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Application Number: 18645596 Document Date: 04/25/2024

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Paragon 28 v. Treace Medical Concepts
PGR2026-00020
Paragon Ex. 1002

Form Revision Date: March 1, 2024

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor:	F. Barry Bays		
Application No.:	To be assigned	Group Art Unit:	To be assigned
Filed:	Herewith	Examiner:	To be assigned
Title:	TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM		

INFORMATION DISCLOSURE STATEMENT

Dear Commissioner:

Pursuant to 37 C.F.R. § 1.56, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached Form PTO/SB/08a. Copies of references not enclosed with the application can be found in Application No. 17/888,272, filed August 15, 2022; Application No. 16/448,357, filed June 21, 2019; and/or Application No. 15/236,464, filed August 14, 2016, from which the present application derives priority. In accordance with 37 C.F.R. § 1.98(d), Applicant is not enclosing additional copies of these references. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

By submitting these references, Applicant does not admit that the references are prior art to or material to this application, and reserves the right to establish that any reference is not prior art. Applicant does not represent that the references have been reviewed in detail; there may be details in the references of which Applicant is unaware.

Dated: April 24, 2024

Respectfully submitted,

FREDRIKSON & BYRON, P.A.
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/Paul J. LaVanway, Jr./

Paul J. LaVanway, Jr.
Registration No. 64,610

Please grant any extension of time necessary for entry; charge any fee due to Deposit Account No. 06-1910.

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(Not for submission under 37 CFR 1.99)

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Attorney Docket Number	71212.4.8.USC4

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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Doc Code: TRACK1.REQ
Document Description: TrackOne Request

PTO/AIA/424 (11-23)

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

First Named Inventor:	F. Barry Bays	Nonprovisional Application Number (if known):	To be assigned
Title of Invention:	TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM		

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 USPTO patent electronic filing system.

---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 USPTO patent electronic filing system.
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 /Paul J. LaVanway, Jr./	Date April 24, 2024
Name (Print/Typed) Paul J. LaVanway, Jr.	Practitioner Registration Number 64610

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.**

☑ *Total of 1 forms are submitted.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. The United States Patent and Trademark Office (USPTO) collects the information in this record under authority of 35 U.S.C. 2. The USPTO's system of records is used to manage all applicant and owner information including name, citizenship, residence, post office address, and other information with respect to inventors and their legal representatives pertaining to the applicant's/owner's activities in connection with the invention for which a patent is sought or has been granted. The applicable Privacy Act System of Records Notice for the information collected in this form is COMMERCE/PAT-TM-7 Patent Application Files, available in the Federal Register at 78 FR 19243 (March 29, 2013). 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:

1) law enforcement, in the event that the system of records indicates a violation or potential violation of law;

2) a federal, state, local, or international agency, in response to its request;

3) a contractor of the USPTO having need for the information in order to perform a contract;

4) the Department of Justice for determination of whether the Freedom of Information Act (FOIA) requires disclosure of the record;

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

10) the Office of Management and Budget (OMB) for legislative coordination and clearance.

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.

PTO/SB/08a (01-22)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	
	Filing Date	
	First Named Inventor	F. Barry Bays
	Art Unit	
	Examiner Name	
	Attorney Docket Number	71212.4.8.USC4

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	First Named Inventor	F. Barry Bays
	Art Unit	
	Examiner Name	
	Attorney Docket Number	71212.4.8.USC4

	1	Defendant Fusion Orthopedics LLC's Invalidity Contentions, No. CV-22-00490-PHX-SRB, US District Court for the District of Arizona, August 27, 2022, 41 pages.	☐
	2	Prior Art Publications, Exhibit A of Defendant Fusion Orthopedics LLC's Invalidity Contentions, No. CV-22-00490-PHX-SRB, US District Court for the District of Arizona, August 27, 2022, 3 pages.	☐
	3	Claim Chart for Fishco, "Making the Lapidus Easy," The Podiatry Institute (April 2014), Exhibit B1 of Defendant Fusion Orthopedics LLC's Invalidity Contentions, No. CV-22-00490-PHX-SRB, US District Court for the District of Arizona, August 27, 2022, 97 pages.	☐
	4	Claim Chart for Fishco, "A Straightforward Guide to the Lapidus Bunionectomy," HMP Global (September 6, 2013), Exhibit B2 of Defendant Fusion Orthopedics LLC's Invalidity Contentions, No. CV-22-00490-PHX-SRB, US District Court for the District of Arizona, August 27, 2022, 67 pages.	☐
	5	Claim Chart for Groves, "Functional Position Joint Sectioning: Pre-Load Method for Lapidus Arthrodesis," Update 2015: Proceedings of the Annual Meeting of the Podiatry Institute, Chpt. 6, pp. 23-29 (April 2015), Exhibit B3 of Defendant Fusion Orthopedics LLC's Invalidity Contentions, No. CV-22-00490-PHX-SRB, US District Court for the District of Arizona, August 27, 2022, 151 pages.	☐
	6	Claim Chart for Mote, "First Metatarsal-Cuneiform Arthrodesis for the Treatment of First Ray Pathology: A Technical Guide," The Journal Foot & Ankle Surgery (September 1, 2009), Exhibit B5 of Defendant Fusion Orthopedics LLC's Invalidity Contentions, No. CV-22-00490-PHX-SRB, US District Court for the District of Arizona, August 27, 2022, 21 pages.	☐
	7	Claim Chart for US Pat. No. 10,376,268 to Fallin et al., entitled "Indexed Tri-Planar Osteotomy Guide and Method," issued August 13, 2019, Exhibit B6 of Defendant Fusion Orthopedics LLC's Invalidity Contentions, No. CV-22-00490-PHX-SRB, US District Court for the District of Arizona, August 27, 2022, 155 pages.	☐
	8	Claim Chart for US Pat. No. 8,282,645 to Lawrence et al., entitled "Metatarsal Bone Implant Cutting Guide," issued January 18, 2010, Exhibit B7 of Defendant Fusion Orthopedics LLC's Invalidity Contentions, No. CV-22-00490-PHX-SRB, US District Court for the District of Arizona, August 27, 2022, 76 pages.	☐
	9	Claim Chart for US Pat. No. 9,452,057 to Dacosta et al., entitled "Bone Implants and Cutting Apparatuses and Methods," issued April 8, 2011, Exhibit B8 of Defendant Fusion Orthopedics LLC's Invalidity Contentions, No. CV-22-00490-PHX-SRB, US District Court for the District of Arizona, August 27, 2022, 110 pages.	☐
	10	Obviousness Chart, Exhibit C of Defendant Fusion Orthopedics LLC's Invalidity Contentions, No. CV-22-00490-PHX-SRB, US District Court for the District of Arizona, August 27, 2022, 153 pages.	☐
	11	"Foot and Ankle Instrument Set," Smith & Nephew, 2013, 2 pages.	☐

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	First Named Inventor	F. Barry Bays
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	12	"Lapidus Pearls: Gaining Joint Exposure to Decrease Non-Union," Youtube, Retrieved online from <https://www.youtube.com/watch?v=-jqJyE7pj-Y>, dated November 2, 2009, 3 pages.	☐
	13	"Reconstructive Surgery of the Foot & Ankle," The Podiatry Institute, Update 2015, Conference Program, May 2015, 28 pages.	☐
	14	"Speed Continuous Active Compression Implant," BioMedical Enterprises, Inc., A120-029 Rev. 3, 2013, 4 pages.	☐
	15	"Visionaire: Patient Matched Cutting Blocks Surgical Procedure," Smith & Nephew, Inc., 2009, 2 pages.	☐
	16	ARTHREX, "Comprehensive Foot System," Retrieved online from <https://www.arthrex.com/resources/animation/8U3iaPvY6kO8bwFAwZF50Q/comprehensive-foot-system?referringTeam=foot_and_ankle>, dated August 27, 2013, 3 pages.	☐
	17	BARAVARIAN, "Why the Lapidus Procedure is Ideal for Bunions," Podiatry Today, Retrieved online from <https://www.hmpgloballearhmpgloballe.com/site/podipodi/article/5542>, dated May 2006, 8 pages.	☐
	18	BAUER et al., "Offset-V Osteotomy of the First Metatarsal Shaft in Hallux Abducto Valgus," McGlamry's Comprehensive Textbook of Foot and Ankle Surgery, Fourth Edition, Vol. 1, Chapter 29, 2013, 26 pages.	☐
	19	COTTOM, "Fixation of the Lapidus Arthrodesis with a Plantar Interfragmentary Screw and Medial Low Profile Locking Plate," The Journal of Foot & Ankle Surgery, Vol. 51, 2012, pp. 517–522.	☐
	20	COUGHLIN, "Fixation of the Lapidus Arthrodesis with a Plantar Interfragmentary Screw and Medial Low Profile Locking Plate,"Orthopaedics and Traumatology, Vol. 7, 1999, pp. 133–143.	☐
	21	DAYTON et al., "Observed Changes in Radiographic Measurements of the First Ray after Frontal Plane Rotation of the First Metatarsal in a Cadaveric Foot Model," The Journal of Foot & Ankle Surgery, Vol. 53, 2014, pp. 274–278.	☐
	22	DAYTON et al., "Relationship of Frontal Plane Rotation of First Metatarsal to Proximal Articular Set Angle and Hallux Alignment in Patients Undergoing Tarsometatarsal Arthrodesis for Hallux Abducto Valgus: A Case Series and Critical Review of the Literature," The Journal of Foot & Ankle Surgery, 2013, Article in Press, March 1, 2013, 7 pages.	☐

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	23	DiDOMENICO et al., "Lapidus Bunionectomy: First Metatarsal-Cuneiform Arthrodesis," McGlamry's Comprehensive Textbook of Foot and Ankle Surgery, Fourth Edition, Vol. 1, Chapter 31, 2013, 24 pages.	☐
	24	FALLIN et al., US Provisional Application Entitled INDEXED TRI-PLANAR OSTEOTOMY GUIDE AND METHOD, US Pat. App. No. 62/118,378, filed February 19, 2015, 62 pages.	☐
	25	FISHCO, "A Straightforward Guide To The Lapidus Bunionectomy,"Podiatry Today, Retrieved online from <https://www.hmpgloballearningnetwork.com/site/podiatry/blogged/straightforward-guide-lapidus-bunionectomy>, dated September 6, 2013, 5 pages.	☐
	26	FISHCO, "Making the Lapidus Easy," The Podiatry Institute, Update 2014, Chapter 14, 2014, pp. 91–93.	☐
	27	FLEMING et al., "Results of Modified Lapidus Arthrodesis Procedure Using Medial Eminence as an Interpositional Autograft," The Journal of Foot & Ankle Surgery, Vol. 50, 2011, pp. 272–275.	☐
	28	FUHRMANN, "Arthrodesis of the First Tarsometatarsal Joint for Correction of the Advanced Splayfoot Accompanied by a Hallux Valgus," Operative Orthopadie und Traumatologie, No. 2, 2005, pp. 195–210.	☐
	29	GERARD et al., "The Modified Lapidus Procedure," Orthopedics, Vol. 31, No. 3, March 2008, 7 pages.	☐

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

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

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Filing Date	
	First Named Inventor	F. Barry Bays
	Art Unit	
	Examiner Name	
	Attorney Docket Number	71212.4.8.USC4

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Paul J. LaVanway, Jr./	Date (YYYY-MM-DD)	2024-04-24
Name/Print	Paul J. LaVanway, Jr.	Registration Number	64610

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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

Title of Invention	TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

As the below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application, or

☒ United States application or PCT international application number 15/236,464

filed on August 14, 2016

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

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

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

WARNING:

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

LEGAL NAME OF INVENTOR

Inventor: F. Barry Bays Date (Optional): _____

Signature: F. Barry Bays

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

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

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☐ The attached application, or

☒ United States application or PCT international application number 15/236,464 filed on August 14, 2016.

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LEGAL NAME OF INVENTOR

Inventor: Robert D. Santrock Date (Optional): 11/3/16

Signature: 

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

Title of Invention	TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

As the below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application, or

☒ United States application or PCT international application number 15/236,464

filed on August 14, 2016.

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

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

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

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LEGAL NAME OF INVENTOR

Inventor: Paul Dayton Date (Optional): 10/31/16

Signature:

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LEGAL NAME OF INVENTOR

Inventor: Daniel J. Hatch Date (Optional): 9/7/16

Signature: _____

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LEGAL NAME OF INVENTOR

Inventor: W. Bret Smith Date (Optional): _____

Signature: _____

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LEGAL NAME OF INVENTOR

Inventor: Carlos Eduardo Gil Date (Optional): 10/19/16

Signature:

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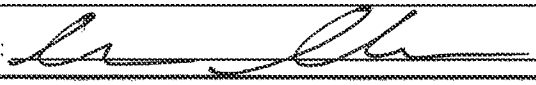
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LEGAL NAME OF INVENTOR

Inventor: Sean F. Scanlan Date (Optional): 10/18/2016

Signature: 

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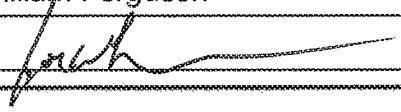
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LEGAL NAME OF INVENTOR

Inventor: Joe William Ferguson Date (Optional): 10/18/16

Signature: 

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LEGAL NAME OF INVENTOR

Inventor: John T. Treace Date (Optional): 10/19/16

Signature: John T. Treace

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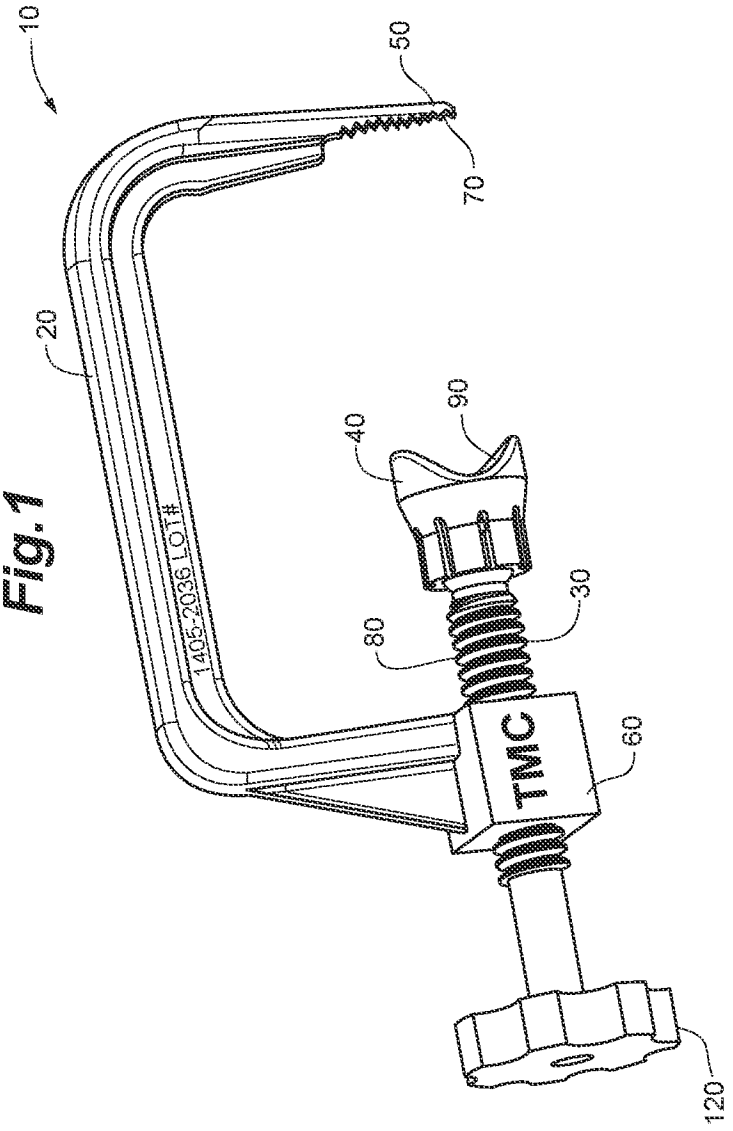
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The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Fig.1



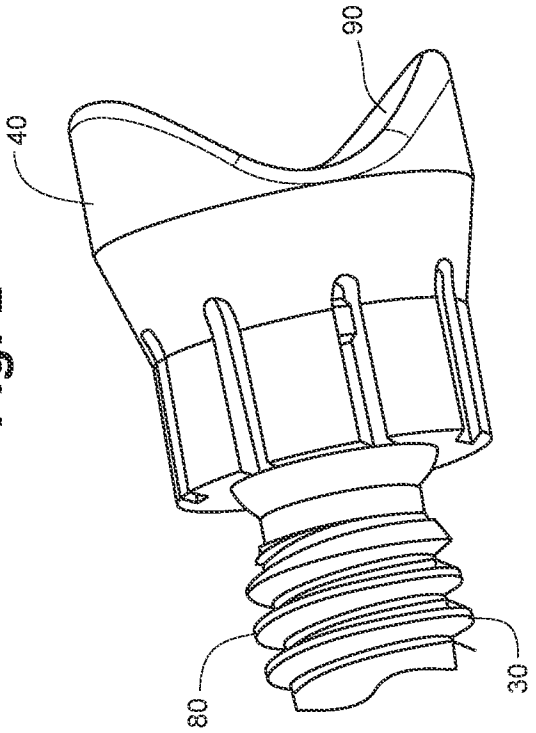


Fig. 2

Fig. 3A

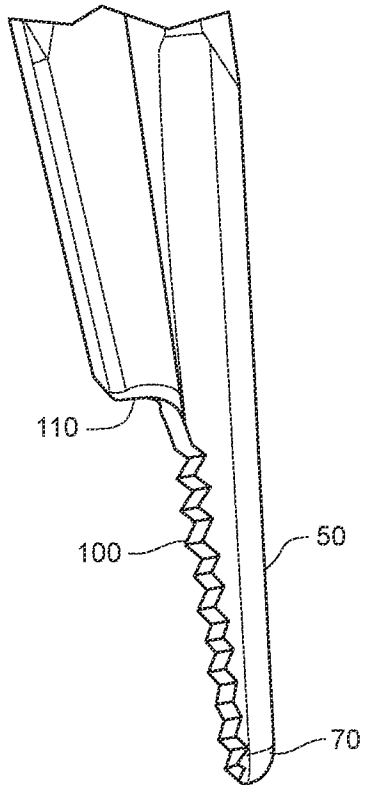


Fig. 3B

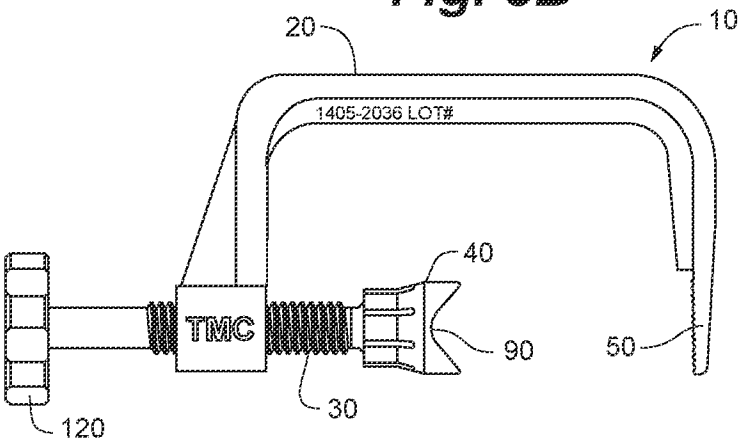

20
10
1405-2036 LOT#
40
TMC
90
50
30
120

Fig. 3C

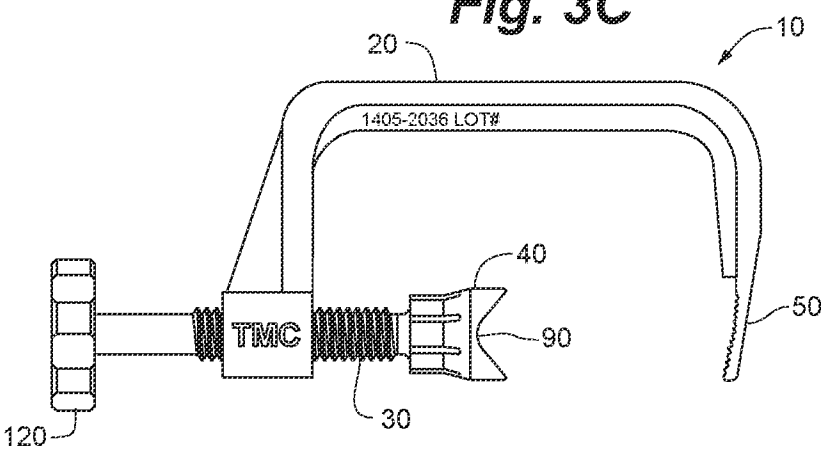

20
10
1405-2036 LOT#
40
TMC
90
50
30
120

Fig. 4

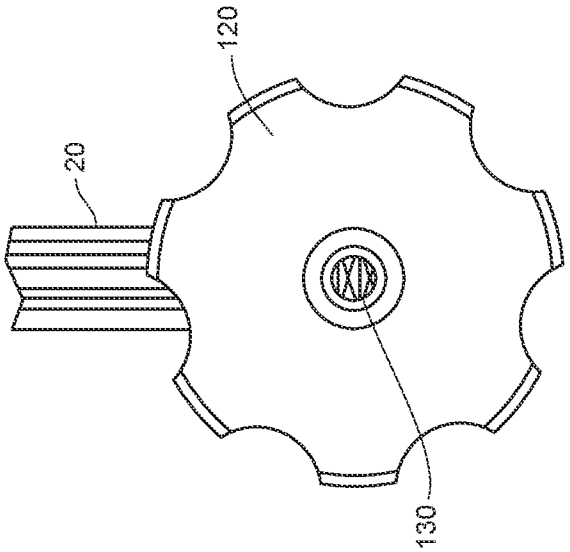


Fig. 5

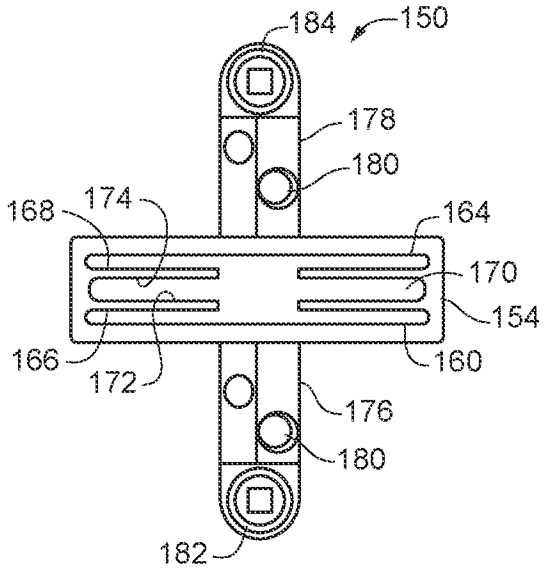
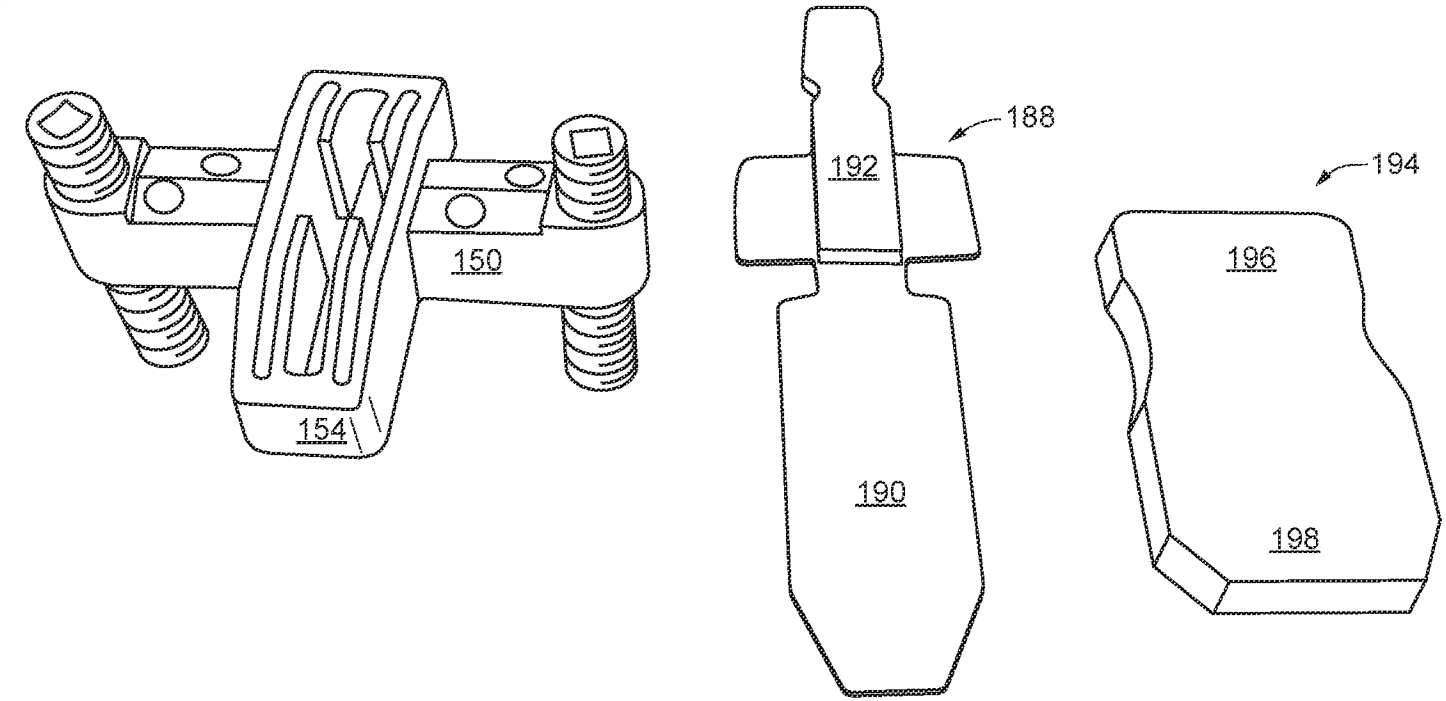


Fig. 6A



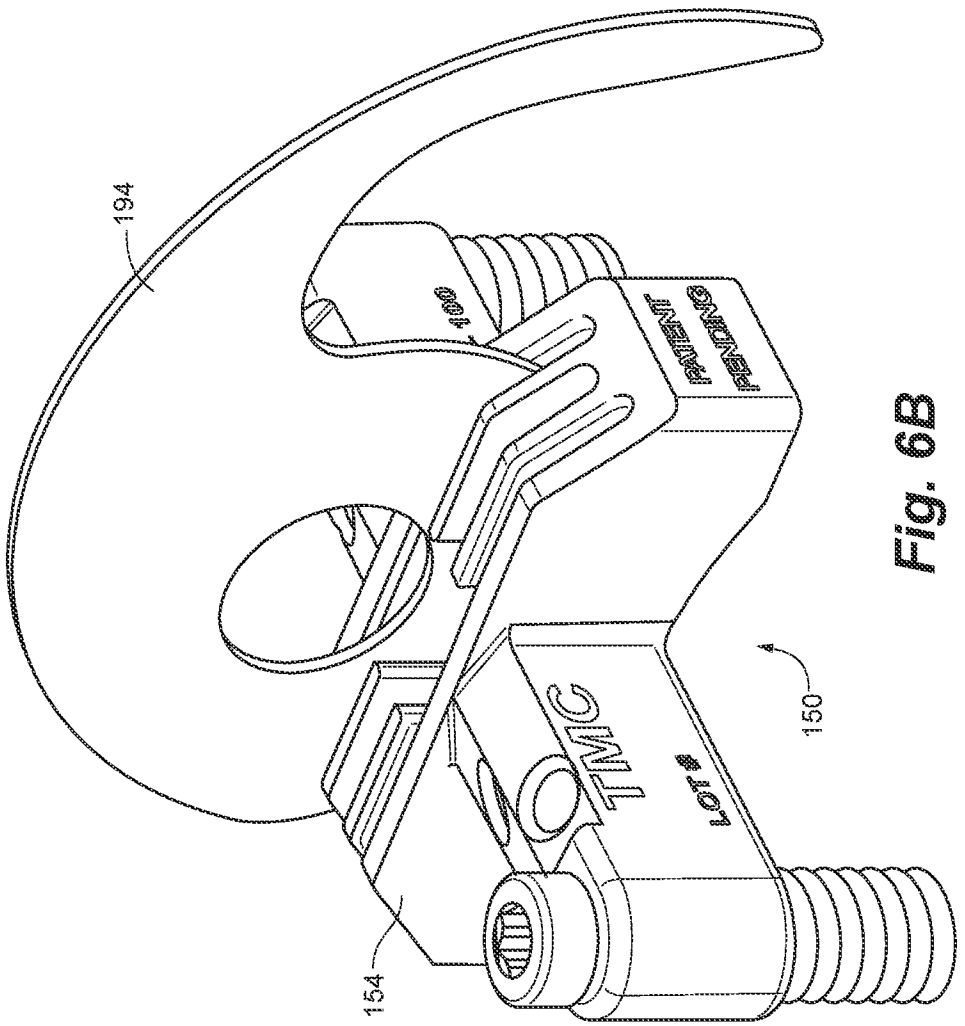


Fig. 6B

Fig. 7

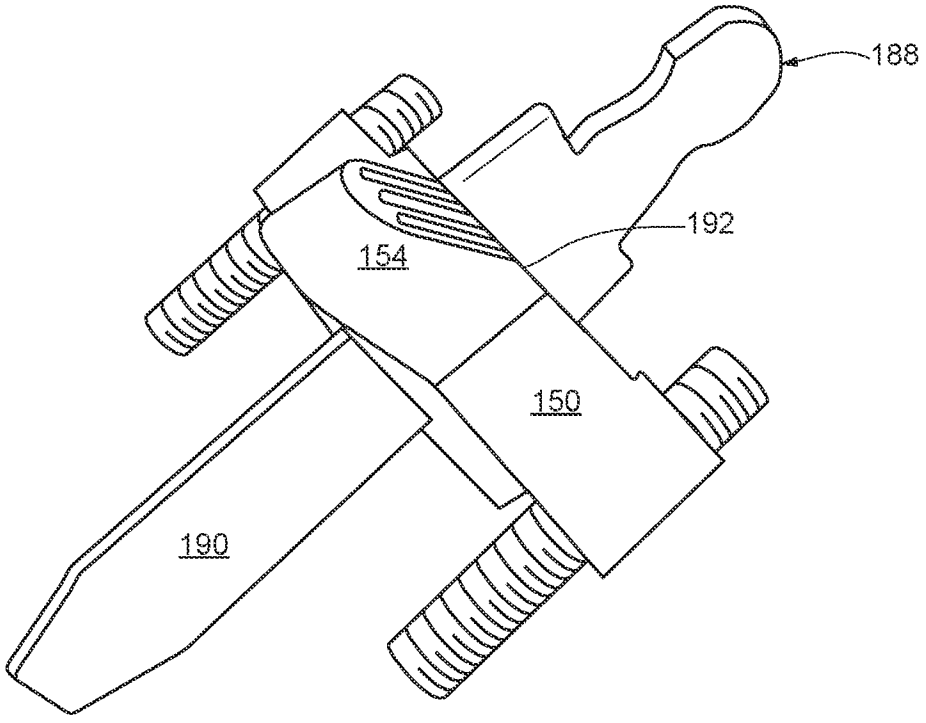


Fig. 8

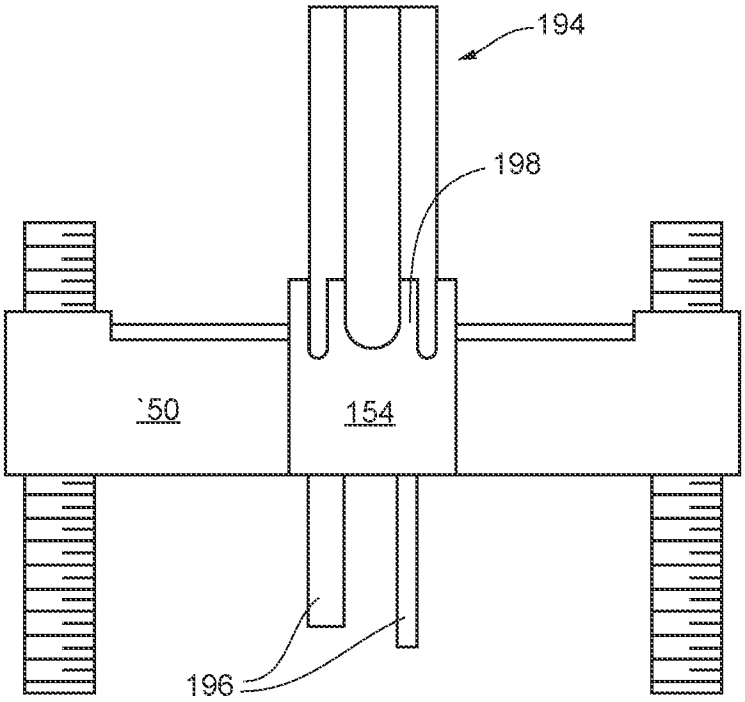


Fig. 9A

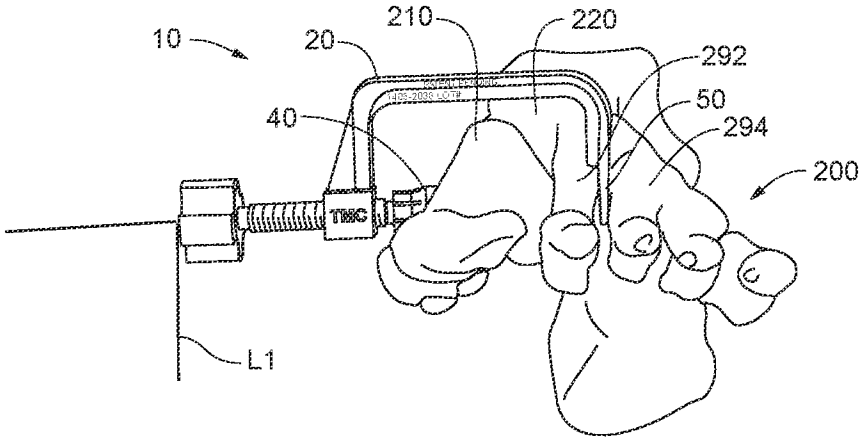

10
20
210
220
292
50
294
40
200
L1

Fig. 9B

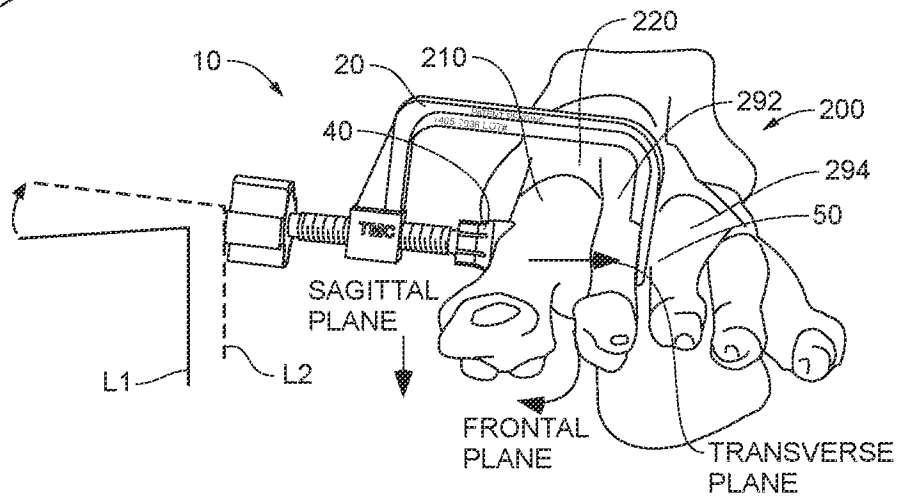

10
20
210
220
292
200
40
294
50
SAGITTAL PLANE
L1
L2
FRONTAL PLANE
TRANSVERSE PLANE

Fig. 10A

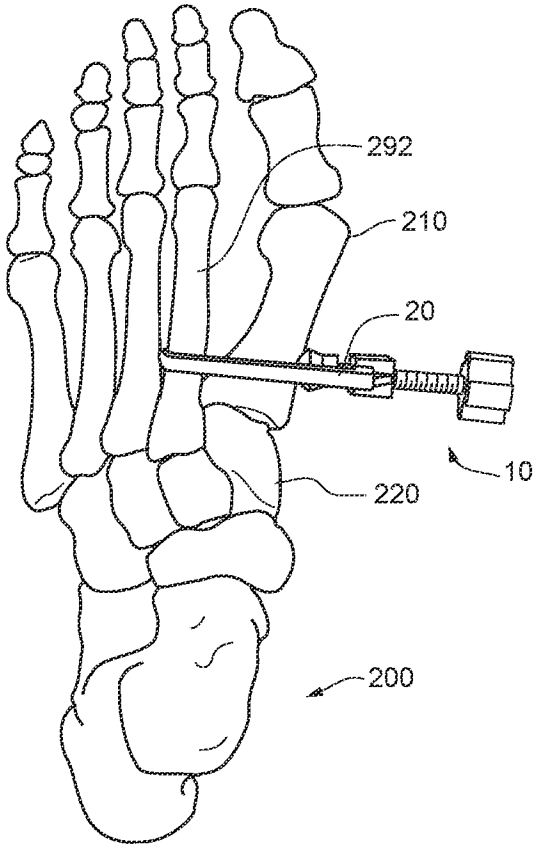


Fig. 10B

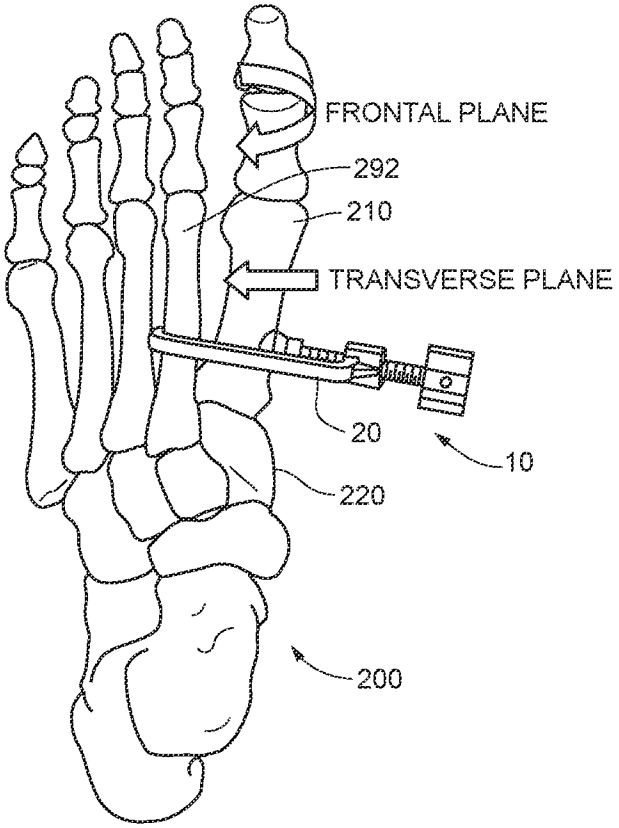


Fig. 11a

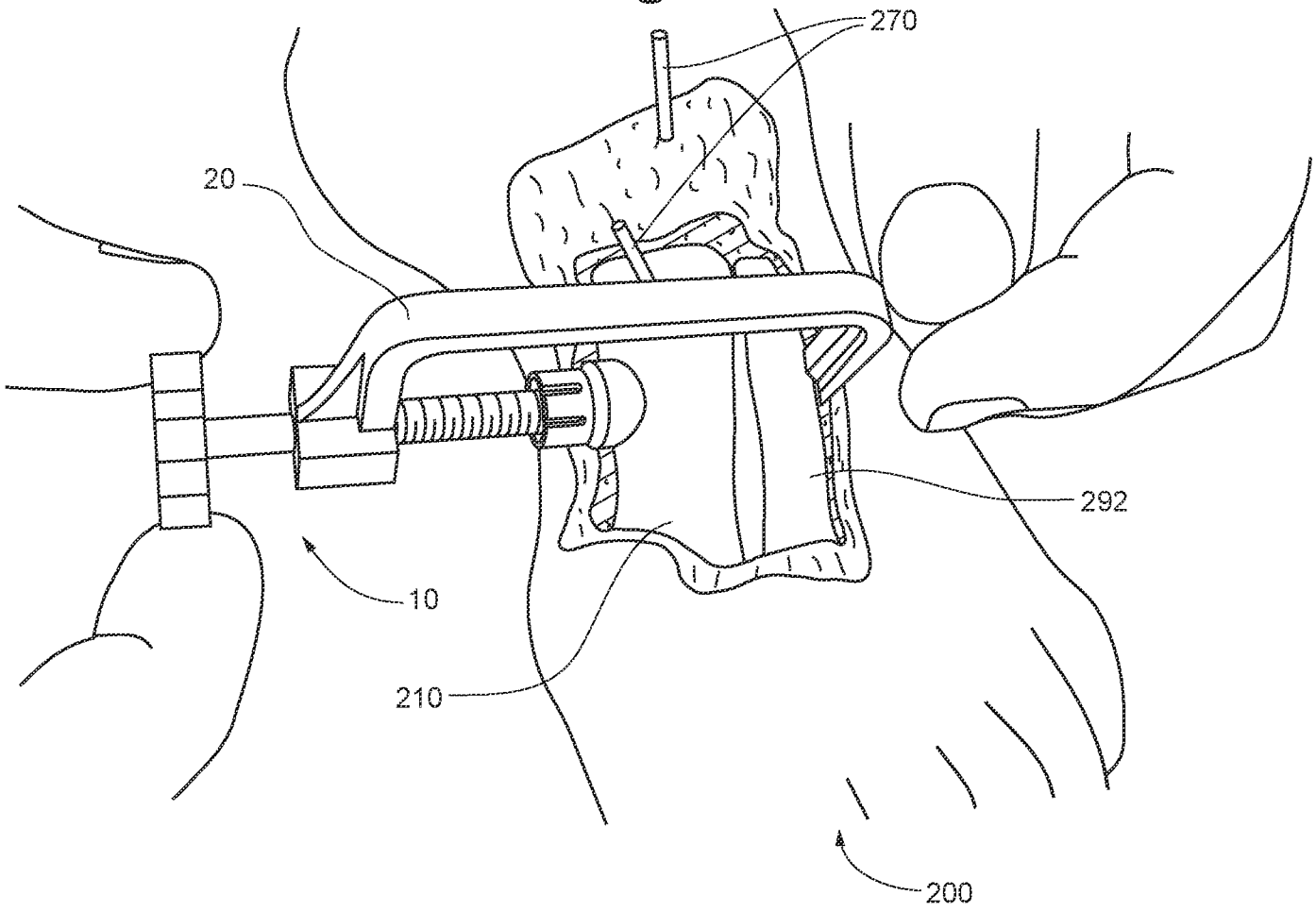


Fig. 11b

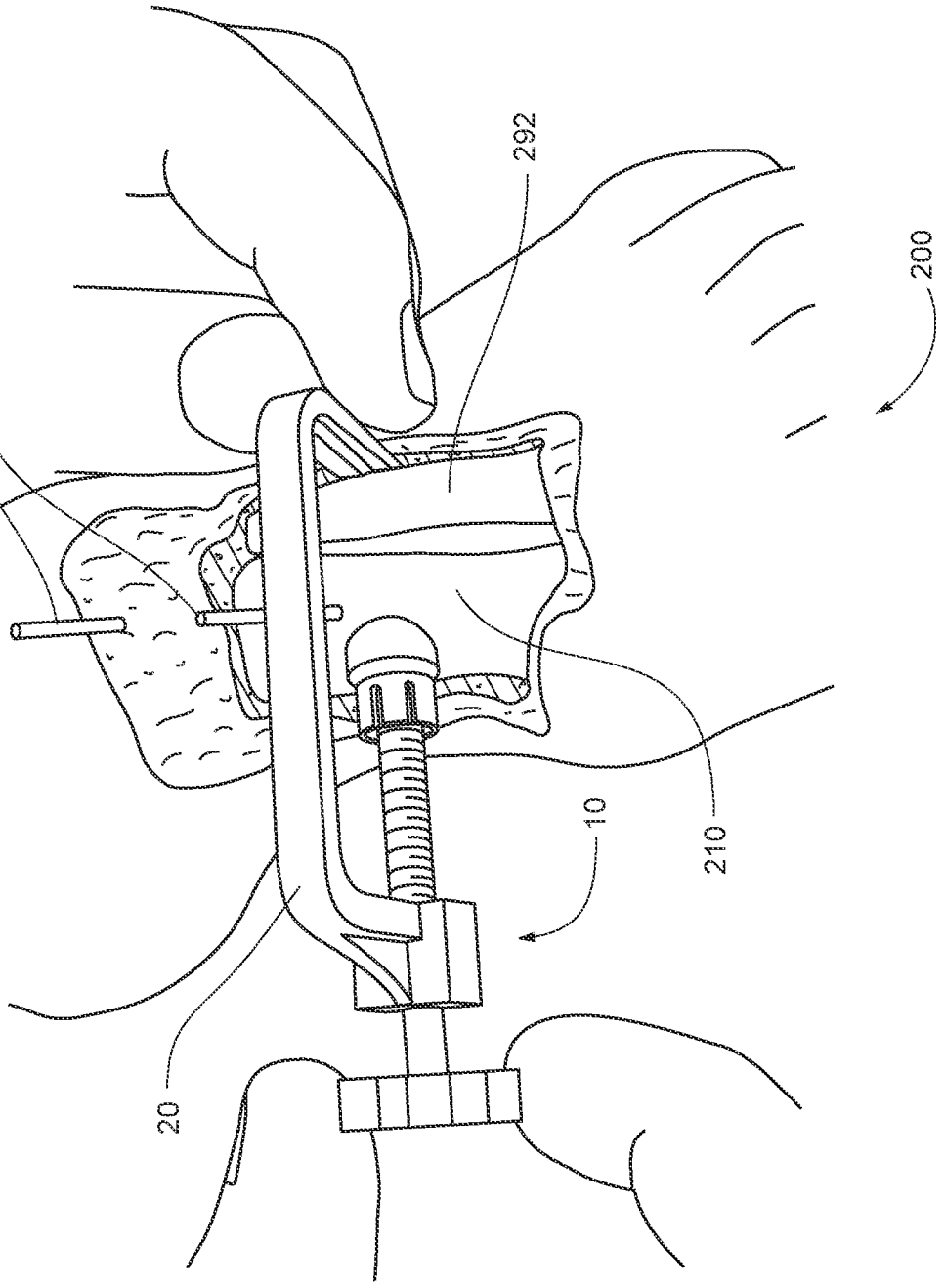


Fig. 11c

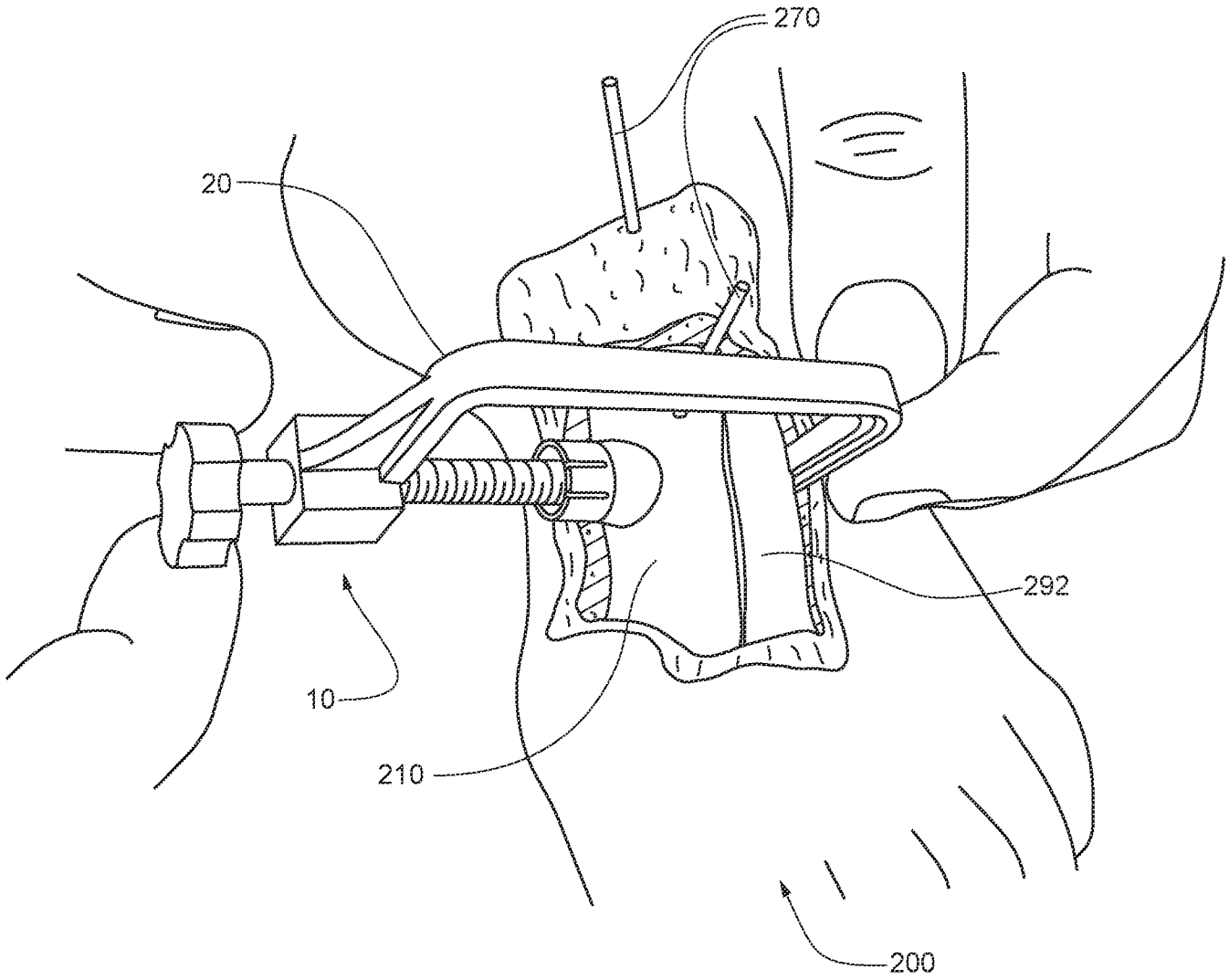


Fig. 12A

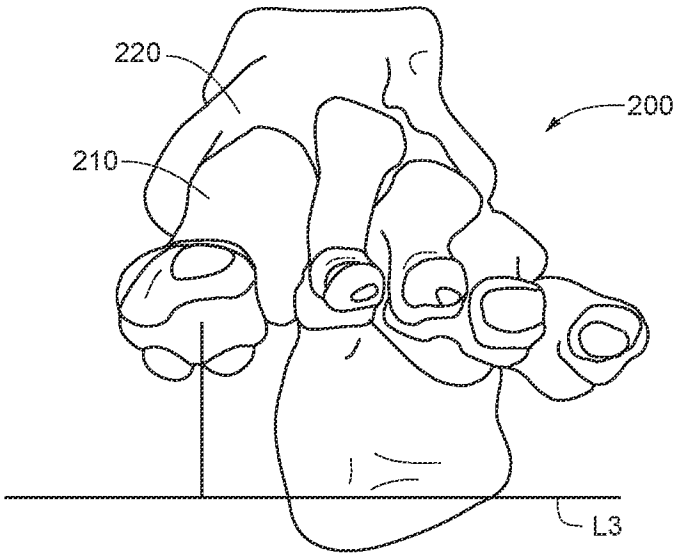


Fig. 12B

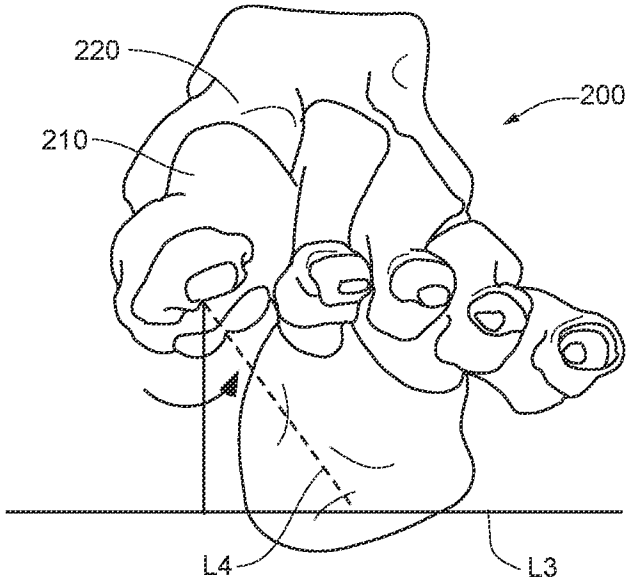


Fig. 13B

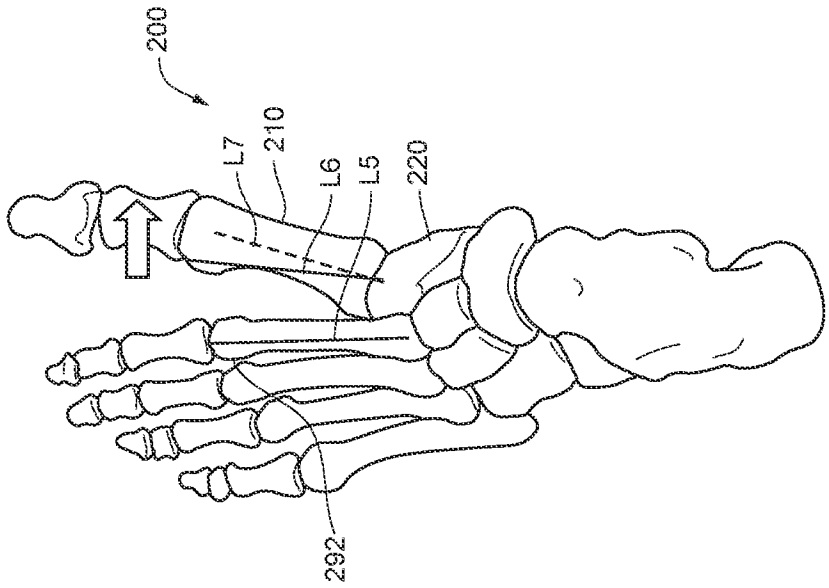


Fig. 13A

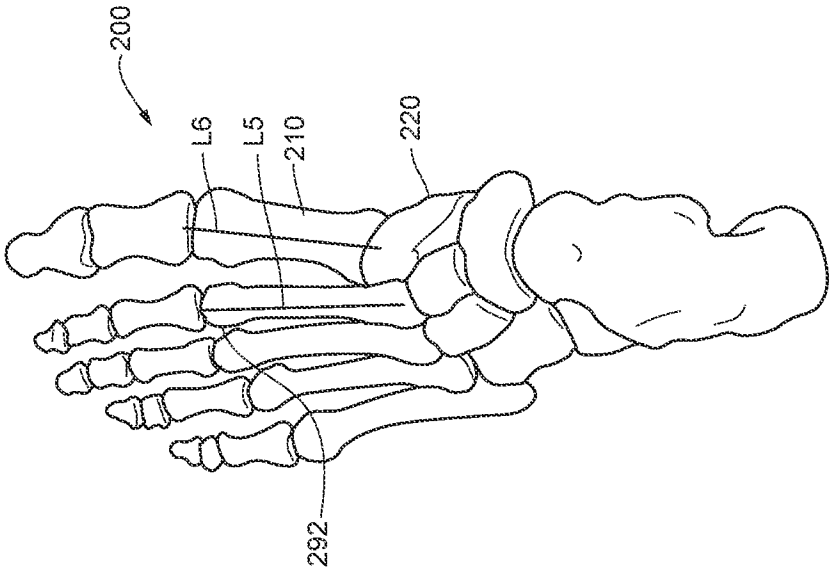


Fig. 14A

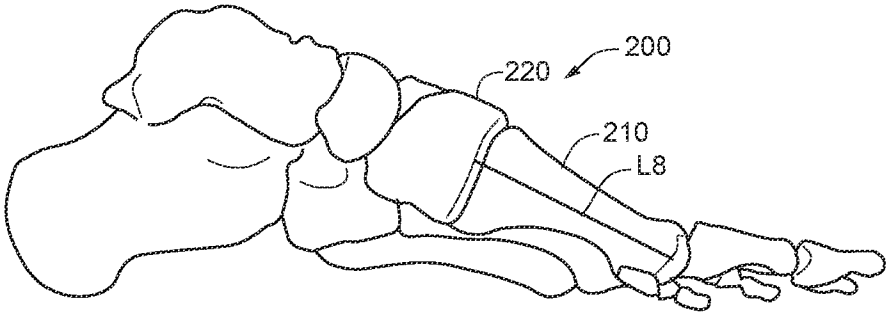


Fig. 14B

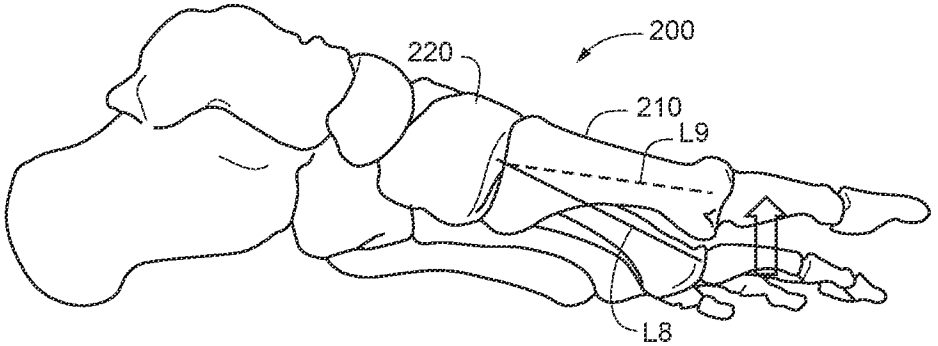


Fig. 15A

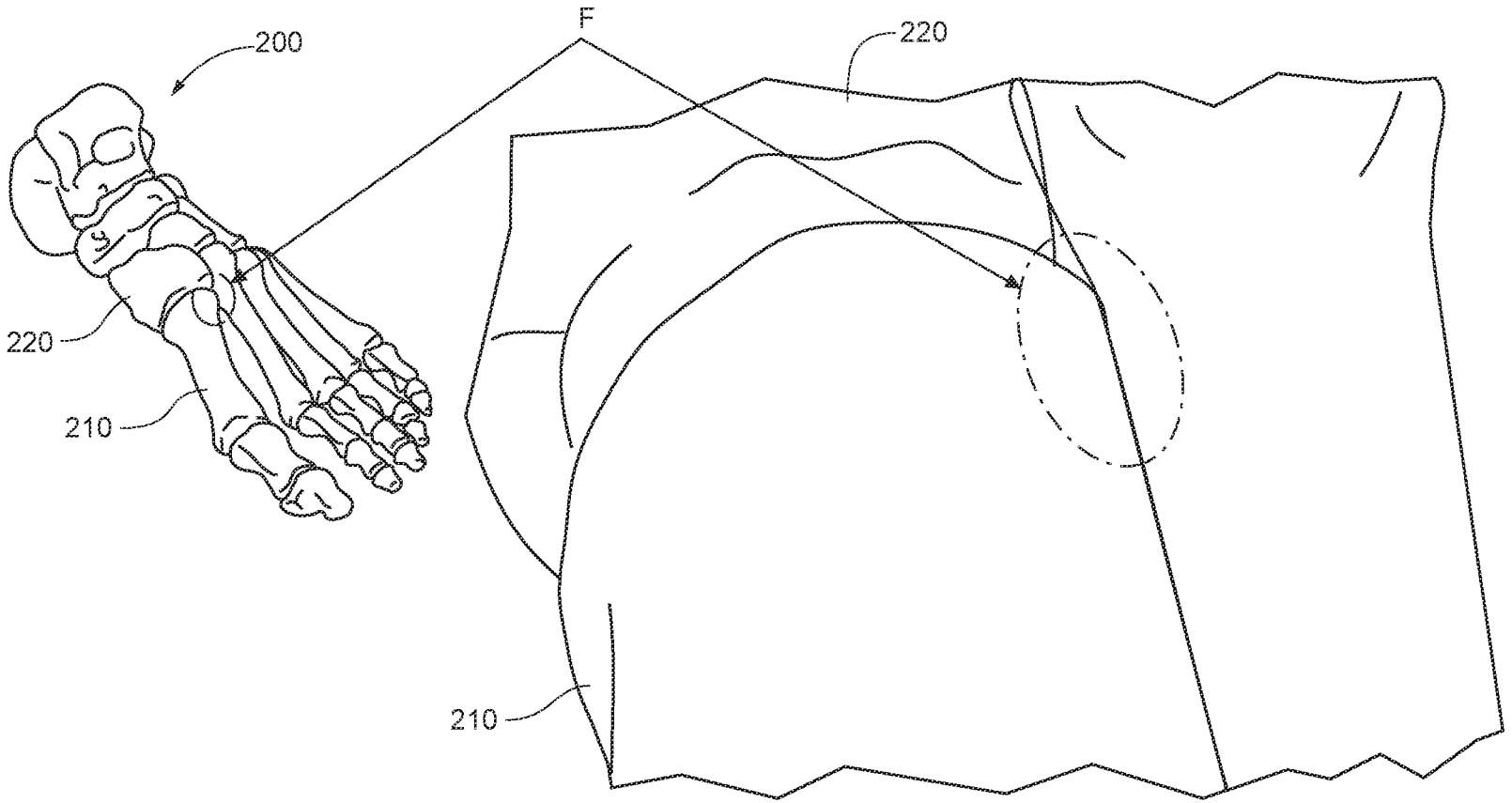


Fig. 15B

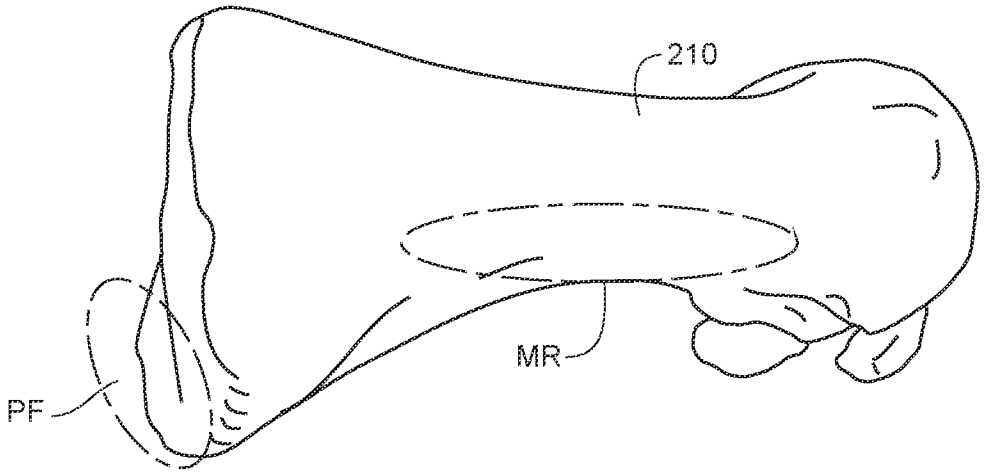


Fig. 16

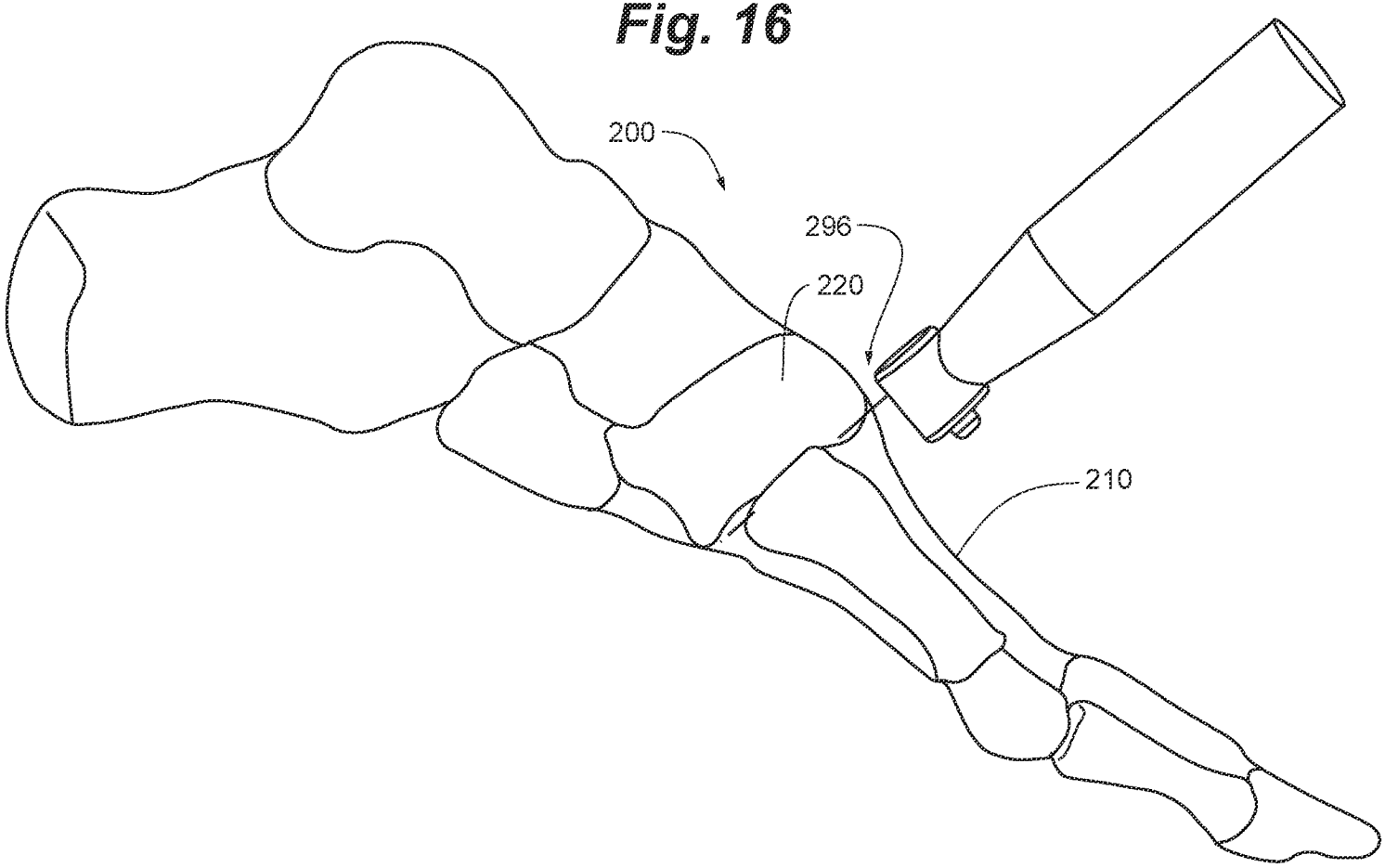


Fig. 17

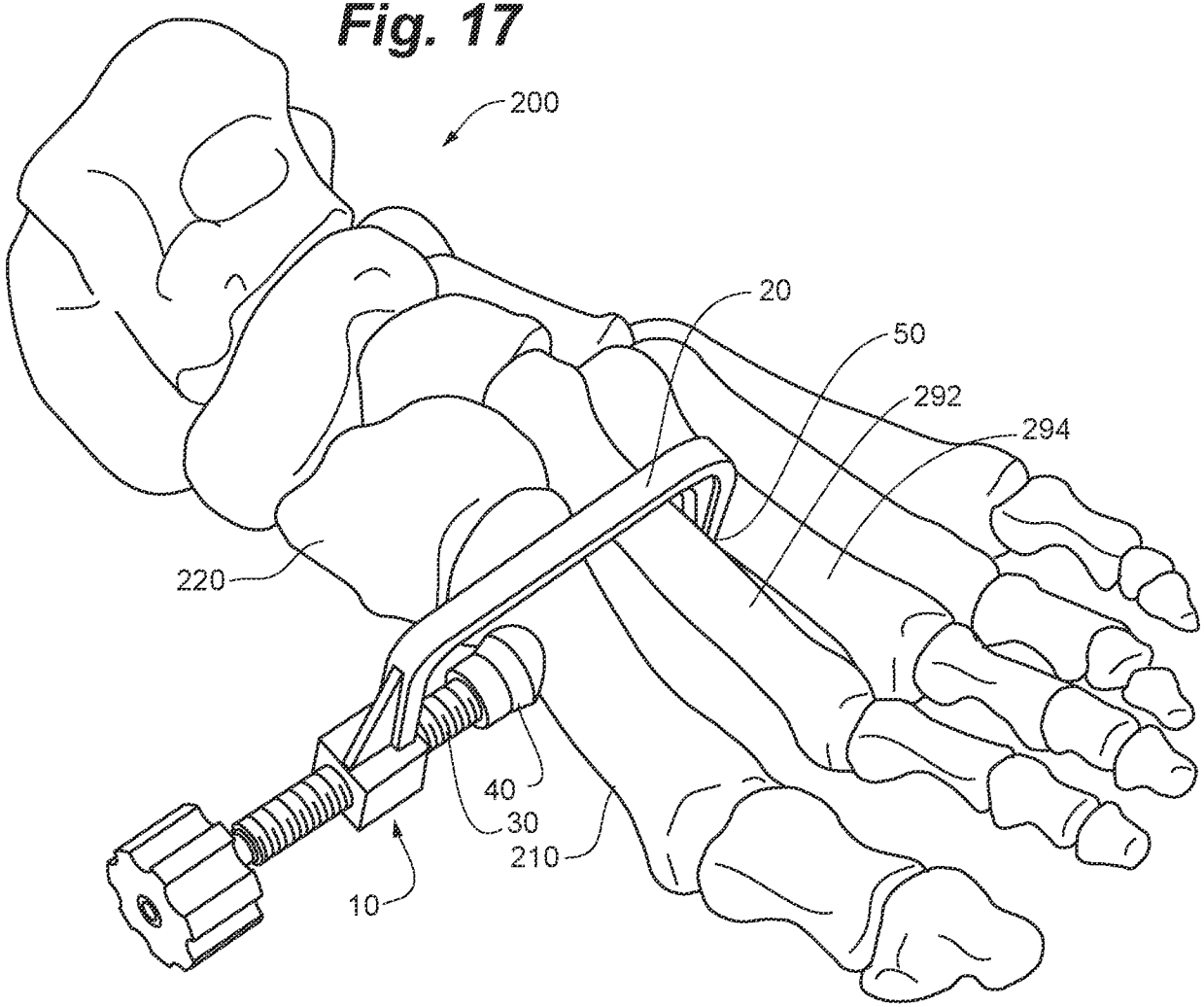


Fig. 18

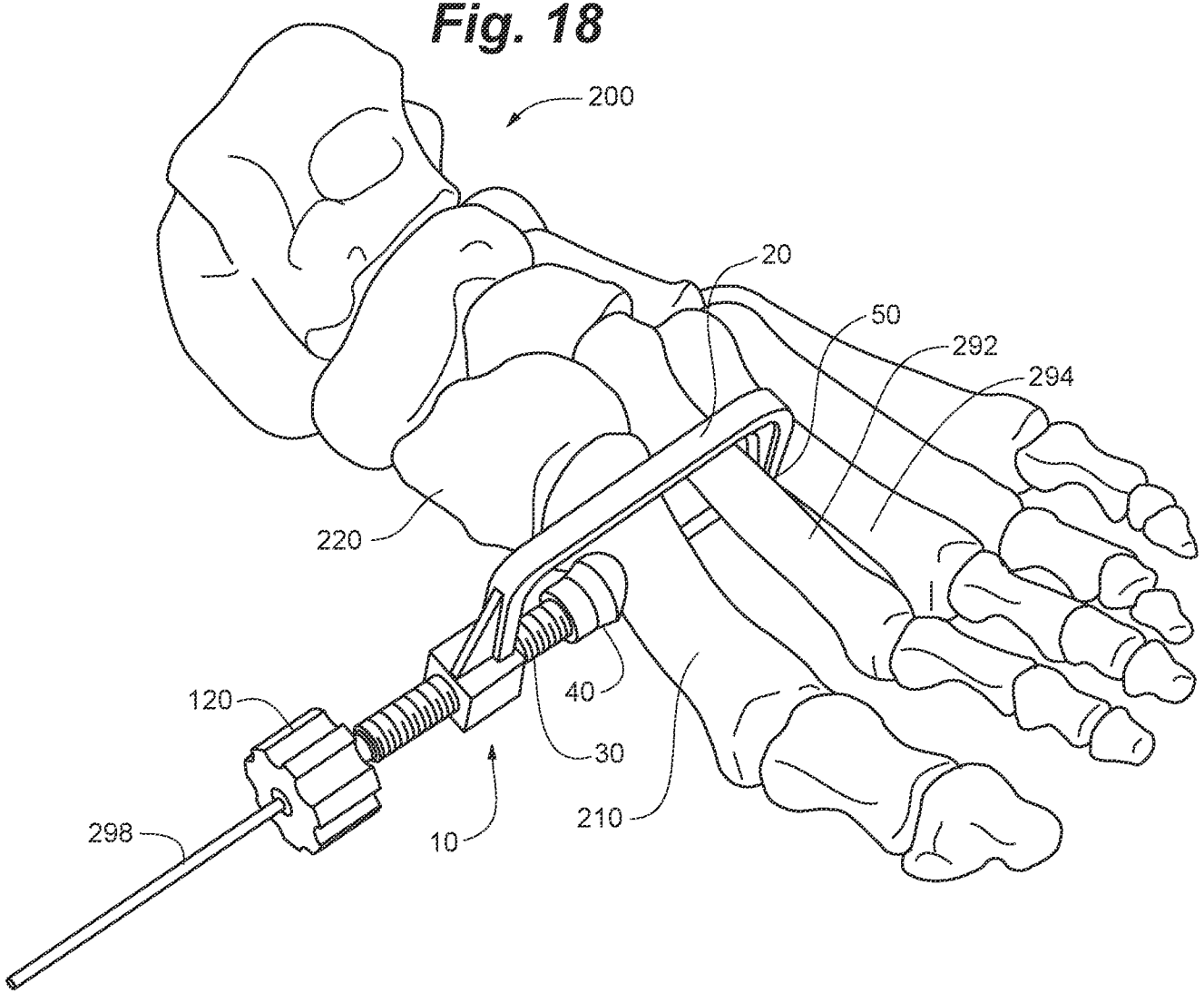


Fig. 19

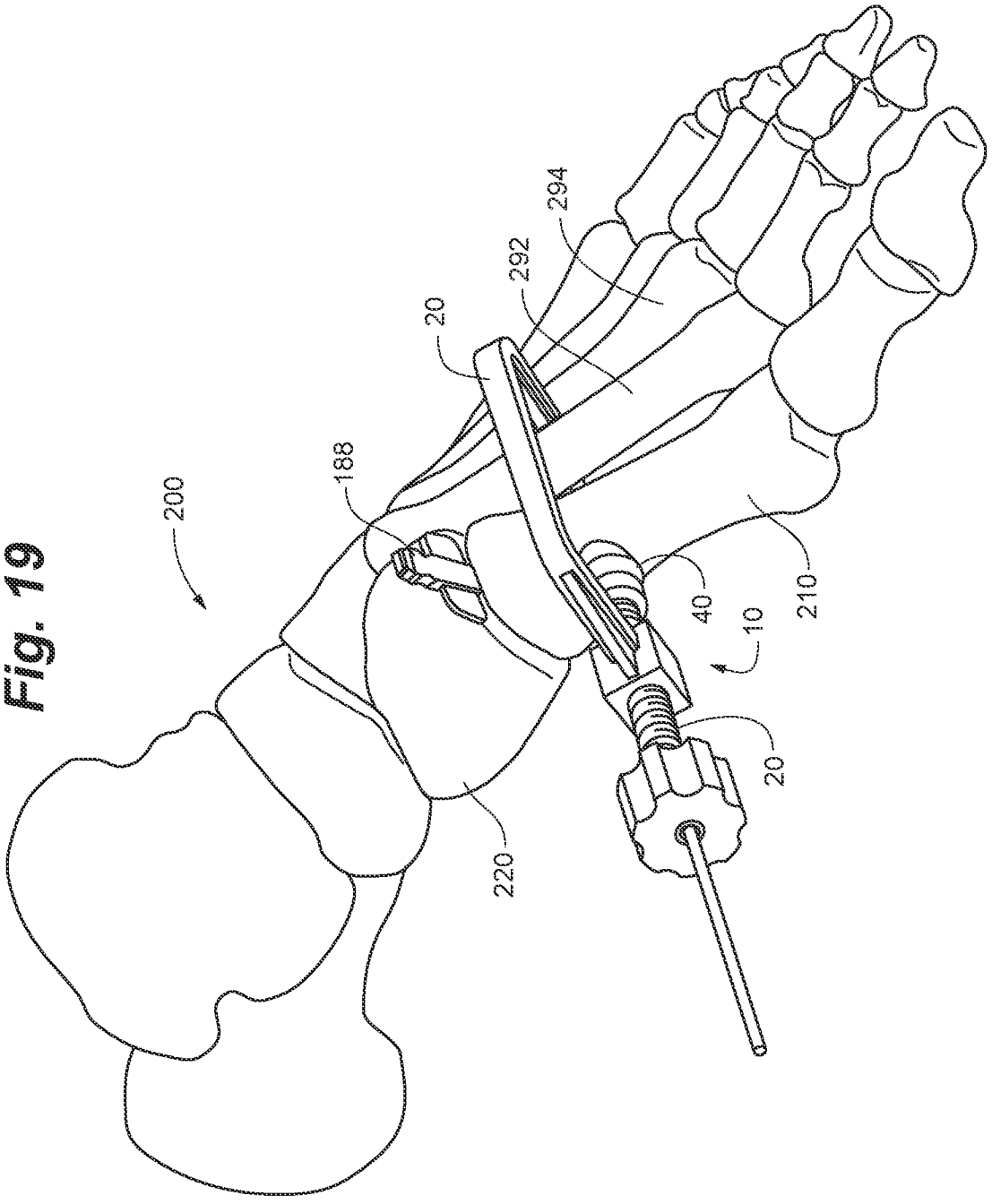


Fig. 20

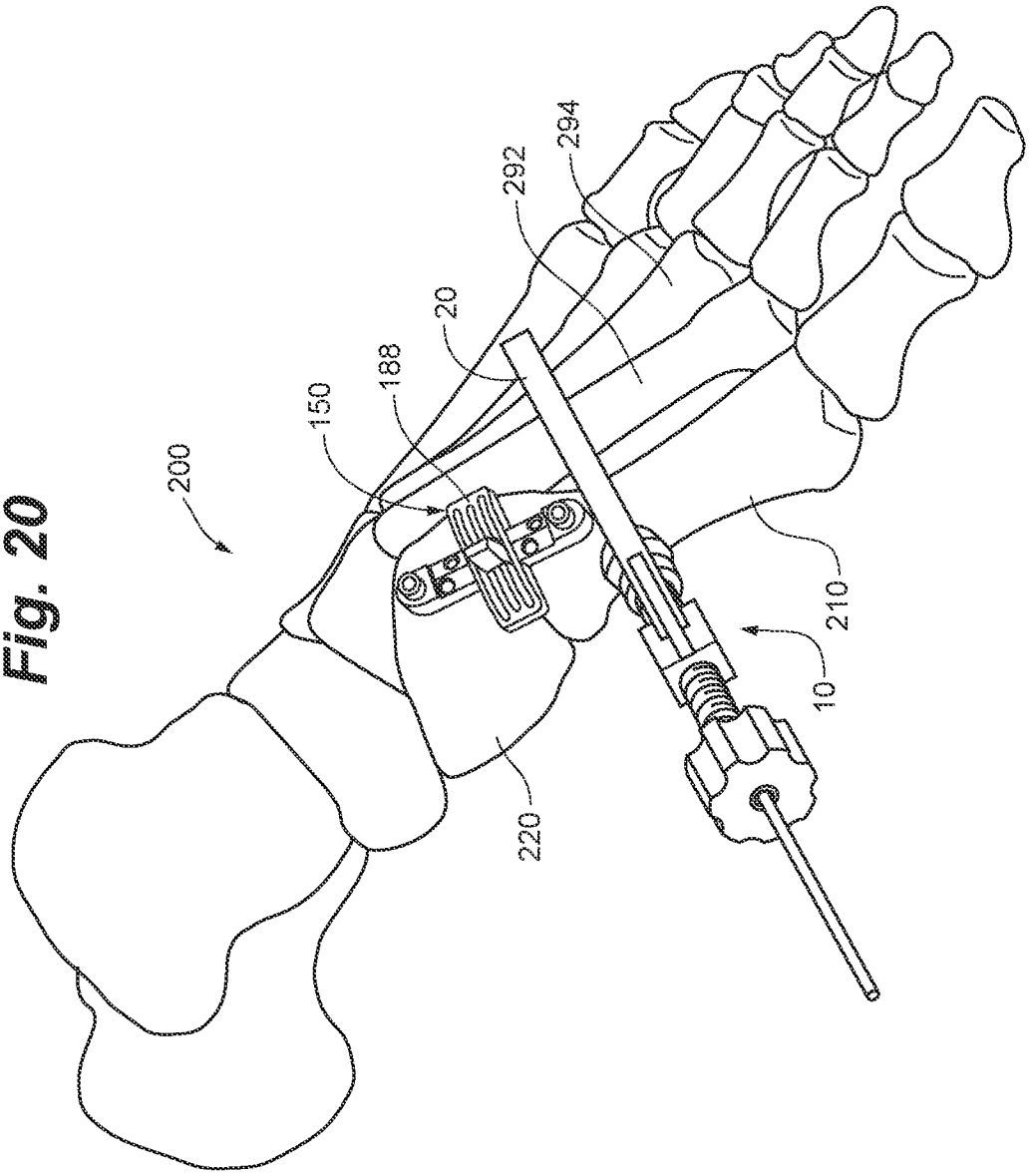


Fig. 21A

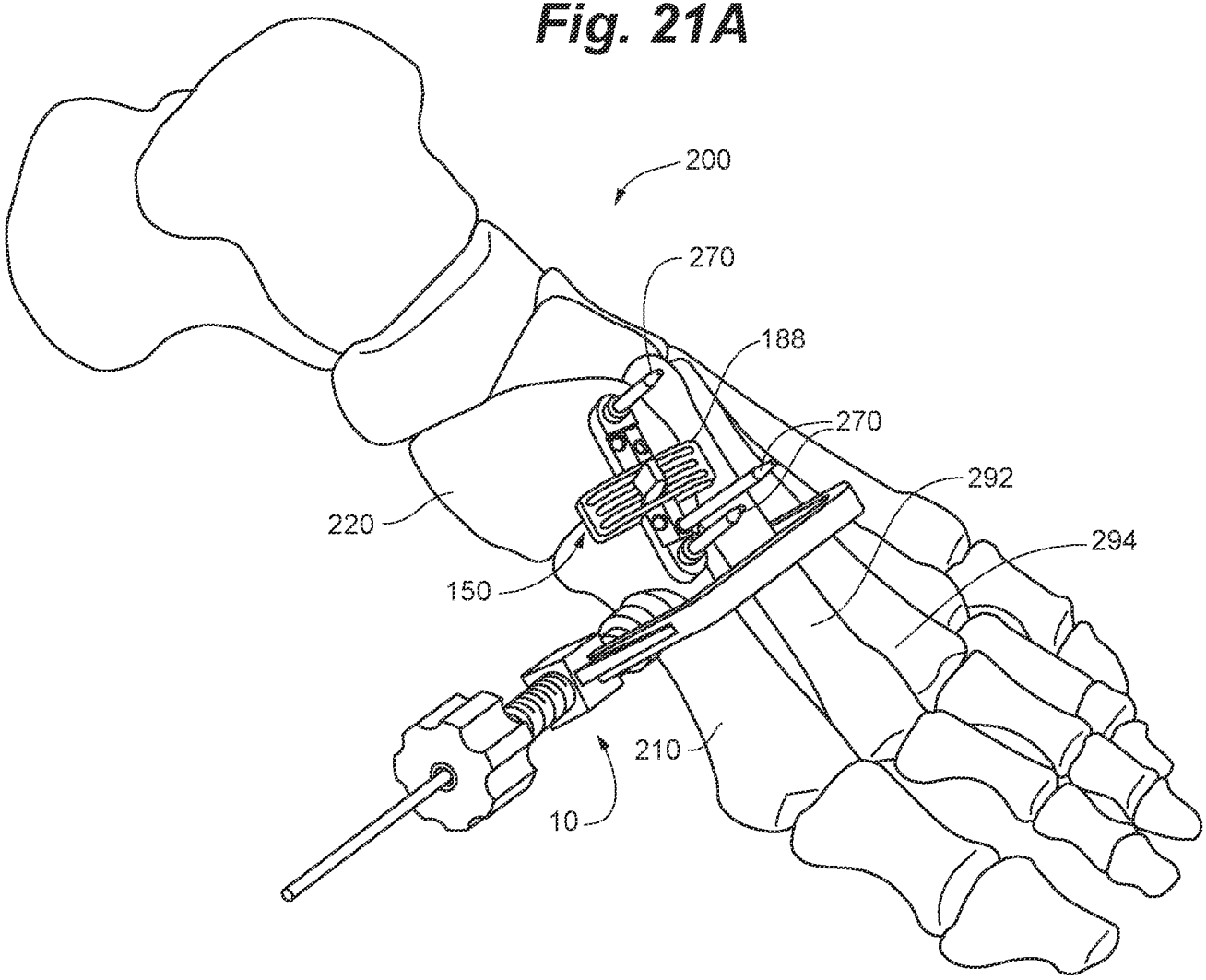


Fig. 21B

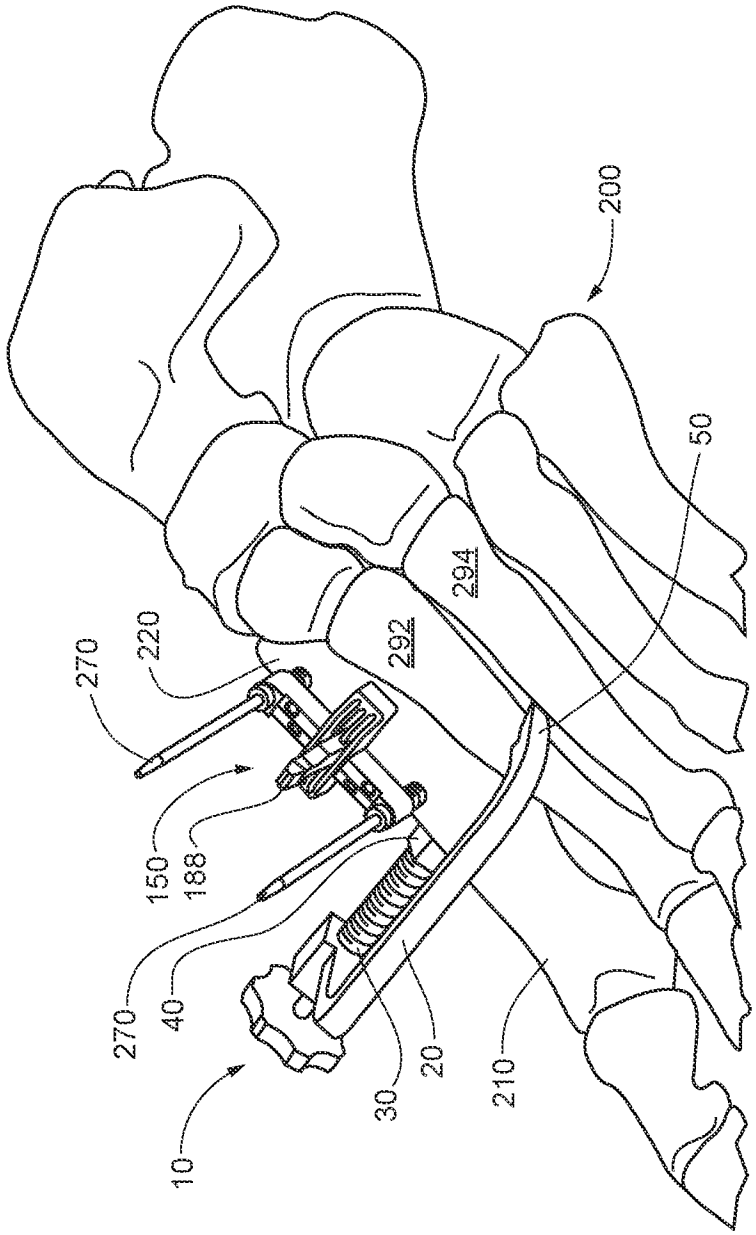
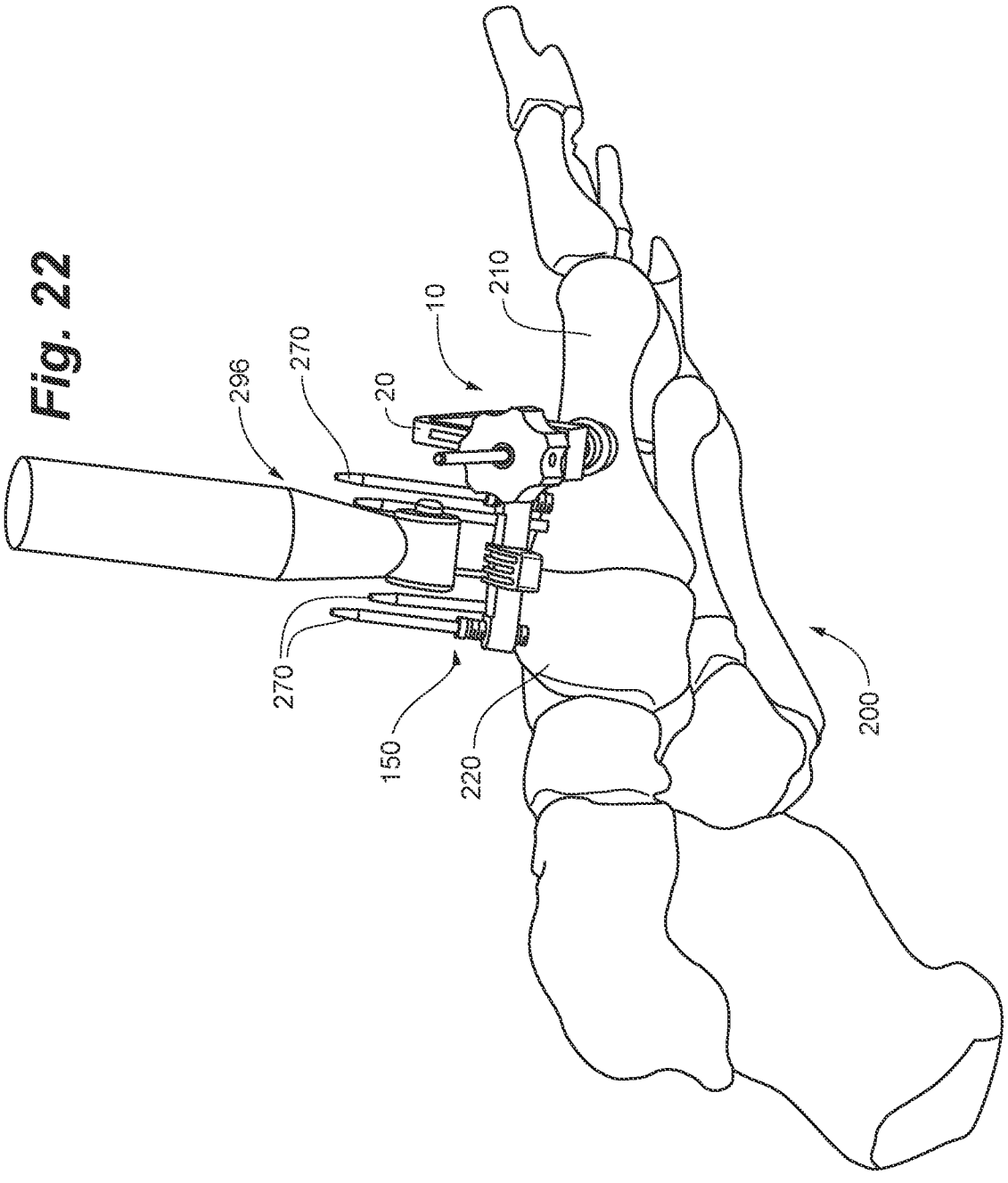


Fig. 22



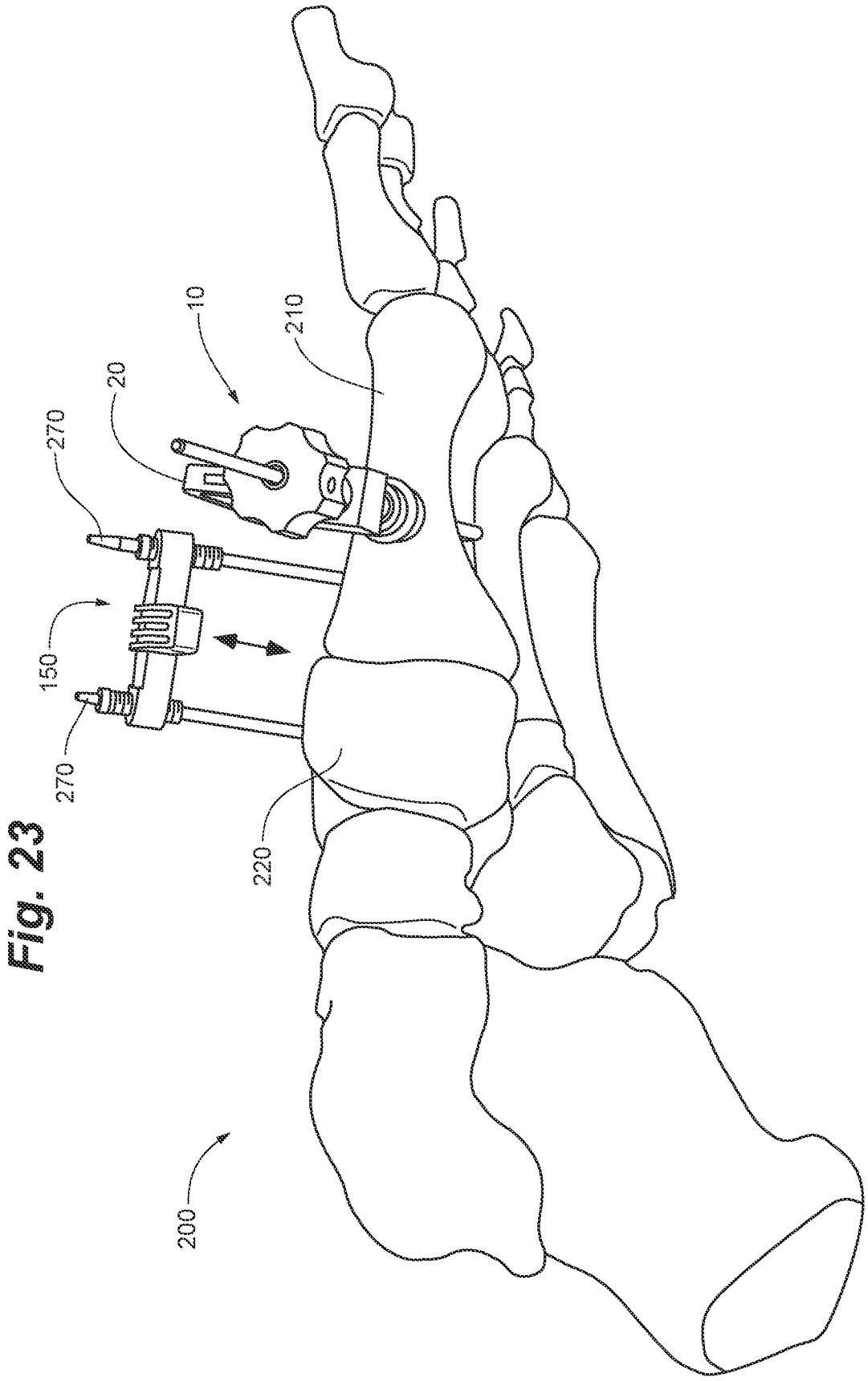


Fig. 23

Fig. 24

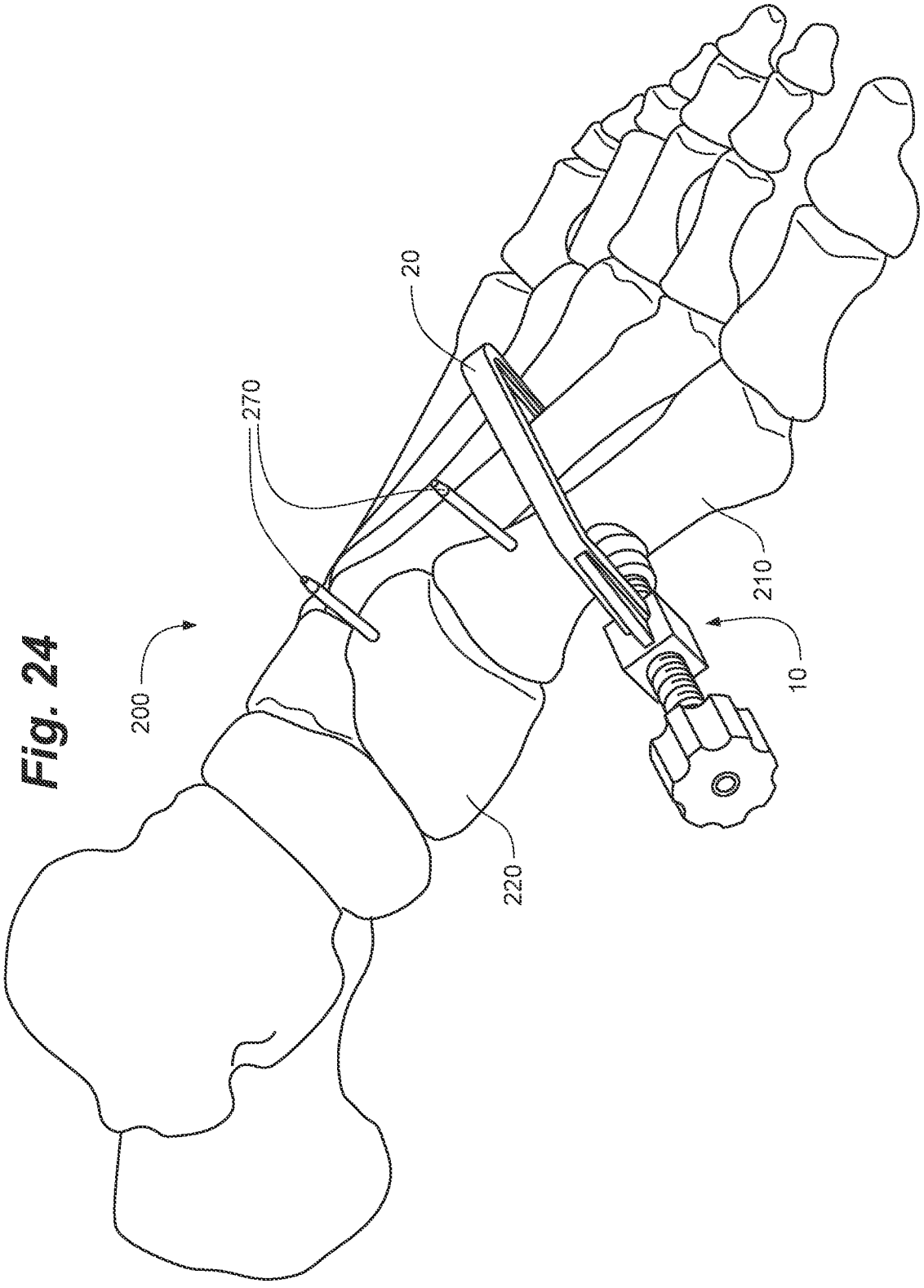


Fig. 25

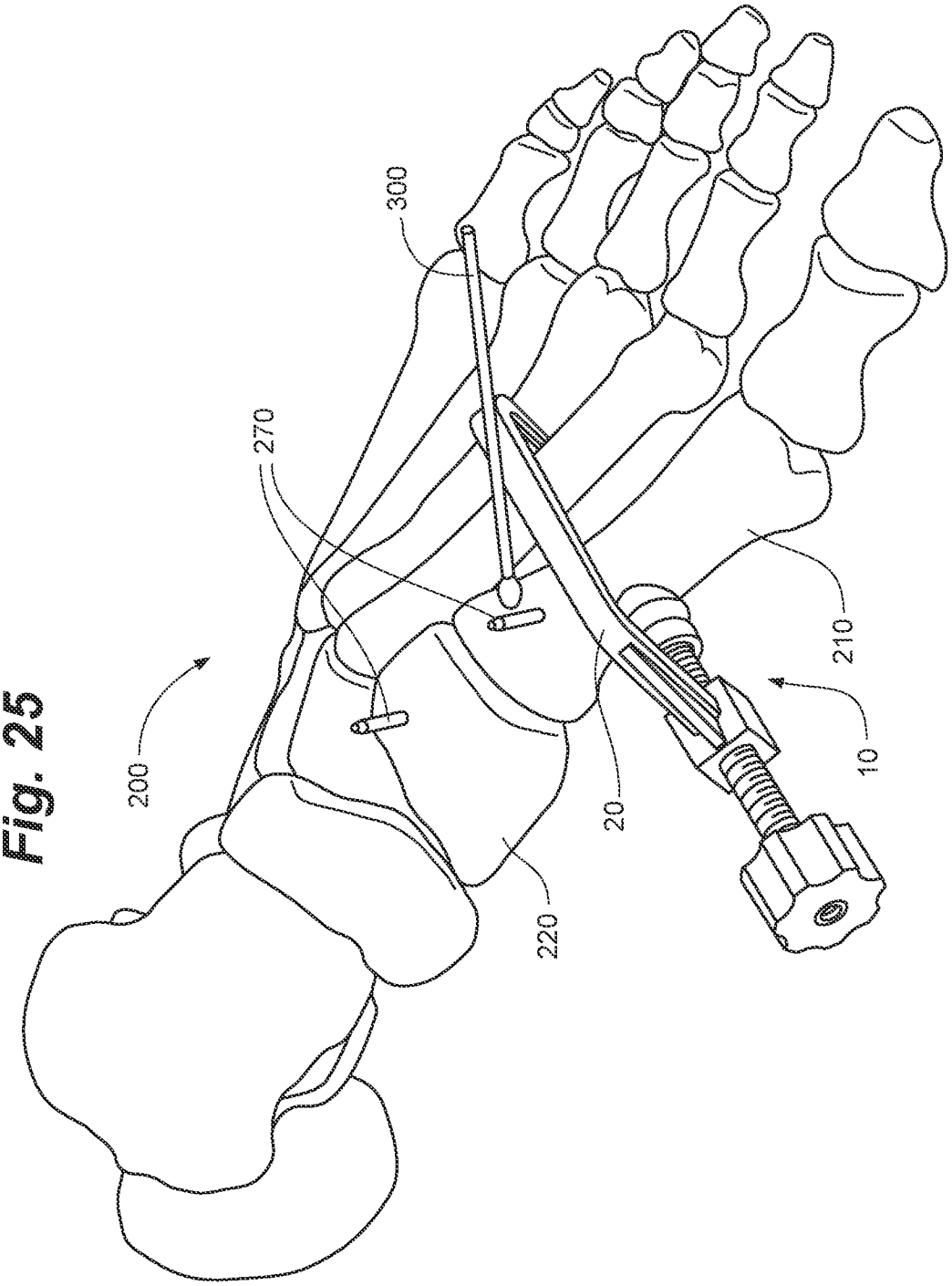
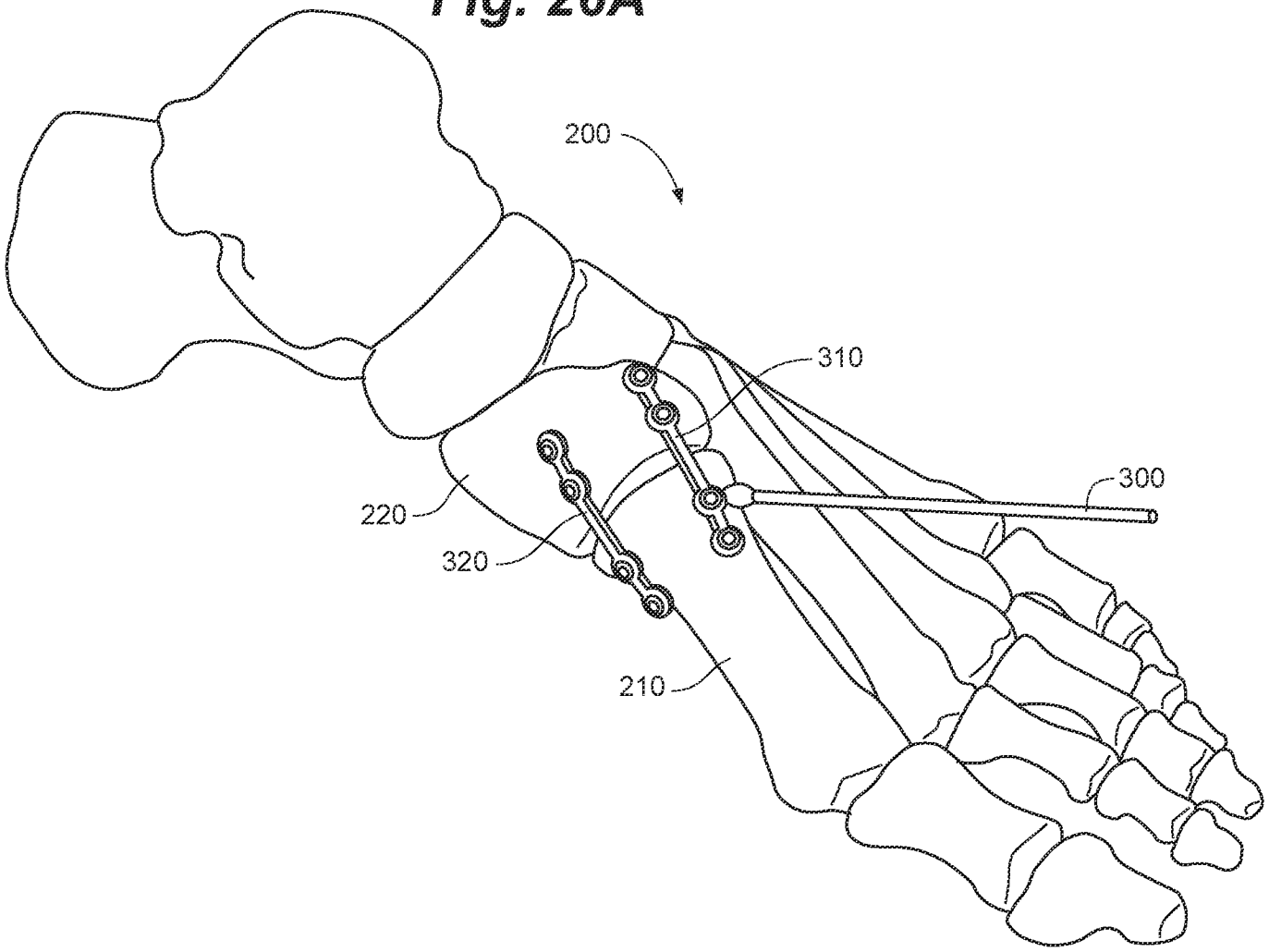


Fig. 26A



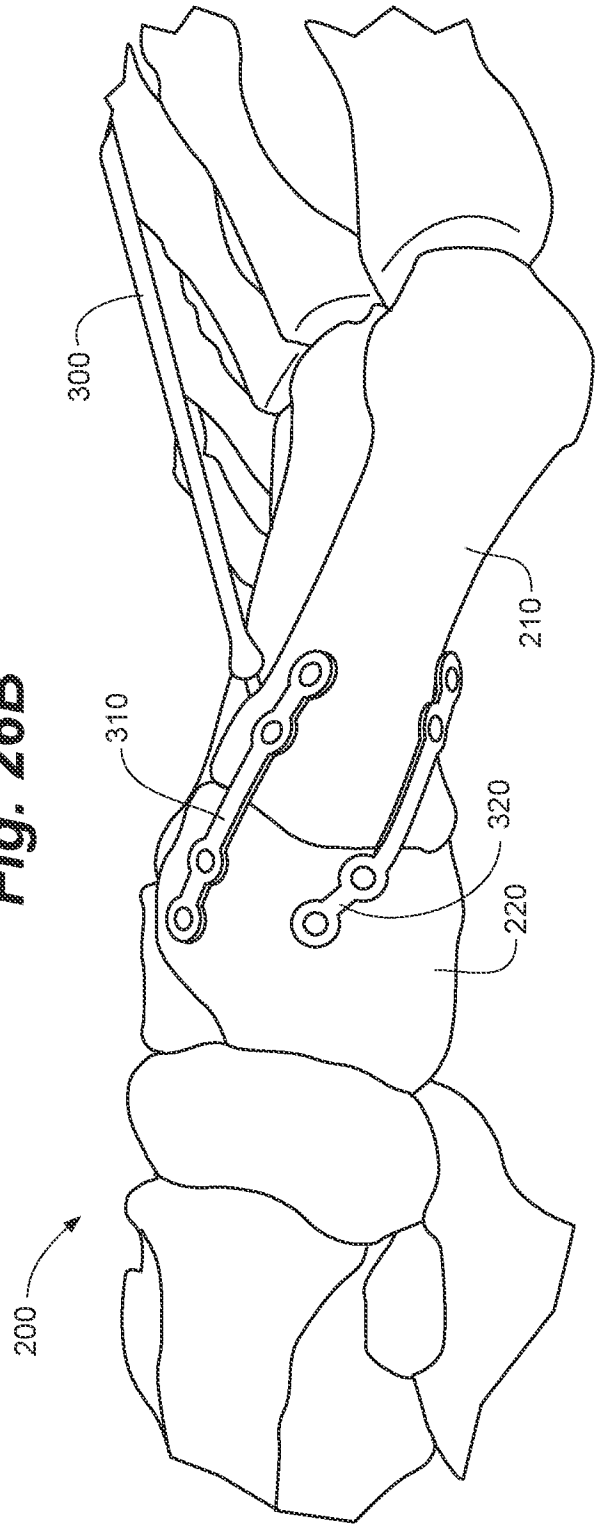


Fig. 26B

Fig. 27

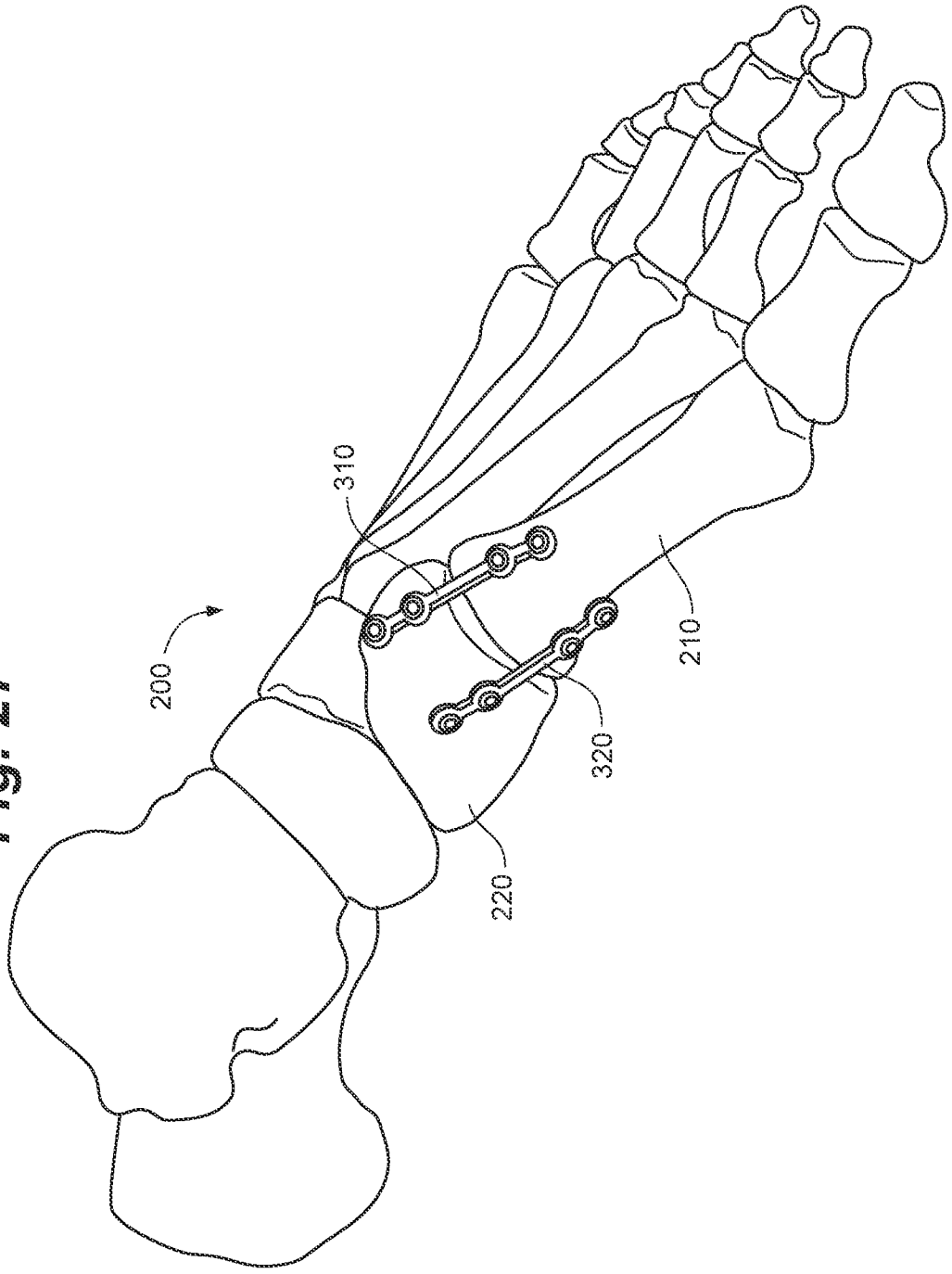


Fig. 28A

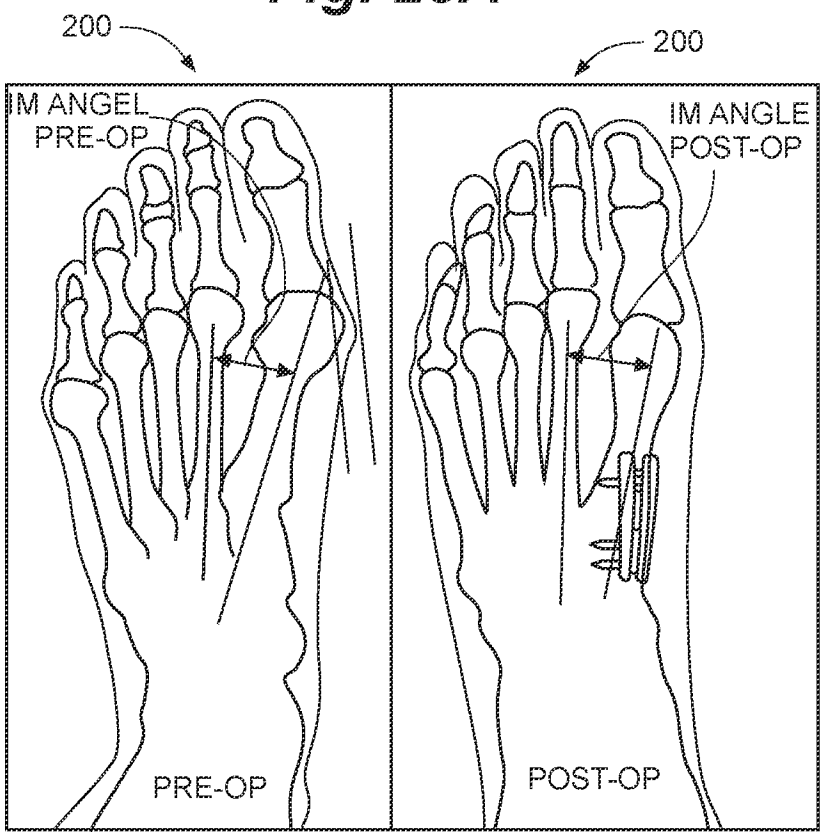


Fig. 28B

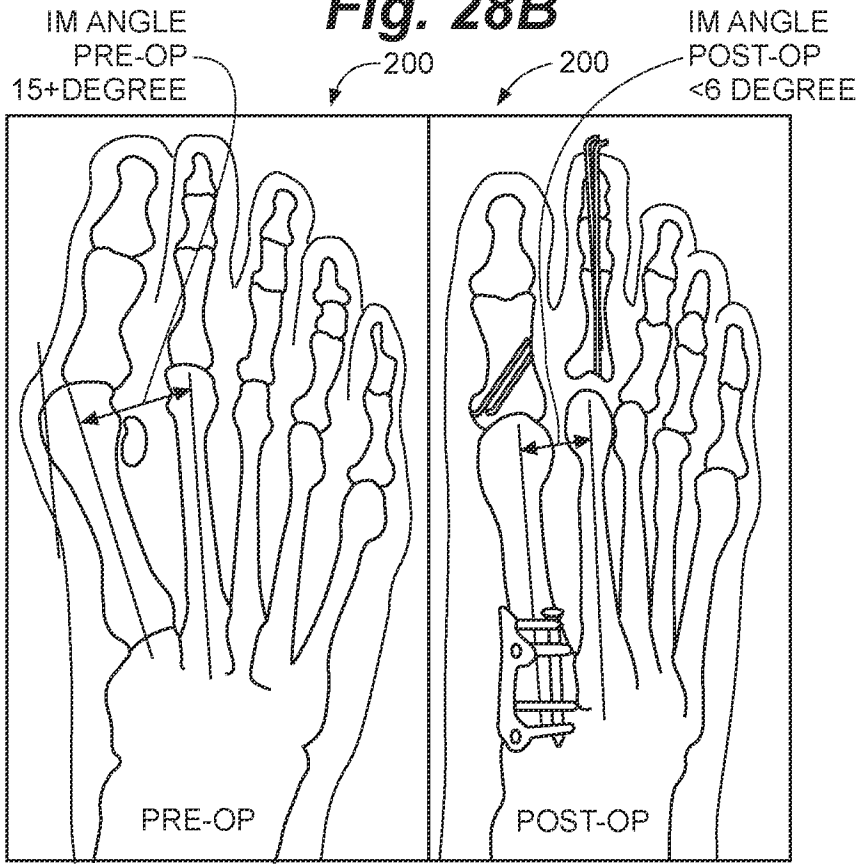


Fig. 29A

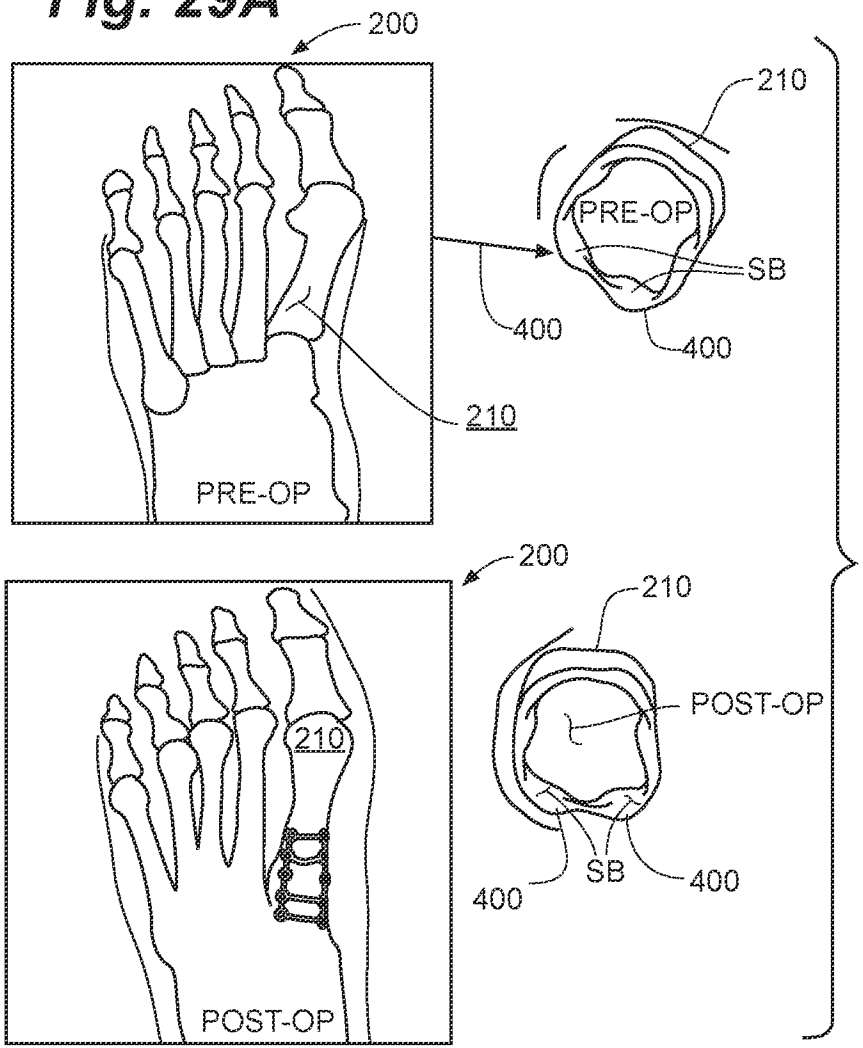


Fig. 29B

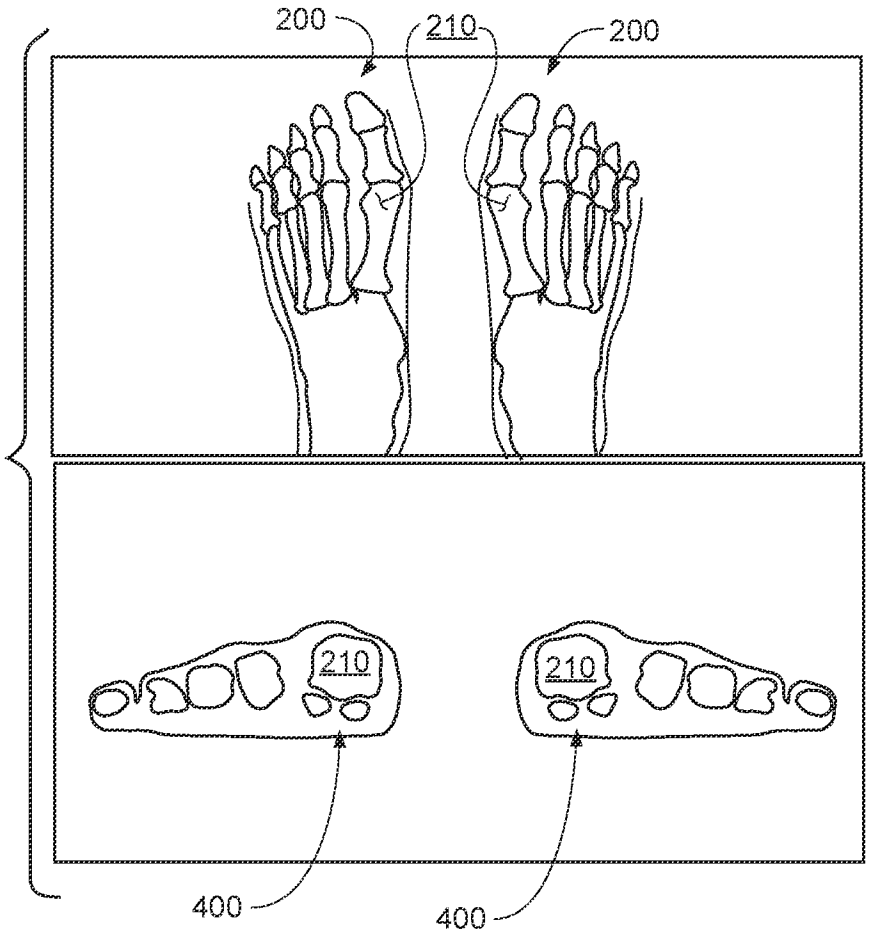


Fig. 30A

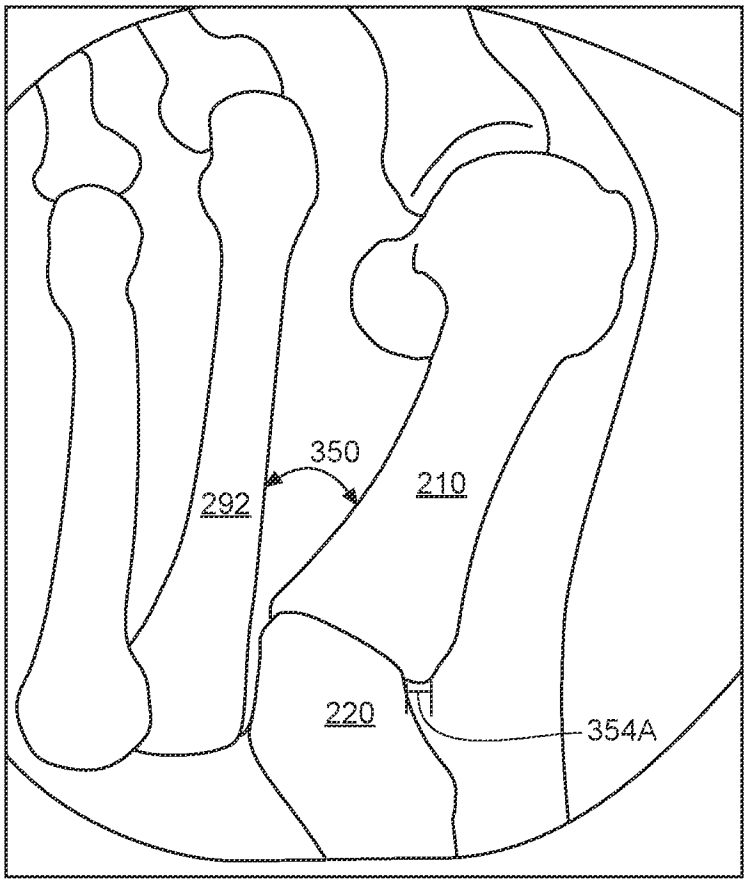


Fig. 30B

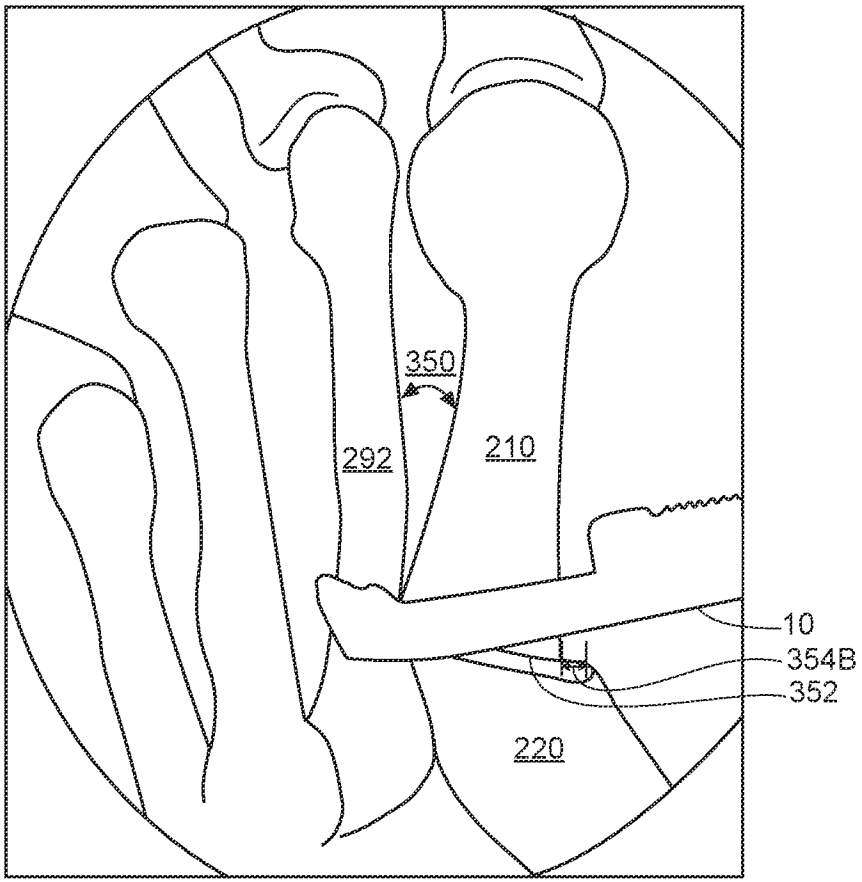
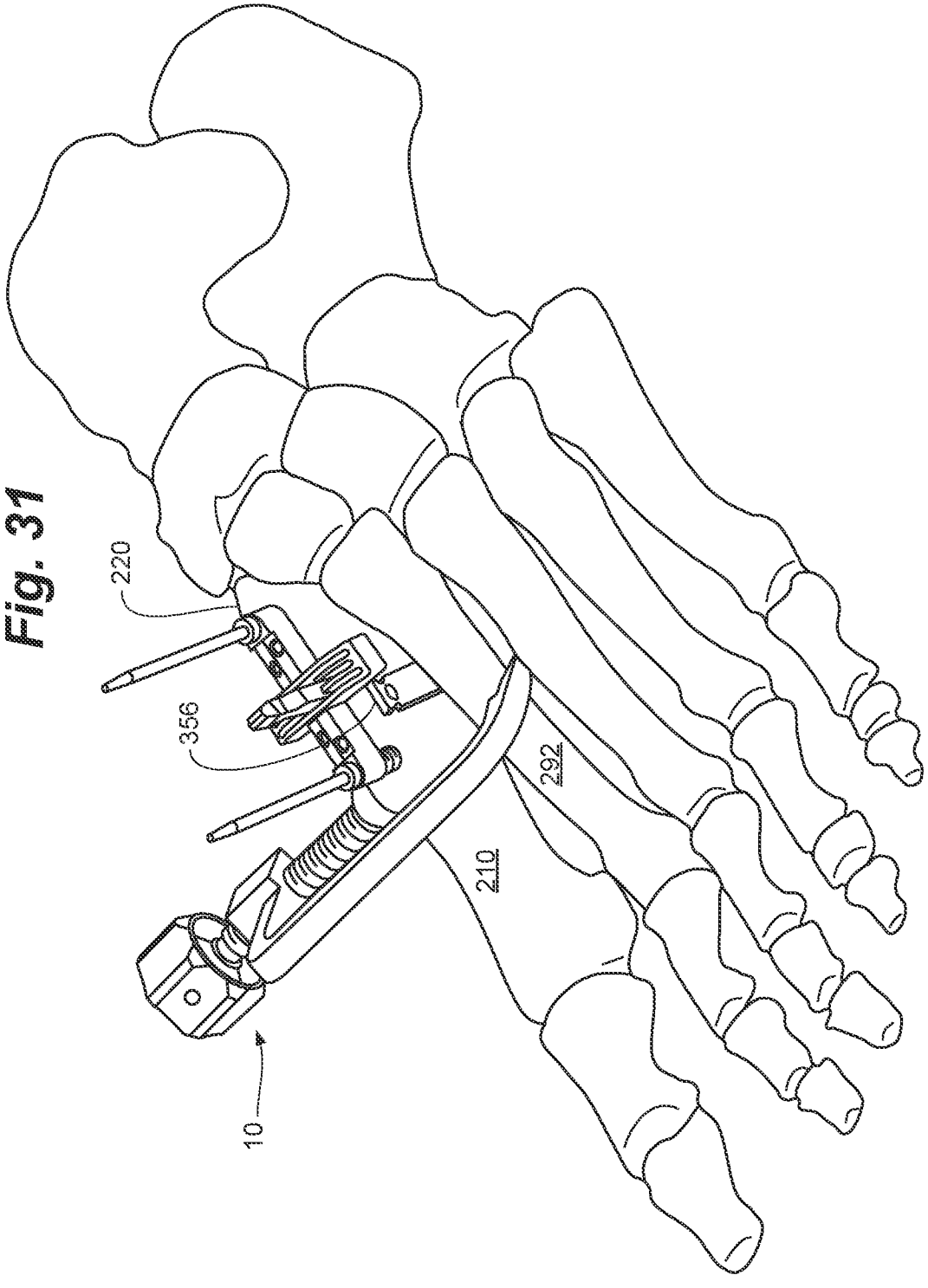


Fig. 31



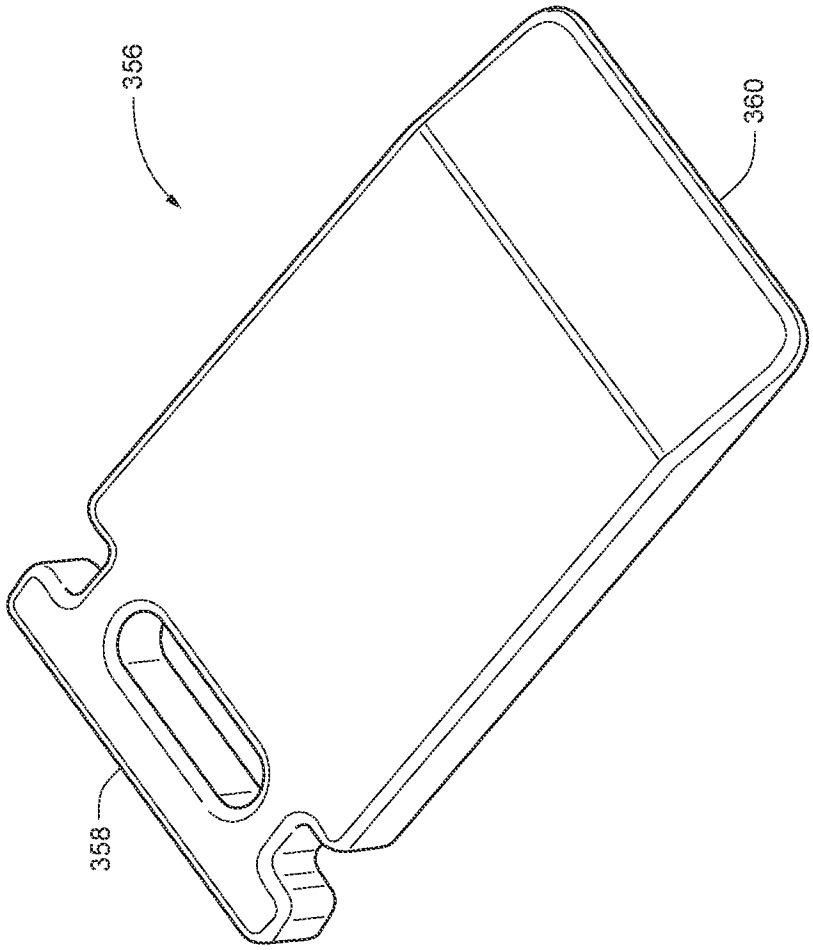
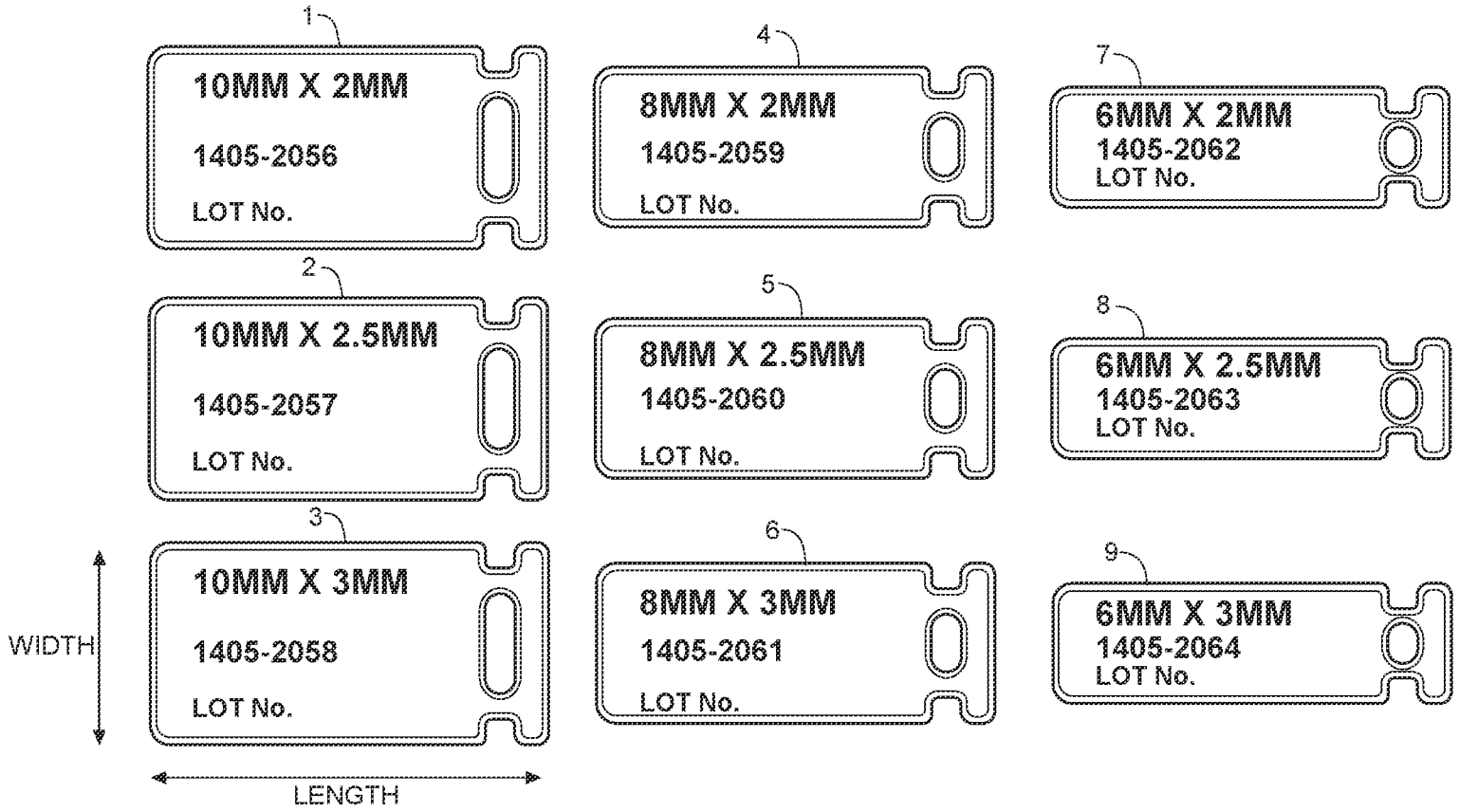


Fig. 32

Fig. 33


1
10MM X 2MM
1405-2056
LOT No.
2
10MM X 2.5MM
1405-2057
LOT No.
3
10MM X 3MM
1405-2058
LOT No.
4
8MM X 2MM
1405-2059
LOT No.
5
8MM X 2.5MM
1405-2060
LOT No.
6
8MM X 3MM
1405-2061
LOT No.
7
6MM X 2MM
1405-2062
LOT No.
8
6MM X 2.5MM
1405-2063
LOT No.
9
6MM X 3MM
1405-2064
LOT No.
WIDTH
LENGTH

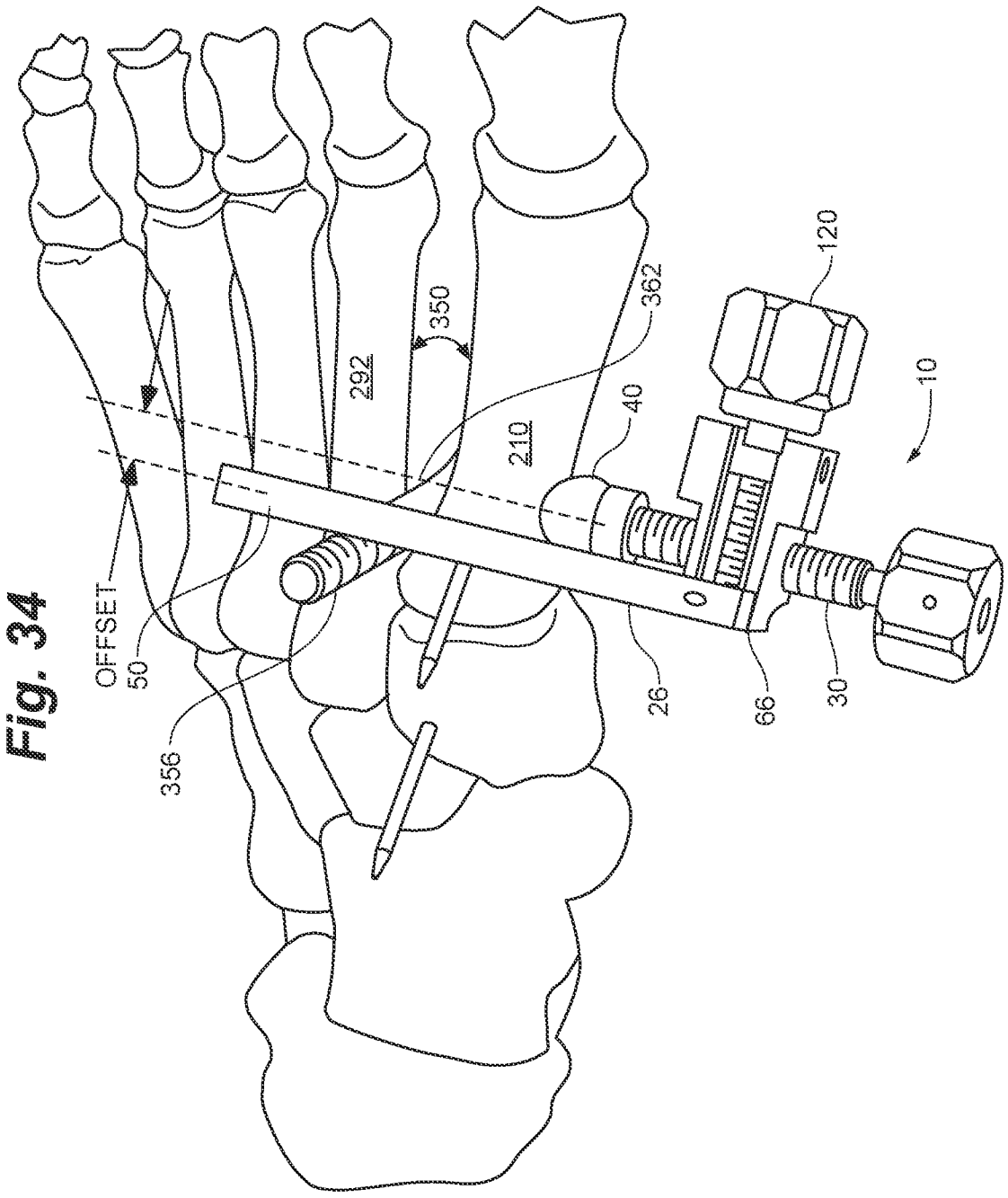


Fig. 34

Fig. 35

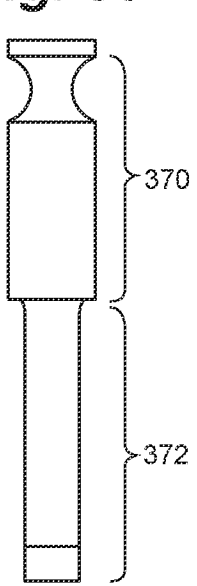


Fig. 36A

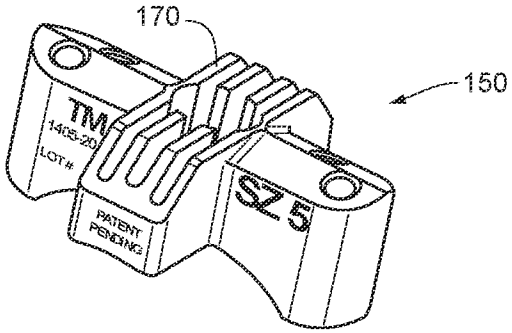
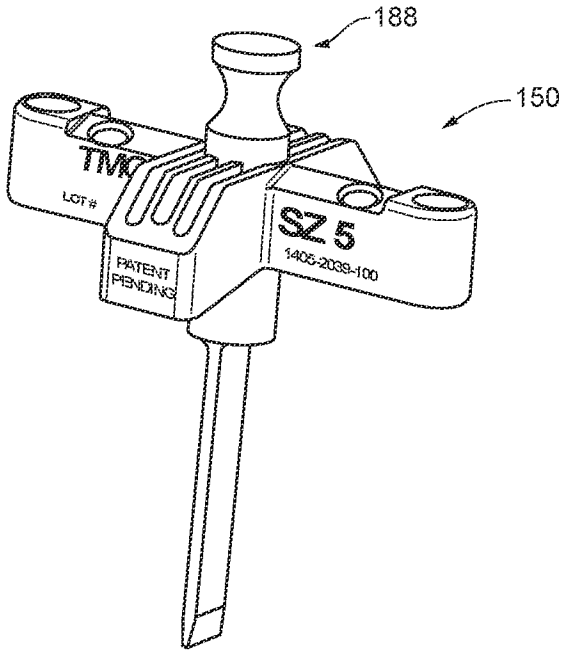


Fig. 36B



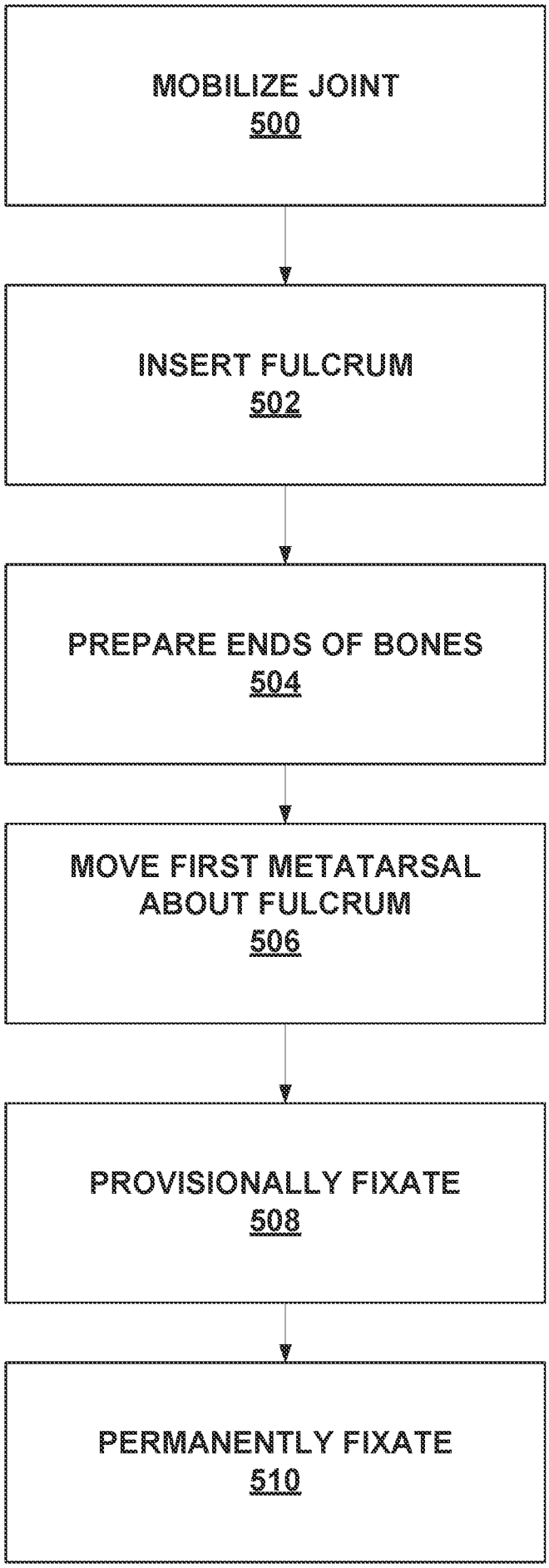

MOBILIZE JOINT
500
INSERT FULCRUM
502
PREPARE ENDS OF BONES
504
MOVE FIRST METATARSAL ABOUT FULCRUM
506
PROVISIONALLY FIXATE
508
PERMANENTLY FIXATE
510

FIG. 37

Fig. 38

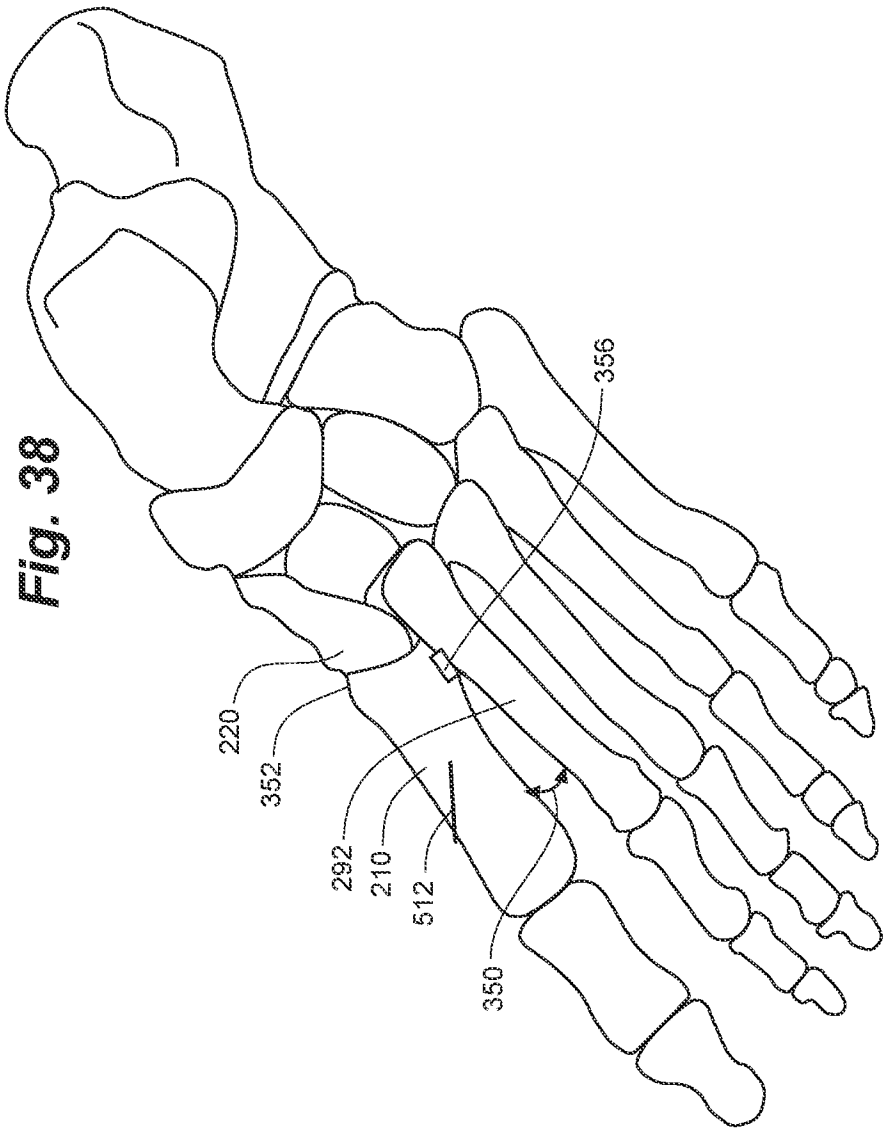


Fig. 39A

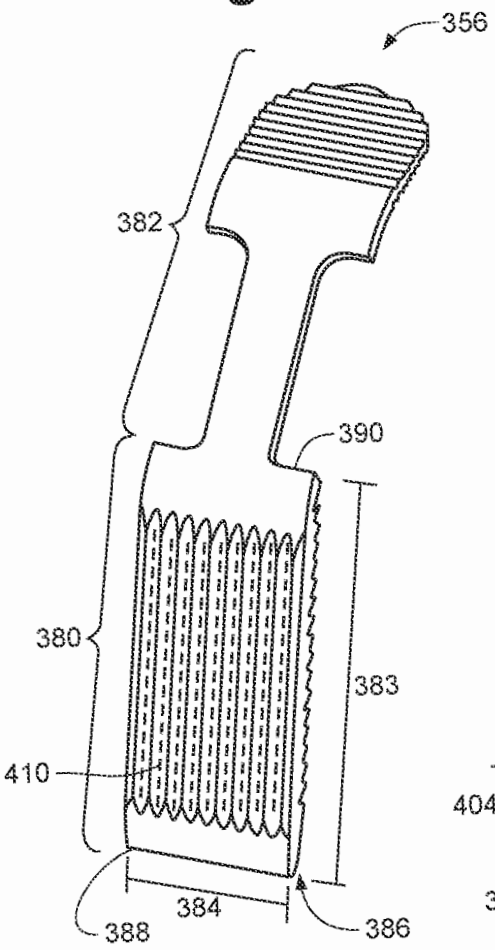


Fig. 39B

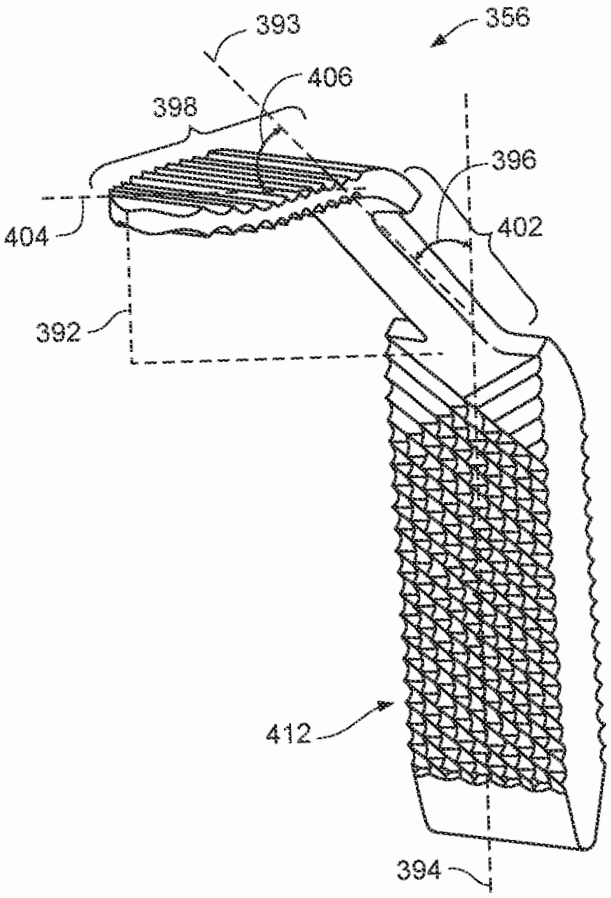
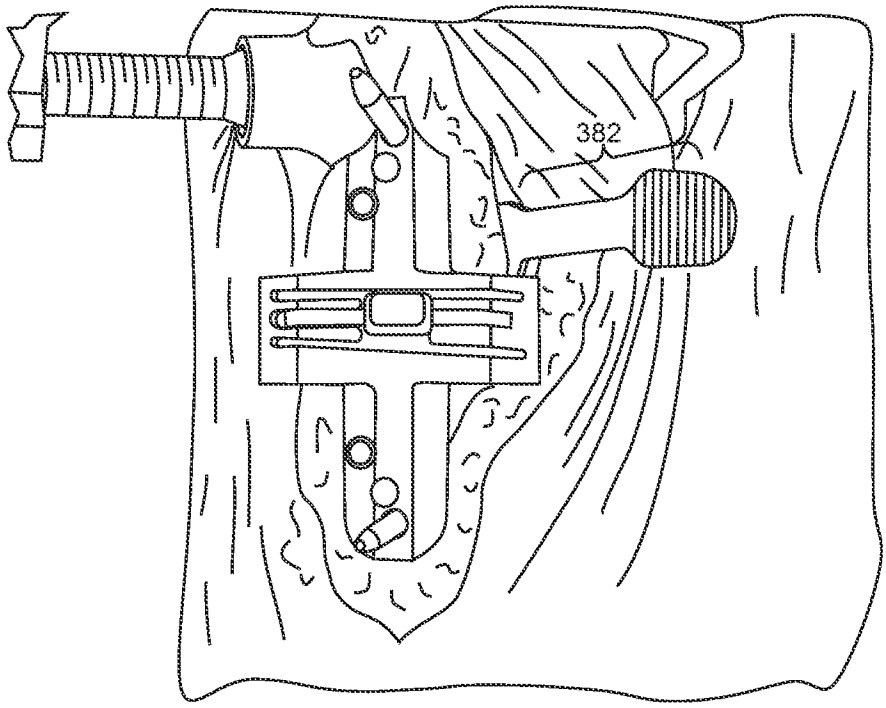


Fig. 40



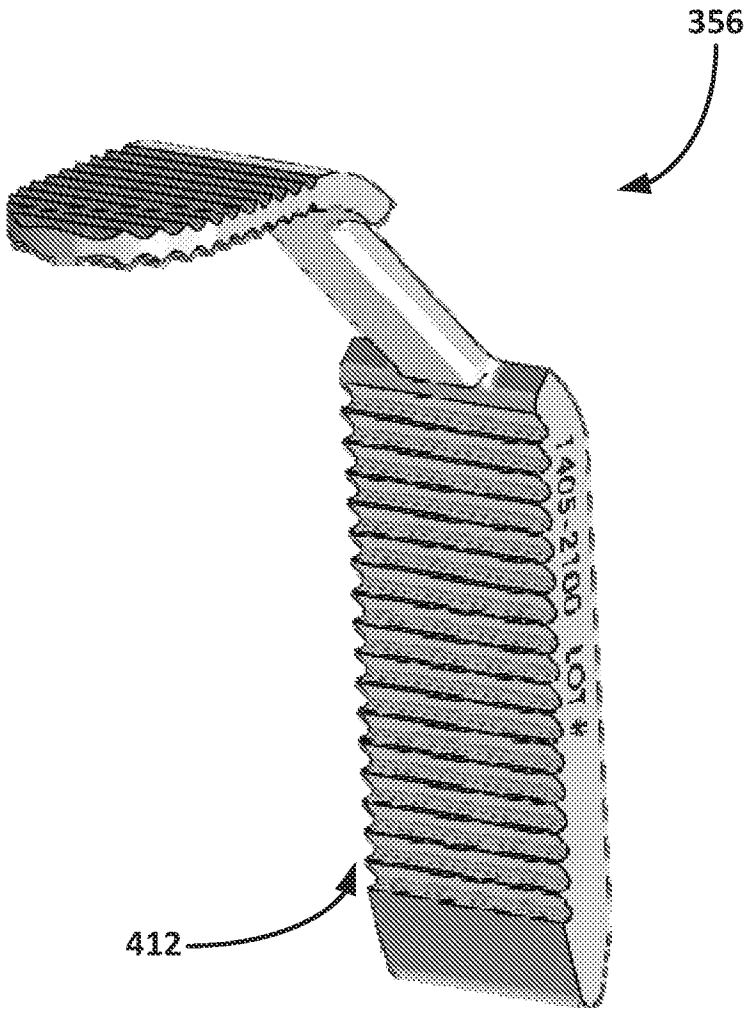


FIG. 41

Fig. 42A

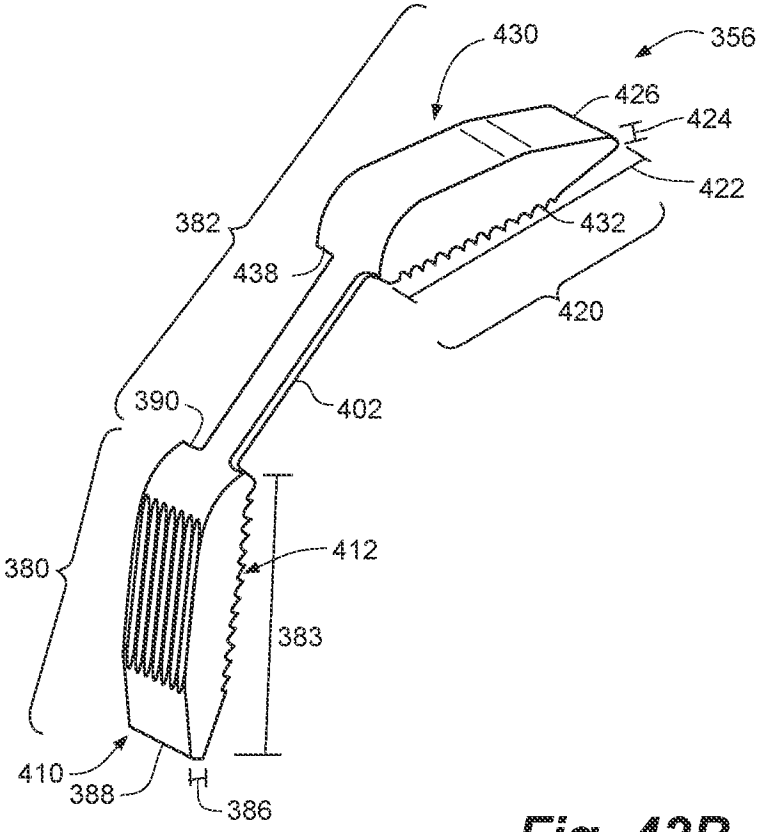
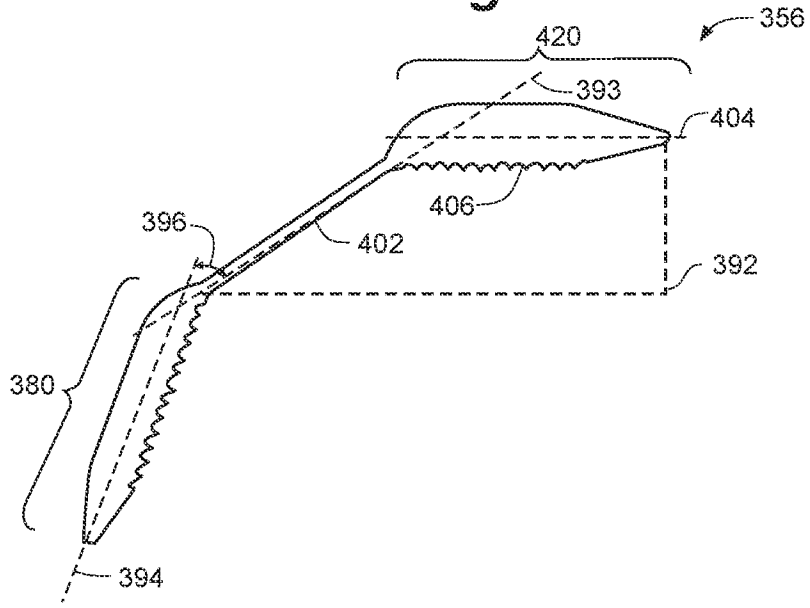


Fig. 42B



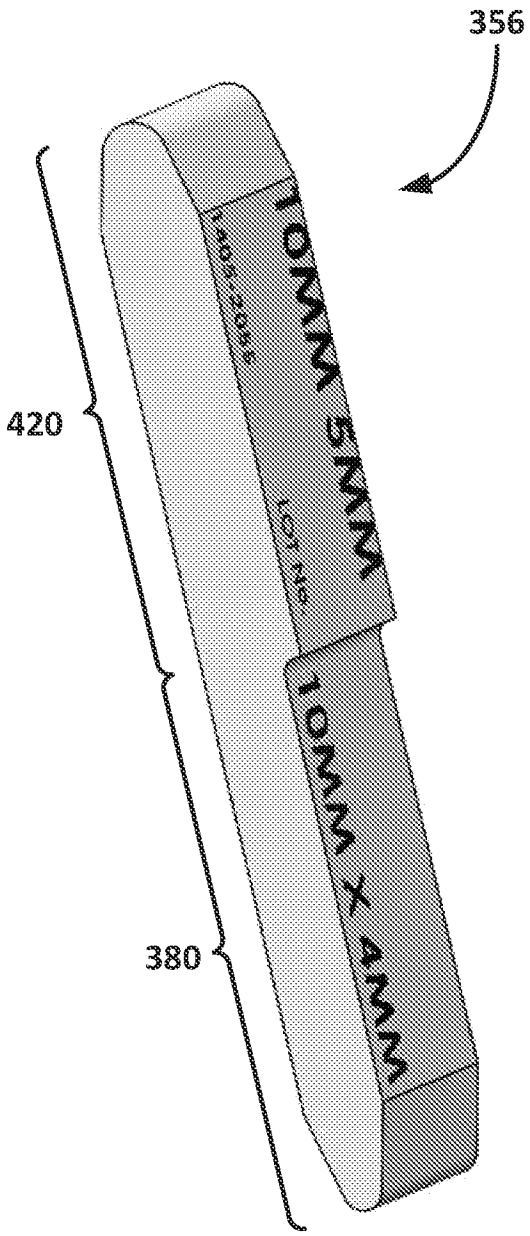


FIG. 43A

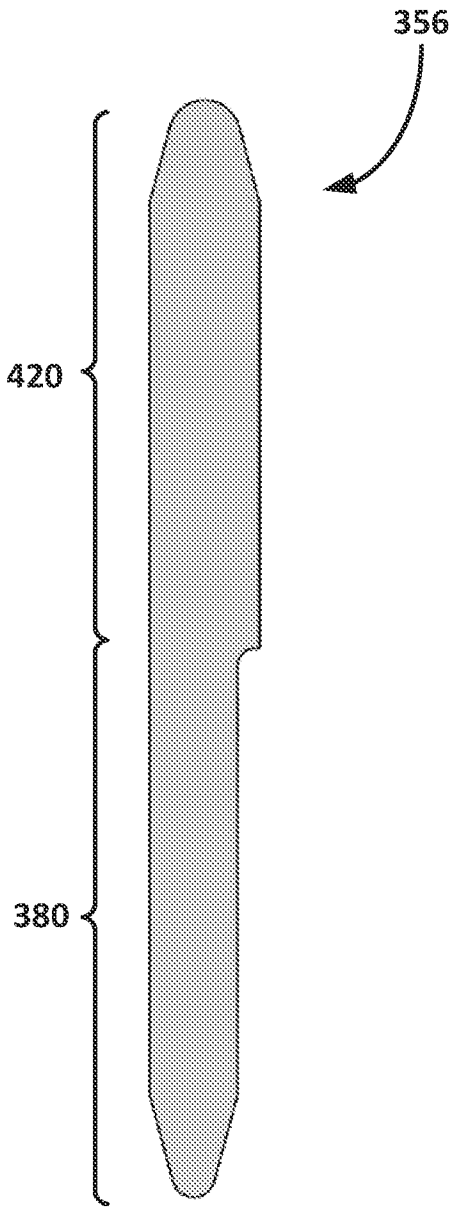


FIG. 43B

PTO/AIA/14 (01-22)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	71212.4.8.USC4
	Application Number	
Title of Invention	TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM	

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
	F.	Barry	Bays	

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

City	Collierville	State/Province	TN	Country of Residence	US

Mailing Address of Inventor:

Address 1	3044 Shea Road		
Address 2			
City	Collierville	State/Province	TN
Postal Code	38017	Country	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Robert	D.	Santrock	

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

City	Morgantown	State/Province	WV	Country of Residence	US

Mailing Address of Inventor:

Address 1	2036 Lakeside Estates		
Address 2			
City	Morgantown	State/Province	WV
Postal Code	26508	Country	US

Inventor 3 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Paul		Dayton	

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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	71212.4.8.USC4
	Application Number	
Title of Invention	TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM	

City	Ankeny	State/Province	IA	Country of Residence	US

Mailing Address of Inventor:

Address 1	3006 NW Sharmin Dr		
Address 2			
City	Ankeny	State/Province	IA
Postal Code	50023	Country	US

Inventor 4 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Daniel	J.	Hatch	

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

City	Greeley	State/Province	CO	Country of Residence	US

Mailing Address of Inventor:

Address 1	533 North Brisbane Avenue		
Address 2			
City	Greeley	State/Province	CO
Postal Code	80634	Country	US

Inventor 5 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	W.	Bret	Smith	

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

City	Lexington	State/Province	SC	Country of Residence	US

Mailing Address of Inventor:

Address 1	462 River Club Road		
Address 2			
City	Lexington	State/Province	SC
Postal Code	29072	Country	US

Inventor 6 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Carlos	Eduardo	Gil	

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

City	Memphis	State/Province	TN	Country of Residence	US

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	71212.4.8.USC4
	Application Number	
Title of Invention	TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM	

Mailing Address of Inventor:

Address 1	222 Grove Dale St		
Address 2			
City	Memphis	**State/Province**	TN
Postal Code	38120	**Country**	US

Inventor 7 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Sean	F.	Scanlan	

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

City	Jacksonville	**State/Province**	FL	**Country of Residence**	US

Mailing Address of Inventor:

Address 1	2051 Spoonbill Street		
Address 2			
City	Jacksonville	**State/Province**	FL
Postal Code	32224	**Country**	US

Inventor 8 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Joe	William	Ferguson	

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

City	Ponte Vedra Beach	**State/Province**	FL	**Country of Residence**	US

Mailing Address of Inventor:

Address 1	201 Duckwood Lane		
Address 2			
City	Ponte Vedra Beach	**State/Province**	FL
Postal Code	32082	**Country**	US

Inventor 9 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	John	T.	Treace	

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

City	Ponte Vedra Beach	**State/Province**	FL	**Country of Residence**	US

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	71212.4.8.USC4
	Application Number	
Title of Invention	TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM	

Mailing Address of Inventor:			
Address 1	4 Ocean Ridge Court		
Address 2			
City	Ponte Vedra Beach	**State/Province**	FL
Postal Code	32082	**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	22859		
Email Address	IP@fredlaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM		
Attorney Docket Number	71212.4.8.USC4	**Small Entity Status Claimed**	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	49	**Suggested Figure for Publication (if any)**	38

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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	71212.4.8.USC4
	Application Number	
Title of Invention	TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM	

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	22859		

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	18323138	2023-05-24

Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
18323138	Continuation of	17888272	2022-08-15	11690659	2023-07-04

Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
17888272	Continuation of	16448357	2019-06-21	11413081	2022-08-18

Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16448357	Division of	15236464	2016-08-14	10342590	2019-07-09

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
15236464	Claims benefit of provisional	62293189	2016-02-09

Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15236464	Continuation in part of	14981335	2015-12-28	9622805	2017-04-18

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	71212.4.8.USC4
	Application Number	
Title of Invention	TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM	

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
14981335	Claims benefit of provisional	62205338	2015-08-14
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.			Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	71212.4.8.USC4
	Application Number	
Title of Invention	TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM	

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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	71212.4.8.USC4
	Application Number	
Title of Invention	TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM	

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	Treace Medical Concepts, Inc.		
Mailing Address Information For Applicant:			
Address 1	100 Palmetto Park Place		
Address 2			
City	Ponte Vedra	**State/Province**	FL
Country	US	Postal Code	32081
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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	71212.4.8.USC4
	Application Number	
Title of Invention	TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM	

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:

Remove

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

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

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

Signature	/Paul J. LaVanway, Jr./			Date (YYYY-MM-DD)	2024-04-24
First Name	Paul J.	Last Name	LaVanway, Jr.	Registration Number	64610

Additional Signature may be generated within this form by selecting the Add button. Add

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	71212.4.8.USC4
	Application Number	
Title of Invention	TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM	

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.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1 The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3 A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent CooperationTreaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/AIA/82A (07-13)
Approved for use through 03/31/2021. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	Not Yet Assigned
Filing Date	Filed Herewith
First Named Inventor	F. Barry Bays
Title	TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM
Art Unit	Not Yet Assigned
Examiner Name	Not Yet Assigned
Attorney Docket Number	71212.4.8.USC4

SIGNATURE of Applicant or Patent Practitioner

Signature	/Paul J. LaVanway, Jr./	Date (Optional)	April 24, 2024
Name	Paul J. LaVanway, Jr.	Registration Number	64610
Title (if Applicant is a juristic entity)	Attorney		
Applicant Name (if Applicant is a juristic entity)	Treace Medical Concepts, Inc.		

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Treace Medical Concepts, Inc.

☐ Inventor or Joint Inventor (title not required below)

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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	/John T. Treace/	Date (Optional)	10/19/16
Name	John T. Treace		
Title	Chief Executive Officer		

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First Named Inventor	F. Barry Bays
Art Unit	
Examiner Name	
Attorney Docket Number	71212.4.8.USC4

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SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Paul J. LaVanway, Jr./	Date (YYYY-MM-DD)	2024-04-24
Name/Print	Paul J. LaVanway, Jr.	Registration Number	64610

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18/645,596	04/25/2024 11:38:30 AM Z ET	71212.4.8.USC4

Title of Invention

TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	4182	FILED BY	Paul LaVanway
PATENT CENTER #	65240458	AUTHORIZED BY	Paul LaVanway
CUSTOMER #	22859	FILING DATE	-
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	F. Barry Bays

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	
	First Named Inventor	F. Barry Bays
	Art Unit	
	Examiner Name	
	Attorney Docket Number	71212.4.8.USC4

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☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

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Signature	/Paul J. LaVanway, Jr./	Date (YYYY-MM-DD)	2024-04-24
Name/Print	Paul J. LaVanway, Jr.	Registration Number	64610

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TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

RELATED APPLICATIONS

[0001] This application is a continuation of US Patent Application No. 18/323,138, filed May 24, 2023, which is a continuation of US Patent Application No. 17/888,272, filed August 15, 2022, now US Patent No. 11,690,659, issued July 4, 2023, which is a continuation of US Patent Application No. 16/448,357, filed June 21, 2019, now US Patent No. 11,413,081, issued August 16, 2022, which is a divisional of US Patent Application No. 15/236,464, filed August 14, 2016, now US Patent No. 10,342,590, issued July 9, 2019, which in turn claims the benefit of US Provisional Application No. 62/293,189, filed February 9, 2016, and is a continuation-in-part of US Patent Application No. 14/981,335, filed December 28, 2015, now US Patent No. 9,622,805, issued April 18, 2017, which claims the benefit of US Provisional Application No. 62/205,338, filed August 14, 2015. The entire contents of all these applications are incorporated herein by reference.

TECHNICAL FIELD

[0002] This disclosure relates generally to devices and methods for positioning and/or preparing bones.

BACKGROUND

[0003] Bones, such as the bones of a foot, may be anatomically misaligned. In certain circumstances, surgical intervention is required to correctly align the bones to reduce patient discomfort and improve patient quality of life.

SUMMARY

[0004] Embodiments of the present invention include methods for fixing an orientation of a bone or bones. In general, the method of positioning a bone includes the steps of moving a bone from an anatomically misaligned position to an anatomically aligned position with respect to another bone and preparing an end of the bone and a facing end of another bone. In some embodiments, at least one bone end is prepared after the bone is moved into the aligned position. In some

embodiments, the bone is anatomically aligned in more than one plane such that the bone both translates and rotates in response to a moving force.

[0005] One embodiment includes a method of correcting a bunion deformity. The method includes inserting a fulcrum between a first metatarsal and a second metatarsal, where the first metatarsal is anatomically misaligned with respect to the second metatarsal. The method further includes preparing an end of the first metatarsal and preparing an end of a medial cuneiform opposing the end of the first metatarsal. In addition, the method involves moving a distal portion of the first metatarsal toward the second metatarsal in a transverse plane, thereby pivoting a proximal portion of the first metatarsal about the fulcrum and reducing the intermetatarsal angle between the first metatarsal and the second metatarsal.

[0006] In one example, a fulcrum is described for use in a bone realignment procedure. The fulcrum includes a body and a handle. The body is configured to be inserted in an intermetatarsal space between adjacent metatarsals. The handle is operatively connected to the body. The example specifies that the handle projects at a non-zero degree angle from the body to define a tissue retraction space between the handle and the body.

[0007] In another example, a multidimensional fulcrum is described that includes a fulcrum body having a length extending from a first end to a second end, a width, and a thickness. The first end of the fulcrum has a first thickness and is configured to be inserted into an intermetatarsal space between adjacent metatarsals of a first size. The second end of the fulcrum has a second thickness and is configured to be inserted into an intermetatarsal space between adjacent metatarsals of a second size. The example specifies that the second thickness is greater than the first thickness.

[0008] The details of one or more examples are set forth in the accompanying drawings and the description below. Other features, objects, and advantages will be apparent from the description and drawings, and from the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] The following drawings are illustrative of particular embodiments of the present invention and, therefore, in no way limit the scope of the invention. The drawings are not necessarily to scale (unless otherwise stated) and are intended for use in conjunction with the explanations in the following detailed description. Embodiments of the invention will

hereinafter be described with respect to the appended drawings, wherein like numerals denote like elements.

[0010] FIG. 1 is a side perspective view of a bone positioning guide in accordance with an embodiment of the invention.

[0011] FIG. 2 is a side perspective view of a bone engagement member of a bone positioning guide in accordance with an embodiment of the invention.

[0012] FIG. 3A is a side perspective view of a tip of a bone positioning guide in accordance with an embodiment of the invention.

[0013] FIG. 3B is a side view of a bone positioning guide with a straight tip in accordance with an embodiment of the invention.

[0014] FIG. 3C is a side view of a bone positioning guide with a nonlinear tip in accordance with an embodiment of the invention.

[0015] FIG. 4 is an end view of an actuator of a bone positioning guide in accordance with an embodiment of the invention.

[0016] FIG. 5 is a top plan view of a bone preparing guide in accordance with an embodiment of the invention.

[0017] FIG. 6A is a perspective view of a bone preparing guide, a spacer, and a tissue removing instrument location check member in accordance with an embodiment of the invention.

[0018] FIG. 6B is a perspective view of another embodiment of a tissue removing instrument check location member engaged with a bone preparing guide.

[0019] FIG. 7 is a perspective view of a bone preparing guide engaged with a spacer in accordance with an embodiment of the invention.

[0020] FIG. 8 is a perspective view of a bone preparing guide engaged with a tissue removal instrument location check member in accordance with an embodiment of the invention.

[0021] FIG. 9A is a front view of a bone positioning guide on a deformed foot in accordance with an embodiment of the invention.

[0022] FIG. 9B is a front view of a bone positioning guide on a foot with a corrected alignment in accordance with an embodiment of the invention.

[0023] FIG. 10A is a top view of a bone positioning guide on a deformed foot in accordance with an embodiment of the invention.

[0024] FIG. 10B is a top view of a bone positioning guide on a foot with a corrected alignment in accordance with an embodiment of the invention.

[0025] FIGS. 11A-C depict a sequence of a bone positioning operation using a bone positioning guide on a foot at first, second, and third positions in accordance with an embodiment of the invention.

[0026] FIG. 12A is a front view of a foot with a normal first metatarsal position.

[0027] FIG. 12B is a front view of a foot with an isolated first metatarsal rotation bunion deformity.

[0028] FIG. 13A is a top view of a foot with a normal first metatarsal position.

[0029] FIG. 13B is a top view of a foot with an isolated first metatarsal transverse plane bunion deformity.

[0030] FIG. 14A is a side view of a foot with a normal first metatarsal position.

[0031] FIG. 14B is a side view of a foot with an isolated first metatarsal sagittal plane bunion deformity.

[0032] FIG. 15A is a perspective view and an enlarged view of a foot.

[0033] FIG. 15B is a perspective view of a first metatarsal.

[0034] FIG. 16 is a side perspective view of a foot depicting a bone preparation instrument inserted into a joint.

[0035] FIG. 17 is a perspective view of a foot depicting a bone positioning guide on the foot prior to an alignment of a first metatarsal.

[0036] FIG. 18 is a perspective view of a foot depicting a bone positioning guide on the foot after an alignment of a first metatarsal.

[0037] FIG. 19 is a perspective view of a foot depicting a bone positioning guide on the foot after an alignment of a first metatarsal and an insertion of a spacer into a joint space.

[0038] FIG. 20 is a perspective view of a foot depicting a bone positioning guide on the foot after an alignment of a first metatarsal and a positioning of a bone preparation guide.

[0039] FIG. 21A is a perspective view of a foot depicting a bone positioning guide on the foot after an alignment of a first metatarsal and a positioning of a bone preparation guide with pins.

[0040] FIG. 21B is another perspective view of a foot depicting a bone positioning guide on the foot after an alignment of a first metatarsal and a positioning of a bone preparation guide with pins.

[0041] FIG. 22 is a perspective view of a foot depicting a bone preparation instrument preparing a bone of the foot guided by a guide surface of a bone preparation guide.

[0042] FIG. 23 is a perspective view of a foot depicting a bone positioning guide on the foot and a removal of a bone preparation guide.

[0043] FIG. 24 is a perspective view of a foot depicting a bone positioning guide on the foot and pins.

[0044] FIG. 25 is a perspective view of a foot depicting a bone positioning guide on the foot and a compression pin.

[0045] FIG. 26A is a side perspective view of a foot depicting bone plates across a joint between first and second bones and a compression pin in accordance with an embodiment of the invention.

[0046] FIG. 26B is a side perspective view of a foot depicting bone plates across a joint between first and second bones and a compression pin in accordance with an embodiment of the invention.

[0047] FIG. 27 is a side perspective view of a foot depicting bone plates across a joint between first and second bones in accordance with an embodiment of the invention.

[0048] FIG. 28A and FIG. 28B depict examples of anatomically misaligned metatarsals and metatarsals that have been anatomically aligned using methods and/or instruments in accordance with the invention.

[0049] FIG. 29A and FIG. 29B depict examples of anatomically misaligned metatarsals and metatarsals that have been anatomically aligned using methods and/or instruments in accordance with the invention.

[0050] FIG. 30A illustrates a portion of a foot having a bunion caused by a misaligned first metatarsal relative to a second metatarsal.

[0051] FIG. 30B shows an example base compression that can be caused after the foot of FIG. 30A is anatomically aligned.

[0052] FIG. 31 illustrates an example bone positioning operation in which a fulcrum is positioned at an intersection between a first bone and a second bone.

[0053] FIG. 32 is a perspective view of one example fulcrum.

[0054] FIG. 33 illustrates an example system of different sized fulcrums.

[0055] FIG. 34 is a perspective view of another bone positioning guide according to an embodiment of the invention.

[0056] FIG. 35 illustrates an example configuration of a joint spacer that can allow a bone preparation guide to rotate around the spacer.

[0057] FIG. 36A is a perspective view of an example configuration of a bone positioning guide having an opening with circular cross-sectional shape.

[0058] FIG. 36B is a perspective view of the example bone positioning guide of FIG. 36A shown with the joint spacer from FIG. 35 inserted into the guide.

[0059] FIG. 37 is a block flow diagram of an example bone correction technique utilizing a fulcrum.

[0060] FIG. 38 is a perspective view of a foot showing an example position of a fulcrum during a bone correction procedure according to the method of FIG. 37.

[0061] FIGS. 39A and 39B are different perspective views of another example fulcrum that can be used during a bone correction procedure.

[0062] FIG. 40 is an image of the example fulcrum of FIGS. 39A and 39B inserted between a first metatarsal and a second metatarsal.

[0063] FIG. 41 illustrates an alternative arrangement of surface features that may be used on the example fulcrum of FIGS. 39A and 39B.

[0064] FIGS. 42A and 42B are perspective and side views, respectively, of an example fulcrum having two fulcrum bodies.

[0065] FIGS. 43A and 43B are perspective and side views, respectively, of an example multidimensional fulcrum having ends of different dimensions and a unitary body.

DETAILED DESCRIPTION

[0066] The following detailed description is exemplary in nature and is not intended to limit the scope, applicability, or configuration of the invention. Rather, the following description provides practical illustrations for implementing exemplary embodiments of the disclosure. Examples of constructions, materials, and dimensions are provided for selected elements, and all other elements employ that which is known to those of ordinary skill in the field of the invention. Those skilled in the art will recognize that many of the noted examples have a variety of suitable alternatives.

[0067] Embodiments of the invention include a bone positioning guide and method of positioning bones in a medical procedure. In an exemplary application, embodiments of the bone positioning guide can be useful during a surgical procedure, such as a bone alignment, osteotomy, fusion procedure, and/or other procedures where one or more bones are to be prepared (e.g., cartilage or bone removal and/or cut). Such a procedure can be performed, for example, on bones (e.g., adjacent bones separated by a joint or different portions of a single bone) in the foot or hand, where bones are relatively smaller compared to bones in other parts of the human anatomy. In one example, a procedure utilizing an embodiment of the bone positioning guide can be performed to correct an alignment between a metatarsal (e.g., a first metatarsal) and a second metatarsal and/or a cuneiform (e.g., a medial, or first, cuneiform), such as in a bunion correction surgery. An example of such a procedure is a Lapidus procedure (also known as a first tarsal-metatarsal fusion). In another example, the procedure can be performed by modifying an alignment of a metatarsal (e.g., a first metatarsal). An example of such a procedure is a basilar metatarsal osteotomy procedure.

[0068] FIG. 1 shows a side perspective view of a bone positioning guide 10 in accordance with an embodiment of the invention. The bone positioning guide 10 can be useful for positioning a bone (e.g., orientating and/or translating) during a medical procedure. In some embodiments, the bone positioning guide includes a bone engagement member, a tip, a mechanism to urge the bone engagement member and the tip towards each other (e.g. moving the bone engagement member towards the tip, moving the tip towards the bone engagement member, or moving both simultaneously), and an actuator to actuate the mechanism. When the mechanism is actuated it causes a first bone engaged with the bone engagement member to move to correct an alignment in more than one plane with respect to a second bone in contact with the tip. In some embodiments, the correction in more than one plane includes a correction about an axis in a frontal plane.

[0069] In the embodiment of FIG. 1, bone positioning guide 10 includes a main body member 20 and a shaft 30, and the bone engagement member 40 is connected to the shaft and the tip 50 is connected to the main body member. In general, the main body member 20 can be sized and shaped to clear anatomy or other instrumentation (e.g., pins and guides) while positioned on a patient. In the embodiment of FIG. 1, the main body member 20 includes a generally C-shaped configuration with a first end 60 and a second end 70. In some embodiments, the main body is

sized and configured to engage bones of a human foot. In addition, although bone positioning guide 10 is illustrated as being formed of two components, main body member 20 and shaft 30, the guide can be fabricated from more components (e.g., 3, 4, or more) that are joined together to form the guide.

[0070] A shaft 30 can be movably connected to the main body member 20 proximate its first end 60. In some embodiments, the shaft 30 includes threads 80 that engage with the main body member 20 such that rotation of the shaft translates the shaft with respect to the main body member. In other embodiments, the shaft can slide within the main body member and can be secured thereto at a desired location with a set screw. In yet other embodiments, the shaft can be moved with respect to the main body by a ratchet mechanism. In the embodiment shown, the shaft moves along an axis that intersects the tip 50. In other embodiments, such as that described with respect to FIG. 34, the shaft 30 and/or bone engagement member 40 is offset from tip 50.

[0071] As shown in FIG. 2, embodiments of the bone positioning device can have a bone engagement member 40. In some embodiments, the bone engagement member includes a surface 90 configured to contact a bone, such as a metatarsal or a cuneiform. In the embodiment shown, the surface 90 is concave. Such a surface is adapted to promote surface contact with a generally cylindrical bone, such as a metatarsal. Other embodiments of surface shapes include planar surfaces and V-shaped surfaces. When using a concave or V-shaped bone engagement member 40, the sidewalls of the concavity or V-shaped groove may be symmetrical or asymmetrical. In a symmetrical configuration, the bottom of the concavity or groove can be centered between upwardly extending sidewalls configured to receive a bone. Each sidewall can extend upwardly to the same height and/or at the same slope. In the asymmetrical configuration, one sidewall can have a different configuration than the opposing sidewall. For example, one of the sidewalls may extend upwardly from the bottom of the concavity or groove to a lower height than the opposing sidewall. As another example, one sidewall may extend upwardly at a different angle than the opposing sidewall. The asymmetrical configuration can be useful for applying a force that is biased laterally instead of only being linear toward tip 50.

[0072] In some embodiments, bone engagement member 40 includes a pin or a clamp. Independent of whether bone engagement member 40 includes such pin or clamp, the bone engagement member can engage an anatomical feature of a bone, such as a ridge (e.g., a medial ridge of a first metatarsal). In such embodiments, the engagement generally prohibits rotational

movement of the bone with respect to the bone engagement member. In other embodiments, bone may be allowed to rotate with respect to the bone engagement member.

[0073] In the embodiment shown, the bone engagement member 40 is provided on an end of the shaft 30. In the embodiment of the shaft shown having threads 80, the bone engagement member 40 can be rotatably coupled to the shaft 30. In such embodiments, as the shaft is rotated relative to the main body member the bone engagement member 40 may or may not rotate with respect to the main body member even as it translates with respect to the main body member along with the shaft 30 and rotates with respect to the shaft. The bone engagement member may oscillate about the shaft 30, but generally does not rotate with respect to bone after contact with the bone.

[0074] FIGS. 3A-C depict a tip 50 of bone positioning guide 10, which can be at a second end 70 of the main body member opposite the first end. The tip 50 can be useful for contacting a bone, generally a bone distinct from a bone contacting the bone engagement member. For example, if the bone engagement member is in contact with a first metatarsal, the tip can be in contact with a metatarsal other than the first metatarsal (e.g., the second, third, fourth, or fifth metatarsal). In some embodiments, the tip is tapered to facilitate percutaneous insertion and contact with bone. The tip can also include a textured surface 100, such as serrated, roughened, cross-hatched, knurled, etc., to reduce slippage between the tip and bone. In the embodiment shown, the tip further includes a stop 110 to limit a depth of insertion. The shape of the tip can be configured to stably contact bone. For example, FIG. 3B shows a side view of the bone positioning guide with a generally straight tip 50, while FIG. 3C shows a side view of the bone positioning guide with a nonlinear tip 50 (e.g., a tip that is angled or curved). In some embodiments, the tip is configured to restrict translational movement between it and a bone, but to allow rotational movement between it and the bone.

[0075] As shown in FIG. 4, bone positioning guide 10 can also include an actuator (e.g., a knob or a handle) 120 to actuate the mechanism, in this embodiment associated with the shaft. In the embodiment shown, the actuator can be useful for allowing a user to rotate the shaft with respect to the main body member 20. Also as shown in FIG. 4, the actuator, shaft, and bone engagement member may include a cannulation 130 to allow the placement of a fixation wire (e.g., K-wire) through these components and into contact with or through a bone engaged with the bone engagement member. For example, the fixation wire can be placed into the bone engaged with bone engagement member 40 to fix the position of the bone engagement member with respect to

the bone. In another example, the fixation wire can be placed through the bone in contact with the bone engagement member and into an adjacent bone to maintain a bone position of the bone in contact with the bone engagement member and the adjacent bone.

[0076] In other embodiments, the mechanism to urge the bone engagement member and the tip towards each other can include a tenaculum or tong structure. In such embodiments, the guide can include a first shaft pivotably connected to a second shaft. A first end of each shaft can include an actuator, such as a handle. A second end of the first shaft can include a bone engagement member, as described above. And a second end of the second shaft can include a tip, as described above. In use, the actuator can be actuated (e.g., squeezed together) to move the bone engagement member and the tip closer together to position bone. Other embodiments of this type may include another set of shafts and another pivoting connection such that the bone engagement member and tip translate towards each other when the actuator is actuated.

[0077] In other embodiments, the mechanism to urge the bone engagement member and the tip towards each other can include a rack and pinion structure. In such embodiments, the rack can include a tip, as described above. And the pinion can include a bone engagement member, as described above, and an actuator (e.g., a knob). In use, the actuator can be actuated (e.g., turned about an axis generally perpendicular to a direction of travel) to move the bone engagement member and the tip closer together to position bone.

[0078] Embodiments of the bone positioning guide may include any suitable materials. In certain embodiments, the bone positioning guide is fabricated from a radiolucent material such that it is relatively penetrable by X-rays and other forms of radiation, such as thermoplastics and carbon-fiber materials. Such materials are useful for not obstructing visualization of bones using an imaging device when the bone positioning guide is positioned on bones.

[0079] Embodiments of the bone positioning guide can be useful in operation for positioning a bone or bones during a medical procedure. Bone positioning can be useful, for instance, to correct an anatomical misalignment of bones and maintain an anatomically aligned position, such as in a bone alignment and/or fusion procedure. In some embodiments, the bone positioning guide is capable of reducing an angle between the first metatarsal and the second metatarsal from over 10 degrees (e.g., up to about 35 degrees) to about 10 degrees or less (e.g., to about 1-5 degrees), including to negative angles of about -5 degrees. In some embodiments, the bone positioning guide is also capable of rotating the first metatarsal about its long axis with

respect to the medial cuneiform from a rotational angle of over 4 degrees to a rotational angle of less than 4 degrees (e.g., to about 0 to 2 degrees).

[0080] In some embodiments, a bone preparation guide may be provided to facilitate the preparation of a bone. The bone preparation guide can be provided with a bone positioning guide, or either device can be provided or used independently. An example of a bone preparation guide 150 is shown in FIG. 5. In some embodiments, the bone preparation guide 150 includes a body 154 defining a first guide surface 160 to define a first preparing plane and a second guide surface 164 to define a second preparing plane. A tissue removing instrument (e.g., a saw, rotary bur, osteotome, etc., not shown) can be aligned with the surfaces to remove tissue (e.g., remove cartilage or bone and/or make cuts to bone). The first and second guide surfaces 160, 164 can be spaced from each other by a distance, (e.g., between about 2 millimeters and about 10 millimeters, such as between about 4 and about 7 millimeters). In the embodiment shown, the first and second guide surfaces are parallel, such that cuts to adjacent bones using the guide surfaces will be generally parallel.

[0081] In some embodiments, as shown in FIG. 5, a first facing surface 166 is positioned adjacent the first guide surface 160 and/or a second facing surface 168 is positioned adjacent the second guide surface 164. In such embodiments, the distance between the first guide surface and the first facing surface defines a first guide slot, and the distance between the second guide surface and the second facing surface defines a second guide slot. Each slot can be sized to receive a tissue removing instrument to prepare the bone ends. The first and second slots may be parallel or skewed. In the illustrated embodiment, the facing surfaces each contain a gap, such that the surface is not a single, continuous surface. In other embodiments, the facing surfaces can be a single, continuous surface lacking any such gap.

[0082] An opening 170 can be defined by the body 154 between the first and second guide surfaces. The opening can be an area between the guide surfaces useful for allowing a practitioner to have a visual path to bones during bone preparation and/or to receive instruments. In the embodiment shown, the opening extends across the body and a distance from a surface 172 opposite of the first facing surface 166 to a surface 174 opposite of the second facing surface 168.

[0083] The embodiment shown also includes a first end 176 extending from the body 154 in a first direction and a second end 178 extending from the body in a second direction. The second

direction can be different than the first direction (e.g., an opposite direction). As shown, each of the first end and the second end can include at least one fixation aperture 180 configured to receive a fixation pin (not shown in FIG. 5) to secure the guide to a bone. As shown, such apertures may extend through the end at a vertical or skewed angle relative to a top surface of the guide.

[0084] The bone preparation guide 150 can also include a first adjustable stabilization member 182 engaged with the first end 176. In some embodiments, the bone preparation guide can include a second adjustable stabilization member 184 engaged with the second end 178. Each of the members can be threaded and engage a threaded aperture defined by the ends. The elevation of each end can be adjusted with respect to a bone by adjusting the stabilization member. In some embodiments, as shown, the stabilization members are cannulated such that they can receive a fixation pin.

[0085] As shown in FIGS. 6A and 7, the bone preparation guide can also include a spacer 188 extending downward from the body 154 and configured to be placed into a joint. In some embodiments, the spacer 188 is selectively engageable with the body. The spacer can have a first portion 190 configured to extend into a joint space and a second portion 192 engageable with the body 154. In the embodiment shown, the spacer can be received within opening 170, such that the spacer extends from the body in between the first and second guide surfaces. Such a spacer can be useful for positioning the body at a desired position with respect to a joint and for properly positioning the guide with respect to bones to be cut in more than one plane (e.g., three planes selected from more than one of a frontal plane, a transverse plane, and a sagittal plane). The distance between the spacer and the first guide surface can define a length of tissue removal (e.g., bone or cartilage to be cut) from a first bone, and the distance between the spacer and the second guide surface can define a length of tissue removal (e.g., bone or cartilage to be cut) from a second bone.

[0086] As shown in FIGS. 6A/B and 8, the bone preparation guide can also include a tissue removal location check member 194 engageable with the body 154 and configured to extend to a first bone and a second bone. The tissue removal location check member can have a first portion 196 configured to extend into contact with first and second bones and a second portion 198 engageable with the body. In the embodiments shown in FIGS. 6A and 8, the tissue removal location check member extends from the body at both the first and second guiding surfaces. In

other embodiments, such as the embodiment shown in FIG. 6B, separate tissue removal location check members are provided for independent insertion into respective slots of the guide. Accordingly, embodiments of tissue removal location check members are useful for allowing a practitioner to see where a tissue removing instrument guided by the surfaces will contact the bone to be prepared.

[0087] Embodiments of the bone preparation guide can be useful in operation for guiding a preparation of a bone or bones at a targeted anatomy. Bone preparation can be useful, for instance, to facilitate contact between leading edges of adjacent bones, separated by a joint, or different portions of a single bone, separated by a fracture, such as in a bone alignment and/or fusion procedure. A bone may be prepared using one or more bone preparation techniques. In some applications, a bone is prepared by cutting the bone. The bone may be cut transversely to establish a new bone end facing an opposing bone portion. Additionally or alternatively, the bone may be prepared by morselizing an end of the bone. The bone end can be morselized using any suitable tool, such as a rotary bur, osteotome, or drill. The bone end may be morselized by masticating, fenestrating, crushing, pulping, and/or breaking the bone end into smaller bits to facilitate deformable contact with an opposing bone portion.

[0088] Embodiments of the present invention also include methods for temporarily fixing an orientation of a bone or bones, for example, prior to or in conjunction with permanently fixing the orientation of the bone or bones. In general, the method of positioning a bone includes the steps of moving a bone from an anatomically misaligned position to an anatomically aligned position with respect to another bone and preparing an end of the moved bone and a facing end of another bone. In some embodiments, the end of at least one of the moved bone and the other bone is prepared after moving the bone into the aligned position. In certain embodiments, the bone is anatomically aligned in more than one plane with respect to another bone by applying a force to one bone at a single location, such that the bone both translates and rotates in response to the force. In certain embodiments, the moving step can be accomplished with a bone positioning device and/or the preparing step can be accomplished with a bone preparation guide, as described herein. In other embodiments, the moving step can be accomplished by a clinician physically grasping a bone, either through direct contact with the bone or indirectly (e.g., by inserting a K-wire, grasping with a tenaculum, or the like), and moving his hand to move the

bone. In these applications, a fulcrum may be used to control movement of the bone, as also described herein.

[0089] FIGS. 9A-B depict fontal views of a bone positioning guide 10 on a foot 200 having a first metatarsal 210, a medial cuneiform 220, a second metatarsal 292, and a third metatarsal 294. FIG. 9A depicts a foot 200 with an uncorrected bunion deformity, while FIG. 9B depicts the foot 200 with an alignment corrected by the bone positioning guide 10. Solid line L1 represents the starting location of the bone positioning guide 10 and dotted line L2 represents the finishing location of the bone positioning guide. As shown, as the bone positioning guide 10 is actuated it rotates with the first metatarsal 210 about an axis extending through the frontal plane as it pushes the first metatarsal 210 laterally in the transverse plane and plantarly in the sagittal plane. Accordingly, in this example, the position of the first metatarsal 210 is corrected with respect to the second metatarsal 292 generally in three planes by actuating a single bone positioning guide 10 to urge a bone engagement member 40 toward a tip 50. FIG. 10A shows a top view of a foot 200 with an uncorrected bunion deformity, while FIG. 10B shows a top view of the foot 200 with an alignment corrected by the bone positioning guide 10, emphasizing the rotational correction in the frontal plane and the lateral correction in the transverse plane.

[0090] FIGS. 11A-C show three sequential images of a bone positioning guide 10 on a foot 200 positioning a first metatarsal 210 with respect to a second metatarsal 292. FIG. 11A represents the beginning of the procedure, FIG.11B the middle, and FIG. 11C the end. The orientation of the pins 270 is useful for visualizing the amount of rotation of the first metatarsal 210 in each image. With respect to FIGS. 11A-C, it can be seen the bone positioning guide 10 and the first metatarsal 210 are rotating in the frontal plane in response to actuation of bone positioning guide 10. Further, the angle between the first metatarsal 210 and second metatarsal 292 is reduced, as the space that can be seen between the first and second metatarsals in FIG. 11A is eliminated in FIG. 11C.

[0091] Each of the three potential planes of deformity will now be described in isolation. FIGS. 12A and 12B show frontal plane views of a foot 200. In FIG. 12A, the foot 200 is normal, while in FIG. 12B the foot is depicted with an uncorrected bunion deformity showing an isolated axial rotation of the first metatarsal 210. Solid line L3 indicates the alignment of the first metatarsal 210 relative to ground, while dotted line L4 in FIG. 12B indicates the extent of axial rotation in the frontal plane.

[0092] FIGS. 13A and 13B show transverse plane views of a foot 200. In FIG. 13A, the foot 200 is normal, while in FIG. 13B the foot is depicted with an uncorrected bunion deformity showing an isolated transverse plane first metatarsal 210 deviation. Solid line L5 indicates the alignment of the second metatarsal 292 and solid line L6 indicates the proper alignment of the first metatarsal 210 relative to the second metatarsal 292. The angle between these two lines forms the intermetatarsal angle (IMA). Dotted line L7 in FIG. 13B indicates the extent of transverse deviation.

[0093] FIGS. 14A and 14B show sagittal plane views of a foot 200. In FIG. 14A, the foot 200 is normal, while in FIG. 14B the foot is depicted with an uncorrected bunion deformity showing an isolated sagittal deviation of the first metatarsal 210. Solid line L8 indicates the proper alignment of the first metatarsal 210, while dotted line L9 in FIG. 14B indicates the extent of sagittal deviation.

[0094] A specific embodiment of a method in accordance with an embodiment of the invention includes the steps of engaging a bone engagement member with a first bone, placing a tip of the bone positioning guide in apposition to a second bone, the second bone being different from the first bone, and moving the bone engagement member with respect to the tip to change the position of the first bone with respect to the second bone in more than one plane. In some embodiments, after alignment, at least one of an end of the first bone and a facing end of a third bone are prepared (e.g., only the end of the first bone or both the end of the first bone and the end of the second bone), optionally using a preparation guide.

[0095] In some embodiments, the method includes the step of mobilizing a joint for a corrective procedure. For example, after creating surgical access to the joint and before moving the bones into an aligned position, tissue can be released to allow a bone, such as a metatarsal, to rotate freely. In some embodiments, obstructing bone may be excised (e.g., a dorsolateral flare of the metatarsal base, a plantar flare of the metatarsal base (sometimes referred to as a plantar condyle), part of an end of a metatarsal facing a cuneiform, or osteophyte) to further promote free rotation by creating relatively flat surfaces with respect to a frontal plane. An example of a dorsolateral flare F on a first metatarsal 210 of a foot 200 is shown in FIG. 15A. An example of a plantar flare PF on a first metatarsal 210 is shown in FIG 15B. FIG. 15B also depicts a medial ridge MR, which, in some embodiments, can be engaged by the bone engaging member of a bone positioning guide.

[0096] Embodiments of methods in accordance with the invention can also include steps performed after preparing the ends of the bones. For example, the ends of the bones may be placed in apposition and optionally compressed together and the position of the bones can be fixed with one or more bone fixation devices (e.g., compressing bone screw, bone plate, bone staple, external fixator, intramedullary implant or nail) prior to a closing of the surgical access to the joint.

[0097] An exemplary method will now be described with respect to FIGS. 16-27 depicting a foot 200 having a first metatarsal 210, a medial cuneiform 220, and a second metatarsal 292. Note, unless otherwise indicated, the steps described need not be carried out in the order described.

[0098] After customary surgical preparation and access, a bone preparation instrument 296 can be inserted into the joint (e.g., first tarsal-metatarsal joint) to release soft tissues and/or excise the plantar flare from the base of the first metatarsal 210, as shown in FIG. 16. Excising the plantar flare may involve cutting plantar flare off the first metatarsal 210 so the face of the first metatarsal is generally planar. This step helps to mobilize the joint to facilitate a deformity correction. In some embodiments, the dorsal-lateral flare of the first metatarsal may also be excised to create space for the deformity correction (e.g., with respect to rotation of the first metatarsal). In certain embodiments, a portion of the metatarsal base facing the medial cuneiform can be removed during this mobilizing step.

[0099] An incision can be made and a tip 50 of a bone positioning guide 10 can be inserted on the lateral side of a metatarsal other than the first metatarsal 210, such as the second metatarsal 292. As shown in FIG. 17, the tip can be positioned proximally at a base of the second metatarsal 292 and a third metatarsal 294 interface. A surface of a bone engagement member 40 can be placed on the proximal portion of the first metatarsal 210. In some embodiments, the bone engagement member engages a medial ridge of the first metatarsal 210. As shown, the main body member 20 of the positioning guide can be generally perpendicular to the long axis of the second metatarsal 292.

[0100] As depicted in FIG. 18, the actuator 120 can be actuated to extend the shaft 30 to reduce the angle (transverse plane angle between the first metatarsal and the second metatarsal) and rotate the first metatarsal about its axis (frontal plane axial rotation). The first metatarsal 210 can be properly positioned with respect to the medial cuneiform 220 by moving the bone engagement member 40 with respect to the tip 50. In some embodiments, such movement

simultaneously pivots the first metatarsal with respect to the cuneiform and rotates the first metatarsal about its longitudinal axis into an anatomically correct position to correct a transverse plane deformity and a frontal plane deformity. In certain embodiments, main body member 20 rotates in a generally lateral direction during this step. In some embodiments, fixation pins (not shown in FIG. 18) can be inserted into the bones prior to the positioning step (e.g., freehand or using apertures in the guide as a template), and can be used to impart additional force (transverse, sagittal, and/or frontal plane rotational) to the first metatarsal 210, if desired. The bone positioning guide 10 can hold the desired position of the first metatarsal 210 with respect to the second metatarsal 292. After the desired correction is achieved, a fixation wire 298 can be inserted through a cannulation in the shaft 30 and driven into the first metatarsal 210 and the second metatarsal 292 to hold the corrected position.

[0101] As depicted in FIG. 19, a joint spacer 188 can be positioned within the joint between the first metatarsal and the medial cuneiform.

[0102] As shown in FIG. 20, a bone preparation guide 150 can be placed over the joint spacer 188 and engaged with the joint spacer to set a position and orientation of the bone preparation guide relative to the joint. As shown, the bone preparation guide 150 can be positioned proximal to the bone positioning guide 10 in longitudinal alignment with the long axis of the first metatarsal 210 and the medial cuneiform 220, generally on the dorsal or dorsal-medial surface. In other embodiments, the spacer 188 is positioned after the bone preparation guide 150 is provisionally placed on the bones. In yet other embodiments, bone preparation guide 150 and joint spacer 188 are placed simultaneously. In still other embodiments, bone preparation guide 150 is placed on the bones without using joint spacer 188 to aid with positioning.

[0103] As depicted in FIGS. 21A and 21B, one or more fixation pins 270 can be inserted into apertures of the bone preparation guide 150 to secure the guide to the first metatarsal 210 and the medial cuneiform 220. As shown, some pins 270 can be inserted at an angle or in a converging orientation to help prevent movement of the bone preparation guide 150 during a tissue removing step. As shown, two of the pins 270, one on the first metatarsal and one on the medial cuneiform, are parallel to allow the bone preparation guide 150 to be removed from the foot without removing all the pins. After insertion of the pins 270, the spacer 188 can optionally be removed in embodiments having a selectively engageable spacer (e.g., a joint spacer 188 that is physically removable from bone preparation guide 150).

[0104] In some embodiments, the location of the intersection of the tissue removing instrument and the bone to be prepared is confirmed before bone preparation. In one embodiment, a tissue removing instrument location check member can be engaged with the preparation guide to visually confirm where a tissue removal instrument will contact the bone. In another embodiment, a tissue removal instrument is engaged with the preparation guide to visually confirm where the instrument will contact the bone. In either embodiment, such visual confirmation can include the use of an imaging device, such as an X-ray. If the position of the preparation guide is correct, additional fixation pins may be inserted through the apertures (e.g., angled apertures) to further fix the position of the preparation guide with respect to the first metatarsal and the medial cuneiform. In some embodiments, the spacer is reattached prior to further bone preparation steps.

[0105] In some embodiments, the end of the first metatarsal 210 facing the medial cuneiform 220 can be prepared with a tissue removing instrument 296 guided by a guide surface of bone preparation guide 150 (e.g., inserted through a slot defined by a first guide surface and a first facing surface). Additionally or alternatively, the end of the first metatarsal 210 facing the medial cuneiform 220 can be prepared by morselizing the end of the first metatarsal. In some embodiments, the first metatarsal 210 end preparation is done after the alignment of the bones, e.g., by actuating bone positioning guide 10 before preparing the end of first metatarsal 210. In other embodiments, the first metatarsal 210 end preparation is done before the alignment of the bones, e.g., by preparing the end of the first metatarsal 210 before actuating bone positioning guide 10.

[0106] In addition, as shown in FIG. 22, the end of the medial cuneiform 220 facing the first metatarsal 210 can be prepared with the tissue removing instrument 296 guided by a guide surface of bone preparation guide 150 (e.g., inserted through a slot defined by a second guide surface and a second facing surface). Additionally or alternatively, the end of the medial cuneiform 220 facing the first metatarsal 210 can be prepared by morselizing the end of the medial cuneiform. In some embodiments, the medial cuneiform 220 end preparation is done after the alignment of the bones. In yet other embodiments, the medial cuneiform 220 end preparation is done before the alignment of the bones. In embodiments that include cutting bone or cartilage, the cuneiform cut and the metatarsal cut can be parallel, conforming cuts. In the specific embodiment shown in FIG. 22, a saw blade can be inserted through a first slot to cut a

portion of the medial cuneiform and the saw blade can be inserted through a second slot to cut a portion of the first metatarsal (e.g., in some embodiments the medial cuneiform can be cut before the first metatarsal). Accordingly, in the embodiment shown, the cuts to both the first metatarsal and the medial cuneiform were preformed after the first metatarsal was positioned.

[0107] Any angled/converging pins can be removed and the bone preparation guide 150 can be lifted off the parallel pins 270, as shown in FIG. 23. The parallel pins can be referred to as "reference pins" which can serve as a reference in later steps to ensure that the corrected alignment of the first metatarsal 210 has been maintained. The joint spacer can also be removed before, after, or simultaneously with the bone preparation guide. In some embodiments, the bone positioning guide 10 is also removed from the foot.

[0108] The tissue (e.g., bone or cartilage slices) from the first metatarsal and the medial cuneiform can be removed from the joint site and the joint surfaces can be fenestrated, if desired. If the bone positioning guide was taken off the foot, it can be put back on, as shown in FIG. 24, before the additional steps discussed below.

[0109] After preparation, the ends of the two bones can be placed in apposition and optionally compressed together by provisionally fixating the joint. For example, the two bones may be placed in apposition by placing the cut and/or morselized end of the first metatarsal 210 in abutment with the cut and/or morselized end of the medial cuneiform 220. In some examples, the cut and/or morselized end of the first metatarsal 210 is placed adjacent to, and optionally in contact with, the cut and/or morselized end of the medial cuneiform 220.

[0110] As shown in FIG. 25, a compression pin, such as a threaded olive pin 300 can be inserted through the first metatarsal 210 and into the medial cuneiform 220 to provide compression and provisional fixation between the first metatarsal and the medial cuneiform. Additional compression pins can be inserted to provide additional stability. As shown, the parallel reference pins should be aligned during this step. In some embodiments, a practitioner checks for alignment of the parallel reference pins prior to insertion of the compression pin, and, if they are not aligned, adjusts the position of the first metatarsal until desired alignment is achieved.

[0111] Although they can be left in place, in some embodiments the parallel reference pins and bone positioning guide can be removed and a bone fixation device (e.g., two bone plates positioned in different planes, as shown) can be applied to stabilize the joint for fusion. FIG. 26A shows a first bone plate 310 positioned on a dorsal-medial side of the first metatarsal and

medial cuneiform and a second bone plate 320 positioned on a medial-plantar side of the first metatarsal and the medial cuneiform. In other embodiments, such as the embodiment shown in FIG. 26B, the second bone plate 320 can be a helical bone plate positioned from a medial side of the cuneiform to a plantar side of the first metatarsal across the joint space. The plates can be applied with the insertion of bone screws. Example bone plates that can be used as first bone plate 310 and/or second bone plate 320 are described in US Patent Publication No. US2016/0192970, titled "Bone Plating System and Method" and filed January 7, 2016, which is incorporated herein by reference.

[0112] As shown in FIG. 27, the compression pin can be removed and the incision can be closed.

[0113] FIGS. 28 A/B and 29A/B include examples of anatomically misaligned metatarsals and metatarsals that have been anatomically aligned using methods and/or instruments in accordance with the invention. FIG. 28A shows a left foot pre-operation and post-operation, while FIG. 28B shows a right foot pre-operation and post-operation. As can be seen from a comparison of the pre-operative images to the post-operative images, the patients' intermetatarsal angle (IMA) was significantly reduced. FIGS. 29A and 29B show the correction of an axial rotation in a frontal rotational plane. FIG. 29A shows a pre-operative image and a post-operative image of a right foot. Drawings of a first metatarsal 210 are also provided to illustrate the rotation. The rotation of the metatarsal can be seen by the position of sesamoid bones 400, which are depicted as having been rotated under the first metatarsal 210 in the post-operative drawing. FIG. 29B shows pre-operative views of a left foot 200 and a right foot 200. Again, by comparing the location of the sesamoid bones 400 with respect to a reference location, such as ground, the planter surface of the foot, and/or a cuneiform, it can be seen this patient's metatarsal is rotated out of alignment.

[0114] Methods in accordance with embodiments of the invention can be useful for positioning a bone or bones. Bone positioning can be useful, for instance, to correct an anatomical misalignment of bones and maintain an anatomically aligned position, such as in a bone alignment and/or fusion procedure. In some embodiments, an "anatomically aligned position" means that an angle of a long axis of a first metatarsal relative to a long axis of a second metatarsal is about 10 degrees or less in the transverse plane or sagittal plane. In certain embodiments, anatomical misalignment can be corrected in both the transverse plane and the frontal plane. In the transverse plane, a normal intermetatarsal angle ("IMA") between a first

metatarsal and a second metatarsal may be less than about 9 degrees (e.g., less than 6 degrees). An IMA of between about 6 degrees and about 13 degrees (e.g., between about 9 degrees and about 13 degrees) may be considered a mild or moderate misalignment of the first metatarsal relative to the second metatarsal. An IMA of greater than about 16 degrees may be considered a severe misalignment of the first metatarsal relative to the second metatarsal. In some embodiments, methods in accordance with the invention are capable of anatomically aligning the bone(s) by reducing the IMA from over 10 degrees to about 10 degrees or less (e.g., to an IMA of less than 6 degrees, such as to an IMA of about 1-5 degrees), including to negative angles of about -5 degrees or until interference with the second metatarsal, by positioning the first metatarsal at a different angle with respect to the second metatarsal.

[0115] With respect to the frontal plane, a normal first metatarsal will be positioned such that its crista prominence is generally perpendicular to the ground and/or its sesamoid bones are generally parallel to the ground and positioned under the metatarsal. This position can be defined as a metatarsal rotation of 0 degrees. In a misaligned first metatarsal, the metatarsal is axially rotated between about 4 degrees to about 30 degrees or more. In some embodiments, methods in accordance with the invention are capable of anatomically aligning the metatarsal by reducing the metatarsal rotation from about 4 degrees or more to less than 4 degrees (e.g., to about 0 to 2 degrees) by rotating the metatarsal with respect to the medial cuneiform.

[0116] While various embodiments of bone positioning and preparing guide systems and methods have been described, it should be appreciated that the concepts of the disclosure can be altered in practice, e.g., based on the needs of the clinician, the patient undergoing the bone repositioning procedure, the specific anatomy being treated, and/or the target clinical outcome. As one example, the described systems and techniques may be modified to utilize a fulcrum about which rotation and/or pivoting of one bone relative to another bone occurs, e.g., with or without use of bone positioning guide 10. The fulcrum can establish and/or maintain space between adjacent bones being moved, e.g., compressed between bone engagement member 40 and tip 50 when using bone positioning guide 10, preventing lateral translation or base shift of the bones during rotation and/or pivoting.

[0117] FIG. 30A illustrates a portion of a foot having a bunion caused by a misaligned first metatarsal 210 relative to second metatarsal 292. FIG. 30B shows the foot of FIG. 30A after being anatomically aligned to correct the misalignment using bone positioning guide 10. As

shown, first metatarsal 210 has been rotated counterclockwise in the frontal plane (from the perspective of a patient, clockwise from the perspective of a frontal observer) and also pivoted in the transverse plane (e.g., such that the angle 350 between the first metatarsal 210 and second metatarsal 292 is reduced). Rotation and pivoting of first metatarsal 210 can cause the base 352 of first metatarsal 210 to shift relative to medial cuneiform 220. In general, it is desirable that the offset 354A between first metatarsal 210 and medial cuneiform 220 be reduced to zero (e.g., such that there is substantially no offset) after rotation and pivoting. As shown in the illustrated application of FIG. 30B, however, the base 352 of first metatarsal 210 abutting medial cuneiform 220 has shifted toward second metatarsal 292. This results in a transverse offset 354B of first metatarsal 210 toward second metatarsal 292, causing base compression between first metatarsal 210 and second metatarsal 292.

[0118] To help avoid the base shift and offset 354B observed in FIG. 30B, a clinician can insert a fulcrum in the notch between first metatarsal 210 and second metatarsal 292 at the base of the metatarsals (e.g., adjacent respective cuneiform) before actuating bone positioning guide 10. The fulcrum can provide a point about which first metatarsal 210 can rotate and/or pivot while helping minimize or avoid base compression between the first metatarsal and the second metatarsal. In addition, use of the fulcrum may cause first metatarsal 210 and medial cuneiform 220 to be better angled relative to the guide slots of bone preparation guide 150 (once installed), providing a better cut angle through the guide slots than without use of the fulcrum. This can help reduce or eliminate unwanted spring-back, or return positioning, of first metatarsal 210 after removing bone positioning guide 10 (in instances in which bone positioning guide 10 is used with the fulcrum).

[0119] FIG. 31 illustrates a bone positioning operation in which a fulcrum 356 is positioned at an intersection between a first bone and a second bone, where the first bone is being realigned relative to the second bone. In particular, FIG. 31 illustrates fulcrum 356 being positioned between first metatarsal 210 and second metatarsal 292. Fulcrum 356 may be positioned distally of bone preparation guide 150 between first metatarsal 210 and second metatarsal 292 as shown in FIG. 31 or, in other applications, proximally of the guide (e.g., at the ends of the first and second metatarsals abutting the medial and intermediate cuneiform bones, respectively). In still other examples, fulcrum 356 can be positioned in the intermetatarsal space between first metatarsal 210 and second metatarsal 292 without using bone preparation guide 150.

[0120] When used, the clinician can insert fulcrum 356 between first metatarsal 210 and second metatarsal 292 (or other adjacent bones, when not performing a metatarsal realignment) at any time prior to moving the first metatarsal (e.g., by actuating bone positioning guide 10 or other means of manipulating the bone). In different embodiments, fulcrum 356 can be inserted between first metatarsal 210 and second metatarsal 292 before or after inserting joint spacer 188 and/or placing bone preparation guide 150 over the joint being operated upon. In one embodiment, the clinician prepares the joint being operated upon to release soft tissues and/or excise the plantar flare from the base of the first metatarsal 210, as discussed above. Either before or after installing bone positioning guide 10 over adjacent bones, for example with bone engagement member 40 positioned in contact with the medial ridge of the first metatarsal 210 and tip 50 positioned in contact with second metatarsal 292, the clinician inserts fulcrum 356 at the joint between the first metatarsal and the second metatarsal. The clinician can subsequently actuate bone positioning guide 10 (e.g., rotate knob 120). In the case of a left foot as shown in FIG. 31, actuation of bone positioning guide 10 causes the first metatarsal 210 to rotate counterclockwise in the frontal plane (from the perspective of a patient) and also pivot in the transverse plane about the fulcrum. In the case of a right foot (not shown), actuation causes the first metatarsal to rotate clockwise in the frontal plane (from the perspective of a patient) and also pivot in the transverse plane about the fulcrum. Thus, for both feet, actuation of bone positioning guide 10 can supinate the first metatarsal in the frontal plane and pivot the first metatarsal in the transverse plane about fulcrum 356. While use of fulcrum 356 can minimize or eliminate base compression between adjacent bones being operated upon, in other embodiments as discussed above, the described systems and techniques can be implemented without using the fulcrum.

[0121] In instances in which fulcrum 356 is used, any suitable mechanical instrument that maintains a spacing between adjacent bones can be used for the fulcrum. FIG. 32 is a perspective view of one example instrument that can be used as fulcrum 356. In this embodiment, fulcrum 356 has a generally rectangular shape and tapers in thickness along at least a portion of the length from the trailing end 358 to the leading end 360. Fulcrum 356 may be sized sufficiently small so that it does not interfere with placement of bone preparation guide 150 on the joint being worked upon. In some embodiments, the clinician is provided a system containing multiple different size and/or shape fulcrums and allowed to choose the specific size

and/or shape fulcrum desired for the specific procedure being performed. FIG. 33 illustrates an example kit or system of different sized fulcrums, labeled with exemplary "width x thickness" sizes, that may be provided to a clinician in such an embodiment. In some examples, fulcrum 356 has a width ranging from 5 millimeters to 15 millimeters (e.g., about 6 millimeters to about 10 millimeters) and a thickness ranging 1 millimeter to 12 millimeters (e.g., about 2 millimeters to about 3 millimeters), although fulcrums with different dimensions can be used.

[0122] While FIGS. 32 and 33 illustrate one example style of fulcrum, other mechanical instruments providing a fulcrum functionality can be used without departing from the scope of the disclosure. For instance, as alternative examples, a surgical pin or rod, a screw driver head/shaft, an osteotome, or a retractor may be used as fulcrum 356. Depending on the instrument used as a fulcrum, the fulcrum may have a variety of cross-sectional shapes, such as a generally polygonal shape (e.g., square, hexagonal), a generally arcuate shape (e.g., circular, elliptical), or combinations of polygonal and arcuate shapes.

[0123] As discussed above, bone positioning guide 10 can have a variety of different configurations, including a configuration in which bone engagement member 40 is laterally offset from tip 50. FIG. 34 is a perspective view of bone positioning guide 10 showing an example arrangement in which bone engagement member 40 is laterally offset from tip 50. In this embodiment, the first end 60 of main body member 20 is laterally offset from an axis 362 extending through shaft 30 and a geometric center of bone engagement member 40. In particular, in the illustrated configuration, tip 50 is offset laterally in the direction of the cuneiform relative to bone engagement member 40. As a result, when bone positioning guide 10 is actuated, e.g., by rotating knob 120, a moment can be created by the offset tip. This can cause the end of the first metatarsal 210 adjacent the proximal phalange to pivot toward the second metatarsal 292 and close angle 350, e.g., while the opposite end of the first metatarsal adjacent the medial cuneiform pivots away from the second metatarsal. This can also help avoid base compression between the first and second metatarsals.

[0124] As discussed above with respect to FIGS. 19 and 20, a joint spacer 188 can be positioned in a joint between a first metatarsal and a medial cuneiform before placing bone preparation guide 150 over the joint spacer. Bone preparation guide 150 can have an opening 170 (FIG. 5) sized to receive joint spacer 188. In some examples, opening 170 of bone preparation guide 150 is size and/or shaped indexed to joint spacer 188 such that there is substantially no, or no,

relative movement between the guide and spacer (once bone preparation guide 150 is placed over joint spacer 188). This arrangement can ensure that bone preparation guide 150 is positioned precisely at the location where guided by joint spacer 188.

[0125] In practice, once bone preparation guide 150 is placed over joint spacer 188, the guide slots of the bone positioning guide may not be perfectly aligned with the ends of the bones (e.g., first metatarsal 210 and medial cuneiform 220) to be cut through the guide slots. Accordingly, in other configurations, opening 170 of bone preparation guide 150 may not be sized and/or shaped and/or indexed to joint spacer 188. In other words, opening 170 of bone preparation guide 150 may have a different cross-sectional size and/or shape than the cross-sectional size and/or shape of joint spacer 188. In these configurations, bone preparation guide 150 may actuate or rotate about an axis extending through the length of joint spacer 188. As a result, after the clinician places bone preparation guide 150 over joint spacer 188, the clinician may rotate bone preparation guide 150 around joint spacer 188 until the guide slots of the bone preparation guide are better aligned with the ends of the bones to be cut (e.g., first metatarsal 210 and medial cuneiform 220). Depending on the configuration of opening 170 of bone preparation guide 150 and the configuration of joint spacer 188, the guide may rotate freely (e.g., 360 degrees) around the joint spacer (e.g., seeker) or within a bounded angular range (e.g., from plus 20 degrees to minus 20 degrees from a normal position).

[0126] FIG. 35 illustrates one example configuration of a joint spacer 188 that can allow bone preparation guide 150 to rotate around the spacer (e.g., seeker). As shown in the illustrated example, joint spacer 188 has a proximal portion 370 having a cylindrical cross-section and a distal portion 372 having a rectangular cross-section. A leading edge of the distal portion 372 is insertable into the joint between the first metatarsal 210 and the medial cuneiform 220. Once bone preparation guide 150 is inserted over joint spacer 188, body 154 of the guide (FIG. 5) may be positioned about the proximal portion 370. This can allow the guide to be rotated around the proximal portion.

[0127] In other configurations, opening 170 of bone preparation guide 150 may be size and/or shape indexed to the cross-sectional size and/or shape of joint spacer 188 but still provide relative rotation between the two components. For example, opening 170 may have a circular cross-section sized and shaped to receive proximal portion 370 of joint spacer 188 from FIG. 35. Because both opening 170 of bone preparation guide 150 and proximal portion 370 of joint

spacer 188 have circular cross-sections in such an embodiment, the two components may rotate relative to each other. FIG. 36A is a perspective view of an example configuration of bone preparation guide 150 having an opening 170 with circular cross-sectional shape. FIG. 36B is a perspective view of the example bone positioning guide of FIG. 36A shown with joint spacer 188 from FIG. 35 inserted into the guide.

[0128] In embodiments where bone preparation guide 150 can rotate relative to joint spacer 188, the bone positioning guide and/or joint spacer may include a locking mechanism that is engageable to lock the rotational angle of the bone positioning guide relative to the joint spacer. For example, bone preparation guide 150 may include a set screw with thumb wheel that can be rotated, causing a distal end of the set screw to bear against or retract away from joint spacer 188. In use, a clinician can rotate bone preparation guide 150 around joint spacer 188 until the guide slots of the bone preparation guide are best aligned with the ends of the bones to be cut (e.g., first metatarsal 210 and medial cuneiform 220). The clinician can then engage the locking mechanism to prevent further rotation of bone preparation guide 150 relative to joint spacer 188 before performing further steps of the procedure.

[0129] A bone correction procedure can be accomplished using one or more instruments according to the disclosure. In some applications, a bone correction procedure, such as a tarsal-metatarsal joint fusion procedure to correct a bunion deformity, is performed utilizing a fulcrum as a pivot point. The first metatarsal is moved relative to a second metatarsal about the fulcrum without utilizing bone positioning guide 10. In these applications, the clinician can insert the fulcrum into an intermetatarsal space between the first and second metatarsals and physically grasp the first metatarsal and move the metatarsal about the fulcrum. For example, the clinician may directly grasp the first metatarsal with his hand or indirectly grasp the first metatarsal through an intermediate tool, such as a K-wire or pin inserted into the first metatarsal, a tenaculum or tongs, or other grasping instrument. Thereafter, the clinician may translate his hand relative to the foot of the patient being operated upon to move the first metatarsal about the fulcrum and relative to the second metatarsal, e.g., to anatomically align the first metatarsal with respect to the second metatarsal.

[0130] FIG. 37 is a block flow diagram of an example bone correction technique utilizing a fulcrum. Specific steps of the technique of FIG. 37 can be performed utilizing techniques and/or instruments discussed above. As shown, the example technique of FIG. 37 includes mobilizing a

tarsal-metatarsal joint by releasing soft tissue and/or obstructing bone (500). After customary surgical preparation and access, the clinician may mobilize the tarsal-metatarsal joint by inserting a cutting instrument (e.g., saw, rotary bur, osteotome) at least partially between the first metatarsal and medial cuneiform. The clinician may use the cutting instrument to release soft tissues and/or excise the plantar flare from the base of the first metatarsal. Excising the plantar flare may involve cutting plantar flare off the first metatarsal so the face of the first metatarsal is generally planar. In some applications, the dorsal-lateral flare of the first metatarsal may also be excised to create space for the correction procedure.

[0131] The technique of FIG. 37 further involves inserting a fulcrum between the first metatarsal and the second metatarsal (502). The fulcrum may be inserted from the dorsal side of the foot toward the plantar side of the foot in the intermetatarsal space between the first metatarsal and the second metatarsal. Although the fulcrum may be positioned at any desired location in the intermetatarsal space, in some applications, the fulcrum is positioned adjacent to, and optionally in contact with, a proximal portion of the first metatarsal and/or the second metatarsal. For example, the fulcrum may be positioned adjacent to, and optionally in contact with, a proximal-most half of the first metatarsal and/or proximal-most half of the second metatarsal, such as the proximal-most third or proximal-most quarter of the first metatarsal and/or the second metatarsal. In one application, the fulcrum is positioned in the intermetatarsal space adjacent to, and optionally in contact with, the base of the first metatarsal facing the medial cuneiform and the base of the second metatarsal facing the intermediate cuneiform. This positioning can help prevent or minimize lateral translation of the base of the first metatarsal toward the base of the second metatarsal during alignment of the first metatarsal. In some applications, the clinician inserts the fulcrum from the dorsal toward the plantar side of the foot in the intermetatarsal space and then translates the fulcrum proximally in the intermetatarsal space.

[0132] The technique of FIG. 37 also involves preparing the end of the first metatarsal and/or the opposed end of the medial cuneiform (504). Typically, bone preparation is performed after inserting the fulcrum in the intermetatarsal space (502), although bone preparation can be performed prior to inserting the fulcrum. To prepare the end of the first metatarsal and the end of the medial cuneiform, a tissue removing instrument can be applied to the ends of the bones. In one example, a cutting instrument is applied to transect each bone and thereby form a new end surface, e.g., by inserting the cutting instrument through a slot defined bone preparation guide

150. Additionally or alternatively, the tissue removing instrument can be applied to the end face of each bone to morselize at least a portion of the end face.

[0133] Independent of the specific technique used to prepare the end of the first metatarsal and/or the opposed end of the medial cuneiform (504), the technique of FIG. 37 includes moving the first metatarsal to help correct the anatomical misalignment (506). The first metatarsal can be moved relative to the second metatarsal before and/or after preparing the end of the first metatarsal and/or the opposed end of the medial cuneiform. To move the first metatarsal relative to the second metatarsal, the clinician may directly or indirectly grasp the first metatarsal and translate a distal portion of the first metatarsal toward the second metatarsal (e.g., a distal portion of the second metatarsal) in the transverse plane. As the distal end of the first metatarsal moves toward the second metatarsal in the transverse plane, the proximal portion of the first metatarsal can pivot about the fulcrum. For example, the fulcrum can function as a central point around which the proximal portion of the first metatarsal turns as the distal portion of the first metatarsal translates laterally. Accordingly, moving the distal portion of the first metatarsal toward the second metatarsal can reduce the intermetatarsal space, and hence intermetatarsal angle, between the first metatarsal and the second metatarsal.

[0134] As the first metatarsal pivots in the transverse plane toward the second metatarsal, closing the intermetatarsal space, a proximal portion of the first metatarsal may contact and press against the fulcrum, thereby causing the fulcrum to contact and press against a proximal portion of the second metatarsal. The fulcrum may function to maintain spacing between the proximal portion of the first metatarsal and proximal portion of the second metatarsal, e.g., such a spacing equal to the width of the fulcrum. This may help reduce or eliminate shifting or translation of the base of the first metatarsal toward the base of the second metatarsal during pivoting.

[0135] In some applications of the technique of FIG. 37, the clinician may rotate the first metatarsal in the frontal plane in addition to or in lieu of translating the first metatarsal in the transverse plane. For example, either before, after, or concurrent with moving the distal portion of the first metatarsal toward the second metatarsal in the frontal plane, the clinician can directly or indirectly grasp the first metatarsal and rotate the metatarsal in the frontal plane. The clinician may rotate the first metatarsal about its longitudinal axis into an anatomically correct frontal plane position to correct a frontal plane deformity. Rotating the first metatarsal in the frontal plane may further rotate the sesamoid bones (e.g., tibial sesamoid bone and fibular sesamoid

bone) from a misaligned position to an aligned position under the first metatarsal. In some examples, the clinician additionally or alternatively moves the first metatarsal in the sagittal plane to correct a misalignment in the sagittal plane.

[0136] In some applications of the technique of FIG. 37, the clinician moves the first metatarsal in at least one plane from an anatomically misaligned position with respect to the second metatarsal to an anatomically aligned position. The at least one plane may be one or more planes selected from the frontal plane, the transverse plane, and the sagittal plane. For example, the clinician may move the first metatarsal in any two of the three planes or even in all three of the planes to adjust the first metatarsal from an anatomically misaligned position to an anatomically aligned position.

[0137] After suitably moving the first metatarsal relative to the second metatarsal, the joint between the first metatarsal and medial cuneiform may be provisionally fixated (508). In one example, a fixation wire is driven into the first metatarsal and the medial cuneiform to provisionally fixate the joint. In another example, a compression pin, such as a threaded olive pin, is inserted through the first metatarsal and into the medial cuneiform to provide compression and provisional fixation between the first metatarsal and the medial cuneiform. The fulcrum can be removed from the intermetatarsal space before or after provisionally fixating the joint.

[0138] Following optional provisional fixation, the corrected position of the first metatarsal can be permanently fixated by fixing the position of the first metatarsal with respect to the medial cuneiform (510). One or more bone plates can be applied across the tarsal-metatarsal joint and the provisional fixation hardware removed. For example, a first bone plate may be positioned on a dorsal-medial region of the first metatarsal and on the medial cuneiform while a second bone plate is positioned on a medial-plantar region of the first metatarsal and on the medial cuneiform. In these applications, the second bone plate may or may not be a helical-shaped bone plate extending from a medial region of the medial cuneiform to a plantar region of the first metatarsal across the joint.

[0139] FIG. 38 is a perspective view of a foot showing an example position of a fulcrum during a bone correction procedure according to the method of FIG. 37. As shown, fulcrum 356 is positioned in the intermetatarsal space between the first metatarsal 210 and the second metatarsal 292. In particular, fulcrum 356 is illustrated as being positioned between a proximal portion of first metatarsal 210 adjacent base 352 and an opposed proximal portion of second metatarsal

292. An optional pin 512 is inserted into the first metatarsal 210, providing a structure that a clinician can grab to move and manipulate the first metatarsal relative to the second metatarsal. As discussed with respect to FIG. 37, the clinician may pivot the first metatarsal 210 about fulcrum 356 toward the second metatarsal 292, reducing the intermetatarsal angle 350 between the first and second metatarsals. The clinician may also rotate the first metatarsal 210 in the frontal plane. The use of fulcrum 356 can provide a pivot surface that also maintains a defined spacing between first metatarsal 210 and second metatarsal 292, potentially leading to a more anatomically correct realignment than when moving first metatarsal 210 without using the fulcrum.

[0140] As discussed above with respect to FIGS. 32 and 33, fulcrum 356 can have a variety of different configurations that provide a fulcrum functionality. FIGS. 39A and 39B illustrate another example configuration of fulcrum 356 that can be used according to the disclosure. FIG. 39A is a perspective view of one side of fulcrum 356, while FIG. 39B is a perspective view of the fulcrum from the opposite side. In the illustrated configuration, fulcrum 356 includes a body 380 and a handle 382 operatively connected to the body. Typically, body 380 and handle 382 will be formed as a unitary structure, e.g., by milling, casting, or molding the components to be permanently and structurally integrated together. However, body 380 and handle 382 may be fabricated as separate components that are subsequently joined together.

[0141] Body 380 can be configured (e.g., sized and shaped) to be inserted into an intermetatarsal space between adjacent metatarsals. For example, body 380 may be configured to be inserted between a first metatarsal and a second metatarsal. Body 380 is illustrated as having a rectangular shape with a length 383 greater than its width 384 and thickness 386. Moreover, in this configuration, body 380 has a constant width 384 across its length but has a thickness 386 that that tapers along at least a portion of the length from the leading end 388 to the trailing end 390. For example, body 380 may have a tapered leading end 388 to facilitate insertion of fulcrum 356 in a space between adjacent metatarsals. In other configurations, body 380 may have a constant thickness across is length or may define a different generally polygonal shape (e.g., square, hexagonal) and/or generally arcuate shape (e.g., circular, elliptical).

[0142] Fulcrum 356 in FIGS. 39A and 39B includes handle 382. Handle 382 can project angularly away from body 380 to define a tissue retraction space 392. Tissue retraction space 392 may be a region bounded on one side by body 380 and one or more other sides by handle

382. In use, fulcrum 356 may be inserted into an intermetatarsal space with handle 382 extending out of the surgical incision and over an epidermal layer with tissue captured in tissue retraction space 392. For example, fulcrum 356 may be inserted into an intermetatarsal space with handle 382 projecting toward the lateral side of the foot being operated upon. Tissue retraction space 392 may help retract tissue and push the tissue laterally away from a first metatarsal and/or medial cuneiform being operated upon. FIG. 40 illustrates fulcrum 356 in such an application with the fulcrum inserted between a first metatarsal and a second metatarsal and handle 382 extending toward the lateral side of the foot being operated upon. As shown, handle 382 pushes the skin of the foot away from the surgical incision line, helping to provide access to the surgical site in addition to providing fulcrum functionality.

[0143] With further reference to FIGS. 39A and 39B, handle 382 is illustrated as projecting laterally at a non-zero degree angle away from body 380. The specific angular orientation of the handle 382 relative to the body 380 may vary. However, in some examples, handle 382 is oriented relative to the body 380 so a handle axis 393 intersects an axis 394 extending along the length of the body at an acute angle 396 ranging from 20 degrees to 75 degrees, such as 35 degrees to 55 degrees. Moreover, handle 382 may be composed of a single linear portion that intersects body 380 at a specific angular orientation or may be composed of multiple linear portions oriented at different angles relative to each other.

[0144] In the illustrated example, handle 382 includes a grip portion 398 and a handle body 402. The grip portion 398 can provide a surface that a clinician physically grips to insert fulcrum 356 into an intermetatarsal space. For example, grip portion 398 may contain knurling or other anti-friction surfacing texturing to allow the clinician to help grip the fulcrum. Handle body 402 may be positioned between the body 380 of fulcrum 356 and grip portion 398. Handle body 402 may or may not have a reduced cross-sectional width compared to body 380 and/or grip portion 398, as illustrated.

[0145] When configured with grip portion 398, the grip portion can be co-linear with handle body 402 or may be offset relative to the handle body. When grip portion 398 is offset from handle body 402, a grip axis 404 extending along the length of the grip portion may intersect the handle axis 393 at an acute ranging from 20 degrees to 75 degrees, such as 35 degrees to 55 degrees, although other angular arrangements can also be used. In the illustrated configuration, grip axis 404 is perpendicular to the axis 394 defined by body 380. Accordingly, when inserted

into an intermetatarsal space, retracted tissue may be bounded by a laterally-facing side of body 380, by the lower surface of grip portion 398, and in the dorsal-lateral direction by handle portion 402.

[0146] In some examples, the bone-contacting faces of body 380 are configured to inhibit and/or facilitate relative motion between a bone and the respective bone-contacting face. With reference to FIG. 39A, body 380 of fulcrum 356 has a first face 410, which may be positioned in contact with a first metatarsal. First face 410 may have surface features which allow the contacting metatarsal (e.g., first metatarsal) to rotate in the frontal plane while contacting the face but inhibit movement of the metatarsal in the proximal to distal direction. The surface features may be implemented as directionally-oriented ribs and/or grooves, which are illustrated in FIG. 39A as being multiple grooves extending lengthwise across body 380. By orienting the grooves lengthwise, the edges of the grooves may have a tendency to engage or bite into the metatarsal if the metatarsal is moved proximally or distally, thereby inhibiting such movement. However, the grooves can allow the metatarsal to rotate in the frontal plane against first face 410 without inhibiting such rotation.

[0147] Additionally or alternatively, the body 380 may have different surface features on the opposite face from first face 410. With reference to FIG. 39B, for example, body 380 of fulcrum 356 has a second face 412 that is opposite first face 410. Second face 412 may have surface features that inhibit movement between fulcrum 356 and the contacting metatarsal (e.g., second metatarsal) in the dorsal-to-plantar direction. The surface features may be implemented as directionally-oriented ribs and/or grooves. For example, in FIG. 39B, second face 412 is illustrated as having knurling, or a series of intersecting and overlapping ridges. FIG. 41 is perspective view of the second face 412 of fulcrum 356 showing an alternative arrangement of surface features that may be used. In this alternative configuration, the surface features on second face 412 are illustrated as being multiple grooves extending widthwise across body 380. By orienting the grooves widthwise, the edges of the grooves may have a tendency to engage or bite into the metatarsal if the metatarsal is moved plantarly or dorsally, thereby inhibiting such movement. The knurling illustrated on FIG. 39B can also achieve this functionality.

[0148] In the configuration of FIGS. 39A and 39B, handle 382 includes grip portion 398 that can provide a surface a clinician physically grips to insert fulcrum 356. In other configurations, handle 382 may be implemented using a second fulcrum body that is a different size and/or

shape than body 380. This arrangement can provide a clinician with a single instrument having two functional ends, either one of which can be selected and used by the clinician, e.g., depending on the characteristics of the patient undergoing a surgical procedure.

[0149] FIGS. 42A and 42B are perspective and side views, respectively, of such an example fulcrum 356 having two fulcrum bodies. As shown in this example, fulcrum 356 includes the body 380 and the handle 382 projecting at a non-zero degree angle away from the body. The body 380 provides a first fulcrum body configured (e.g., sized and/or shaped) to be inserted into an intermetatarsal space. In addition, handle 382 in this example is defined at least in part by a second fulcrum body 420. The second fulcrum body 420 may also be configured (e.g., sized and/or shaped) to be inserted into an intermetatarsal space. The first fulcrum body 380 can differ from the second fulcrum 420 body by having a different size and/or shape.

[0150] In FIGS. 42A and 42B, the first fulcrum body 380 and the second fulcrum body 420 are shown as having the same shape but different sizes. In particular, first fulcrum body 380 has a length 383, a thickness 386, and a width orthogonal to the length and thickness. Further, the second fulcrum body 420 has a length 422, a thickness 424, and a width orthogonal to the length and thickness. The thickness 422 of the second fulcrum body 420 is illustrated as being greater than the thickness 386 of the first fulcrum body 380. The length and width of the first and second fulcrum bodies 380, 420 are illustrated as being the same but may be different in other examples (e.g., different width with same length, different length but same width, or different length and width).

[0151] In general, configuring the first fulcrum body 380 and second fulcrum body 420 with different thicknesses can be useful to facilitate use in different sized intermetatarsal spaces. For example, the clinician may select one sized fulcrum body over the other sized fulcrum body based on the anatomy (e.g., intermetatarsal space sizing) of the patient undergoing a surgical procedure. If the clinician determines upon beginning to insert the selected fulcrum that the selected fulcrum is inappropriately sized, the clinician may retract the fulcrum, flip the instrument, and insert the fulcrum on the opposite side of the instrument.

[0152] While the first fulcrum body 380 and second fulcrum body 420 can be configured with a variety of different sizes, in some examples, each fulcrum body has a thickness ranging from 0.5 millimeters to 12 millimeters, such as from 1 millimeter to 10 millimeters, or from 1 millimeter to 5 millimeters. The thickness 424 of the second fulcrum body 420 may be at least 0.2

millimeters thicker than the thickness 386 of the first fulcrum body, such as at least 0.5 millimeters thicker, at least 1 millimeter thicker, or at least 2 millimeters thicker. In some examples, first fulcrum body 380 and second fulcrum body 420 each have a width within a range from 5 millimeters to 15 millimeters (e.g., about 6 millimeters to about 10 millimeters) and a length ranging from 10 millimeters to 30 millimeters, although other dimensions can be used.

[0153] In the illustrated example of FIGS. 42A and 42B, the first fulcrum body 380 has a leading end 388 and a trailing end 390 and the second fulcrum body 420 has a leading end 426 and a trailing end 428. In some examples as shown, the leading end 388 of the first fulcrum body 380 and/or the leading end 426 of the second fulcrum body 420 has a thickness that tapers adjacent the leading end. This configuration can be useful to facilitate insertion of a fulcrum body into an intermetatarsal space. When configured with a tapered leading end, the exemplary thickness ranges discussed above may be measured as the maximum thickness of the fulcrum body at any location along the length of the body.

[0154] When fulcrum 356 is implemented with first fulcrum body 380 and second fulcrum body 420, the bone-contacting faces of one or both of the fulcrum bodies may be configured to inhibit and/or facilitate relative motion between a bone and the respective bone-contacting face, as discussed with respect to FIGS. 39A, 39B, and 41. For example, a first face 410 of first fulcrum body 380 and/or a first face 430 of second fulcrum body 420 may have surface features which allow a contacting metatarsal (e.g., first metatarsal) to rotate in the frontal plane while contacting the face but inhibit movement of the metatarsal in the proximal to distal direction, as discussed above. Similarly, a second face 412 of first fulcrum body 380 and/or a second face 432 of second fulcrum body 420 may have surface features that inhibit movement between fulcrum 356 and a contacting metatarsal (e.g., second metatarsal) in the dorsal-to-plantar direction, as also discussed above.

[0155] In the illustrated example, first fulcrum body 380 and second fulcrum body 420 are oriented at a non-zero degree relative to each other and separated by a handle body 402, e.g., of lesser cross-sectional width. For example, as discussed with respect to FIGS. 39A and 39B, handle 382 may be oriented relative to first fulcrum body 380 such that handle axis 393 intersects an axis 394 extending along the length of the body at an acute angle 396. When handle 382 includes the handle body 402 and the second fulcrum body 420, the second fulcrum body can be co-linear with handle body 402 or may be offset relative to the handle body. For

example, an axis 404 extending along the length of the second fulcrum body may intersect the handle axis 393 at an acute angle 406 ranging from 20 degrees to 75 degrees, such as 35 degrees to 55 degrees, as discussed above.

[0156] In yet other configurations where fulcrum 356 is configured with multiple ends of different dimensions, the ends may or may not be separated by a separate handle body 402. For example, first fulcrum body 380 and second fulcrum body 420 may be formed as a unitary structure (e.g., as opposed ends of a linear or curved unitary body).

[0157] FIGS. 43A and 43B are perspective and side views, respectively, of an example multidimensional fulcrum having ends of different dimensions. As shown, fulcrum 356 is composed of first fulcrum body 380 and second fulcrum body 420 as discussed above with respect to FIGS. 42A and 42B. In the configuration illustrated in FIGS. 43A and 43B, however, the first fulcrum body 380 and the second fulcrum body 420 are integrated together to form a unitary fulcrum body having two opposed ends of different dimensions. As illustrated, the unitary fulcrum body has a generally rectangular shape such that opposed ends of the fulcrum are separated by a linear length of the body. However, the body may be curved or non-linear in alternative configurations. As discussed above, the first fulcrum body 380 and the second fulcrum body 420 forming the respective portions of the unitary body can have a variety of different dimensions, and may or may not have surface features, to provide a clinician with a variety of fulcrum options in a single instrument.

[0158] Embodiments of the invention also include a disposable, sterile kit that includes an embodiment of a bone positioning guide and/or bone preparation guide and/or fulcrum described herein. Other components that may be included within the sterile kit include bone fixation devices.

[0159] Thus, embodiments of the invention are disclosed. Although the present invention has been described with reference to certain disclosed embodiments, the disclosed embodiments are presented for purposes of illustration, and not limitation, and other embodiments of the invention are possible. One skilled in the art will appreciate that various changes, adaptations, and modifications may be made without departing from the spirit of the invention.

CLAIMS:

1. An instrumented surgical technique for treating a bunion deformity, the instrumented surgical technique comprising:

inserting an instrument between a first metatarsal and a second metatarsal adjacent to the first metatarsal;

with the instrument inserted between the first metatarsal and the second metatarsal, cutting an end of the first metatarsal;

moving the first metatarsal in at least one plane to treat the bunion deformity;

cutting an end of a medial cuneiform opposing the end of the first metatarsal; and

after moving the first metatarsal in at least one plane to treat the bunion deformity, fixating a moved position of the first metatarsal relative to the medial cuneiform using at least one bone fixation device.

2. The instrumented surgical technique of claim 1, wherein:

the instrument has a body and a handle operatively connected to the body;

the handle extends from the body; and

inserting the instrument between the first metatarsal and the second metatarsal comprises inserting the body between the first metatarsal and the second metatarsal and thereby positioning the handle extending laterally over a dorsal surface of the second metatarsal.

3. The instrumented surgical technique of claim 2, wherein inserting the body between the first metatarsal and the second metatarsal comprises inserting the body from a dorsal side of a foot toward a plantar side of the foot.

4. The instrumented surgical technique of claim 1, further comprising positioning a bone preparation guide defining a cutting slot over the first metatarsal, wherein cutting the end of the first metatarsal comprises guiding a saw blade through the cutting slot to cut the end of the first metatarsal.

5. The instrumented surgical technique of claim 4, wherein the bone preparation guide comprises at least one fixation aperture, and further comprising securing the bone preparation guide to the first metatarsal with at least one fixation pin inserted into the first metatarsal and extending through the at least one fixation aperture of the bone preparation guide.

6. The instrumented surgical technique of claim 1, further comprising, after cutting the end of the first metatarsal, removing the instrument from between the first metatarsal and the second metatarsal.

7. The instrumented surgical technique of claim 1, wherein positioning the instrument between the first metatarsal and the second metatarsal comprises positioning the instrument between a proximal-most third of the first metatarsal and a proximal-most third of the second metatarsal.

8. The instrumented surgical technique of claim 1, wherein moving the first metatarsal in at least one plane comprises moving the first metatarsal relative to the second metatarsal in a transverse plane by applying a force to the first metatarsal with a bone positioning guide and thereby reducing an intermetatarsal angle between the first metatarsal and the second metatarsal.

9. The instrumented surgical technique of claim 8, wherein:

the instrument is a fulcrum; and

moving the first metatarsal in the transverse plane comprises pivoting the first metatarsal about the fulcrum.

10. The instrumented surgical technique of claim 8, wherein moving the first metatarsal in at least one plane further comprises moving the first metatarsal in a frontal plane.

11. The instrumented surgical technique of claim 10, wherein moving the first metatarsal in the frontal plane comprises imparting a force to a pin inserted into the first metatarsal to adjust an alignment of the first metatarsal in the frontal plane to treat the bunion deformity.

12. The instrumented surgical technique of claim 1, further comprising compressing the first metatarsal together with the medial cuneiform prior to fixing the moved position of the first metatarsal relative to the medial cuneiform using the at least one bone fixation device.

13. The instrumented surgical technique of claim 1, wherein cutting the end of the medial cuneiform comprises cutting the end of the medial cuneiform with the instrument inserted between the first metatarsal and the second metatarsal.

14. The instrumented surgical technique of claim 1, wherein cutting the end of the medial cuneiform comprises cutting the end of the medial cuneiform after cutting the end of the first metatarsal and after moving the first metatarsal in the at least one plane to treat the bunion deformity.

15. The instrumented surgical technique of claim 1, further comprising, prior to inserting the instrument between the first metatarsal and the second metatarsal, obtaining the instrument from a sterile kit that also includes (1) a bone positioning guide configured to engage the first metatarsal and apply a force to the first metatarsal to move the first metatarsal in at least one plane and (2) a bone preparation guide defining a cutting slot configured to be positioned over an end of the first metatarsal to be cut.

16. The instrumented surgical technique of claim 1, wherein the at least one bone fixation device comprises at least one of a screw and a plate.

17. The instrumented surgical technique of claim 1, wherein the at least one bone fixation device comprises an intramedullary implant.

18. An instrumented surgical technique for treating a bunion deformity, the instrumented surgical technique comprising:

positioning a bone preparation guide defining a cutting slot over a first metatarsal with at least one fixation pin inserted into the first metatarsal and extending through at least one fixation aperture of the bone preparation guide;

inserting an instrument between a proximal portion of the first metatarsal and a proximal portion of a second metatarsal adjacent to the first metatarsal;

with the instrument inserted between the first metatarsal and the second metatarsal, guiding a saw blade through the cutting slot to cut an end of the first metatarsal;

moving the first metatarsal in at least one plane to treat the bunion deformity;

cutting an end of a medial cuneiform opposing the end of the first metatarsal;

compressing the first metatarsal together with the medial cuneiform; and

after moving the first metatarsal in at least one plane to treat the bunion deformity and after compressing the first metatarsal together with the medial cuneiform, fixating a moved position of the first metatarsal relative to the medial cuneiform for fusion using at least one bone fixation device.

19. The instrumented surgical technique of claim 18, further comprising, after cutting the end of the first metatarsal, removing the instrument from between the first metatarsal and the second metatarsal.

20. The instrumented surgical technique of claim 18, wherein:

the instrument has a body and a handle operatively connected to the body;

the handle extends from the body; and

inserting the instrument between the first metatarsal and the second metatarsal comprises inserting the body between the first metatarsal and the second metatarsal and thereby positioning the handle extending laterally over a dorsal surface of the second metatarsal.

21. The instrumented surgical technique of claim 18, wherein moving the first metatarsal in at least one plane comprises moving the first metatarsal relative to the second metatarsal in a transverse plane by applying a force to the first metatarsal with a bone positioning guide and thereby reducing an intermetatarsal angle between the first metatarsal and the second metatarsal.

22. The instrumented surgical technique of claim 21, wherein:

the instrument is a fulcrum; and

moving the first metatarsal in the transverse plane comprises pivoting the first metatarsal about the fulcrum.

23. The instrumented surgical technique of claim 21, wherein moving the first metatarsal in at least one plane comprises moving the first metatarsal in a frontal plane.

24. The instrumented surgical technique of claim 23, wherein moving the first metatarsal in the frontal plane comprises imparting a force to a pin inserted into the first metatarsal to adjust an alignment of the first metatarsal in the frontal plane to treat the bunion deformity.

25. The instrumented surgical technique of claim 18, wherein cutting the end of the medial cuneiform comprises cutting the end of the medial cuneiform after cutting the end of the first metatarsal and after moving the first metatarsal in the at least one plane to treat the bunion deformity.

26. The instrumented surgical technique of claim 18, further comprising, prior to inserting the instrument between the first metatarsal and the second metatarsal, obtaining the instrument from a sterile kit that also includes (1) a bone positioning guide configured to engage the first metatarsal and apply a force to the first metatarsal to move the first metatarsal in at least one plane and (2) the bone preparation guide.

27. The instrumented surgical technique of claim 18, wherein the at least one bone fixation device comprises one or more of a screw, a plate, and an intramedullary implant.

28. An instrumented surgical technique for treating a bunion deformity, the instrumented surgical technique comprising:

positioning a bone preparation guide defining a cutting slot over a first metatarsal with at least one fixation pin inserted into the first metatarsal and extending through at least one fixation aperture of the bone preparation guide;

inserting an instrument between a proximal portion of the first metatarsal and a proximal portion of a second metatarsal adjacent to the first metatarsal;

with the instrument inserted between the first metatarsal and the second metatarsal, guiding a saw blade through the cutting slot to cut an end of the first metatarsal;

engaging a bone positioning guide with the first metatarsal and using the bone positioning guide to move the first metatarsal relative to the second metatarsal in a transverse plane to reduce an intermetatarsal angle between the first metatarsal and the second metatarsal to treat the bunion deformity;

imparting a force to a pin inserted into the first metatarsal to adjust an alignment of the first metatarsal in a frontal plane to treat the bunion deformity;

cutting an end of a medial cuneiform opposing the end of the first metatarsal;

compressing the first metatarsal together with the medial cuneiform; and

fixating a moved position of the first metatarsal relative to the medial cuneiform for fusion using at least one bone fixation device.

29. The instrumented surgical technique of claim 28, wherein:

the instrument has a body and a handle operatively connected to the body;

the handle extends from the body; and

inserting the instrument between the first metatarsal and the second metatarsal comprises inserting the body between the first metatarsal and the second metatarsal and thereby positioning the handle extending laterally over a dorsal surface of the second metatarsal.

30. The instrumented surgical technique of claim 28, further comprising, after cutting the end of the first metatarsal, removing the instrument from between the first metatarsal and the second metatarsal.

ABSTRACT

A technique for correcting a bone deformity, such as a bunion, may be performed using an instrument. In some examples, the technique involves inserting the instrument between a first metatarsal and a second metatarsal. The technique further includes preparing an end of the first metatarsal and preparing an end of a medial cuneiform opposing the end of the first metatarsal.

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APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
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Title of Invention

TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	4182	FILED BY	Paul LaVanway
PATENT CENTER #	65240458	FILING DATE	-
CUSTOMER #	22859	FIRST NAMED INVENTOR	F. Barry Bays
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Paul LaVanway

Documents

TOTAL DOCUMENTS: 12

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
71212_4_8_USC4_ADS_04252024.pdf	11	Application Data Sheet	2175 KB
71212_4_8_USC4_TrackOne_Request_04252024.pdf	2	Track One Request	174 KB
71212.4.8.USC4 Application_04252024-APP.TEXT.docx	42	Application body structured text document	69 KB
Warning: Bookmarks were found and have been removed. The abstract contains more than one paragraph. Please review and revise if necessary.			
71212_4_8_USC4_Applicatio	42	Auxiliary PDF of Application	209 KB

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71212_4_8_USC4_POA_04252024.pdf	3	Power of Attorney	2047 KB
71212_4_8_USC4_Declarations_04252024.pdf	10	Oath or Declaration filed	11944 KB
71212_4_8_USC4_Figures_04252024.pdf	49	Drawings-other than black and white line drawings	662 KB
71212_4_8_USC4_IDS_Comm_04252024.pdf	1	Transmittal Letter	134 KB
71212_4_8_USC4_IDS3_04252024.pdf	11	Information Disclosure Statement (IDS) Form (SB08)	1016 KB
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71212_4_8_USC4_IDS2_04252024.pdf	20	Information Disclosure Statement (IDS) Form (SB08)	1017 KB
71212_4_8_USC4_IDS1_04252024.pdf	39	Information Disclosure Statement (IDS) Form (SB08)	1023 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
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71212_4_8_USC4_IDS3_04252024.pdf	3CB10D86875213F9223D64991035F06309CD9982F4C766BF8E3E3E8DF7B3C81E2A5F1B43C53D6C1907126275A3C5D638635844C29EC9CAE3381045C3935E3DBA
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71212_4_8_USC4_IDS1_04252024.pdf	4D92AD07B1099B2F00008DBF497C551B7AD654CD32B3685B7F07E498BD82412CDB11A6C85F62AE405E45209BD97E37A3F942658CAC3EFFFF559EE1E346EC3C7C

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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
18/645,596	04/25/2024		2820	71212.4.8.USC4	30	3

CONFIRMATION NO. 4182

FILING RECEIPT

22859
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Date Mailed: 05/09/2024

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This application is a CON of 18/323,138 05/24/2023
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which is a CON of 16/448,357 06/21/2019 PAT 11,413,081
which is a DIV of 15/236,464 08/14/2016 PAT 10,342,590
which claims benefit of 62/293,189 02/09/2016
and is a CIP of 14/981,335 12/28/2015 PAT 9,622,805
which claims benefit of 62/205,338 08/14/2015

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.

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Projected Publication Date: 08/15/2024
Non-Publication Request: No
Early Publication Request: No
Title

TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

Preliminary Class

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

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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).

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 18/645,596

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	320
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	700
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	800
TOTAL CLAIMS (37 CFR 1.16(i))	30 minus 20 =	* 10			OR	x 100 =	1000
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*				x =	0
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	2820

APPLICATION AS AMENDED - PART II

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

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

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

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

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

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

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Under Secretary of Commerce for Intellectual Property and
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Kathi Vidal

Kathi Vidal
Under Secretary of Commerce for Intellectual Property and
Director of the United States Patent and Trademark Office

Derrick Brent
Deputy Under Secretary of Commerce for Intellectual Property and
Deputy Director of the United States Patent and Trademark Office

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/645,596	04/25/2024	F. Barry Bays	71212.4.8.USC4	4182

22859 7590 06/24/2024

FREDRIKSON & BYRON, P.A.
INTELLECTUAL PROPERTY GROUP
60 SOUTH SIXTH STREET, SUITE 1500
MINNEAPOLIS, MN 55402

EXAMINER
CENTRAL, DOCKET

ART UNIT	PAPER NUMBER
3775	

NOTIFICATION DATE	DELIVERY MODE
06/24/2024	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):

IP@FREDLAW.COM

Decision Dismissing Request for Prioritized Examination (Track I)	Application No. 18/645,596	Applicant(s) Bays et al.	
	Examiner IRVIN DINGLE	Art Unit OPET	AIA (FITF) Status Yes

1. THE REQUEST FILED 25 April 2024 IS **DISMISSED** BECAUSE:

A. ☐ The application is not a utility application under 35 U.S.C. 111(a) filed by Patent Electronic System or a plant application under 35 U.S.C. 111(a):
   i. ☐ The application is a utility application that was not filed by Patent Electronic System.
   ii. ☐ The application is neither a utility application nor a plant application, but rather is a _____ , which is excluded from the Track I program.

B. ☐ The request was not filed with the application or on the same date of the application.

C. ☑ One or more of the following fees were not filed with the application:
   i. ☐ Basic filing fee, as set forth in 37 CFR 1.16(a), or for a plant application, 37 CFR 1.16(c).
   ii. ☐ Search fee, as set forth in 37 CFR 1.16(k), or for a plant application, 37 CFR 1.16(m).
   iii. ☐ Examination fee, as set forth in 37 CFR 1.16(o), or for a plant application, 37 CFR 1.16(q).
   iv. ☐ Publication fee, as set forth in 37 CFR 1.18(d).
   v. ☑ Track I processing fee, as set forth in 37 CFR 1.17(i).
   vi. ☐ Track I prioritized examination fee, as set forth in 37 CFR 1.17(c).
   vii. ☐ Application size fee, due because the specification and drawings exceed 100 sheets of paper, as set forth in 37 CFR 1.16(s).
   viii. ☐ Excess independent claim fee, due because the number of independent claims exceeds three, as set forth in 37 CFR 1.16(h).
   ix. ☐ Excess claim fee, due because the number of claims exceeds twenty, as set forth in 37 CFR 1.16(i).

D. ☐ The executed inventor's oath or declaration, or an application data sheet meeting the conditions specified in 37 CFR 1.53(f)(3)(i) was not filed with the application or on the same date the application was filed.

E. ☐ The application contains or has been amended to contain:
   i. ☐ More than four independent claims.
   ii. ☐ More than thirty total claims.
   iii. ☐ One or more multiple dependent claims.

F. ☐ The Track I program has exceeded its limit of 15,000 requests for the current fiscal year.

G. ☐ Other: _____

2. CONCLUSION

☐ **ALL of the above defect(s) consist only of one or more of items E (i-iii). Applicant is hereby accorded a non-extendable ONE MONTH time period from the mailing date of this Decision to (1) correct the subject defect(s) and (2) file a petition under 37 CFR 1.181 requesting reconsideration of prioritized examination. If no such petition is timely filed, the application will not undergo prioritized examination.**

- OR -

☑ **The application will not undergo prioritized examination, because the request was not accompanied by all of the required items.**

Telephone inquiries with regard to this decision should be directed to IRVIN DINGLE at (571)272-3210. In his/her absence, calls may be directed to Petition Help Desk at (571) 272-3282.

/IRVIN DINGLE/ Lead Paralegal Specialist, OPET	

22859
Customer Number

PATENT
Attorney Docket No.: 71212.4.8.USC4

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor:	F. Barry Bays		
Application No.:	18/645,596	Group Art Unit:	3775
Filed:	April 25, 2024	Examiner:	CHRISTOPHER J BECCIA
Title:	TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM		

PETITION UNDER 37 CFR 1.181 REQUESTING RECONSIDERATION OF PRIORITIZED EXAMINATION

Dear Commissioner:

In response to the Decision Dismissing Request for Prioritized Examination ("the Decision") mailed June 24, 2024 for the above-referenced patent application, Applicant files this petition under 37 C.F.R. § 1.181 requesting reconsideration of the Decision. The Decision denied Applicant's request for prioritized examination on the grounds that the Track I processing fee set forth in 37 C.F.R. § 1.17(i) was not include with the original request.

Applicant's omission of the Track I processing fee set forth in 37 C.F.R. § 1.17(i) was inadvertent. Applicant encloses with this request the required Track I processing fee set forth in 37 C.F.R. § 1.17(i). Applicant therefore respectfully requests the Patent Office reconsider and accept Applicant's request for prioritized examination. The fees are being made at the time of submission via EFS-web.

The Commissioner is hereby authorized to charge any fees that may be required, including those under 37 C.F.R. §§ 1.16 and 1.17, during the entire pendency of this application to Deposit Account No. 06-1910. The Petitions Office is invited to telephone the undersigned if it would be useful to advance consideration of the petition.

Dated: July 24, 2024

Respectfully submitted,

/Paul J. LaVanway, Jr./

FREDRIKSON & BYRON, P.A.
60 South Sixth Street, Suite 1500
Minneapolis, MN 55402-4400 USA
Telephone: 612.492.7387

Paul J. LaVanway, Jr.
Registration No. 64,610

Please grant any extension of time necessary for entry; charge any fee due to Deposit Account No. 06-1910.

82946544v1

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/645,596	07/24/2024 05:41:41 PM Z ET	71212.4.8.USC4

Title of Invention

TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	4182	FILED BY	Zachary Anderson
PATENT CENTER #	66505958	AUTHORIZED BY	Paul LaVanway
CUSTOMER #	22859	FILING DATE	04/25/2024
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	F. Barry Bays

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
CARD / 9797	E20247NH53529884	Zachary Anderson

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
1830	PROCESSING FEE, EXCEPT IN PROVISIONAL APPLICATIONS	140.00	1	140.00
			TOTAL AMOUNT:	$140.00

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.

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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.

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

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/645,596	**07/24/2024 05:41:41 PM Z ET**	**71212.4.8.USC4**

Title of Invention

TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	4182	FILED BY	Zachary Anderson
PATENT CENTER #	66505958	FILING DATE	04/25/2024
CUSTOMER #	22859	FIRST NAMED INVENTOR	F. Barry Bays
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Paul LaVanway

Documents

TOTAL DOCUMENTS: 1

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
71212.4.8.USC4_Request_for_Reconsideration_of_Prioritized_Examination.pdf	2	Petition for review by the Office of Petitions	113 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
71212.4.8.USC4_Request_for_Reconsideration_of_Prioritized_Examination.pdf	A0257AE20D8D19A51CE585254E18D2A7C7DA5A1C32B9B9812 0BFD19488106D857F8AE33DF795273EDD3137C6FF203976C26 FC61C4395F689E159646CE17AB435

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/645,596	04/25/2024	F. Barry Bays	71212.4.8.USC4	4182

22859 7590 08/08/2024

FREDRIKSON & BYRON, P.A.
INTELLECTUAL PROPERTY GROUP
60 SOUTH SIXTH STREET, SUITE 1500
MINNEAPOLIS, MN 55402

EXAMINER	
BECCIA, CHRISTOPHER J	

ART UNIT	PAPER NUMBER
3775	

NOTIFICATION DATE	DELIVERY MODE
08/08/2024	ELECTRONIC

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Doc Code: TRACK1.GRANT

Decision Granting Request for Prioritized Examination (Track I or After RCE)	Application No.:18/645,596

The petition filed July 24, 2024, under 37 CFR 1.181, is GRANTED. In view of the specific circumstances surrounding this application and, in particular, the filing of the Track 1 Request requirements including irregularities with Patent Center involving payment of the processing fee, the Office, in this specific instance, hereby waives, *sua sponte*, the processing fee date requirement of the Prioritized Examination, Track 1, program to the extent necessary to render the processing fee as timely paid and sufficient to fulfill such requirement. **Petitioner's attention is drawn to the first sentence of Item 1 of the signed Certification and Request for Prioritized Examination, filed April 25, 2024, which specifically identifies the processing fee**. Petitioner should note that because of the specific circumstances of this application, and in this specific instance, the processing fee was accepted as timely, **HOWEVER, IN ANY FUTURE REQUESTS FOR PRIORITIZED EXAMINATION, TRACK 1, ALL OF THE REQUIREMENTS, INCLUDING PAYMENT OF THE PROCESSING FEE, AS REQUIRED BY 37 CFR 1.102(e), MUST BE TIMELY SATISFIED FOR AN APPLICATION TO BE ACCEPTED INTO THE PRIORITIZED EXAMINATION, TRACK 1, PROGRAM**.

1. THE REQUEST FILED April 25, 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 Vanitha Elgart at 571-272-7395.

/VANITHA M ELGART/
Petitions Examiner, OPET

Notice of References Cited	Application/Control No. 18/645,596	Applicant(s)/Patent Under Reexamination Bays et al.	
	Examiner CHRISTOPHER J BECCIA	Art Unit 3775	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date YYYY-MM-DD	Name	CPC Classification	US Classification
*	A	US-5529075-A	1996-06-25	Clark; David	A61B17/68	606/329
*	B	US-20150112446-A1	2015-04-23	Melamed; Eyal Aharon	A61B17/7266	623/21.11
*	C	US-10342590-B2	2019-07-09	Bays; F. Barry	A61B17/15	1/1
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

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	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.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/645,596	Bays et al.
	Examiner	Art Unit
	CHRISTOPHER J BECCIA	3775

CPC - Searched*		
Symbol	Date	Examiner
A61B17/88, 8866, 80, 8061, 15, 151	08/09/2024	CJB

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

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

Search Notes		
Search Notes	Date	Examiner
Search History Attached	08/09/2024	CJB
Inventor Search	08/09/2024	CJB
Text Search	08/09/2024	CJB
Classification Search	08/09/2024	CJB
B/F Citations	08/09/2024	CJB

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

/CHRISTOPHER J BECCIA/ Primary Examiner, Art Unit 3775	

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/645,596	Bays et al.
	Examiner	Art Unit
	CHRISTOPHER J BECCIA	3775

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

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	08/09/2024								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
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	27	✓								
	28	✓								
	29	✓								
	30	✓								

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	
	Filing Date	
	First Named Inventor	F. Barry Bays
	Art Unit	
	Examiner Name	
	Attorney Docket Number	71212.4.8.USC4

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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	First Named Inventor	F. Barry Bays
	Art Unit	
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Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

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☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

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Signature	/Paul J. LaVanway, Jr./	Date (YYYY-MM-DD)	2024-04-24
Name/Print	Paul J. LaVanway, Jr.	Registration Number	64610

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	2	2195892	RU	C2	2003-01-10	Kotel, et al.		☐
	3	2320287	RU	C1	2008-03-27	Ezhov		☐
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	11	2009032101	WO	A2	2009-03-12	Simon		☐
	12	2011037885	WO	A1	2011-03-31	Sand, et al.		☐

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	24	2014152219	WO	A2	2014-09-25	Dacosta, et al.		☐
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	1	ALBANO et al., "Biomechanical Study of Transcortical or Transtrabecular Bone Fixation of Patellar Tendon Graft wih Bioabsorbable Pins in ACL Reconstruction in Sheep," Revista Brasileira de Ortopedia (Rev Bras Ortop.) Vol. 47, No. 1, 2012, pp. 43-49.	☐

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Signature	/Paul J. LaVanway, Jr./	Date (YYYY-MM-DD)	2024-04-24
Name/Print	Paul J. LaVanway, Jr.	Registration Number	64610

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

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CONFIRMATION NO. 4182

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
18/645,596	04/25/2024 RULE	606	3775	71212.4.8.USC4

APPLICANTS

Treace Medical Concepts, Inc., Ponte Vedra, FL;

INVENTORS

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Carlos Eduardo Gil, Memphis, TN;
Sean F. Scanlan, Jacksonville, FL;
Joe William Ferguson, Ponte Vedra Beach, FL;
John T. Treace, Ponte Vedra Beach, FL;

**** CONTINUING DATA ***************************

This application is a CON of 18/323,138 05/24/2023
which is a CON of 17/888,272 08/15/2022 PAT 11690659
which is a CON of 16/448,357 06/21/2019 PAT 11413081
which is a DIV of 15/236,464 08/14/2016 PAT 10342590
which claims benefit of 62/293,189 02/09/2016
and is a CIP of 14/981,335 12/28/2015 PAT 9622805
which claims benefit of 62/205,338 08/14/2015

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

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****

05/08/2024

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	TN	49	30	3
Verified and Acknowledged	/CHRISTOPHER J BECCIA/ Examiner's Signature	Initials				

ADDRESS

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INTELLECTUAL PROPERTY GROUP
60 SOUTH SIXTH STREET, SUITE 1500
MINNEAPOLIS, MN 55402
UNITED STATES

TITLE

TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

❑ All Fees
❑ 1.16 Fees (Filing)

BIB (Rev. 05/07).

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

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-22)
Approved for use through 05/31/2024. OMB 0651-0031
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Examiner Name	
Attorney Docket Number	71212.4.8.USC4

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	Examiner Name	
	Attorney Docket Number	71212.4.8.USC4

	1	Defendant Fusion Orthopedics LLC's Invalidity Contentions, No. CV-22-00490-PHX-SRB, US District Court for the District of Arizona, August 27, 2022, 41 pages.	☐
	2	Prior Art Publications, Exhibit A of Defendant Fusion Orthopedics LLC's Invalidity Contentions, No. CV-22-00490-PHX-SRB, US District Court for the District of Arizona, August 27, 2022, 3 pages.	☐
	3	Claim Chart for Fishco, "Making the Lapidus Easy," The Podiatry Institute (April 2014), Exhibit B1 of Defendant Fusion Orthopedics LLC's Invalidity Contentions, No. CV-22-00490-PHX-SRB, US District Court for the District of Arizona, August 27, 2022, 97 pages.	☐
	4	Claim Chart for Fishco, "A Straightforward Guide to the Lapidus Bunionectomy," HMP Global (September 6, 2013), Exhibit B2 of Defendant Fusion Orthopedics LLC's Invalidity Contentions, No. CV-22-00490-PHX-SRB, US District Court for the District of Arizona, August 27, 2022, 67 pages.	☐
	5	Claim Chart for Groves, "Functional Position Joint Sectioning: Pre-Load Method for Lapidus Arthrodesis," Update 2015: Proceedings of the Annual Meeting of the Podiatry Institute, Chpt. 6, pp. 23-29 (April 2015), Exhibit B3 of Defendant Fusion Orthopedics LLC's Invalidity Contentions, No. CV-22-00490-PHX-SRB, US District Court for the District of Arizona, August 27, 2022, 151 pages.	☐
	6	Claim Chart for Mote, "First Metatarsal-Cuneiform Arthrodesis for the Treatment of First Ray Pathology: A Technical Guide," The Journal Foot & Ankle Surgery (September 1, 2009), Exhibit B5 of Defendant Fusion Orthopedics LLC's Invalidity Contentions, No. CV-22-00490-PHX-SRB, US District Court for the District of Arizona, August 27, 2022, 21 pages.	☐
	7	Claim Chart for US Pat. No. 10,376,268 to Fallin et al., entitled "Indexed Tri-Planar Osteotomy Guide and Method," issued August 13, 2019, Exhibit B6 of Defendant Fusion Orthopedics LLC's Invalidity Contentions, No. CV-22-00490-PHX-SRB, US District Court for the District of Arizona, August 27, 2022, 155 pages.	☐
	8	Claim Chart for US Pat. No. 8,282,645 to Lawrence et al., entitled "Metatarsal Bone Implant Cutting Guide," issued January 18, 2010, Exhibit B7 of Defendant Fusion Orthopedics LLC's Invalidity Contentions, No. CV-22-00490-PHX-SRB, US District Court for the District of Arizona, August 27, 2022, 76 pages.	☐
	9	Claim Chart for US Pat. No. 9,452,057 to Dacosta et al., entitled "Bone Implants and Cutting Apparatuses and Methods," issued April 8, 2011, Exhibit B8 of Defendant Fusion Orthopedics LLC's Invalidity Contentions, No. CV-22-00490-PHX-SRB, US District Court for the District of Arizona, August 27, 2022, 110 pages.	☐
	10	Obviousness Chart, Exhibit C of Defendant Fusion Orthopedics LLC's Invalidity Contentions, No. CV-22-00490-PHX-SRB, US District Court for the District of Arizona, August 27, 2022, 153 pages.	☐
	11	"Foot and Ankle Instrument Set," Smith & Nephew, 2013, 2 pages.	☐

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	Attorney Docket Number	71212.4.8.USC4

	12	"Lapidus Pearls: Gaining Joint Exposure to Decrease Non-Union," Youtube, Retrieved online from <https://www.youtube.com/watch?v=-jqJyE7pj-Y>, dated November 2, 2009, 3 pages.	☐
	13	"Reconstructive Surgery of the Foot & Ankle," The Podiatry Institute, Update 2015, Conference Program, May 2015, 28 pages.	☐
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	19	COTTOM, "Fixation of the Lapidus Arthrodesis with a Plantar Interfragmentary Screw and Medial Low Profile Locking Plate," The Journal of Foot & Ankle Surgery, Vol. 51, 2012, pp. 517–522.	☐
	20	COUGHLIN, "Fixation of the Lapidus Arthrodesis with a Plantar Interfragmentary Screw and Medial Low Profile Locking Plate,"Orthopaedics and Traumatology, Vol. 7, 1999, pp. 133–143.	☐
	21	DAYTON et al., "Observed Changes in Radiographic Measurements of the First Ray after Frontal Plane Rotation of the First Metatarsal in a Cadaveric Foot Model," The Journal of Foot & Ankle Surgery, Vol. 53, 2014, pp. 274–278.	☐
	22	DAYTON et al., "Relationship of Frontal Plane Rotation of First Metatarsal to Proximal Articular Set Angle and Hallux Alignment in Patients Undergoing Tarsometatarsal Arthrodesis for Hallux Abducto Valgus: A Case Series and Critical Review of the Literature," The Journal of Foot & Ankle Surgery, 2013, Article in Press, March 1, 2013, 7 pages.	☐

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	23	DiDOMENICO et al., "Lapidus Bunionectomy: First Metatarsal-Cuneiform Arthrodesis," McGlamry's Comprehensive Textbook of Foot and Ankle Surgery, Fourth Edition, Vol. 1, Chapter 31, 2013, 24 pages.	☐
	24	FALLIN et al., US Provisional Application Entitled INDEXED TRI-PLANAR OSTEOTOMY GUIDE AND METHOD, US Pat. App. No. 62/118,378, filed February 19, 2015, 62 pages.	☐
	25	FISHCO, "A Straightforward Guide To The Lapidus Bunionectomy,"Podiatry Today, Retrieved online from <https://www.hmpgloballearningnetwork.com/site/podiatry/blogged/straightforward-guide-lapidus-bunionectomy>, dated September 6, 2013, 5 pages.	☐
	26	FISHCO, "Making the Lapidus Easy," The Podiatry Institute, Update 2014, Chapter 14, 2014, pp. 91–93.	☐
	27	FLEMING et al., "Results of Modified Lapidus Arthrodesis Procedure Using Medial Eminence as an Interpositional Autograft," The Journal of Foot & Ankle Surgery, Vol. 50, 2011, pp. 272–275.	☐
	28	FUHRMANN, "Arthrodesis of the First Tarsometatarsal Joint for Correction of the Advanced Splayfoot Accompanied by a Hallux Valgus," Operative Orthopadie und Traumatologie, No. 2, 2005, pp. 195–210.	☐
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EXAMINER SIGNATURE

Examiner Signature	/CHRISTOPHER J BECCIA/	Date Considered	08/08/2024

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[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Paul J. LaVanway, Jr./	Date (YYYY-MM-DD)	2024-04-24
Name/Print	Paul J. LaVanway, Jr.	Registration Number	64610

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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

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	Attorney Docket Number	71212.4.8.USC4

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	4159716	A	1979-07-03	BORCHERS	
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SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Paul J. LaVanway, Jr./	Date (YYYY-MM-DD)	2024-04-24
Name/Print	Paul J. LaVanway, Jr.	Registration Number	64610

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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)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.J.B/

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	0	"14981335"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2016/07/29 09:23 AM
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L5	282	smith-bret-w.in.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2016/07/29 09:24 AM
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L7	0	scanlan-sean-f.in.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2016/07/29 09:25 AM
L8	11	ferguson-joe-william.in.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2016/07/29 09:25 AM
L9	3	treace-john-t.in.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2016/07/29 09:25 AM
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		20120130376"|"201201 30383"|"20120184961"| "20120239045"|"20120 253350"|"20120265301 "|"20130012949"|"2013 0085499"|"2013015090 3"|"20130158556"|"201 40046387"|"201402575 09"|"20150032168"|"20 150045839"|"20160015 426"|"20160151165"|"2 0160175089"|"2016019 2950"|"20160199076"|" 20160213384"|"201602 42791"|"4159716"|"418 7840"|"4338927"|"4627 425"|"4757810"|"49522 14"|"4978347"|"502105 6"|"5112334"|"5254119" |"5312412"|"5358504"|" 5364402"|"5413579"|"5 449360"|"5810822"|"58 93553"|"5935128"|"603 0391"|"6719773"|"6743 233"|"7033361"|"71827 66"|"7241298"|"737792 4"|"7465303"|"7641660" |"7686811"|"7972338"|" 8057478"|"8080010"|"8 123753"|"8137406"|"81 47530"|"8167918"|"817 2848"|"8192441"|"8197 487"|"8231663"|"82465 61"|"8262664"|"828264 4"|"8282645"|"8292966" |"8313492"|"8323289"|" 8337503"|"8343159"|"8 377105"|"D610257"|"D6 29900"|"D646389"|"D65 1315"|"D651316"|"D666 721"|"D679395"|"H1706 ").PN.					
L26	89	("20060229730" | "20070005074" | "20070173947" | "20070226986" | "20070233141" | "20070299533" | "20080287954" | "20090099567" | "20090110498" | "20090138020" | "20090157083" | "20120130434" | "5539649" | "5683397" | "5766259" | "6002859" | "6205411" | "6228085" |	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2017/02/10 06:35 PM

		"6663669" | "6673116" | "6852130" | "6875236" | "7314488").PN. OR ("8337503").URPN.					
L27	1112	("1480285" | "20010005797" | "20010011190" | "20010021876" | "20010054478" | "20020007294" | "20020029045" | "20020052606" | "20020059049" | "20020082741" | "20020087274" | "20020092532" | "20020107522" | "20020128872" | "20020147415" | "20020186818" | "20020193797" | "20020198528" | "20020198531" | "20030009171" | "20030009234" | "20030011624" | "20030018338" | "20030039676" | "20030055502" | "20030105526" | "20030109784" | "20030120276" | "20030130741" | "20030139817" | "20030158606" | "20030171757" | "20030216669" | "20040018144" | "20040030245" | "20040054372" | "20040054416" | "20040068187" | "20040092932" | "20040098133" | "20040102852" | "20040102866" | "20040106926" | "20040115586" | "20040122436" | "20040122439" | "20040128026" | "20040133276" | "20040138754" | "20040143336" | "20040147927" | "20040148026" | "20040153079" |	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2017/02/10 06:36 PM

		"20040153087" | "20040158254" | "20040162619" | "20040167390" | "20040171924" | "20040172137" | "20040181144" | "20040193169" | "20040204644" | "20040204760" | "20040212586" | "20040220583" | "20040236341" | "20040236424" | "20040243481" | "20040254584" | "20040260301" | "20050008887" | "20050010227" | "20050010300" | "20050015022" | "20050019664" | "20050027303" | "20050027361" | "20050043806" | "20050043837" | "20050049524" | "20050049603" | "20050059873" | "20050060040" | "20050065628" | "20050070897" | "20050071015" | "20050075641" | "20050096535" | "20050113841" | "20050113846" | "20050119664" | "20050131662" | "20050137708" | "20050148843").PN. OR ("20050149042" | "20050171545" | "20050177245" | "20050203536" | "20050203540" | "20050209605" | "20050216305" | "20050222571" | "20050222573" | "20050228393" | "20050234461" | "20050234465" | "20050234468" | "20050240195" | "20050240267" | "20050244239" | "20050245934"				

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		"5007936" | "5030219" | "5030221" | "5041117" | "5053037" | "5053039" | "5056351" | "5086401").PN. OR ("5098383" | "5098436" | "5108425" | "5122144" | "5123927" | "5129908" | "5129909" | "5133760" | "5140777" | "5150304" | "5176684" | "5194066" | "5234433" | "5246444" | "5253506" | "5258032" | "5261915" | "5274565" | "5282802" | "5299288" | "5300077" | "5320529" | "5320625" | "5323697" | "5342366" | "5344423" | "5360446" | "5364402" | "5368858" | "5370692" | "5370699" | "5405395" | "5408409" | "5411521" | "5415662" | "5417694" | "5438263" | "5440496" | "5448489" | "5449360" | "5452407" | "5454816" | "5462550" | "5472415" | "5474559" | "5490854" | "5496324" | "5507833" | "5514519" | "5520695" | "5527317" | "5539649" | "5540695" | "5545222" | "5549688" | "5554190" | "5560096" | "5571110" | "5578037" | "5593411" | "5595703" | "5601565" | "5607431" | "5611802" | "5613969" | "5620448" | "5634927" | "5641323" | "5653714" | "5658294" | "5662656" | "5662710" | "5671018" | "5676668" | "5677107" | "5681354" | "5682886" | "5683469" | "5690635" | "5697933" | "5702460" | "5702464" | "5704941" | "5709689" | "5720752" | "5722978" | "5725376" | "5725593" | "5735277" | "5745834" | "5748767" | "5749875" | "5749876" | "5762125" | "5766251" | "5768134" | "5769092" | "5776200" | "5786217" | "5792143" | "5798924" | "5799055" | "5835619" | "5860980" | "5860981" | "5871018"				

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L29	348	bunion and (aligned or alignment)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2017/02/10 06:39 PM
L30	245	bunion with metatarsal	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2017/02/10 06:39 PM
L31	1	"14981335"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2017/02/10 06:40 PM
L35	8	"14981335"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/09/05 09:17 AM
L36	1	"15236464"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/09/05 09:17 AM
L37	1	"15236464"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/11/13 02:32 PM
L38	195	("20040039394"|"20040097946"|"20050004676"|"20050075641"|"20050101961"|"20050149042"|"20050228389"|"20050273112"|"20060206044"|"20060217733"|"20060229621"|"20060241607"|"20060241608"|"20060264961"|"20070233138"|"20070265634"|"20070276383"|"200800	(US-PGPUB; USPAT)	OR	OFF	OFF	2018/11/13 02:33 PM

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L40	3	("20160354127"|"20170079669"|"4570624").PN	(US-PGPUB; USPAT)	OR	OFF	OFF	2018/11/13 02:36 PM

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L42	118	bays-f-barry.in.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/11/13 02:37 PM
L43	9	"14981335"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/11/13 02:38 PM
L44	286	fulcrum and metatarsal	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/11/16 02:32 PM
L45	77	fulcrum with metatarsal	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/11/16 02:32 PM
L46	812	cuneiform with metatarsal	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/11/16 02:38 PM
L47	345	L46 and transverse	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/11/16 02:39 PM
L48	9	"14981335"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/12/18 09:25 AM
L49	1	"15236464"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/12/18 09:30 AM
L50	0	(14/391886).APP.	(USPAT; USOCR)	OR	OFF	OFF	2018/12/18 09:33 AM
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L55	95	L54 and bunion	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2018/12/18 09:51 AM
L56	100	L54 and hallux valgus	(US-PGPUB; USPAT; USOCR)	ADJ	OFF	OFF	2018/12/18 09:53 AM
L64	19	santrock-robert-d.in.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/12/18 06:36 PM

L67	3477	a61b17/88.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/12/18 06:40 PM
L68	1337	a61b17/8888.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/12/18 06:41 PM
L69	2217	a61b17/8866.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/12/18 06:41 PM
L70	7193	a61b17/80.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/12/18 06:41 PM
L71	6171	a61b17/8061.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/12/18 06:41 PM
L72	7545	a61b17/02.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/12/18 06:41 PM
L73	6899	a61b17/025.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/12/18 06:41 PM
L74	3	("20020107519"|"20040010259"|"20130325019").PN.	(US-PGPUB; USPAT)	OR	OFF	OFF	2019/05/07 07:25 PM
L75	1	(13/485444).APP.	(USPAT; USOCR)	OR	OFF	OFF	2019/05/07 07:25 PM
L76	8	("20020099381"|"20080172054"|"20120277745"|"20120330135"|"20130096563"|"20150045801"|"20180344334"|"5417694").PN.	(US-PGPUB; USPAT)	OR	OFF	OFF	2019/05/07 07:29 PM
L77	5	("20080009863"|"20140257308"|"4995875"|"5601565"|"6511481").PN.	(US-PGPUB; USPAT)	OR	OFF	OFF	2019/05/07 07:30 PM
L78	1	"16448357"	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/08/15 10:57 AM
L79	2	"10342590".pn.	(US-PGPUB; USPAT;	OR	ON	ON	2021/08/15

			USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				10:59 AM
L80	251	("4159716" | "4187840" | "4338927" | "4570624" | "4627425" | "4628919" | "4757810" | "4895141" | "4952214" | "4978347" | "4988349" | "4995875" | "5021056" | "5112334" | "5207676" | "5254119" | "5312412" | "5358504" | "5364402" | "5413579" | "5417694" | "5449360" | "5529075" | "5601565" | "5620442" | "H1706" | "5788695" | "5803924" | "5810822" | "5893553" | "5935128" | "5941877" | "5951556" | "6030391" | "6162223" | "6171309" | "6511481" | "6719773" | "6743233" | "7033361" | "7182766" | "7241298" | "7377924" | "7465303" | "7641660" | "D610257" | "7686811" | "D629900" | "7972338" | "D646389" | "8057478" | "D651315" | "D651316" | "8080010" | "8123753" | "8137406" | "8147530" | "8167918" | "8172848" | "8192441" | "8197487" | "8231623" | "8231663" | "8246561" | "D666721" | "8262664" | "8282644" | "8282645" | "8292966" | "8313492" | "8323289" | "8337503" | "8343159" | "8377105" | "D679395" | "8435246" | "8475462" | "8523870" | "D694884" | "D695402" | "8652142" | "D701303" | "8672945" | "8696716" | "D705929" | "8715363" | "8728084" | "8758354" | "8764763" | "8771279" | "8784427" | "8784457" | "8795286" | "8801727"	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/08/15 10:59 AM

		| "8808303" | "8828012" | "8858602" | "8882778" | "8998903" | "8998904" | "9023052" | "9044250" | "9060822" | "9089376" | "9101421" | "9107715" | "D765844" | "D766434" | "D766437" | "D766438" | "9750538" | "20020099381" | "20020107519" | "20020198531" | "20040010259" | "20040039394" | "20040097946" | "20050004676" | "20050075641" | "20050101961" | "20050149042" | "20050228389" | "20050273112" | "20060206044" | "20060217733" | "20060229621" | "20060241607" | "20060241608" | "20060264961" | "20070123857" | "20070233138" | "20070265634" | "20070276383" | "20080009863" | "20080091197" | "20080140081" | "20080172054" | "20080208252" | "20080262500" | "20080269908" | "20090036893" | "20090093849" | "20090105767" | "20090118733" | "20090198244" | "20090198279" | "20090222047" | "20090254092" | "20090254126" | "20090287309" | "20100069910" | "20100121334" | "20100130981" | "20100152782" | "20100168799" | "20100185245" | "20100249779" | "20100256687" | "20100324556" | "20110093084" |					

		"20110245835" | "20110288550" | "20110301648" | "20120016426" | "20120065689" | "20120078258" | "20120123420" | "20120123484" | "20120130376" | "20120130383" | "20120184961" | "20120239045" | "20120253350" | "20120265301" | "20120277745" | "20120330135" | "20130012949" | "20130035694" | "20130085499" | "20130096563" | "20130150903" | "20130158556" | "20130165936" | "20130165938" | "20130172942" | "20130184714" | "20130190765" | "20130190766" | "20130204259" | "20130231668" | "20130237987" | "20130237989" | "20130267956" | "20130310836" | "20130325019" | "20130325076" | "20130331845" | "20130338785" | "20140005672" | "20140025127" | "20140039501" | "20140039561" | "20140046387" | "20140074099" | "20140074101" | "20140094861" | "20140094924" | "20140163563" | "20140171953" | "20140180342" | "20140194884" | "20140207144" | "20140249537" | "20140257308" | "20140257509" | "20140276815" | "20140276853" | "20140277176"				

		"20140277214" | "20140296995" | "20140303621" | "20140336658" | "20150032168" | "20150045801" | "20150045839" | "20150051650" | "20150066094" | "20150112446" | "20150119944" | "20150142064" | "20150150608" | "20150182273" | "20150223851" | "20150245858" | "20160015426" | "20160022315" | "20160151165" | "20160175089" | "20160192950" | "20160199076" | "20160213384" | "20160235414" | "20160242791" | "20160256204" | "20160354127" | "20170079669" | "20180344334").pn. OR ("10342590").urpn. AND (PGPB | USPT | USOC).dbnm.					
L81	176	bays-f-barry.in.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/08/15 11:00 AM
L82	48	santrock-robert-d.in.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/08/15 11:00 AM
L83	86	treace-john-t.in.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY,	OR	ON	ON	2021/08/15 11:00 AM

			CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L84	156	dayton-paul.in.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/08/15 11:00 AM
L85	249	("20020099381" OR "20020107519" OR "20020198531" OR "20040010259" OR "20040039394" OR "20040097946" OR "20050004676" OR "20050059978" OR "20050075641" OR "20050101961" OR "20050149042" OR "20050228389" OR "20050273112" OR "20060206044" OR "20060217733" OR "20060229621" OR "20060241607" OR "20060241608" OR "20060264961" OR "20070123857" OR "20070233138" OR "20070265634" OR "20070276383" OR "20080009863" OR "20080091197" OR "20080140081" OR "20080172054" OR "20080208252" OR "20080262500" OR "20080269908" OR "20090036893" OR "20090093849" OR "20090105767" OR "20090118733" OR "20090198244" OR "20090198279" OR "20090222047" OR "20090254092" OR	(US-PGPUB; USPAT)	OR	ON	ON	2021/08/15 11:01 AM

		"20090254126" OR "20090287309" OR "20100069910" OR "20100121334" OR "20100130981" OR "20100152782" OR "20100168799" OR "20100185245" OR "20100249779" OR "20100256687" OR "20100324556" OR "20110093084" OR "20110245835" OR "20110288550" OR "20110301648" OR "20120016426" OR "20120065689" OR "20120078258" OR "20120123420" OR "20120123484" OR "20120130376" OR "20120130383" OR "20120184961" OR "20120239045" OR "20120253350" OR "20120265301" OR "20120277745" OR "20120330135" OR "20130012949" OR "20130035694" OR "20130085499" OR "20130096563" OR "20130150903" OR "20130158556" OR "20130165936" OR "20130165938" OR "20130172942" OR "20130184714" OR "20130190765" OR "20130190766" OR "20130204259" OR "20130231668" OR "20130237987" OR "20130237989" OR "20130267956" OR "20130310836" OR "20130325019" OR "20130325076" OR "20130331845" OR "20130338785" OR "20140005672" OR "20140025127" OR "20140039501" OR "20140039561" OR "20140046387" OR "20140074099" OR "20140074101" OR "20140094861" OR					

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		"5358504" OR "5364402" OR "5413579" OR "5417694" OR "5449360" OR "5529075" OR "5601565" OR "5620442" OR "5788695" OR "5803924" OR "5810822" OR "5893553" OR "5935128" OR "5941877" OR "5951556" OR "6030391" OR "6162223" OR "6171309" OR "6511481" OR "6719773" OR "6743233" OR "7033361" OR "7182766" OR "7241298" OR "7377924" OR "7465303" OR "7641660" OR "7686811" OR "7972338" OR "8057478" OR "8080010" OR "8123753" OR "8137406" OR "8147530" OR "8167918" OR "8172848" OR "8192441" OR "8197487" OR "8231623" OR "8231663" OR "8246561" OR "8262664" OR "8282644" OR "8282645" OR "8292966" OR "8313492" OR "8323289" OR "8337503" OR "8343159" OR "8377105" OR "8435246" OR "8475462" OR "8523870" OR "8652142" OR "8672945" OR "8696716" OR "8715363" OR "8728084" OR					

		"8758354" OR "8764763" OR "8771279" OR "8784427" OR "8784457" OR "8795286" OR "8801727" OR "8808303" OR "8828012" OR "8858602" OR "8882778" OR "8998903" OR "8998904" OR "9023052" OR "9044250" OR "9060822" OR "9089376" OR "9101421" OR "9107715" OR "9750538" OR "D610257" OR "D629900" OR "D646389" OR "D651315" OR "D651316" OR "D666721" OR "D679395" OR "D694884" OR "D695402" OR "D701303" OR "D705929" OR "D765844" OR "D766434" OR "D766437" OR "D766438" OR "D766439" OR "H001706").pn.					
L86	88	("10292713" OR "20020165552" OR "20040138669" OR "20050070909" OR "20050251147" OR "20060129163" OR "20070010818" OR "20080039850" OR "20080147073" OR "20080195215" OR "20090036931" OR "20090054899" OR "20120185056" OR "20120191199" OR "20130226248" OR "20130226252" OR "20140188139" OR "20140194999" OR "20140343555" OR "20150057667" OR	(US-PGPUB; USPAT)	OR	ON	ON	2021/08/15 11:03 AM

		"20160324532" OR "20170042598" OR "4069824" OR "4335715" OR "4349018" OR "4409973" OR "4440168" OR "4501268" OR "4502474" OR "4509511" OR "4565191" OR "4632102" OR "4664102" OR "4708133" OR "4750481" OR "5035698" OR "5042983" OR "5049149" OR "5053039" OR "5078719" OR "5147364" OR "5176685" OR "5246444" OR "5470335" OR "5540695" OR "5578038" OR "5613969" OR "5620448" OR "5643270" OR "5667510" OR "5722978" OR "5749875" OR "5779709" OR "5843085" OR "5911724" OR "5980526" OR "5984931" OR "6007535" OR "6027504" OR "6203545" OR "6248109" OR "6391031" OR "6547793" OR "6676662" OR "6755838" OR "6796986" OR "7018383" OR "7112204" OR "7540874" OR "7572258" OR "7691108" OR "7763026" OR "7967823" OR "8062301" OR "8083746" OR "8236000" OR "8277459" OR "8409209" OR					

		"8496662" OR "8529571" OR "8540777" OR "8657820" OR "8702715" OR "8777948" OR "8888785" OR "8900247" OR "8906026" OR "9113920").pn.					
L87	21	("10028750" OR "10064631" OR "10159499" OR "10327829" OR "20100318088" OR "20130131821" OR "20140135775" OR "20140288562" OR "20170143511" OR "20170164989" OR "5490854" OR "6478799" OR "6859661" OR "7282054" OR "8303596" OR "8764760" OR "8882816" OR "8945132" OR "9785747" OR "D720456" OR "D740424").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2021/08/15 11:04 AM
L88	4	("20110009865" OR "20110118739" OR "20120130382" OR "5374271").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2021/08/15 11:05 AM
L89	3	("20080288004" OR "3664022" OR "9522023").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2021/08/15 11:08 AM
L90	3	("20080288004" OR "3664022" OR "9522023").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2021/08/15 11:09 AM
L91	6	("10470779" OR "20080015603" OR "20110178524" OR "4736737" OR "4959066" OR "8545508").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2021/08/15 11:10 AM
L92	3	("10779867" OR "20130085502" OR "8080045").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2021/08/15 11:11 AM
L93	3	("10779867" OR "20130085502" OR "8080045").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2021/08/15 11:12 AM
L94	97	treace-john-t.in.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP,	OR	ON	ON	2021/12/04 11:14 AM

			AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L95	97	treace-john-t.in.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/12/04 11:14 AM
L96	18	treace-john-t.in.	(USPAT)	OR	ON	ON	2021/12/04 11:14 AM
L97	1	"16448357"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DK, EA, EE, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/12/13 10:57 AM
L98	250	("10779867" OR "20130085502" OR "8080045" OR "10470779" OR "20080015603" OR "20110178524" OR "4736737" OR "4959066" OR "8545508" OR "20080288004" OR "3664022" OR "9522023" OR "20110009865" OR "20110118739" OR "20120130382" OR "5374271" OR "10028750" OR "10064631" OR "10159499" OR	(US-PGPUB; USPAT)	OR	ON	ON	2021/12/13 11:07 AM

		"10327829" OR "20100318088" OR "20130131821" OR "20140135775" OR "20140288562" OR "20170143511" OR "20170164989" OR "5490854" OR "6478799" OR "6859661" OR "7282054" OR "8303596" OR "8764760" OR "8882816" OR "8945132" OR "9785747" OR "D720456" OR "D740424" OR "10292713" OR "20020165552" OR "20040138669" OR "20050070909" OR "20050251147" OR "20060129163" OR "20070010818" OR "20080039850" OR "20080147073" OR "20080195215" OR "20090036931" OR "20090054899" OR "20120185056" OR "20120191199" OR "20130226248" OR "20130226252" OR "20140188139" OR "20140194999" OR "20140343555" OR "20150057667" OR "20160324532" OR "20170042598" OR "4069824" OR "4335715" OR "4349018" OR "4409973" OR "4440168" OR "4501268" OR "4502474" OR "4509511" OR "4565191" OR "4632102" OR "4664102" OR "4708133" OR "4750481" OR "5035698" OR "5042983" OR "5049149" OR "5053039" OR "5078719" OR					

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L99	124	("20160022315" OR "20160151165" OR "20160175089" OR "20160192950" OR "20160199076" OR "20160213384" OR "20160235414" OR "20160242791" OR "20160256204" OR "20160354127" OR "20170079669" OR "20180344334" OR "4159716" OR "4187840" OR "4338927" OR "4570624" OR "4627425" OR "4628919" OR "4757810" OR "4895141" OR "4952214" OR "4978347" OR "4988349" OR "4995875" OR "5021056" OR "5112334" OR "5207676" OR "5254119" OR "5312412" OR "5358504" OR "5364402" OR "5413579" OR "5417694" OR "5449360" OR "5529075" OR "5601565" OR "5620442" OR "5788695" OR "5803924" OR "5810822" OR "5893553" OR "5935128" OR "5941877" OR "5951556" OR "6030391" OR "6162223" OR "6171309" OR "6511481" OR "6719773" OR "6743233" OR "7033361" OR "7182766" OR "7241298" OR "7377924" OR "7465303" OR "7641660" OR "7686811" OR "7972338" OR	(US-PGPUB; USPAT)	OR	ON	ON	2021/12/13 11:07 AM

		"8057478" OR "8080010" OR "8123753" OR "8137406" OR "8147530" OR "8167918" OR "8172848" OR "8192441" OR "8197487" OR "8231623" OR "8231663" OR "8246561" OR "8262664" OR "8282644" OR "8282645" OR "8292966" OR "8313492" OR "8323289" OR "8337503" OR "8343159" OR "8377105" OR "8435246" OR "8475462" OR "8523870" OR "8652142" OR "8672945" OR "8696716" OR "8715363" OR "8728084" OR "8758354" OR "8764763" OR "8771279" OR "8784427" OR "8784457" OR "8795286" OR "8801727" OR "8808303" OR "8828012" OR "8858602" OR "8882778" OR "8998903" OR "8998904" OR "9023052" OR "9044250" OR "9060822" OR "9089376" OR "9101421" OR "9107715" OR "9750538" OR "D610257" OR "D629900" OR "D646389" OR "D651315" OR "D651316" OR "D666721" OR "D679395" OR "D694884" OR "D695402" OR					

		"D701303" OR "D705929" OR "D765844" OR "D766434" OR "D766437" OR "D766438" OR "D766439" OR "H001706").pn.					
L100	1035	metatarsal AND fulcrum	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DK, EA, EE, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/12/13 11:11 AM
L101	331	metatarsal AND fulcrum	(US-PGPUB; USPAT)	OR	ON	ON	2021/12/13 11:11 AM
L103	2	"20030195516"	(US-PGPUB; USPAT)	OR	ON	ON	2021/12/13 11:14 AM
L104	0	(12/094557).APP.	(USPAT; USOCR)	OR	ON	ON	2021/12/13 02:37 PM
L105	3	("20020049368" OR "5308349" OR "6416465").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2021/12/13 02:38 PM
L106	1	"3731673".pn.	(US-PGPUB; USPAT)	OR	ON	ON	2021/12/13 02:40 PM
L107	251	("4159716" | "4187840" | "4338927" | "4570624" | "4627425" | "4628919" | "4757810" | "4895141" | "4952214" | "4978347" | "4988349" | "4995875" | "5021056" | "5112334" | "5207676" | "5254119" | "5312412" | "5358504" | "5364402" | "5413579" | "5417694" | "5449360" | "5529075" | "5601565" | "5620442" | "H1706" | "5788695" | "5803924" | "5810822" | "5893553" | "5935128" | "5941877" | "5951556" | "6030391" | "6162223" | "6171309" | "6511481" | "6719773" | "6743233" | "7033361" | "7182766" | "7241298" |	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/12/14 08:44 AM

		"7377924" | "7465303" | "7641660" | "D610257" | "7686811" | "D629900" | "7972338" | "D646389" | "8057478" | "D651315" | "D651316" | "8080010" | "8123753" | "8137406" | "8147530" | "8167918" | "8172848" | "8192441" | "8197487" | "8231623" | "8231663" | "8246561" | "D666721" | "8262664" | "8282644" | "8282645" | "8292966" | "8313492" | "8323289" | "8337503" | "8343159" | "8377105" | "D679395" | "8435246" | "8475462" | "8523870" | "D694884" | "D695402" | "8652142" | "D701303" | "8672945" | "8696716" | "D705929" | "8715363" | "8728084" | "8758354" | "8764763" | "8771279" | "8784427" | "8784457" | "8795286" | "8801727" | "8808303" | "8828012" | "8858602" | "8882778" | "8998903" | "8998904" | "9023052" | "9044250" | "9060822" | "9089376" | "9101421" | "9107715" | "D765844" | "D766434" | "D766437" | "D766438" | "D766439" | "9750538" | "20020099381" | "20020107519" | "20020198531" | "20030195516" | "20040010259" | "20040039394" | "20040097946" | "20050004676" | "20050059978" | "20050075641" | "20050101961" | "20050149042" | "20050228389" | "20050273112" | "20060206044" | "20060217733" | "20060229621" | "20060241607" | "20060241608" | "20060264961" | "20070123857" | "20070233138" |				

		"20070265634" | "20070276383" | "20080009863" | "20080091197" | "20080140081" | "20080172054" | "20080208252" | "20080262500" | "20080269908" | "20090036893" | "20090093849" | "20090105767" | "20090118733" | "20090198244" | "20090198279" | "20090222047" | "20090254092" | "20090254126" | "20090287309" | "20100069910" | "20100121334" | "20100130981" | "20100152782" | "20100168799" | "20100185245" | "20100249779" | "20100256687" | "20100324556" | "20110093084" | "20110245835" | "20110288550" | "20110301648" | "20120016426" | "20120065689" | "20120078258" | "20120123420" | "20120123484" | "20120130376" | "20120130383" | "20120184961" | "20120239045" | "20120253350" | "20120265301" | "20120277745" | "20120330135" | "20130012949" | "20130035694" | "20130085499" | "20130096563" | "20130150903" | "20130158556" | "20130165936" | "20130165938" | "20130172942" | "20130184714" | "20130190765" | "20130190766" | "20130204259"				

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		"20170079669" | "20180344334").pn. OR ("10939939").urpn. AND (PGPB | USPT | USOC).dbnm.					
L108	250	("10028750" OR "10064631" OR "10159499" OR "10292713" OR "10327829" OR "10470779" OR "10779867" OR "10939939" OR "20020099381" OR "20020107519" OR "20020165552" OR "20020198531" OR "20040010259" OR "20040039394" OR "20040097946" OR "20040138669" OR "20050004676" OR "20050059978" OR "20050070909" OR "20050075641" OR "20050101961" OR "20050149042" OR "20050228389" OR "20050251147" OR "20050273112" OR "20060129163" OR "20060206044" OR "20060217733" OR "20060229621" OR "20060241607" OR "20060241608" OR "20060264961" OR "20070010818" OR "20070123857" OR "20070233138" OR "20070265634" OR "20070276383" OR "20080009863" OR "20080015603" OR "20080039850" OR "20080091197" OR "20080140081" OR "20080147073" OR "20080172054" OR "20080195215" OR "20080208252" OR "20080262500" OR "20080269908" OR "20080288004" OR "20090036893" OR "20090036931" OR "20090054899" OR	(US-PGPUB; USPAT)	OR	ON	ON	2022/10/25 10:30 AM

		"20090093849" OR "20090105767" OR "20090118733" OR "20090198244" OR "20090198279" OR "20090216089" OR "20090222047" OR "20090254092" OR "20090254126" OR "20090287309" OR "20100069910" OR "20100121334" OR "20100130981" OR "20100152782" OR "20100168799" OR "20100185245" OR "20100249779" OR "20100256687" OR "20100318088" OR "20100324556" OR "20110009865" OR "20110093084" OR "20110118739" OR "20110178524" OR "20110245835" OR "20110288550" OR "20110301648" OR "20120016426" OR "20120065689" OR "20120078258" OR "20120123420" OR "20120123484" OR "20120130376" OR "20120130382" OR "20120130383" OR "20120184961" OR "20120185056" OR "20120191199" OR "20120239045" OR "20120253350" OR "20120265301" OR "20120277745" OR "20120330135" OR "20130012949" OR "20130035694" OR "20130085499" OR "20130085502" OR "20130096563" OR "20130131821" OR "20130150903" OR "20130158556" OR "20130165936" OR "20130165938" OR "20130172942" OR "20130184714" OR "20130190765" OR "20130190766" OR "20130204259" OR					

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L109	127	("5980526" OR "5984931" OR "6007535" OR "6027504" OR "6030391" OR "6162223" OR "6171309" OR "6203545" OR "6248109" OR "6391031" OR "6416465" OR "6478799" OR "6511481" OR "6547793" OR "6676662" OR "6719773" OR "6743233" OR "6755838" OR "6796986" OR "6859661" OR "7018383" OR "7033361" OR "7112204" OR "7182766" OR "7241298" OR "7282054" OR "7377924" OR "7465303" OR "7540874" OR "7572258" OR "7641660" OR "7686811" OR "7691108" OR	(US-PGPUB; USPAT)	OR	ON	ON	2022/10/25 10:30 AM

		"7763026" OR "7967823" OR "7972338" OR "8057478" OR "8062301" OR "8080010" OR "8080045" OR "8083746" OR "8123753" OR "8137406" OR "8147530" OR "8167918" OR "8172848" OR "8192441" OR "8197487" OR "8231623" OR "8231663" OR "8236000" OR "8246561" OR "8262664" OR "8277459" OR "8282644" OR "8282645" OR "8292966" OR "8303596" OR "8313492" OR "8323289" OR "8337503" OR "8343159" OR "8377105" OR "8409209" OR "8435246" OR "8475462" OR "8496662" OR "8523870" OR "8529571" OR "8540777" OR "8545508" OR "8652142" OR "8657820" OR "8672945" OR "8696716" OR "8702715" OR "8715363" OR "8728084" OR "8758354" OR "8764760" OR "8764763" OR "8771279" OR "8777948" OR "8784427" OR "8784457" OR "8795286" OR "8801727" OR "8808303" OR "8828012" OR "8858602" OR "8882778" OR					

		"8882816" OR "8888785" OR "8900247" OR "8906026" OR "8945132" OR "8998903" OR "8998904" OR "9023052" OR "9044250" OR "9060822" OR "9089376" OR "9101421" OR "9107715" OR "9113920" OR "9522023" OR "9750538" OR "9785747" OR "D610257" OR "D629900" OR "D646389" OR "D651315" OR "D651316" OR "D666721" OR "D679395" OR "D694884" OR "D695402" OR "D701303" OR "D705929" OR "D720456" OR "D740424" OR "D765844" OR "D766434" OR "D766437" OR "D766438" OR "D766439" OR "H001706").pn.					
L110	14	("10376268" OR "11304705" OR "20050267482" OR "20120303033" OR "20130150900" OR "20140350561" OR "20160135858" OR "20180132868" OR "4754746" OR "5586564" OR "7097647" OR "7153310" OR "9452057" OR "9980760").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2022/10/25 10:34 AM
L111	2	"16448357"	(US-PGPUB; USPAT)	OR	ON	ON	2022/10/25 10:39 AM
L112	250	("10028750" OR "10064631" OR "10159499" OR "10292713" OR "10327829" OR	(US-PGPUB; USPAT)	OR	ON	ON	2024/08/08 09:46 AM

		"10376268" OR "10470779" OR "10779867" OR "10939939" OR "11304705" OR "20020099381" OR "20020107519" OR "20020165552" OR "20020198531" OR "20040010259" OR "20040039394" OR "20040097946" OR "20040138669" OR "20050004676" OR "20050059978" OR "20050070909" OR "20050075641" OR "20050101961" OR "20050149042" OR "20050228389" OR "20050251147" OR "20050267482" OR "20050273112" OR "20060129163" OR "20060206044" OR "20060217733" OR "20060229621" OR "20060241607" OR "20060241608" OR "20060264961" OR "20070010818" OR "20070123857" OR "20070233138" OR "20070265634" OR "20070276383" OR "20080009863" OR "20080015603" OR "20080039850" OR "20080091197" OR "20080140081" OR "20080147073" OR "20080172054" OR "20080195215" OR "20080208252" OR "20080262500" OR "20080269908" OR "20080288004" OR "20090036893" OR "20090036931" OR "20090054899" OR "20090093849" OR "20090105767" OR "20090112212" OR "20090118733" OR "20090198244" OR "20090198279" OR "20090216089" OR "20090222047" OR				

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			JPO; DERWENT; IBM_TDB)				
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L116	39	(metatarsal bunion instrument fixation).clm.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2024/08/08 04:28 PM
L117	32	(metatarsal bunion instrument fixation plane).clm.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2024/08/08 04:28 PM
L118	11	(metatarsal bunion instrument fixation plane).clm.	(USPAT)	AND	ON	ON	2024/08/08 04:30 PM
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		AND (PGPB | USPT | USOC).dbnm.					

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N32	5	(bunion deformity).clm.	(USPAT)	AND	ON	ON	2017/02/10 06:43 PM
N33	1	(bunion deformity plane).clm.	(USPAT)	AND	ON	ON	2017/02/10 06:44 PM
N34	0	(bunion plane aligned).clm.	(USPAT)	AND	ON	ON	2017/02/10 06:44 PM
N79	1	(method bunion fulcrum).clm.	(USPAT)	AND	ON	ON	2019/05/07 07:41 PM
N80	1	(bunion fulcrum).clm.	(USPAT)	AND	ON	ON	2019/05/07 07:41 PM
N81	14	(metatarsal fulcrum).clm.	(USPAT)	AND	ON	ON	2019/05/07 07:41 PM
N82	5	(method bunion deformity fulcrum).clm.	(US-PGPUB; USPAT)	AND	ON	ON	2021/12/04 11:22 AM
N83	11	(method bunion deformity fixing).clm.	(US-PGPUB; USPAT)	AND	ON	ON	2021/12/04 11:23 AM
N84	33	(method bunion deformity).clm.	(US-PGPUB; USPAT)	AND	ON	ON	2023/02/09 08:54 AM
N85	17	(method bunion deformity fixation).clm.	(US-PGPUB; USPAT)	AND	ON	ON	2023/02/09 08:54 AM
N86	16	(method bunion deformity fixation plane).clm.	(US-PGPUB; USPAT)	AND	ON	ON	2023/02/09 08:54 AM

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/645,596	04/25/2024	F. Barry Bays	71212.4.8.USC4	4182

22859 7590 08/14/2024

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EXAMINER	
BECCIA, CHRISTOPHER J	

ART UNIT	PAPER NUMBER
3775	

NOTIFICATION DATE	DELIVERY MODE
08/14/2024	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):

IP@FREDLAW.COM

Office Action Summary	Application No. 18/645,596	Applicant(s) Bays et al.	
	Examiner CHRISTOPHER J BECCIA	Art Unit 3775	AIA (FITF) Status Yes

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

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

Status

1)☐ Responsive to communication(s) filed on _____.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

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

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

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

Disposition of Claims*

5) ☑ Claim(s) 1-30 is/are pending in the application.

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

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-30 is/are rejected.

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

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, 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.**

Application Papers

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

11)☑ The drawing(s) filed on April 25, 2024 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

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

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

Priority under 35 U.S.C. § 119

12)☐ 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)).

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

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

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.

Allowable Subject Matter

Claims 1-30 are allowable over the prior art.

The following is a statement of reasons for the indication of allowable subject matter: Most pertinent prior art including U.S. Patent Pub. No. 2015/0112446 to *Melamed et al*. and U.S. Patent No. 5,529,075 to *Clark* disclose discloses an instrumented surgical technique for treating a bunion deformity. The method comprises inserting an instrument between metatarsal and a second metatarsal adjacent to the first metatarsal, wherein the first metatarsal is anatomically misaligned with respect to the second metatarsal, cutting an end of a metatarsal, moving a distal portion of the first metatarsal toward the second metatarsal in a plane, and using at least one bone fixation device.

The prior art fails to teach or disclose, however, wherein the method includes cutting an end of a medial cuneiform opposing the end of the first metatarsal, moving the first metatarsal in at least one plane to treat the bunion deformity, and after moving the first metatarsal in at least one plane to treat the bunion deformity, fixating a moved position of the first metatarsal relative to the medial cuneiform using at least one bone fixation device.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not

identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP § 2146 *et seq.* for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

Claims 1-30 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-26 of U.S. Patent No. 10,342,590. Although the claims at issue are not identical, they are not patentably distinct from each other because both the present application and granted patent

disclose a method of treating a bunion deformity that includes inserting an instrument between a first metatarsal and a second metatarsal, wherein the first metatarsal is anatomically misaligned with respect to the second metatarsal, preparing an end of the first metatarsal, preparing an end of a medial cuneiform opposing the end of the first metatarsal, moving the first metatarsal in at least one plane to treat the bunion deformity, and after moving the first metatarsal in at least one plane to treat the bunion deformity, fixing the position of the first metatarsal with respect to the medial cuneiform using at least one bone fixation device.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER J BECCIA whose telephone number is (571)270-7391. The examiner can normally be reached Mon - Fri 8:30-5:00.

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, Kevin Truong can be reached on 571-272-4705. 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.

/CHRISTOPHER J BECCIA/
Primary Examiner, Art Unit 3775

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United States Patent and Trademark Office
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
18/645,596	04/25/2024	F. Barry Bays	71212.4.8.USC4

CONFIRMATION NO. 4182

22859
FREDRIKSON & BYRON, P.A.
INTELLECTUAL PROPERTY GROUP
60 SOUTH SIXTH STREET, SUITE 1500
MINNEAPOLIS, MN 55402

PUBLICATION NOTICE



OC000000076565704

Date Mailed: 08/15/2024

Title:TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

Publication No.US-2024-0268876-A1
Publication Date:08/15/2024

NOTICE OF PUBLICATION OF APPLICATION

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

The publication may be viewed using the USPTO's publicly available Searchable Databases via the Patent Public Search tool at www.uspto.gov. The direct link to access the Patent Public Search tool is currently https://ppubs.uspto.gov/pubwebapp/static/pages/ppubsbasic.html.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through Patent Center, the USPTO's electronic patent application filing and management system. The direct link to access this status information is currently https://patentcenter.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of Patent Center.

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

United States Patent and Trademark Office

Office of the Commissioner for Patents

Dear Applicant,

You recently received an Office action from your examiner. Review of your patent application is under way! You can continue to advertise or mark any products covered by your application for your invention as "Patent Pending" for as long as this application is pending. This letter provides information about how to continue through the patent application process and the help available to you on your journey.

Where are you in the patent application process? Your patent application is now in step 3, Application Prosecution (www.uspto.gov/UtilityPatentGuide.) Though the Office action includes a "rejection," that does not mean that you don't have a good idea you can patent. It means your examiner believes your application is not yet ready for allowance.

Ready to respond? Responding to the Office action is your opportunity to address the issues raised by your examiner. Responses must be timely, complete, and in writing. In your response, you may want to consider amending your application (www.uspto.gov/patents/maintain/responding-office-actions).

We provide Pro Se Assistance, support specifically geared for independent inventors without an agent or attorney. Visit www.uspto.gov/ProSePatents for a consolidated list of resources, including a sample amendment format. Full description of amendment formatting can be found at www.uspto.gov/web/offices/pac/mpep/s714.html. Call us at 866-767-3848, or email proseassistancecenter@uspto.gov.

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  - www.uspto.gov/startups
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Best,

Vaishali Udupa
Commissioner for Patents
United States Patent and Trademark Office

UNITED STATES
PATENT AND TRADEMARK OFFICE

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/645,596	**10/25/2024 01:12:49 PM Z ET**	**71212.4.8.USC4**

Title of Invention

TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	4182	FILED BY	Ethan Dolentz
PATENT CENTER #	67720996	FILING DATE	04/25/2024
CUSTOMER #	22859	FIRST NAMED INVENTOR	F. Barry Bays
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Paul LaVanway

Documents

TOTAL DOCUMENTS: 1

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
71212.4.8.USC4 IDS 5.pdf	4	Information Disclosure Statement (IDS) Form (SB08)	1313 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
71212.4.8.USC4 IDS 5.pdf	F970591E14899A441332F51255BD86B16FFA977CCAB3D2C6C F7A4AA2CA5C039F5BBA321F9C69859F10C028C30237D8AA09 D946D8EF94FB676301A5B2216A8183

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New Applications Under 35 U.S.C. 111

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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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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	18645596
Filing Date	2024-04-25
First Named Inventor	F. Barry Bays
Art Unit	3775
Examiner Name	CHRISTOPHER J BECCIA
Attorney Docket Number	71212.4.8.USC4

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	4364381	A	1982-12-21	Sher et al.	

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20060036257	A1	2006-02-16	Steffensmeier	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	18645596
	Filing Date	2024-04-25
	First Named Inventor	F. Barry Bays
	Art Unit	3775
	Examiner Name	CHRISTOPHER J BECCIA
	Attorney Docket Number	71212.4.8.USC4

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, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
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EXAMINER SIGNATURE

Examiner Signature		Date Considered	

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

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	18645596
	Filing Date	2024-04-25
	First Named Inventor	F. Barry Bays
	Art Unit	3775
	Examiner Name	CHRISTOPHER J BECCIA
	Attorney Docket Number	71212.4.8.USC4

CERTIFICATION STATEMENT

Please see 37 CFR 1.97(e) to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☒ A certification statement is not submitted herewith.

FEE

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

COPIES

☐ An identification of an earlier application pursuant to 37 CFR 1.98 (d) (1) is attached.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Paul J. LaVanway, Jr./	Date (YYYY-MM-DD)	2024-10-08
Name/Print	Paul J. LaVanway, Jr.	Registration Number	64,610

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The information provided by you in this form will be subject to the following routine uses:

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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/645,596	**10/25/2024 01:12:49 PM Z ET**	**71212.4.8.USC4**

Title of Invention

TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	4182	FILED BY	Ethan Dolentz
PATENT CENTER #	67720996	AUTHORIZED BY	Paul LaVanway
CUSTOMER #	22859	FILING DATE	04/25/2024
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	F. Barry Bays

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
CARD / 9797	**E20240OD13118600**	**Zachary Anderson**

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
1806	SUBMISSION OF AN INFORMATION DISCLOSURE STATEMENT	260.00	1	260.00
			TOTAL AMOUNT:	**$260.00**

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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

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www.uspto.gov

ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/645,596	**11/13/2024 05:16:04 PM Z ET**	**71212.4.8.USC4**

Title of Invention

TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	4182	FILED BY	Paul LaVanway
PATENT CENTER #	67955009	FILING DATE	04/25/2024
CUSTOMER #	22859	FIRST NAMED INVENTOR	F. Barry Bays
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	-

Documents

TOTAL DOCUMENTS: 1

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
71212_4_8_4_OAresp.pdf	3	Amendment/Request for Reconsideration-After Non-Final Rejection	118 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
71212_4_8_4_OAresp.pdf	8F8920B5F5123A34C5D76B154A1903270FA1549BB07F8A0953 5EB5FE433717E6AE7C91B9C5006D49B8980C185C3DCDB4BA 00AC73FBD7BA0607E1091F689D954F

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22859
Customer Number

PATENT
Attorney Docket No.: 71212.4.8.USC4

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor:	F. Barry Bays	
Application No.:	18/645,596	Group Art Unit:
Filed:	April 25, 2024	Examiner:
Title:	TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM	

RESPONSE

Dear Commissioner:

In response to the Office Action mailed August 14, 2024, the period of response for which runs through November 14, 2024, reconsideration of the application is respectfully requested in view of the following remarks.

Remarks begin on page 2 of this paper.

REMARKS

These Remarks are responsive to the Office Action dated August 14, 2024. Claims 1–30 remain pending. Reconsideration of the application is respectfully requested.

Allowable Subject Matter / Response to Comments on Statement of Reasons for Allowance

Applicant thanks the Examiner for the indication of allowability with respect to claims 1–30 and agrees that the claims present patentable subject matter.

The Office Action included a statement on the reasons for the indication of allowable subject matter. Applicant does not acquiesce in any particular stated reasons for allowance or the characterization of the art discussed in the Office Action.

Applicant agrees with the Examiner that the claims are allowable over the prior art. Applicant points out that the claims require multiple limitations not taught or suggested by the prior art, alone or in combination, and submits that the claims are allowable for multiple reasons.

Double Patenting Rejections

In the Office Action, claims 1–30 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1–29 of U.S. Patent No. 10,342,590.

A Terminal Disclaimer accompanies this Response. The disclaimer is made to expedite issuance and is not intended as an admission that any claim of the present application is the same as or an obvious variant of those of U.S. Patent No. 10,342,590. This disclaimer obviates the double patenting rejection.

CONCLUSION

It is submitted that all claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and allowance of all pending claims.

The Commissioner is authorized to charge any deficiencies and credit any overpayments to Deposit Account No. 06-1910. The Examiner is invited to telephone the undersigned attorney to discuss this application.

Dated: November 13, 2024

Respectfully submitted,

/Paul J. LaVanway, Jr./

FREDRIKSON & BYRON, P.A.
60 South Sixth Street, Suite 1500
Minneapolis, MN 55402-1425 USA
Telephone: (612) 492-7387
Facsimile: (612) 492-7077

Paul J. LaVanway, Jr.
Registration No. 64,610

Please grant any extension of time necessary for entry; charge any fee due to Deposit Account No. 06-1910.

84079918v1

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PATENT AND TRADEMARK OFFICE

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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/645,596	**11/13/2024 05:17:56 PM Z ET**	**71212.4.8.USC4**

Title of Invention

TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	4182	FILED BY	Paul LaVanway
PATENT CENTER #	67955032	AUTHORIZED BY	-
CUSTOMER #	22859	FILING DATE	04/25/2024
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	F. Barry Bays

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
CARD / 9797	**E2024ACH18096632**	**Paul LaVanway**

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
1814	STATUTORY DISCLAIMER, INCLUDING TERMINAL DISCLAIMER	170.00	1	170.00
			TOTAL AMOUNT:	**$170.00**

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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.

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

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

APPLICATION #	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET #
18645596	04/25/2024	F. Bays	71212.4.8.USC4

Title of Invention

TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

☑	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
Treace Medical Concepts, 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 instant application and is binding upon the grantee, its successors or assigns.
In making the above disclaimer, the owner does not disclaim the terminal part of any patent granted on the instant application that would extend to the expiration date of the full statutory term of any patent granted on said reference application, "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," in the event that any such patent granted on the pending reference application: expires for failure to pay a maintenance fee, is held unenforceable, is found invalid by a court of competent jurisdiction, is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321, has all claims canceled by a reexamination certificate, is reissued, or is in any manner terminated prior to the expiration of its full statutory term as shortened by any terminal disclaimer filed prior to its grant.

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 prior patent number(s)

Patent #
10342590

as the term of said prior patent is presently shortened by any terminal disclaimer. 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 the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.
In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later:
- expires for failure to pay a maintenance fee;
- is held unenforceable;
- is found invalid by a court of competent jurisdiction;
- is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
- has all claims canceled by a reexamination certificate;
- is reissued; or
- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.



Terminal disclaimer fee under 37 CFR 1.20(d) included with Electronic Terminal Disclaimer request.

Applicant claims the following entity status:
Regular Undiscounted

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

I certify, in accordance with 37 CFR 1.4(d)(4) that I am: An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application

Signature	Name	Registration #
/Paul LaVanway, Jr/	Paul LaVanway	64610

* Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner). Form PTO/SB/96 may be used for making this certification. See MPEP 324.

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Commissioner for Patents
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APPROVAL LETTER

APPLICATION #	FILING DATE	APPLICANT/PATENT UNDER REEXAMINATION
18/645,596	04/25/2024	F. Bays

Title of Invention

TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

Electronic terminal disclaimer filed on 11/13/2024

☑ Approved

This patent is subject to a Terminal Disclaimer

Approved / Disapproved by: Electronic Terminal Disclaimer automatically approved

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/645,596	**11/13/2024 05:17:56 PM Z ET**	**71212.4.8.USC4**

Title of Invention

TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	4182	FILED BY	Paul LaVanway
PATENT CENTER #	67955032	FILING DATE	04/25/2024
CUSTOMER #	22859	FIRST NAMED INVENTOR	F. Barry Bays
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	-

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
petition-request.pdf	3	Terminal Disclaimer-Filed (Electronic)	44 KB
grantLetter.pdf	1	Terminal Disclaimer-Electronic-Approved	18 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
petition-request.pdf	2DE63FF43EE09F615E84414618D84B032D00339E2405D6489E2B9659D3134D277468B853763DFBD3E7DFA10917B08CEFE040FEE00F2B25E0486E1DBF6319066E
grantLetter.pdf	118D96BDB02517E63C0B76C1BF94F2A511BBD879A426B6FE6

B6C2ED3310DC661AC42B674064ADA3A68577D4D42E1C12D5
3AE5ADC05DDDBDBFC8BC7FF709BD3D2

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.

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/645,596	Bays et al.
	Examiner	**Art Unit**
	CHRISTOPHER J BECCIA	3775

CPC						
Symbol					**Type**	**Version**
A61B	/	17	/	8866	F	2013-01-01
A61B	/	17	/	151	I	2013-01-01
A61B	/	17	/	8061	I	2013-01-01
A61B	/	2017	/	564	A	2013-01-01

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	1	
/CHRISTOPHER J BECCIA/ Primary Examiner, Art Unit 3775	22 November 2024	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	22

U.S. Patent and Trademark Office — Part of Paper No.: 20241121

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/645,596	Bays et al.
	Examiner	**Art Unit**
	CHRISTOPHER J BECCIA	3775

INTERNATIONAL CLASSIFICATION				
CLAIMED				
A61B	/	17	/	88

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

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

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	1	
/CHRISTOPHER J BECCIA/ Primary Examiner, Art Unit 3775	22 November 2024	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	22

U.S. Patent and Trademark Office — Part of Paper No.: 20241121

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/645,596	Bays et al.
	Examiner	**Art Unit**
	CHRISTOPHER J BECCIA	3775

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		10		19		28								
	2		11		20		29								
	3		12		21		30								
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	8		17		26										
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NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	1	
/CHRISTOPHER J BECCIA/ Primary Examiner, Art Unit 3775	22 November 2024	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	22

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/645,596	Bays et al.
	Examiner	Art Unit
	CHRISTOPHER J BECCIA	3775

CPC - Searched*		
Symbol	Date	Examiner
A61B17/88, 8866, 80, 8061, 15, 151	08/09/2024	CJB

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

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

Search Notes		
Search Notes	Date	Examiner
Search History Attached	08/09/2024	CJB
Inventor Search	08/09/2024	CJB
Text Search	08/09/2024	CJB
Classification Search	08/09/2024	CJB
B/F Citations	08/09/2024	CJB
Search History Attached	11/22/2024	CJB

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	See Attached Search History	11/22/2024	CJB

/CHRISTOPHER J BECCIA/ Primary Examiner, Art Unit 3775	

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/645,596	Bays et al.
	Examiner	Art Unit
	CHRISTOPHER J BECCIA	3775

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

CLAIMS

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	08/09/2024	11/22/2024							
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PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
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L29	348	bunion and (aligned or alignment)	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2017/02/10 06:39 PM
L30	245	bunion with metatarsal	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2017/02/10 06:39 PM
L31	1	"14981335"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2017/02/10 06:40 PM
L35	8	"14981335"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/09/05 09:17 AM
L36	1	"15236464"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/09/05 09:17 AM
L37	1	"15236464"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/11/13 02:32 PM
L38	195	("20040039394"|"20040097946"|"20050004676"|"20050075641"|"20050101961"|"20050149042"|"20050228389"|"20050273112"|"20060206044"|"20060217733"|"20060229621"|"20060241607"|"20060241608"|"20060264961"|"20070233138"|"20070265634"|"20070276383"|"200800	(US-PGPUB; USPAT)	OR	OFF	OFF	2018/11/13 02:33 PM

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L40	3	("20160354127"|"20170079669"|"4570624").PN	(US-PGPUB; USPAT)	OR	OFF	OFF	2018/11/13 02:36 PM

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L42	118	bays-f-barry.in.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/11/13 02:37 PM
L43	9	"14981335"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/11/13 02:38 PM
L44	286	fulcrum and metatarsal	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/11/16 02:32 PM
L45	77	fulcrum with metatarsal	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/11/16 02:32 PM
L46	812	cuneiform with metatarsal	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/11/16 02:38 PM
L47	345	L46 and transverse	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/11/16 02:39 PM
L48	9	"14981335"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/12/18 09:25 AM
L49	1	"15236464"	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/12/18 09:30 AM
L50	0	(14/391886).APP.	(USPAT; USOCR)	OR	OFF	OFF	2018/12/18 09:33 AM
L51	208	("20020198531" | "20040039394" | "20040097946" | "20050004676" | "20050075641" | "20050101961" | "20050149042" | "20050228389" |	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2018/12/18 09:35 AM

		"20050273112" | "20060206044" | "20060217733" | "20060229621" | "20060241607" | "20060241608" | "20060264961" | "20070233138" | "20070265634" | "20070276383" | "20080091197" | "20080140081" | "20080208252" | "20080262500" | "20080269908" | "20090036893" | "20090093849" | "20090105767" | "20090198244" | "20090222047" | "20090254092" | "20090254126" | "20090287309" | "20100069910" | "20100121334" | "20100130981" | "20100152782" | "20100168799" | "20100185245" | "20100256687" | "20100324556" | "20110093084" | "20110245835" | "20110288550" | "20110301648" | "20120016426" | "20120065689" | "20120078258" | "20120123420" | "20120123484" | "20120130376" | "20120130383" | "20120184961" | "20120239045" | "20120253350" | "20120265301" | "20130012949" | "20130035694" | "20130085499" | "20130150903" | "20130158556" | "20130165936" | "20130165938" | "20130172942" | "20130184714" | "20130190765" | "20130190766" | "20130204259"				

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		"5893553" | "5935128" | "6030391" | "6719773" | "6743233" | "7033361" | "7182766" | "7241298" | "7377924" | "7465303" | "7641660" | "7686811" | "7972338" | "8057478" | "8080010" | "8123753" | "8137406" | "8147530" | "8167918" | "8172848" | "8192441" | "8197487" | "8231663" | "8246561" | "8262664" | "8282644" | "8282645" | "8292966" | "8313492" | "8323289" | "8337503" | "8343159" | "8377105" | "8435246" | "8475462" | "8523870" | "8652142" | "8672945" | "8696716" | "8715363" | "8728084" | "8758354" | "8764763" | "8771279" | "8784427" | "8784457" | "8795286" | "8801727" | "8808303" | "8828012" | "8858602" | "8882778" | "8998903" | "8998904" | "9023052" | "9044250" | "9060822" | "9089376" | "9101421" | "9107715" | "D610257" | "D629900" | "D646389" | "D651315" | "D651316" | "D666721" | "D679395" | "D694884" | "D695402" | "D701303" | "D705929" | "D765844" | "D766434" | "D766437" | "D766438" | "H001706").PN. OR ("9622805").URPN.					
L52	0	(13/632666).APP.	(USPAT; USOCR)	OR	OFF	OFF	2018/12/18 09:40 AM
L53	290	cuneiform with metatarsal	(USPAT; USOCR)	OR	OFF	OFF	2018/12/18 09:43 AM
L54	626	cuneiform with metatarsal	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2018/12/18 09:44 AM
L55	95	L54 and bunion	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2018/12/18 09:51 AM
L56	100	L54 and hallux valgus	(US-PGPUB; USPAT; USOCR)	ADJ	OFF	OFF	2018/12/18 09:53 AM
L64	19	santrock-robert-d.in.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/12/18 06:36 PM

L67	3477	a61b17/88.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/12/18 06:40 PM
L68	1337	a61b17/8888.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/12/18 06:41 PM
L69	2217	a61b17/8866.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/12/18 06:41 PM
L70	7193	a61b17/80.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/12/18 06:41 PM
L71	6171	a61b17/8061.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/12/18 06:41 PM
L72	7545	a61b17/02.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/12/18 06:41 PM
L73	6899	a61b17/025.cpc.	(US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	OFF	OFF	2018/12/18 06:41 PM
L74	3	("20020107519"|"20040010259"|"20130325019").PN.	(US-PGPUB; USPAT)	OR	OFF	OFF	2019/05/07 07:25 PM
L75	1	(13/485444).APP.	(USPAT; USOCR)	OR	OFF	OFF	2019/05/07 07:25 PM
L76	8	("20020099381"|"20080172054"|"20120277745"|"20120330135"|"20130096563"|"20150045801"|"20180344334"|"5417694").PN.	(US-PGPUB; USPAT)	OR	OFF	OFF	2019/05/07 07:29 PM
L77	5	("20080009863"|"20140257308"|"4995875"|"5601565"|"6511481").PN.	(US-PGPUB; USPAT)	OR	OFF	OFF	2019/05/07 07:30 PM
L78	1	"16448357"	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/08/15 10:57 AM
L79	2	"10342590".pn.	(US-PGPUB; USPAT;	OR	ON	ON	2021/08/15

			USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				10:59 AM
L80	251	("4159716" | "4187840" | "4338927" | "4570624" | "4627425" | "4628919" | "4757810" | "4895141" | "4952214" | "4978347" | "4988349" | "4995875" | "5021056" | "5112334" | "5207676" | "5254119" | "5312412" | "5358504" | "5364402" | "5413579" | "5417694" | "5449360" | "5529075" | "5601565" | "5620442" | "H1706" | "5788695" | "5803924" | "5810822" | "5893553" | "5935128" | "5941877" | "5951556" | "6030391" | "6162223" | "6171309" | "6511481" | "6719773" | "6743233" | "7033361" | "7182766" | "7241298" | "7377924" | "7465303" | "7641660" | "D610257" | "7686811" | "D629900" | "7972338" | "D646389" | "8057478" | "D651315" | "D651316" | "8080010" | "8123753" | "8137406" | "8147530" | "8167918" | "8172848" | "8192441" | "8197487" | "8231623" | "8231663" | "8246561" | "D666721" | "8262664" | "8282644" | "8282645" | "8292966" | "8313492" | "8323289" | "8337503" | "8343159" | "8377105" | "D679395" | "8435246" | "8475462" | "8523870" | "D694884" | "D695402" | "8652142" | "D701303" | "8672945" | "8696716" | "D705929" | "8715363" | "8728084" | "8758354" | "8764763" | "8771279" | "8784427" | "8784457" | "8795286" | "8801727"	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/08/15 10:59 AM

		| "8808303" | "8828012" | "8858602" | "8882778" | "8998903" | "8998904" | "9023052" | "9044250" | "9060822" | "9089376" | "9101421" | "9107715" | "D765844" | "D766434" | "D766437" | "D766438" | "9750538" | "20020099381" | "20020107519" | "20020198531" | "20040010259" | "20040039394" | "20040097946" | "20050004676" | "20050075641" | "20050101961" | "20050149042" | "20050228389" | "20050273112" | "20060206044" | "20060217733" | "20060229621" | "20060241607" | "20060241608" | "20060264961" | "20070123857" | "20070233138" | "20070265634" | "20070276383" | "20080009863" | "20080091197" | "20080140081" | "20080172054" | "20080208252" | "20080262500" | "20080269908" | "20090036893" | "20090093849" | "20090105767" | "20090118733" | "20090198244" | "20090198279" | "20090222047" | "20090254092" | "20090254126" | "20090287309" | "20100069910" | "20100121334" | "20100130981" | "20100152782" | "20100168799" | "20100185245" | "20100249779" | "20100256687" | "20100324556" | "20110093084" |					

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L81	176	bays-f-barry.in.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/08/15 11:00 AM
L82	48	santrock-robert-d.in.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/08/15 11:00 AM
L83	86	treace-john-t.in.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY,	OR	ON	ON	2021/08/15 11:00 AM

			CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L84	156	dayton-paul.in.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/08/15 11:00 AM
L85	249	("20020099381" OR "20020107519" OR "20020198531" OR "20040010259" OR "20040039394" OR "20040097946" OR "20050004676" OR "20050059978" OR "20050075641" OR "20050101961" OR "20050149042" OR "20050228389" OR "20050273112" OR "20060206044" OR "20060217733" OR "20060229621" OR "20060241607" OR "20060241608" OR "20060264961" OR "20070123857" OR "20070233138" OR "20070265634" OR "20070276383" OR "20080009863" OR "20080091197" OR "20080140081" OR "20080172054" OR "20080208252" OR "20080262500" OR "20080269908" OR "20090036893" OR "20090093849" OR "20090105767" OR "20090118733" OR "20090198244" OR "20090198279" OR "20090222047" OR "20090254092" OR	(US-PGPUB; USPAT)	OR	ON	ON	2021/08/15 11:01 AM

		"20090254126" OR "20090287309" OR "20100069910" OR "20100121334" OR "20100130981" OR "20100152782" OR "20100168799" OR "20100185245" OR "20100249779" OR "20100256687" OR "20100324556" OR "20110093084" OR "20110245835" OR "20110288550" OR "20110301648" OR "20120016426" OR "20120065689" OR "20120078258" OR "20120123420" OR "20120123484" OR "20120130376" OR "20120130383" OR "20120184961" OR "20120239045" OR "20120253350" OR "20120265301" OR "20120277745" OR "20120330135" OR "20130012949" OR "20130035694" OR "20130085499" OR "20130096563" OR "20130150903" OR "20130158556" OR "20130165936" OR "20130165938" OR "20130172942" OR "20130184714" OR "20130190765" OR "20130190766" OR "20130204259" OR "20130231668" OR "20130237987" OR "20130237989" OR "20130267956" OR "20130310836" OR "20130325019" OR "20130325076" OR "20130331845" OR "20130338785" OR "20140005672" OR "20140025127" OR "20140039501" OR "20140039561" OR "20140046387" OR "20140074099" OR "20140074101" OR "20140094861" OR					

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L86	88	("10292713" OR "20020165552" OR "20040138669" OR "20050070909" OR "20050251147" OR "20060129163" OR "20070010818" OR "20080039850" OR "20080147073" OR "20080195215" OR "20090036931" OR "20090054899" OR "20120185056" OR "20120191199" OR "20130226248" OR "20130226252" OR "20140188139" OR "20140194999" OR "20140343555" OR "20150057667" OR	(US-PGPUB; USPAT)	OR	ON	ON	2021/08/15 11:03 AM

		"20160324532" OR "20170042598" OR "4069824" OR "4335715" OR "4349018" OR "4409973" OR "4440168" OR "4501268" OR "4502474" OR "4509511" OR "4565191" OR "4632102" OR "4664102" OR "4708133" OR "4750481" OR "5035698" OR "5042983" OR "5049149" OR "5053039" OR "5078719" OR "5147364" OR "5176685" OR "5246444" OR "5470335" OR "5540695" OR "5578038" OR "5613969" OR "5620448" OR "5643270" OR "5667510" OR "5722978" OR "5749875" OR "5779709" OR "5843085" OR "5911724" OR "5980526" OR "5984931" OR "6007535" OR "6027504" OR "6203545" OR "6248109" OR "6391031" OR "6547793" OR "6676662" OR "6755838" OR "6796986" OR "7018383" OR "7112204" OR "7540874" OR "7572258" OR "7691108" OR "7763026" OR "7967823" OR "8062301" OR "8083746" OR "8236000" OR "8277459" OR "8409209" OR					

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L87	21	("10028750" OR "10064631" OR "10159499" OR "10327829" OR "20100318088" OR "20130131821" OR "20140135775" OR "20140288562" OR "20170143511" OR "20170164989" OR "5490854" OR "6478799" OR "6859661" OR "7282054" OR "8303596" OR "8764760" OR "8882816" OR "8945132" OR "9785747" OR "D720456" OR "D740424").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2021/08/15 11:04 AM
L88	4	("20110009865" OR "20110118739" OR "20120130382" OR "5374271").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2021/08/15 11:05 AM
L89	3	("20080288004" OR "3664022" OR "9522023").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2021/08/15 11:08 AM
L90	3	("20080288004" OR "3664022" OR "9522023").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2021/08/15 11:09 AM
L91	6	("10470779" OR "20080015603" OR "20110178524" OR "4736737" OR "4959066" OR "8545508").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2021/08/15 11:10 AM
L92	3	("10779867" OR "20130085502" OR "8080045").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2021/08/15 11:11 AM
L93	3	("10779867" OR "20130085502" OR "8080045").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2021/08/15 11:12 AM
L94	97	treace-john-t.in.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP,	OR	ON	ON	2021/12/04 11:14 AM

			AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L95	97	treace-john-t.in.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/12/04 11:14 AM
L96	18	treace-john-t.in.	(USPAT)	OR	ON	ON	2021/12/04 11:14 AM
L97	1	"16448357"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DK, EA, EE, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/12/13 10:57 AM
L98	250	("10779867" OR "20130085502" OR "8080045" OR "10470779" OR "20080015603" OR "20110178524" OR "4736737" OR "4959066" OR "8545508" OR "20080288004" OR "3664022" OR "9522023" OR "20110009865" OR "20110118739" OR "20120130382" OR "5374271" OR "10028750" OR "10064631" OR "10159499" OR	(US-PGPUB; USPAT)	OR	ON	ON	2021/12/13 11:07 AM

		"10327829" OR "20100318088" OR "20130131821" OR "20140135775" OR "20140288562" OR "20170143511" OR "20170164989" OR "5490854" OR "6478799" OR "6859661" OR "7282054" OR "8303596" OR "8764760" OR "8882816" OR "8945132" OR "9785747" OR "D720456" OR "D740424" OR "10292713" OR "20020165552" OR "20040138669" OR "20050070909" OR "20050251147" OR "20060129163" OR "20070010818" OR "20080039850" OR "20080147073" OR "20080195215" OR "20090036931" OR "20090054899" OR "20120185056" OR "20120191199" OR "20130226248" OR "20130226252" OR "20140188139" OR "20140194999" OR "20140343555" OR "20150057667" OR "20160324532" OR "20170042598" OR "4069824" OR "4335715" OR "4349018" OR "4409973" OR "4440168" OR "4501268" OR "4502474" OR "4509511" OR "4565191" OR "4632102" OR "4664102" OR "4708133" OR "4750481" OR "5035698" OR "5042983" OR "5049149" OR "5053039" OR "5078719" OR					

		"5147364" OR "5176685" OR "5246444" OR "5470335" OR "5540695" OR "5578038" OR "5613969" OR "5620448" OR "5643270" OR "5667510" OR "5722978" OR "5749875" OR "5779709" OR "5843085" OR "5911724" OR "5980526" OR "5984931" OR "6007535" OR "6027504" OR "6203545" OR "6248109" OR "6391031" OR "6547793" OR "6676662" OR "6755838" OR "6796986" OR "7018383" OR "7112204" OR "7540874" OR "7572258" OR "7691108" OR "7763026" OR "7967823" OR "8062301" OR "8083746" OR "8236000" OR "8277459" OR "8409209" OR "8496662" OR "8529571" OR "8540777" OR "8657820" OR "8702715" OR "8777948" OR "8888785" OR "8900247" OR "8906026" OR "9113920" OR "20020099381" OR "20020107519" OR "20020198531" OR "20040010259" OR "20040039394" OR "20040097946" OR "20050004676" OR "20050059978" OR "20050075641" OR "20050101961" OR					

		"20050149042" OR "20050228389" OR "20050273112" OR "20060206044" OR "20060217733" OR "20060229621" OR "20060241607" OR "20060241608" OR "20060264961" OR "20070123857" OR "20070233138" OR "20070265634" OR "20070276383" OR "20080009863" OR "20080091197" OR "20080140081" OR "20080172054" OR "20080208252" OR "20080262500" OR "20080269908" OR "20090036893" OR "20090093849" OR "20090105767" OR "20090118733" OR "20090198244" OR "20090198279" OR "20090222047" OR "20090254092" OR "20090254126" OR "20090287309" OR "20100069910" OR "20100121334" OR "20100130981" OR "20100152782" OR "20100168799" OR "20100185245" OR "20100249779" OR "20100256687" OR "20100324556" OR "20110093084" OR "20110245835" OR "20110288550" OR "20110301648" OR "20120016426" OR "20120065689" OR "20120078258" OR "20120123420" OR "20120123484" OR "20120130376" OR "20120130383" OR "20120184961" OR "20120239045" OR "20120253350" OR "20120265301" OR "20120277745" OR "20120330135" OR "20130012949" OR "20130035694" OR					

		"20130085499" OR "20130096563" OR "20130150903" OR "20130158556" OR "20130165936" OR "20130165938" OR "20130172942" OR "20130184714" OR "20130190765" OR "20130190766" OR "20130204259" OR "20130231668" OR "20130237987" OR "20130237989" OR "20130267956" OR "20130310836" OR "20130325019" OR "20130325076" OR "20130331845" OR "20130338785" OR "20140005672" OR "20140025127" OR "20140039501" OR "20140039561" OR "20140046387" OR "20140074099" OR "20140074101" OR "20140094861" OR "20140094924" OR "20140163563" OR "20140171953" OR "20140180342" OR "20140194884" OR "20140207144" OR "20140249537" OR "20140257308" OR "20140257509" OR "20140276815" OR "20140276853" OR "20140277176" OR "20140277214" OR "20140296995" OR "20140303621" OR "20140336658" OR "20150032168" OR "20150045801" OR "20150045839" OR "20150051650" OR "20150066094" OR "20150112446" OR "20150119944" OR "20150142064" OR "20150150608" OR "20150182273" OR "20150223851" OR "20150245858" OR "20160015426").pn.				

L99	124	("20160022315" OR "20160151165" OR "20160175089" OR "20160192950" OR "20160199076" OR "20160213384" OR "20160235414" OR "20160242791" OR "20160256204" OR "20160354127" OR "20170079669" OR "20180344334" OR "4159716" OR "4187840" OR "4338927" OR "4570624" OR "4627425" OR "4628919" OR "4757810" OR "4895141" OR "4952214" OR "4978347" OR "4988349" OR "4995875" OR "5021056" OR "5112334" OR "5207676" OR "5254119" OR "5312412" OR "5358504" OR "5364402" OR "5413579" OR "5417694" OR "5449360" OR "5529075" OR "5601565" OR "5620442" OR "5788695" OR "5803924" OR "5810822" OR "5893553" OR "5935128" OR "5941877" OR "5951556" OR "6030391" OR "6162223" OR "6171309" OR "6511481" OR "6719773" OR "6743233" OR "7033361" OR "7182766" OR "7241298" OR "7377924" OR "7465303" OR "7641660" OR "7686811" OR "7972338" OR	(US-PGPUB; USPAT)	OR	ON	ON	2021/12/13 11:07 AM

		"8057478" OR "8080010" OR "8123753" OR "8137406" OR "8147530" OR "8167918" OR "8172848" OR "8192441" OR "8197487" OR "8231623" OR "8231663" OR "8246561" OR "8262664" OR "8282644" OR "8282645" OR "8292966" OR "8313492" OR "8323289" OR "8337503" OR "8343159" OR "8377105" OR "8435246" OR "8475462" OR "8523870" OR "8652142" OR "8672945" OR "8696716" OR "8715363" OR "8728084" OR "8758354" OR "8764763" OR "8771279" OR "8784427" OR "8784457" OR "8795286" OR "8801727" OR "8808303" OR "8828012" OR "8858602" OR "8882778" OR "8998903" OR "8998904" OR "9023052" OR "9044250" OR "9060822" OR "9089376" OR "9101421" OR "9107715" OR "9750538" OR "D610257" OR "D629900" OR "D646389" OR "D651315" OR "D651316" OR "D666721" OR "D679395" OR "D694884" OR "D695402" OR					

		"D701303" OR "D705929" OR "D765844" OR "D766434" OR "D766437" OR "D766438" OR "D766439" OR "H001706").pn.					
L100	1035	metatarsal AND fulcrum	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DK, EA, EE, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/12/13 11:11 AM
L101	331	metatarsal AND fulcrum	(US-PGPUB; USPAT)	OR	ON	ON	2021/12/13 11:11 AM
L103	2	"20030195516"	(US-PGPUB; USPAT)	OR	ON	ON	2021/12/13 11:14 AM
L104	0	(12/094557).APP.	(USPAT; USOCR)	OR	ON	ON	2021/12/13 02:37 PM
L105	3	("20020049368" OR "5308349" OR "6416465").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2021/12/13 02:38 PM
L106	1	"3731673".pn.	(US-PGPUB; USPAT)	OR	ON	ON	2021/12/13 02:40 PM
L107	251	("4159716" | "4187840" | "4338927" | "4570624" | "4627425" | "4628919" | "4757810" | "4895141" | "4952214" | "4978347" | "4988349" | "4995875" | "5021056" | "5112334" | "5207676" | "5254119" | "5312412" | "5358504" | "5364402" | "5413579" | "5417694" | "5449360" | "5529075" | "5601565" | "5620442" | "H1706" | "5788695" | "5803924" | "5810822" | "5893553" | "5935128" | "5941877" | "5951556" | "6030391" | "6162223" | "6171309" | "6511481" | "6719773" | "6743233" | "7033361" | "7182766" | "7241298" |	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/12/14 08:44 AM

		"7377924" | "7465303" | "7641660" | "D610257" | "7686811" | "D629900" | "7972338" | "D646389" | "8057478" | "D651315" | "D651316" | "8080010" | "8123753" | "8137406" | "8147530" | "8167918" | "8172848" | "8192441" | "8197487" | "8231623" | "8231663" | "8246561" | "D666721" | "8262664" | "8282644" | "8282645" | "8292966" | "8313492" | "8323289" | "8337503" | "8343159" | "8377105" | "D679395" | "8435246" | "8475462" | "8523870" | "D694884" | "D695402" | "8652142" | "D701303" | "8672945" | "8696716" | "D705929" | "8715363" | "8728084" | "8758354" | "8764763" | "8771279" | "8784427" | "8784457" | "8795286" | "8801727" | "8808303" | "8828012" | "8858602" | "8882778" | "8998903" | "8998904" | "9023052" | "9044250" | "9060822" | "9089376" | "9101421" | "9107715" | "D765844" | "D766434" | "D766437" | "D766438" | "D766439" | "9750538" | "20020099381" | "20020107519" | "20020198531" | "20030195516" | "20040010259" | "20040039394" | "20040097946" | "20050004676" | "20050059978" | "20050075641" | "20050101961" | "20050149042" | "20050228389" | "20050273112" | "20060206044" | "20060217733" | "20060229621" | "20060241607" | "20060241608" | "20060264961" | "20070123857" | "20070233138" |				

		"20070265634" | "20070276383" | "20080009863" | "20080091197" | "20080140081" | "20080172054" | "20080208252" | "20080262500" | "20080269908" | "20090036893" | "20090093849" | "20090105767" | "20090118733" | "20090198244" | "20090198279" | "20090222047" | "20090254092" | "20090254126" | "20090287309" | "20100069910" | "20100121334" | "20100130981" | "20100152782" | "20100168799" | "20100185245" | "20100249779" | "20100256687" | "20100324556" | "20110093084" | "20110245835" | "20110288550" | "20110301648" | "20120016426" | "20120065689" | "20120078258" | "20120123420" | "20120123484" | "20120130376" | "20120130383" | "20120184961" | "20120239045" | "20120253350" | "20120265301" | "20120277745" | "20120330135" | "20130012949" | "20130035694" | "20130085499" | "20130096563" | "20130150903" | "20130158556" | "20130165936" | "20130165938" | "20130172942" | "20130184714" | "20130190765" | "20130190766" | "20130204259"				

		"20130231668" | "20130237987" | "20130237989" | "20130267956" | "20130310836" | "20130325019" | "20130325076" | "20130331845" | "20130338785" | "20140005672" | "20140025127" | "20140039501" | "20140039561" | "20140046387" | "20140074099" | "20140074101" | "20140094861" | "20140094924" | "20140163563" | "20140171953" | "20140180342" | "20140194884" | "20140207144" | "20140249537" | "20140257308" | "20140257509" | "20140276815" | "20140276853" | "20140277176" | "20140277214" | "20140296995" | "20140303621" | "20140336658" | "20150032168" | "20150045801" | "20150045839" | "20150051650" | "20150066094" | "20150112446" | "20150119944" | "20150142064" | "20150150608" | "20150182273" | "20150223851" | "20150245858" | "20160015426" | "20160022315" | "20160151165" | "20160175089" | "20160192950" | "20160199076" | "20160213384" | "20160235414" | "20160242791" | "20160256204" | "20160354127" | "20170042598" | "20170042599"				

		"20170079669" | "20180344334").pn. OR ("10939939").urpn. AND (PGPB | USPT | USOC).dbnm.					
L108	250	("10028750" OR "10064631" OR "10159499" OR "10292713" OR "10327829" OR "10470779" OR "10779867" OR "10939939" OR "20020099381" OR "20020107519" OR "20020165552" OR "20020198531" OR "20040010259" OR "20040039394" OR "20040097946" OR "20040138669" OR "20050004676" OR "20050059978" OR "20050070909" OR "20050075641" OR "20050101961" OR "20050149042" OR "20050228389" OR "20050251147" OR "20050273112" OR "20060129163" OR "20060206044" OR "20060217733" OR "20060229621" OR "20060241607" OR "20060241608" OR "20060264961" OR "20070010818" OR "20070123857" OR "20070233138" OR "20070265634" OR "20070276383" OR "20080009863" OR "20080015603" OR "20080039850" OR "20080091197" OR "20080140081" OR "20080147073" OR "20080172054" OR "20080195215" OR "20080208252" OR "20080262500" OR "20080269908" OR "20080288004" OR "20090036893" OR "20090036931" OR "20090054899" OR	(US-PGPUB; USPAT)	OR	ON	ON	2022/10/25 10:30 AM

		"20090093849" OR "20090105767" OR "20090118733" OR "20090198244" OR "20090198279" OR "20090216089" OR "20090222047" OR "20090254092" OR "20090254126" OR "20090287309" OR "20100069910" OR "20100121334" OR "20100130981" OR "20100152782" OR "20100168799" OR "20100185245" OR "20100249779" OR "20100256687" OR "20100318088" OR "20100324556" OR "20110009865" OR "20110093084" OR "20110118739" OR "20110178524" OR "20110245835" OR "20110288550" OR "20110301648" OR "20120016426" OR "20120065689" OR "20120078258" OR "20120123420" OR "20120123484" OR "20120130376" OR "20120130382" OR "20120130383" OR "20120184961" OR "20120185056" OR "20120191199" OR "20120239045" OR "20120253350" OR "20120265301" OR "20120277745" OR "20120330135" OR "20130012949" OR "20130035694" OR "20130085499" OR "20130085502" OR "20130096563" OR "20130131821" OR "20130150903" OR "20130158556" OR "20130165936" OR "20130165938" OR "20130172942" OR "20130184714" OR "20130190765" OR "20130190766" OR "20130204259" OR					

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		"20160199076" OR "20160213384" OR "20160235414" OR "20160242791" OR "20160256204" OR "20160324532" OR "20160354127" OR "20170042598" OR "20170079669" OR "20170143511" OR "20170164989" OR "20180344334" OR "3664022" OR "4069824" OR "4159716" OR "4187840" OR "4335715" OR "4338927" OR "4349018" OR "4409973" OR "4440168" OR "4501268" OR "4502474" OR "4509511" OR "4565191" OR "4570624" OR "4627425" OR "4628919" OR "4632102" OR "4664102" OR "4708133" OR "4736737" OR "4750481" OR "4757810" OR "4895141" OR "4952214" OR "4959066" OR "4978347" OR "4988349" OR "4995875" OR "5021056" OR "5035698" OR "5042983" OR "5049149" OR "5053039" OR "5078719" OR "5112334" OR "5147364" OR "5176685" OR "5207676" OR "5246444" OR "5254119" OR "5312412" OR "5358504" OR "5364402" OR "5374271" OR "5413579" OR "5417694" OR					

		"5449360" OR "5470335" OR "5490854" OR "5529075" OR "5540695" OR "5578038" OR "5601565" OR "5613969" OR "5620442" OR "5620448" OR "5643270" OR "5667510" OR "5722978" OR "5749875" OR "5779709" OR "5788695" OR "5803924" OR "5810822" OR "5843085" OR "5893553" OR "5911724" OR "5935128" OR "5941877" OR "5951556").pn.					
L109	127	("5980526" OR "5984931" OR "6007535" OR "6027504" OR "6030391" OR "6162223" OR "6171309" OR "6203545" OR "6248109" OR "6391031" OR "6416465" OR "6478799" OR "6511481" OR "6547793" OR "6676662" OR "6719773" OR "6743233" OR "6755838" OR "6796986" OR "6859661" OR "7018383" OR "7033361" OR "7112204" OR "7182766" OR "7241298" OR "7282054" OR "7377924" OR "7465303" OR "7540874" OR "7572258" OR "7641660" OR "7686811" OR "7691108" OR	(US-PGPUB; USPAT)	OR	ON	ON	2022/10/25 10:30 AM

		"7763026" OR "7967823" OR "7972338" OR "8057478" OR "8062301" OR "8080010" OR "8080045" OR "8083746" OR "8123753" OR "8137406" OR "8147530" OR "8167918" OR "8172848" OR "8192441" OR "8197487" OR "8231623" OR "8231663" OR "8236000" OR "8246561" OR "8262664" OR "8277459" OR "8282644" OR "8282645" OR "8292966" OR "8303596" OR "8313492" OR "8323289" OR "8337503" OR "8343159" OR "8377105" OR "8409209" OR "8435246" OR "8475462" OR "8496662" OR "8523870" OR "8529571" OR "8540777" OR "8545508" OR "8652142" OR "8657820" OR "8672945" OR "8696716" OR "8702715" OR "8715363" OR "8728084" OR "8758354" OR "8764760" OR "8764763" OR "8771279" OR "8777948" OR "8784427" OR "8784457" OR "8795286" OR "8801727" OR "8808303" OR "8828012" OR "8858602" OR "8882778" OR					

		"8882816" OR "8888785" OR "8900247" OR "8906026" OR "8945132" OR "8998903" OR "8998904" OR "9023052" OR "9044250" OR "9060822" OR "9089376" OR "9101421" OR "9107715" OR "9113920" OR "9522023" OR "9750538" OR "9785747" OR "D610257" OR "D629900" OR "D646389" OR "D651315" OR "D651316" OR "D666721" OR "D679395" OR "D694884" OR "D695402" OR "D701303" OR "D705929" OR "D720456" OR "D740424" OR "D765844" OR "D766434" OR "D766437" OR "D766438" OR "D766439" OR "H001706").pn.					
L110	14	("10376268" OR "11304705" OR "20050267482" OR "20120303033" OR "20130150900" OR "20140350561" OR "20160135858" OR "20180132868" OR "4754746" OR "5586564" OR "7097647" OR "7153310" OR "9452057" OR "9980760").pn.	(US-PGPUB; USPAT)	OR	ON	ON	2022/10/25 10:34 AM
L111	2	"16448357"	(US-PGPUB; USPAT)	OR	ON	ON	2022/10/25 10:39 AM
L112	250	("10028750" OR "10064631" OR "10159499" OR "10292713" OR "10327829" OR	(US-PGPUB; USPAT)	OR	ON	ON	2024/08/08 09:46 AM

		"10376268" OR "10470779" OR "10779867" OR "10939939" OR "11304705" OR "20020099381" OR "20020107519" OR "20020165552" OR "20020198531" OR "20040010259" OR "20040039394" OR "20040097946" OR "20040138669" OR "20050004676" OR "20050059978" OR "20050070909" OR "20050075641" OR "20050101961" OR "20050149042" OR "20050228389" OR "20050251147" OR "20050267482" OR "20050273112" OR "20060129163" OR "20060206044" OR "20060217733" OR "20060229621" OR "20060241607" OR "20060241608" OR "20060264961" OR "20070010818" OR "20070123857" OR "20070233138" OR "20070265634" OR "20070276383" OR "20080009863" OR "20080015603" OR "20080039850" OR "20080091197" OR "20080140081" OR "20080147073" OR "20080172054" OR "20080195215" OR "20080208252" OR "20080262500" OR "20080269908" OR "20080288004" OR "20090036893" OR "20090036931" OR "20090054899" OR "20090093849" OR "20090105767" OR "20090112212" OR "20090118733" OR "20090198244" OR "20090198279" OR "20090216089" OR "20090222047" OR				

		"20090254092" OR "20090254126" OR "20090287309" OR "20100069910" OR "20100121334" OR "20100130981" OR "20100152782" OR "20100168799" OR "20100185245" OR "20100249779" OR "20100256687" OR "20100318088" OR "20100324556" OR "20110009865" OR "20110093084" OR "20110118739" OR "20110178524" OR "20110245835" OR "20110264149" OR "20110288550" OR "20110301648" OR "20120016426" OR "20120065689" OR "20120078258" OR "20120123420" OR "20120123484" OR "20120130376" OR "20120130382" OR "20120130383" OR "20120184961" OR "20120185056" OR "20120191199" OR "20120239045" OR "20120253350" OR "20120265301" OR "20120277745" OR "20120303033" OR "20120330135" OR "20130012949" OR "20130035694" OR "20130085499" OR "20130085502" OR "20130096563" OR "20130131821" OR "20130150900" OR "20130150903" OR "20130158556" OR "20130165936" OR "20130165938" OR "20130172942" OR "20130184714" OR "20130190765" OR "20130190766" OR "20130204259" OR "20130226248" OR "20130226252" OR "20130231668" OR "20130237987" OR					

		"20130237989" OR "20130267956" OR "20130310836" OR "20130325019" OR "20130325076" OR "20130331845" OR "20130338785" OR "20140005672" OR "20140025127" OR "20140039501" OR "20140039561" OR "20140046387" OR "20140074099" OR "20140074101" OR "20140094861" OR "20140094924" OR "20140135775" OR "20140163563" OR "20140171953" OR "20140180342" OR "20140188139" OR "20140194884" OR "20140194999" OR "20140207144" OR "20140249537" OR "20140257308" OR "20140257509" OR "20140276815" OR "20140276853" OR "20140277176" OR "20140277214" OR "20140288562" OR "20140296995" OR "20140303621" OR "20140336658" OR "20140343555" OR "20140350561" OR "20150032168" OR "20150045801" OR "20150045839" OR "20150051650" OR "20150057667" OR "20150066094" OR "20150112446" OR "20150119944" OR "20150142064" OR "20150150608" OR "20150182273" OR "20150223851" OR "20150245858" OR "20160015426" OR "20160022315" OR "20160135858" OR "20160151165" OR "20160175089" OR "20160192950" OR "20160199076" OR "20160213384" OR					

		"20160235414" OR "20160242791" OR "20160256204" OR "20160324532" OR "20160354127" OR "20170042598" OR "20170056031" OR "20170079669" OR "20170143511" OR "20170164989" OR "20180132868" OR "20180344334" OR "3664022" OR "4069824" OR "4159716" OR "4187840" OR "4335715" OR "4338927" OR "4349018" OR "4409973" OR "4440168" OR "4501268" OR "4502474" OR "4509511" OR "4565191" OR "4570624" OR "4627425" OR "4628919" OR "4632102" OR "4664102" OR "4708133" OR "4736737" OR "4750481" OR "4754746" OR "4757810" OR "4895141" OR "4952214" OR "4959066" OR "4978347" OR "4988349" OR "4995875" OR "5021056" OR "5035698" OR "5042983" OR "5049149" OR "5053039" OR "5078719" OR "5112334" OR "5147364" OR "5176685" OR "5207676" OR "5246444" OR "5254119" OR "5312412" OR "5358504" OR "5364402" OR "5374271" OR "5413579" OR					

		"5417694" OR "5449360" OR "5470335" OR "5490854" OR "5529075" OR "5540695" OR "5578038" OR "5586564" OR "5601565" OR "5613969" OR "5620442" OR "5620448" OR "5643270").pn.					
L113	145	("5667510" OR "5722978" OR "5749875" OR "5779709" OR "5788695" OR "5803924" OR "5810822" OR "5843085" OR "5893553" OR "5911724" OR "5935128" OR "5941877" OR "5951556" OR "5980526" OR "5984931" OR "6007535" OR "6027504" OR "6030391" OR "6162223" OR "6171309" OR "6203545" OR "6248109" OR "6391031" OR "6416465" OR "6478799" OR "6511481" OR "6547793" OR "6676662" OR "6719773" OR "6743233" OR "6755838" OR "6796986" OR "6859661" OR "7018383" OR "7033361" OR "7097647" OR "7112204" OR "7153310" OR "7182766" OR "7241298" OR "7282054" OR "7377924" OR "7465303" OR "7540874" OR	(US-PGPUB; USPAT)	OR	ON	ON	2024/08/08 09:46 AM

		"7572258" OR "7641660" OR "7686811" OR "7691108" OR "7763026" OR "7967823" OR "7972338" OR "8057478" OR "8062301" OR "8080010" OR "8080045" OR "8083746" OR "8123753" OR "8137406" OR "8147530" OR "8167918" OR "8172848" OR "8192441" OR "8197487" OR "8231623" OR "8231663" OR "8236000" OR "8246561" OR "8262664" OR "8277459" OR "8282644" OR "8282645" OR "8292966" OR "8303596" OR "8313492" OR "8323289" OR "8337503" OR "8343159" OR "8377105" OR "8409209" OR "8435246" OR "8475462" OR "8496662" OR "8523870" OR "8529571" OR "8540777" OR "8545508" OR "8652142" OR "8657820" OR "8672945" OR "8696716" OR "8702715" OR "8715363" OR "8728084" OR "8758354" OR "8764760" OR "8764763" OR "8771279" OR "8777948" OR "8784427" OR "8784457" OR "8795286" OR "8801727" OR					

		"8808303" OR "8828012" OR "8858602" OR "8882778" OR "8882816" OR "8888785" OR "8900247" OR "8906026" OR "8945132" OR "8998903" OR "8998904" OR "9011507" OR "9023052" OR "9044250" OR "9060822" OR "9089376" OR "9101421" OR "9107715" OR "9113920" OR "9452057" OR "9522023" OR "9750538" OR "9785747" OR "9980760" OR "D610257" OR "D629900" OR "D646389" OR "D651315" OR "D651316" OR "D666721" OR "D679395" OR "D694884" OR "D695402" OR "D701303" OR "D705929" OR "D720456" OR "D740424" OR "D765844" OR "D766434" OR "D766437" OR "D766438" OR "D766439" OR "H001706").pn.					
L114	2	"18323138"	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO;	OR	ON	ON	2024/08/08 09:51 AM

			JPO; DERWENT; IBM_TDB)				
L115	2	"11690659".pn.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/08/08 09:51 AM
L116	39	(metatarsal bunion instrument fixation).clm.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2024/08/08 04:28 PM
L117	32	(metatarsal bunion instrument fixation plane).clm.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	AND	ON	ON	2024/08/08 04:28 PM
L118	11	(metatarsal bunion instrument fixation plane).clm.	(USPAT)	AND	ON	ON	2024/08/08 04:30 PM
L119	391	("3664022" | "4069824" | "4159716" | "4187840" | "4335715" | "4338927"	(US-PGPUB; USPAT; USOCR)	AND	ON	ON	2024/08/08 04:50 PM

		| "4349018" | "4409973" | "4440168" | "4501268" | "4502474" | "4509511" | "4565191" | "4570624" | "4627425" | "4628919" | "4632102" | "4664102" | "4708133" | "4736737" | "4750481" | "4754746" | "4757810" | "4895141" | "4952214" | "4959066" | "4978347" | "4988349" | "4995875" | "5021056" | "5035698" | "5042983" | "5049149" | "5053039" | "5078719" | "5112334" | "5147364" | "5176685" | "5207676" | "5246444" | "5254119" | "5312412" | "5358504" | "5364402" | "5374271" | "5413579" | "5417694" | "5449360" | "5470335" | "5490854" | "5529075" | "5540695" | "5578038" | "5586564" | "5601565" | "5613969" | "5620442" | "5620448" | "5643270" | "5667510" | "00H1706" | "5722978" | "5749875" | "5779709" | "5788695" | "5803924" | "5810822" | "5843085" | "5893553" | "5911724" | "5935128" | "5941877" | "5951556" | "5980526" | "5984931" | "6007535" | "6027504" | "6030391" | "6162223" | "6171309" | "6203545" | "6248109" | "6391031" | "6416465" | "6478799" | "6511481" | "6547793" | "6676662" | "6719773" | "6743233" | "6755838" | "6796986" | "6859661" | "7018383" | "7033361" | "7097647" | "7112204" | "7153310" | "7182766" | "7241298" | "7282054" | "7377924" | "7465303" | "7540874" | "7572258" | "7641660" | "D610257" | "7686811" | "7691108" | "7763026" | "D629900" | "7967823" | "7972338" | "D646389" | "8057478" | "8062301" | "D651315" | "D651316" | "8080010" | "8080045" | "8083746" |				

		"8123753" | "8137406" | "8147530" | "8167918" | "8172848" | "8192441" | "8197487" | "8231623" | "8231663" | "8236000" | "8246561" | "D666721" | "8262664" | "8277459" | "8282644" | "8282645" | "8292966" | "8303596" | "8313492" | "8323289" | "8337503" | "8343159" | "8377105" | "D679395" | "8409209" | "8435246" | "8475462" | "8496662" | "8523870" | "8529571" | "8540777" | "8545508" | "D694884" | "D695402" | "8652142" | "8657820" | "D701303" | "8672945" | "8696716" | "8702715" | "D705929" | "8715363" | "8728084" | "8758354" | "8764760" | "8764763" | "8771279" | "8777948" | "8784427" | "8784457" | "8795286" | "8801727" | "8808303" | "8828012" | "8858602" | "8882778" | "8882816" | "8888785" | "D720456" | "8900247" | "8906026" | "8945132" | "8998903" | "8998904" | "9023052" | "9044250" | "9060822" | "9089376" | "9101421" | "9107715" | "9113920" | "D740424" | "D765844" | "D766434" | "D766437" | "D766438" | "D766439" | "9452057" | "9522023" | "9750538" | "9785747" | "9980760" | "10028750" | "10064631" | "10159499" | "10292713" | "10327829" | "10342590" | "10376268" | "10470779" | "10779867" | "10939939" | "11304705" | "20020099381" | "20020107519" | "20020165552" | "20020198531" | "20040010259" |				

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		"20100318088" | "20100324556" | "20110009865" | "20110093084" | "20110118739" | "20110178524" | "20110245835" | "20110288550" | "20110301648" | "20120016426" | "20120065689" | "20120078258" | "20120123420" | "20120123484" | "20120130376" | "20120130382" | "20120130383" | "20120184961" | "20120185056" | "20120191199" | "20120239045" | "20120253350" | "20120265301" | "20120277745" | "20120303033" | "20120330135" | "20130012949" | "20130035694" | "20130085499" | "20130085502" | "20130096563" | "20130131821" | "20130150900" | "20130150903" | "20130158556" | "20130165936" | "20130165938" | "20130172942" | "20130184714" | "20130190765" | "20130190766" | "20130204259" | "20130226248" | "20130226252" | "20130231668" | "20130237987" | "20130237989" | "20130267956" | "20130310836" | "20130325019" | "20130325076" | "20130331845" | "20130338785" | "20140005672" | "20140025127" | "20140039501" | "20140039561" | "20140046387"				

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		AND (PGPB | USPT | USOC).dbnm.					
L120	7	"17750275"	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/08/23 10:10 AM
L121	30	kuyler-adriaan.in.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/08/23 10:10 AM
L122	44	mcaleer-jody.in.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/08/23 10:10 AM
L123	13	decarbo-william.in.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB,	OR	ON	ON	2024/08/23 10:11 AM

			HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L124	14	santrock-robert.in.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/08/23 10:11 AM
L125	0	scanlan-seant.in.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/08/23 10:11 AM
L127	6	"16448357"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT;	OR	ON	ON	2024/08/23 10:12 AM

			IBM_TDB)				
L128	391	("3664022" | "4069824" | "4159716" | "4187840" | "4335715" | "4338927" | "4349018" | "4409973" | "4440168" | "4501268" | "4502474" | "4509511" | "4565191" | "4570624" | "4627425" | "4628919" | "4632102" | "4664102" | "4708133" | "4736737" | "4750481" | "4754746" | "4757810" | "4895141" | "4952214" | "4959066" | "4978347" | "4988349" | "4995875" | "5021056" | "5035698" | "5042983" | "5049149" | "5053039" | "5078719" | "5112334" | "5147364" | "5176685" | "5207676" | "5246444" | "5254119" | "5312412" | "5358504" | "5364402" | "5374271" | "5413579" | "5417694" | "5449360" | "5470335" | "5490854" | "5529075" | "5540695" | "5578038" | "5586564" | "5601565" | "5613969" | "5620442" | "5620448" | "5643270" | "5667510" | "00H1706" | "5722978" | "5749875" | "5779709" | "5788695" | "5803924" | "5810822" | "5843085" | "5893553" | "5911724" | "5935128" | "5941877" | "5951556" | "5980526" | "5984931" | "6007535" | "6027504" | "6030391" | "6162223" | "6171309" | "6203545" | "6248109" | "6391031" | "6416465" | "6478799" | "6511481" | "6547793" | "6676662" | "6719773" | "6743233" | "6755838" | "6796986" | "6859661" | "7018383" | "7033361" | "7097647" | "7112204" | "7153310" | "7182766" | "7241298" | "7282054" | "7377924" | "7465303" | "7540874" | "7572258" | "7641660" | "D610257" | "7686811" | "7691108" | "7763026" | "D629900" | "7967823"	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2024/08/23 10:13 AM

		| "7972338" | "D646389" | "8057478" | "8062301" | "D651315" | "D651316" | "8080010" | "8080045" | "8083746" | "8123753" | "8137406" | "8147530" | "8167918" | "8172848" | "8192441" | "8197487" | "8231623" | "8231663" | "8236000" | "8246561" | "D666721" | "8262664" | "8277459" | "8282644" | "8282645" | "8292966" | "8303596" | "8313492" | "8323289" | "8337503" | "8343159" | "8377105" | "D679395" | "8409209" | "8435246" | "8475462" | "8496662" | "8523870" | "8529571" | "8540777" | "8545508" | "D694884" | "D695402" | "8652142" | "8657820" | "D701303" | "8672945" | "8696716" | "8702715" | "D705929" | "8715363" | "8728084" | "8758354" | "8764760" | "8764763" | "8771279" | "8777948" | "8784427" | "8784457" | "8795286" | "8801727" | "8808303" | "8828012" | "8858602" | "8882778" | "8882816" | "8888785" | "D720456" | "8900247" | "8906026" | "8945132" | "8998903" | "8998904" | "9023052" | "9044250" | "9060822" | "9089376" | "9101421" | "9107715" | "9113920" | "D740424" | "D765844" | "D766434" | "D766437" | "D766438" | "D766439" | "9452057" | "9522023" | "9750538" | "9785747" | "9980760" | "10028750" | "10064631" | "10159499" | "10292713" | "10327829" | "10342590" | "10376268" | "10470779" | "10779867" | "10939939" | "11304705" |				

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		"6796986" OR "6859661" OR "7018383" OR "7033361" OR "7097647" OR "7112204" OR "7153310" OR "7182766" OR "7241298" OR "7282054" OR "7377924" OR "7465303" OR "7540874" OR "7572258" OR "7641660" OR "7686811" OR "7691108" OR "7763026" OR "7967823" OR "7972338" OR "8057478" OR "8062301" OR "8080010" OR "8080045" OR "8083746" OR "8123753" OR "8137406" OR "8147530" OR "8167918" OR "8172848" OR "8192441" OR "8197487" OR "8231623" OR "8231663" OR "8236000" OR "8246561" OR "8262664" OR "8277459" OR "8282644" OR "8282645" OR "8292966" OR "8303596" OR "8313492" OR "8323289" OR "8337503" OR "8343159" OR "8377105" OR "8409209" OR "8435246" OR "8475462" OR "8496662" OR "8523870" OR "8529571" OR "8540777" OR "8545508" OR "8652142" OR "8657820" OR "8672945" OR					

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L131	17	(metatarsal cuneiform	(US-PGPUB; USPAT;	AND	ON	ON	2024/08/23

		spacer fulcrum).clm.	USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				02:03 PM
L132	1	(metatarsal cuneiform spacer fulcrum).clm.	(USPAT)	AND	ON	ON	2024/08/23 02:03 PM
L133	4	"20170172638"	(USPAT)	AND	ON	ON	2024/08/23 02:06 PM
L134	5	"20170172638"	(US-PGPUB; USPAT)	AND	ON	ON	2024/08/23 02:07 PM
L135	248	("4159716" | "4187840" | "4338927" | "4570624" | "4627425" | "4628919" | "4757810" | "4895141" | "4952214" | "4978347" | "4988349" | "5021056" | "5112334" | "5207676" | "5254119" | "5312412" | "5358504" | "5364402" | "5413579" | "5449360" | "5620442" | "00H1706" | "5788695" | "5803924" | "5810822" | "5893553" | "5935128" | "5941877" | "5951556" | "6030391" | "6162223" | "6171309" | "6719773" | "6743233" | "7033361" | "7182766" | "7241298" | "7377924" | "7465303" | "7641660" | "D610257" | "7686811" | "D629900" | "7972338" | "D646389" | "8057478" | "D651315" | "D651316" | "8080010" | "8123753" | "8137406" | "8147530" | "8167918" | "8172848" | "8192441" | "8197487" | "8231623" | "8231663" | "8246561" | "D666721" | "8262664" | "8282644" | "8282645" | "8292966" | "8313492" | "8323289" | "8337503" | "8343159" | "8377105" |	(US-PGPUB; USPAT; USOCR)	AND	ON	ON	2024/08/23 02:08 PM

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PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N32	5	(bunion deformity).clm.	(USPAT)	AND	ON	ON	2017/02/10 06:43 PM
N33	1	(bunion deformity plane).clm.	(USPAT)	AND	ON	ON	2017/02/10 06:44 PM
N34	0	(bunion plane aligned).clm.	(USPAT)	AND	ON	ON	2017/02/10 06:44 PM
N79	1	(method bunion fulcrum).clm.	(USPAT)	AND	ON	ON	2019/05/07 07:41 PM
N80	1	(bunion fulcrum).clm.	(USPAT)	AND	ON	ON	2019/05/07 07:41 PM
N81	14	(metatarsal fulcrum).clm.	(USPAT)	AND	ON	ON	2019/05/07 07:41 PM
N82	5	(method bunion deformity fulcrum).clm.	(US-PGPUB; USPAT)	AND	ON	ON	2021/12/04 11:22 AM
N83	11	(method bunion deformity fixing).clm.	(US-PGPUB; USPAT)	AND	ON	ON	2021/12/04 11:23 AM
N84	33	(method bunion deformity).clm.	(US-PGPUB; USPAT)	AND	ON	ON	2023/02/09 08:54 AM
N85	17	(method bunion deformity fixation).clm.	(US-PGPUB; USPAT)	AND	ON	ON	2023/02/09 08:54 AM
N86	16	(method bunion deformity fixation plane).clm.	(US-PGPUB; USPAT)	AND	ON	ON	2023/02/09 08:54 AM
N87	14	(bone cutting spacer cuneiform metatarsal).clm.	(US-PGPUB; USPAT)	AND	ON	ON	2024/08/24 10:32 AM
N88	3	(bone cutting spacer cuneiform metatarsal fulcrum).clm.	(US-PGPUB; USPAT)	AND	ON	ON	2024/08/24 10:35 AM

N89	15	(bunion deformity instrument cutting moving cuneiform).clm.	(US-PGPUB; USPAT)	AND	ON	ON	2024/11/22 11:35 AM
N90	10	(bunion deformity instrument cutting moving cuneiform fixating).clm.	(US-PGPUB; USPAT)	AND	ON	ON	2024/11/22 11:35 AM

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-22)
Approved for use through 05/31/2024. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	18645596
Filing Date	2024-04-25
First Named Inventor	F. Barry Bays
Art Unit	3775
Examiner Name	CHRISTOPHER J BECCIA
Attorney Docket Number	71212.4.8.USC4

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	4364381	A	1982-12-21	Sher et al.	

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20060036257	A1	2006-02-16	Steffensmeier	
	2	20020058944	A1	2002-05-16	Michelson	

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
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First Named Inventor	F. Barry Bays
Art Unit	3775
Examiner Name	CHRISTOPHER J BECCIA
Attorney Docket Number	71212.4.8.USC4

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, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
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EXAMINER SIGNATURE

Examiner Signature	/CHRISTOPHER J BECCIA/	Date Considered	11/21/2024

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

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.J.B/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	18645596
Filing Date	2024-04-25
First Named Inventor	F. Barry Bays
Art Unit	3775
Examiner Name	CHRISTOPHER J BECCIA
Attorney Docket Number	71212.4.8.USC4

CERTIFICATION STATEMENT

Please see 37 CFR 1.97(e) to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☒ A certification statement is not submitted herewith.

FEE

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

COPIES

☐ An identification of an earlier application pursuant to 37 CFR 1.98 (d) (1) is attached.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Paul J. LaVanway, Jr./	Date (YYYY-MM-DD)	2024-10-08
Name/Print	Paul J. LaVanway, Jr.	Registration Number	64,610

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The information provided by you in this form will be subject to the following routine uses:

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

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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)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.J.B/

UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

22859 7590 12/10/2024

FREDRIKSON & BYRON, P.A.
INTELLECTUAL PROPERTY GROUP
60 SOUTH SIXTH STREET, SUITE 1500
MINNEAPOLIS, MN 55402

EXAMINER
BECCIA, CHRISTOPHER J

ART UNIT	PAPER NUMBER
3775	

DATE MAILED: 12/10/2024

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/645,596	04/25/2024	F. Barry Bays	71212.4.8.USC4	4182

TITLE OF INVENTION: TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	03/10/2025

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.

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)

22859 7590 12/10/2024

FREDRIKSON & BYRON, P.A.
INTELLECTUAL PROPERTY GROUP
60 SOUTH SIXTH STREET, SUITE 1500
MINNEAPOLIS, MN 55402

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.
18/645,596	04/25/2024	F. Barry Bays	71212.4.8.USC4	4182

TITLE OF INVENTION: TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	03/10/2025

EXAMINER	ART UNIT	CLASS-SUBCLASS
BECCIA, CHRISTOPHER J	3775	606-090000

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. _____

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/645,596	04/25/2024	F. Barry Bays	71212.4.8.USC4	4182

22859 7590 12/10/2024

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INTELLECTUAL PROPERTY GROUP
60 SOUTH SIXTH STREET, SUITE 1500
MINNEAPOLIS, MN 55402

EXAMINER	
BECCIA, CHRISTOPHER J	
ART UNIT	**PAPER NUMBER**
3775	

DATE MAILED: 12/10/2024

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.

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

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

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. The United States Patent and Trademark Office (USPTO) collects the information in this record under authority of 35 U.S.C. 2. The USPTO's system of records is used to manage all applicant and owner information including name, citizenship, residence, post office address, and other information with respect to inventors and their legal representatives pertaining to the applicant's/ owner's activities in connection with the invention for which a patent is sought or has been granted. The applicable Privacy Act System of Records Notice for the information collected in this form is COMMERCE/PAT-TM-7 Patent Application Files, available in the Federal Register at 78 FR 19243 (March 29, 2013).
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:

1) law enforcement, in the event that the system of records indicates a violation or potential violation of law;
2) a federal, state, local, or international agency, in response to its request;
3) a contractor of the USPTO having need for the information in order to perform a contract;
4) the Department of Justice for determination of whether the Freedom of Information Act (FOIA) requires disclosure of the record;
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
10) the Office of Management and Budget (OMB) for legislative coordination and clearance.

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 Allowability	Application No. 18/645,596	Applicant(s) Bays et al.	
	Examiner CHRISTOPHER J BECCIA	Art Unit 3775	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 Applicant Arguments/Remarks Made in an Amendment dated November 13, 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 1-30 . 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 _____.

/CHRISTOPHER J BECCIA/
Primary Examiner, Art Unit 3775

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.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: Most pertinent prior art including U.S. Patent Pub. No. 2015/0112446 to *Melamed et al*. and U.S. Patent No. 5,529,075 to *Clark* disclose discloses an instrumented surgical technique for treating a bunion deformity. The method comprises inserting an instrument between metatarsal and a second metatarsal adjacent to the first metatarsal, wherein the first metatarsal is anatomically misaligned with respect to the second metatarsal, cutting an end of a metatarsal, moving a distal portion of the first metatarsal toward the second metatarsal in a plane, and using at least one bone fixation device.

The prior art fails to teach or disclose, however, wherein the method includes cutting an end of a medial cuneiform opposing the end of the first metatarsal, moving the first metatarsal in at least one plane to treat the bunion deformity, and after moving the first metatarsal in at least one plane to treat the bunion deformity, fixating a moved position of the first metatarsal relative to the medial cuneiform using at least one bone fixation device.

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 CHRISTOPHER J BECCIA whose telephone number is (571)270-7391. The examiner can normally be reached Mon - Fri 8:30-5:00.

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, Kevin Truong can be reached on 571-272-4705. 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.

/CHRISTOPHER J BECCIA/
Primary Examiner, Art Unit 3775

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

ACKNOWLEDGEMENT OF CHANGE TO SMALL ENTITY STATUS

APPLICATION #	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET #	REQUEST ID
18/645,596	04/25/2024	F. Barry Bays	71212.4.8.USC4	364128

The entity status change request below filed through Patent Center on 03/04/2025 has been accepted.

Certifications

APPLICANT ASSERTING SMALL ENTITY STATUS. See 37CFR 1.27.

Signature

I certify, in accordance with 37 CFR 1.4(d)(4), that I am one of the signatories making the entity status change.

Signature	Name	Registration #
/Paul J. LaVanway, Jr./	Paul LaVanway	64610

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)

22859 7590 12/10/2024
FREDRIKSON & BYRON, P.A.
INTELLECTUAL PROPERTY GROUP
60 SOUTH SIXTH STREET, SUITE 1500
MINNEAPOLIS, MN 55402

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.
18/645,596	04/25/2024	F. Barry Bays	71212.4.8.USC4	4182

TITLE OF INVENTION: TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	~~UNDISCOUNTED~~	small ~~$1200~~ $516	$0.00	$0.00	~~$1200~~ $516	03/10/2025

EXAMINER	ART UNIT	CLASS-SUBCLASS
BECCIA, CHRISTOPHER J	3775	606-090000

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 Fredrikson & Byron, P.A.
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: Treace Medical Concepts, Inc.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Ponte Vedra, FL

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. 06-1910

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 /Paul J. LaVanway, Jr./ Date March 6, 2025

Typed or printed name Paul J. LaVanway, Tr. Registration No. 64,610

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/645,596	**03/06/2025 03:08:40 PM Z ET**	**71212.4.8.USC4**

Title of Invention

TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	4182	FILED BY	Paul LaVanway
PATENT CENTER #	69465017	AUTHORIZED BY	Paul LaVanway
CUSTOMER #	22859	FILING DATE	04/25/2024
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	F. Barry Bays

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
CARD / 1071	**E202536F09069052**	**Paul LaVanway**

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
2501	UTILITY ISSUE FEE	480.00	1	480.00
			TOTAL AMOUNT:	**$480.00**

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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.

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/645,596	**03/06/2025 03:08:40 PM Z ET**	**71212.4.8.USC4**

Title of Invention

TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	4182	FILED BY	Paul LaVanway
PATENT CENTER #	69465017	FILING DATE	04/25/2024
CUSTOMER #	22859	FIRST NAMED INVENTOR	F. Barry Bays
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Paul LaVanway

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
71212.4.8.USC4_Comments_on_Statement_of_Reasons_for_Allowance.pdf	1	Post Allowance Communication - Incoming	87 KB
71212.4.8.USC4_Issue_Fee_Transmittal.pdf	1	Issue Fee Payment (PTO-85B)	1658 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
71212.4.8.USC4_Comments_on_Statement_of_Reasons_for_Allowance.pdf	DF405C66C1B700ACBFDB32C4178E08127A5F8B0A319B01FF90EFCF76D3351E518D4FFAD168323C167C00F1EEF726097D545411834FCDBC0B8A803B290DA3091B

71212.4.8.USC4_Issue_Fee_Transmittal.pdf

08D217C566C361FDC9A6EF4D1983008DB9EB44E7A352CA77E421860B5D118938F06554B022F70756A9D794E80E9EB3DEF14153B9EE1F1B21ACE926AC0B0F9711

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Customer Number 22859 Docket No.: 71212.4.8.USC4

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor:	F. Barry Bays		
Application No.:	18/645,596	Group Art Unit:	3775
Filed:	April 25, 2024	Examiner:	Christopher J. Beccia
Title:	TARSAL-METATARSAL JOINT PROCEDURE UTILIZING FULCRUM		

COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE

Dear Commissioner:

Applicant has reviewed the Examiner's Statement of Reasons for Allowance accompanying the Notice of Allowance mailed December 10, 2024. Applicant does not acquiesce in any particular stated reasons for allowance.

Applicant agrees with the Examiner that the claims are allowable over the prior art. Applicant points out, however, that the claims require multiple limitations not taught or suggested by the prior art and that the claims are allowable for multiple reasons.

Applicant respectfully requests that the Examiner place the preceding comments into the prosecution record prior to issuance of the above-identified application. The Examiner is invited to telephone the below-signed attorney to discuss this application.

Dated: March 6, 2025

Respectfully submitted,

/Paul J. LaVanway, Jr./

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/645,596	04/08/2025	12268428	71212.4.8.USC4	4182

22859 7590 03/19/2025

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ISSUE NOTIFICATION

The projected patent number and issue date are specified above. The patent will issue electronically. The electronically issued patent is the official patent grant pursuant to 35 U.S.C. § 153. The patent may be accessed on or after the issue date through Patent Center at https://patentcenter.uspto.gov/. The patent will be available in both the public and the private sides of Patent Center. Further assistance in electronically accessing the patent, or about Patent Center, is available by calling the Patent Electronic Business Center at 1-888-217-9197.

The USPTO is implementing electronic patent issuance with a transition period, during which period the USPTO will mail a ceremonial paper copy of the electronic patent grant to the correspondence address of record. Additional copies of the patent (i.e., certified and presentation copies) may be ordered for a fee from the USPTO's Certified Copy Center at https://certifiedcopycenter.uspto.gov/index.html. The Certified Copy Center may be reached at (800)972-6382.

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

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Center (https://patentcenter.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

INVENTOR(s) (Please see PATENT CENTER site https://patentcenter.uspto.gov for additional inventors):

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Paul Dayton, Ankeny, IA;
Daniel J. Hatch, Greeley, CO;
W. Bret Smith, Lexington, SC;

APPLICANT(s) (Please see PATENT CENTER site https://patentcenter.uspto.gov for additional applicants):

Treace Medical Concepts, Inc., Ponte Vedra, FL;

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/645,596	04/25/2024	F. Barry Bays	71212.4.8.USC4	4182

22859 7590 04/08/2025

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EXAMINER	
BECCIA, CHRISTOPHER J	

ART UNIT	PAPER NUMBER
3775	

NOTIFICATION DATE	DELIVERY MODE
04/08/2025	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):

IP@FREDLAW.COM

APPLICATION NO.	ISSUE DATE	PATENT NO.
18/645,596	08-Apr-2025	12268428

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MINNEAPOLIS, MN 55402

EGRANT NOTIFICATION

Your electronic patent grant (eGrant) is now available, which can be accessed via Patent Center at https://patentcenter.uspto.gov

The electronic patent grant is the official patent grant under 35 U.S.C. 153. For more information, please visit https://www.uspto.gov/electronicgrants