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BIB DATA SHEET

CONFIRMATION NO. 7877

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
18/605,361	03/14/2024 RULE	623	3774	SHOLD.013C3

APPLICANTS
Shoulder Innovations, Inc., Grand Rapids, MI;

INVENTORS
Donald E. Running, Holland, MI;
Robert J. Ball, West Olive, MI;
Jason Slone, Silver Lake, IN;

**** CONTINUING DATA **************************
This application 18/605,361 03/14/2024
is a CON of 18/477,416 09/28/2023
which is a CON of 18/058,058 11/22/2022 PAT 11771561
which is a CON of 17/435,333 08/31/2021
which is a 371 of PCT/US2020/022094 03/11/2020
which claims benefit of 62/816,708 03/11/2019

**** FOREIGN APPLICATIONS **************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
03/21/2024

Foreign Priority claimed	❑ Yes ☑ No		STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
35 USC 119(a-d) conditions met	❑ Yes ☑ No	❑ Met after Allowance	MI	21	22	2
Verified and Acknowledged	/ANN SCHILLINGER/ Examiner's Signature	AS Initials				

ADDRESS
Knobbe, Martens, Olson & Bear, LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614
UNITED STATES

TITLE
TOTAL REVERSE SHOULDER SYSTEMS AND METHODS

FILING FEE RECEIVED	FEES: Authority has been given in Paper	❑ All Fees
0.00	No._____ to charge/credit DEPOSIT ACCOUNT	❑ 1.16 Fees (Filing)
	No._____ for following:	❑ 1.17 Fees (Processing Ext. of time)
		❑ 1.18 Fees (Issue)
		❑ Other _____
		❑ Credit

BIB (Rev. 05/07).

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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/605,361	**03/14/2024 04:46:33 PM Z ET**	**SHOLD.013C3**

Title of Invention

TOTAL REVERSE SHOULDER SYSTEMS AND METHODS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	7877	FILED BY	Amy Nguyen
PATENT CENTER #	64687976	AUTHORIZED BY	Andrew Kimmel
CUSTOMER #	20995	FILING DATE	-
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Donald E. Running

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
CARD / 3259	**E20243DG49317559**	**Amy Nguyen**

PRE-AUTHORIZED ACCOUNT	PRE-AUTHORIZED CATEGORY
111410	**37 CFR 1.16 (National application filing, search, and examination fees); 37 CFR 1.17 (Patent application and reexamination processing fees)**

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
2830	PROCESSING FEE, EXCEPT IN PROVISIONAL APPLICATIONS	56.00	1	56.00
2817	REQUEST FOR PRIORITIZED EXAMINATION	1680.00	1	1680.00
2111	UTILITY PATENT APPL. SEARCH FEE	280.00	1	280.00
4011	BASIC FILING FEE- UTILITY	64.00	1	64.00
2311	EXAMINATION OF ORIGINAL PATENT APPLICATION	320.00	1	320.00
			TOTAL	**$2,400.00**

AMOUNT:

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 filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

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

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

New International Application Filed with the USPTO as a Receiving Office

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

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/605,361	**03/14/2024 04:46:33 PM Z ET**	**SHOLD.013C3**

Title of Invention

TOTAL REVERSE SHOULDER SYSTEMS AND METHODS

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CONFIRMATION #	7877	FILED BY	Amy Nguyen
PATENT CENTER #	64687976	FILING DATE	-
CUSTOMER #	20995	FIRST NAMED INVENTOR	Donald E. Running
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Andrew Kimmel

Documents

TOTAL DOCUMENTS: 8

DOCUMENT		PAGES	DESCRIPTION	SIZE (KB)
SHOLD-013C3_ADS1.pdf		9	Application Data Sheet	2174 KB
SHOLD-013C3_POA.pdf		2	-	1189 KB
SHOLD-013C3_POA-TRAN.LET.pdf	(1-1)	1	Transmittal Letter	297 KB
SHOLD-013C3_POA-PA...pdf	(2-2)	1	Power of Attorney	970 KB
SHOLD-013C3_DECASSIGN.pdf		4	Oath or Declaration filed	182 KB
Warning: The attached file contains comments or annotations. Comments are not recommended and may cause processing problems with the document.				
SHOLD-013C3_DRAWINGS.pdf		21	Drawings-other than black and white line drawings	9695 KB

SHOLD-013C3_TRACKONE.pdf	2	Track One Request	111 KB
SHOLD-013C3_specification-APP.TEXT.docx	15	Application body structured text document	36 KB
SHOLD-013C3_AUXILIARY.pdf	15	Auxiliary PDF of Application	81 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
SHOLD-013C3_ADS1.pdf	43F2A0CE5839A7DD739CB4DA9989F5418BF12017B718D34AEEFE60E6517F5B3C76A5A98098AD1A2A2A2778540C2E90F23159A74D5569EAB16A70AB90FA31926E
SHOLD-013C3_POA.pdf	9E69467C7D7272AF4DB5930CD0DB7D9BC31F2E2F5E01D718D96FB42906FC19F422D308938CA71A20D68B544ECA846F87F70FD249D49489390BB2664D5FFD2D08
SHOLD-013C3_POA-TRAN.LET.pdf	F99F161564280EE79ADE47C4129FB5D1D2C56F1A7A979EDF097161ABE94977CB72FE44E1539EDE3CD6DF2CB3B792993C0B6A7F991D98A1F9E2C458982040F68E
SHOLD-013C3_POA-PA...pdf	683C10FEB7A7D6DE2ABBF058AC352C00872AF4917D0AB95C64A2F17E115A5F496A6FDDB6B6FF940397096C5877946813CA710B96D28E830988F1C65D02B14FF4
SHOLD-013C3_DECASSIGN.pdf	22E22097322FFC2E4270A0198555DE63E3C80A857C27EDFDA2DEE6858D12E95BA30D7A37E2C37F51BFF7C9D41A8DA5EAC3A83EDE222D0AB3F0EACA8F95F1766C
SHOLD-013C3_DRAWINGS.pdf	BEDF3D677E789CAAF7553DF993996B49EE2713E57C0F6C4DDC24C9C8C2C9C48F0A2C5E8DFAE5A0ACF1EB150CFADCEBC05F647DEFD372C17C86B4A1395237D494
SHOLD-013C3_TRACKONE.pdf	DE63FE0C7F05265CD57683C36FCAC874084396C4C10D418A07330271C23DB4581F2E44FB827A980D55C7C6DA70D9CB22AA93C92C388CB5146BBBCD6A13447F66
SHOLD-013C3_specification-APP.TEXT.docx	66F15967F1D85BA8AB5AECEAE99E1D34173B5F0A9065ACC8EA4BA5EA682B23CEB91B4DF7CFC75B16AC5257C4AB0B3FEC1734BB63AD8F9ECB2B58E5AEDE6989EC
SHOLD-013C3_AUXILIARY.pdf	5A7A7E9C42BFEA122250F8EFF397419A4109B8FD9F9FB1DD1CDD0893972D4D4455430B8D2F4F0053B337403C15F3856479495F0DD96D85CD86CAEBA1804006A2

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

DocCode - SCORE

SCORE Placeholder Sheet for IFW Content

Application Number: 18605361 Document Date: 03/14/2024

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

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

- Drawing

At the time of document entry (noted above):

- USPTO employees may access SCORE content via DAV or via the SCORE web page.
- External customers may access SCORE content via PAIR using the Supplemental Content tab.

Form Revision Date: March 1, 2019

PTO/AIA/14 (01-22)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SHOLD.013C3
	Application Number	
Title of Invention	TOTAL REVERSE SHOULDER SYSTEMS AND METHODS	

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.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Donald	E.	Running	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Holland	State/Province	MI	Country of Residence	US

Mailing Address of Inventor:

Address 1	1535 Steele Ave SW Suite B		
Address 2			
City	Grand Rapids	State/Province	MI
Postal Code	49507	Country	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Robert	J.	Ball	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	West Olive	State/Province	MI	Country of Residence	US

Mailing Address of Inventor:

Address 1	1535 Steele Ave SW Suite B		
Address 2			
City	Grand Rapids	State/Province	MI
Postal Code	49507	Country	US

Inventor 3 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Jason		Slone	

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	SHOLD.013C3
	Application Number	
Title of Invention	TOTAL REVERSE SHOULDER SYSTEMS AND METHODS	

City	Silver Lake	State/Province	IN	Country of Residence	US

Mailing Address of Inventor:

Address 1	1535 Steele Ave SW Suite B		
Address 2			
City	Grand Rapids	State/Province	MI
Postal Code	49507	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.**

Customer Number	20995		
Email Address	efiling@knobbe.com	Add Email	Remove Email

Application Information:

Title of the Invention	TOTAL REVERSE SHOULDER SYSTEMS AND METHODS		
Attorney Docket Number	SHOLD.013C3	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	21	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.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SHOLD.013C3
	Application Number	
Title of Invention	TOTAL REVERSE SHOULDER SYSTEMS AND METHODS	

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	20995		

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	18/477416	2023-09-28

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
18/477416	Continuation of	18/058058	2022-11-22	11771561	2023-10-03

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
18/058058	Continuation of	17/435333	2021-08-31

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
17/435333	a 371 of international	PCT/US2020/022094	2020-03-11

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
PCT/US2020/022094	Claims benefit of provisional	62/816708	2019-03-11

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

EFS Web 2.2.13

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SHOLD.013C3
	Application Number	
Title of Invention	TOTAL REVERSE SHOULDER SYSTEMS AND METHODS	

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)[i] 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).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

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.

PTO/AIA/14 (01-22)
Approved for use through 05/31/2024. OMB 0651-0032
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SHOLD.013C3
	Application Number	
Title of Invention	TOTAL REVERSE SHOULDER SYSTEMS AND METHODS	

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.

PTO/AIA/14 (01-22)
Approved for use through 05/31/2024. OMB 0651-0032
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SHOLD.013C3
	Application Number	
Title of Invention	TOTAL REVERSE SHOULDER SYSTEMS AND METHODS	

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	Shoulder Innovations, Inc.		
Mailing Address Information For Applicant:			
Address 1	1535 Steele Ave SW Suite B		
Address 2			
City	Grand Rapids	**State/Province**	MI
Country	US	Postal Code	49507
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.

PTO/AIA/14 (01-22)
Approved for use through 05/31/2024. OMB 0651-0032
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SHOLD.013C3
	Application Number	
Title of Invention	TOTAL REVERSE SHOULDER SYSTEMS AND METHODS	

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:

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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).**

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Signature	/Andrew Kimmel/			Date (YYYY-MM-DD)	2024-03-13
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SHOLD.013C3
	Application Number	
Title of Invention	TOTAL REVERSE SHOULDER SYSTEMS AND METHODS	

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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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.

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PTO/AIA/424 (04-14)

CERTIFICATION AND REQUEST FOR PRIORITIZED EXAMINATION UNDER 37 CFR 1.102(e) (Page 1 of 1)

First Named Inventor:	Running, Donald E.	Nonprovisional Application Number (if known):	SHOLD.013C3
Title of Invention:	TOTAL REVERSE SHOULDER SYSTEMS AND METHODS		

APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS PRIORITIZED EXAMINATION FOR THE ABOVE-IDENTIFIED APPLICATION.

1. The processing fee set forth in 37 CFR 1.17(i)(1) and the prioritized examination fee set forth in 37 CFR 1.17(c) have been filed with the request. The publication fee requirement is met because that fee, set forth in 37 CFR 1.18(d), is currently $0. The basic filing fee, search fee, and examination fee are filed with the request or have been already been paid. I understand that any required excess claims fees or application size fee must be paid for the application.

2. I understand that the application may not contain, or be amended to contain, more than four independent claims, more than thirty total claims, or any multiple dependent claims, and that any request for an extension of time will cause an outstanding Track I request to be dismissed.

3. The applicable box is checked below:

I. ☑ Original Application (Track One) - Prioritized Examination under § 1.102(e)(1)

i. (a) The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a). This certification and request is being filed with the utility application via EFS-Web.

---OR---

(b) The application is an original nonprovisional plant application filed under 35 U.S.C. 111(a). This certification and request is being filed with the plant application in paper.

ii. An executed inventor's oath or declaration under 37 CFR 1.63 or 37 CFR 1.64 for each inventor, **or** the application data sheet meeting the conditions specified in 37 CFR 1.53(f)(3)(i) is filed with the application.

II. ☐ Request for Continued Examination - Prioritized Examination under § 1.102(e)(2)

i. A request for continued examination has been filed with, or prior to, this form.
ii. If the application is a utility application, this certification and request is being filed via EFS-Web.
iii. The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a), or is a national stage entry under 35 U.S.C. 371.
iv. This certification and request is being filed prior to the mailing of a first Office action responsive to the request for continued examination.
v. No prior request for continued examination has been granted prioritized examination status under 37 CFR 1.102(e)(2).

Signature /Andrew I. Kimmel/	Date March 13, 2024
Name (Print/Typed) Andrew I. Kimmel	Practitioner Registration Number 58855

Note: *This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required.**

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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)).
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TOTAL REVERSE SHOULDER SYSTEMS AND METHODS

BACKGROUND

[0001] This application is a continuation of U.S. Application No. 18/477,416, filed September 28, 2023, which is a continuation of U.S. Application No. 18/058,058, filed November 22, 2022, now U.S. Patent No. 11,771,561, which is a continuation of U.S. Application No. 17/435,333, filed August 31, 2021, which is the national phase of International Application No. PCT/US2020/022094, filed March 11, 2020, which claims the benefit of priority from U.S. Provisional No. 62/816,708, filed March 11, 2019, which are all hereby incorporated by reference in their entireties.

[0002] Shoulder replacement is a commonly performed medical procedure for treatment of osteoarthritis, rheumatoid arthritis, as well as for treatment of certain deformities related to oncological indications as well as trauma. There are two primary types of articulations available to surgeons for treatment: anatomic and reverse. With anatomic, the surgeon replaces the articular surfaces with industrial materials such that the articulating surfaces are substantially the same shape as the natural anatomy. A stem can be commonly fixed inside the canal of the humerus, a metallic articular head can be rigidly fixed to the proximal aspect of the same, the articular head having a convex articular surface adapted to articulate with the glenoid implant. The glenoid implant can include on its back side (medial side) certain pegs or posts or fins adapted to be rigidly fixed within the glenoid fossa of the scapula and on its front side a concave or flat articular surface adapted to articulate with the humeral head of the humeral implant.

[0003] When a reverse prosthesis is used, the articular surface is reversed in that the metallic ball is rigidly fixed to the glenoid fossa of the scapula, and the concave articular surface is rigidly fixed to the humeral bone, thereby reversing the fashion of articulation of the prosthesis.

[0004] The surgeon chooses between the two types of prostheses by assessing a number of conditions of the patient including level of pain, patient activity level, deformity or severity of the boney degradation, the strength of surrounding soft tissues, and present or

absence of prior surgery, and particularly the health and strength of the rotator cuff muscle and tendon. Disease of the rotator cuff is common among patients with arthritis of the shoulder. In this circumstance, it is commonly observed that the absence of insufficiency of the rotator cuff leads to a condition where the anatomic shoulder replacement prosthesis is not sufficiently stabilized by surrounding soft tissue. In this case, a reverse shoulder replacement prosthesis can be preferred in some cases due to the higher inherent stability of the articulation. In addition, the reverse prosthesis can advantageously utilize the remaining muscles in a way they can be more effective in the absence of the other soft tissue structures by adjusting the position of the articular surfaces within the joint.

SUMMARY

[0005] In some embodiments, disclosed herein is a reverse shoulder system, comprising any number of a glenoid baseplate comprising a longitudinal axis, the glenoid baseplate further comprising a stem and a central channel within a sidewall of the stem, the stem comprising a longitudinal axis. The longitudinal axis of the glenoid baseplate can be angled with respect to the longitudinal axis of the stem, wherein the longitudinal axis of the glenoid baseplate is not perpendicular with respect to the longitudinal axis of the stem.

[0006] In some configurations, the glenoid baseplate comprises a generally disc-shaped portion extending radially outward from the central channel.

[0007] In some configurations, the stem comprises a sidewall that extends superiorly with respect to the disc portion.

[0008] In some configurations, the glenoid baseplate comprises a peripheral edge.

[0009] In some configurations, the peripheral edge comprises spaced-apart anti-rotation features.

[0010] In some configurations, the anti-rotation features comprise slots.

[0011] In some configurations, an inferior portion of the peripheral edge comprises a porous coating.

[0012] In some configurations, an inferior surface of the generally disc-shaped portion comprises a porous coating, but a superior surface does not comprise a porous coating.

[0013] In some configurations, the peripheral edge and/or an inferior surface of the baseplate comprises a conical geometry.

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[0014] In some configurations, an inferior surface of the baseplate is concave.

[0015] In some configurations, the stem comprises a Morse taper lock superior to a superior-most portion of the generally disc-shaped portion of the glenoid baseplate.

[0016] In some configurations, the system further comprises a glenosphere.

[0017] In some configurations, the glenosphere comprises a superior dome-shaped surface comprising a rotational control feature configured such that an inserter tool can lock the glenosphere and the baseplate to allow for rotation of the glenosphere and the baseplate together.

[0018] In some configurations, the rotational control feature comprises a spline.

[0019] In some configurations, the system further comprises a central set screw and locking nut.

[0020] In some configurations, the system further comprises a central compression screw non-integral with the baseplate and configured for placement adjacent and distal to the central set screw.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] These drawings are illustrative embodiments and do not present all possible embodiments of this invention.

[0022] FIG. 1 illustrates an embodiment of components of a total reverse shoulder system.

[0023] FIG. 2 illustrates various embodiments of humeral trays that can be utilized with total reverse shoulder systems, according to some embodiments.

[0024] FIG. 3 illustrates a variety of humeral bearing components that can be utilized with total reverse shoulder systems, according to some embodiments.

[0025] FIG. 4 illustrates schematically an embodiment of a glenoid baseplate configured to be inset into the glenoid.

[0026] FIG. 5 illustrates schematically an embodiment of a glenoid baseplate 500 configured to be inset into the glenoid.

[0027] FIG. 6 illustrates a threaded locking insert for a central channel of a stem/post, according to some embodiments.

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[0028] FIG. 7 illustrates various views of glenospheres, according to some embodiments.

[0029] FIG. 8 illustrates a schematic cross-section of a fully assembled glenosphere with a locking bolt, according to some embodiments.

[0030] FIGS. 8A-8U illustrate a glenoid surgical technique, according to some embodiments.

[0031] FIG. 9 illustrates an embodiment of a sizer/angle guide.

[0032] FIG. 10 illustrates an embodiment of a stem drill guide.

[0033] FIG. 11 schematically illustrates a stem angle change with a rotational adjustment.

[0034] FIG. 12 schematically illustrates views of a glenoid baseplate inserter (alone on the left and together with a baseplate on the right), according to some embodiments.

[0035] FIG. 13 schematically illustrates views of a calibrated central drill, according to some embodiments.

[0036] FIG. 14 schematically illustrates views of fixed angle peripheral drill guides, according to some embodiments.

[0037] FIG. 15 schematically illustrates views of variable angle peripheral drill guides, according to some embodiments.

[0038] FIG. 16 schematically illustrates side and top views of central screws, according to some embodiments.

[0039] FIG. 17 schematically illustrates side and top views of fixed angle peripheral compression screws, according to some embodiments.

[0040] FIG. 18 schematically illustrates side and top views of variable angle peripheral screws, according to some embodiments.

[0041] FIG. 19 schematically illustrates views of a glenosphere inserter, according to some embodiments.

DETAILED DESCRIPTION

[0042] In some embodiments, disclosed herein are various embodiments of a total reverse shoulder system, including a variety of humeral trays, humeral bearings, inset glenoid baseplates, threaded locking inserts, and glenospheres. Glenoid surgical techniques are also

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WHAT IS CLAIMED IS:

1. A reverse shoulder system, comprising:

a glenoid baseplate comprising a longitudinal axis,

the glenoid baseplate further comprising a stem and a central channel within a sidewall of the stem, the stem comprising a longitudinal axis,

wherein the longitudinal axis of the glenoid baseplate is angled with respect to the longitudinal axis of the stem, wherein the longitudinal axis of the glenoid baseplate is not perpendicular with respect to the longitudinal axis of the stem.

2. The system of Claim 1, wherein the glenoid baseplate comprises a generally disc-shaped portion extending radially outward from the central channel.

3. The system of Claim 2, wherein the stem comprises a sidewall that extends superiorly with respect to the disc portion.

4. The system of Claim 1, wherein the glenoid baseplate comprises a peripheral edge.

5. The system of Claim 4, wherein the peripheral edge comprises spaced-apart anti-rotation features.

6. The system of Claim 5, wherein the anti-rotation features comprise slots.

7. The system of Claim 4, wherein an inferior portion of the peripheral edge comprises a porous coating.

8. The system of Claim 1, wherein an inferior surface of the generally disc-shaped portion comprises a porous coating, but a superior surface does not comprise a porous coating.

9. The system of Claim 4, wherein the peripheral edge and/or an inferior surface of the baseplate comprises a conical geometry.

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described, which can utilize various tools including but not limited to sizer/angle guides, stem drill guides, glenoid baseplate inserters, calibrated central drills, peripheral drill guides with fixed or variable angles, central screws, fixed angle peripheral compression screws, variable angle peripheral screws, and glenosphere inserters. Dimensions listed on the accompanying Figures are non-limiting examples only.

[0043] FIG. 1 illustrates an embodiment of components of a total reverse shoulder system, including a glenosphere 200 and a glenoid baseplate 102 which can be partially or completely inset in some embodiments. The glenoid baseplate 102 can be a generally disc-shaped structure and include a central aperture defining a surface of (e.g., integral with an elongate stem), or configured to fit an elongate stem or post therethrough. The glenoid baseplate 102 can include a longitudinal axis that is at an angle to a longitudinal axis of the elongate stem 100. The longitudinal axis of the glenoid baseplate 102 can be at an angle, such as generally oblique with respect to the longitudinal axis of the elongate stem 100. In some embodiments, the angle is an acute angle, and not a right angle. The angle between the two intersecting longitudinal axes of the respective baseplate 102 and the stem 100 could be, for example, about, at least about, or no more than about 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, or more or less degrees, or ranges including any two of the foregoing values.

[0044] FIG. 2 illustrates various embodiments of humeral trays that can be utilized with total reverse shoulder systems, according to some embodiments. The humeral trays can include various inner diameters IDs and outer diameters ODs, including 30mm, 32mm, 34mm, 36mm, 38mm, 40mm, 42mm, or more or less IDs and/or ODs, and ranges including any two of the foregoing values. The trays can include one or more pegs, such as a central peg extending from a medial surface. The trays can be neutral, or include extensions (e.g., in thickness) that can be, for example, +2, 4, 6, 8, 10, 12mm, or ranges including any two of the foregoing values. The trays can include various cross-sections, including oval or round cross-sections. The trays can be compatible with the same poly bearing surfaces in some cases. In some embodiments, a kit can include at least four different sizes of trays (34mm oval neutral; 34mm oval +6mm extension; 38mm round neutral; 38mm round +6mm extension.

[0045] FIG. 3 illustrates a variety of humeral bearing components that can be utilized with total reverse shoulder systems, according to some embodiments, including

humeral trays as illustrated and described in connection with FIG. 2. The bearing components can include, for example, a peripheral ring 302 and a central recessed portion that can be outlined radially outwardly by an inner edge of the peripheral ring, and an inner bowl-shaped portion 304. The peripheral ring can include indicia, such as a slot or other marking 399 illustrating the highest point of the bearing component. Also illustrated is the recessed poly dome 395, and a partial or full annular barb 397 around the outer circumference of the bearing component. The bearing component can include a variety of geometries include neutral, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 degree angles to horizontal, or ranges including any two of the foregoing values. In some embodiments, the bearing component does not change the joint center. In some embodiments, the bearing component can include 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45mm, or more or less spherical diameters, or ranges including any two of the foregoing values. In some embodiments, systems and methods can include an offset of 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10mm, or ranges including any two of the foregoing values.

[0046] FIG. 4 illustrates schematically an embodiment of a glenoid baseplate configured to be inset into the glenoid G as illustrated. The longitudinal axis of the baseplate can be angled with respect to the longitudinal axis of the stem/post as described, for example, with respect to FIG. 1, and can include a version change 499 to compensate for posterior bony defects. In some embodiments, the glenoid baseplate includes a central channel therethrough defining a surface of (e.g., integral with an elongate stem), or configured to fit configured to house a stem/post as shown. The glenoid baseplate can include a generally conical shape with a concave undersurface configured to rest within a reamed surface of glenoid bone, which advantageously allows for a single rotary reamer to be utilized, in contrast to conventional glenoid baseplates with flat undersurfaces that require a two-step reaming process. The post 493 can have a length of about, at least about, or no more than about 5, 5.5, 6, 6.5, 7, 7.5, 8, 8.5, 9, 9.5, 10, 10.5, 11, 11.5, 12, 12.5, 13, 13.5, 14, 14.5, 15mm or more or less, or ranges including any two of the foregoing values. In some embodiments, the central channel and/or stem can include a female Morse taper 497 of about 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, or more or less degrees, including ranges incorporating any two of the foregoing values. As shown in the right illustration of FIG. 4, the baseplate can be configured to pivot around the stem/taper at arrow 495 for version correction and to allow for a direct bone-implant interface without requiring

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augmentation. In some embodiments, the system can be configured to provide version angle corrections of, for example, about 0, 2.5, 5, 7.5, 10, 12.5, 15, 17.5, 20 degrees or more or less, or ranges including any two of the foregoing values. In some embodiments, the baseplate could have a diameter of about, at least about, or no more than about 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40mm, or more or less, or ranges including any two of the foregoing values. The baseplate can advantageously pivot around the central stem with a Morse taper for version correction and allows for a direct bone-implant interface.

[0047] FIG. 5 illustrates schematically an embodiment of a glenoid baseplate 500 configured to be inset into the glenoid (not shown in FIG. 5). The longitudinal axis of the baseplate 500 can be angled with respect to the longitudinal axis of the stem/post 510 as described, for example, with respect to FIGS. 1 and 4 above. The baseplate 500 could have a generally arcuate peripheral edge. The peripheral edge could include spaced-apart anti-rotational slots 521 directed generally transverse to a longitudinal plane of the baseplate 500. In some embodiments, the peripheral edge of the baseplate 500 can taper (e.g., decrease) in diameter from a superior to inferior dimension. A central channel can extend through the baseplate 500, as well as include a superiorly-extending sidewall or lip 511 somewhat similar to the side slopes of a volcano. The central channel can define a surface of (e.g., integral with an elongate stem), or configured to fit be configured to house the stem/post 510 therethrough. The baseplate 500 can also include a plurality of regularly or irregularly spaced-apart secondary (peripheral) channels 555 spaced radially outward from the central channel of the baseplate and configured to house fixed and variable angle screws therethrough. The secondary channels 555 can be asymmetric and include superiorly-extending portions 556 that can extend into and interrupt the superiorly-extending sidewall or lip 511 of the central channel of the baseplate 500. The baseplate 500 can include a porous coating 585 on the entire, or only a part of the peripheral edge and/or an inferior surface (e.g., undersurface) of the baseplate 500 to promote bone ingrowth, for example.

[0048] Still referring to FIG. 5, the stem/post 510 could have an internal taper, such as a Morse taper, of about, at least about, or no more than about 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 degrees, or more or less, or ranges including any two of the foregoing values. The stem/post 510 can also include a rotational control feature 545 along an outer diameter of the stem/post 510, and in some embodiments superiorly with respect to the uppermost surface

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of the sidewall 511 of the central channel of the glenoid baseplate 500 as shown. The rotational control feature 545 could be non-circular or non-arcuate, such as a hexagonal shape as shown for example. The stem/post 510 can also include a central channel and include a Morse taper lock 535 configured to mate with a glenosphere (not shown). The Morse taper lock can extend superiorly with respect to the uppermost surface of the sidewall 511 of the central channel of the glenoid baseplate 500. The central channel of the stem/post 510 can be configured to house a primary screw (not shown) therethrough, which can be a variable angle primary screw, and optionally locking.

[0049] FIG. 6 illustrates a threaded locking insert 600 for a central channel of a stem/post, according to some embodiments. The insert 600 can include an outer male thread 602 and configured to go into the central channel of a baseplate. The outer diameter of the insert can also include a hexagonal geometry portion 604 at the superior end, of about, at least about, or no more than about 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 mm or more or less, or ranges including any two of the foregoing values. The hexagonal geometry portion 604 can be configured to serve as a rotational control feature in some embodiments. The insert 600 can also include a female thread 608 configured to receive a supplemental glenosphere locking screw (not shown), and a spherical surface 612, for example, at its inferior end to lock a variable angle screw.

[0050] FIG. 7 illustrates various views of glenospheres, according to some embodiments. The left image illustrates a glenosphere with a rotational control feature 702, which can include a spline, such as an asymmetric spline, and configured to advantageously allow for rotational control about the spline and allow an inserter tool to lock and rotate the glenosphere together with another component, such as a baseplate. The glenosphere can also include one or more indicia, such as an eccentric rotational mark 704. The glenosphere can include a generally dome-shaped surface 714, a cavity 706 with an inferior-facing opening 708, and a hollow post including a morse taper lock 711 into the baseplate. The glenosphere could be a full hemisphere, or short of a full hemisphere by a distance 720 of about, at least about, or no more than about 0.5 mm, 0.75 mm, 1 mm, 1.25 mm, 1.5 mm, 1.75 mm, 2 mm, 2.25 mm, 2.5 mm, 2.75 mm, 3 mm, or more or less, or ranges including any two of the foregoing values.

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[0051] Still referring to FIG. 7, in some embodiments, the glenosphere can include an articulating diameter of about, at least about, or no more than about 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50 mm, or more or less, or ranges including any two of the foregoing values. In some embodiments, systems and methods can include an offset and/or eccentric dimension of 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 mm, or ranges including any two of the foregoing values. In some embodiments, the glenosphere has a neutral geometry. In some embodiments, a glenosphere 724 is offset by about +3 mm or about 6 mm, for example. In some embodiments, a glenosphere 722 has an eccentric dimension of between about 2 mm and about 4 mm. In some embodiments, a secondary locking screw can be utilized together with the glenosphere.

[0052] FIG. 8 illustrates a schematic cross-section of a fully assembled glenosphere with a locking bolt, according to some embodiments, along with the baseplate. The glenosphere can include a central channel therethrough including a rotational control feature 702 at, for example, a superior-most portion that can be as described elsewhere herein. The central channel can also include a threaded surface 808 for an inserter/head extractor, such as inferior to the rotational control feature 702, and optionally be configured to accommodate a secondary locking screw at 810, to push and/or rotate with the post of the baseplate. A post of the glenosphere can be placed at least partially within a central channel of the baseplate as illustrated. A central set screw/locking nut 814 can be connected to, and in some cases removably attachable to a central channel, e.g., of the glenoid baseplate, and have an end adjacent or directly touching an end of a central compression screw 816, which can include a diameter of, for example, of about, at least about, or no more than about 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8, 8.5, 9, 9.5, 10 mm, or more or less, or ranges including any two of the foregoing values. The central compression screw can be configured to angulate with respect to the baseplate, and advantageously allow for the use of a locking screw.

[0053] Figures 8A-8U illustrate a glenoid surgical technique, according to some embodiments, which can include any number of the following actions. FIG. 8A illustrates a glenoid surface with an A3-E3 defect. A sizer/angle guide can be placed as in FIG. 8B. A wire guide/wire can be placed in FIG. 8C. The wire guide and sizer/angle guide can be removed, as in FIG. 8D. The glenoid surface can then be reamed for the baseplate, as in FIGS. 8E and 8F. The stem drill guide can then be placed and adjusted in FIG. 8G. A hole for a stem can then be

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drilled in FIGS. 8H and 8I. The baseplate can then be inserted, as shown in FIG. 8J, and the threaded rod removed, as shown in FIG. 8K. A central cavity can be drilled, and the length of a central screw to be placed determined, in FIG. 8L. The drill can be removed in FIG. 8M, and the screw and screwdriver placed through the shaft, and the screw tightened in FIG. 8N. The baseplate inserter handle can be removed in FIG. 8O, and holes can be drilled for the peripheral locking screws in FIG. 8P. Holes can be drilled for variable angle screws, as shown in FIG. 8Q. The peripheral screws can be inserted and tightened in FIG. 8R. The central set screws and secondary locking nuts can be inserted and tightened in FIG. 8S. The glenosphere can be inserted in FIG. 8T, and the locking bolt inserted and tightened in FIG. 8U.

[0054] FIG. 9 illustrates an embodiment of a sizer/angle guide including an inferior tilt mechanism 902. The mechanism could be fixed to a set angle (e.g., about 0, 5, 10, 15, 20, 25 degrees, or ranges including any two of the foregoing values), or adjustable in some embodiments. The mechanism could be round or oval shaped in some embodiments, and include a slot (e.g., posterior or posterior inferior) to allow for removal. The inferior tilt mechanism 902 could include a set screw with a calibrated window, or individual depth screws in some cases.

[0055] FIG. 10 illustrates an embodiment of a stem drill guide, that can include a diameter of about, at least about, or no more than about 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 mm or more or less, or ranges including any two of the foregoing values. The drill guide could include a version angle of, for example, about 0, 5, 10, 15, 20, 25 degrees or more or less, or ranges including any two of the foregoing vales. In some embodiments, the larger the version angle, the more stem tilt is generated as rotation occurs.

[0056] FIG. 11 schematically illustrates a stem angle change with a rotational adjustment (e.g., about 30 degrees), and an angled version plate (e.g., about 15 degrees) as a non-limiting example. Anterior-posterior and inferior-superior views are illustrated.

[0057] FIG. 12 schematically illustrates views of a glenoid baseplate inserter (alone on the left and together with a baseplate on the right), according to some embodiments. The baseplate inserter can be configured for any number of: positive rotational control; slim design to allow visualization through screw holes to know when seated; and/or a multi-function handle allows for drilling central screw hole, and inserting a central screw.

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[0058] FIG. 13 schematically illustrates views of a calibrated central drill, according to some embodiments. Calibrated marks/indicia 902 at spaced-apart desired increments (e.g., 5mm increments in some embodiments) near the proximal end of the instrument can help to determine the length of a central screw that may be needed. The calibration length can start at, for example, about, at least about, or no more than about 15 mm, 20 mm, 25 mm, 30 mm, 35 mm, 40 mm, or more or less, including any two of the foregoing values and may advantageously allow for a surgical step to be cut out.

[0059] FIG. 14 schematically illustrates views of fixed angle peripheral drill guides, according to some embodiments. The drill guides can be configured to fit over a geometry, such as a polygonal shaped portion (e.g., octagon) on the top of the baseplate, and the operator can then determine which fixed angle screws to drill.

[0060] FIG. 15 schematically illustrates views of variable angle peripheral drill guides, according to some embodiments.

[0061] FIG. 16 schematically illustrates side and top views of central screws, according to some embodiments, including a head 1601, threaded shaft 1602, and distal tapered portion. In one embodiment, the screw can have a 6.5mm head, and 6mm threaded shaft, although various size ranges and increments are possible, including about, at least about, or no more than about 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8, 8.5, 9, 9.5, 10 mm, or more or less head and/or threaded shaft diameters, or ranges including any two of the foregoing values. In some embodiments, a central screw can include a total or working length of about, at least about, or no more than about 10, 11, 12, 13, 14, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70 mm, or more or less, or ranges including any two of the foregoing values. In some embodiments, anodization of the screw can optionally be present to help differentiate the screws. The screw head could have various internal feature geometries 1603, including a T20 hexalobe configuration in some embodiments.

[0062] FIG. 17 schematically illustrates side and top views of fixed angle peripheral compression screws, according to some embodiments, including a head 1701, double-lead thread 1703 proximal to a threaded shaft 1702, and distal tapered portion. The screws can be various size ranges and increments, and include T20 hexalobe or other internal head feature geometries 1704 as described elsewhere herein. In one embodiment, the head

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could be about 5.7 mm in diameter, with a 4.5 mm threaded shaft diameter, or dimensions listed elsewhere herein, such as in connection with FIG. 16 for example.

[0063] FIG. 18 schematically illustrates side and top views of variable angle peripheral screws, according to some embodiments, including a head 1801, threaded shaft 1802, and distal tapered portion. The screws can be various size ranges and increments, and include T20 hexalobe or other internal head feature geometries 1803 as described elsewhere herein. In one embodiment, the head could be about 5.7 mm in diameter, with a 4.5 mm threaded shaft diameter, or dimensions listed elsewhere herein, such as in connection with FIGS. 16 or 17 for example.

[0064] FIG. 19 schematically illustrates views of a glenosphere inserter, according to some embodiments, which can include a distal end with a feature complementary to a spline on the glenosphere, such as described in connection with FIG. 7, for example. The glenosphere inserter can be configured to, for example, advantageously provide positive attachment to the glenosphere; allow for solid rotational control while inserting; and/or may involve a secondary impaction step after removal.

[0065] In some embodiments, embodiments of the invention can be used or modified with use with particular advantages of using inset glenoid fixation technology in anatomic shoulder arthroplasty, such as described, for example, in U.S. Pat. Nos. 8,007,538 and/or 8,778,028 to Gunther, which are hereby incorporated by reference in their entireties. Furthermore, embodiments of the invention can be used or modified with use with systems and methods as disclosed, for example, in U.S. Pub. No. 2018/0368982 to Ball, which is hereby incorporated by reference in its entirety.

[0066] Various other modifications, adaptations, and alternative designs are of course possible in light of the above teachings. Therefore, it should be understood at this time that within the scope of the appended claims the invention may be practiced otherwise than as specifically described herein. It is contemplated that various combinations or subcombinations of the specific features and aspects of the embodiments disclosed above may be made and still fall within one or more of the inventions. Further, the disclosure herein of any particular feature, aspect, method, property, characteristic, quality, attribute, element, or the like in connection with an embodiment can be used in all other embodiments set forth herein. Accordingly, it should be understood that various features and aspects of the disclosed

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embodiments can be combined with or substituted for one another in order to form varying modes of the disclosed inventions. Thus, it is intended that the scope of the present inventions herein disclosed should not be limited by the particular disclosed embodiments described above. Moreover, while the invention is susceptible to various modifications, and alternative forms, specific examples thereof have been shown in the drawings and are herein described in detail. It should be understood, however, that the invention is not to be limited to the particular forms or methods disclosed, but to the contrary, the invention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the various embodiments described and the appended claims. Any methods disclosed herein need not be performed in the order recited. The methods disclosed herein include certain actions taken by a practitioner; however, they can also include any third-party instruction of those actions, either expressly or by implication. For example, actions such as "insetting an implant into a glenoid cavity" includes "instructing the insetting of an implant into the glenoid cavity." The ranges disclosed herein also encompass any and all overlap, sub-ranges, and combinations thereof. Language such as "up to," "at least," "greater than," "less than," "between," and the like includes the number recited. Numbers preceded by a term such as "approximately", "about", and "substantially" as used herein include the recited numbers (e.g., about 10% = 10%), and also represent an amount close to the stated amount that still performs a desired function or achieves a desired result. For example, the terms "approximately", "about", and "substantially" may refer to an amount that is within less than 10% of, within less than 5% of, within less than 1% of, within less than 0.1% of, and within less than 0.01% of the stated amount.

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ABSTRACT

TOTAL REVERSE SHOULDER SYSTEMS AND METHODS

A reverse shoulder system can include, for example, a glenoid baseplate comprising a longitudinal axis, the glenoid baseplate further including a stem and a central channel within a sidewall of the stem. The stem can include a longitudinal axis. The longitudinal axis of the glenoid baseplate can be angled with respect to the longitudinal axis of the stem, wherein the longitudinal axis of the glenoid baseplate is not perpendicular with respect to the longitudinal axis of the stem. Other components including a glenosphere, tools, and methods of use are also disclosed.

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PTO/AIA/82A (07-13)
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Application Number	Unassigned
Filing Date	Herewith
First Named Inventor	Running, Donald E.
Title	TOTAL REVERSE SHOULDER SYSTEMS AND METHODS
Art Unit	Unassigned
Examiner Name	Unassigned
Attorney Docket Number	SHOLD.013C3

SIGNATURE of Applicant or Patent Practitioner

Signature	/Andrew I. Kimmel/	Date (Optional)	
Name	Andrew I. Kimmel	Registration Number	58,855
Title (if Applicant is a juristic entity)	Attorney for Applicant		
Applicant Name (if Applicant is a juristic entity)	Shoulder Innovations, Inc.		

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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

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

Shoulder Innovations, Inc.

☐ 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)	
Name	Robert Ball		
Title	Chairman		

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COMBINED DECLARATION & ASSIGNMENT (37 CFR 1.63(e))

Application Data Sheet filed previously or concurrently

Docket No.: SHOLD.013NP

Title: TOTAL REVERSE SHOULDER SYSTEMS AND METHODS

Inventors: Donald E. Running, Robert J. Ball, and Jason Slone

Declaration

This Declaration is directed to U.S. Application No. **17/435,333**, filed **August 31, 2021** and incorporating any amendments made thereto prior to the signature date of this Declaration.

As a named inventor, I declare that:

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 USC 1001 by fine or imprisonment of not more than five (5) years, or both.

I have reviewed and understand the contents of the above-identified application, including the claims, as amended by any amendment.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

Assignment from Inventors

WHEREAS, **above-identified Inventors** (individuals, hereinafter "ASSIGNOR") invented certain new and useful improvements, technology, inventions, developments, ideas, ornamental designs, or discoveries related to **TOTAL REVERSE SHOULDER SYSTEMS AND METHODS** (collectively hereinafter referred to as the "Work") for which an application for Letters Patent in the United States (identified above) has been filed or prepared for filing with the United States Patent and Trademark Office (hereinafter the "Application"), and ASSIGNOR desires to assign or confirm assignment of the Work and the Application to the below identified Assignee.

AND WHEREAS, **Shoulder Innovations, Inc.,** with its principal place of business at **13827 Port Sheldon St., Holland, MI 49424** (hereinafter the "ASSIGNEE"), desires to acquire or confirm ownership of the entire right, title, and interest in and to the Application and the Work.

NOW, THEREFORE, for good and valuable consideration of which receipt is hereby acknowledged, ASSIGNOR hereby acknowledges that ASSIGNOR has sold, assigned, transferred, and set over, and by these presents does hereby sell, assign, transfer, and set over, unto said ASSIGNEE, **its** successors, legal representatives, and assigns, the entire right, title, and interest throughout the world in and to the Application and the Work, including: all provisional and international applications relating to the Work and the Application (including but not limited to U.S. Provisional Application No. **62/816,708**, filed **March 11, 2019** and **International Application No. PCT/US2020/022094** filed **March 11, 2020**); all nonprovisional applications claiming priority to aforementioned provisional, international application and/or the Application, including, all divisions, continuations, continuations-in-part, and reissues, and all Letters Patent of the United States which may be granted thereon and all reissues and extensions thereof; and all rights of priority under International Conventions and any related Letters Patent which may hereafter be granted or filed in any country or countries foreign to the United States, all extensions, renewals, and reissues thereof.

ASSIGNOR hereby authorizes and requests the Commissioner for Patents of the United States, and any Official of any country or countries foreign to the United States, whose duty it is to issue patents on applications as aforesaid, to issue all related Letters Patent to the ASSIGNEE, **its** successors, legal representatives, and assigns.

AND ASSIGNOR DOES HEREBY acknowledge and agree that the assigned scope of the Application and the Work includes any currently recited claims, all embodiments, and all claims supported by the Application; Assignor agrees not to contest or disparage claim scope thus supported (including in any later-filed continuing patent applications) for any claims deemed patentable by any government patent office. Assignor also agrees not to challenge the validity, including as a defense to patent infringement, of any issued patent claims resulting from or based on the Work, regardless of the scope of any such claims.

AND ASSIGNOR DOES HEREBY sell, assign, transfer, and convey to ASSIGNEE, **its** successors, legal representatives, and assigns all claims for damages and all remedies arising out of any violation of the rights assigned hereby that may have accrued prior to the date of assignment to ASSIGNEE, or may accrue hereafter, including, but not limited to, the right to sue for, collect, and retain damages for past infringements of said Letters Patent before or after issuance.

AND ASSIGNOR DOES HEREBY covenant and agree that ASSIGNOR will: communicate to said ASSIGNEE, **its** successors, legal representatives, and assigns any facts known to ASSIGNOR respecting the Work; testify in any legal proceeding; assist in the preparation of any other Patent Property relating to the Application and the Work or any improvements made thereto; sign/execute all lawful papers; authorize the filing of, execute, and make all rightful oaths and/or declarations in connection with the Application and the Work including any improvements made thereto, any patent applications filed therefrom, and any continuing application filed from any of the aforementioned applications; and generally do everything possible to aid the ASSIGNEE, **its** successors, legal representatives, and assigns, to obtain and enforce proper patent protection for the Work in all countries.

AND ASSIGNOR DOES HEREBY agree that if any term or provision of this agreement becomes invalid or unenforceable, the remainder shall survive unaffected.

Legal Name of Inventor: Donald E. Running

IN TESTIMONY WHEREOF, I hereunto set my hand and seal this 27th day of January, 20 23.

Signature: _____

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COMBINED DECLARATION & ASSIGNMENT (37 CFR 1.63(e))
Application Data Sheet filed previously or concurrently

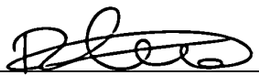
Title: TOTAL REVERSE SHOULDER SYSTEMS AND METHODS

Inventors: Donald E. Running, Robert J. Ball, and Jason Slone

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Legal Name of Inventor: Robert J. Ball

IN TESTIMONY WHEREOF, I hereunto set my hand and seal this 17th day of Jan, 20 23.

Signature: 

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COMBINED DECLARATION & ASSIGNMENT (37 CFR 1.63(e))
Application Data Sheet filed previously or concurrently

Title: TOTAL REVERSE SHOULDER SYSTEMS AND METHODS

Inventors: Donald E. Running, Robert J. Ball, and Jason Slone

---

Legal Name of Inventor: Jason Slone

IN TESTIMONY WHEREOF, I hereunto set my hand and seal this 17th day of January, 2023.

Signature: William J. Slone

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APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/605,361	**03/15/2024 04:54:38 PM Z ET**	**SHOLD.013C3**

Title of Invention

TOTAL REVERSE SHOULDER SYSTEMS AND METHODS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	7877	FILED BY	Renee Farris
PATENT CENTER #	64707898	FILING DATE	-
CUSTOMER #	20995	FIRST NAMED INVENTOR	Donald E. Running
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Andrew Kimmel

Documents

TOTAL DOCUMENTS: 10

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
SHOLD_013C1_IDS_2024_03_15.pdf	15	Information Disclosure Statement (IDS) Form (SB08)	190 KB
Warning: This is not a USPTO supplied IDS fillable form. Data in the form cannot be automatically loaded to other USPTO systems.			
SHOLD_013C1_Transmittal_2024_03_15.pdf	2	Transmittal Letter	78 KB
FOR_JP_04_282149_wAbs.pdf	10	Foreign Reference	1129 KB
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FOR_WO_2023_183283_SHOLD_023WO.pdf	2F03C1A97375AFD2D07117079C8C11A7160D68CBABC0EA38EB390BC0306914F2F515A8D3ABA3EFF5852E6894A4F327A700D839C6E023895F3C1F8F2B0A62EDC9
FOR_WO_2024_026101_SHOLD_027WO.pdf	BA21EA96D96EF8F569940C0D98C3741EEC14841EF4B649E4CEFE4FA7DBBC06522A749C1063FF0C87593B0A518E7E13B189E2D361A223FBEADC28D9B35C7DD54E
FOR_JP_2017_523872_wAbs.pdf	0CEC32B7E6C60AAF0D485DECE753833D7B608AEE8D6C1E08F87216671D9E202C0C6DB285B42B6575CCEAF39A4D40E0539033B2AE982B8CE6EC3C2D2D44BBE408
FOR_WO_2014_067961.pdf	5AEA9CBE14D533E8E6B57D4035614BCDF8F85C24893430370

1ABEBE3B4BE38F85432E21AA6C2326BED6D22315D8C0117D
F99DCEB68D18C611335B34051C7A61A

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 filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

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

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

New International Application Filed with the USPTO as a Receiving Office

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

INFORMATION DISCLOSURE STATEMENT

First Inventor: Running, Donald E.	**Conf. No.:** 7877
App. No.: 18/605,361	**Filed:** March 14, 2024
Examiner: Unknown	**Art Unit:** Unknown
Title: TOTAL REVERSE SHOULDER SYSTEMS AND METHODS	

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

References and Listing

Pursuant to 37 CFR 1.56, an Information Disclosure Statement listing references is provided herewith. References numbered 1-247, 281-315, and 324-346 are of record in U.S. patent application No. 18/058058, filed November 22, 2022, which is relied upon for an earlier filing date under 35 USC 120. Accordingly, copies of references numbered 1-247, 281-315, and 324-346 are not submitted pursuant to 37 CFR 1.98(d). Any foreign references may also include English abstract(s) and/or machine translation(s), but no representation is made as to their accuracy.

If the Examiner would like additional information regarding these references or if anything is unclear, the Examiner is invited to contact the undersigned for assistance.

No Disclaimers or Admissions

To the extent that anything in the Information Disclosure Statement or the listed references could be construed as a disclaimer of any subject matter supported by the present application, Applicant hereby rescinds and retracts such disclaimer.

Citation of a reference within this disclosure is not, and should not be construed as, an admission that the cited reference comes from an area that is analogous or directly applicable to the claimed invention.

Timing of Disclosure

This Information Disclosure Statement is being filed within three months of the filing date or date of national phase entry, with an RCE or before receipt of a First Office Action after an RCE, and no fee is believed to be required.

The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment, to Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: March 15, 2024

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	First Named Inventor	Running, Donald E.
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(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 1 OF 15	Attorney Docket No.	SHOLD.013C3

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number *Number - Kind Code (if known)* Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	1	2,781,758	02-19-1957	Jacques	
	2	3,979,778	09-14-1976	Stroot	
	3	4,003,095	01-18-1977	Gristina	
	4	4,045,826	09-06-1977	Stroot	
	5	4,206,517	06-10-1980	Pappas et al.	
	6	4,261,062	04-14-1981	Amstutz et al.	
	7	4,404,693	09-20-1983	Zweymuller	
	8	4,550,450	11-05-1985	Kinnett	
	9	4,865,605	09-12-1989	Dines, et al.	
	10	4,964,865	10-23-1990	Burkhead et al.	
	11	4,986,833	01-22-1991	Worland	
	12	4,990,161	02-05-1991	Kampner	
	13	5,030,219	07-09-1991	Matsen, III, et al.	
	14	5,032,132	07-16-1991	Matsen, III, et al.	
	15	5,080,673	01-14-1992	Burkhead, et al.	
	16	5,108,440	04-28-1992	Grundei	
	17	5,282,865	02-01-1994	Dong	
	18	5,314,479	05-24-1994	Rockwood, Jr., et al.	
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	20	5,344,458	09-06-1994	Bonutti	
	21	5,358,525	10-25-1994	Fox, et al.	
	22	5,370,694	12-06-1994	Davidson	
	23	5,437,677	08-01-1995	Shearer et al.	
	24	5,462,563	10-31-1995	Shearer, et al.	
	25	5,489,309	02-06-1996	Lackey, et al.	
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	28	5,514,184	05-07-1996	Doi	
	29	5,549,683	08-27-1996	Bonutti	

Examiner Signature	Date Considered

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SHEET 2 OF 15	Attorney Docket No.	SHOLD.013C3

U.S. PATENT DOCUMENTS					
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	30	5,593,448	01-14-1997	Dong	
	31	5,702,447	12-30-1997	Walch et al.	
	32	5,702,486	12-30-1997	Craig et al.	
	33	5,755,811	05-26-1998	Tanamal et al.	
	34	5,769,856	06-23-1998	Dong, et al.	
	35	5,800,551	09-01-1998	Williamson et al.	
	36	5,928,285	07-27-1999	Bigliani et al.	
	37	6,037,724	03-14-2000	Buss et al.	
	38	6,228,119	05-08-2001	Ondria, et al.	
	39	6,231,913	05-15-2001	Schwimmer et al.	
	40	6,290,726	09-18-2001	Pope, et al.	
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	42	6,364,910	04-02-2002	Shultz et al.	
	43	6,368,353	04-09-2002	Arcand	
	44	6,379,386	04-30-2002	Resch, et al.	
	45	6,458,136	10-01-2002	Allard, et al.	
	46	6,514,287	02-04-2003	Ondria, et al.	
	47	6,520,964	02-18-2003	Tallarida, et al.	
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	49	6,610,067	08-26-2003	Tallarida, et al.	
	50	6,620,197	09-16-2003	Maroney	
	51	6,673,115	01-06-2004	Resch, et al.	
	52	6,783,549	08-31-2004	Stone et al.	
	53	6,679,916	01-20-2004	Frankle et al.	
	54	6,679,917	01-20-2004	Ek	
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	58	6,761,740	07-13-2004	Tornier	

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SHEET 3 OF 15	Attorney Docket No.	SHOLD.013C3

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number *Number - Kind Code (if known)* Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	59	6,783,549	08-31-2004	Stone, et al.	
	60	6,875,234	04-05-2005	Lipman et al.	
	61	6,953,478	10-11-2005	Bouttens et al.	
	62	7,011,686	03-14-2006	Ball et al.	
	63	7,044,973	05-16-2006	Rockwood et al.	
	64	7,238,089	07-03-2007	Tsumuraya et al.	
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	66	7,294,149	11-13-2007	Hozack et al	
	67	7,320,709	01-22-2008	Felt et al.	
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	70	7,517,364	04-14-2009	Long et al.	
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	72	7,678,151	03-16-2010	Ek	
	73	7,749,278	07-06-2010	Frederick et al.	
	74	7,766,969	08-03-2010	Justin et al.	
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	76	7,892,287	02-22-2011	Deffenbaugh	
	77	7,922,769	04-12-2011	Deffenbaugh et al.	
	78	8,007,538 (SHOLD.001A)	08-30-2011	Gunther	
	79	8,038,719 (SHOLD.001C3)	10-18-2011	Gunther	
	80	8,048,161	11-01-2011	Guederian et al.	
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	82	8,177,786	05-15-2012	Leyden et al.	
	83	8,529,629	09-10-2013	Angibaud et al.	
	84	8,608,805	12-17-2013	Forrer et al.	
	85	8,778,028 (SHOLD.001CP1)	07-15-2014	Gunther et al.	

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(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 4 OF 15	Attorney Docket No.	SHOLD.013C3

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number *Number - Kind Code (if known)* Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	86	8,840,671	09-23-2014	Ambacher	
	87	8,870,962	10-28-2014	Roche et al.	
	88	8,920,508	12-30-2014	Iannotti et al.	
	89	8,940,054	01-27-2015	Wiley et al.	
	90	9,283,083	03-15-2016	Winslow et al.	
	91	9,381,086 (SHOLD.003A)	07-05-2016	Ries et al.	
	92	9,545,311	01-17-2017	Courtney, Jr. et al.	
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	97	9,867,710	01-16-2018	Dalla Pria et al.	
	98	10,143,559 (SHOLD.003C1)	12-04-2018	Ries et al.	
	99	10,357,373	07-23-2019	Gargac et al.	
	100	10,492,926 (SHOLD.006A)	12-03-2019	Gunther	
	101	10,702,390	07-07-2020	Chavarria et al.	
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	103	10,786,265 (SHOLD.001C5)	09-29-2020	Gunther	
	104	10,925,745	02-23-2021	Cardon et al.	
	105	11,065,125 (SHOLD.009A)	07-20-2021	Ball	
	106	11,259,931	03-01-2022	Pressacco et al.	
	107	11,464,645	10-11-2022	Cardon et al.	
	108	11,166,733	11-09-2021	Neichel et al.	
	109	11,564,802	01-31-2023	Ball et al.	

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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number *Number - Kind Code (if known)* Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	110	11,771,561 (SHOLD.013C1)	10-03-2023	Running et al.	
	111	D 977,643 (SHOLD.014DA)	02-07-2023	Ball et al.	
	112	2001/0011192	08-02-2001	Ondria et al.	
	113	2001/0037153	11-01-2001	Rockwood, Jr., et al.	
	114	2001/0047210	11-29-2001	Wolf	
	115	2002/0055783	05-09-2002	Tallarida et al.	
	116	2002/0082702	06-27-2002	Resch et al.	
	117	2002/0087213	07-04-2002	Bertram, III	
	118	2002/0095214	07-18-2002	Hyde, Jr.	
	119	2002/0111689	08-15-2002	Hyde, Jr., et al.	
	120	2002/0138148	09-26-2002	Hyde, Jr., et al.	
	121	2003/0100952	05-29-2003	Rockwood, Jr. et al.	
	122	2003/0114933	06-19-2003	Bouttens et al.	
	123	2003/0125809	07-03-2003	Iannotti et al.	
	124	2003/0144738	07-31-2003	Rogalski	
	125	2003/0158605	08-21-2003	Tournier	
	126	2003/0163202	08-28-2003	Lakin	
	127	2003/0236572	12-25-2003	Bertram, III	
	128	2004/0002766	01-02-2004	Hunter et al.	
	129	2004/0039449	02-26-2004	Tournier	
	130	2004/0039451	02-26-2004	Southworth	
	131	2004/0059424	03-25-2004	Guederian, et al.	
	132	2004/0064187	04-01-2004	Ball, et al.	
	133	2004/0064189	04-01-2004	Maroney, et al.	
	134	2004/0064190	04-01-2004	Ball, et al.	
	135	2004/0107002	06-03-2004	Katsuya	
	136	2004/0122519	06-24-2004	Wiley et al.	
	137	2004/0122520	06-24-2004	Lipman et al.	

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U.S. PATENT DOCUMENTS					
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	138	2004/0167629	08-26-2004	Geremakis et al.	
	139	2004/0167630	08-26-2004	Rolston	
	140	2004/0193168	09-30-2004	Long et al.	
	141	2004/0193275	09-30-2004	Long et al.	
	142	2004/0193276	09-30-2004	Maroney et al.	
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	145	2004/0199260	10-07-2004	Pope et al.	
	146	2004/0220674	11-04-2004	Pria	
	147	2004/0230311	11-18-2004	Cyprien et al.	
	148	2004/0260398	12-23-2004	Kelman	
	149	2005/0043805	02-24-2005	Chudik	
	150	2005/0049709	03-03-2005	Tornier	
	151	2005/0065612	03-24-2005	Winslow	
	152	2005/0107882	05-19-2005	Stone et al.	
	153	2005/0119531	06-02-2005	Sharratt	
	154	2005/0177241	08-11-2005	Angibaud et al.	
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	156	2005/0278030	12-15-2005	Tornier et al.	
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	162	2006/0200249	09-07-2006	Beguin et al.	
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	164	2007/0050042	03-01-2007	Dietz et al.	
	165	2007/0055380	03-08-2007	Berelsman et al.	

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SHEET 7 OF 15	Attorney Docket No.	SHOLD.013C3

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	166	2007/0112433	05-17-2007	Frederick et al.	
	167	2007/0156246	07-05-2007	Meswania et al.	
	168	2007/0179624	08-02-2007	Stone et al.	
	169	2007/0225817	09-27-2007	Ruebelt et al.	
	170	2007/0225818	09-27-2007	Reubelt et al.	
	171	2008/0021564 (SHOLD.002A)	01-24-2008	Gunther	
	172	2008/0082175	04-03-2008	Holovacs et al.	
	173	2008/0177327	07-24-2008	Malandain et al.	
	174	2008/0234820	09-25-2008	Felt et al.	
	175	2008/0294268	11-27-2008	Baum et al.	
	176	2009/0105837	04-23-2009	LaFosse et al.	
	177	2009/0125113	05-14-2009	Guederian, et al.	
	178	2009/0228112	09-10-2009	Clark et al.	
	179	2009/0287309	11-19-2009	Walch et al.	
	180	2010/0087876 (SHOLD.001C2)	04-08-2010	Gunther	
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	182	2010/0114326	05-06-2010	Winslow et al.	
	183	2010/0161066	06-24-2010	Ionetti et al.	
	184	2010/0217399	08-26-2010	Groh	
	185	2010/0249938 (SHOLD.001CP1)	09-30-2010	Gunther et al.	
	186	2010/0274360 (SHOLD.002C1)	10-28-2010	Gunther	
	187	2011/0029089	02-03-2011	Giuliani et al.	
	188	2011/0106266	05-05-2011	Schwyzer et al.	
	189	2011/0112648 (SHOLD.001C3)	05-12-2011	Gunther	
	190	2011/0137424	06-09-2011	Lappin et al.	

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	191	2011/0144758	06-16-2011	Deffenbaugh	
	192	2011/0276144	11-10-2011	Wirth et al.	
	193	2011/0313533 (SHOLD.002C2)	12-22-2011	Gunther	
	194	2012/0172996 (SHOLD.003A)	07-05-2012	Ries et al.	
	195	2012/0209392	08-16-2012	Angibuad et al.	
	196	2012/0239156	09-20-2012	De Wilde et al.	
	197	2013/0060346	03-07-2013	Collins	
	198	2013/0090736	04-11-2013	Katrana et al.	
	199	2013/0150972	01-13-2013	Iannotti et al.	
	200	2013/0166033 (SHOLD.001C4)	06-27-2013	Gunther	
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	205	2014/0257499	09-11-2014	Winslow et al.	
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	213	2017/0056187	03-02-2017	Humphrey et al.	
	214	2017/0071749	03-16-2017	Lappin et al.	
	215	2017/0202674 (SHOLD.001P1C2)	07-20-2017	Gunther et al.	

Examiner Signature	Date Considered
***Examiner:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

T[1] - Place a check mark in this area when an English language Translation is attached.

PTO/SB/08 Equivalent

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	18/605,361
	Filing Date	March 14, 2024
	First Named Inventor	Running, Donald E.
	Art Unit	Unknown
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 9 OF 15	Attorney Docket No.	SHOLD.013C3

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number *Number - Kind Code (if known)* Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	216	2017/0273806	09-28-2017	Cardon et al.	
	217	2017/0304063	10-26-2017	Hatzidakis et al.	
	218	2017/0360456 (SHOLD.001C5)	12-21-2017	Gunther	
	219	2018/0071104	03-15-2018	Kovacs et al.	
	220	2018/0078377	03-22-2018	Gargac et al.	
	221	2018/0161169	06-14-2018	Cardon et al.	
	222	2018/0193150	07-12-2018	Winslow et al.	
	223	2018/0200067	07-19-2018	Axelso, Jr. et al.	
	224	2018/0243102	08-30-2018	Burkhead, Jr. et al.	
	225	2018/0368982 (SHOLD.009A)	12-27-2018	Ball	
	226	2019/0336293	11-07-2019	Kehres	
	227	2020/0261209	08-20-2020	Stchur et al.	
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	231	2021/0236292	08-05-2021	Chavarria et al.	
	232	2021/0244547 (SHOLD.001P1C3)	08-12-2021	Gunther et al.	
	233	2021/0251640 (SHOLD.001C6)	08-19-2021	Gunther	
	234	2021/0338446 (SHOLD.009C1)	11-04-2021	Ball	
	235	2022/0151795 (SHOLD.013NP)	05-19-2022	Running et al.	
	236	2022/0175543 (SHOLD.009C2)	06-09-2022	Ball	
	237	2022/0175544 (SHOLD.009NPC1)	06-09-2022	Ball et al.	

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	Filing Date	March 14, 2024
	First Named Inventor	Running, Donald E.
	Art Unit	Unknown
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 10 OF 15	Attorney Docket No.	SHOLD.013C3

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number *Number - Kind Code (if known)* Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	238	2023/0078024 (SHOLD.001P1C4)	03-16-2023	Gunther et al.	
	239	2023/0080207 (SHOLD.001P1C5)	03-16-2023	Gunther et al.	
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	241	2023/0090753 (SHOLD.013C1)	03-23-2023	Running et al.	
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Examiner Signature	Date Considered
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	Application No.	18/605,361
	Filing Date	March 14, 2024
	First Named Inventor	Running, Donald E.
	Art Unit	Unknown
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 11 OF 15	Attorney Docket No.	SHOLD.013C3

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number *Number - Kind Code (if known)* Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	261	8,303,665	11-06-2012	Tornier et al.	
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	263	9,114,017	08-25-2015	Lappin	
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	268	2003/0033019	02-13-2003	Lob	
	269	2005/0075638	04-07-2005	Collazo	
	270	2007/0118229	05-24-2007	Bergin et al.	
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	272	2009/0281630	11-12-2009	Delince et al.	
	273	2013/0194353	08-01-2013	Hirai et al.	
	274	2013/0261752	10-03-2013	Lappin et al.	
	275	2016/0270922	09-22-2016	Pressacco et al.	
	276	2017/0209275	07-27-2017	Levy	
	277	2017/0056187	03-02-2017	Humphrey et al.	
	278	2018/0333268	11-22-2018	Cardon et al.	
	279	2020/0383792	12-10-2020	Cardon et al.	
	280	18/349,805 (SHOLD.001C8)	07-10-2023	Gunther	

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Examiner Initials	Cite No.	Foreign Patent Document *Country Code-Number-Kind Code* Example: JP 1234567 A1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear	**T[1]**
	281	DE 4220217	12-01-1993	S & G IMPLANTS GmbH		X
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Examiner Signature	Date Considered
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PTO/SB/08 Equivalent

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	Filing Date	March 14, 2024
	First Named Inventor	Running, Donald E.
	Art Unit	Unknown
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 12 OF 15	Attorney Docket No.	SHOLD.013C3

FOREIGN PATENT DOCUMENTS						
Examiner Initials	Cite No.	Foreign Patent Document *Country Code-Number-Kind Code* Example: JP 1234567 A1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear	T[1]
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	293	EP 3090705	11-09-2016	Tornier, Inc.		
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	298	JP 2013-158909	08-19-2013	SEIKO EPSON CORP.		X
	299	JP 2014-515651	07-03-2014	ZIMMER GmbH		X
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	302	WO 2009/071940 A1	06-11-2009	BISHOP, ET AL.		
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	304	WO 2013/148437	10-03-2013	DePuy Synthes Products, Inc.		
	305	WO 2012/075183 (SHOLD.003WO)	04-10-2014	SHOULDER INNOVATIONS, LLC		

Examiner Signature	Date Considered
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	First Named Inventor	Running, Donald E.
	Art Unit	Unknown
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 13 OF 15	Attorney Docket No.	SHOLD.013C3

FOREIGN PATENT DOCUMENTS						
Examiner Initials	Cite No.	Foreign Patent Document *Country Code-Number-Kind Code* Example: JP 1234567 A1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear	T[1]
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	307	WO 2018/022227	02-01-2018	TORNIER INC.		
	308	WO 2018/129286	07-12-2018	ZIMMER INC.		
	309	WO 2018/181420 (SHOLD.009WO)	10-18-2018	SHOULDER INNOVATIONS, LLC		
	310	WO 2019/006205	01-03-2019	Encore Medical, L.P.		
	311	WO 2019/178104 (SHOLD.009WO2)	09-19-2019	SHOULDER INNOVATIONS, LLC		
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	319	WO 2014/067961	05-08-2014	TORNIER ORTHOPEDICS IRELAND LTD.		
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	321	WO 2017/184792	10-26-2017	IMASCAP SAS		
	322	WO 2023/183283 (SHOLD.023WO)	09-28-2023	SHOULDER INNOVATIONS, LLC		
	323	WO 2024/026101 (SHOLD.027WO)	02-01-2024	SHOULDER INNOVATIONS, LLC		

NON PATENT LITERATURE DOCUMENTS

Examiner Signature	Date Considered

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	First Named Inventor	Running, Donald E.
	Art Unit	Unknown
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 14 OF 15	Attorney Docket No.	SHOLD.013C3

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[1]
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	326	Biomet, "Copeland" ™ Humeral Resurfacing Head," 2001 in 12 pages.	
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	329	Boileau et al., "The Three-Dimensional Geometry of the Proximal Humerus. Implications for Surgical Technique and Prosthetic Design," J. Bone Joint Surg. Br. 79: 857-865, 1997.	
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	331	Clavert et al. Glenoid resurfacing: what are the limits to asymmetric reaming for posterior erosion? J. Shoulder and Elbow Surg. 2007 November/December: 843-848	
	332	Dalla Pria, Paolo. Slide presentation, entitled "Shoulder Prosthesis Design and Evolution", to the Naples International Shoulder Congress in Italy (2000) in 55 pages.	
	333	DePuy, "Global C.A.P., Surgical Technique Resurfacing Humeral Head Implant," 2004 in 23 pages.	
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	335	Karduna et al. Glenhumeral Joint Translations before and after Total Shoulder Arthroplasty. J. Bone and Joint Surg. 79(8) (1997): 1166-1174.	
	336	Redacted letter from a third party dated August 24, 2012 in 2 pages.	
	337	Levy et al., "Cementless Surface Replacement Arthroplasty of the Should. 5- to 10-year Results with the Copeland Mark-2 Prosthesis," J. Bone Joint Surg. Br. 83: 213-221, 2001.	
	338	Lima-Lto Medical Systems Glenoidi/Glenoids catalogue (2001) in 1 page.	
	339	Lima-Lto MINIGLENOIDE CEMENTATA document 7560.50.030 (1999) in 1 page.	
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SHEET 15 OF 15	Attorney Docket No.	SHOLD.013C3

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[1]
	343	TITAN(TM) Modular Shoulder System Brochure, 2011, available at http://www.ascensionortho.com/Assets/PDF/TitanModular/TITANModularShoulder_Brochure-revD.pdf (2 pages)	
	344	Tournier et al., Enhancement of Glenoid Prosthesis Anchorage using Burying Technique. Techniques in Shoulder & Elbow Surgery 9(1)(2008): 35-42.	
	345	Wang et al., Biomechanical Evaluation of a Novel Glenoid Design in Total Shoulder Arthroplasty. J. Shoulder & Elbow Surgery (2005) 15: 129S-140S.	
	346	Statement of Grounds and Particulars of Opposition for Australian Patent Application No. 2006218936 dated October 5, 2012 in 8 pages.	

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Espacenet

Bibliographic data: JP2017523872 (A) — 2017-08-24

GLENOID IMPLANT

Inventor(s): マイケル フランシス コバックス, ; ジョン エム. マクダニエル, ; ネイサン エー. ウィンズロー, ; トーマス エム. バナッセ, ; クリントン イー. ケアーズ, ; マイケル エー. ワック

Applicant(s): バイオメット マニュファクチャリング, リミティド ライアビリティ カンパニー

Classification: - **international:** *A61F2/30; A61F2/40*
- **cooperative:** A61F2/30734 (EP, CN, US); A61F2/4081 (EP, CN, US); A61F2/30749 (EP, CN, US); A61F2002/30242 (EP, CN, US); A61F2002/30331 (EP, CN, US); A61F2002/30369 (EP, CN, US); A61F2002/30736 (EP, CN, US); A61F2002/30825 (EP, CN, US); A61F2002/30841 (EP, CN, US); A61F2002/30878 (EP, CN, US); A61F2002/30879 (EP, CN, US); A61F2002/30881 (EP, CN, US); A61F2002/30891 (EP, CN, US)

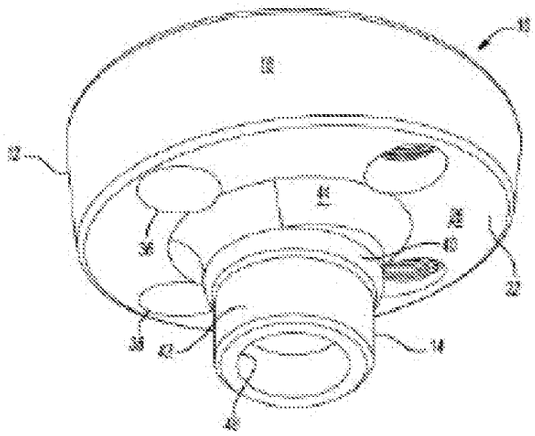
Application number: JP20170508061 20150810 Global Dossier

Priority number(s): US201414459935 20140814 ; WO2015US44448 20150810

Also published as: AU2015302017 (A1), AU2015302017 (B2), CA2957682 (A1), CA2957682 (C), CN107072791 (A), CN107072791 (B), EP3178962 (A1), EP3178962 (B1), JP6791843 (B2), US10258478 (B2), US11033400 (B2), US2016045323 (A1), US2018071104 (A1), US2019151106 (A1), US2021259845 (A1), US9844440 (B2), WO2016025378 (A1), less

Abstract not available for JP2017523872 (A)
Abstract of corresponding document: US2016045323 (A1)

A glenoid implant is provided and may include a body portion and a stem portion. The stem portion may extend from the body portion along a longitudinal axis. The body portion may include an articular side and a bone-engaging side opposite the articular side. At least a portion of the bone-engaging side may be disposed at a non-parallel angle relative to at least a peripheral edge of the articulation side.



Espacenet

Bibliographic data: JPH04282149 (A) — 1992-10-07

COMPRESSION SCREW FOR PROSTHETIC INSTRUMENT TO REPLACE INTERNAL JOINT

Inventor(s): DABITSUDO RII EBANSU ± (DABITSUDO RII EBANSU)

Applicant(s): SMITH & NEPHEW RICHARDS INC ± (SMITH & NEPHEW RICHIYAAZU INC)

Classification: - **international:** ***A61B17/58; A61B17/74; A61B17/86; A61F2/30; A61B17/88; A61F2/00;*** (IPC1-7): A61B17/58; A61F2/30
- **cooperative:** A61B17/742 (EP,US); A61B17/8685 (EP,US); A61B17/8875 (EP,US); A61F2002/3037 (EP,US); A61F2002/30601 (EP,US); A61F2220/0033 (EP,US)

Application number: JP19910279144 19911025

Priority number(s): US19900603799 19901026

Also published as: AU637300 (B2), AU8670491 (A), CA2054280 (A1), EP0482875 (A1), US5122133 (A)

Abstract of JPH04282149 (A)

PURPOSE: To avoid the slipping of a screw by arranging a module type joint transplant body to be compressed when it is sunk. CONSTITUTION: A longitudinal cylindrical shaft member 23 having a first small diameter part, a circular rear end with a large diameter or a head part 20 is provided. A roughly cylindrical lug screw 31 having a lug inner through hole 28 is made slidable in the vertical direction of the shaft member in such a manner as to be telescoped into the shaft member while being mounted at an interval from the circular rear end of the shaft. The lug screw is coupled to an opening surgically formed within a bone tissue. The lug screw slides on the shaft to the maximum elongation position and the shaft member advances to the maximum diameter part so that a lug 30 reaches the bottom and not further extends to obtain a compression weight. Thus, as this screw device 10 extends to the maximum within a surgical opening, a compression load works to cross a broken part.

Espacenet

Bibliographic data: JP2017148558 (A) — 2017-08-31

SURGICAL TOOL

Inventor(s): KIRK L JENSEN; JOSEPH P IANNOTTI; LAURENT ZANCHIN; ANDERS EKELUND; MATTHEW T STONE; JEREMIAH M LEWIS; SARAH ANTHONY; JACK F LONG; DIDIER PONCET; DAVID M WARLOP; CHAD LAWRENCE; SCOTT A LUBENSKY ± (ジェンセン・カーク・エル, ; イアンノッチ・ジョセフ・ピー, ; ザンキーン・ローラン, ; エーケルンド・アンデシュ, ; ストーン・マシュー・ティー, ; ルイス・ジェレミア・エム, ; アンソニー・サラ, ; ロング・ジャック・エフ, ; ポンセ・ディディエ, ; ワーロップ・デビッド・エム, ; ローレンス・チャド, ; ルベンスキー・スコット・エイ)

Applicant(s): DEPUY SYNTHES PRODUCTS LLC ± (デピュイ・シンセス・プロダクツ・インコーポレイテッド)

Classification: - **international:** *A61B17/56; A61F2/40*
- **cooperative:** A61B17/15 (EP, CN, US); A61B17/16 (CN, US); A61B17/1604 (EP, CN, US); A61B17/1684 (EP, CN, US); A61B17/1739 (EP, CN, US); A61B17/1778 (EP, US); A61B17/32053 (CN, US); A61B90/06 (EP, US); A61B90/50 (US); A61F2/4003 (EP, CN, US); A61F2/4014 (CN, US); A61F2/4612 (EP, CN, US); A61F2/4637 (EP, CN, US); A61F2/4684 (EP, CN, US); A61B17/842 (EP, CN, US); A61B2090/034 (EP, US); A61B2090/3945 (US); A61F2/40 (CN, US); A61F2/4603 (CN, US); A61F2002/30235 (EP, CN, US); A61F2002/30332 (EP, CN, US); A61F2002/30574 (EP, CN, US); A61F2002/30579 (EP, CN, US); A61F2002/30604 (CN, US); A61F2002/30616 (EP, CN, US); A61F2002/30772 (EP, CN, US); A61F2002/30904 (EP, CN, US); A61F2002/4007 (EP, CN, US); A61F2002/4018 (CN, US); A61F2002/4022 (CN, US); A61F2002/4029 (CN, US); A61F2002/4033 (CN, US); A61F2002/4037 (CN, US); A61F2002/4619 (EP, CN, US); A61F2002/4627 (EP, CN, US); A61F2002/4628 (EP, CN, US); A61F2002/4629 (EP, CN, US); A61F2002/4658 (CN, US); A61F2002/4681 (EP, CN, US)

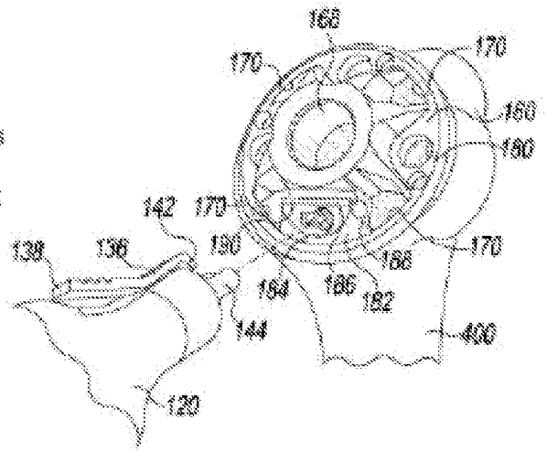
Application number: JP20170084316 20170421 Global Dossier

Priority number(s): US201261618385P 20120330 ; US201261618389P 20120330

Also published as: AU2013240341 (A1) AU2013240341 (B2) AU2017203408 (A1) AU2017203408 (B2) AU2017204607 (A1) AU2017204607 (B2) AU2017204608 (A1) AU2017204608 (B2) AU2017204609 (A1) AU2017204609 (B2) AU2017204610 (A1) AU2017204610 (B2) AU2017204612 (A1) AU2017204612 (B2) AU2017204614 (A1) AU2017204614 (B2) CN104540476 (A) CN104540476 (B) CN106308874 (A) CN106308874 (B) CN106420120 (A) CN106420120 (B) CN106667543 (A) CN106667543 (B) CN106821557 (A) CN106821557 (B) CN106821558 (A) CN106821558 (B) EP2830541 (A1) EP2830541 (A4) EP2830541 (B1) EP2959852 (A1) EP2959852 (B1) EP2959867 (A1) EP2959867 (B1) EP3075331 (A1) EP3075331 (B1) EP3146940 (A1) EP3146940 (B1) EP3248573 (A1) EP3248573 (B1) ES2598054 (T3) ES2612568 (T3) ES2674693 (T3) ES2708128 (T3) JP2015516835 (A) JP2017148557 (A) JP2017148559 (A) JP2017159071 (A) JP6138809 (B2) JP6416312 (B2) JP6416313 (B2) JP6430579 (B2) JP6466503 (B2) US10034777 (B2) US10085856 (B2) US10524931 (B2) US10632000 (B2) US10799371 (B2) US10842650 (B2) US2013261629 (A1) US2013261754 (A1) US2013261755 (A1) US2013282015 (A1) US2014188231 (A1) US2016030197 (A1) US2016038295 (A1) US2016038296 (A1) US2016038297 (A1) US2016038310 (A1) US2016058561 (A1) US2016228264 (A1) US2017172763 (A1) US2018311053 (A9) US2018344486 (A1) US2019015222 (A1) US2020253749 (A1) US2021077278 (A1) US9161843 (B2) US9320619 (B2) US9585769 (B2) US9636237 (B2) US9693880 (B2) US9700436 (B2) US9700437 (B2) US9713540 (B2) US9943419 (B2) WO2013148229 (A1) WO2013148229 (A8) less

Abstract of JP2017148558 (A)

PROBLEM TO BE SOLVED: To provide a humerus component of an orthopedic shoulder implant, and a surgical tool and a method relating thereto.SOLUTION: It is disdosed a tool 330 for surgically attaching a stemless humerus component in which a stemless humerus component 10 is provided for replacing a humerus head part of a patient's humerus, which comprises a support flange, and the support flange includes several cantilever legs 16 extending in a distal direction away from a bottom of the support flange.SELECTED DRAWING: Figure 33



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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/605,361	**03/15/2024 04:56:23 PM Z ET**	**SHOLD.013C3**

Title of Invention

TOTAL REVERSE SHOULDER SYSTEMS AND METHODS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	7877	FILED BY	Debbie Munson
PATENT CENTER #	64707369	AUTHORIZED BY	Andrew Kimmel
CUSTOMER #	20995	FILING DATE	-
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Donald E. Running

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
CARD / 3259	**E20243EG57477341**	**Amy Nguyen**

PRE-AUTHORIZED ACCOUNT	PRE-AUTHORIZED CATEGORY
111410	**37 CFR 1.16 (National application filing, search, and examination fees); 37 CFR 1.17 (Patent application and reexamination processing fees)**

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
2202	EACH CLAIM IN EXCESS OF 20	40.00	2	80.00
			TOTAL AMOUNT:	**$80.00**

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 filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

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

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

New International Application Filed with the USPTO as a Receiving Office

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

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CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Andrew Kimmel

Documents

TOTAL DOCUMENTS: 5

DOCUMENT		PAGES	DESCRIPTION	SIZE (KB)
SHOLD-013C3_PRELIMINARYAMENDMENT.pdf		7	-	37 KB
SHOLD-013C3_PRELIMINARYAMENDMENT-A.PE.pdf	(1-1)	1	Preliminary Amendment	16 KB
SHOLD-013C3_PRELIMINARYAMENDMENT-CLM.pdf	(2-4)	3	Claims	24 KB
SHOLD-013C3_PRELIMINARYAMENDMENT-DRW.NONBW.pdf	(5-5)	1	Drawings-other than black and white line drawings	15 KB
SHOLD-	(6-7)	2	Applicant Arguments/Remarks	23 KB

013C3_PRELIMINARYAMENDMENT-REM.pdf		Made in an Amendment	
SHOLD-013C3_DRAWINGS.pdf	21	Drawings-other than black and white line drawings	1054 KB

Digest

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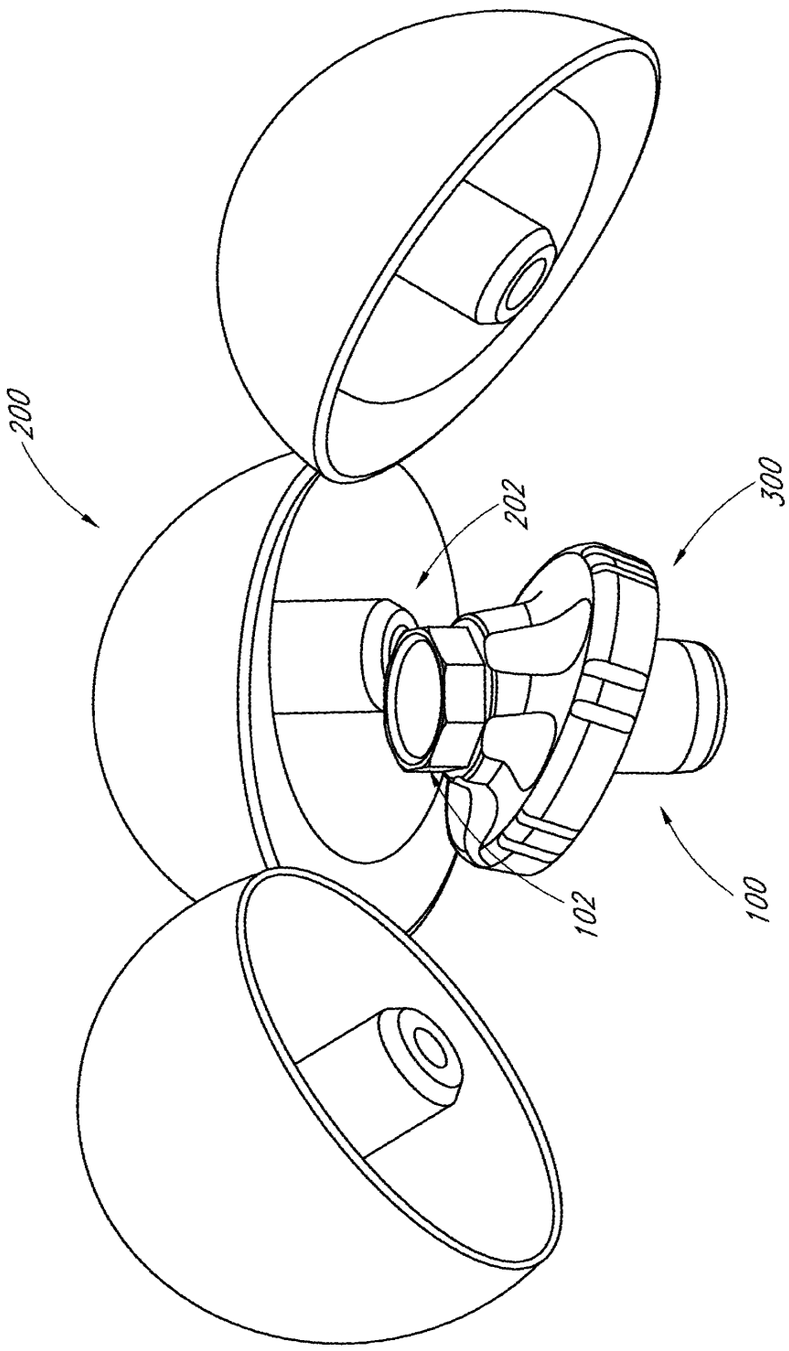


FIG. 1

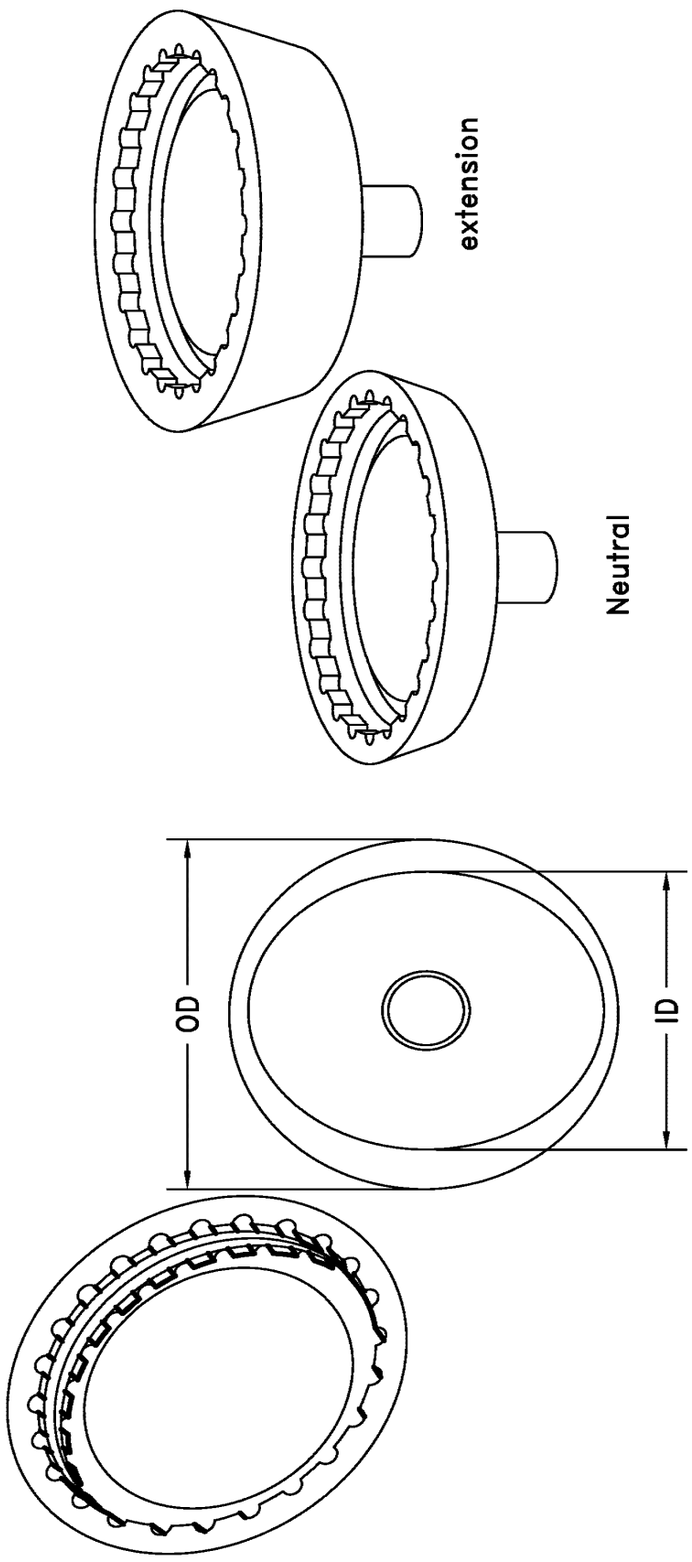


FIG. 2

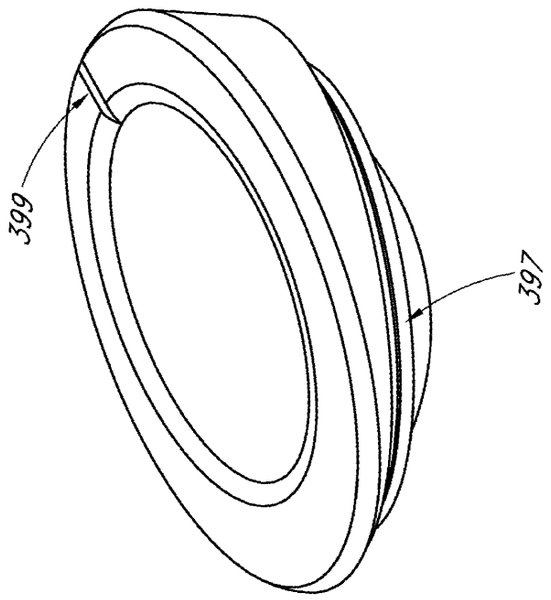
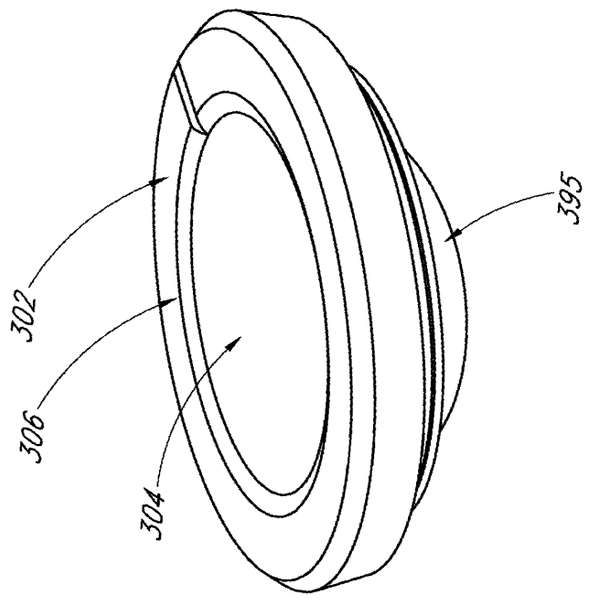


FIG. 3



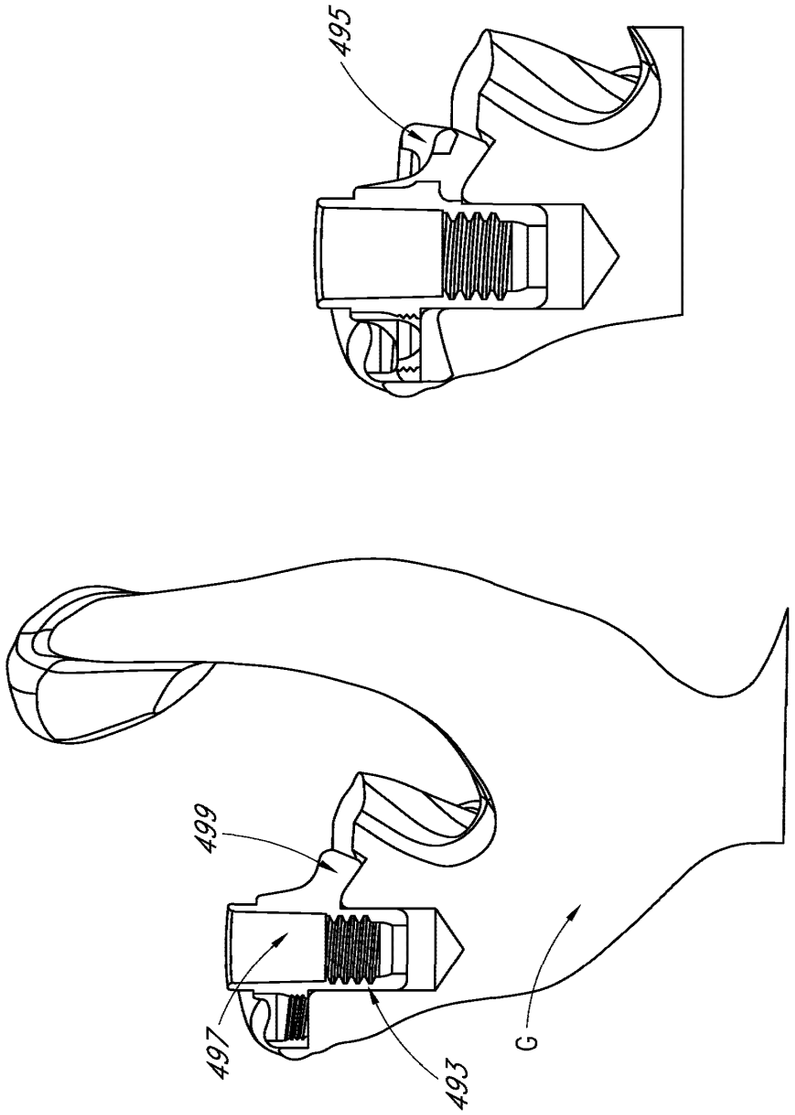


FIG. 4

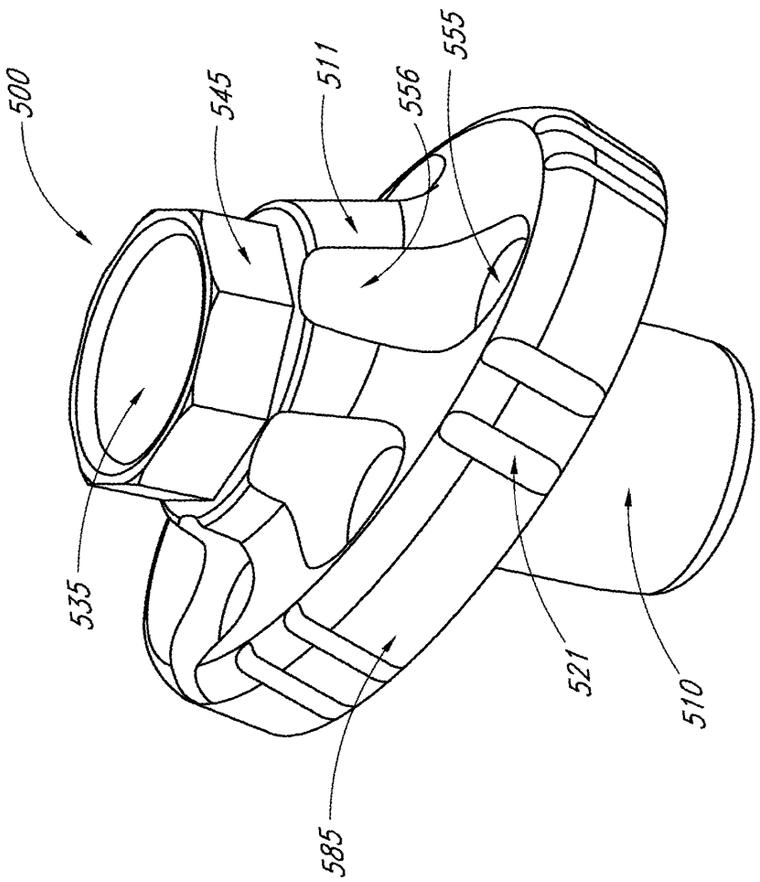
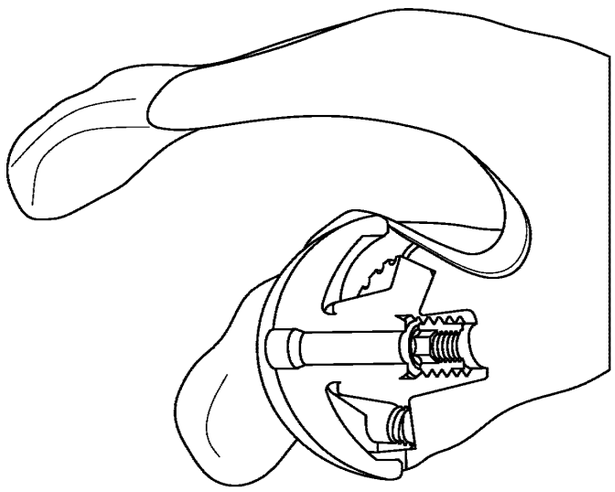


FIG. 5



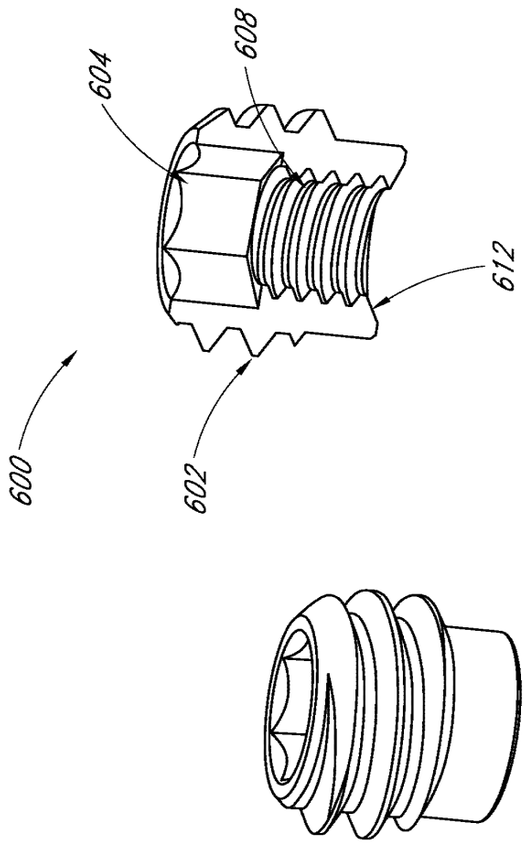


FIG. 6

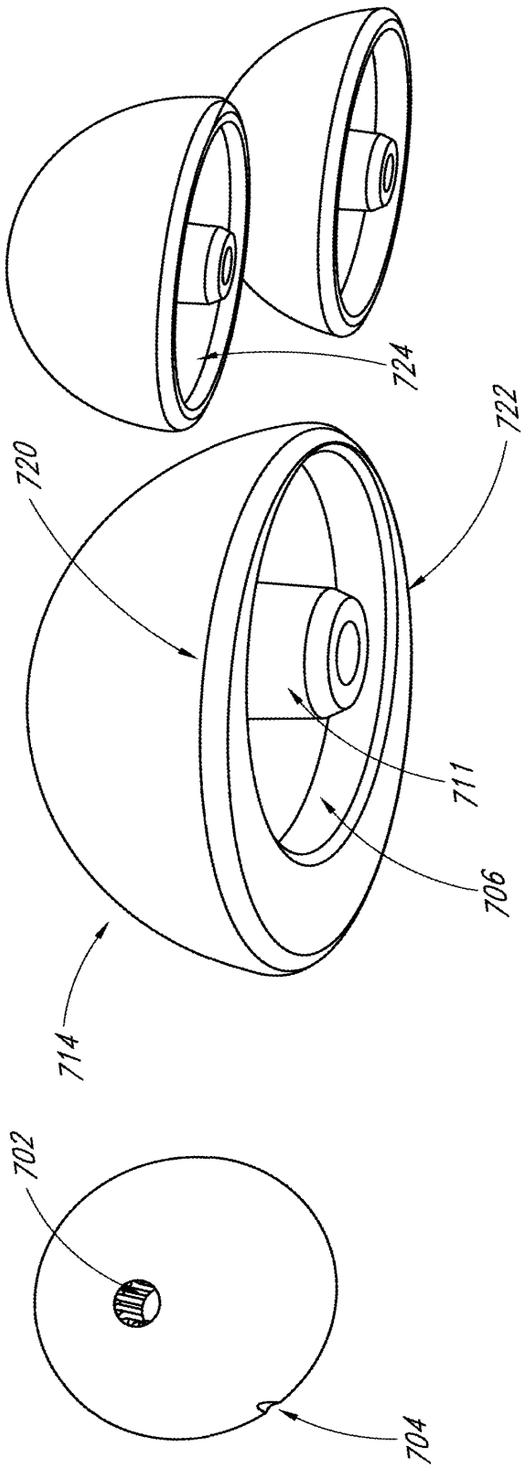


FIG. 7

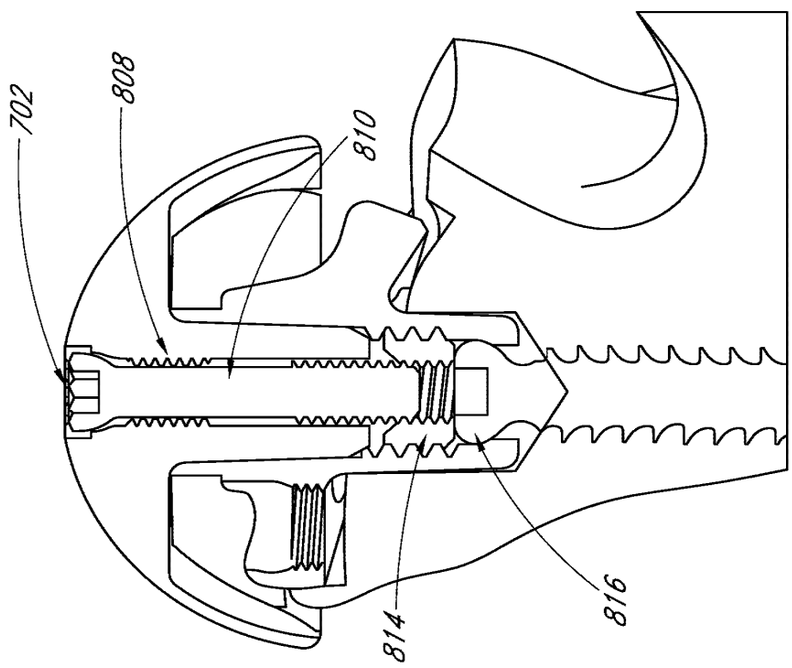


FIG. 8

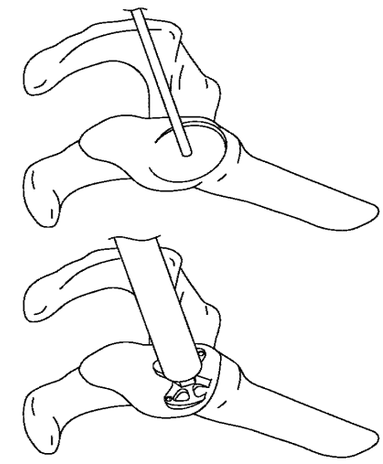


FIG. 8A

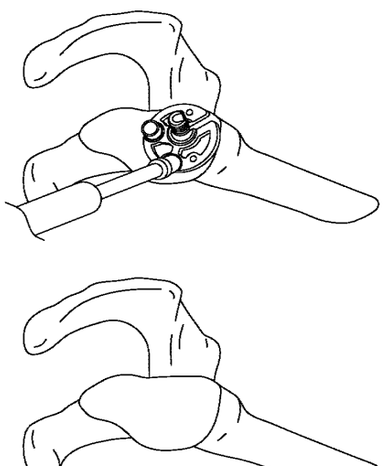


FIG. 8B

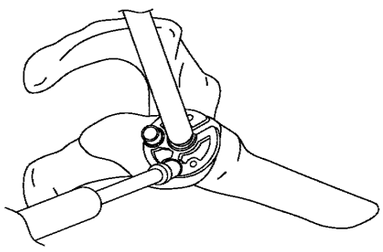


FIG. 8C

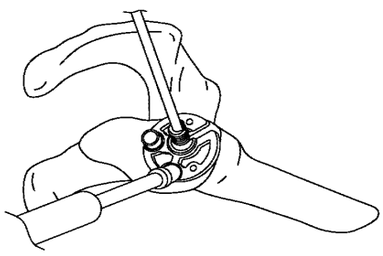


FIG. 8D

FIG. 8E

FIG. 8F

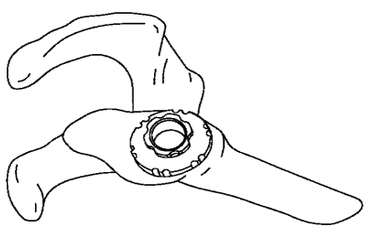


FIG. 8G

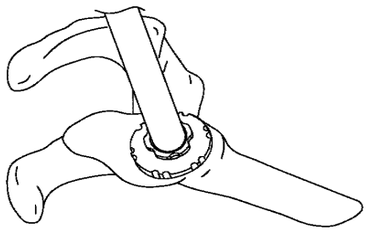


FIG. 8H

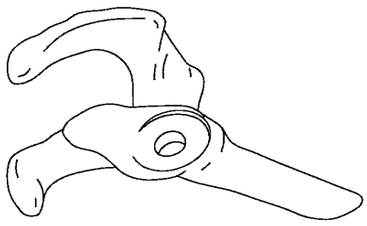


FIG. 8I

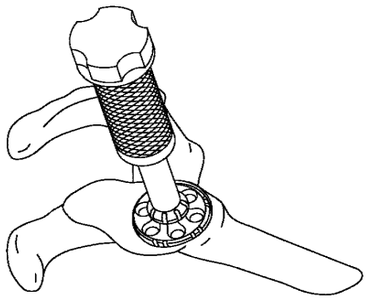


FIG. 8J

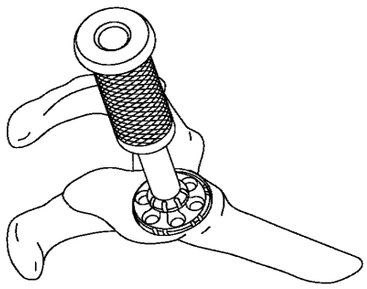


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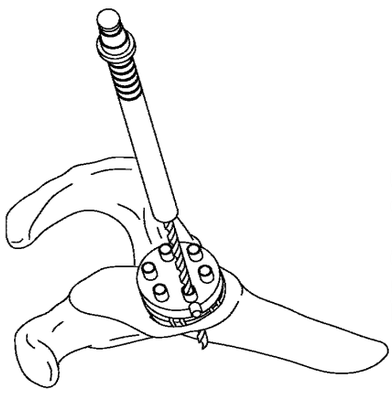


FIG. 8L

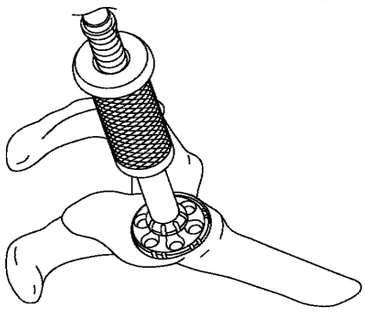


FIG. 8M

FIG. 8N

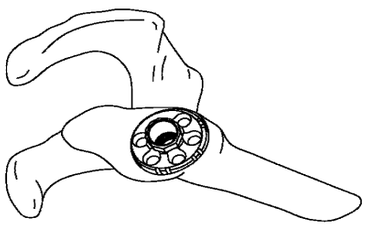


FIG. 8O

FIG. 8P

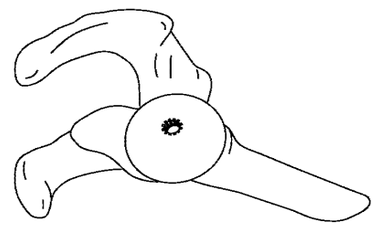


FIG. 8Q

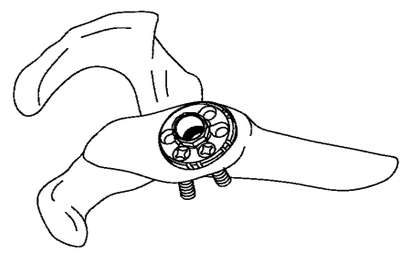


FIG. 8R

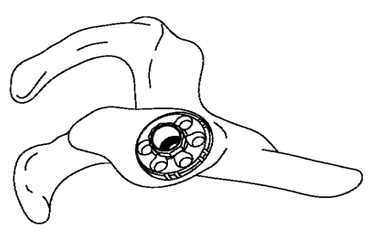


FIG. 8S

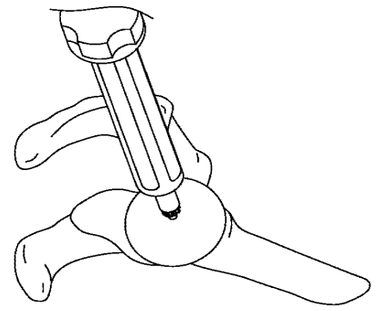


FIG. 8T

FIG. 8U

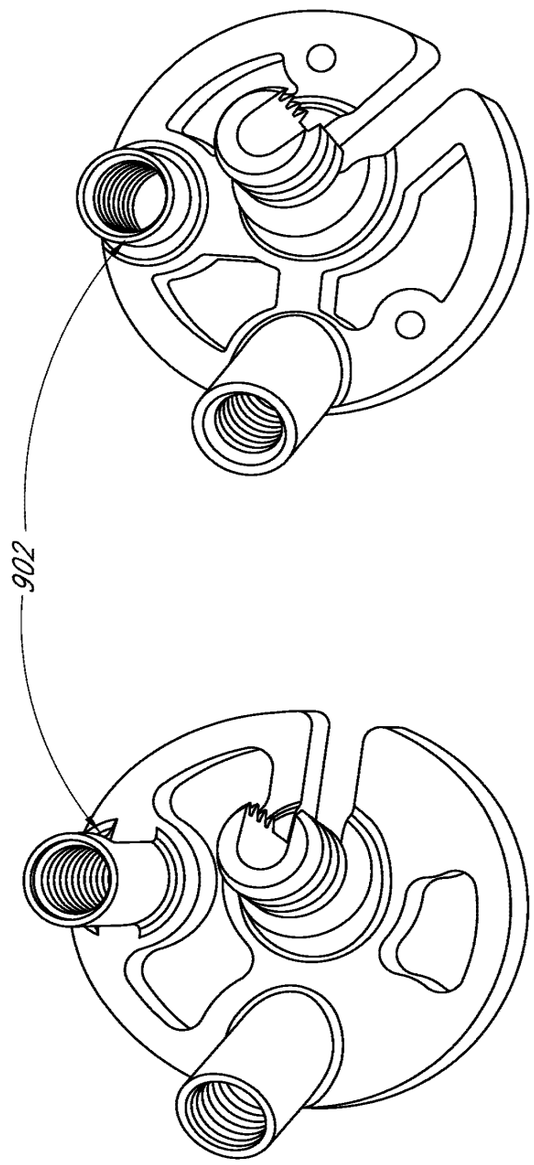


FIG. 9

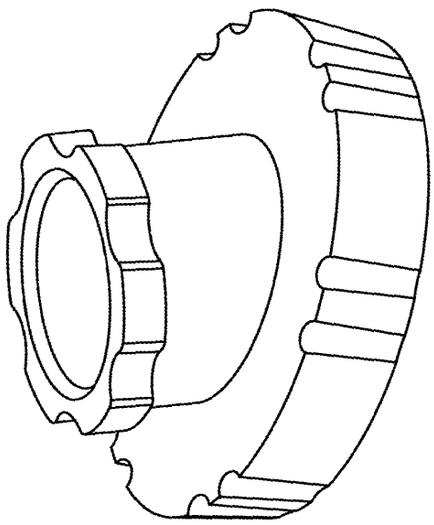


FIG. 10

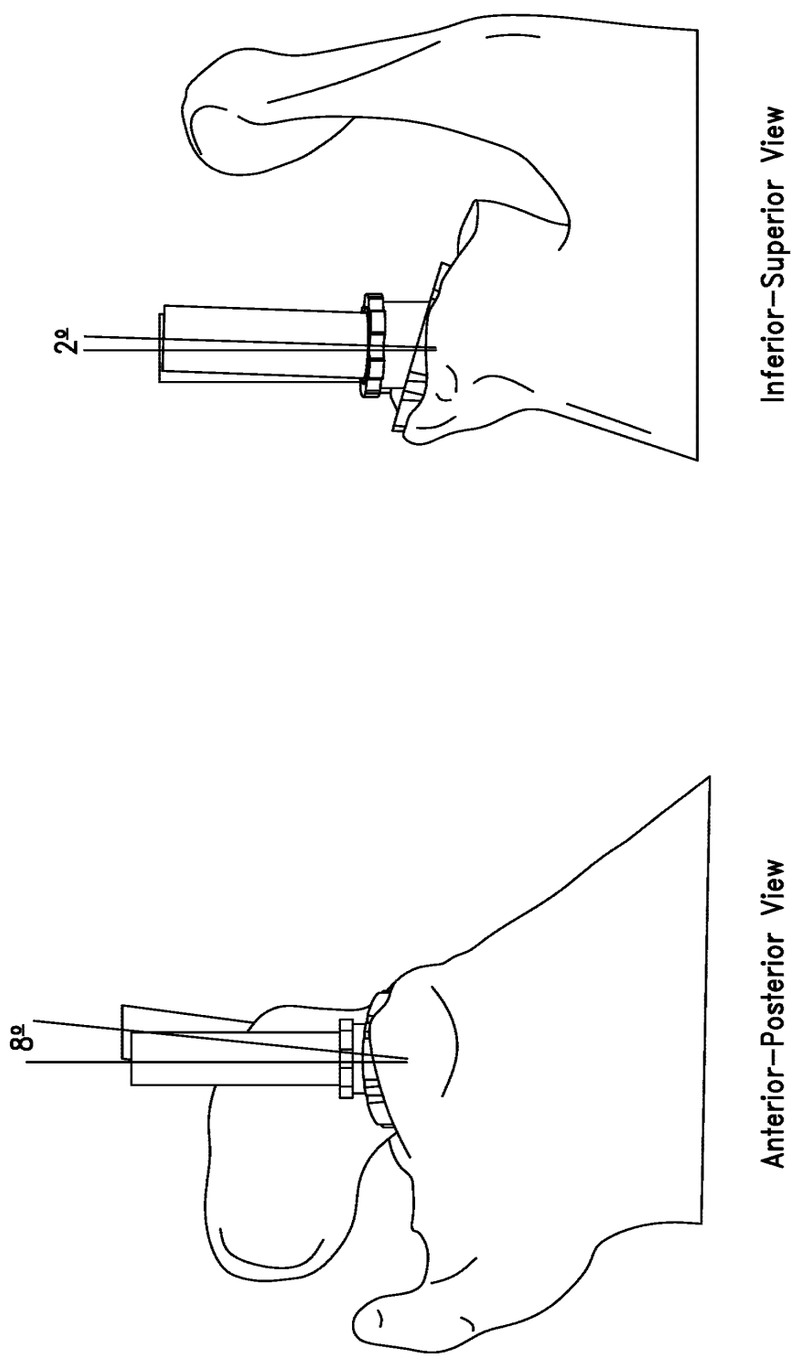
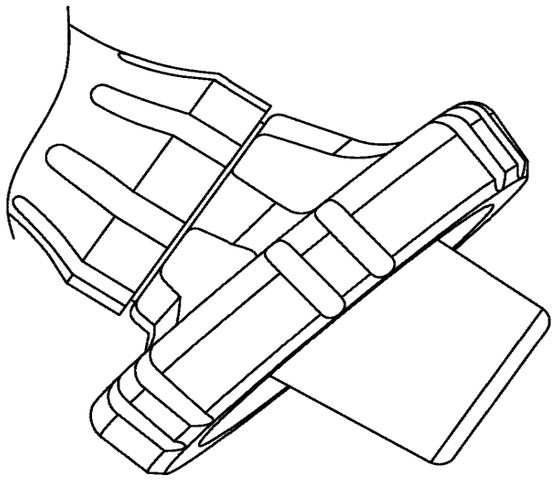


FIG. 11



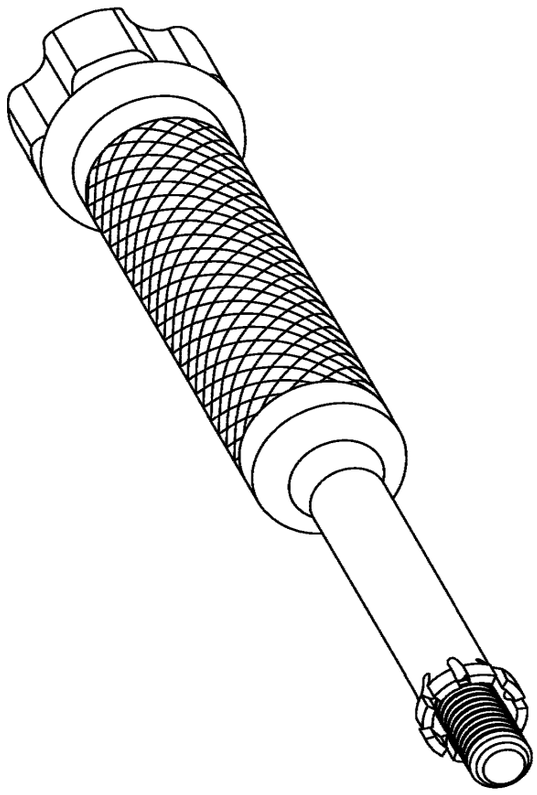


FIG. 12

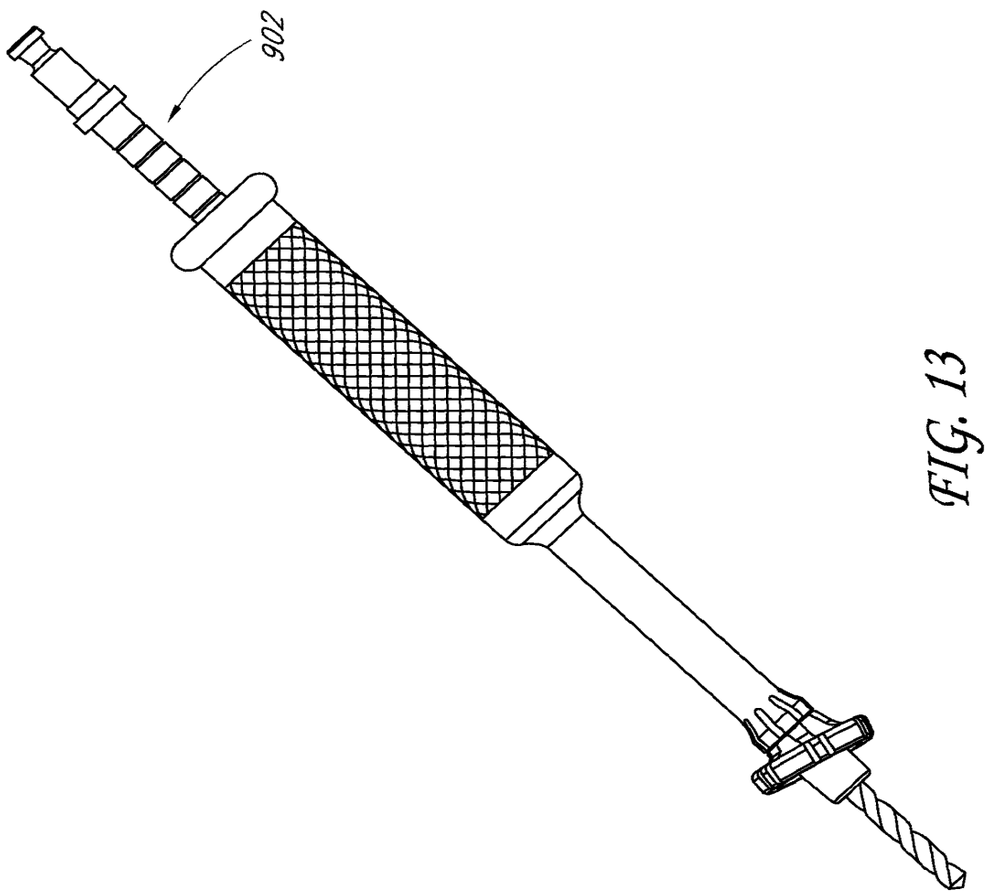
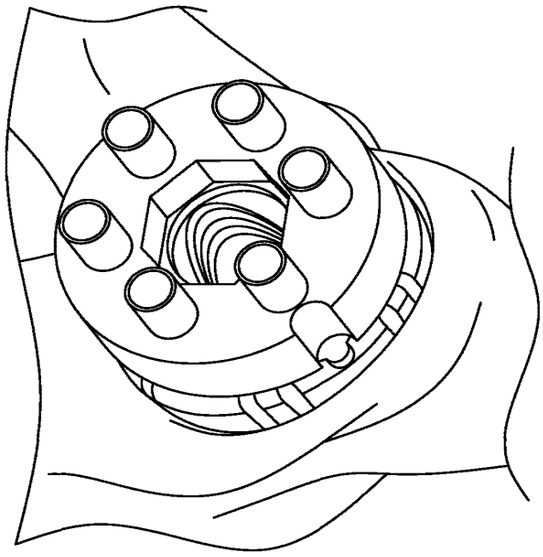


FIG. 13



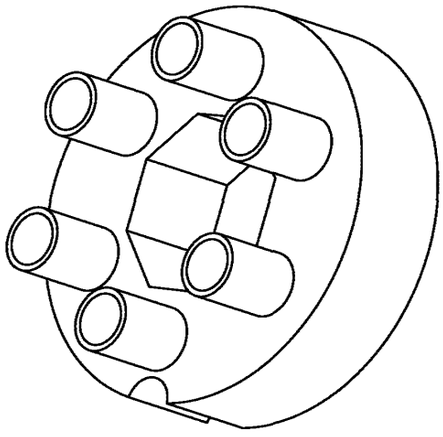


FIG. 14

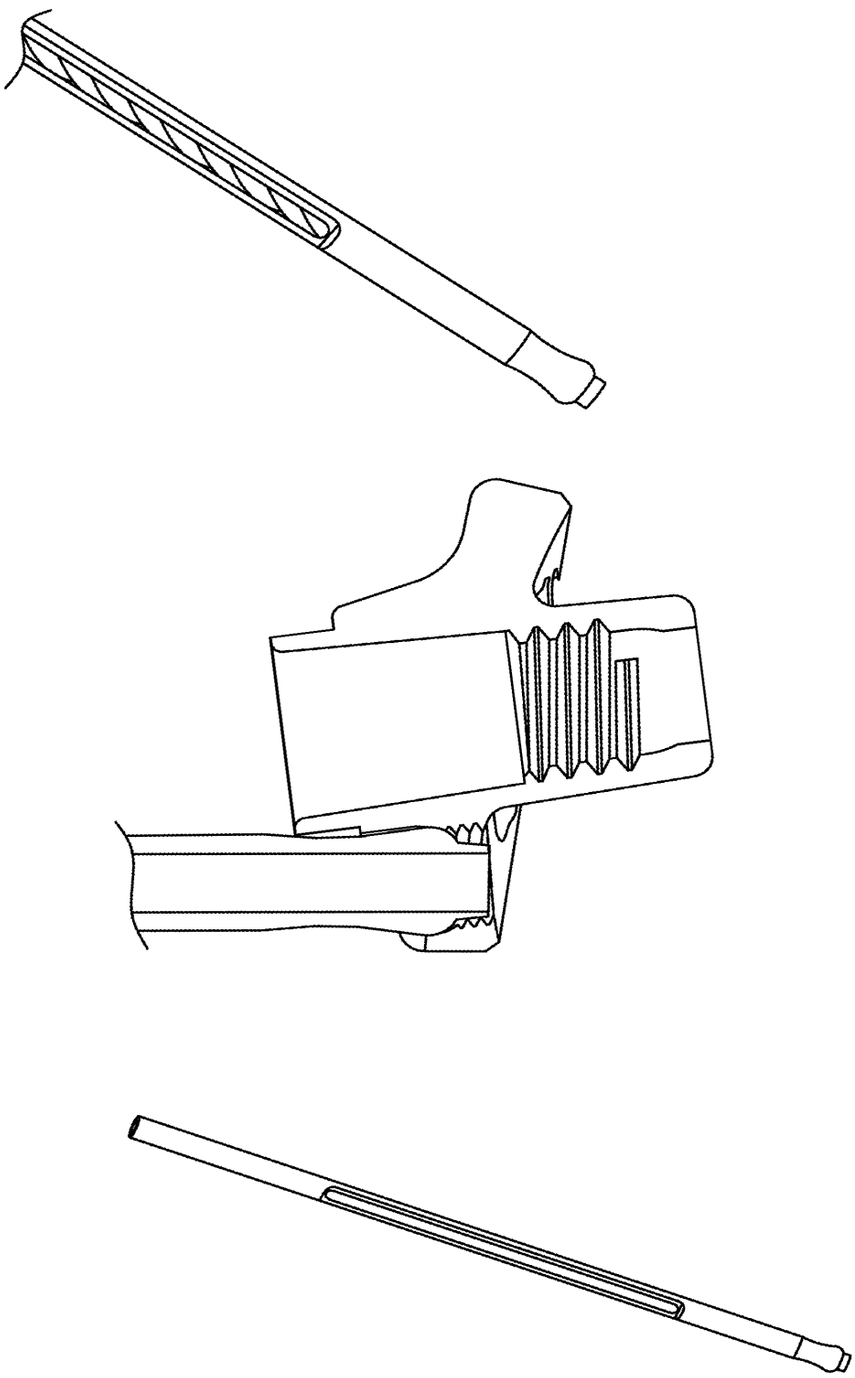


FIG. 15

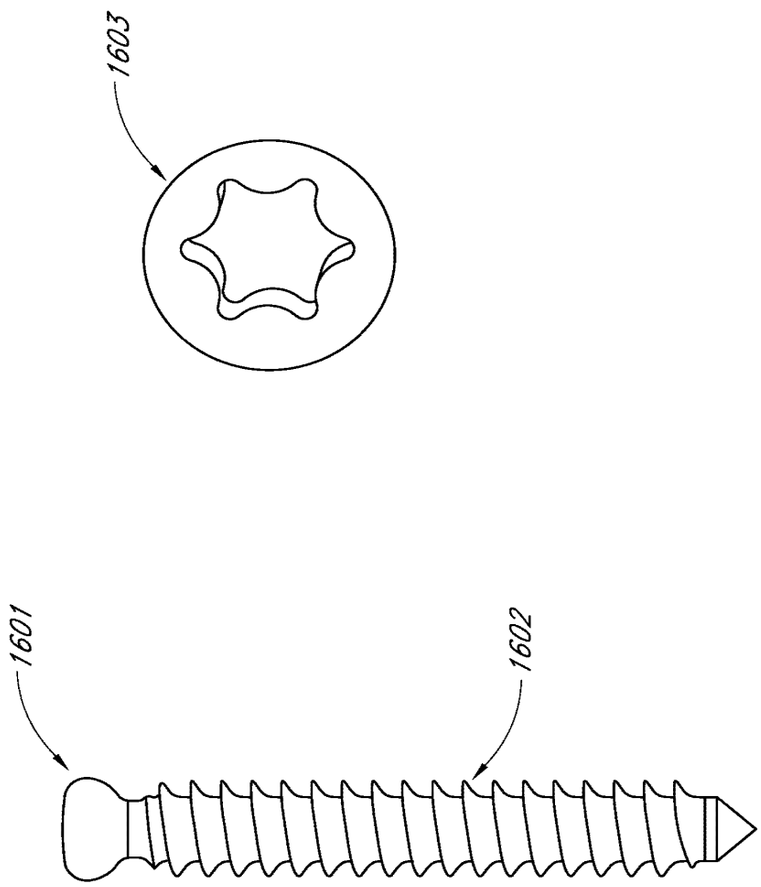


FIG. 16

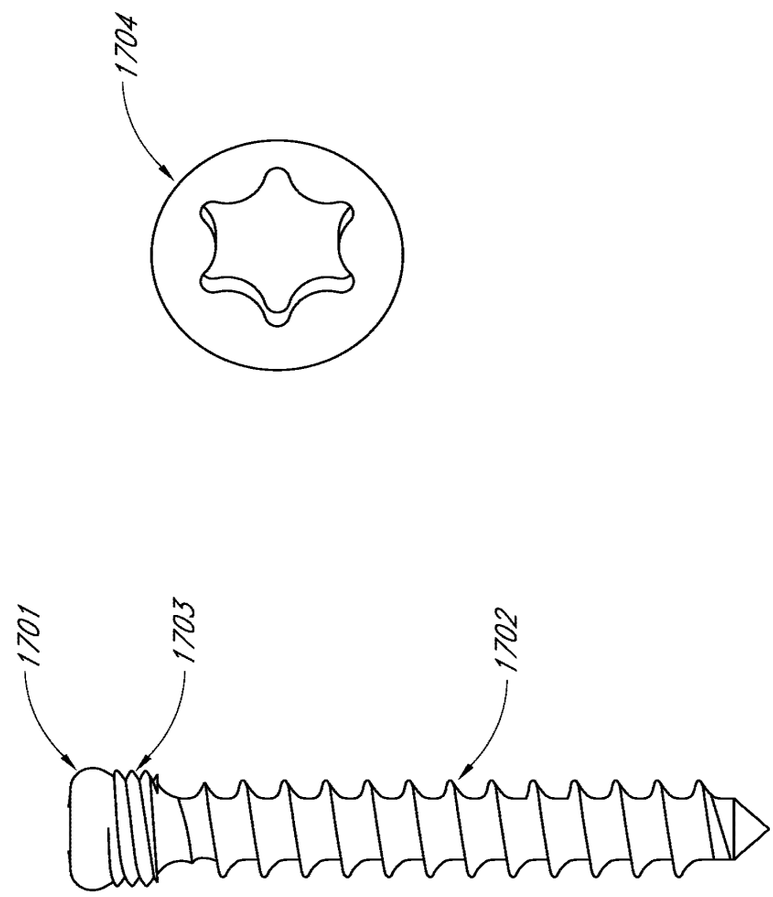


FIG. 17

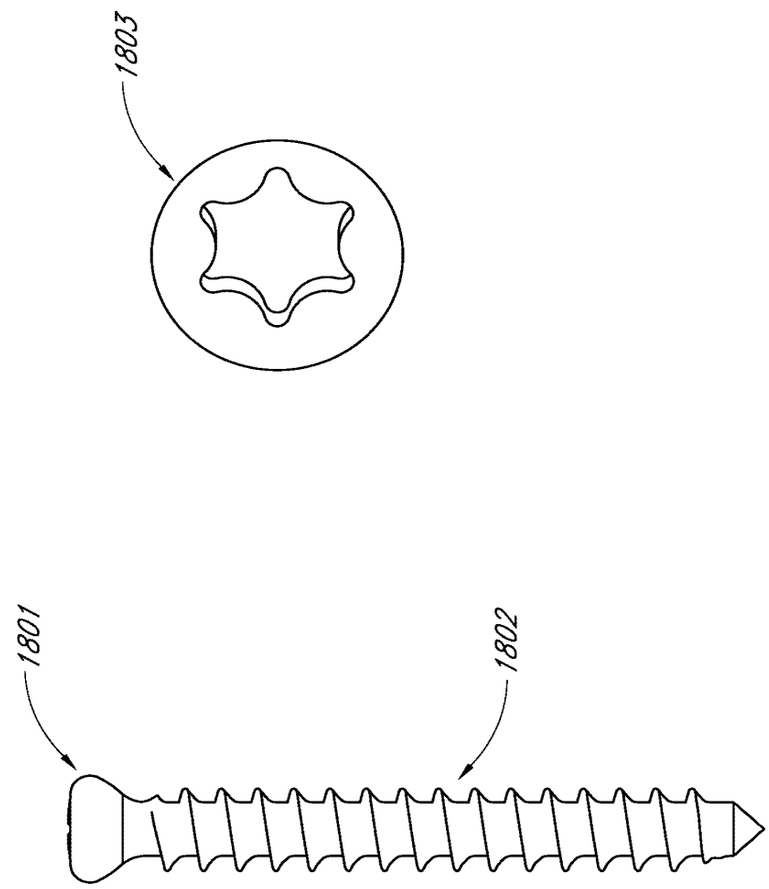


FIG. 18

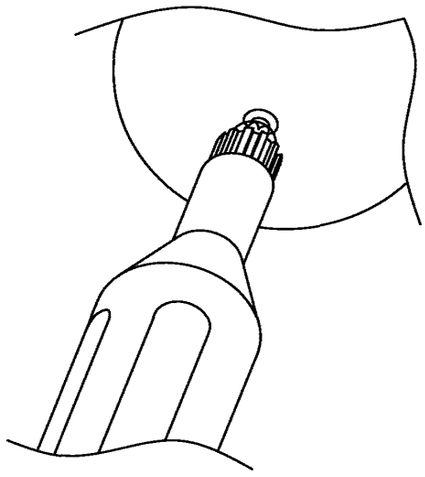
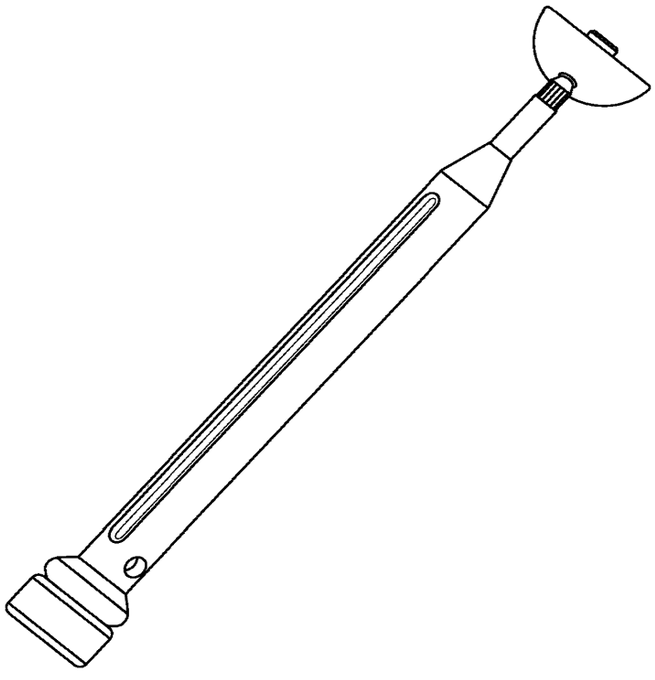


FIG.19



AMENDMENTS TO THE CLAIMS

1.-9. (**Cancelled**)

10. (**New**) A reverse shoulder implant, comprising:

a baseplate configured to be secured to a glenoid of a scapular bone of patient, the baseplate having a lateral end, a medial end, and a baseplate central channel extending through the baseplate from the lateral end to the medial end;

a central post configured to at least partially pass through the central channel;

a locking nut having a cylindrical shape, an external thread on an outside surface of the locking nut and an internal thread on an internal surface of the locking nut, the locking nut configured to engage the central post when the central post and baseplate are implanted within the medical patient, wherein the external thread is configured to couple the locking nut with the baseplate central channel;

a glenosphere, having a lateral, convex articular side, a medial side, and a glenosphere central channel extending from the convex articular side to the medial side and configured to interface with the baseplate; and

a glenosphere screw, sized to pass at least partially within the glenosphere central channel and having external threads sized to secure the glenosphere screw to the internal thread on the internal surface of the locking nut to secure the glenosphere to the locking nut.

11. (**New**) The reverse shoulder implant of Claim 10, wherein the glenosphere is configured to at least partially surround an external surface of the baseplate.

12. (**New**) The reverse shoulder implant of Claim 10, wherein the baseplate has a circular shape.

13. (**New**) The reverse shoulder implant of Claim 10, wherein the glenosphere is configured to surround the baseplate.

14. (**New**) The reverse shoulder implant of Claim 10, wherein the glenosphere is configured to be secured to the baseplate with a Morse taper.

15. (**New**) The reverse shoulder implant of Claim 10, wherein a diameter of the locking nut is greater than a length of the locking nut.

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PAGE 91

16. (**New**) The reverse shoulder implant of Claim 10, wherein the locking nut comprises a rotational control feature configured to receive a tool to enable twisting of the locking nut to secure it to the central screw.

17. (**New**) The reverse shoulder implant of Claim 10, wherein the central post has a length of about 5 mm, 5.5 mm, 6 mm, 6.5 mm, 7 mm, 7.5 mm, 8 mm, 8.5 mm, 9 mm, 9.5 mm, 10 mm, 10.5 mm, 11 mm, 11.5 mm, 12 mm, 12.5 mm, 13 mm, 13.5 mm, 14 mm, 14.5 mm, or 15 mm

18. (**New**) The reverse shoulder implant of Claim 10, wherein the central channel defines a surface integral with the central post.

19. (**New**) The reverse shoulder implant of Claim 10, wherein the central post includes a rotational control feature.

20. (**New**) The reverse shoulder implant of Claim 10, wherein the central post comprises a central channel configured to house a primary screw.

21. (**New**) A reverse shoulder implant, comprising:

a baseplate configured to be secured to a glenoid of a scapular bone of patient, the baseplate having a lateral end, a medial end, and a baseplate central channel extending through the baseplate from the lateral end to the medial end;

a central post configured to at least partially pass through the central channel;

a locking nut having a cylindrical shape, an external thread on an outside surface of the locking nut and an internal thread on an internal surface of the locking nut, the locking nut configured to engage the central post when the central post and baseplate are implanted within the medical patient, wherein the external thread is configured to engage the baseplate central channel; and

a glenosphere, having a lateral, convex articular side, a medial side, and a central channel extending from the convex articular side to the medial side and configured to interface with the baseplate; and a glenosphere screw, sized to pass at least partially within the glenosphere central channel and having external threads sized to secure the glenosphere screw to the internal thread on the internal surface of the locking nut to secure the glenosphere to the locking nut.

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PAGE 92

22. (**New**) The reverse shoulder implant of Claim 21, wherein the glenosphere is configured to at least partially surround an external surface of the baseplate.

23. (**New**) The reverse shoulder implant of Claim 21, wherein the baseplate has a circular shape.

24. (**New**) The reverse shoulder implant of Claim 21, wherein the glenosphere is configured to surround the baseplate.

25. (**New**) The reverse shoulder implant of Claim 21, wherein the glenosphere is configured to be secured to the baseplate with a Morse taper.

26. (**New**) The reverse shoulder implant of Claim 21, wherein a diameter of the locking nut is greater than a length of the locking nut.

27. (**New**) The reverse shoulder implant of Claim 21, wherein the locking nut comprises a rotational control feature configured to receive a tool to enable twisting of the locking nut to secure it to the central screw.

28. (**New**) The reverse shoulder implant of Claim 21, wherein the central post has a length of about 5 mm, 5.5 mm, 6 mm, 6.5 mm, 7 mm, 7.5 mm, 8 mm, 8.5 mm, 9 mm, 9.5 mm, 10 mm, 10.5 mm, 11 mm, 11.5 mm, 12 mm, 12.5 mm, 13 mm, 13.5 mm, 14 mm, 14.5 mm, or 15 mm

29. (**New**) The reverse shoulder implant of Claim 21, wherein the central channel defines a surface integral with the central post.

30. (**New**) The reverse shoulder implant of Claim 21, wherein the central post includes a rotational control feature.

31. (**New**) The reverse shoulder implant of Claim 21, wherein the central post comprises a central channel configured to house a primary screw.

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PAGE 93

PRELIMINARY AMENDMENT

First Inventor: Running, Donald E.	**Conf. No.:** 7877
App. No.: 18/605,361	**Filed:** March 14, 2024
Examiner: Unassigned	**Art Unit:** Unassigned
Title: TOTAL REVERSE SHOULDER SYSTEMS AND METHODS	

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

Dear Commissioner:

Prior to examination, please amend the above-captioned application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Amendments to the Drawings begin on page 5 of this paper. A "Replacement Sheet" for each sheet of drawings being amended can be found in the Appendix.

Remarks/Arguments begin on page 6 of this paper.

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CATALYST, EX-1004
PAGE 94

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Director of the United States Patent and Trademark Office

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
18/605,361	03/14/2024		744	SHOLD.013C3	22	2

CONFIRMATION NO. 7877

20995
Knobbe, Martens, Olson & Bear, LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614

FILING RECEIPT

OC000000070087718

Date Mailed: 03/25/2024

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.

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Inventor(s)

Donald E. Running, Holland, MI;
Robert J. Ball, West Olive, MI;
Jason Slone, Silver Lake, IN;

Applicant(s)

Shoulder Innovations, Inc., Grand Rapids, MI;

Power of Attorney: The patent practitioners associated with Customer Number 20995

Domestic Priority data as claimed by applicant

This application is a CON of 18/477,416 09/28/2023
which is a CON of 18/058,058 11/22/2022 PAT 11,771,561
which is a CON of 17/435,333 08/31/2021
which is a 371 of PCT/US2020/022094 03/11/2020
which claims benefit of 62/816,708 03/11/2019

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: 03/21/2024
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 18/605,361**
Projected Publication Date: 07/04/2024
Non-Publication Request: No
Early Publication Request: No
**** SMALL ENTITY ****
Title

TOTAL REVERSE SHOULDER SYSTEMS AND METHODS

Preliminary Class

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

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APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/605,361	**03/26/2024 07:28:55 PM Z ET**	**SHOLD.013C3**

Title of Invention

TOTAL REVERSE SHOULDER SYSTEMS AND METHODS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	7877	FILED BY	Rio Competente
PATENT CENTER #	64847985	FILING DATE	03/14/2024
CUSTOMER #	20995	FIRST NAMED INVENTOR	Donald E. Running
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Andrew Kimmel

Documents

TOTAL DOCUMENTS: 1

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
Corrected ADS - SHOLD.013C3.pdf	1	Application Data Sheet	33 KB

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Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
Corrected ADS - SHOLD.013C3.pdf	9144E9DF09970A811C5089B834813B31909DA0F0F571DFAB581981D0429678C96864128BB71374B71373F31EAABE1AB6D090091E1EF70FF8F23E2FDD9645DB9C

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APPLICATION DATA SHEET

Application Information

Application Number:	18/605361
Filing Date:	March 14, 2024
Title:	TOTAL REVERSE SHOULDER SYSTEMS AND METHODS
Attorney Docket Number:	SHOLD.013C3

Domestic Priority Information

Application:	**Continuity Type:**	**Parent Application:**	**Parent Filing Date:**
This Application	Continuation of	~~18/477416~~ 17/435333	~~2023-09-28~~ 2021-08-31
~~18/477416~~	~~Continuation of~~	~~18/058058~~	~~2022-11-22~~
~~18/058058~~	~~Continuation of~~	~~17/435333~~	~~2021-08-31~~
17/435333	a 371 of international	PCT/US2020/022094	2020-03-11
PCT/US2020/022094	Claims benefit of provisional	62/816708	2019-03-11

Dated: March 26, 2024

By: /Andrew I. Kimmel/
Andrew I. Kimmel
Registration No. 58,855
Registered Practitioner
Customer No. 20995
(949) 760-0404

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APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/605,361	**04/11/2024 02:18:38 PM Z ET**	**SHOLD.013C3**

Title of Invention

TOTAL REVERSE SHOULDER SYSTEMS AND METHODS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	7877	FILED BY	Rio Competente
PATENT CENTER #	65056263	FILING DATE	03/14/2024
CUSTOMER #	20995	FIRST NAMED INVENTOR	Donald E. Running
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Andrew Kimmel

Documents

TOTAL DOCUMENTS: 1

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
Request to Revisit Art - SHOLD.013C3.pdf	1	Miscellaneous Incoming Letter	16 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
Request to Revisit Art - SHOLD.013C3.pdf	63BCDE0021987BA0412964D567E0D698681056D18F0E8452AE FFB2EEB6FA32B413EE15AED8BFA0E8FACC6A728ACF68A60E 23388709402EC4F2730F61B33ACA91

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RESCISSION OF ANY PRIOR DISCLAIMERS AND REQUEST TO REVISIT ART

First Inventor: Running, Donald E.	**Conf. No.:** 7877
App. No.: 18/605361	**Filed:** March 14, 2024
Examiner: Unknown	**Art Unit:** Unknown
Title: TOTAL REVERSE SHOULDER SYSTEMS AND METHODS	

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

Dear Commissioner:

The claims of the present application are different and possibly broader in scope than the claims pursued in the parent application(s). To the extent any prior amendments or characterizations of the scope of any claim or referenced art could be construed as a disclaimer of any subject matter supported by the present disclosure, Applicant hereby rescinds and retracts such disclaimer. Accordingly, the references previously considered in the parent application(s) may need to be re-visited.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

Knobbe, Martens, Olson & Bear, LLP

Dated: April 11, 2024

By: /Andrew I. Kimmel/
Andrew I. Kimmel
Registration No. 58,855
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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/605,361	03/14/2024	Donald E. Running	SHOLD.013C3	7877

20995 7590 04/19/2024
Knobbe, Martens, Olson & Bear, LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614

EXAMINER	
CENTRAL, DOCKET	

ART UNIT	PAPER NUMBER
OPAP	

NOTIFICATION DATE	DELIVERY MODE
04/19/2024	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):

Atty.AdminCoordinator@knobbe.com
efiling@knobbe.com

Decision Granting Request for Prioritized Examination (Track I)	**Application No.** 18/605,361	**Applicant(s)** Running et al.	
	Examiner CHERYL P GIBSON BAYLOR	**Art Unit** OPET	**AIA (FITF) Status** Yes

1. THE REQUEST FILED 14 March 2024 IS **GRANTED** .

   The above-identified application has met the requirements for prioritized examination
   - A. ☑ for an original nonprovisional application (Track I).
   - B. ☐ for an application undergoing continued examination (RCE).

2. **The above-identified application will undergo prioritized examination**. The application will be accorded special status throughout its entire course of prosecution until one of the following occurs:
   - A. filing a **petition for extension of time** to extend the time period for filing a reply;
   - B. filing an **amendment to amend the application to contain more than four independent claims, more than thirty total claims** , or a multiple dependent claim;
   - C. filing a **request for continued examination** ;
   - D. filing a notice of appeal;
   - E. filing a request for suspension of action;
   - F. mailing of a notice of allowance;
   - G. mailing of a final Office action;
   - H. completion of examination as defined in 37 CFR 41.102; or
   - I. abandonment of the application.

Telephone inquiries with regard to this decision should be directed to CHERYL GIBSON BAYLOR at (571)272-3213. In his/her absence, calls may be directed to Petition Help Desk at (571) 272-3282.

/CHERYL GIBSON BAYLOR/ Paralegal Specialist, OPET	

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/605,361	**05/02/2024 05:25:56 PM Z ET**	**SHOLD.013C3**

Title of Invention

TOTAL REVERSE SHOULDER SYSTEMS AND METHODS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	7877	FILED BY	Renee Farris
PATENT CENTER #	65356520	FILING DATE	03/14/2024
CUSTOMER #	20995	FIRST NAMED INVENTOR	Donald E. Running
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Andrew Kimmel

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
SHOLD_013C3_Transmittal_2024_05_02.pdf	1	Transmittal Letter	77 KB
SHOLD_013C3_IDS_2024_05_02.pdf	1	Information Disclosure Statement (IDS) Form (SB08)	115 KB

Warning: This is not a USPTO supplied IDS fillable form. Data in the form cannot be automatically loaded to other USPTO systems.

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)

INFORMATION DISCLOSURE STATEMENT

First Inventor: Running, Donald E.	**Conf. No.:** 7877
App. No.: 18/605361	**Filed:** March 14, 2024
Examiner: Unknown	**Art Unit:** Unknown
Title: TOTAL REVERSE SHOULDER SYSTEMS AND METHODS	

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

References and Listing

Pursuant to 37 CFR 1.56, an Information Disclosure Statement listing references is provided herewith. Listed references are of record in U.S. patent application No. 18/477,416, filed September 28, 2023, which is relied upon for an earlier filing date under 35 USC 120. Copies of the references are not submitted pursuant to 37 CFR 1.98(d).

No Disclaimers or Admissions

To the extent that anything in the Information Disclosure Statement or the listed references could be construed as a disclaimer of any subject matter supported by the present application, Applicant hereby rescinds and retracts such disclaimer.

Citation of a reference within this disclosure is not, and should not be construed as, an admission that the cited reference comes from an area that is analogous or directly applicable to the claimed invention.

Timing of Disclosure

This Information Disclosure Statement is being filed before the receipt of a First Office Action on the merits, and presumably no fee is required.

If a First Office Action on the merits was issued before the mailing date of this Statement, the Commissioner is authorized to charge the fee set forth in 37 CFR 1.17(p) to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: May 2, 2024

By: /Andrew I. Kimmel/
Andrew I. Kimmel
Registration No. 58,855
Registered Practitioner
(949) 760-0404

59495420

PTO/SB/08 Equivalent

INFORMATION DISCLOSURE STATEMENT BY APPLICANT		
	Application No.	18/605361
	Filing Date	March 14, 2024
	First Named Inventor	Running, Donald E.
	Art Unit	Unknown
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 1 OF 1	Attorney Docket No.	SHOLD.013C3

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	Document Number *Number - Kind Code (if known)* Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	1	9,498,345	11-22-2016	Burkhead, Jr. et al.	
	2	9,962,265	05-08-2018	Ek et al.	
	3	11,957,595	04-16-2024	Gunther et al.	
	4	2010/0049327	02-25-2010	Isch et al.	
	5	2014/0243986	08-28-2014	Frankle	

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Document *Country Code-Number-Kind Code* Example: JP 1234567 A1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear	T[1]
	6	AU 2018251815	03-28-2024	SHOULDER INNOVATIONS, LLC		

NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[1]

59495385

Examiner Signature	Date Considered
***Examiner:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

T[1] - Place a check mark in this area when an English language Translation is attached.

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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/605,361	05/02/2024 06:41:42 PM Z ET	SHOLD.013C3

Title of Invention

TOTAL REVERSE SHOULDER SYSTEMS AND METHODS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	7877	FILED BY	Debbie Munson
PATENT CENTER #	65353255	AUTHORIZED BY	Andrew Kimmel
CUSTOMER #	20995	FILING DATE	03/14/2024
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Donald E. Running

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
DA / 111410	E202452I42185608	Andrew Kimmel

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
2814	STATUTORY DISCLAIMER, INCLUDING TERMINAL DISCLAIMER	170.00	1	170.00
			TOTAL AMOUNT:	$170.00

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 filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

New International Application Filed with the USPTO as a Receiving Office

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

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/605,361	**05/02/2024 06:41:42 PM Z ET**	**SHOLD.013C3**

Title of Invention

TOTAL REVERSE SHOULDER SYSTEMS AND METHODS

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APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	7877	FILED BY	Debbie Munson
PATENT CENTER #	65353255	FILING DATE	03/14/2024
CUSTOMER #	20995	FIRST NAMED INVENTOR	Donald E. Running
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Andrew Kimmel

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
petition-request.pdf	3	Terminal Disclaimer-Filed (Electronic)	48 KB
grantLetter.pdf	1	Terminal Disclaimer-Electronic-Approved	19 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
petition-request.pdf	89854E8C351E47714AE1DBA07ABF23C08EBF33CEAE571C9F AE10FD9C11B0BFAC0F102E09CC39B02FEEE017330FED7EA1

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TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A PRIOR PATENT

APPLICATION #	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET #
18605361	03/14/2024	Donald Running	SHOLD.013C3

Title of Invention

TOTAL REVERSE SHOULDER SYSTEMS AND METHODS

☑ Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action

☑ This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.

Owner	Percent interest
Shoulder Innovations, Inc.	100%
Total	100%

The owner(s) of percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of any patent granted on pending reference Application Number(s)

Application #	Filing Date

as the term of any patent granted on said reference application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending reference application. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and any patent granted on the reference application are commonly owned. This agreement runs with any patent granted on the

Doc code : DISQ.EFILE
Description : Electronic Terminal Disclaimer - Approved

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APPROVAL LETTER

APPLICATION #	FILING DATE	APPLICANT/PATENT UNDER REEXAMINATION
18/605,361	03/14/2024	Donald Running

Title of Invention

TOTAL REVERSE SHOULDER SYSTEMS AND METHODS

Electronic terminal disclaimer filed on 05/02/2024

☑ Approved

This patent is subject to a Terminal Disclaimer

Approved / Disapproved by: Electronic Terminal Disclaimer automatically approved

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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
18/605,361	03/14/2024	3774	744	SHOLD.013C3	22	2

CONFIRMATION NO. 7877

CORRECTED FILING RECEIPT

20995
Knobbe, Martens, Olson & Bear, LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614

OC000000072573403

Date Mailed: 05/15/2024

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)

Donald E. Running, Holland, MI;
Robert J. Ball, West Olive, MI;
Jason Slone, Silver Lake, IN;

Applicant(s)

Shoulder Innovations, Inc., Grand Rapids, MI;

Power of Attorney: The patent practitioners associated with Customer Number 20995

Domestic Priority data as claimed by applicant

This application is a CON of 17/435,333 08/31/2021
which is a 371 of PCT/US2020/022094 03/11/2020
which claims benefit of 62/816,708 03/11/2019

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: 03/21/2024

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 18/605,361**

Projected Publication Date: 07/04/2024

Non-Publication Request: No

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

TOTAL REVERSE SHOULDER SYSTEMS AND METHODS

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

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

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

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

NOT GRANTED

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

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

Notice of Allowability	**Application No.** 18/605,361	**Applicant(s)** Running et al.	
	Examiner ANN SCHILLINGER	**Art Unit** 3774	**AIA (FITF) Status** Yes

-- 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 submissions filed on 3/15/2024 and 5/2/2024.
   ☐ 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 10-31 . 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 _____.

/ANN SCHILLINGER/
Primary Examiner, Art Unit 3774

SI_0006267
CATALYST, EX-1004
PAGE 120

DETAILED ACTION

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Terminal Disclaimer

The terminal disclaimer filed on 5/2/2024 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance: the prior art fails to disclose a reverse shoulder implant, comprising: a locking nut having a cylindrical shape, an external thread on an outside surface of the locking nut and an internal thread on an internal surface of the locking nut; the locking nut engaging the central post when the central post and the baseplate are implanted within the glenoid of the scapular bone of the patient. The external thread of the locking nut couples the locking nut with the baseplate central channel. The prior art fails to disclose these structural features in conjunction with a baseplate configured to be secured to a glenoid of a scapular bone of patient, the baseplate having a lateral end, a medial end, and a baseplate central channel extending through the baseplate from the lateral end to the medial end; a central post configured to at least partially pass through the central channel; a glenosphere, having a lateral, convex articular side, a medial side, and a glenosphere central channel extending from the convex articular side to the medial side and configured to interface with the baseplate; and a glenosphere screw, sized to pass at least partially within the glenosphere central channel and having external threads sized to secure the glenosphere screw to the internal thread on the internal surface of the locking nut to secure the glenosphere to the locking nut.

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

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANN SCHILLINGER whose telephone number is (571)272-6652. The examiner can normally be reached Monday-Friday 9 a.m.-5 p.m. EST.

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, Jerrah Edwards can be reached on (408)918-7557. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ANN SCHILLINGER/
Primary Examiner, Art Unit 3774

Notice of References Cited	Application/Control No. 18/605,361	Applicant(s)/Patent Under Reexamination Running et al.	
	Examiner ANN SCHILLINGER	Art Unit 3774	Page 1 of 2

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date YYYY-MM-DD	Name	CPC Classification	US Classification
*	A	US-11771561-B2	2023-10-03	Running; Donald E.	A61F2/30749	623/19.13
*	B	US-20080294268-A1	2008-11-27	Baum; Ines	A61F2/4081	623/18.11
*	C	US-20130150972-A1	2013-06-13	Iannotti; Joseph P.	A61F2/4059	623/18.11
*	D	US-20160302934-A1	2016-10-20	CHAVARRIA; JASON M.	A61F2/40	1/1
*	E	US-9283083-B2	2016-03-15	Winslow; Nathan A.	A61F2/4014	1/1
*	F	US-9114017-B2	2015-08-25	Lappin; Kyle E.	A61F2/4603	1/1
*	G	US-7766969-B2	2010-08-03	Justin; Daniel F.	A61F2/389	623/20.15
*	H	US-20070179624-A1	2007-08-02	Stone; Kevin T.	A61F2/4081	623/22.36
*	I	US-20070156246-A1	2007-07-05	Meswania; Jayantilal Mohanlal	A61F2/40	623/19.12
*	J	US-6953478-B2	2005-10-11	Bouttens; Denis	A61F2/4081	623/23.11
*	K	US-10357373-B2	2019-07-23	Gargac; Shawn M.	A61F2/4081	1/1
*	L	US-20040199260-A1	2004-10-07	Pope, Bill J.	A61F2/442	623/23.5
*	M	US-5702447-A	1997-12-30	Walch; Gilles	A61F2/4081	606/327

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date YYYY-MM-DD	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 YYYY-MM-DD format are publication dates. Classifications may be US or foreign.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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NOTICE OF ALLOWANCE AND FEE(S) DUE

20995 7590 05/15/2024

Knobbe, Martens, Olson & Bear, LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614

EXAMINER	
SCHILLINGER, ANN M	
ART UNIT	PAPER NUMBER
3774	

DATE MAILED: 05/15/2024

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/605,361	03/14/2024	Donald E. Running	SHOLD.013C3	7877

TITLE OF INVENTION: TOTAL REVERSE SHOULDER SYSTEMS AND METHODS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0.00	$0.00	$480	08/15/2024

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 40% the amount of undiscounted fees, and micro entity fees are 20% the amount of undiscounted 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. 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.

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PAGE 125

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via the USPTO patent electronic filing system.

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 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. **Because electronic patent issuance may occur shortly after issue fee payment, any desired continuing application should preferably be filed prior to payment of this issue fee in order not to jeopardize copendency.**

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

20995 7590 05/15/2024

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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 the USPTO patent electronic filing system 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.
18/605,361	03/14/2024	Donald E. Running	SHOLD.013C3	7877

TITLE OF INVENTION: TOTAL REVERSE SHOULDER SYSTEMS AND METHODS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0.00	$0.00	$480	08/15/2024

EXAMINER	ART UNIT	CLASS-SUBCLASS
SCHILLINGER, ANN M	3774	623-019130

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/AIA/122 or PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1_____
2_____
3_____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document 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)

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

❑ Electronic Payment via the USPTO patent electronic filing system ❑ 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
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.

❑ Applicant asserting small entity status. See 37 CFR 1.27
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.

❑ Applicant changing to regular undiscounted fee 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. _____

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PAGE 126

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/605,361	03/14/2024	Donald E. Running	SHOLD.013C3	7877

20995 7590 05/15/2024

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EXAMINER	
SCHILLINGER, ANN M	

ART UNIT	PAPER NUMBER
3774	

DATE MAILED: 05/15/2024

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.

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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.

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https://www.govinfo.gov/content/pkg/FR-2013-03-29/pdf/2013-07341.pdf

Routine uses of the information in this record may include disclosure to:

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5) a Member of Congress submitting a request involving an individual to whom the record pertains, when the individual has requested the Member's assistance with respect to the subject matter of the record;
6) a court, magistrate, or administrative tribunal, in the course of presenting evidence, including disclosures to opposing counsel in the course of settlement negotiations;
7) the Administrator, General Services Administration (GSA), or their designee, during an inspection of records conducted by GSA under authority of 44 U.S.C. 2904 and 2906, in accordance with the GSA regulations and any other relevant (i.e., GSA or Commerce) directive, where such disclosure shall not be used to make determinations about individuals;
8) 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));
9) the Office of Personnel Management (OPM) for personnel research purposes; and
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If you do not furnish the information requested on this form, the USPTO may not be able to process and/or examine your submission, which may result in termination of proceedings, abandonment of the application, and/or expiration of the patent.

Notice of References Cited	Application/Control No. 18/605,361	Applicant(s)/Patent Under Reexamination Running et al.	
	Examiner ANN SCHILLINGER	Art Unit 3774	Page 2 of 2

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date YYYY-MM-DD	Name	CPC Classification	US Classification
*	A	US-11564802-B2	2023-01-31	Ball; Robert J.	A61F2/4637	1/1
*	B	US-9615839-B2	2017-04-11	Olson; Nicholas	A61B17/8897	1/1
*	C	US-20030163202-A1	2003-08-28	Lakin, Ryan C.	A61F2/3601	623/22.21
*	D	US-11464645-B2	2022-10-11	Cardon; Jean-Emmanuel	A61F2/30724	1/1
*	E	US-20170202674-A1	2017-07-20	Gunther; Stephen B.	A61F2/30749	1/1
*	F	US-20180078377-A1	2018-03-22	Gargac; Shawn M.	A61F2/4081	1/1
*	G	US-10925745-B2	2021-02-23	Cardon; Jean-Emmanuel	A61F2/4637	1/1
*	H	US-20200261209-A1	2020-08-20	Stchur; Robert Patrick	A61F2/0811	1/1
*	I	US-20210236292-A1	2021-08-05	Chavarria; Jason M.	A61F2/40	1/1
*	J	US-11166733-B2	2021-11-09	Neichel; Nicolas	A61B34/10	1/1
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	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date YYYY-MM-DD	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
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	S					
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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
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PTO/SB/08 Equivalent

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	18/605,361
	Filing Date	March 14, 2024
	First Named Inventor	Running, Donald E.
	Art Unit	Unknown
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 1 OF 15	Attorney Docket No.	SHOLD.013C3

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number *Number - Kind Code (if known)* Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	1	2,781,758	02-19-1957	Jacques	
	2	3,979,778	09-14-1976	Stroot	
	3	4,003,095	01-18-1977	Gristina	
	4	4,045,826	09-06-1977	Stroot	
	5	4,206,517	06-10-1980	Pappas et al.	
	6	4,261,062	04-14-1981	Amstutz et al.	
	7	4,404,693	09-20-1983	Zweymuller	
	8	4,550,450	11-05-1985	Kinnett	
	9	4,865,605	09-12-1989	Dines, et al.	
	10	4,964,865	10-23-1990	Burkhead et al.	
	11	4,986,833	01-22-1991	Worland	
	12	4,990,161	02-05-1991	Kampner	
	13	5,030,219	07-09-1991	Matsen, III, et al.	
	14	5,032,132	07-16-1991	Matsen, III, et al.	
	15	5,080,673	01-14-1992	Burkhead, et al.	
	16	5,108,440	04-28-1992	Grundei	
	17	5,282,865	02-01-1994	Dong	
	18	5,314,479	05-24-1994	Rockwood, Jr., et al.	
	19	5,314,489	05-24-1994	Hoffman et al.	
	20	5,344,458	09-06-1994	Bonutti	
	21	5,358,525	10-25-1994	Fox, et al.	
	22	5,370,694	12-06-1994	Davidson	
	23	5,437,677	08-01-1995	Shearer et al.	
	24	5,462,563	10-31-1995	Shearer, et al.	
	25	5,489,309	02-06-1996	Lackey, et al.	
	26	5,489,310	02-06-1996	Mikhail	
	27	5,507,819	04-16-1996	Wolf	
	28	5,514,184	05-07-1996	Doi	
	29	5,549,683	08-27-1996	Bonutti	

Examiner Signature	Date Considered

***Examiner:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. 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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PTO/SB/08 Equivalent

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	18/605,361
	Filing Date	March 14, 2024
	First Named Inventor	Running, Donald E.
	Art Unit	Unknown
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 2 OF 15	Attorney Docket No.	SHOLD.013C3

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number *Number - Kind Code (if known)* Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	30	5,593,448	01-14-1997	Dong	
	31	5,702,447	12-30-1997	Walch et al.	
	32	5,702,486	12-30-1997	Craig et al.	
	33	5,755,811	05-26-1998	Tanamal et al.	
	34	5,769,856	06-23-1998	Dong, et al.	
	35	5,800,551	09-01-1998	Williamson et al.	
	36	5,928,285	07-27-1999	Bigliani et al.	
	37	6,037,724	03-14-2000	Buss et al.	
	38	6,228,119	05-08-2001	Ondria, et al.	
	39	6,231,913	05-15-2001	Schwimmer et al.	
	40	6,290,726	09-18-2001	Pope, et al.	
	41	6,334,874	01-01-2002	Tornier et al.	
	42	6,364,910	04-02-2002	Shultz et al.	
	43	6,368,353	04-09-2002	Arcand	
	44	6,379,386	04-30-2002	Resch, et al.	
	45	6,458,136	10-01-2002	Allard, et al.	
	46	6,514,287	02-04-2003	Ondria, et al.	
	47	6,520,964	02-18-2003	Tallarida, et al.	
	48	6,589,281	07-08-2003	Hyde, Jr.	
	49	6,610,067	08-26-2003	Tallarida, et al.	
	50	6,620,197	09-16-2003	Maroney	
	51	6,673,115	01-06-2004	Resch, et al.	
	52	6,783,549	08-31-2004	Stone et al.	
	53	6,679,916	01-20-2004	Frankle et al.	
	54	6,679,917	01-20-2004	Ek	
	55	6,699,289	03-02-2004	Iannotti, et al.	
	56	6,709,463	03-23-2004	Pope et al.	
	57	6,712,823	03-30-2004	Grusin, et al.	
	58	6,761,740	07-13-2004	Tornier	

Examiner Signature	Date Considered
***Examiner:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

T[1] - Place a check mark in this area when an English language Translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.S./

PTO/SB/08 Equivalent

INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application No.	18/605,361
	Filing Date	March 14, 2024
	First Named Inventor	Running, Donald E.
	Art Unit	Unknown
(Multiple sheets used when necessary)	Examiner	Unknown
SHEET 3 OF 15	Attorney Docket No.	SHOLD.013C3

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number *Number - Kind Code (if known)* Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	59	6,783,549	08-31-2004	Stone, et al.	
	60	6,875,234	04-05-2005	Lipman et al.	
	61	6,953,478	10-11-2005	Bouttens et al.	
	62	7,011,686	03-14-2006	Ball et al.	
	63	7,044,973	05-16-2006	Rockwood et al.	
	64	7,238,089	07-03-2007	Tsumuraya et al.	
	65	7,238,208	07-03-2007	Camino et al.	
	66	7,294,149	11-13-2007	Hozack et al	
	67	7,320,709	01-22-2008	Felt et al.	
	68	7,329,284	02-12-2008	Maroney et al.	
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	70	7,517,364	04-14-2009	Long et al.	
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	78	8,007,538 (SHOLD.001A)	08-30-2011	Gunther	
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	80	8,048,161	11-01-2011	Guederian et al.	
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	82	8,177,786	05-15-2012	Leyden et al.	
	83	8,529,629	09-10-2013	Angibaud et al.	
	84	8,608,805	12-17-2013	Forrer et al.	
	85	8,778,028 (SHOLD.001CP1)	07-15-2014	Gunther et al.	

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	Filing Date	March 14, 2024
	First Named Inventor	Running, Donald E.
	Art Unit	Unknown
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U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	Document Number *Number - Kind Code (if known)* Example: 1,234,567 B1	Publication Date MM-DD-YYYY	Name	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	86	8,840,671	09-23-2014	Ambacher	
	87	8,870,962	10-28-2014	Roche et al.	
	88	8,920,508	12-30-2014	Iannotti et al.	
	89	8,940,054	01-27-2015	Wiley et al.	
	90	9,283,083	03-15-2016	Winslow et al.	
	91	9,381,086 (SHOLD.003A)	07-05-2016	Ries et al.	
	92	9,545,311	01-17-2017	Courtney, Jr. et al.	
	93	9,545,312	01-17-2017	Tornier et al.	
	94	9,610,166 (SHOLD.001P1C1)	04-04-2017	Gunther et al.	
	95	9,615,839	04-11-2017	Olson	
	96	9,693,784 (SHOLD.001C4)	07-04-2017	Gunther	
	97	9,867,710	01-16-2018	Dalla Pria et al.	
	98	10,143,559 (SHOLD.003C1)	12-04-2018	Ries et al.	
	99	10,357,373	07-23-2019	Gargac et al.	
	100	10,492,926 (SHOLD.006A)	12-03-2019	Gunther	
	101	10,702,390	07-07-2020	Chavarria et al.	
	102	10,779,952 (SHOLD.001P1C2)	09-22-2020	Gunther et al.	
	103	10,786,265 (SHOLD.001C5)	09-29-2020	Gunther	
	104	10,925,745	02-23-2021	Cardon et al.	
	105	11,065,125 (SHOLD.009A)	07-20-2021	Ball	
	106	11,259,931	03-01-2022	Pressacco et al.	
	107	11,464,645	10-11-2022	Cardon et al.	
	108	11,166,733	11-09-2021	Neichel et al.	
	109	11,564,802	01-31-2023	Ball et al.	

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U.S. PATENT DOCUMENTS					
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	110	11,771,561 (SHOLD.013C1)	10-03-2023	Running et al.	
	111	D 977,643 (SHOLD.014DA)	02-07-2023	Ball et al.	
	112	2001/0011192	08-02-2001	Ondria et al.	
	113	2001/0037153	11-01-2001	Rockwood, Jr., et al.	
	114	2001/0047210	11-29-2001	Wolf	
	115	2002/0055783	05-09-2002	Tallarida et al.	
	116	2002/0082702	06-27-2002	Resch et al.	
	117	2002/0087213	07-04-2002	Bertram, III	
	118	2002/0095214	07-18-2002	Hyde, Jr.	
	119	2002/0111689	08-15-2002	Hyde, Jr., et al.	
	120	2002/0138148	09-26-2002	Hyde, Jr., et al.	
	121	2003/0100952	05-29-2003	Rockwood, Jr. et al.	
	122	2003/0114933	06-19-2003	Bouttens et al.	
	123	2003/0125809	07-03-2003	Iannotti et al.	
	124	2003/0144738	07-31-2003	Rogalski	
	125	2003/0158605	08-21-2003	Tournier	
	126	2003/0163202	08-28-2003	Lakin	
	127	2003/0236572	12-25-2003	Bertram, III	
	128	2004/0002766	01-02-2004	Hunter et al.	
	129	2004/0039449	02-26-2004	Tournier	
	130	2004/0039451	02-26-2004	Southworth	
	131	2004/0059424	03-25-2004	Guederian, et al.	
	132	2004/0064187	04-01-2004	Ball, et al.	
	133	2004/0064189	04-01-2004	Maroney, et al.	
	134	2004/0064190	04-01-2004	Ball, et al.	
	135	2004/0107002	06-03-2004	Katsuya	
	136	2004/0122519	06-24-2004	Wiley et al.	
	137	2004/0122520	06-24-2004	Lipman et al.	

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U.S. PATENT DOCUMENTS					
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	138	2004/0167629	08-26-2004	Geremakis et al.	
	139	2004/0167630	08-26-2004	Rolston	
	140	2004/0193168	09-30-2004	Long et al.	
	141	2004/0193275	09-30-2004	Long et al.	
	142	2004/0193276	09-30-2004	Maroney et al.	
	143	2004/0193277	09-30-2004	Long et al.	
	144	2004/0193278	09-30-2004	Maroney et al.	
	145	2004/0199260	10-07-2004	Pope et al.	
	146	2004/0220674	11-04-2004	Pria	
	147	2004/0230311	11-18-2004	Cyprien et al.	
	148	2004/0260398	12-23-2004	Kelman	
	149	2005/0043805	02-24-2005	Chudik	
	150	2005/0049709	03-03-2005	Tornier	
	151	2005/0065612	03-24-2005	Winslow	
	152	2005/0107882	05-19-2005	Stone et al.	
	153	2005/0119531	06-02-2005	Sharratt	
	154	2005/0177241	08-11-2005	Angibaud et al.	
	155	2005/0261775	11-24-2005	Baum et al.	
	156	2005/0278030	12-15-2005	Tornier et al.	
	157	2006/0036328	02-16-2006	Parrott et al.	
	158	2006/0069443	03-30-2006	Deffenbaugh et al.	
	159	2006/0069444	03-30-2006	Deffenbaugh et al.	
	160	2006/0069445	03-30-2006	Ondrla et al.	
	161	2006/0195194 (SHOLD.001A)	08-31-2006	Gunther	
	162	2006/0200249	09-07-2006	Beguin et al.	
	163	2007/0038302	02-15-2007	Shultz et al.	
	164	2007/0050042	03-01-2007	Dietz et al.	
	165	2007/0055380	03-08-2007	Berelsman et al.	

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U.S. PATENT DOCUMENTS					
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	166	2007/0112433	05-17-2007	Frederick et al.	
	167	2007/0156246	07-05-2007	Meswania et al.	
	168	2007/0179624	08-02-2007	Stone et al.	
	169	2007/0225817	09-27-2007	Ruebelt et al.	
	170	2007/0225818	09-27-2007	Reubelt et al.	
	171	2008/0021564 (SHOLD.002A)	01-24-2008	Gunther	
	172	2008/0082175	04-03-2008	Holovacs et al.	
	173	2008/0177327	07-24-2008	Malandain et al.	
	174	2008/0234820	09-25-2008	Felt et al.	
	175	2008/0294268	11-27-2008	Baum et al.	
	176	2009/0105837	04-23-2009	LaFosse et al.	
	177	2009/0125113	05-14-2009	Guederian, et al.	
	178	2009/0228112	09-10-2009	Clark et al.	
	179	2009/0287309	11-19-2009	Walch et al.	
	180	2010/0087876 (SHOLD.001C2)	04-08-2010	Gunther	
	181	2010/0087877 (SHOLD.001C1)	04-08-2010	Gunther	
	182	2010/0114326	05-06-2010	Winslow et al.	
	183	2010/0161066	06-24-2010	Ionetti et al.	
	184	2010/0217399	08-26-2010	Groh	
	185	2010/0249938 (SHOLD.001CP1)	09-30-2010	Gunther et al.	
	186	2010/0274360 (SHOLD.002C1)	10-28-2010	Gunther	
	187	2011/0029089	02-03-2011	Giuliani et al.	
	188	2011/0106266	05-05-2011	Schwyzer et al.	
	189	2011/0112648 (SHOLD.001C3)	05-12-2011	Gunther	
	190	2011/0137424	06-09-2011	Lappin et al.	

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U.S. PATENT DOCUMENTS					
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	191	2011/0144758	06-16-2011	Deffenbaugh	
	192	2011/0276144	11-10-2011	Wirth et al.	
	193	2011/0313533 (SHOLD.002C2)	12-22-2011	Gunther	
	194	2012/0172996 (SHOLD.003A)	07-05-2012	Ries et al.	
	195	2012/0209392	08-16-2012	Angibuad et al.	
	196	2012/0239156	09-20-2012	De Wilde et al.	
	197	2013/0060346	03-07-2013	Collins	
	198	2013/0090736	04-11-2013	Katrana et al.	
	199	2013/0150972	01-13-2013	Iannotti et al.	
	200	2013/0166033 (SHOLD.001C4)	06-27-2013	Gunther	
	201	2013/0197651	08-01-2013	McDaniel et al.	
	202	2014/0025173	01-23-2014	Cardon et al.	
	203	2014/0107794	04-17-2014	Deffenbaugh et al.	
	204	2014/0253641	09-11-2014	Furuya	
	205	2014/0257499	09-11-2014	Winslow et al.	
	206	2014/0277520	09-18-2014	Chavarria et al.	
	207	2015/0105861 (SHOLD.001P1C1)	04-16-2015	Gunther et al.	
	208	2015/0223941	08-13-2015	Lang	
	209	2015/0265411	09-24-2015	Deransart et al.	
	210	2016/0045323	02-18-2016	Kovacs et al.	
	211	2016/0302934	10-20-2016	Chavarria et al.	
	212	2017/0000617 (SHOLD.003C1)	01-05-2017	Ries et al.	
	213	2017/0056187	03-02-2017	Humphrey et al.	
	214	2017/0071749	03-16-2017	Lappin et al.	
	215	2017/0202674 (SHOLD.001P1C2)	07-20-2017	Gunther et al.	

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	216	2017/0273806	09-28-2017	Cardon et al.	
	217	2017/0304063	10-26-2017	Hatzidakis et al.	
	218	2017/0360456 (SHOLD.001C5)	12-21-2017	Gunther	
	219	2018/0071104	03-15-2018	Kovacs et al.	
	220	2018/0078377	03-22-2018	Gargac et al.	
	221	2018/0161169	06-14-2018	Cardon et al.	
	222	2018/0193150	07-12-2018	Winslow et al.	
	223	2018/0200067	07-19-2018	Axelso, Jr. et al.	
	224	2018/0243102	08-30-2018	Burkhead, Jr. et al.	
	225	2018/0368982 (SHOLD.009A)	12-27-2018	Ball	
	226	2019/0336293	11-07-2019	Kehres	
	227	2020/0261209	08-20-2020	Stchur et al.	
	228	2021/0038401 (SHOLD.009NP)	02-11-2021	Ball et al.	
	229	2021/0137692	05-13-2021	Budge	
	230	2021/0137693 (SHOLD.011NP)	05-13-2021	Ball et al.	
	231	2021/0236292	08-05-2021	Chavarria et al.	
	232	2021/0244547 (SHOLD.001P1C3)	08-12-2021	Gunther et al.	
	233	2021/0251640 (SHOLD.001C6)	08-19-2021	Gunther	
	234	2021/0338446 (SHOLD.009C1)	11-04-2021	Ball	
	235	2022/0151795 (SHOLD.013NP)	05-19-2022	Running et al.	
	236	2022/0175543 (SHOLD.009C2)	06-09-2022	Ball	
	237	2022/0175544 (SHOLD.009NPC1)	06-09-2022	Ball et al.	

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	238	2023/0078024 (SHOLD.001P1C4)	03-16-2023	Gunther et al.	
	239	2023/0080207 (SHOLD.001P1C5)	03-16-2023	Gunther et al.	
	240	2023/0081505 (SHOLD.001C7)	03-16-2023	Gunther	
	241	2023/0090753 (SHOLD.013C1)	03-23-2023	Running et al.	
	242	13/018,341 (SHOLD.001C3)	01-31-2011	Gunther	
	243	13/088,976 (SHOLD.002C2)	04-18-2011	Gunther	
	244	16/701118 (SHOLD.006C1)	12-02-2019	Gunther	
	245	18/058,058 (SHOLD.013C1)	11-22-2022	Running et al.	
	246	29/870,666 (SHOLD.014DD1)	02-01-2023	Ball et al.	
	247	18/477,416 (SHOLD.013C2)	09-28-2023	Running et al.	
	248	4,012,796	03-22-1977	Weisman et al.	
	249	4,698,063	10-06-1987	Link et al.	
	250	4,700,660	10-20-1987	Levchenko et al.	
	251	4,783,192	01-08-1988	Wroblewski et al.	
	252	4,827,919	05-09-1989	Barbarito et al.	
	253	4,908,036	03-13-1990	Link et al.	
	254	5,281,226	01-25-1994	Davydov et al.	
	255	5,480,450	01-02-1996	James et al.	
	256	5,507,748	04-16-1996	Sheehan et al.	
	257	5,746,771	05-05-1998	Clement, Jr. et al.	
	258	6,019,766	02-01-2000	Ling et al.	
	259	7,261,741	08-28-2007	Weisman et al.	
	260	7,753,959	07-13-2010	Berelsman et al.	

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	261	8,303,665	11-06-2012	Tornier et al.	
	262	8,721,726	05-13-2014	Capon et al.	
	263	9,114,017	08-25-2015	Lappin	
	264	10,034,753	07-31-2018	Dressler et al.	
	265	10,722,373	07-28-2020	Hodorek et al.	
	266	10,966,788	04-06-2021	Britton et al.	
	267	11,696,772 (SHOLD.001C7)	07-11-2023	Gunther	
	268	2003/0033019	02-13-2003	Lob	
	269	2005/0075638	04-07-2005	Collazo	
	270	2007/0118229	05-24-2007	Bergin et al.	
	271	2009/0270866	10-29-2009	Poncet	
	272	2009/0281630	11-12-2009	Delince et al.	
	273	2013/0194353	08-01-2013	Hirai et al.	
	274	2013/0261752	10-03-2013	Lappin et al.	
	275	2016/0270922	09-22-2016	Pressacco et al.	
	276	2017/0209275	07-27-2017	Levy	
	277	2017/0056187	03-02-2017	Humphrey et al.	
	278	2018/0333268	11-22-2018	Cardon et al.	
	279	2020/0383792	12-10-2020	Cardon et al.	
	280	18/349,805 (SHOLD.001C8)	07-10-2023	Gunther	

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	281	DE 4220217	12-01-1993	S & G IMPLANTS GmbH		X
	282	DE 10164328 A1	07-17-2003	HOHMANN, ET AL.		X
	283	EP 0299889 A2	01-08-1989	GRAMMONT		
	284	EP 0339530 A2	11-02-1989	S&G IMPLANTS GMBH		

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