 01/14/2013
is a CON of 13/084,543 04/11/2011 PAT 8353913
and is a CON of 13/108,982 05/16/2011 PAT 9005293
and said 13/084,543 04/11/2011
is a CON of 11/842,855 08/21/2007 PAT 7942903
and said 13/108,982 05/16/2011
is a CON of 11/842,855 08/21/2007 PAT 7942903
which is a CIP of 11/536,815 09/29/2006 PAT 7846188
which is a CIP of 11/208,644 08/23/2005 PAT 7704279
which claims benefit of 60/670,231 04/12/2005

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.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 10/24/2019

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/587,993**

Projected Publication Date: 05/07/2020

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

page 2 of 4

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/587,993	09/30/2019	Ahmnnon D. Moskowitz	46440-0020004

CONFIRMATION NO. 8319

PUBLICATION NOTICE



OC000000116825837

26191
FISH & RICHARDSON P.C. (TC)
PO BOX 1022
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Title:ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION

Publication No.US-2020-0138591-A1

Publication Date:05/07/2020

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

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NOTICE OF ALLOWANCE AND FEE(S) DUE

26191 7590 04/14/2021
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EXAMINER

PHILOGENE, PEDRO

ART UNIT

PAPER NUMBER

3773

DATE MAILED: 04/14/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/587,993	09/30/2019	Ahmnon D. Moskowitz	46440-0020004	8319

TITLE OF INVENTION: ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$600	\$0.00	\$0.00	\$600	07/14/2021

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 ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

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: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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)

26191 7590 04/14/2021
FISH & RICHARDSON P.C. (TC)
PO BOX 1022
MINNEAPOLIS, MN 55440-1022

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/587,993	09/30/2019	Ahmnnon D. Moskowitz	46440-0020004	8319

TITLE OF INVENTION: ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$600	\$0.00	\$0.00	\$600	07/14/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
PHIOLOGENE, PEDRO	3773	623-017150

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 03-09 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,

1 _____

(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.

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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). 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. Fees submitted: ☐ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☐ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. Change in Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



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.
16/587,993	09/30/2019	Ahmnnon D. Moskowitz	46440-0020004	8319
26191	7590	04/14/2021	EXAMINER	
FISH & RICHARDSON P.C. (TC)			PHILOGENE, PEDRO	
PO BOX 1022			ART UNIT	
MINNEAPOLIS, MN 55440-1022			PAPER NUMBER	

3773
DATE MAILED: 04/14/2021

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

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.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B 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 30 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.

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. 16/587,993	Applicant(s) Moskowitz et al.	
	Examiner PEDRO PHILOGENE	Art Unit 3773	AIA (FITF) Status No

-- 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 the filing of this application 1/23/2020.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.
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 21-40. 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).

Certified copies:

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 ____. 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 _____.
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/PEDRO PHILOGENE/ Primary Examiner, Art Unit 3773	
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Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance: the prior art fails to disclose or reasonably teach an expandable intervertebral fusion device comprising a linkage connector positioned inside a space defined between the first and second movable portions, wherein the linkage connector is operably connected to the rotation screw, wherein the linkage connector is operably connected to a first end of a first linkage arm of the plurality of linkage arms such that the first end of the first linkage arm is pivotably connected to the linkage connector and a second end of the first linkage arm is pivotably connected to the first and second linkage arm connection holes of the first movable portion, and wherein rotation of the rotation screw forces the linkage connector to move along the rotation screw axis and pivot the first linkage arm to push the first movable portion away from the second movable portion to expand the expandable intervertebral fusion device. A first tool having a first proximal end, a first distal end and a first elongate body, wherein the first tool includes first and second engagement prongs positioned at the distal end on opposite sides of the first tool axis; a second tool having a second elongate body and defining a second tool passage, and wherein an outer diameter of the second elongate body is less than the an inner diameter of the first tool passage; and a third adjusting tool having a third proximal end and a third distal end, and a third handle positioned at a third proximal end, a screw engagement portion positioned at a third distal end and a third shaft wherein an outer diameter of the third shaft is less than an inner diameter of the second tool passage. Thus the examiner has allowed claims 21-40.

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."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

8,043,376	10-2011	Falahee
2005/0273171	12-2005	Gordon et al.
2010/0168862	7-2010	Edie et al.

These are some of the closest prior arts. However, none teaches the expandable intervertebral fusion device or the combination of the expandable intervertebral fusion device and the insertion tool, as claimed by applicant.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PEDRO PHILOGENE whose telephone number is (571)272-4716. The examiner can normally be reached on M-F 8:00-4:00PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Robert Eduardo** can be reached on **571-272-4719**. 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 <https://ppair-my.uspto.gov/pair/PrivatePair>. 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

Application/Control Number: 16/587,993
Art Unit: 3773

Page 4

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PEDRO PHILOGENE/
Primary Examiner, Art Unit 3773
April 8, 2021

<i>Notice of References Cited</i>	Application/Control No. 16/587,993		Applicant(s)/Patent Under Reexamination Moskowitz et al.	
	Examiner PEDRO PHILOGENE		Art Unit 3773	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20100168862-A1	07-2010	Edie; Jason A.	A61F2/4465	623/17.16
*	B	US-20050273171-A1	12-2005	Gordon, Charles R.	A61B17/7007	623/17.15
*	C	US-8043376-B2	10-2011	Falahee; Mark H.	A61F2/4455	623/17.11
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC 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.

Search Notes 	Application/Control No. 16/587,993	Applicant(s)/Patent Under Reexamination Moskowitz et al.
	Examiner PEDRO PHILOGENE	Art Unit 3773

CPC - Searched*		
Symbol	Date	Examiner
A61F2/447,4611; A61B17/0642,7064,86,8875; A61B2017/0256,922	04/08/2021	/P.P./
A61F2002/ 2835,30261,30266,30281,30387,30448,30471,30495,30507,30525,3 0538,3055,30556,30579,30593,30604,30772,30878,448,4627,4681, 4687		
A61F2220/0025/005; A61F2230/0015; A61F2250/0007		

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
1	1	04/08/2021	/P.P./

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
EAST search enclosed	04/08/2021	/P.P./

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<i>Search Notes</i> 	Application/Control No. 16/587,993	Applicant(s)/Patent Under Reexamination Moskowitz et al.
	Examiner PEDRO PHILOGENE	Art Unit 3773

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
623	17.15	04/08/2021	/P.P./
Interference Search History Printout		04/08/2021	/P.P./

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Issue Classification 	Application/Control No. 16/587,993	Applicant(s)/Patent Under Reexamination Moskowitz et al.
	Examiner PEDRO PHILOGENE	Art Unit 3773

CPC						
Symbol					Type	Version
A61F	/	2	/	447	F	2013-01-01
A61B	/	17	/	0642	I	2013-01-01
A61F	/	2	/	4611	I	2013-01-01
A61B	/	17	/	7064	I	2013-01-01
A61F	/	2002	/	30261	A	2013-01-01
A61F	/	2002	/	30266	A	2013-01-01
A61F	/	2002	/	30281	A	2013-01-01
A61F	/	2002	/	30471	A	2013-01-01
A61F	/	2002	/	30525	A	2013-01-01
A61F	/	2002	/	30538	A	2013-01-01
A61F	/	2002	/	30556	A	2013-01-01
A61B	/	17	/	86	A	2013-01-01
A61B	/	2017	/	922	A	2013-01-01
A61F	/	2002	/	2835	A	2013-01-01
A61F	/	2002	/	30387	A	2013-01-01
A61F	/	2002	/	30448	A	2013-01-01
A61F	/	2002	/	30507	A	2013-01-01
A61F	/	2002	/	3055	A	2013-01-01
A61F	/	2002	/	30579	A	2013-01-01
A61F	/	2002	/	30604	A	2013-01-01
A61F	/	2002	/	30772	A	2013-01-01
A61F	/	2002	/	30878	A	2013-01-01
A61F	/	2002	/	448	A	2013-01-01
A61F	/	2002	/	4627	A	2013-01-01
A61F	/	2002	/	4681	A	2013-01-01
A61F	/	2002	/	4687	A	2013-01-01
A61F	/	2220	/	0025	A	2013-01-01
A61F	/	2220	/	005	A	2013-01-01
A61F	/	2230	/	0015	A	2013-01-01
A61F	/	2250	/	0007	A	2013-01-01
A61B	/	17	/	8875	A	2013-01-01

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/PEDRO PHILOGENE/ Primary Examiner, Art Unit 3773	08 April 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	3D

Issue Classification 	Application/Control No. 16/587,993	Applicant(s)/Patent Under Reexamination Moskowitz et al.
	Examiner PEDRO PHILOGENE	Art Unit 3773

CPC						
Symbol					Type	Version
A61B	/	2017	/	0256	A	2013-01-01
A61F	/	2002	/	30495	A	2013-01-01
A61F	/	2002	/	30593	A	2013-01-01

CPC Combination Sets							
Symbol				Type	Set	Ranking	Version
	/		/				

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/PEDRO PHILOGENE/ Primary Examiner, Art Unit 3773	08 April 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	3D

Issue Classification 	Application/Control No. 16/587,993	Applicant(s)/Patent Under Reexamination Moskowitz et al.
	Examiner PEDRO PHILOGENE	Art Unit 3773

INTERNATIONAL CLASSIFICATION				
CLAIMED				
A61F	/	2	/	44
A61F	/	2	/	46
NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS
623	17.15

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/PEDRO PHILOGENE/ Primary Examiner, Art Unit 3773	08 April 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	3D

Issue Classification 	Application/Control No. 16/587,993	Applicant(s)/Patent Under Reexamination Moskowitz et al.
	Examiner PEDRO PHILOGENE	Art Unit 3773

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
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	7		16	5	25	14	34								
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	9		18	7	27	16	36								

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 20	
/PEDRO PHILOGENE/ Primary Examiner, Art Unit 3773 (Primary Examiner) _____ (Date) _____		08 April 2021 (Date)	O.G. Print Claim(s) 1 O.G. Print Figure 3D

<i>Index of Claims</i> 	Application/Control No. 16/587,993	Applicant(s)/Patent Under Reexamination Moskowitz et al.
	Examiner PEDRO PHILOGENE	Art Unit 3773

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47										
CLAIM		DATE								
Final	Original	04/08/2021								
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EAST Search History

EAST Search History (Prior Art)

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		near valdivia).in. & (first or second) near movable near portion & linkage near arms & expansion near mechanism & pivot\$4	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
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L10	5	(first or second) near movable near portion & linkage near arms & expansion near mechanism & pivot\$4 & tool	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/04/08 11:50
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L16	3,808	14 AND ((A61B17/0642 OR A61B17/7064 OR A61B17/86 OR A61B17/8875 OR A61B2017/0256 OR A61B2017/922 OR A61F2002/2835 OR A61F2002/30261 OR A61F2002/30266 OR A61F2002/30281 OR A61F2002/30387 OR A61F2002/30448 OR A61F2002/30471 OR A61F2002/30495 OR A61F2002/30507 OR A61F2002/30525 OR A61F2002/30538 OR A61F2002/3055 OR A61F2002/30556 OR A61F2002/30579 OR A61F2002/30593 OR A61F2002/30604 OR A61F2002/30772 OR A61F2002/30878 OR A61F2002/448 OR A61F2002/4627 OR A61F2002/4681 OR A61F2002/4687 OR A61F2220/0025 OR A61F2220/005 OR A61F2230/0015 OR A61F2250/0007 OR A61F2/447 OR A61F2/4611).CPC. OR (1/1).CCLS. OR (A61B17/064 OR A61B17/70 OR A61F2/44 OR A61F2/46).IPCR.)	US-PGPUB; USPAT	OR	ON	2021/04/08 12:28
L17	2,287	expandable near (implant or cage or spacer) & (insertor or inserter or insertion near (tool or instrument or device))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2021/04/08 12:59

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L19	289	expandable near (implant or cage or spacer) & (insertor or inserter or insertion near (tool or instrument or device)) & prong	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/04/08 13:02
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EAST Search History (Interference)

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Bibliographic Data

Application No: 16/587,993

Foreign Priority claimed: ☐ Yes ☒ No

35 USC 119 (a-d) conditions met: ☐ Yes ☒ No ☐ Met After Allowance

Verified and Acknowledged: /PEDRO PHILOGENE/

Examiner's Signature

Initials

Title:

ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER
DEVICES FOR DISTRACTION AND SPINAL FUSION AND A
UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
09/30/2019	623	3773	46440-0020004
RULE			

APPLICANTS

Moskowitz Family LLC, Rockville, MD, UNITED STATES

INVENTORS

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Pablo A. Valdivia Y. Alvarado, Cambridge, MA, UNITED STATES

Eric Sugalski, Arlington, MA, UNITED STATES

Nathan C. Moskowitz, Rockville, MD, UNITED STATES

CONTINUING DATA

This application is a CON of 16025667 07/02/2018 PAT 10426633

16025667 is a CON of 15820232 11/21/2017 PAT 10016284

15820232 is a CON of 14063197 10/25/2013 PAT 9848993

14063197 has PRO of 61801783 03/15/2013

14063197 is a CIP of 13741361 01/14/2013 PAT 9301854

14063197 has PRO of 61718707 10/25/2012

14063197 is a CIP of 13210150 08/15/2011 PAT 9867719

14063197 is a CIP of 13210157 08/15/2011 PAT 9889022

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FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

10/24/2019

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED STATES

ADDRESS

FISH & RICHARDSON P.C. (TC)
PO BOX 1022
MINNEAPOLIS, MN 55440-1022
UNITED STATES

FILING FEE RECEIVED

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"7837734" "7875078" "7901409").PN. OR				
("8062375").URPN.				

EAST Search History (Interference)

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Substitute Disclosure Form U.S. Department of Commerce Patent and Trademark Office Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))	Attorney Docket No. 46440-0020004	Application No.
	Applicant Moskowitz Family LLC	
	Filing Date	Group Art Unit

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	1.	2,360,942	10/24/1944	Ellerstein			
	2.	4,064,881	12/27/1977	Meredith			
	3.	4,554,914	11/26/1985	Kapp			
	4.	4,599,086	7/8/1986	Doty			
	5.	4,636,217	1/13/1987	Ogilvie			
	6.	4,904,261	2/27/1990	Dove			
	7.	4,960,420	10/2/1990	Goble			
	8.	4,997,432	3/5/1991	Keller			
	9.	5,005,749	4/9/1991	Aranyi			
	10.	5,062,850	11/5/1991	Macmillan			
	11.	5,123,926	6/23/1992	Pisharodi			
	12.	5,290,312	3/1/1994	Kojimoto			
	13.	5,405,391	4/11/1995	Henderson			
	14.	5,413,583	5/9/1995	Wohlers			
	15.	5,454,819	10/3/1995	Knoepfler			
	16.	5,514,180	5/7/1996	Heggeness			
	17.	5,653,763	8/5/1997	Errico			
	18.	5,658,336	8/19/1997	Pisharodi			
	19.	5,660,188	8/26/1997	Groiso			
	20.	5,665,122	9/9/1997	Kambin			
	21.	5,667,472	9/7/1997	Finn			
	22.	5,713,912	2/3/1998	Porter			
	23.	5,782,832	7/21/1998	Larsen			
	24.	5,865,848	2/2/1999	Baker			
	25.	5,888,223	3/30/1999	Bray, Jr.			
	26.	5,916,224	6/29/1999	Esplin			

Examiner Signature /PEDRO PHILOGENE/	Date Considered 04/08/2021
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

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U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	27.	5,951,574	9/14/1999	Stefanchik			
	28.	5,960,522	10/5/1999	Boe			
	29.	5,968,054	10/19/1999	Yeatts			
	30.	5,976,136	11/2/1999	Bailey			
	31.	5,980,522	11/9/1999	Koros			
	32.	6,102,950	8/15/2000	Vaccaro			
	33.	6,126,689	10/3/2000	Brett			
	34.	6,190,414	2/20/2001	Young			
	35.	6,193,757	2/27/2001	Foley			
	36.	6,224,602	5/1/2001	Hayes			
	37.	6,235,034	5/22/2001	Bray, Jr.			
	38.	6,299,642	10/9/2001	Chan			
	39.	6,322,562	11/27/2001	Wolter			
	40.	6,342,074	1/29/2002	Simpson			
	41.	6,368,350	4/9/2002	Erickson			
	42.	6,368,351	4/9/2002	Glenn			
	43.	6,375,682	4/23/2002	Fleischman			
	44.	6,419,704	7/16/2002	Ferree			
	45.	6,419,705	4/9/2002	Glenn			
	46.	6,432,106	8/13/2002	Fraser			
	47.	6,454,807	9/24/2002	Jackson			
	48.	6,458,159	10/1/2002	Thalgott			
	49.	6,491,724	12/10/2002	Ferree			
	50.	6,527,804	3/4/2003	Gauchet			
	51.	6,533,818	3/18/2003	Weber			
	52.	6,558,423	5/6/2003	Michelson			

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U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	53.	6,572,653	6/3/2003	Simonson			
	54.	6,579,318	6/17/2003	Varga			
	55.	6,582,468	6/24/2003	Gauchet			
	56.	6,613,055	9/2/2003	Di Emidio			
	57.	6,629,998	10/7/2003	Lin			
	58.	6,641,614	11/4/2003	Wagner			
	59.	6,655,243	12/2/2003	Anderson			
	60.	6,716,247	4/6/2004	Michelson			
	61.	6,719,794	4/13/2004	Gerber			
	62.	6,723,126	4/20/2004	Berry			
	63.	6,733,532	5/11/2004	Gauchet			
	64.	6,764,491	7/20/2004	Frey			
	65.	6,770,094	8/3/2004	Fehling			
	66.	6,824,564	11/30/2004	Crozet			
	67.	6,835,206	12/28/2004	Jackson			
	68.	6,852,117	2/8/2005	Orlowski			
	69.	6,890,355	5/10/2005	Michelson			
	70.	6,904,308	6/7/2005	Frisch			
	71.	6,953,477	10/11/2005	Berry			
	72.	6,955,671	10/18/2005	Uchikubo			
	73.	6,955,691	10/18/2005	Ayyanathan			
	74.	6,962,606	11/8/2005	Michelson			
	75.	6,972,019	12/6/2005	Michelson			
	76.	6,974,480	12/13/2005	Messerli			
	77.	7,030,904	4/18/2006	Adair			
	78.	7,033,394	4/25/2006	Michelson			

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U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	79.	7,037,258	5/2/2006	Chatenever			
	80.	7,044,971	5/16/2006	Suddaby			
	81.	7,070,598	7/4/2006	Lim			
	82.	7,077,864	7/18/2006	Byrd			
	83.	7,087,055	8/8/2006	Lim			
	84.	7,097,615	8/29/2006	Banik			
	85.	7,118,579	10/10/2006	Michelson			
	86.	7,135,043	11/14/2006	Nakahara			
	87.	7,211,112	5/1/2007	Baynham			
	88.	7,214,243	5/8/2007	Taylor			
	89.	7,232,464	6/19/2007	Mathieu			
	90.	7,238,203	7/3/2007	Bagga			
	91.	7,320,555	1/22/2008	Chang			
	92.	7,326,248	2/5/2008	Michelson			
	93.	7,410,501	8/12/2008	Michelson			
	94.	7,442,209	10/28/2008	Michelson			
	95.	7,442,299	10/28/2008	Lee			
	96.	7,445,636	11/4/2008	Michelson			
	97.	7,615,059	11/10/2009	Watschke			
	98.	7,618,456	11/17/2009	Mathieu			
	99.	7,628,816	12/8/2009	Magerl			
	100.	7,655,027	2/2/2010	Michelson			
	101.	7,655,046	2/2/2010	Dryer			
	102.	7,704,279	4/27/2010	Moskowitz			
	103.	7,722,674	5/25/2010	Grotz			
	104.	7,727,246	6/1/2010	Sixto			

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U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	105.	7,753,958	7/13/2010	Gordon			
	106.	7,763,078	7/27/2010	Peterman			
	107.	7,776,047	8/17/2010	Fanger			
	108.	7,776,093	8/17/2010	Wolek			
	109.	7,799,081	9/21/2010	McKinley			
	110.	7,803,162	9/28/2010	Marnay			
	111.	7,828,849	11/9/2010	Lim			
	112.	7,846,185	12/7/2010	Carls			
	113.	7,846,207	12/7/2010	Lechmann			
	114.	7,850,733	12/14/2010	Baynham			
	115.	7,862,616	1/4/2011	Lechmann			
	116.	7,875,078	1/25/2011	Wysocki			
	117.	7,887,591	2/15/2011	Aebi			
	118.	7,909,869	3/22/2011	Gordon			
	119.	7,942,903	5/17/2011	Moskowitz			
	120.	7,959,675	6/14/2011	Gately			
	121.	7,972,363	7/5/2011	Moskowitz			
	122.	7,985,255	7/26/2011	Bray			
	123.	8,029,512	10/4/2011	Paltzer			
	124.	8,034,060	10/11/2011	Keren			
	125.	8,062,375	11/22/2011	Glerum			
	126.	8,105,358	1/31/2012	Phan			
	127.	8,105,367	1/31/2012	Austin			
	128.	8,105,382	1/31/2012	Olmos			
	129.	8,114,162	2/14/2012	Bradley			
	130.	8,123,810	2/28/2012	Gordon			

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U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	131.	8,133,232	3/13/2012	Levy			
	132.	8,137,405	3/20/2012	Kostuik			
	133.	8,167,949	5/1/2012	Tyber			
	134.	8,187,332	5/29/2012	McLuen			
	135.	8,267,939	9/18/2012	Cipoletti			
	136.	8,268,000	9/18/2012	Waugh			
	137.	8,273,127	9/25/2012	Jones			
	138.	8,328,872	12/11/2012	Duffield			
	139.	8,353,913	11/15/2013	Moskowitz			
	140.	8,382,842	2/26/2013	Greenhalgh			
	141.	8,394,145	3/12/2013	Weiman			
	142.	8,398,713	3/19/2013	Weiman			
	143.	8,403,986	3/26/2013	Michelson			
	144.	8,403,990	3/26/2013	Dryer			
	145.	8,414,651	4/9/2013	Tyber			
	146.	8,419,797	4/16/2013	Biedermann			
	147.	8,425,607	4/23/2013	Waugh			
	148.	8,435,298	5/17/2013	Weiman			
	149.	8,491,659	7/23/2013	Weiman			
	150.	8,496,706	7/30/2013	Ragab			
	151.	8,518,120	8/27/2013	Glerum			
	152.	8,523,944	9/3/2013	Jimenez			
	153.	8,535,380	9/17/2013	Greenhalgh			
	154.	8,540,774	9/24/2013	Kueenzi			
	155.	8,556,979	10/15/2013	Glerum			
	156.	8,568,481	10/29/2013	Olmos			

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Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	157.	8,603,170	12/10/2013	Cipoletti			
	158.	8,613,761	12/24/2013	Lindemann			
	159.	8,628,577	1/14/2014	Jimenez			
	160.	8,628,578	1/14/2014	Miller			
	161.	8,632,595	1/21/2014	Weiman			
	162.	8,663,329	3/4/2014	Ernst			
	163.	8,679,183	3/25/2014	Glerum			
	164.	8,685,095	4/1/2014	Miller			
	165.	8,685,098	4/1/2014	Glerum			
	166.	8,709,086	4/29/2014	Glerum			
	167.	8,721,723	5/13/2014	Hansell			
	168.	8,728,165	5/20/2014	Parry			
	169.	8,778,025	7/15/2014	Ragab			
	170.	8,790,405	7/29/2014	Biedermann			
	171.	8,795,366	8/5/2014	Varela			
	172.	8,845,731	9/30/2014	Weiman			
	173.	8,845,732	9/30/2014	Weiman			
	174.	8,845,734	9/30/2014	Weiman			
	175.	8,888,853	11/18/2014	Glerum			
	176.	8,888,854	11/18/2014	Glerum			
	177.	8,894,711	11/25/2014	Varela			
	178.	8,894,712	11/25/2014	Varela			
	179.	8,926,704	1/6/2015	Glerum			
	180.	8,940,049	1/27/2015	Jimenez			
	181.	9,034,045	5/19/2015	Davenport			
	182.	9,039,771	5/26/2015	Glerum			

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U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	183.	9,119,730	9/1/2015	Glerum			
	184.	9,198,772	12/1/2015	Weiman			
	185.	9,445,919	9/20/2016	Palmatier			
	186.	9,848,993	12/26/2017	Moskowitz			
	187.	10,016,284	7/10/2018	Moskowitz			
	188.	10,426,633	10/1/2019	Moskowitz			
	189.	2002/0068976	6/6/2002	Jackson			
	190.	2002/0068977	6/6/2002	Jackson			
	191.	2002/0143338	10/3/2002	Orbay			
	192.	2003/0130737	7/10/2003	McGahan			
	193.	2004/0010315	1/15/2004	Song			
	194.	2004/0087947	5/6/2004	Lim			
	195.	2004/0088054	5/6/2004	Berry			
	196.	2004/0177531	9/16/2004	Dibenedetto			
	197.	2004/0186569	9/23/2004	Berry			
	198.	2004/0193272	9/30/2004	Zubok			
	199.	2004/0220571	11/4/2004	Assaker			
	200.	2004/0249466	12/9/2004	Liu			
	201.	2004/0254644	12/16/2004	Taylor			
	202.	2005/0027362	2/3/2005	Williams			
	203.	2005/0049590	3/3/2005	Alleyne			
	204.	2005/0113916	5/26/2005	Branch			
	205.	2005/0113917	5/26/2005	Chae			
	206.	2005/0177235	8/11/2005	Baynham			
	207.	2005/0216084	9/29/2005	Fleischman			
	208.	2005/0256576	11/17/2005	Moskowitz			

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U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	209.	2005/0261769	11/24/2005	Moskowitz			
	210.	2005/0273170	12/8/2005	Navarro			
	211.	2005/0278026	12/15/2005	Gordon			
	212.	2006/0155285	7/13/2006	Anderson			
	213.	2006/0206207	9/14/2006	Dryer			
	214.	2006/0241621	10/26/2006	Moskowitz			
	215.	2006/0241643	10/26/2006	Lim			
	216.	2006/0241770	10/26/2006	Rhoda			
	217.	2006/0247778	11/2/2006	Ferree			
	218.	2007/0049943	3/1/2007	Moskowitz			
	219.	2007/0167678	7/19/2007	Moskowitz			
	220.	2007/0198089	8/23/2007	Moskowitz			
	221.	2007/0213820	9/13/2007	Magerl			
	222.	2007/0250167	10/25/2007	Bray			
	223.	2007/0250172	10/25/2007	Moskowitz			
	224.	2007/0270968	11/22/2007	Baynham			
	225.	2007/0276498	11/29/2007	Aebi			
	226.	2008/0033440	2/7/2008	Moskowitz			
	227.	2008/0058938	3/6/2008	Mujwid			
	228.	2008/0177307	7/24/2008	Moskowitz			
	229.	2008/0183293	7/31/2008	Parry			
	230.	2008/0249569	10/9/2008	Waugh			
	231.	2008/0249575	10/9/2008	Waugh			
	232.	2008/0249625	10/9/2008	Waugh			
	233.	2008/0281424	11/13/2008	Parry			
	234.	2008/0281425	11/13/2008	Thalgott			

Examiner Signature /PEDRO PHILOGENE/	Date Considered 04/08/2021
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Substitute Disclosure Form

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /P.P/

Substitute Disclosure Form U.S. Department of Commerce Patent and Trademark Office Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))	Attorney Docket No. 46440-0020004	Application No.
	Applicant Moskowitz Family LLC	
	Filing Date	Group Art Unit

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	235.	2009/0030520	1/29/2009	Biederman			
	236.	2009/0080997	3/26/2009	Johnson			
	237.	2009/0105830	4/23/2009	Jones			
	238.	2009/0105831	4/23/2009	Jones			
	239.	2009/0112271	4/30/2009	Moskowitz			
	240.	2009/0112319	4/30/2009	O'Neil			
	241.	2009/0171461	7/2/2009	Conner			
	242.	2009/0182430	7/16/2009	Tyber			
	243.	2009/0187218	7/23/2009	Schaffhausen			
	244.	2009/0210062	8/20/2009	Thalgott			
	245.	2009/0224023	9/10/2009	Moskowitz			
	246.	2009/0234455	9/17/2009	Moskowitz			
	247.	2009/0292361	11/26/2009	Lopez			
	248.	2009/0299478	12/3/2009	Carls			
	249.	2010/0057208	3/4/2010	Dryer			
	250.	2010/0145460	6/10/2010	McDonough			
	251.	2010/0168862	7/1/2010	Edie			
	252.	2010/0204795	8/12/2010	Greenhalgh			
	253.	2010/0286780	11/11/2010	Dryer			
	254.	2010/0292796	11/18/2010	Greenhalgh			
	255.	2010/0305704	12/2/2010	Messerli			
	256.	2010/0318189	12/16/2010	Edie			
	257.	2010/0324606	12/23/2010	Moskowitz			
	258.	2011/0015742	1/20/2011	Hong			
	259.	2011/0029082	2/3/2011	Hall			
	260.	2011/0054621	3/3/2011	Lim			

Examiner Signature /PEDRO PHILOGENE/	Date Considered 04/08/2021
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Substitute Disclosure Form

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /P.P/

Substitute Disclosure Form U.S. Department of Commerce Patent and Trademark Office Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))	Attorney Docket No. 46440-0020004	Application No.
	Applicant Moskowitz Family LLC	
	Filing Date	Group Art Unit

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	261.	2011/0093074	4/21/2011	Glerum			
	262.	2011/0125269	5/26/2011	Moskowitz			
	263.	2011/0137349	6/9/2011	Moskowitz			
	264.	2011/0172721	7/14/2011	Frigg			
	265.	2011/0172774	7/14/2011	Varela			
	266.	2011/0178600	7/21/2011	Moskowitz			
	267.	2011/0208312	8/25/2011	Moskowitz			
	268.	2011/0288646	11/24/2011	Moskowitz			
	269.	2011/0295327	12/1/2011	Moskowitz			
	270.	2011/0295371	12/1/2011	Moskowitz			
	271.	2011/0307011	12/15/2011	Moskowitz			
	272.	2011/0319935	12/29/2011	Moskowitz			
	273.	2012/0010714	1/12/2012	Moskowitz			
	274.	2012/0035729	2/9/2012	Glerum			
	275.	2012/0109319	5/3/2012	Perisic			
	276.	2012/0150304	6/14/2012	Glerum			
	277.	2012/0150305	6/14/2012	Glerum			
	278.	2012/0158146	6/21/2012	Glerum			
	279.	2012/0158147	6/21/2012	Glerum			
	280.	2012/0158148	6/21/2012	Glerum			
	281.	2012/0271419	10/25/2012	Marik			
	282.	2012/0271423	10/25/2012	Wallenstein			
	283.	2012/0277865	11/1/2012	Trieu			
	284.	2012/0277870	11/1/2012	Wolters			
	285.	2012/0323330	12/20/2012	Kueenzi			
	286.	2012/0330419	12/27/2012	Moskowitz			

Examiner Signature /PEDRO PHILOGENE/	Date Considered 04/08/2021
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Substitute Disclosure Form

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /P.P/

Substitute Disclosure Form U.S. Department of Commerce Patent and Trademark Office Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))	Attorney Docket No. 46440-0020004	Application No.
	Applicant Moskowitz Family LLC	
	Filing Date	Group Art Unit

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	287.	2013/0018468	1/17/2013	Moskowitz			
	288.	2013/0018469	1/17/2013	Moskowitz			
	289.	2013/0018470	1/17/2013	Moskowitz			
	290.	2013/0023991	1/24/2013	Moskowitz			
	291.	2013/0023992	1/24/2013	Moskowitz			
	292.	2013/0053962	2/28/2013	Moskowitz			
	293.	2013/0060339	3/7/2013	Duffield			
	294.	2013/0073044	3/21/2013	Gamache			
	295.	2013/0144388	6/6/2013	Emery			
	296.	2013/0158663	6/20/2013	Miller			
	297.	2013/0158664	6/20/2013	Palmatier			
	298.	2013/0173002	7/4/2013	Moskowitz			
	299.	2013/0211526	8/15/2013	Alheidt			
	300.	2013/0282017	10/24/2013	Moskowitz			
	301.	2014/0088714	3/27/2014	Miller			
	302.	2014/0121774	5/1/2014	Glerum			
	303.	2014/0249628	9/4/2014	Weiman			
	304.	2014/0249629	9/4/2014	Moskowitz			
	305.	2014/0324171	10/30/2014	Glerum			
	306.	2015/0025637	1/22/2015	Moskowitz			
	307.	2015/0105824	4/16/2015	Moskowitz			
	308.	2015/0148847	5/28/2015	Moskowitz			
	309.	2016/0374830	12/29/2016	Moskowitz			
	310.	2017/0252178	9/7/2017	Moskowitz			
	311.	2018/0078383	3/22/2018	Moskowitz			
	312.	2018/0318103	11/8/2018	Moskowitz			

Examiner Signature /PEDRO PHILOGENE/	Date Considered 04/08/2021
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Substitute Disclosure Form

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /P.P/

Substitute Disclosure Form U.S. Department of Commerce Patent and Trademark Office Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))	Attorney Docket No. 46440-0020004	Application No.
	Applicant Moskowitz Family LLC	
	Filing Date	Group Art Unit

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	313.	D626233	10/26/2010	Cipoletti			

Foreign Patent Documents or Published Foreign Patent Applications								
Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation	
							Yes	No
	314.	FR 2727003	5/24/1996	FR			English abstract	
	315.	WO 2004093749	11/4/2004	WO			English abstract	
	316.	WO 2006091503	8/31/2006	WO				

Other Documents (include Author, Title, Date, and Place of Publication)		
Examiner Initial	Desig. ID	Document
	317.	Grob, et al., "Clinical Experience With the Dynesys Semirigid Fixation System for the Lumbar Spine," SPINE, Vol. 30, No. 3, 2005, pp. 324-331
	318.	Guyer, et al., "Intervertebral Disc Prostheses," Spine, Volume 28, Number 15S, Supp. To 8/1/03, pages S15-S23
	319.	International Search Report and Written Opinion of the International Searching Authority, 03 December 2007, International Application No. PCT/US 07/05005
	320.	International Search Report and Written Opinion of the International Searching Authority, 09 July 2008, International Application No. PCT/US2007021013
	321.	International Search Report and Written Opinion of the International Searching Authority, 21 May 2008, International Application No. PCT/US2007/021015
	322.	Traynelis, "Prosthetics and Biologics: The Wave of the Future," CLINICAL NEUROSURGERY, Volume 50, Proceedings of the Congress of Neurological Surgeons, Philadelphia, PA 2002, Chapter 9, pages 207-219
	323.	Wai, et al., "Disk Replacement Arthroplasties: Can The Success of Hip and Knee Replacements be Repeated in the Spine?," Seminars in Spine Surgery, Vol. 15, No. 4 (December) 2003, pp 473-482

Examiner Signature /PEDRO PHILOGENE/	Date Considered 04/08/2021
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Substitute Disclosure Form

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor : Ahmnon D. Art Unit : 3773
Moskowitz Examiner : Pedro Philogene
Application No. : 16/587,993 Confirmation No. : 8319
Filed : September 30, 2019 Notice of Allowance Date: 4/14/2021

Title : ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER
DEVICES FOR DISTRACTION AND SPINAL FUSION AND A
UNIVERSAL TOOL FOR THEIR PLACEMENT AND
EXPANSION

MAIL STOP ISSUE FEE

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

AMENDMENT AFTER ALLOWANCE
PURSUANT TO 37 C.F.R. §1.312

Please amend the application as indicated on the following pages. This amendment is being filed concurrently with the payment of the issue fee.

First Named Inventor : Ahmnon D. Moskowitz
Application No. : 16/587,993
Filed : September 30, 2019
Page : 2

Attorney Docket 46440-0020004

Amendments to the Specification:

Please replace the paragraph beginning after the title with the following amended paragraph:

Please replace the paragraphs beginning after the title with the following paragraphs:

[0001] This application is a Continuation Application of application Serial No. 16,025,667, filed on July 2, 2018, now U.S. Patent No. 10,426,633, which is a Continuation Application of application Serial No. 15/820,232, filed on November 21, 2017, now U.S. Patent No. 10,016,284 issued July 10, 2018, which is a Continuation Application of application Serial No. 14/063,197, filed on October 25, 2013, which is a Continuation-in-part Application of co-pending application Serial No. 13/210,150, filed August 15, 2011, now U.S. Patent No. 9,867,719 issued January 16, 2018, and a Continuation-in-part Application of co-pending application Serial No. 13/210,157, filed August 15, 2011, now U.S. Patent No. 9,889,022 issued February 13, 2018, and a Continuation-in-part Application of co-pending application Serial No. 13/210,162, filed August 15, 2011, now U.S. Patent No. 9,895,238 issued February 20, 2018 and a Continuation-in-part Application of co-pending application Serial No. 13/210,168, filed August 15, 2011, now U.S. Patent No. 9,907,674 issued March 6, 2018, and a Continuation-in-part Application of application Serial No. 13/741,361, filed on January 14, 2013, now U.S. Patent No. 9,301,854 issued April 5, 2016.

[0002] Serial No. 14/063,197, filed on October 25, 2013, claims priority under U.S.C. § 119(e) of U.S. provisional application Nos. 61/801,783, filed March 15, 2013 and 61/718,707, filed October 25, 2012.

[0003] Serial No. 13/210,150, filed August 15, 2011, is a Continuation of application Serial No. 13/084,543, filed April 11, 2011, now U.S. Patent No. 8,353,913 issued on January 15, 2013, and is a Continuation of 13/108,982, filed May 16, 2011, now U.S. Patent No. 9,005,293 issued April 14, 2015.

[0004] Serial No. 13/210,157, filed August 15, 2011, is a Continuation of application Serial No. 13/084,543, filed April 11, 2011, now U.S. Patent No. 8,353,913 issued on January 15, 2013, and is a Continuation of 13/108,982, filed May 16, 2011, now U.S. Patent No. 9,005,293 issued April 14, 2015.

First Named Inventor : Ahmnon D. Moskowitz
Application No. : 16/587,993
Filed : September 30, 2019
Page : 3

Attorney Docket 46440-0020004

[0005] Serial No. 13/210,162, filed August 15, 2011, is a Continuation of application Serial No. 13/084,543, filed April 11, 2011, now U.S. Patent No. 8,353,913 issued on January 15, 2013, and is a Continuation of 13/108,982, filed May 16, 2011, now U.S. Patent No. 9,005,293 issued April 14, 2015.

[0006] Serial No. 13/210,168, filed August 15, 2011, is a Continuation of application Serial No. 13/084,543, filed April 11, 2011, now U.S. Patent No. 8,353,913 issued on January 15, 2013, and is a Continuation of 13/108,982, filed May 16, 2011, now U.S. Patent No. 9,005,293 issued April 14, 2015.

[0007] Serial No. 13/741,361, filed January 14, 2013, is a Continuation of application Serial No. 13/084,543, filed April 11, 2011, now U.S. Patent No. 8,353,913 issued on January 15, 2013, and is a Continuation of 13/108,982, filed May 16, 2011, now U.S. Patent No. 9,005,293 issued April 14, 2015.

[0008] Serial No. 13/084,543, filed April 11, 2011, is a Continuation of application Serial No. 11/842,855, filed August 21, 2007, now U.S. Patent No. 7,942,903 issued May 17, 2011.

[0009] Serial No. 13/108,982, filed May 16, 2011, is a Continuation of application Serial No. 11/842,855, filed August 21, 2007, now U.S. Patent No. 7,942,903 issued May 17, 2011, which is a Continuation-in-part of application Serial No. 11/536,815, filed September 29, 2006, now U.S. Patent No. 7,846,188 issued December 7, 2010, which is a Continuation-in-part of application Serial No. 11/208,644, filed August 23, 2005, now U.S. Patent No. 7,704,279 issued April 27, 2010, which claims priority under 35 U.S.C. § 119(e) of U.S. provisional application No. 60/670,231, filed on April 12, 2005; the entire contents of all the above identified patent applications are hereby incorporated by reference.

First Named Inventor : Ahmnon D. Moskowitz
Application No. : 16/587,993
Filed : September 30, 2019
Page : 4

Attorney Docket 46440-0020004

REMARKS

With this response, the specification is amended to recite continuity with respect to application Serial No. 16,025,667, filed on July 2, 2018, now U.S. Patent No. 10,426,633.

Please apply any necessary charges or credits to Deposit Account 06-1050, referencing the above attorney docket number.

Respectfully submitted,

Date: 7/13/2021

/Stuart A. Nelson/
Stuart A. Nelson
Reg. No. 63,947

Customer Number 26191
Fish & Richardson P.C.
Telephone: (612) 337-2538
Facsimile: (877) 769-7945

62728131.doc

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor : Ahmnon D. Art Unit : 3773
Moskowitz Examiner : Pedro Philogene
Application No. : 16/587,993 Confirmation No. : 8319
Filed : September 30, 2019 Notice of Allowance Date: April 14, 2021

Title : ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER
DEVICES FOR DISTRACTION AND SPINAL FUSION AND A
UNIVERSAL TOOL FOR THEIR PLACEMENT AND
EXPANSION

MAIL STOP ISSUE FEE

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

REPLY TO NOTICE OF ALLOWANCE

In response to the Notice of Allowance dated April 14, 2021, enclosed is a completed Part B - Fee(s) Transmittal.

The issue fee is being paid with this reply on the Electronic Filing System. Apply those fees and any other necessary charges or credits to Deposit Account 06-1050, referencing the above attorney docket number.

COMMENTS ON EXAMINER'S REASONS FOR ALLOWANCE

It is recognized that in accordance with M.P.E.P. § 1302.14, the Examiner's reasons for allowance need not set forth all of the details as to why the claims are allowed. In the above-referenced application, it is not conceded that the Examiner's stated reasons for allowance are the only reasons for which the claims are allowable. The Examiner's reasons for allowance indicate that particular claim elements are not disclosed or suggested by the prior art of record, yet the claims may be patentable for other reasons as well, including the inventive combination of all of the recited claim elements. It is not conceded that the specific limitations identified by the Examiner are necessary to distinguish the art of record or to satisfy the requirements of 35 U.S.C. § 112. Moreover, the Examiner does not assert, and it would not be conceded, that the Examiner's reasons have any bearing on the patentability of claims in any other applications directed to the disclosed subject matter.

In addition, each dependent claim stands on its own and may be allowable on its own merits. In particular, each dependent claim may be allowable on the basis of a combination of

First Named Inventor : Ahmnon D. Moskowitz
Application No. : 16/587,993
Filed : September 30, 2019
Page : 2 of 2

Attorney Docket: 46440-0020004

some of the features recited in the dependent claim and its base claim(s), which combination of features may not include all of the limitations identified in the Examiner's reasons for allowance.

Respectfully submitted,

Date: 7/13/2021

/Stuart A. Nelson/

Stuart A. Nelson
Reg. No. 63,947

Customer Number 26191
Fish & Richardson P.C.
Telephone: (612) 337-2538
Facsimile: (877) 769-7945

100470748.doc

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22314-1450

By fax, send to: (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)

26191 7590 04/14/2021

FISH & RICHARDSON P.C.
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/587,993	09/30/2019	Ahmnon D. Moskowitz	46440-0020004	8319

TITLE OF INVENTION: ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$600	\$0	\$0	\$600	07/14/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
PHILOGENE, PEDRO	3773	623-017150

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 03-09 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, 1 Fish & Richardson P.C.
- (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. 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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE
Moskowitz Family LLC(B) RESIDENCE: (CITY and STATE OR COUNTRY)
Rockville, MDPlease check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government4a. Fees Submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies

4b. Method of Payment (Please first reapply any previously paid fee shown above):

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account No. 06-1050

5. Change of Entity Status (from status indicated above)

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27.
- ☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid Certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.**NOTE:** If the application was previously under micro entity status, checking this box will be taken as a notification of loss of entitlement to micro entity status.**NOTE:** Checking this box will be taken as a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Stuart A. Nelson/

Date 7/13/2021

Typed or printed name Stuart A. Nelson

Registration No. 63,947

PTOL-85 Part B (08-18). Approved for use through 1/31/2020

OMB 0651-0033

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

62728128.doc

Doc Code: R48.REQ

Document Description: Request under Rule 48 correcting inventorship

PTO/AIA/40 (04-15)

Approved for use through 11/30/2020. OMB 0651-0031

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.

**REQUEST FOR CORRECTION IN A
PATENT APPLICATION RELATING TO
INVENTORSHIP OR AN INVENTOR
NAME, OR ORDER OF NAMES, OTHER
THAN IN A REISSUE APPLICATION
(37 CFR 1.48)**

Application Number	16/587,993
Filing Date	September 30, 2019
First Named Inventor	Ahmnnon D. Moskowitz
Art Unit	
Examiner Name	
Practitioner Docket Number	46440-0020004

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

Applicant hereby requests that the inventorship be corrected or changed, or that the name of the inventor or a joint inventor, or the order of the names of joint inventors, be changed, in the above-identified application. Note: 37 CFR 1.48 applies to any request to correct inventorship filed on or after September 16, 2012, regardless of the application filing date. Do not submit this form after payment of the issue fee or if the application has been patented. See 37 CFR 1.324 for correction of inventorship in a patent.

Please check the applicable box(es) below.

For a nonprovisional application:

- ☒ 1. This request is to correct or change the inventorship in a nonprovisional application (under 37 CFR 1.48(a)) and includes:
- ☒ An application data sheet (ADS) in accordance with 37 CFR 1.76(c) with the corrected or updated information shown with markings (e.g., underlining for insertions, strikethrough for deletions). See the Manual of Patent Examining Procedure (MPEP) section 601.05(a) for information about filing an ADS in an application filed on/after September 16, 2012. For information about filing a Supplemental ADS in an application filed before September 16, 2012, see MPEP 601.05(b)
 - ☒ The processing fee set forth in 37 CFR 1.17(i) \$70.00
 - ☒ An inventor is being added. An inventor's oath or declaration by any actual inventor who has not yet executed an oath or declaration is required (see 37 CFR 1.48(b)). See MPEP 602.01(a) for information about an inventor's oath or declaration for an application filed on/after September 16, 2012 (e.g., form PTO/AIA/01). For information about an inventor's oath or declaration for an application filed before September 16, 2012 (e.g., form PTO/SB/01), see MPEP 602.01(b).
 - ☒ This request is being filed after the first Office action on the merits has been given or mailed (see 37 CFR 1.48(c) and 1.17(d). Check one of the following:
 - ☐ This request to correct or change the inventorship is due solely to the cancellation of claims in the application.
- OR
- ☒ The fee set forth in 37 CFR 1.17(d) is due (In addition to the fee set forth in 37 CFR 1.17(i). \$320.00

[Page 1 of 2]

This collection of information is required by 37 CFR 1.53(b). 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 1.11 and 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.

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.

**REQUEST FOR CORRECTION IN A PATENT APPLICATION RELATING TO INVENTORSHIP OR AN
INVENTOR NAME, OR ORDER OF NAMES, OTHER THAN IN A REISSUE APPLICATION
(37 CFR 1.48)**

- ☐ 2. This request is to correct or update the name of the inventor or a joint inventor, or the order of names of joint inventors, in a nonprovisional application (under 37 CFR 1.48(f)) and includes:
- ☐ An application data sheet in accordance with 37 CFR 1.76(c) identifying the complete inventive entity, including the corrected or updated name of the inventor, or the new order of names shown with markings (e.g., underlining for insertions, strikethrough for deletions). See the MPEP 601.05(a) for information about filing an ADS in an application filed on/after September 16, 2012. For information about filing a Supplemental ADS in an application filed before September 16, 2012, see MPEP 601.05(b).
- ☐ The processing fee set forth in 37 CFR 1.17(i) \$ _____

For a provisional application:

- ☐ The request is to change or correct the inventorship, or correct or update the name of the inventor or a joint inventor, in a provisional application (under 37 CFR 1.48(d)) and includes:
- ☐ Attached hereto is a request, signed by a party set forth in 37 CFR 1.33(b), that identifies each inventor by his or her legal name, in the preferred order.
- ☐ The processing fee set forth in 37 CFR 1.17(q). \$ _____

Fee Payment Information:

- ☒ Applicant asserts small entity status. See 37 CFR 1.27.
- ☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously
- ☐ A check in the amount of the fee is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 06-1050
- ☒ Payment made via EFS-Web.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

- ☐ Applicant* ☒ attorney or agent of record
Registration number 63,947 ☐ attorney or agent acting under 37 CFR 1.34
Registration number _____

Signature /Stuart A. Nelson/Type or printed name: Stuart A. NelsonDate: July 13, 2021

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. *Juristic entities must be represented by a patent practitioner (See 37 CFR 1.31, applicable to any paper filed on or after September 16, 2012 that is presented on behalf of a juristic entity, regardless of application filing date). Submit multiple forms if more than one signature is required, see below**.

- ☐ ** Total of _____ forms are submitted.

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.

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**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION	
As the below named inventor, I hereby declare that:		
This declaration is directed to:		
☐ The attached application, or		
☒ United States application or PCT international application number <u>14/063,197</u>		
filed on <u>10/25/2013</u>		
The above-identified application was made or authorized to be made by me.		
I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.		
I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.		
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.		
LEGAL NAME OF INVENTOR		
Inventor: <u>David SCHOON</u> Date (Optional): <u>4/1/2015</u>		
Signature: <u>[Signature]</u>		
Note: An application data sheet (PTO/SF/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.		

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. 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 1.11 and 1.14. This collection is estimated to take 1 minute 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.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	46440-0020004
		Application Number	<u>16/587,993</u>
Title of Invention	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.			

Secrecy Order 37 CFR 5.2

☐	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--------------------------	---

Inventor Information:

Inventor 1.					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Ahmnon	D.	Moskowitz		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
City	Rockville	State/Province	MD	Country of Residence	US
Mailing Address of Inventor:					
Address 1	212 North Adams St.				
Address 2					
City	Rockville	State/Province	MD		
Postal Code	20850	Country	US		

Inventor 2.					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Mosheh	T.	Moskowitz		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
City	Rockville	State/Province	MD	Country of Residence	US
Mailing Address of Inventor:					

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	46440-0020004
	Application Number	<u>16/587,993</u>
Title of Invention	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION	

Address 1	212 North Adams Street		
Address 2			
City	Rockville	State/Province	MD
Postal Code	20850	Country	US

Inventor 3.				
Prefix	Given Name	Middle Name	Family Name	Suffix
	Pablo	A. Valdivia Y.	Alvarado	
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service				
City	Cambridge	State/Province	MA	Country of Residence US
Mailing Address of Inventor:				
Address 1	13 Lancaster St. #2			
Address 2				
City	Cambridge	State/Province	MA	
Postal Code	02139	Country	US	

Inventor 4.				
Prefix	Given Name	Middle Name	Family Name	Suffix
	Eric		Sugalski	
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service				

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	46440-0020004
	Application Number	<u>16/587,993</u>
Title of Invention	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION	

City	Arlington	State/Province	MA	Country of Residence	US
Mailing Address of Inventor:					
Address 1	128 Blossom Street				
Address 2					
City	Arlington		State/Province	MA	
Postal Code	02474		Country	US	

Inventor 5.					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Nathan	C.	Moskowitz		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
City	Rockville	State/Province	MD	Country of Residence	US
Mailing Address of Inventor:					
Address 1	212 North Adams Street				
Address 2					
City	Rockville		State/Province	MD	
Postal Code	20850		Country	US	

Inventor 6.				
Prefix	Given Name	Middle Name	Family Name	Suffix

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	46440-0020004
	Application Number	<u>16/587.993</u>
Title of Invention	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION	

	<u>David</u>		<u>Schoon</u>		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
City	<u>Somerville</u>	State/Province	<u>MA</u>	Country of Residence	<u>US</u>
Mailing Address of Inventor:					
Address 1	<u>466 Medford St.</u>				
Address 2	<u>Apt 1</u>				
City	<u>Somerville</u>	State/Province	<u>MA</u>		
Postal Code	<u>02145</u>	Country	<u>US</u>		

Signature:

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18. Please see 37 CFR 1.4(d) for the form of the signature.					
Signature	<u>/Stuart A. Nelson/</u>			Date (MM/DD/YYYY)	<u>7/13/2021</u>
First Name	<u>Stuart</u>	Last Name	<u>Nelson</u>	Registration Number	<u>63,947</u>

100470734.doc

Electronic Patent Application Fee Transmittal				
Application Number:		16587993		
Filing Date:		30-Sep-2019		
Title of Invention:		ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION		
First Named Inventor/Applicant Name:		Ahmnon D. Moskowitz		
Filer:		Stuart A. Nelson/Emily Whitcomb		
Attorney Docket Number:		46440-0020004		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
PROCESSING FEE, EXCEPT PROV. APPLS.	2830	1	70	70
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
UTILITY APPL ISSUE FEE	2501	1	600	600
Extension-of-Time:				
Miscellaneous:				
CORRECTION OF INVENTORSHIP ON MERITS	2819	1	320	320
Total in USD (\$)				990

Electronic Acknowledgement Receipt	
EFS ID:	43238832
Application Number:	16587993
International Application Number:	
Confirmation Number:	8319
Title of Invention:	ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION
First Named Inventor/Applicant Name:	Ahmnon D. Moskowitz
Customer Number:	26191
Filer:	Stuart A. Nelson/Emily Whitcomb
Filer Authorized By:	Stuart A. Nelson
Attorney Docket Number:	46440-0020004
Receipt Date:	13-JUL-2021
Filing Date:	30-SEP-2019
Time Stamp:	16:40:57
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$990
RAM confirmation Number	E20217CG41200060
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		Amend312.pdf	76539	yes	4
			d7090f78b62485db3218f22eb9271d16c30a04f3		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment after Notice of Allowance (Rule 312)		1	1	
	Specification		2	3	
	Applicant Arguments/Remarks Made in an Amendment		4	4	
Warnings:					
Information:					
2	Issue Fee Payment (PTO-85B)	ResponsetoNOA.pdf	74894	no	2
			f24d401cf8f93ad8ae542303b6c5039c2eb9f7f6		
Warnings:					
Information:					
3	Issue Fee Payment (PTO-85B)	IssueFee.PDF	131350	no	1
			18f7a53515debfb8b388ce363e17115965ebc2d5c		
Warnings:					
Information:					
4	Request under Rule 48 correcting inventorship	RequestCorrectInventorship.PDF	129541	no	3
			b3f74fc78c4558d09e714589ae6eb8d256e54550		
Warnings:					
Information:					
5	Oath or Declaration filed	SchoonDec.pdf	1425286	no	1
			de86decff2d77c6734b0aa1eac90eede6ecbd0f0		

Warnings:					
Information:					
6	Application Data Sheet	ADS.pdf	98667	no	4
			11856b7c453eb6fff72cb347c58d1c6aaeb2831e		
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
7	Fee Worksheet (SB06)	fee-info.pdf	34437	no	2
			f1f8498bb950ad195637c642802f8db712c21d14		
Warnings:					
Information:					
Total Files Size (in bytes):			1970714		
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
16/587,993	09/30/2019	Ahmnnon D. Moskowitz	46440-0020004

26191
FISH & RICHARDSON P.C. (TC)
PO BOX 1022
MINNEAPOLIS, MN 55440-1022

CONFIRMATION NO. 8319
37 CFR 1.48 ACKNOWLEDGEMENT
LETTER



Date Mailed: 07/15/2021

NOTICE OF ACCEPTANCE OF REQUEST UNDER 37 CFR 1.48(a)

This is in response to the applicant's request under 37 CFR 1.48(a) submitted on 07/13/2021.

The request under 37 CFR 1.48(a) to correct the inventorship, to correct or update the name of an inventor, or to correct the order of names of joint inventors is accepted.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/hteffer/



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
16/587,993	09/30/2019	3773	865	46440-0020004	20	2

CONFIRMATION NO. 8319

UPDATED FILING RECEIPT



0000000126993128

26191

FISH & RICHARDSON P.C. (TC)
PO BOX 1022
MINNEAPOLIS, MN 55440-1022

Date Mailed: 07/15/2021

Receipt is acknowledged of this non-provisional utility 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 FIRST INVENTOR, 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 corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction 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 provided that the request is grantable.

Inventor(s)

Ahmnnon D. Moskowitz, Rockville, MD;
Mosheh T. Moskowitz, Rockville, MD;
Pablo A. Valdivia Y. Alvarado, Cambridge, MA;
Eric Sugalski, Arlington, MA;
Nathan C. Moskowitz, Rockville, MD;
David Schoon, Somerville, MA;

Applicant(s)

Moskowitz Family LLC, Rockville, MD;

Power of Attorney: The patent practitioners associated with Customer Number 26191

Domestic Priority data as claimed by applicant

This application is a CON of 16/025,667 07/02/2018 PAT 10426633
which is a CON of 15/820,232 11/21/2017 PAT 10016284
which is a CON of 14/063,197 10/25/2013 PAT 9848993
which claims benefit of 61/801,783 03/15/2013
and claims benefit of 61/718,707 10/25/2012
and is a CIP of 13/210,150 08/15/2011 PAT 9867719
and is a CIP of 13/210,157 08/15/2011 PAT 9889022
and is a CIP of 13/210,162 08/15/2011 PAT 9895238
and is a CIP of 13/210,168 08/15/2011 PAT 9907674
and is a CIP of 13/741,361 01/14/2013 PAT 9301854
and said 13/210,150 08/15/2011

page 1 of 4

is a CON of 13/084,543 04/11/2011 PAT 8353913
and is a CON of 13/108,982 05/16/2011 PAT 9005293
and said 13/210,157 08/15/2011
is a CON of 13/084,543 04/11/2011 PAT 8353913
and is a CON of 13/108,982 05/16/2011 PAT 9005293
and said 13/210,162 08/15/2011
is a CON of 13/084,543 04/11/2011 PAT 8353913
and is a CON of 13/108,982 05/16/2011 PAT 9005293
and said 13/210,168 08/15/2011
is a CON of 13/084,543 04/11/2011 PAT 8353913
and is a CON of 13/108,982 05/16/2011 PAT 9005293
and said 13/741,361 01/14/2013
is a CON of 13/084,543 04/11/2011 PAT 8353913
and is a CON of 13/108,982 05/16/2011 PAT 9005293
and said 13/084,543 04/11/2011
is a CON of 11/842,855 08/21/2007 PAT 7942903
and said 13/108,982 05/16/2011
is a CON of 11/842,855 08/21/2007 PAT 7942903
which is a CIP of 11/536,815 09/29/2006 PAT 7846188
which is a CIP of 11/208,644 08/23/2005 PAT 7704279
which claims benefit of 60/670,231 04/12/2005

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.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER DEVICES FOR DISTRACTION AND SPINAL FUSION AND A UNIVERSAL TOOL FOR THEIR PLACEMENT AND EXPANSION

Preliminary Class

623

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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 (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

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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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.
16/587,993	09/30/2019	Ahmnon D. Moskowitz	46440-0020004	8319

26191 7590 07/22/2021
FISH & RICHARDSON P.C. (TC)
PO BOX 1022
MINNEAPOLIS, MN 55440-1022

EXAMINER

PHILOGENE, PEDRO

ART UNIT	PAPER NUMBER
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3773

NOTIFICATION DATE	DELIVERY MODE
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07/22/2021

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):

PATDOCTC@fr.com

Response to Rule 312 Communication	Application No. 16/587,993	Applicant(s) Moskowitz et al.	
	Examiner PEDRO PHILOGENE	Art Unit 3773	AIA (FITF) Status No
-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address -- 1. ☒ The amendment filed on <u>13 July 2021</u> 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. _____			
/PEDRO PHILOGENE/ Primary Examiner, Art Unit 3773			

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor : Ahmnon D. Art Unit : 3773
Moskowitz Examiner : Pedro Philogene
Application No. : 16/587,993 Confirmation No. : 8319
Filed : September 30, 2019 Notice of Allowance Date: 4/14/2021

Title : ZERO-PROFILE EXPANDABLE INTERVERTEBRAL SPACER
DEVICES FOR DISTRACTION AND SPINAL FUSION AND A
UNIVERSAL TOOL FOR THEIR PLACEMENT AND
EXPANSION

MAIL STOP ISSUE FEE

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

AMENDMENT AFTER ALLOWANCE
PURSUANT TO 37 C.F.R. §1.312

OK TO ENTER: /P.P/

Please amend the application as indicated on the following pages. This amendment is being filed concurrently with the payment of the issue fee.



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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/587,993	08/24/2021	11096797	46440-0020004	8319

26191 7590 08/04/2021
FISH & RICHARDSON P.C. (TC)
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MINNEAPOLIS, MN 55440-1022

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 125 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):

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David Schoon, Somerville, MA;

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