UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 12,104,578 B2
APPLICATION NO. : 18/420859
DATED : October 1, 2024
INVENTOR(S) : Per E. Fenger

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Specification

In Column 1, Line 15, in the CROSS-REFERENCE TO RELATED APPLICATIONS paragraph, after "their" delete "entirety".

In the Claims

In Column 8, Lines 7-8, in Claim 11, after "fastened" delete "at the ends".

Signed and Sealed this
Twenty-sixth Day of November, 2024

Katherine Kelly Vidal

Katherine Kelly Vidal
Director of the United States Patent and Trademark Office

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
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/420,859	01/24/2024	Per E. FENGER	00428-0001-02000	4686

108449 7590 11/26/2024

Bookoff McAndrews, PLLC
2000 Pennsylvania Ave NW
Suite 4001
Washington, DC 20006

EXAMINER	
VU, STEPHEN A	

ART UNIT	PAPER NUMBER
3651	

NOTIFICATION DATE	DELIVERY MODE
11/26/2024	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):

KRoss@bomcip.com
eofficeaction@appcoll.com
usptomail@bomcip.com

APPLICATION NO.	ISSUE DATE	PATENT NO.
18/420,859	26-Nov-2024	12104578

Bookoff McAndrews, PLLC
2000 Pennsylvania Ave NW
Washington, DC 20006

ELECTRONIC CERTIFICATE OF CORRECTION NOTIFICATION

Your electronic certificate of correction is now available, and can be accessed via Patent Center at https://patentcenter.uspto.gov.

The electronic certificate of correction is the official certificate of correction under 35 U.S.C. 254 or 255. For more information, please visit https://www.uspto.gov/electronicgrants.

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 3 of 177

PTO/SB/44 (09-07)
Approved for use through 03/31/2023. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 12,104,578

APPLICATION NO.: 18/420,859

ISSUE DATE : 2024-10-01

INVENTOR(S) : Per E. FENGER

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In Column 1, Line 15, in the CROSS-REFERENCE TO RELATED APPLICATIONS paragraph, after "their" delete -- entirety --.

In Column 8, Lines 7-8, in Claim 11, after "fastened" delete -- at the ends --.

MAILING ADDRESS OF SENDER (Please do not use Customer Number below):
2000 Pennsylvania Avenue NW
Suite 4001
Washington, DC 20006
United States

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. 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 1.0 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: Attention Certificate of Corrections Branch, 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.

Privacy Act Statement

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

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

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

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/420,859	**10/28/2024 02:42:41 PM Z ET**	**00428-0001-02000**

Title of Invention

MAIN SHAFT FIXTURE

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	12104578
CONFIRMATION #	4686	FILED BY	Cara Gilman
PATENT CENTER #	67742614	FILING DATE	01/24/2024
CUSTOMER #	108449	FIRST NAMED INVENTOR	Per E. FENGER
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Patrick Hamo

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
Request.pdf	2	Request for Certificate of Correction	74 KB
Certificate of Correction.pdf	2	Request for Certificate of Correction	182 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
Request.pdf	5C9796B019160A4B36531A249ABD814A4C1622D9826A68647 D91FC9214B8C595D58968DC5CB3978EDEFFBB730DB0DCB0 86B2E2F2DA4B4727D7DF73BD2728F7EE
Certificate of Correction.pdf	241501BAE79C61C6D0665B441E0A1B4C4C17F7A9BC497E7B

4C9C50B66CF3F65941DF9B0A0186A3C8974399758A848AA55
99BE736A68D70D5639928A648A7DF0D

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re U.S. Patent No.: 12,104,578	)	
Application No. 18/420,859	)	Group Art Unit: 3651
Inventor: Per E. FENGER	)	Examiner: Stephen A VU
Filed: January 24, 2024	)	Confirmation No.: 4686
Issued: October 1, 2024	)	***VIA PATENT CENTER***
For: MAIN SHAFT FIXTURE	)	

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

Commissioner:

REQUEST FOR CERTIFICATE OF CORRECTION

Pursuant to 35 U.S.C. § 254, and 37 C.F.R. § 1.322, this is a request for a Certificate of Correction in the above-identified patent. The mistakes identified in the attached PTO Form SB/44 occurred through the fault of the Patent Office, as clearly disclosed in the records of the application, which matured into this patent.

In particular, in Column 1, Line 15, in the CROSS-REFERENCE TO RELATED APPLICATIONS paragraph, after “their” delete -- entirety --. Further, in Column 8, Lines 7-8, in Claim 11, after “fastened” delete -- at the ends --.

The nature of the mistakes, i.e., the type of the mistake for which correction is sought is a mistake of minor character. Applicant requests issuance of a certificate of correction as the requested change would not materially affect the scope or meaning of the patent.

Respectfully submitted,

BOOKOFF McANDREWS, PLLC
Customer Number:

Dated: October 28, 2024

By: /Patrick Hamo/
Patrick Hamo
Reg. No. 81500
(202) 780-3824

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 9 of 177

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UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/420,859	01/24/2024	Per E. FENGER	00428-0001-02000	4686

108449 7590 10/01/2024

Bookoff McAndrews, PLLC
2000 Pennsylvania Ave NW
Suite 4001
Washington, DC 20006

EXAMINER	
VU, STEPHEN A	

ART UNIT	PAPER NUMBER
3651	

NOTIFICATION DATE	DELIVERY MODE
10/01/2024	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):

KRoss@bomcip.com
eofficeaction@appcoll.com
usptomail@bomcip.com

APPLICATION NO.	ISSUE DATE	PATENT NO.
18/420,859	01-Oct-2024	12104578

Bookoff McAndrews, PLLC
2000 Pennsylvania Ave NW
Washington, DC 20006

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

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 11 of 177

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/420,859	10/01/2024	12104578	00428-0001-02000	4686

108449 7590 09/11/2024

Bookoff McAndrews, PLLC
2000 Pennsylvania Ave NW
Suite 4001
Washington, DC 20006

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):

Per E. FENGER, Terndurp, DENMARK;

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

LIFTRA IP APS, Aalborg, DENMARK;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Per E. FENGER	)	Group Art Unit: 3651
	)	
Application No.: 18/420,859	)	Examiner: Stephen A VU
	)	
Filed: January 24, 2024	)	Confirmation No.: 4686
	)	
For: MAIN SHAFT FIXTURE	)	***VIA EFS WEB***

MAIL STOP ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE

Applicant thanks the Examiner for the Notice of Allowance and statement of Reasons for Allowance mailed on August 15, 2024, indicating that claims 1-17 are in condition for allowance. Without withdrawing any of the allowed claims from issue, Applicant submits these comments.

The Examiner made characterizations and assertions about the claims and the related prior art in the statement of Reasons for Allowance. Although Applicant agrees with the Examiner's ultimate conclusions that the claims are patentable because the prior art does not teach or suggest the claimed features set forth in the claims, Applicant does not necessarily agree with each or every characterization and assertion contained in the Examiner's statement.

Furthermore, it is understood that the Examiner's characterizations were for purposes of referring to the prior art, and do not in any way imply that the claims are

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 14 of 177

limited by words not actually present in the claims. Therefore, unless expressly noted otherwise, Applicant declines to subscribe to any statement or characterization contained in the Notice of Allowance and its accompanying Reasons for Allowance.

Should the Examiner disagree with the Applicant's comments on the Reasons for Allowance, the Examiner is invited to contact the undersigned at (202) 780-3824, in order to resolve such disagreement.

Please charge any additional required fees, charge any underpayments, or credit any overpayment, to Deposit Account No. 50-5906.

Respectfully submitted,

BOOKOFF McANDREWS, PLLC

Dated: August 30, 2024

By: /Patrick Hamo/
Patrick Hamo
Reg. No. 81500
(202) 780-3824

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 15 of 177

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 #
18/420,859	**08/30/2024 02:55:16 PM Z ET**	**00428-0001-02000**

Title of Invention

MAIN SHAFT FIXTURE

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	4686	FILED BY	Cara Gilman
PATENT CENTER #	66993094	FILING DATE	01/24/2024
CUSTOMER #	108449	FIRST NAMED INVENTOR	Per E. FENGER
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Patrick Hamo

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
Issue Fee Transmittal.pdf	1	Issue Fee Payment (PTO-85B)	202 KB
Comments.pdf	2	Post Allowance Communication - Incoming	99 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
Issue Fee Transmittal.pdf	DB4989365DDB0615B7F487BC48ED9A4D7CE71C8FDD1CA562649B3987D15CFA679AD0F34A77ACCBB3745D84B51AD6C2B4F6052958963B576931BAAA96E72FFD14
Comments.pdf	3919C2788D5C9CBCF6DEA7CA565D114E3F8E2794914EB0A2136C57E16B0B9E8DAA0B4A9898020ACE52AFA2C4ECC5B50D

E6D4EABEFAC464757348175E6619B975

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/420,859	**08/30/2024 02:55:16 PM Z ET**	**00428-0001-02000**

Title of Invention

MAIN SHAFT FIXTURE

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	4686	FILED BY	Cara Gilman
PATENT CENTER #	66993094	AUTHORIZED BY	Patrick Hamo
CUSTOMER #	108449	FILING DATE	01/24/2024
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Per E. FENGER

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
CARD / 1009	**E20248TE56029101**	**Cara Gilman**

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
1501	UTILITY ISSUE FEE	1200.00	1	1200.00
			TOTAL AMOUNT:	**$1,200.00**

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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

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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)

108449 7590 08/15/2024
Bookoff McAndrews, PLLC
2000 Pennsylvania Ave NW
Suite 4001
Washington, DC 20006

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.
18/420,859	01/24/2024	Per E. FENGER	00428-0001-02000	4686

TITLE OF INVENTION: MAIN SHAFT FIXTURE

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	11/15/2024

EXAMINER	ART UNIT	CLASS-SUBCLASS
VU, STEPHEN A	3651	279-112000

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 Bookoff McAndrews, PLLC
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: LIFTRA IP APS

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Aalborg, Denmark

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. 50-5906

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 /Patrick Hamo/ Date August 30, 2024

Typed or printed name Patrick Hamo Registration No. 81500

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 20 of 177

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

108449 7590 08/15/2024

Bookoff McAndrews, PLLC
2000 Pennsylvania Ave NW
Suite 4001
Washington, DC 20006

EXAMINER	
VU, STEPHEN A	
ART UNIT	PAPER NUMBER
3651	

DATE MAILED: 08/15/2024

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/420,859	01/24/2024	Per E. FENGER	00428-0001-02000	4686

TITLE OF INVENTION: MAIN SHAFT FIXTURE

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	11/15/2024

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

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

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

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

For purposes of this notice, small entity fees are 40% the amount of undiscounted fees, and micro entity fees are 20% the amount of undiscounted fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

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

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 21 of 177

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)

108449 7590 08/15/2024

Bookoff McAndrews, PLLC
2000 Pennsylvania Ave NW
Suite 4001
Washington, DC 20006

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.
18/420,859	01/24/2024	Per E. FENGER	00428-0001-02000	4686

TITLE OF INVENTION: MAIN SHAFT FIXTURE

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	11/15/2024

EXAMINER	ART UNIT	CLASS-SUBCLASS
VU, STEPHEN A	3651	279-112000

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.

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❑ Applicant changing to regular undiscounted fee status.

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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. _____

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 22 of 177

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/420,859	01/24/2024	Per E. FENGER	00428-0001-02000	4686

108449 7590 08/15/2024

Bookoff McAndrews, PLLC
2000 Pennsylvania Ave NW
Suite 4001
Washington, DC 20006

EXAMINER	
VU, STEPHEN A	

ART UNIT	PAPER NUMBER
3651	

DATE MAILED: 08/15/2024

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

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

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

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 23 of 177

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. 18/420,859	Applicant(s) FENGER, Per E.	
	Examiner STEPHEN VU	Art Unit 3651	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 Amendment & Response, dated 7/26/2024.
   ☐ 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 1-17 . 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 _____.

/STEPHEN A VU/
Primary Examiner, Art Unit 3651

Notice of Pre-AIA or AIA Status

1. 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

2. The following is an examiner's statement of reasons for allowance:

3. The prior art of record neither anticipates nor renders obvious the claimed subject matter of the instant application as a whole either taken alone or in combination. In particular, the prior art of record does not teach the main shaft fixture further having mounting facilities adapted for anchoring a crane on or in a nacelle of a wind turbine.

4. 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 STEPHEN VU whose telephone number is (571)272-1961. The examiner can normally be reached Monday-Friday, 8:00 am - 4:30 pm EST.

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Crawford can be reached on (571) 272-6911. 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.

STEPHEN VU
Primary Examiner
Art Unit 3651

/STEPHEN A VU/
Primary Examiner, Art Unit 3651

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/420,859	FENGER, Per E.
	Examiner	Art Unit
	STEPHEN VU	3651

CPC - Searched*		
Symbol	**Date**	**Examiner**
F03D 80/50, 70	04/23/2024	SV
B23B 31/101, 16	04/23/2024	SV
F03D 13/10, 139	04/23/2024	SV
F05B 2230/60, 61, 80	04/23/2024	SV
F05B 2240/60	04/23/2024	SV
F05B 2260/30, 31	04/23/2024	SV
F16C 35/062	04/23/2024	SV
F16C 2360/31	04/23/2024	SV
Y02P 70/50	04/23/2024	SV
Y10T 279/1274, 1291, 1986	04/23/2024	SV
Updated Search	08/06/2024	SV
Y02E 10/72	08/06/2024	SV

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.

/STEPHEN A VU/ Primary Examiner, Art Unit 3651	

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/420,859	FENGER, Per E.
	Examiner	**Art Unit**
	STEPHEN VU	3651

Search Notes		
Search Notes	**Date**	**Examiner**
Inventor Search	04/23/2024	SV
Applicant Search	04/23/2024	SV
EAST Text Search	04/23/2024	SV
F03D 80/50, 70	04/23/2024	SV
B23B 31/101, 16	04/23/2024	SV
F03D 13/10, 139	04/23/2024	SV
F05B 2230/60, 61, 80	04/23/2024	SV
F05B 2240/60	04/23/2024	SV
F05B 2260/30, 31	04/23/2024	SV
F16C 35/062	04/23/2024	SV
F16C 2360/31	04/23/2024	SV
Y02P 70/50	04/23/2024	SV
Y10T 279/1274, 1291, 1986	04/23/2024	SV
Updated Search	08/06/2024	SV
Y02E 10/72	08/06/2024	SV

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
	USPGPUB Text Search, August 6, 2024 - see interference search results report	08/06/2024	SV

/STEPHEN A VU/ Primary Examiner, Art Unit 3651	

LiftWerx Ex. 1002
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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/420,859	FENGER, Per E.
	Examiner	**Art Unit**
	STEPHEN VU	3651

CPC								
Symbol							**Type**	**Version**
F03D	/	80	/	50			F	2016-05-01
B23B	/	31	/	101			I	2013-01-01
F03D	/	13	/	10			I	2016-05-01
F03D	/	13	/	139			I	2023-08-01
Y10T	/	279	/	1291			A	2015-01-15
Y10T	/	279	/	1986			A	2015-01-15
Y10T	/	279	/	1274			A	2015-01-15
B23B	/	31	/	16			A	2013-01-01
F05B	/	2230	/	60			A	2013-01-01
F05B	/	2260	/	30			A	2013-01-01
F03D	/	80	/	70			A	2016-05-01
F16C	/	2360	/	31			A	2013-01-01
F16C	/	35	/	062			A	2013-01-01
Y02P	/	70	/	50			A	2015-11-01
F05B	/	2260	/	31			A	2020-08-01
F05B	/	2230	/	61			A	2013-01-01
F05B	/	2230	/	80			A	2013-01-01
F05B	/	2240	/	60			A	2013-01-01

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

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	17	
/STEPHEN A VU/ Primary Examiner, Art Unit 3651	06 August 2024	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

LiftWerx Exh. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 30 of 177

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/420,859	FENGER, Per E.
	Examiner	**Art Unit**
	STEPHEN VU	3651

INTERNATIONAL CLASSIFICATION					
CLAIMED					
F03D80/50	/	80	/	50	
NON-CLAIMED					
	/		/		

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

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

NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 17	
/STEPHEN A VU/ Primary Examiner, Art Unit 3651 (Primary Examiner) 06 August 2024 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 31 of 177

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
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	Examiner	**Art Unit**
	STEPHEN VU	3651

☑ 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												
	2		11												
	3		12												
	4		13												
	5		14												
	6		15												
	7		16												
	8		17												
	9														

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 17	
/STEPHEN A VU/ Primary Examiner, Art Unit 3651 (Primary Examiner)	06 August 2024 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 32 of 177

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/420,859	FENGER, Per E.
	Examiner	Art Unit
	STEPHEN VU	3651

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

CLAIMS

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

CLAIM		DATE								
Final	Original	04/23/2024	08/06/2024							
	1	✓	=							
	2	✓	=							
	3	✓	=							
	4	✓	=							
	5	✓	=							
	6	✓	=							
	7	✓	=							
	8	✓	=							
	9	✓	=							
	10	✓	=							
	11	✓	=							
	12	✓	=							
	13	✓	=							
	14	✓	=							
	15		=							
	16		=							
	17		=							

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 33 of 177

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	27	((("LIFTRA") near3 ("IP") near3 ("APS"))).AS,AANM.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/22 03:51 PM
L2	41	((("FENGER") near3 ("Per"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2024/04/22 03:52 PM
L3	40	(US-10378518-$ | US-10502195-$ | US-1101934-$ | US-1152271-$ | US-1617075-$ | US-16452617-$ | US-1748182-$ | US-1853255-$ | US-20020092395-$ | US-20100021278-$ | US-20100139069-$ | US-20120141292-$ | US-20120217089-$ | US-20180313330-$ | US-20190017552-$ | US-3494230-$ | US-4623157-$ | US-4631995-$ | US-5015003-$ | US-6154846-$ | US-7759815-$).DID.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2024/04/22 03:53 PM
L4	39	(Artificial Intelligence) Publication Status Unavailable from Similarity Search Text: (US-20190316569-A1 OR US-20170306930-A1 OR US-10378518-B2 OR EP-3204639-B1 OR EP-4198301-A1 OR EP-3204639-A1 OR CA-2963016-A1 OR CA-2963016-C OR WO-2016055065-A1 OR DK-201500527-A1 OR CN-106795866-B OR BR-122022023804-B1 OR ES-2935584-T3 OR CN-106795866-A OR JP-2017533378-A OR JP-6648123-B2 OR US-20220282711-A1 OR WO-2021046632-A1 OR EP-4028663-A1	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO))	OR	ON	ON	2024/04/22 03:55 PM

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 34 of 177

		OR EP-3052802-A1 OR US-20180313330-A1 OR WO-2015051374-A1 OR CA-2926249-A1 OR CA-3151491-A1 OR EP-3052802-B1 OR US-20210054828-A1 OR EP-3615795-B1 OR US-20150096174-A1 OR US-20180313329-A1 OR US-10422322-B2 OR US-11603824-B2 OR EP-3364023-B1 OR WO-2018200902-A1 OR EP-3615795-A1 OR US-10337503-B2 OR ES-2778198-T3 OR EP-3364023-A1 OR US-10851764-B2 OR ES-2913836-T3 OR ES-2913835-T3 OR US-20230213022-A1 OR US-9909559-B2 OR US-20180163705-A1 OR EP-3615793-B1 OR CA-2926249-C OR WO-2018200925-A1 OR US-20180313331-A1 OR EP-3615793-A1 OR ES-2919146-T3 OR US-10352305-B2).did.					
L5	1529	F03D80/50.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:25 AM
L6	131	B23B31/101.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:25 AM
L7	2305	F03D13/10.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:26 AM
L8	16	F03D13/139.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:26 AM
L9	162	B23B31/16.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:26 AM
L10	3116	F03D80/70.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:26 AM
L11	1166	F05B2230/60.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:27 AM
L12	780	F05B2230/61.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:27 AM
L13	714	F05B2230/80.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:27 AM
L14	249	F05B2240/60.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:27 AM
L15	503	F05B2260/30.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:27 AM
L16	166	F05B2260/31.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23

							07:28 AM
L17	149	F16C35/062.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:28 AM
L18	1395	F16C2360/31.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:28 AM
L19	90507	Y02P70/50.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:29 AM
L20	0	YIOT279/1274.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:29 AM
L21	0	Y1OT279/1274.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:29 AM
L22	0	Y10T279/00.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:30 AM
L23	152	Y10T279/1274.CPC.	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 07:30 AM
L24	1232	Y10T279/1291.CPC.	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 07:31 AM
L25	2261	Y10T279/1986.CPC.	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 07:32 AM
L26	20	(main WITH shaft WITH fixture) AND (wind WITH turbine) AND (pressure WITH mandrels)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 07:33 AM
L27	407	shaft AND (wind WITH turbine) AND (pressure WITH mandrels)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 07:33 AM
L28	24	5 AND 27	(US-PGPUB; USPAT;	OR	ON	ON	2024/04/23

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00402
Page 36 of 177

			USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				07:34 AM
L29	24	6 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 07:34 AM
L30	31	7 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 07:34 AM
L31	24	8 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 07:34 AM
L32	24	9 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:34 AM
L33	25	10 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:34 AM
L34	26	11 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:34 AM

L35	24	12 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:34 AM
L36	24	13 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:34 AM
L37	24	14 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:34 AM
L38	24	15 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:34 AM
L39	24	16 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:35 AM
L40	24	17 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:35 AM
L41	26	18 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:35 AM

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00402
Page 38 of 177

L42	56	19 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:35 AM
L43	24	23 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:35 AM
L44	24	24 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:35 AM
L45	24	25 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:36 AM
L46	6	"20120141292"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 11:50 AM
L47	0	"10,378,418"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 04:12 PM
L48	0	"10,378,518"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 04:13 PM

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00103
Page 39 of 177

L49	21	"10378518"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 04:13 PM
L50	27	((("LIFTRA") near3 ("IP") near3 ("APS"))).AS,AANM.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L51	41	((("FENGER") near3 ("Per"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2024/04/24 10:21 AM
L52	40	(US-10378518-$ | US-10502195-$ | US-1101934-$ | US-1152271-$ | US-1617075-$ | US-16452617-$ | US-1748182-$ | US-1853255-$ | US-20020092395-$ | US-20100021278-$ | US-20100139069-$ | US-20120141292-$ | US-20120217089-$ | US-20180313330-$ | US-20190017552-$ | US-3494230-$ | US-4623157-$ | US-4631995-$ | US-5015003-$ | US-6154846-$ | US-7759815-$).DID.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2024/04/24 10:21 AM
L53	39	(Artificial Intelligence) Publication Status Unavailable from Similarity Search Text: (US-20190316569-A1 OR US-20170306930-A1 OR US-10378518-B2 OR EP-3204639-B1 OR EP-4198301-A1 OR EP-3204639-A1 OR CA-2963016-A1 OR CA-2963016-C OR WO-2016055065-A1 OR DK-201500527-A1 OR CN-106795866-B OR BR-122022023804-B1 OR ES-2935584-T3 OR CN-106795866-A OR JP-2017533378-A OR JP-6648123-B2 OR	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO))	OR	ON	ON	2024/04/24 10:21 AM

		US-20220282711-A1 OR WO-2021046632-A1 OR EP-4028663-A1 OR EP-3052802-A1 OR US-20180313330-A1 OR WO-2015051374-A1 OR CA-2926249-A1 OR CA-3151491-A1 OR EP-3052802-B1 OR US-20210054828-A1 OR EP-3615795-B1 OR US-20150096174-A1 OR US-20180313329-A1 OR US-10422322-B2 OR US-11603824-B2 OR EP-3364023-B1 OR WO-2018200902-A1 OR EP-3615795-A1 OR US-10337503-B2 OR ES-2778198-T3 OR EP-3364023-A1 OR US-10851764-B2 OR ES-2913836-T3 OR ES-2913835-T3 OR US-20230213022-A1 OR US-9909559-B2 OR US-20180163705-A1 OR EP-3615793-B1 OR CA-2926249-C OR WO-2018200925-A1 OR US-20180313331-A1 OR EP-3615793-A1 OR ES-2919146-T3 OR US-10352305-B2).did.					
L54	1529	F03D80/50.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L55	131	B23B31/101.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L56	2305	F03D13/10.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L57	16	F03D13/139.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L58	162	B23B31/16.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L59	3116	F03D80/70.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L60	1166	F05B2230/60.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L61	780	F05B2230/61.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L62	714	F05B2230/80.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L63	249	F05B2240/60.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM

L64	503	F05B2260/30.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L65	166	F05B2260/31.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L66	149	F16C35/062.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L67	1395	F16C2360/31.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L68	90507	Y02P70/50.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L69	0	YIOT279/1274.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L70	0	Y1OT279/1274.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L71	0	Y10T279/00.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L72	152	Y10T279/1274.CPC.	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L73	1232	Y10T279/1291.CPC.	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L74	2261	Y10T279/1986.CPC.	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L75	20	(main WITH shaft WITH fixture) AND (wind WITH turbine) AND (pressure WITH mandrels)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L76	407	shaft AND (wind WITH turbine) AND (pressure WITH mandrels)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO;	OR	ON	ON	2024/04/24 10:21 AM

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 42 of 177

			JPO; DERWENT; IBM_TDB)				
L77	24	5 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L78	24	6 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L79	31	7 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L80	24	8 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L81	24	9 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L82	25	10 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L83	26	11 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU,	OR	ON	ON	2024/04/24 10:21 AM

			SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L84	24	12 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L85	24	13 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L86	24	14 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L87	24	15 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L88	24	16 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L89	24	17 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L90	26	18 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR,	OR	ON	ON	2024/04/24 10:21 AM

			GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L91	56	19 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L92	24	23 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L93	24	24 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L94	24	25 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L95	6	"20120141292"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L96	0	"10,378,418"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L97	0	"10,378,518"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD,	OR	ON	ON	2024/04/24 10:21 AM

			DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L98	21	"10378518"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L99	30	((("LIFTRA") near3 ("IP") near3 ("APS"))).AS,AANM.	(US-PGPUB; USPAT)	OR	ON	ON	2024/08/06 12:47 PM
L100	43	((("FENGER") near3 ("Per"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2024/08/06 12:47 PM
L101	40	(US-10378518-$ | US-10502195-$ | US-1101934-$ | US-1152271-$ | US-1617075-$ | US-16452617-$ | US-1748182-$ | US-1853255-$ | US-20020092395-$ | US-20100021278-$ | US-20100139069-$ | US-20120141292-$ | US-20120217089-$ | US-20180313330-$ | US-20190017552-$ | US-3494230-$ | US-4623157-$ | US-4631995-$ | US-5015003-$ | US-6154846-$ | US-7759815-$).DID.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2024/08/06 12:47 PM
L102	39	(Artificial Intelligence) Similar to: 18/420,859 with 0 CPC Selections and 0 Text Selections Text: (US-20190316569-A1 OR US-20170306930-A1 OR US-10378518-B2 OR EP-3204639-B1 OR EP-4198301-A1 OR EP-3204639-A1 OR CA-2963016-A1 OR CA-2963016-C OR WO-2016055065-A1 OR DK-201500527-A1	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO))	OR	ON	ON	2024/08/06 12:47 PM

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 46 of 177

		OR CN-106795866-B OR BR-122022023804-B1 OR ES-2935584-T3 OR CN-106795866-A OR JP-2017533378-A OR JP-6648123-B2 OR US-20220282711-A1 OR WO-2021046632-A1 OR EP-4028663-A1 OR EP-3052802-A1 OR US-20180313330-A1 OR WO-2015051374-A1 OR CA-2926249-A1 OR CA-3151491-A1 OR EP-3052802-B1 OR US-20210054828-A1 OR EP-3615795-B1 OR US-20150096174-A1 OR US-20180313329-A1 OR US-10422322-B2 OR US-11603824-B2 OR EP-3364023-B1 OR WO-2018200902-A1 OR EP-3615795-A1 OR US-10337503-B2 OR ES-2778198-T3 OR EP-3364023-A1 OR US-10851764-B2 OR ES-2913836-T3 OR ES-2913835-T3 OR US-20230213022-A1 OR US-9909559-B2 OR US-20180163705-A1 OR EP-3615793-B1 OR CA-2926249-C OR WO-2018200925-A1 OR US-20180313331-A1 OR EP-3615793-A1 OR ES-2919146-T3 OR US-10352305-B2).did.					
L103	1560	F03D80/50.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/08/06 12:47 PM
L104	132	B23B31/101.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/08/06 12:47 PM
L105	2342	F03D13/10.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/08/06 12:47 PM
L106	26	F03D13/139.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/08/06 12:47 PM
L107	164	B23B31/16.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/08/06 12:47 PM
L108	3142	F03D80/70.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/08/06 12:47 PM
L109	1196	F05B2230/60.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/08/06 12:47 PM
L110	800	F05B2230/61.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/08/06

							12:47 PM
L111	731	F05B2230/80.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/08/06 12:47 PM
L112	255	F05B2240/60.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/08/06 12:47 PM
L113	519	F05B2260/30.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/08/06 12:47 PM
L114	174	F05B2260/31.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/08/06 12:47 PM
L115	151	F16C35/062.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/08/06 12:47 PM
L197	384190	Y02E10/72.CPC.	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/08/06 12:51 PM
L198	104	76 AND 197	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/08/06 12:51 PM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N3	3	(Main ADJ shaft ADJ fixture) AND (main ADJ shaft) AND (wind ADJ turbine) AND (heavy ADJ parts) AND (wind ADJ turbine) AND (number WITH sections) AND (stable ADJ structural ADJ parts) AND (nacelle WITH wind ADJ turbine) AND (bottom ADJ frame WITH nacelle) AND (adjustable ADJ pressure ADJ mandrels) AND (tap ADJ shoes) AND (passive ADJ position) AND distance AND (surface WITH main ADJ shaft) AND (active ADJ position) AND (mounting ADJ	(US-PGPUB)	OR	ON	ON	2024/08/06 02:21 PM

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 48 of 177

		facilities) AND crane AND (nacelle WITH wind ADJ turbine).clm.					

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	27	((("LIFTRA") near3 ("IP") near3 ("APS"))).AS,AANM.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/22 03:51 PM
L2	41	((("FENGER") near3 ("Per"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2024/04/22 03:52 PM
L3	40	(US-10378518-$ | US-10502195-$ | US-1101934-$ | US-1152271-$ | US-1617075-$ | US-16452617-$ | US-1748182-$ | US-1853255-$ | US-20020092395-$ | US-20100021278-$ | US-20100139069-$ | US-20120141292-$ | US-20120217089-$ | US-20180313330-$ | US-20190017552-$ | US-3494230-$ | US-4623157-$ | US-4631995-$ | US-5015003-$ | US-6154846-$ | US-7759815-$).DID.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2024/04/22 03:53 PM
L4	39	(Artificial Intelligence) Publication Status Unavailable from Similarity Search Text: (US-20190316569-A1 OR US-20170306930-A1 OR US-10378518-B2 OR EP-3204639-B1 OR EP-4198301-A1 OR EP-3204639-A1 OR CA-2963016-A1 OR CA-2963016-C OR WO-2016055065-A1 OR DK-201500527-A1 OR CN-106795866-B OR BR-122022023804-B1 OR ES-2935584-T3 OR CN-106795866-A OR JP-2017533378-A OR JP-6648123-B2 OR US-20220282711-A1 OR WO-2021046632-A1 OR EP-4028663-A1	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO))	OR	ON	ON	2024/04/22 03:55 PM

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-01402
Page 50 of 177

		OR EP-3052802-A1 OR US-20180313330-A1 OR WO-2015051374-A1 OR CA-2926249-A1 OR CA-3151491-A1 OR EP-3052802-B1 OR US-20210054828-A1 OR EP-3615795-B1 OR US-20150096174-A1 OR US-20180313329-A1 OR US-10422322-B2 OR US-11603824-B2 OR EP-3364023-B1 OR WO-2018200902-A1 OR EP-3615795-A1 OR US-10337503-B2 OR ES-2778198-T3 OR EP-3364023-A1 OR US-10851764-B2 OR ES-2913836-T3 OR ES-2913835-T3 OR US-20230213022-A1 OR US-9909559-B2 OR US-20180163705-A1 OR EP-3615793-B1 OR CA-2926249-C OR WO-2018200925-A1 OR US-20180313331-A1 OR EP-3615793-A1 OR ES-2919146-T3 OR US-10352305-B2).did.					
L5	1529	F03D80/50.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:25 AM
L6	131	B23B31/101.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:25 AM
L7	2305	F03D13/10.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:26 AM
L8	16	F03D13/139.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:26 AM
L9	162	B23B31/16.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:26 AM
L10	3116	F03D80/70.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:26 AM
L11	1166	F05B2230/60.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:27 AM
L12	780	F05B2230/61.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:27 AM
L13	714	F05B2230/80.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:27 AM
L14	249	F05B2240/60.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:27 AM
L15	503	F05B2260/30.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:27 AM
L16	166	F05B2260/31.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23

							07:28 AM
L17	149	F16C35/062.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:28 AM
L18	1395	F16C2360/31.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:28 AM
L19	90507	Y02P70/50.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:29 AM
L20	0	YIOT279/1274.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:29 AM
L21	0	Y1OT279/1274.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:29 AM
L22	0	Y10T279/00.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/23 07:30 AM
L23	152	Y10T279/1274.CPC.	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 07:30 AM
L24	1232	Y10T279/1291.CPC.	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 07:31 AM
L25	2261	Y10T279/1986.CPC.	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 07:32 AM
L26	20	(main WITH shaft WITH fixture) AND (wind WITH turbine) AND (pressure WITH mandrels)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 07:33 AM
L27	407	shaft AND (wind WITH turbine) AND (pressure WITH mandrels)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 07:33 AM
L28	24	5 AND 27	(US-PGPUB; USPAT;	OR	ON	ON	2024/04/23

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 52 of 177

			USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				07:34 AM
L29	24	6 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 07:34 AM
L30	31	7 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 07:34 AM
L31	24	8 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 07:34 AM
L32	24	9 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:34 AM
L33	25	10 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:34 AM
L34	26	11 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:34 AM

L35	24	12 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:34 AM
L36	24	13 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:34 AM
L37	24	14 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:34 AM
L38	24	15 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:34 AM
L39	24	16 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:35 AM
L40	24	17 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:35 AM
L41	26	18 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:35 AM

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00402

L42	56	19 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:35 AM
L43	24	23 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:35 AM
L44	24	24 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:35 AM
L45	24	25 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:36 AM
L46	6	"20120141292"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 11:50 AM
L47	0	"10,378,418"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 04:12 PM
L48	0	"10,378,518"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 04:13 PM

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00202

L49	21	"10378518"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 04:13 PM
L50	27	((("LIFTRA") near3 ("IP") near3 ("APS"))).AS,AANM.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L51	41	((("FENGER") near3 ("Per"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2024/04/24 10:21 AM
L52	40	(US-10378518-$ | US-10502195-$ | US-1101934-$ | US-1152271-$ | US-1617075-$ | US-16452617-$ | US-1748182-$ | US-1853255-$ | US-20020092395-$ | US-20100021278-$ | US-20100139069-$ | US-20120141292-$ | US-20120217089-$ | US-20180313330-$ | US-20190017552-$ | US-3494230-$ | US-4623157-$ | US-4631995-$ | US-5015003-$ | US-6154846-$ | US-7759815-$).DID.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2024/04/24 10:21 AM
L53	39	(Artificial Intelligence) Similar to: 18/420,859 with 0 CPC Selections and 0 Text Selections Text: (US-20190316569-A1 OR US-20170306930-A1 OR US-10378518-B2 OR EP-3204639-B1 OR EP-4198301-A1 OR EP-3204639-A1 OR CA-2963016-A1 OR CA-2963016-C OR WO-2016055065-A1 OR DK-201500527-A1 OR CN-106795866-B OR BR-122022023804-B1 OR ES-2935584-T3 OR CN-106795866-A OR JP-2017533378-A	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO))	OR	ON	ON	2024/04/24 10:21 AM

		OR JP-6648123-B2 OR US-20220282711-A1 OR WO-2021046632-A1 OR EP-4028663-A1 OR EP-3052802-A1 OR US-20180313330-A1 OR WO-2015051374-A1 OR CA-2926249-A1 OR CA-3151491-A1 OR EP-3052802-B1 OR US-20210054828-A1 OR EP-3615795-B1 OR US-20150096174-A1 OR US-20180313329-A1 OR US-10422322-B2 OR US-11603824-B2 OR EP-3364023-B1 OR WO-2018200902-A1 OR EP-3615795-A1 OR US-10337503-B2 OR ES-2778198-T3 OR EP-3364023-A1 OR US-10851764-B2 OR ES-2913836-T3 OR ES-2913835-T3 OR US-20230213022-A1 OR US-9909559-B2 OR US-20180163705-A1 OR EP-3615793-B1 OR CA-2926249-C OR WO-2018200925-A1 OR US-20180313331-A1 OR EP-3615793-A1 OR ES-2919146-T3 OR US-10352305-B2).did.					
L54	1529	F03D80/50.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L55	131	B23B31/101.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L56	2305	F03D13/10.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L57	16	F03D13/139.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L58	162	B23B31/16.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L59	3116	F03D80/70.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L60	1166	F05B2230/60.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L61	780	F05B2230/61.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L62	714	F05B2230/80.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L63	249	F05B2240/60.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24

							10:21 AM
L64	503	F05B2260/30.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L65	166	F05B2260/31.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L66	149	F16C35/062.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L67	1395	F16C2360/31.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L68	90507	Y02P70/50.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L69	0	YIOT279/1274.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L70	0	Y1OT279/1274.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L71	0	Y10T279/00.CPC.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 10:21 AM
L72	152	Y10T279/1274.CPC.	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L73	1232	Y10T279/1291.CPC.	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L74	2261	Y10T279/1986.CPC.	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L75	20	(main WITH shaft WITH fixture) AND (wind WITH turbine) AND (pressure WITH mandrels)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L76	407	shaft AND (wind WITH turbine) AND (pressure WITH mandrels)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR,	OR	ON	ON	2024/04/24 10:21 AM

			GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L77	24	5 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L78	24	6 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L79	31	7 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L80	24	8 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L81	24	9 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L82	25	10 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L83	26	11 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD,	OR	ON	ON	2024/04/24 10:21 AM

			DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L84	24	12 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L85	24	13 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L86	24	14 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L87	24	15 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L88	24	16 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L89	24	17 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L90	26	18 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT,	OR	ON	ON	2024/04/24 10:21 AM

			AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
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L92	24	23 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L93	24	24 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L94	24	25 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L95	6	"20120141292"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L96	0	"10,378,418"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM
L97	0	"10,378,518"	(US-PGPUB; USPAT;	OR	ON	ON	2024/04/24

			USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				10:21 AM
L98	21	"10378518"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/24 10:21 AM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N1	1	(control ADJ device WITH adhesion WITH detachment) AND base AND (rear ADJ end ADJ operating ADJ mechanism) AND (movement ADJ mechanism) AND (bearing ADJ unit) AND (peeling ADJ unit) AND (adhesion ADJ unit) AND compressible AND (resistant WITH stretching) AND (upper ADJ surface) AND (lower ADJ surface) AND (thin ADJ sheet) AND (high ADJ elastic ADJ modulus) AND (first ADJ side) AND (second ADJ side) AND (upper ADJ surface) AND (lower ADJ surface) AND (adhesion ADJ unit) WITH (lower ADJ surface) AND (elastically ADJ deforms) AND (middle ADJ part) AND (peeling ADJ unit) WITH (flat ADJ state).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2024/04/24 12:29 PM

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-01102
Page 62 of 177

Bibliographic Data

Application No: 18/420,859

Foreign Priority claimed: (•) Yes ( ) No

35 USC 119 (a-d) conditions met: [✓] Yes [ ] No [✓] Met After Allowance

Verified and Acknowledged: /STEPHEN A VU/ S.A.V

Examiner's Signature Initials

Title: MAIN SHAFT FIXTURE

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
01/24/2024	279	3651	00428-0001-02000
RULE			

APPLICANTS

LIFTRA IP APS, Aalborg, DENMARK

INVENTORS

Per E. FENGER, Terndurp, DENMARK

CONTINUING DATA

This application is a CON of 16452617 06/26/2019ABN

16452617 is a DIV of 15517288 04/06/2017 PAT 10378518

15517288 is a 371 of PCT/DK2015/000040 10/06/2015

FOREIGN APPLICATIONS

DENMARK DKPA 2014 00573 10/07/2014

DENMARK DKPA 2015 00527 09/04/2015

IF REQUIRED, FOREIGN LICENSE GRANTED**

03/19/2024

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Alexandria, VA 22313 - 1450
www.uspto.gov

ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/420,859	**07/26/2024 04:04:02 PM Z ET**	**00428-0001-02000**

Title of Invention

MAIN SHAFT FIXTURE

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	4686	FILED BY	Cara Gilman
PATENT CENTER #	66540887	FILING DATE	01/24/2024
CUSTOMER #	108449	FIRST NAMED INVENTOR	Per E. FENGER
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Patrick Hamo

Documents

TOTAL DOCUMENTS: 3

DOCUMENT		PAGES	DESCRIPTION	SIZE (KB)
Reply NF.pdf		11	-	122 KB
Reply NF-A....pdf	(1-1)	1	Amendment/Request for Reconsideration-After Non-Final Rejection	93 KB
Reply NF-CLM.pdf	(2-7)	6	Claims	82 KB
Reply NF-REM.pdf	(8-11)	4	Applicant Arguments/Remarks Made in an Amendment	84 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
Reply NF.pdf	522F14472A16CA002F7A44D40156AD4C85EEFB1E6322F595F4 A98164ABC7C549B56FC8AC8FEF1EC55144DE7B0C792EC134 9E4C78A4073598A4EB1EA9CF8C2A65
Reply NF-A....pdf	74B5F3503B9F1F1194B77AA636A6BFEDD0168F2087D28E3839 5F64C20E18BC2112334A5BE034E6FA5BD4739466B0A8998D66 5A00DE72E971DB33053D8B38791F
Reply NF-CLM.pdf	A720F7B8881B1594AE6CC4A50A834FA3BCCDC47DB5DF446E 98B2D31790BE0D2C651F8726EA4D60AB345632C57A3C12615 2793F4495A7768C3CE039B4C8DDBDBC
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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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Per E. FENGER	)	Group Art Unit: 3651
	)	
Application No.: 18/420,859	)	Examiner: Stephen A VU
	)	
Filed: January 24, 2024	)	Confirmation No.: 4686
	)	
For: MAIN SHAFT FIXTURE	)	***VIA PATENT CENTER***

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

Commissioner:

REPLY TO OFFICE ACTION

In reply to the Office Action mailed April 26, 2024, Applicant amends this application as follows:

Amendments to the Claims are reflected in the listing of claims beginning on page 2 of this Reply.

Remarks follow the amendments section of this Reply.

AMENDMENTS TO THE CLAIMS:

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

1. (Currently Amended) Main shaft fixture for fixation of a main shaft on a wind turbine during execution of installation and repair work on heavy parts of a wind turbine, where the fixture is divided up into a number of sections for mounting on stable structural parts in a nacelle of a wind turbine, including [[the]] a bottom frame of the nacelle, characterised in[[,]] that the main shaft fixture comprises adjustable pressure mandrels with tap shoes, and ~~said~~ the adjustable pressure mandrels being displaceable between a passive position where the tap shoes are configured to be located at a distance from [[the]] a surface of the main shaft and an active position where the tap shoes are configured to be engaged with the main shaft and in that ~~said~~ the main shaft fixture further comprises mounting facilities adapted for anchoring a crane on/in a nacelle of a wind turbine.

2. (Currently Amended) Main shaft fixture according to claim 1, characterized in that ~~said~~ the adjustable pressure mandrels with tap shoes comprise at least three radial displaceable pressure mandrels, substantially symmetrical located around [[the]] a centre axis of the main shaft, [[the]] ends of ~~said~~ the adjustable pressure mandrels facing the main shaft being furnished with the tap shoes.

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 67 of 177

3. (Currently Amended) Main shaft fixture, according to claim 1, characterised in, that the mounting facilities are adapted for anchoring a self-hoisting crane on/in a nacelle of a wind turbine and in that a winch of the self-hoisting crane is located on [[the]] a ground surface near [[the]] a foot of the wind turbine.

4. (Currently Amended) Main shaft fixture, according to claim 1, characterised in, that the adjustable pressure mandrels is provided with actuators for displacing and retaining the tap shoes in the passive position and the active position, respectively, alternatively in a selectable position between the passive and the active position.

5. (Currently Amended) Main shaft fixture, according to claim 1, characterised in, that the adjustable pressure mandrels consists of threaded bolts whose opposing free ends facing the main shaft are furnished with tap shoes, and ~~said~~ the threaded bolts cooperates with threaded holes in relevant sections of the main shaft fixture.

6. (Currently Amended) Main shaft fixture, according to claim 1, characterised by a slideway lining being located between [[the]] opposing sides of [[the]] a surface of the main shaft and tap shoes.

7. (Currently Amended) Main shaft fixture according to claim 6, characterised in, that the slideway lining is configured so that of [[the]] opposing free ends of the tap

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 68 of 177

shoes facing the main shaft are provided with a slide plate which in the active position is engaged with the main shaft.

8. (Currently Amended) Main shaft fixture according to claim 7, characterised in[[,]] that it comprises a multi-part slide plate cooperating with the main shaft for mounting on the main shaft, where the multi-part slide plate in its mounted position on the main shaft is cooperating with the tap shoes.

9. (Currently Amended) Main shaft fixture according to claim 1, characterised in, that it comprises one of a multi-part needle bearing, roller bearing, ball bearing consisting of a multi-part inner ring fastened to the main shaft, and a therewith cooperating multi-part outer ring consisting of bowed subsegments corresponding to [[the]] a number of tap shoes, mounted on [[the]] opposing side of the tap shoes facing [[the]] an inner ring, which in the active position of the adjustable pressure mandrels form [[the]] an outer ring at a distance from [[the]] an outer periphery of the multi-part inner ring, and where an appropriate number of needle rollers, rollers, or balls are arranged between the inner ring and the outer ring, and where means are present for retaining needles, rollers, or balls in position between the inner ring and outer ring.

10. (Currently Amended) Main shaft fixture, according to claim 1, characterised in, that it comprises a rotor lock for fixation of [[the]] a rotor of the wind turbine.

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 69 of 177

11. (Currently Amended) Main shaft fixture, according to claim 10, characterised in, that the rotor lock consists of a flange element, whose bolt circle geometry corresponds to a bolt circle geometry on the rotor, ~~said~~ the flange element being fastened ~~at the ends~~ to [[the]] a first end of two first beam-shaped brackets extending parallel with, and on each side of the main shaft, ~~said~~ the beam shaped brackets belonging to the main shaft fixture, and where [[the]] a second end of the beam-shaped brackets are pivotally mounted with horizontally oriented bolt connections, on other beam-shaped brackets belonging to the main shaft fixture, which are adapted to be anchored on the bottom frame of the nacelle.

12. (Currently Amended) Main shaft fixture, according to claim 11, characterised in, that at least one actuator is located nearest the rotor lock between the bottom frame of the nacelle and [[the]] an adjacent side of the first beam-shaped brackets facing the bottom frame, ~~said~~ the actuator is displaceable between a first passive outer position and an active outer position where the flange element is displaced vertically.

13. (Currently Amended) Assembly for installing and repairing heavy parts of a wind turbine arranged in a nacelle of a wind turbine, ~~said~~ the assembly comprising a main shaft fixture according to claim 1, characterized in that a crane is mounted to the main shaft fixture via the mounting facilities of the main shaft fixture.

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 70 of 177

14. (Currently Amended) Main shaft fixture, according to claim 1, characterised in[[,]] that the mounting facilities are adapted for anchoring a lightweight crane on/in a nacelle of a wind turbine.

15. (New) Main shaft fixture for fixation of a main shaft on a wind turbine during execution of installation and repair work on heavy parts of a wind turbine, where the main shaft fixture is divided up into a number of sections for mounting on stable structural parts in a nacelle of a wind turbine, including a bottom frame of the nacelle, characterised in that,

the main shaft fixture comprises adjustable pressure mandrels with tap shoes, and the adjustable pressure mandrels being displaceable between a passive position where the tap shoes are configured to be located at a distance from a surface of the main shaft and an active position where the tap shoes are configured to be engaged with the main shaft, the adjustable pressure mandrels consisting of threaded bolts whose opposing free ends facing the main shaft are furnished with tap shoes, and the threaded bolts cooperates with threaded holes in relevant sections of the main shaft fixture, and in that the main shaft fixture further comprises mounting facilities adapted for anchoring a crane on/in a nacelle of a wind turbine.

16. (New) Main shaft fixture for fixation of a main shaft on a wind turbine during execution of installation and repair work on heavy parts of a wind turbine, where the main shaft fixture is divided up into a number of sections for mounting on stable structural parts in a nacelle of a wind turbine, including a bottom frame of the nacelle, characterised in, that the main shaft fixture comprises adjustable pressure mandrels

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 71 of 177

with tap shoes, and the adjustable pressure mandrels being displaceable between a passive position where the tap shoes are configured to be located at a distance from a surface of the main shaft and an active position where the tap shoes are configured to be engaged with the main shaft and in that the main shaft fixture further comprises mounting facilities adapted for anchoring a crane on/in a nacelle of a wind turbine, and further comprising a rotor lock for fixation of a rotor of the wind turbine, wherein the rotor lock consists of a flange element, whose bolt circle geometry corresponds to a bolt circle geometry on the rotor, the flange element being fastened to a first end of two first beam-shaped brackets extending parallel with, and on each side of the main shaft, the two first beam shaped brackets belonging to the main shaft fixture, and where a second end of the two first beam shaped brackets are pivotally mounted with horizontally oriented bolt connections, on other brackets belonging to the main shaft fixture, which are adapted to be anchored on the bottom frame of the nacelle.

17. (New) Main shaft fixture, according to claim 16, wherein at least one actuator is located nearest the rotor lock between the bottom frame of the nacelle and an adjacent side of the first beam shaped brackets facing the bottom frame, the actuator is displaceable between a first passive outer position and an active outer position where the flange element is displaced vertically.

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 72 of 177

REMARKS

Applicant submits this Reply in response to the Office Action mailed April 26, 2024.

I. Status of the Claims

By this Reply, Applicant amends claims 1-14, and adds new claims 15–17. The originally filed specification and drawings fully support the subject matter of the amended and new claims. Claims 1-17 are pending in this application. Claims 1, 15, and 16 are the sole independent claims.

II. Section 112(b) Rejection

Claims 1-14 are rejected as indefinite. While Applicant does not agree that that the claims are indefinite, Applicant has amended claims 1-14 to revise the claims in accordance with the suggestions presented in the Office Action. Applicant submits that the pending claims are clear and definite. In view of this, Applicant requests that this rejection be withdrawn.

III. Section 103 Rejections

With reference to the claims as previously pending, claims 1-4, 6-8,10, and 13-14 were rejected under 35 U.S.C. 103 as unpatentable over Signore et al. (U.S. Publication No. 2012/0141292) (hereinafter, "Signore") in view of Weaver et al (EP 1748182) (hereinafter, "Weaver"). Applicant respectfully requests reconsideration of this rejection.

The cited references fail to disclose or suggest, and the rejection fails to otherwise consider, each and every element of the rejected claims. For example, the cited references fail to disclose or suggest, *inter alia*, "that the main shaft fixture further

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 73 of 177

comprises mounting facilities adapted for anchoring a crane on/in a nacelle of a wind turbine," as recited in independent claim 1.

The Office Action does not rely on any reference to disclose this recitation, which was added to claim 1 in the Preliminary Amendment filed on January 24, 2024. Instead, the Office Action refers to independent claim 1's previous recitation, prior to amendment by the Preliminary Amendment, of "suitable for a lightweight crane."

As such, because the claims as amended appear not to have been considered, Applicant respectfully requests that the obviousness rejection of independent claim 1, and claims 2-14 that depend from claim 1, be withdrawn.

IV. Double Patenting Rejections

Claims 1-14 were rejected on the grounds of nonstatutory double patenting as unpatentable over claims 3-4, 6-9, and 11 of U.S. Patent No. 10,378,518.

Applicant requests reconsideration of this double patenting rejection. U.S. Patent No. 10,378,518 fails to disclose or suggest, *inter alia*, "mounting facilities adapted for anchoring a crane on/in a nacelle of a wind turbine," as recited in independent claim 1. For at least this reason, Applicant requests that this double patenting rejection be withdrawn.

V. New Claims

In the Office Action, dependent claims 5, 11, and 12 were not rejected as anticipated or obvious. By this Reply, Applicant has incorporated the subject matter of claim 5 into new independent claim 15, and the subject matter of claims 11-12 into new

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 74 of 177

independent claim 16 and dependent claim 17. Accordingly, Applicant submits that claims 15-17 are allowable.

VI. Rescission of Any Disclaimer From Related Applications

This application claims the benefit of earlier filed U.S. nonprovisional patent applications. To the extent that the claims in this application have the same or similar terms to those in the parent applications, Applicant hereby rescinds any disclaimers originating from arguments made during the prosecution of the parent applications. Applicant invites the Examiner to revisit the relevant prior art of the parent applications. *Hakim v. Cannon Avent Grp.*, 479 F.3d 1313 (Fed. Cir. 2007).

VII. Conclusion

The Office Action contains characterization of the claims and the related art with which Applicant does not necessarily agree. Unless expressly noted otherwise, Applicant declines to subscribe to any statement or characterization in the Office Action.

In discussing the specification, claims, and drawings in this Reply, it is to be understood that Applicant is in no way intending to limit the scope of the claims to any exemplary embodiments described in the specification or abstract and/or shown in the drawings. Rather, Applicant is entitled to have the claims interpreted broadly to the maximum extent permitted by statute, regulation, and applicable case law.

In view of the foregoing remarks, Applicant submits that this claimed invention is neither anticipated nor rendered obvious in view of the prior art references cited against

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 75 of 177

this application. Applicant therefore requests the reconsideration and reexamination of the application, and the timely allowance of the pending claims.

If the Examiner believes a telephone conversation might advance prosecution, the Examiner is invited to call Applicant's undersigned representative at (202) 780-3824.

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account No. 50-5906. In addition, the Commissioner is hereby authorized to charge any additional fees due and any other fees due under 37 C.F.R. § 1.16 or § 1.17 during the pendency of this application to Deposit Account No. 50-5906.

Respectfully submitted,

BOOKOFF McANDREWS, PLLC
Customer Number:

Dated: July 26, 2024

By: /Patrick Hamo/
Patrick Hamo
Reg. No. 81500
(202) 780-3824

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 76 of 177

PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 18/420,859	Filing Date 01/24/2024	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $480 =	
☐ 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).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	07/26/2024	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 17	Minus	** 20	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

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

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

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
18/420,859	01/24/2024	Per E. FENGER	00428-0001-02000

CONFIRMATION NO. 4686

108449
Bookoff McAndrews, PLLC
2000 Pennsylvania Ave NW
Suite 4001
Washington, DC 20006

PUBLICATION NOTICE

OC000000075156826

Date Mailed: 07/15/2024

Title:MAIN SHAFT FIXTURE

Publication No.US-2024-0209842-A1
Publication Date:06/27/2024

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.

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LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 78 of 177

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
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CONFIRMATION NO. 4686

108449
Bookoff McAndrews, PLLC
2000 Pennsylvania Ave NW
Suite 4001
Washington, DC 20006

PUBLICATION NOTICE

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Date Mailed: 06/27/2024

Title:MAIN SHAFT FIXTURE

Publication No.US-2024-0209842-A1
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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.

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LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 79 of 177

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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR/ PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
18/420,859	01/24/2024	FENGER, Per E.	00428-0001-02000

	EXAMINER	
Bookoff McAndrews, PLLC 2000 Pennsylvania Ave NW Suite 4001 Washington, DC 20006	--	
	ART UNIT	PAPER
	--	20240427-JAiT8Q

DATE MAILED: 27 April 2024

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

Commissioner for Patents

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LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 80 of 177

Notice of Potential Erroneous Release of Patent Application Titles

On February 5, 2024, the United States Patent and Trademark Office (USPTO), replaced the Electronic Patent Assignment System (EPAS) and Electronic Trademark Assignment System (ETAS) with Assignment Center.

Between February 5, 2024 and March 29, 2024, the USPTO, unintentionally, through a computer programming error, permitted bibliographic information to be viewed by unauthorized individuals with access to registered Assignment Center accounts. This bibliographic information was limited to the application number (the two-digit series code plus the six-digit serial number) and title of the invention.

You are receiving this notification because your application's patent title may have been viewed during that time frame by individual(s) who lacked permission to do so. The software error was first reproduced by USPTO on March 28, 2024, and was corrected on March 29, 2024. Only application numbers and titles were disclosed; it is important to note that your specification and claims were not part of the information made available and were not accessed.

Any improper access of the application information between the dates of February 5, 2024 and March 29, 2024, is not considered a publication of such applications under 35 U.S.C. 122(b). No rights in United States patents are threatened by the access to unpublished applications. It is extremely unlikely that the title could disclose the invention in a way that would constitute patent-defeating prior art in any jurisdiction. To the extent any issue is raised, the USPTO will assist applicants by confirming that the disclosure was erroneous and inadvertent.

We're committed to data security and are taking enhanced steps to prevent incidents such as this from happening in the future. The USPTO sincerely regrets this error and is instituting more testing controls, both manual and automated testing, to prevent similar processing errors in the future.

Inquiries regarding this matter may be directed to Mark Polutta, Senior Legal Advisor, at (571) 272-7709 or Andrew Stclair, Legal Advisor, at (571) 270-0238, both of the Office of Patent Legal Administration or via email addressed to Patent.Practice@uspto.gov.



Henry "Jamie" Holcombe
Chief Information Officer
US Patent and Trademark Office
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Dated: April 27th, 2024

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/420,859	01/24/2024	Per E. FENGER	00428-0001-02000	4686

108449 7590 04/26/2024

Bookoff McAndrews, PLLC
2000 Pennsylvania Ave NW
Suite 4001
Washington, DC 20006

EXAMINER	
VU, STEPHEN A	

ART UNIT	PAPER NUMBER
3651	

NOTIFICATION DATE	DELIVERY MODE
04/26/2024	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):

KRoss@bomcip.com
eofficeaction@appcoll.com
usptomail@bomcip.com

Office Action Summary	Application No. 18/420,859	Applicant(s) FENGER, Per E.	
	Examiner STEPHEN VU	Art Unit 3651	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 1/24/2024.

☐ 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) 1-14 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) 1-14 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 1/24/2024 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: _____.

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftwerx IP ApS
IPR2026-00102
Page 83 of 177

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

Priority

2. Receipt is acknowledged of certified copies of papers required by 37 CFR 1.55.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on January 24, 2024 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Interpretation

4. The following is a quotation of 35 U.S.C. 112(f):

> (f) Element in Claim for a Combination. – An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

The following is a quotation of pre-AIA 35 U.S.C. 112, sixth paragraph:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

5. The claims in this application are given their broadest reasonable interpretation using the plain meaning of the claim language in light of the specification as it would be understood by one of ordinary skill in the art. The broadest reasonable interpretation of a claim element (also commonly referred to as a claim limitation) is limited by the description in the specification when 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, is invoked.

As explained in MPEP § 2181, subsection I, claim limitations that meet the following three-prong test will be interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph:

(A) the claim limitation uses the term "means" or "step" or a term used as a substitute for "means" that is a generic placeholder (also called a nonce term or a non-structural term having no specific structural meaning) for performing the claimed function;

(B) the term "means" or "step" or the generic placeholder is modified by functional language, typically, but not always linked by the transition word "for" (e.g., "means for") or another linking word or phrase, such as "configured to" or "so that"; and

(C) the term "means" or "step" or the generic placeholder is not modified by sufficient structure, material, or acts for performing the claimed function.

Use of the word "means" (or "step") in a claim with functional language creates a rebuttable presumption that the claim limitation is to be treated in accordance with 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph. The presumption that the claim limitation is interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, is rebutted when the claim limitation recites sufficient structure, material, or acts to entirely perform the recited function.

Absence of the word "means" (or "step") in a claim creates a rebuttable presumption that the claim limitation is not to be treated in accordance with 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph. The presumption that the claim limitation is not interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, is rebutted when the claim limitation recites function without reciting sufficient structure, material or acts to entirely perform the recited function.

Claim limitations in this application that use the word "means" (or "step") are being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, except as otherwise indicated in an Office action. Conversely, claim limitations in this application that do not use the word "means" (or "step") are not being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, except as otherwise indicated in an Office action.

Claim Rejections - 35 USC § 112

6. The following is a quotation of 35 U.S.C. 112(b):

> (b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.
>
> The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-14 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor (or for applications subject to pre-AIA 35 U.S.C. 112, the applicant), regards as the invention.

8. Claim 1 recites the limitation "the bottom frame" in line 4. There is insufficient antecedent basis for this limitation in the claim.

9. Claim 2 recites the limitation "the centre axis" and “the ends” in line 3. There is insufficient antecedent basis for this limitation in the claim.

10. Claim 3 recites the limitation "the foot" in line 4. There is insufficient antecedent basis for this limitation in the claim.

11. Claim 6 recites the limitation "the opposing sides" and “the surface” in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

12. Claim 9 recites the limitation "the opposing side” and “the inner ring" in lines 5-6, “the outer ring” in line 7, “the outer periphery of the multi-part inner ring” in lines 7-8, “the inner ring and the outer ring” in lines 9 and 11. There is insufficient antecedent basis for this limitation in the claim.

13. Claim 9 recites “Main shaft fixture according to claim 1, characterised in, that it comprises a multi-part needle bearing, roller bearing, ball bearing consisting of . . .” in lines 1-3. It is unclear if the limitation includes all of a needle bearing, roller bearing, and ball bearing, or just one of the three types of bearings. For the purpose of compact prosecution, the examiner has interpreted the recitation to be "one of a multi-part needle bearing, roller bearing, or ball bearing consisting of . . .”

14. Claim 11 recites the limitation "the ends" in line 4, "the other end" in line 6, and "the bottom frame" in line 9. There is insufficient antecedent basis for this limitation in the claim.

15. Claim 12 recites the limitation "the bottom frame" and "the adjacent side" in line 3, and "the bottom frame" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

16. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis (i.e., changing from AIA to pre-AIA) for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

17. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

18. The factual inquiries for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

19. Claims 1-4, 6-8,10, and 13-14 are rejected under 35 U.S.C. 103 as being unpatentable over Signore et al (US 2012/0141292) in view of Weaver et al (EP 1748182).

20. As to claims 1-2, Signore et al discloses a main shaft fixture (128), as illustrated in Figures 1-9, for fixation of a main shaft (24) on a wind turbine (10) during execution of installation and repair work on heavy parts of a wind turbine, where the fixture is divided up into a number of sections for mounting on

stable structural parts in a nacelle (18) of a wind turbine, including the bottom frame (16) of the nacelle, wherein the main shaft fixture comprises at least three torque clamps (244), substantially symmetrical located around a center axis of the main shaft, to facilitate coupling a restraint assembly (136) to the main shaft to limit a movement of the main shaft (see Figures 1-9 and paragraphs [0022] and [0053-0056]). The main shaft fixture further comprises mounting facilities for a self-hoisting crane having winch located on a ground surface near a foot of the wind turbine. Although Signore does not specifically mention mounting facilities for a self-hoisting crane, it is noted that the structure of the main shaft fixture is capable for mounting with a self-hoisting crane, such as by using a chain or a cable connected between the crane and the main shaft fixture. Please note that a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex part Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987)*

21. Signore et al does not disclose at least three radial displaceable pressure mandrels and a tap shoe. Weaver et al teaches a shaft restraining member (400) attached to a bed plate of a wind turbine. The shaft restraining member includes hydraulic or mechanic operated friction brakes (518). The clamping action of brakes (518) resists torque from rotor shaft (402). The hydraulic or mechanic brake comprises cylinders supported on brake support flange (519) of the shaft restraining member (see Figures 4-5 and paragraphs [0016-0019]).

22. Thus, the manner of enhancing a particular device was made part of the ordinary capabilities of one skilled in the art based upon the teaching of such improvement in Weaver et al. Accordingly, one of ordinary skill in the art would have been capable of applying this known "improvement" technique in the same manner to the prior art of Signore et al and the results would have been predictable to one of ordinary skill in the art, namely, one skilled in the art would have readily recognized that modifying the torque clamps of Signore to be hydraulic or mechanical operated such that its radial position can be adjusted to fit the main shaft with desired friction.

23. With claims 3 and 13-14, as modified by Weaver et al, the main shaft fixture further comprises mounting facilities for a self-hoisting crane having winch located on a ground surface near a foot of the wind turbine. Although Signore does not specifically mention mounting facilities for a self-hoisting crane, it is noted that the structure of the main shaft fixture is capable for mounting with a self-hoisting crane, such as by using a chain or a cable connected between the crane and the main shaft fixture. Furthermore, a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex part Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).* Please note that the recitation of "mounting facilities are adapted for anchoring self-hoisting crane" is considered to be an intended use, and that the prior art used in the rejection is capable of being used for this function.

24. With claim 4, as modified by Weaver et al, the pressure mandrels are provided with actuators (hydraulic or mechanical operated) for displacing and retaining the tap shoes in the passive position and the active position, respectively, alternatively in a selectable position between the passive and the active position.

25. With claim 6, Weaver et al teaches a slideway lining (520) (Teflon) is located between the opposing sides of the surface of the main shaft and tap shoes (the inner end the brake) (see Figure 5, paragraph [0018]). Therefore, it would have been obvious to one with ordinary skill in the art before the effective filing date of the claimed invention to modify the tap shoes (244) of Signore et al to have a Teflon lining as taught by Weaver et al in order to allow rotation of the main shaft above a predetermined torque.

26. With claim 7, the slideway lining (520) is configured so that the opposing free ends of the tap shoes facing the main shaft are provided with a slide plate (520) (Teflon) which in the active advanced position is engaged with the main shaft.

27. With claim 8, the slideway linings (520) are a multi-part slide plate cooperating with the main shaft for mounting on the main shaft, where the multi-part slide plate in a mounted (clamped or engaged) position on the main shaft cooperates with the tap shoes.

28. With claim 10, the main shaft fixture further comprising a rotor lock (134) for fixation of the rotor of the wind turbine (see Figures 5-8 and paragraphs [0022] and [0054]).

Double Patenting

29. 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 filing of a terminal disclaimer by itself is not a complete reply to a nonstatutory double patenting (NSDP) rejection. A complete reply requires that the terminal disclaimer be accompanied by a

reply requesting reconsideration of the prior Office action. Even where the NSDP rejection is provisional the reply must be complete. See MPEP § 804, subsection I.B.1. For a reply to a non-final Office action, see 37 CFR 1.111(a). For a reply to final Office action, see 37 CFR 1.113(c). A request for reconsideration while not provided for in 37 CFR 1.113(c) may be filed after final for consideration. See MPEP §§ 706.07(e) and 714.13.

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The actual 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/apply/applying-online/eterminal-disclaimer.

30. Claims 1-14 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 3-4,6-9, and 11 of U.S. Patent No. 10,378,518. Although the claims at issue are not identical, they are not patentably distinct from each other because the referenced U.S. Patent No. 10,378,518 and the instant application are claiming common subject matter, as follows: a main shaft fixture comprising at least three radially displaceable pressure mandrels, and a rotor lock.

Conclusion

31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN VU whose telephone number is (571)272-1961. The examiner can normally be reached Monday-Friday, 8:00 am - 4:30 pm EST.

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Crawford can be reached on (571) 272-6911. 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.

STEPHEN VU
Primary Examiner
Art Unit 3651

/STEPHEN A VU/
Primary Examiner, Art Unit 3651

Notice of References Cited	Application/Control No. 18/420,859	Applicant(s)/Patent Under Reexamination FENGER, Per E.	
	Examiner STEPHEN VU	Art Unit 3651	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-10378518-B2	2019-08-13	Fenger; Per E.	F03D13/10	1/1
	B					
	C					
	D					
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FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date YYYY-MM-DD	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in YYYY-MM-DD format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/420,859	FENGER, Per E.
	Examiner	Art Unit
	STEPHEN VU	3651

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

CLAIMS

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

CLAIM		DATE								
Final	Original	04/23/2024								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
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	11	✓								
	12	✓								
	13	✓								
	14	✓								

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 94 of 177

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/420,859	FENGER, Per E.
	Examiner	Art Unit
	STEPHEN VU	3651

CPC - Searched*		
Symbol	**Date**	**Examiner**
F03D 80/50, 70	04/23/2024	SV
B23B 31/101, 16	04/23/2024	SV
F03D 13/10, 139	04/23/2024	SV
F05B 2230/60, 61, 80	04/23/2024	SV
F05B 2240/60	04/23/2024	SV
F05B 2260/30, 31	04/23/2024	SV
F16C 35/062	04/23/2024	SV
F16C 2360/31	04/23/2024	SV
Y02P 70/50	04/23/2024	SV
Y10T 279/1274, 1291, 1986	04/23/2024	SV

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.

/STEPHEN A VU/ Primary Examiner, Art Unit 3651	

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/420,859	FENGER, Per E.
	Examiner	Art Unit
	STEPHEN VU	3651

Search Notes		
Search Notes	**Date**	**Examiner**
Inventor Search	04/23/2024	SV
Applicant Search	04/23/2024	SV
EAST Text Search	04/23/2024	SV
F03D 80/50, 70	04/23/2024	SV
B23B 31/101, 16	04/23/2024	SV
F03D 13/10, 139	04/23/2024	SV
F05B 2230/60, 61, 80	04/23/2024	SV
F05B 2240/60	04/23/2024	SV
F05B 2260/30, 31	04/23/2024	SV
F16C 35/062	04/23/2024	SV
F16C 2360/31	04/23/2024	SV
Y02P 70/50	04/23/2024	SV
Y10T 279/1274, 1291, 1986	04/23/2024	SV

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

/STEPHEN A VU/
Primary Examiner, Art Unit 3651

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
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L27	407	shaft AND (wind WITH turbine) AND (pressure WITH mandrels)	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 07:33 AM

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 99 of 177

L28	24	5 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 07:34 AM
L29	24	6 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 07:34 AM
L30	31	7 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 07:34 AM
L31	24	8 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 07:34 AM
L32	24	9 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:34 AM
L33	25	10 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:34 AM
L34	26	11 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:34 AM

L35	24	12 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:34 AM
L36	24	13 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:34 AM
L37	24	14 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:34 AM
L38	24	15 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:34 AM
L39	24	16 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:35 AM
L40	24	17 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:35 AM
L41	26	18 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:35 AM

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102

L42	56	19 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:35 AM
L43	24	23 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:35 AM
L44	24	24 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:35 AM
L45	24	25 AND 27	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 08:36 AM
L46	6	"20120141292"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 11:50 AM
L47	0	"10,378,418"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 04:12 PM
L48	0	"10,378,518"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 04:13 PM

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102

L49	21	"10378518"	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/04/23 04:13 PM

PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-01027
Page 103 of 177

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	16452617
Filing Date	2019-06-26
First Named Inventor	Per E. FENGER
Art Unit	3651
Examiner Name	STEPHEN A VU
Attorney Docket Number	00428-0001-02000

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	10502195	B2	2019-12-10	Thomas et al.	
	2	10378518	B2	2019-08-13	Fenger	
	3	1152271	A	1915-08-31	BISBEE	
	4	1853255	A	1932-04-12	BORDEN	
	5	3494230	A	1970-02-10	GAST, JR.	
	6	4623157	A	1986-11-18	ROHS	
	7	4631995	A	1986-12-30	VROENEN	
	8	5015003	A	1991-05-14	RAMUNAS	

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

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 104 of 177

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16452617
	Filing Date	2019-06-26
	First Named Inventor	Per E. FENGER
	Art Unit	3651
	Examiner Name	STEPHEN A VU
	Attorney Docket Number	00428-0001-02000

	9	7759815	B2	2010-07-20	CHRISTENSEN	

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

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	20180313330	A1	2018-11-01	Vanderwalker et al.	
	2	20190017552	A1	2019-01-17	Vanderwalker et al.	
	3	20020092395	A1	2002-07-18	EMILIAN	
	4	20100021278	A1	2010-01-28	STEGEMANN et al.	
	5	20100139069	A1	2010-06-10	DANIELS et al.	
	6	20120141292	A1	2012-06-07	SIGNORE et al.	
	7	20120217089	A1	2012-08-30	FENGER	

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LiftWerx Ex. 1002
LiftWerx USA, Inc. v. Liftra IP ApS
IPR2026-00102
Page 105 of 177

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16452617
Filing Date	2019-06-26
First Named Inventor	Per E. FENGER
Art Unit	3651
Examiner Name	STEPHEN A VU
Attorney Docket Number	00428-0001-02000

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] ¡	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]
	1	S6154846	JP	A	1986-03-19	HITACHI LTD		☒
	2	1101934	EP	A2	2001-05-23	ENRON WIND GMBH; GENERAL ELECTRIC COMPANY		☒
	3	1617075	EP	A1	2006-01-18	EICKHOFF MACHINENFABRIK GMBH		☒
	4	1748182	EP	A2	2007-01-31	GENERAL ELECTRIC COMPANY		☒
	5	102006013539	DE	A1	2007-09-27	NORDEX ENERGY GMBH		☒
	6	2014103018	WO	A1	2014-07-03	MITSUBISHI HEAVY INDUSTRIES, LTD		☒

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NON-PATENT LITERATURE DOCUMENTS Remove

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]
	1		☐

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16452617
	Filing Date	2019-06-26
	First Named Inventor	Per E. FENGER
	Art Unit	3651
	Examiner Name	STEPHEN A VU
	Attorney Docket Number	00428-0001-02000

EXAMINER SIGNATURE			
Examiner Signature	/STEPHEN A VU/	Date Considered	04/22/2024

*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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16452617
Filing Date	2019-06-26
First Named Inventor	Per E. FENGER
Art Unit	3651
Examiner Name	STEPHEN A VU
Attorney Docket Number	00428-0001-02000

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	/Dinesh N. Melwani/	Date (YYYY-MM-DD)	2024-01-24
Name/Print	Dinesh N. Melwani	Registration Number	60670

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.**

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 record s.

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 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.

Bibliographic Data

Application No: 18/420,859

Foreign Priority claimed: (•) Yes ( ) No

35 USC 119 (a-d) conditions met: [✓] Yes [ ] No [ ] Met After Allowance

Verified and Acknowledged: /STEPHEN A VU/ Examiner's Signature [ ] Initials

Title: MAIN SHAFT FIXTURE

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
01/24/2024	279	3651	00428-0001-02000
RULE			

APPLICANTS

LIFTRA IP APS, Aalborg, DENMARK

INVENTORS

Per E. FENGER, Terndurp, DENMARK

CONTINUING DATA

This application is a CON of 16452617 06/26/2019

16452617 is a DIV of 15517288 04/06/2017 PAT 10378518

15517288 is a 371 of PCT/DK2015/000040 10/06/2015

FOREIGN APPLICATIONS

DENMARK DKPA 2014 00573 10/07/2014

DENMARK DKPA 2015 00527 09/04/2015

IF REQUIRED, FOREIGN LICENSE GRANTED**

03/19/2024

STATE OR COUNTRY

DENMARK

ADDRESS

Bookoff McAndrews, PLLC
2000 Pennsylvania Ave NW
Suite 4001
Washington, DC 20006
UNITED STATES

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$6,560

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/420,859	01/24/2024	Per E. FENGER	00428-0001-02000	4686

108449 7590 04/10/2024

Bookoff McAndrews, PLLC
2000 Pennsylvania Ave NW
Suite 4001
Washington, DC 20006

EXAMINER	
CENTRAL, DOCKET	

ART UNIT	PAPER NUMBER
OPAP	

NOTIFICATION DATE	DELIVERY MODE
04/10/2024	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):

KRoss@bomcip.com
eofficeaction@appcoll.com
usptomail@bomcip.com

Decision Granting Request for Prioritized Examination (Track I)	**Application No.** 18/420,859	**Applicant(s)** FENGER, Per E.	
	Examiner FIKIRTE A GEREMEW	**Art Unit** OMBL	**AIA (FITF) Status** Yes

1. THE REQUEST FILED 24 January 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 FIKIRTE GEREMEW at (703) 756-1930. In his/her absence, calls may be directed to Petition Help Desk at (571) 272-3282.

/FIKIRTE A GEREMEW/ PROGRAM SUPPORT SPECIALIST, OMBL	

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UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
18/420,859	01/24/2024		2220	00428-0001-02000	14	1

CONFIRMATION NO. 4686

FILING RECEIPT

108449
Bookoff McAndrews, PLLC
2000 Pennsylvania Ave NW
Suite 4001
Washington, DC 20006

OC0000000699367O4

Date Mailed: 03/20/2024

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Per E. FENGER, Terndurp, DENMARK;

Applicant(s)

LIFTRA IP APS, Aalborg, DENMARK;

Assignment For Published Patent Application

LIFTRA IP APS, Aalborg, DENMARK

Power of Attorney: The patent practitioners associated with Customer Number 108449

Domestic Priority data as claimed by applicant

This application is a CON of 16/452,617 06/26/2019
which is a DIV of 15/517,288 04/06/2017 PAT 10,378,518
which is a 371 of PCT/DK2015/000040 10/06/2015

Foreign Applications (You may be eligible to benefit from the Patent Prosecution Highway program at the USPTO. Please see http://www.uspto.gov for more information.)
DENMARK PA 2014 00573 10/07/2014 No Access Code Provided
DENMARK PA 2015 00527 09/04/2015 No Access Code Provided

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 113 of 177

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

If Required, Foreign Filing License Granted: 03/19/2024
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 18/420,859**
Projected Publication Date: 06/27/2024
Non-Publication Request: No
Early Publication Request: No
Title

MAIN SHAFT FIXTURE

Preliminary Class

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

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

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LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 114 of 177

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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IPR2026-00102
Page 115 of 177

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 18/420,859

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))	14 minus 20 =	* 0			OR	x =	0
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1 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	1820

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

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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
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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 #
18/420,859	**02/08/2024 08:54:43 AM Z ET**	**00428-0001-02000**

Title of Invention

MAIN SHAFT FIXTURE

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	4686	FILED BY	Cara Gilman
PATENT CENTER #	64252949	FILING DATE	-
CUSTOMER #	108449	FIRST NAMED INVENTOR	Per E. FENGER
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Dinesh Melwani

Documents

TOTAL DOCUMENTS: 1

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
00428-0001-02000 Power of Attorney.pdf	3	Power of Attorney	3200 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
00428-0001-02000 Power of Attorney.pdf	D6C25374AC38CE16731879294ECA6B7C76664EFB221B43BC DEECFFBBC8F4ADF1318649721651595C82FBDEE5A7CEEC8 465443B6EE1FADED170C961741397459B

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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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Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82A (07-13)
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Application Number	18/420,859
Filing Date	2024-01-24
First Named Inventor	Per E. FENGER
Title	MAIN SHAFT FIXTURE
Art Unit	
Examiner Name	
Attorney Docket Number	00428-0001-02000

SIGNATURE of Applicant or Patent Practitioner

Signature	/Dinesh N. Melwani/	Date (Optional)	2024-02-08
Name	Dinesh N. Melwani	Registration Number	60670
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

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

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

Application Number	Filing Date

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☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 108449

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

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☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
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SIGNATURE of Applicant for Patent

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

Signature		Date (Optional)	02 FEB 2024
Name	Per Eske Fenger		
Title	CEO		

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

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Roberts Mlotkowski Safran Cole & Calderon, P.C.
7918 Jones Branch Drive, Suite 500
McLean, Virginia 22102

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

Docket No. 400517-20003

Title of Invention	MAIN SHAFT FIXTURE

DECLARATION

As a below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application, or

☒ U.S. application or PCT international application number PCT/DK2015/000040 filed on 6 October 2015.

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 have reviewed and understand the contents of the application, including the claims.

I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 CFR §1.56.

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.

ASSIGNMENT

WHEREAS, the undersigned inventor(s) hereinafter referred to as the ASSIGNOR(S), has/have invented a certain improvement relating to the above identified invention.

AND WHEREAS, **LIFTRA IP ApS** whose post-office address is **Stationsmestervej 81, 9200 Aalborg SV, Denmark**, hereinafter known as the ASSIGNEE, is desirous of acquiring the entire right, title and interest for the United States and elsewhere throughout the world in and to said invention and application, including any and all divisions and continuations thereof, and any and all Letters Patent which may be granted thereon, including any and all renewals, reissues, and prolongations thereof.

NOW, THIS WITNESSETH that for good and valuable consideration, the receipt whereof is hereby acknowledged, said ASSIGNOR(S) hereby assign, sell and transfer to said ASSIGNEE, its assigns and legal representatives, the entire and exclusive right, title and interest in and to said invention and application, for the United States and elsewhere throughout the world including any and all divisions and continuations thereof, and any and all Letters Patent which may be granted therefor and all rights to sue for past and future infringement thereunder, said ASSIGNEE and its assigns and legal representatives to have, hold, exercise and enjoy the said invention and application, including any and all divisions and continuations thereof, and any and all Letters Patent which may be granted thereon, including any and all renewals, reissues and prolongations thereof, with all the rights, powers, privileges, and advantages in any ways arising from or pertaining thereto, for and during the term or terms of any and all such Letters Patent when granted, including any and all renewals, reissues, and prolongations thereof, for the use and benefit of said ASSIGNEE and its assigns and legal representatives in as ample and beneficial a manner to all intents and purposes as the said ASSIGNOR(S) might or could have held and enjoyed the same, if this assignment had not been made.

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AND said ASSIGNOR(S) hereby agree to execute all papers necessary to file applications in the United States and elsewhere throughout the world for said invention and to assign the same to said ASSIGNEE, or any assignee acquiring title to said invention, and to execute any other papers that may be needed in connection with filing said application and securing Letters Patent thereon.

AND said ASSIGNOR(S) authorize and request the Commissioner of Patents to issue Letters Patent on said application, and on any and all divisions and continuations thereof, to said ASSIGNEE, its assigns and legal representatives, in accordance herewith.

LEGAL NAME OF INVENTOR(S)

Inventor one: Per E. Fenger Date: 17-3-2017

Signature: Per Fenger

Inventor two: _____ Date: _____

Signature: _____

Inventor three: _____ Date: _____

Signature: _____

Inventor four: _____ Date: _____

Signature: _____

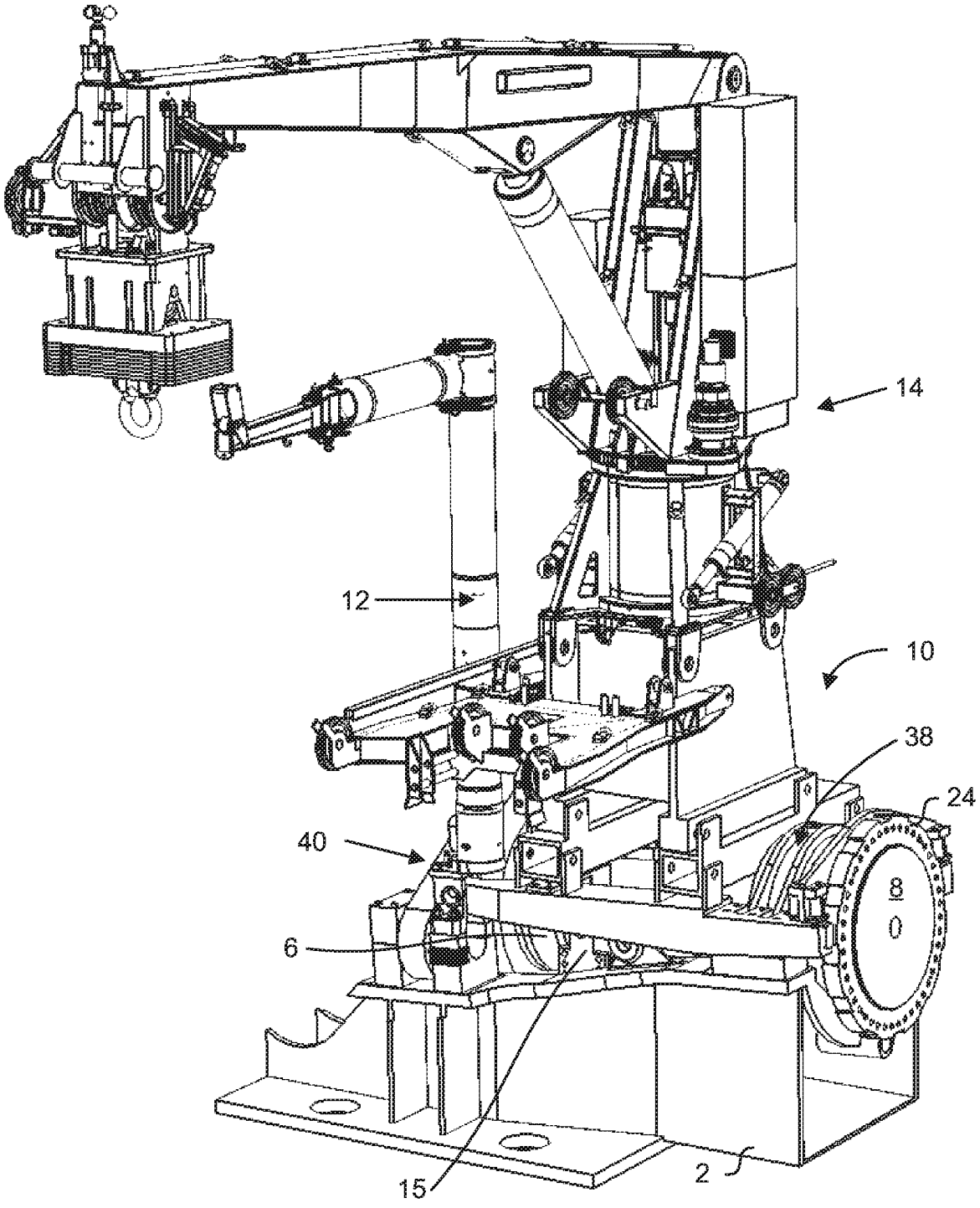


FIG. 1

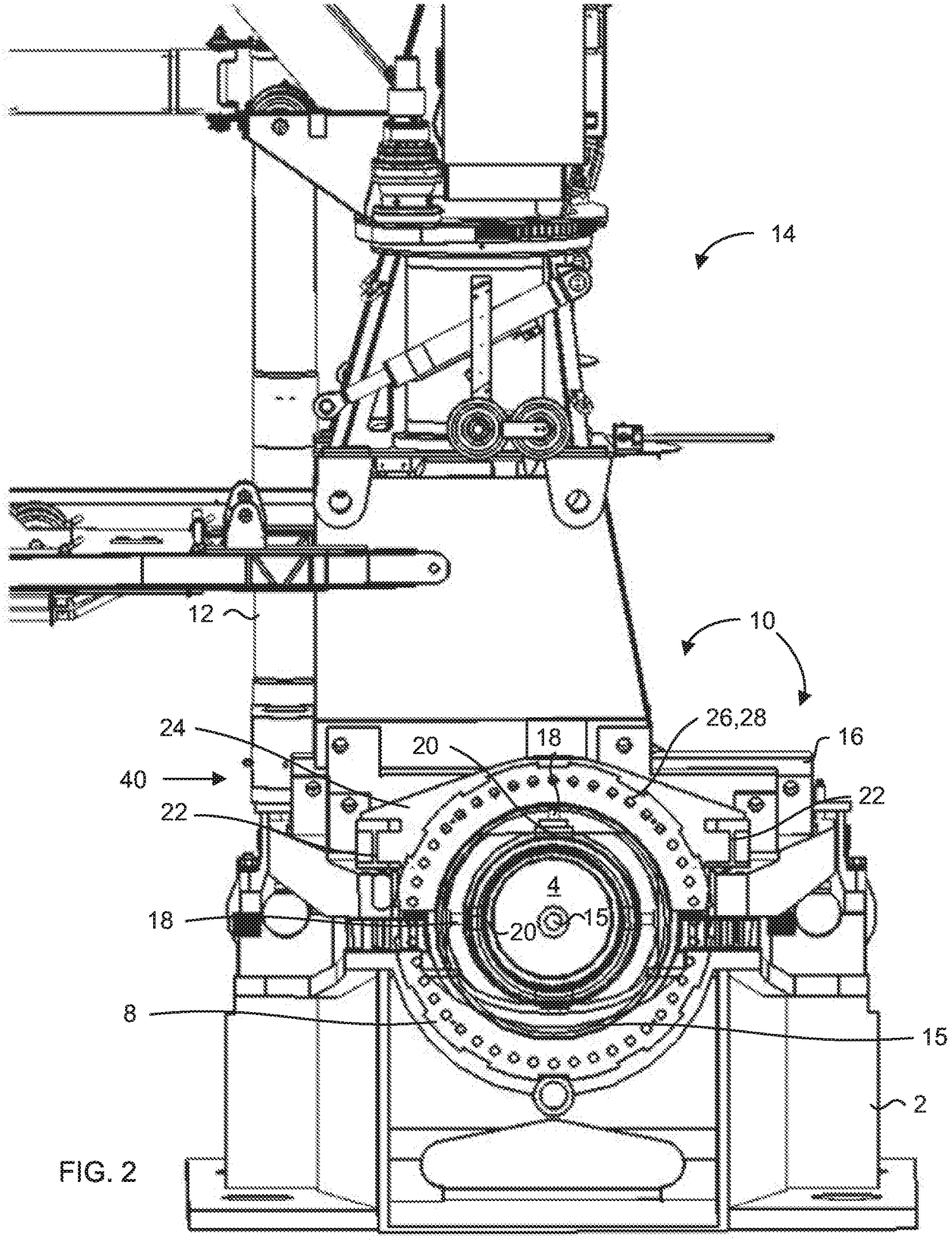


FIG. 2

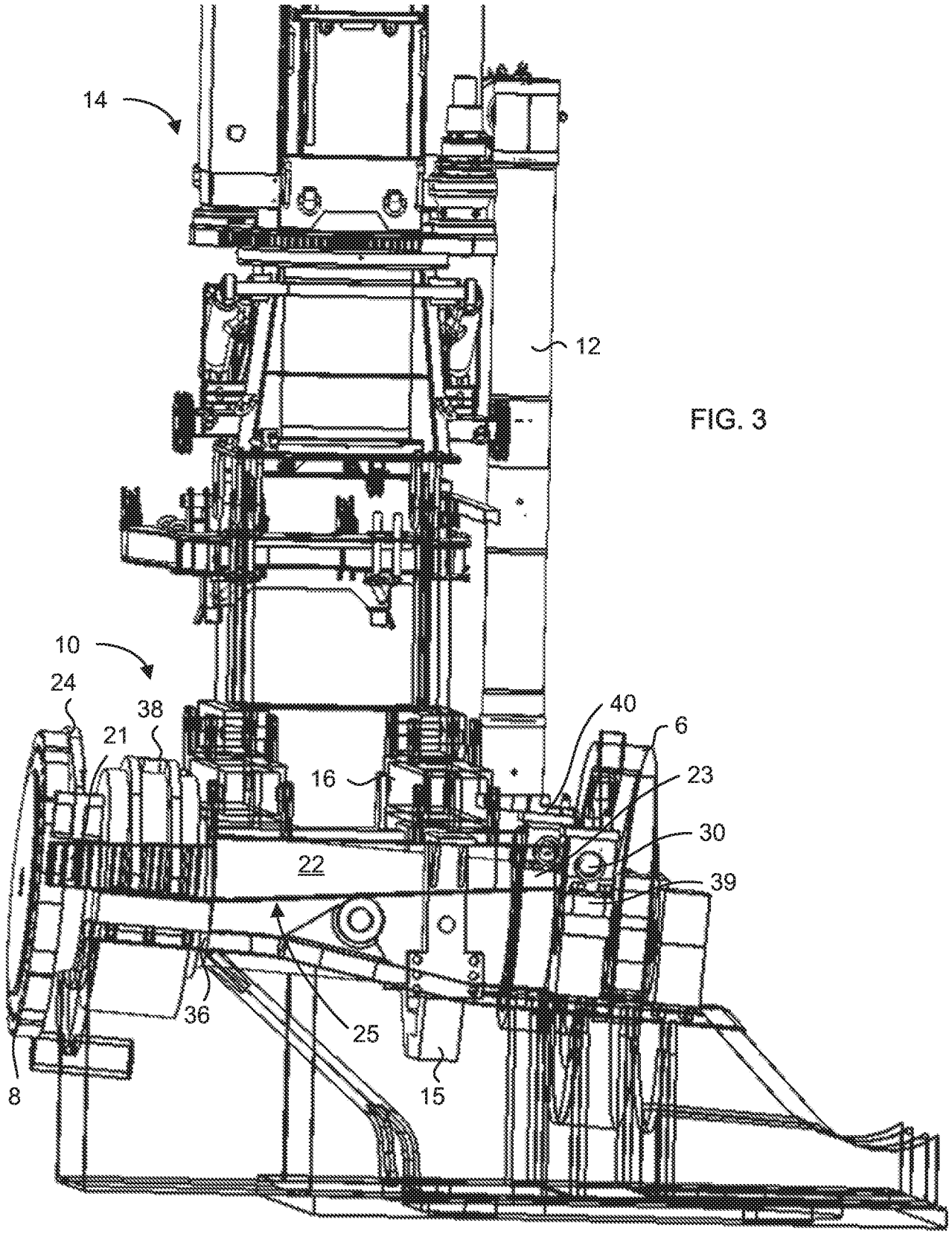


FIG. 3

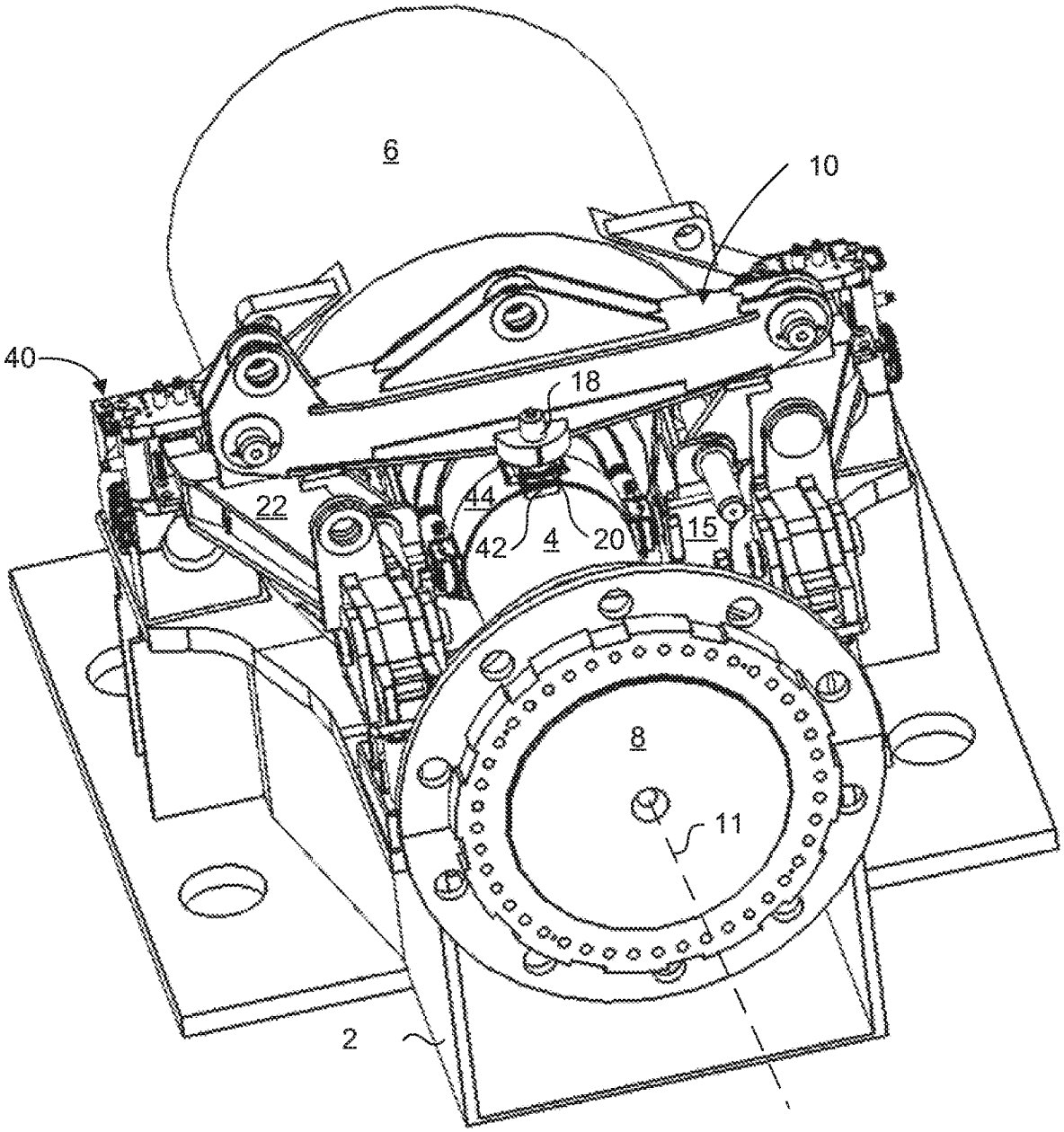


FIG. 4

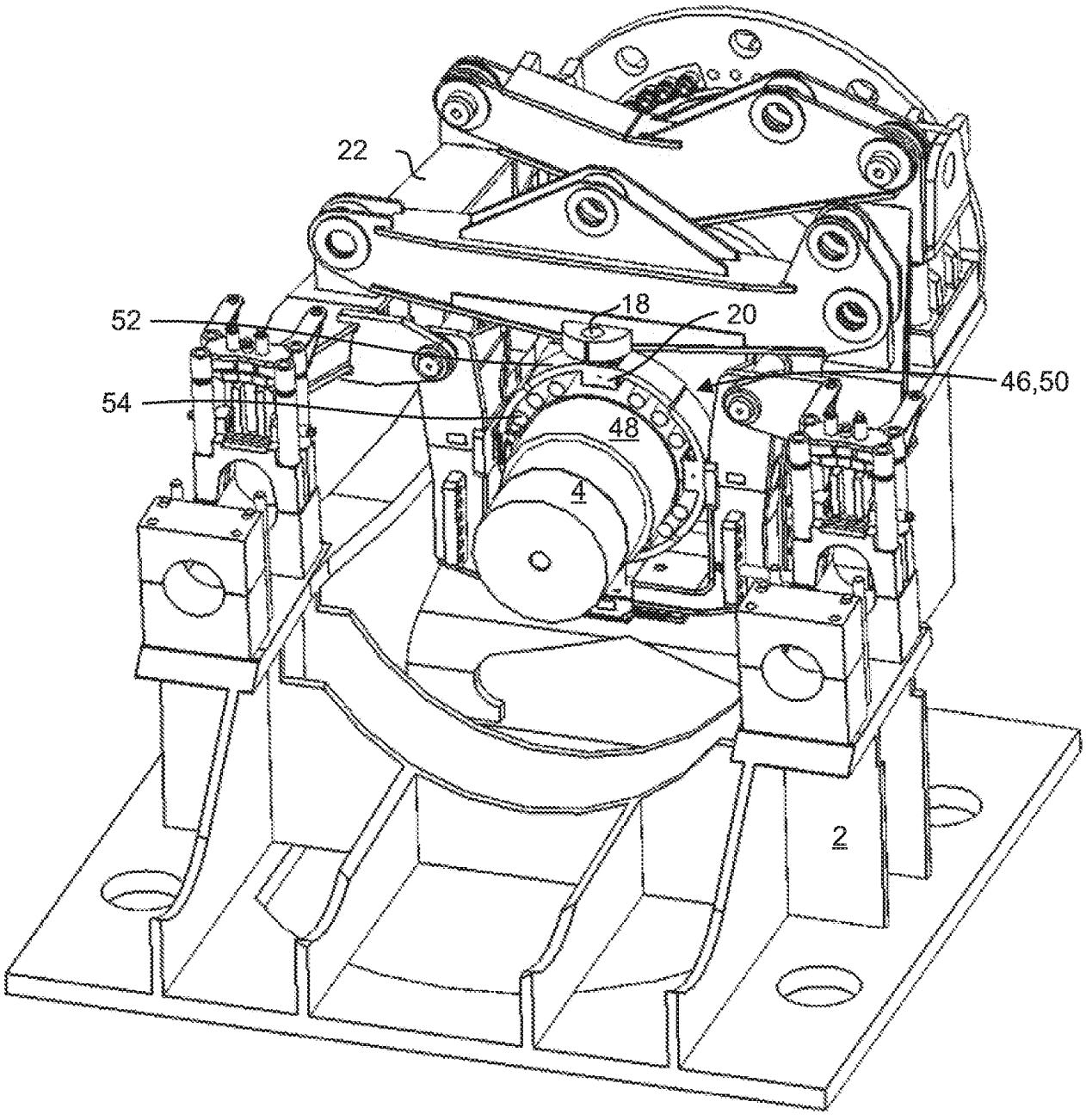


FIG. 5

PTO/AIA/15 (10-17)
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UTILITY PATENT APPLICATION TRANSMITTAL

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

Attorney Docket No.	00428-0001-02000
First Named Inventor	Per E. FENGER
Title	MAIN SHAFT FIXTURE
Priority Mail Express® Label No.	

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☐ **Fee Transmittal Form** (PTO/SB/17 or equivalent)
2. ☐ **Applicant asserts small entity status.** See 37 CFR 1.27
3. ☐ **Applicant certifies micro entity status.** See 37 CFR 1.29. Applicant must attach form PTO/SB/15A or B or equivalent.
4. ☑ **Specification** [*Total Pages* 13] Both the claims and abstract must start on a new page. *(See MPEP § 608.01(a) for information on the preferred arrangement)*
5. ☑ **Drawing(s)** (35 U.S.C. 113) [*Total Sheets* 5]
6. **Inventor's Oath or Declaration** [*Total Pages* 2] *(including substitute statements under 37 CFR 1.64 and assignments serving as an oath or declaration under 37 CFR 1.63(e))*
   a. ☐ Newly executed (original or copy)
   b. ☑ A copy from a prior application (37 CFR 1.63(d))
7. ☑ **Application Data Sheet** ** See note below.* See 37 CFR 1.76 (PTO/AIA/14 or equivalent)
8. **CD-ROM or CD-R** in duplicate, large table, or Computer Program (*Appendix*)
   ☐ Landscape Table on CD
9. **Nucleotide and/or Amino Acid Sequence Submission** (*if applicable, items a. – c. are required*)
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      i. ☐ CD-ROM or CD-R (2 copies); or
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    Name of Assignee _____
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12. ☐ **English Translation Document** (*if applicable*)
13. ☑ **Information Disclosure Statement** (PTO/SB/08 or PTO-1449)
    ☐ Copies of citations attached
14. ☑ **Preliminary Amendment**
15. ☐ **Return Receipt Postcard** (*MPEP § 503*) (*Should be specifically itemized*)
16. ☐ **Certified Copy of Priority Document(s)** (*if foreign priority is claimed*)
17. ☐ **Nonpublication Request** Under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
18. ☑ **Other:** Certification and Request For Prioritized Examination Under 37 CFR 1.102(e)

Note*: (1) Benefit claims under 37 CFR 1.78 and foreign priority claims under 1.55 **must be included in an Application Data Sheet (ADS).
(2) For applications filed under 35 U.S.C. 111, the application must contain an ADS specifying the applicant if the applicant is an assignee, person to whom the inventor is under an obligation to assign, or person who otherwise shows sufficient proprietary interest in the matter. See 37 CFR 1.46(b).

19. CORRESPONDENCE ADDRESS

☑ The address associated with Customer Number: 108449 **OR** ☐ Correspondence address below

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Country		Telephone		Email	

Signature	/Dinesh N. Melwani/	Date	January 24, 2024
Name (Print/Type)	Dinesh N. Melwani	Registration No. (Attorney/Agent)	60670

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Per E. FENGER	)	Parent Group Art Unit: 3651
	)	
Application No.: Not yet assigned	)	Parent Examiner: STEPHEN A VU
	)	
Filed: Concurrently Herewith	)	Confirmation No.: Not yet assigned
	)	
For: MAIN SHAFT FIXTURE	)	***VIA EFS WEB***

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P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

PRELIMINARY AMENDMENT

Prior to examination, please amend this application as follows:

Amendments to the Specification begin on page 2.

Amendments to the Claims are reflected in the listing of claims beginning on page 3.

Remarks begin on page 8.

AMENDMENTS TO THE SPECIFICATION:

Please amend the Cross Reference to Related Applications paragraph, beneath the title, as follows:

Cross-Reference to Related Applications

[0001] This application is a Continuation of U.S. Application No. 16/452,617, filed June 26, 2019, which is a Divisional of U.S. Patent Application No. 15/517,288 filed April 6, 2017, which is a 371 of International Patent Application No. PCT/DK2015/000040 filed October 6, 2015, which claims the benefit of priority to Denmark Patent Application No. PA 2015 00527 filed September 4, 2015, and to Denmark Patent Application No. PA 2014 00573 filed October 7, 2014, the contents of which are incorporated herein by reference in their ~~entirety~~ entireties.

Please amend paragraph [0009], on page 3 of the description, as follows:

[0009] It is by the invention realized that this is possible by a main shaft fixture of the nature specified in the introduction, which is characterised by that the main shaft fixture comprises adjustable ~~at least three radial displaceable~~ pressure mandrels with tap shoes, ~~substantially symmetrical located around the centre axis of the main shaft, the ends of said pressure mandrels facing the main shaft are furnished with a tap shoe,~~ and said pressure mandrels being displaceable between a passive, withdrawn lockable position where the tap shoes are configured to be located at a distance from the surface of the main shaft and an advanced lockable position where the tap shoes are configured to be engaged with the main shaft and mounting facilities suitable for a lightweight crane.

AMENDMENTS TO THE CLAIMS:

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

1. (Currently Amended) Main shaft fixture ~~(10)~~ for fixation of a main shaft ~~(4)~~ on a wind turbine during execution of installation and repair work on heavy parts of a wind turbine, where the fixture ~~(10)~~ is divided up into a number of sections for mounting on stable structural parts ~~(2)~~ in a nacelle ~~in~~ of a wind turbine, including the bottom frame ~~(2)~~ of the nacelle, characterised in, that the main shaft fixture ~~(10)~~ comprises adjustable pressure mandrels ~~(18)~~ with tap shoes ~~(20)~~, and said pressure mandrels ~~(18)~~ being displaceable between a passive~~, withdrawn lockable~~ position where the tap shoes ~~(20)~~ are configured to be located at a distance from the surface of the main shaft ~~(4)~~ and an ~~advanced~~ active ~~lockable~~ position where the tap shoes ~~(20)~~ are configured to be engaged with the main shaft ~~(4)~~ and in that said main shaft fixture further comprises mounting facilities ~~40 suitable for a lightweight crane~~ adapted for anchoring a crane on/in a nacelle of a wind turbine.~~.~~

2. (Currently Amended) Main shaft fixture ~~(10)~~ according to claim 1, characterized in that said adjustable pressure mandels with tap shoes comprise at least three radial displaceable pressure mandrels ~~(18)~~, substantially symmetrical located around the centre axis ~~(11)~~ of the main shaft, the ends of said pressure mandrels facing the main shaft being furnished with the tap shoe ~~(20)~~.

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 134 of 177

3. (Currently Amended) Main shaft fixture ~~(10)~~, according to claim 1 ~~or 2~~, characterised in, that ~~it comprises~~ the mounting facilities are adapted for anchoring ~~for~~ a self-hoisting crane ~~(14)~~ on/in a nacelle of a wind turbine and in that a ~~, the~~ winch ~~of~~ of the self-hoisting crane ~~which~~ is located on the ground surface near the foot of the wind turbine.

4. (Currently Amended) Main shaft fixture ~~(10)~~, according to claim 1 ~~any one of the claims 1-3~~, characterised in, that the pressure mandrels ~~(18)~~ is provided with actuators for displacing and retaining the tap shoes ~~(20)~~ in the passive position and the active position, respectively, alternatively in a selectable position between the passive and the active position.

5. (Currently Amended) Main shaft fixture ~~(10)~~, according to claim 1 ~~any one of the claims 1-3~~, characterised in, that the pressure mandrels ~~(18)~~ consists of threaded bolts whose opposing free ends facing the main shaft are furnished with tap shoes ~~(20)~~, and said threaded bolts cooperates with threaded holes in relevant sections of the fixture ~~(10)~~.

6. (Currently Amended) Main shaft fixture ~~(10)~~, according to claim 1 ~~any one of the claims 1-5~~, characterised by a slideway lining ~~(42, 44)~~ being located between the opposing sides of the surface of the main shaft and tap shoes.

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 135 of 177

7. (Currently Amended) Main shaft fixture ~~(10)~~ according to claim 6, characterised in, that the slideway lining is configured so that of the opposing free ends of the tap shoes ~~(20)~~ facing the main shaft ~~(4)~~ are provided with a slide plate ~~(42)~~ which in the active ~~advanced~~ position is engaged with the main shaft ~~(4)~~.

8. (Currently Amended) Main shaft fixture ~~(10)~~ according to claim 7 ~~6 or 7~~, characterised in, that it comprises a multi-part slide plate ~~(44)~~ cooperating with the main shaft ~~(4)~~ for mounting on the main shaft ~~(4)~~, where the multi-part slide plate ~~(44)~~ in its mounted position on the main shaft ~~(4)~~ is cooperating with the tap shoes ~~(20)~~.

9. (Currently Amended) Main shaft fixture ~~(10)~~ according to claim 1 ~~any one of the claims 1-5~~, characterised in, that it comprises a multi-part needle bearing, roller bearing, ball bearing ~~(46)~~ consisting of a multi-part inner ring ~~(48)~~ fastened to the main shaft ~~(4)~~, and a therewith cooperating multi-part outer ring ~~(50)~~ consisting of bowed subsegments ~~(52)~~ corresponding to the number of tap shoes, mounted on the opposing side of the tap shoes ~~(20)~~ facing the inner ring ~~(48)~~, which in the ~~advanced~~ active position of the pressure mandrels form the outer ring ~~(50)~~ at a distance from the outer periphery of the multi-part inner ring ~~(48)~~, and where an appropriate number of needle rollers, rollers, or balls ~~(54)~~ are arranged between the inner ring ~~(48)~~ and the outer ring ~~(50)~~, and where means are present for retaining the needles, rollers, or balls ~~(54)~~ in position between the inner ring ~~(48)~~ and outer ring ~~(50)~~.

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 136 of 177

10. (Currently Amended) Main shaft fixture ~~(10)~~, according to claim 1 ~~any one of the claims 1-9~~, characterised in, that it comprises a rotor lock ~~(24)~~ for fixation of the rotor ~~(8)~~ of the wind turbine.

11. (Currently Amended) Main shaft fixture ~~(10)~~, according to claim 10, characterised in, that the rotor lock ~~(24)~~ consists of a flange element, whose bolt circle geometry ~~(26)~~ corresponds to a bolt circle geometry ~~(28)~~ on the rotor, said flange element ~~(24)~~ being fastened at the ends to the first end ~~(21)~~ of two first beam-shaped brackets ~~(22)~~ extending parallel with, and on each side of the main shaft, said beam shaped brackets ~~(22)~~ belonging to the main shaft fixture, and where the other end ~~(23)~~ of the brackets ~~(22)~~ are pivotally mounted with horizontally oriented bolt connections ~~(30)~~, on other brackets ~~(39)~~ belonging to the main shaft fixture ~~(10)~~, which are adapted to be anchored on the bottom frame ~~(2)~~ of the nacelle.

12. (Currently Amended) Main shaft fixture ~~(10)~~, according to claim 11, characterised in, that at least one actuator ~~(36)~~ is located nearest the rotor lock ~~(24)~~ between the bottom frame ~~(2)~~ of the nacelle and the adjacent side ~~(25)~~ of the first beam-shaped brackets ~~(22)~~ facing the bottom frame ~~(2)~~, said actuator ~~(36)~~ is displaceable between a first passive outer position and an active outer position where the flange element ~~(24)~~ is displaced vertically.

13. (Currently Amended) Assembly for installing and repairing heavy parts of a wind turbine arranged in a nacelle of a wind turbine, said assembly comprising a

~~M~~main shaft fixture according to claim 1 ~~any one of claims 1 to 12~~, characterized in that a ~~light weight~~ crane is mounted to the main shaft fixture via the mounting facilities of the main shaft fixture.

14. (New) Main shaft fixture ~~(10)~~, according to ~~any one of the claims 1-3~~ claim 1, characterised in, that the mounting facilities are adapted for anchoring a lightweight crane ~~(12)~~ on/in a nacelle of a wind turbine.

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 138 of 177

REMARKS

By this Preliminary Amendment, Applicant amends the specification to insert reference to the related applications, for which the benefit of priority is claimed for this application.

By this Preliminary Amendment, Applicant amends claims 1-13, and adds new claim 14. The amended claims are fully supported by the application as-filed. No new matter is added.

Applicant respectfully requests favorable consideration and timely allowance of this application.

This application claims the benefit of an earlier filed U.S. nonprovisional patent application. To the extent that the claims in this application have the same or similar terms to those in the parent application, Applicant hereby rescinds any disclaimers originating from arguments made during the prosecution of the parent application. Applicant invites the Examiner to revisit the relevant prior art of the parent application. Hakim v. Cannon Avent Group, 479 F.3d 1313 (Fed. Cir. 2007).

If the Examiner believes a telephone conversation might advance prosecution, the Examiner is invited to call Applicant's undersigned representative at (202) 808-3550.

Please grant any extensions of time required to enter this Preliminary Amendment and charge any additional required fees to Deposit Account No. 50-5906. In addition, the Commissioner is hereby authorized to charge any additional fees due and any other fees due under 37 C.F.R. § 1.16 or § 1.17 during the pendency of this application to Deposit Account No. 50-5906.

LiftWerx Ex. 1002
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IPR2026-00102
Page 139 of 177

Respectfully submitted,

BOOKOFF McANDREWS, PLLC
Customer Number: 108449

Dated: January 24, 2024

By: /Dinesh N. Melwani/
Dinesh N. Melwani
Reg. No. 60670
(202) 808-3550

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Application Number	16452617
Filing Date	2019-06-26
First Named Inventor	Per E. FENGER
Art Unit	3651
Examiner Name	STEPHEN A VU
Attorney Docket Number	00428-0001-02000

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	2	10378518	B2	2019-08-13	Fenger	
	3	1152271	A	1915-08-31	BISBEE	
	4	1853255	A	1932-04-12	BORDEN	
	5	3494230	A	1970-02-10	GAST, JR.	
	6	4623157	A	1986-11-18	ROHS	
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	8	5015003	A	1991-05-14	RAMUNAS	

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	2	20190017552	A1	2019-01-17	Vanderwalker et al.	
	3	20020092395	A1	2002-07-18	EMILIAN	
	4	20100021278	A1	2010-01-28	STEGEMANN et al.	
	5	20100139069	A1	2010-06-10	DANIELS et al.	
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	3	1617075	EP	A1	2006-01-18	EICKHOFF MACHINENFABRIK GMBH		☒
	4	1748182	EP	A2	2007-01-31	GENERAL ELECTRIC COMPANY		☒
	5	102006013539	DE	A1	2007-09-27	NORDEX ENERGY GMBH		☒
	6	2014103018	WO	A1	2014-07-03	MITSUBISHI HEAVY INDUSTRIES, LTD		☒

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	Examiner Name	STEPHEN A VU
	Attorney Docket Number	00428-0001-02000

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Application Number	16452617
Filing Date	2019-06-26
First Named Inventor	Per E. FENGER
Art Unit	3651
Examiner Name	STEPHEN A VU
Attorney Docket Number	00428-0001-02000

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

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OR

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☐ 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	/Dinesh N. Melwani/	Date (YYYY-MM-DD)	2024-01-24
Name/Print	Dinesh N. Melwani	Registration Number	60670

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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.

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 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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Per E. FENGER	)	Parent Group Art Unit: 3651
	)	
Application No.: Not yet assigned	)	Parent Examiner: STEPHEN A VU
	)	
Filed: Concurrently Herewith	)	Confirmation No.: Not yet assigned
	)	
For: MAIN SHAFT FIXTURE	)	***VIA EFS WEB***

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

Commissioner:

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97(b)

Pursuant to 37 C.F.R. §§ 1.56 and 1.97(b), Applicant brings to the attention of the Examiner the documents on the attached IDS Form PTO/SB/08. This Information Disclosure Statement is being filed concurrently with the above-referenced application.

Copies of the U.S. patents and patent publications are not enclosed. The listed foreign patent documents and non-patent literature document are all of record in prior Application No. 16/452,617, filed June 26, 2019, upon which Applicant relies for the benefits provided in 35 U.S.C. § 120 and, accordingly, copies are not enclosed.

Applicant respectfully requests that the Examiner consider the listed documents and indicate that they were considered by making appropriate notations on the attached form.

This submission does not represent that a search has been made or that no better art exists and does not constitute an admission that each or all of the listed documents are material or constitute "prior art." If the Examiner applies any of the

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 147 of 177

documents as prior art against any claim in the application and Applicant determines that the cited documents do not constitute "prior art" under United States law, Applicant reserves the right to present to the U.S. Patent and Trademark Office the relevant facts and law regarding the appropriate status of such documents.

Applicant further reserves the right to take appropriate action to establish the patentability of the disclosed invention over the listed documents, should one or more of the documents be applied against the claims of the present application.

If there is any fee due in connection with the filing of this Statement that is not otherwise provided with this filing, please charge the fee to Deposit Account No. 50-5906.

Respectfully submitted,

BOOKOFF McANDREWS, PLLC
Customer Number: 108449

Dated: January 24, 2024

By: __/Dinesh N. Melwani/___
Dinesh N. Melwani
Reg. No. 60670
(202) 808-3550

LiftWerx Ex. 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 148 of 177

UNITED STATES
PATENT AND TRADEMARK OFFICE

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Alexandria, VA 22313 - 1450
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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/420,859	**01/24/2024 09:24:29 AM Z ET**	**00428-0001-02000**

Title of Invention

MAIN SHAFT FIXTURE

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	4686	FILED BY	Cara Gilman
PATENT CENTER #	64063386	FILING DATE	-
CUSTOMER #	108449	FIRST NAMED INVENTOR	Per E. FENGER
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Dinesh Melwani

Documents

TOTAL DOCUMENTS: 14

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
Application Data Sheet.pdf	8	Application Data Sheet	2174 KB
Declaration.pdf	2	Oath or Declaration filed	124 KB
IDS Transmittal.pdf	2	Transmittal Letter	86 KB
Track One Request.pdf	2	Track One Request	117 KB
Drawings.pdf	5	Drawings-only black and white line drawings	493 KB
Preliminary Amendment.pdf	9	-	102 KB
Preliminary Amendment- (1-1)	1	Preliminary Amendment	86 KB

A.PE.pdf				
Preliminary Amendment-A.PE.pdf	(2-2)	1	Preliminary Amendment	62 KB
Preliminary Amendment-CLM.pdf	(3-7)	5	Claims	69 KB
Preliminary Amendment-REM.pdf	(8-9)	2	Applicant Arguments/Remarks Made in an Amendment	63 KB
Specification.pdf		13	-	553 KB
Specification-SPEC.pdf	(1-9)	9	Specification	429 KB
Specification-CLM.pdf	(10-12)	3	Claims	101 KB
Specification-ABST.pdf	(13-13)	1	Abstract	20 KB
IDS SB08.pdf		6	Information Disclosure Statement (IDS) Form (SB08)	1235 KB
Continuation Transmittal Letter.pdf		2	Transmittal of New Application	385 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
Application Data SheeL.pdf	2DE712409DD707CBDAA746E3672B6BF6E3DA4DE87E5213BDDC83742B83A24ED20FF2BF1B016B010975F90EA9637974A4C1636AEB3A8A31F5D2236DC2CFA417CE
Declaration.pdf	392C0450DC2EDAE091BE459EB6D1E2500A3265603BDBEBA1D52CA8EA8F6EEFCA8B7556BE4292A45193CD7596791FF6D5B1D244D920ADB5D10E129D9AFC067A34
IDS Transmittal.pdf	6590C5246DE9F67648564B3DFE5250C0FA[illegible]EA663

	56335FBA9B9AEA0CB566B868B47C16462BEC74EF03DE9EE404B936FE4D8F91EA12229FD91E3802A
Track One Request.pdf	FCD6910285D04A38161AE5265966C2566945D9BB836A217E26D77F0025CB0D5297F8995DA16735C008B018B4F544A66C5A711CA5B91FFB69B099982499C9CE5D
Drawings.pdf	09F7096B67A207FDF45DA18AE07BBC058FC3CBDC963B4367C3A4E17934BD8B6245A8C9D0F74206A40EB6A5C8771399BE894A12CDF38F63884F987E4FEC7D68F3
Preliminary Amendment.pdf	B1331A08CA8763E5FDEF10E8BC539345C36F45F9B9343629874EA8127B81EE90599BDBF359911B1BC3908B4110B25A87BC0523B019A68A48AAAFD8ED31D71F5B
Preliminary Amendment-A.PE.pdf	B8B44B547BF0459F7ACC7C6B4881703791B3CBFD42C414F53AA1124E1848D44B9B246B4CB230C57E711B199E7248CFC544D5CAB5D01010C8320D193A04F0255A
Preliminary Amendment-A.PE.pdf	1FEFCC89A7818F3F317B296722951E682E234C0A114ED2135A222E3221233C096DAC6A26835FBB48434AE171A27611DE1292DB85A780D8067AFAB65627798D45
Preliminary Amendment-CLM.pdf	32CB8B82D358BBD0D981FB8F8D1EC7995C1ACBF100F580FA95B93C5D37CBA3AFBF58C8A26C157CCD1050A59727EDF1712BBFD1E996B1D69C206D88A3F6751BF1
Preliminary Amendment-REM.pdf	A1E548FA19A335A1E3BFAD09C947B8D10CB5814AF5EA868D932532158897 2C5CA3ADFFF51B5F6765BB17B715FB7C1B14937C65147E7FE494A3D2682962782C8A
Specification.pdf	397313913A3AC70ADD4CC2EB9B8D7F944549BACC0FDE3530464F26D7296A4FC34422C26701622BFFE14C03A37A91FC3A635AFEB81728CD768913381AD4C2A579
Specification-SPEC.pdf	F1B658C1EAF6215938200F0D8300AFDC8C36147B4D2FFDD3E5A258DC21BEF006DFEEBC95501E8861AFD28CC824E22BF9996B7589D1B7086D86F4975E5AF727F7
Specification-CLM.pdf	F9DCB8708C418B5D37B6726F14B312681B46A8BAD7EE7E9ED

	74B19C7550EF80B199042AD37E2A351120CE773A146250A5B816F7A1FFC0A608FA70DCC7B54A6E4
Specification-ABST.pdf	0E8F1344CCBA5D5F07463CA6B1657EF622CF7A84F8A9A150E39AED7EC6773FB1B5CE93BDAC151225FB07DC8CAFC7168D972C97830A846711843777FFD3726932
IDS SB08.pdf	6E6A342AC9A2E35F188E595F94A8EA1C4EF74BEE4EE6A98D1FBA45212B591095D3E82FE1D68C98166EF97C705C1582B4FC100E617AB58C29FFBB8C944A41607E
Continuation Transmittal Letter.pdf	C5A6E6EE98C39F544CEFBF9AD97A723E4944025E5F4C6C563747FC29C078F22E9819814416917B7FC8E5AA44C617CDEE413DE25F634A2C93D78FA92324911A68F

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/420,859	01/24/2024 09:24:29 AM Z ET	00428-0001-02000

Title of Invention

MAIN SHAFT FIXTURE

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	4686	FILED BY	Cara Gilman
PATENT CENTER #	64063386	AUTHORIZED BY	Dinesh Melwani
CUSTOMER #	108449	FILING DATE	-
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Per E. FENGER

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
CARD / 2000	E20241N025449834	Cara Gilman

PRE-AUTHORIZED ACCOUNT	PRE-AUTHORIZED CATEGORY
505906	37 CFR 1.16 (National application filing, search, and examination fees); 37 CFR 1.17 (Patent application and reexamination processing fees); 37 CFR 1.19 (Document supply fees); 37 CFR 1.20 (Post Issuance fees); 37 CFR 1.21 (Miscellaneous fees and charges)

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
1830	PROCESSING FEE, EXCEPT IN PROVISIONAL APPLICATIONS	140.00	1	140.00
1817	REQUEST FOR PRIORITIZED EXAMINATION	4200.00	1	4200.00
1111	UTILITY PATENT APPL. SEARCH FEE	700.00	1	700.00
1011	BASIC FILING FEE - UTILITY (PAPER FILING ALSO REQUIRES NON-	320.00	1	320.00

	ELECTRONIC FILING FEE UNDER 1.16(T))			
1311	PATENT APPL. EXAMINATION FEE	800.00	1	800.00
1054	Non-DOC-X Filing Surcharge	400.00	1	400.00
			TOTAL AMOUNT:	**$6,560.00**

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

New Applications Under 35 U.S.C. 111

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

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

New International Application Filed with the USPTO as a Receiving Office

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

PTO/AIA/14 (01-22)
Approved for use through 05/31/2024. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	00428-0001-02000
	Application Number	
Title of Invention	MAIN SHAFT FIXTURE	

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
	Per	E.	FENGER	

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

City	Terndurp	Country of Residence	DK

Mailing Address of Inventor:

Address 1	Flougaardsvej 8		
Address 2			
City	Terndurp	**State/Province**	
Postal Code	9575	**Country**	DK

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	108449		
Email Address	docketing@bomcip.com	Add Email	Remove Email

Application Information:

Title of the Invention	MAIN SHAFT FIXTURE		
Attorney Docket Number	00428-0001-02000	**Small Entity Status Claimed**	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	5	**Suggested Figure for Publication (if any)**	

LiftWerx Exhibit 1002
LiftWerx USA Inc. v. Liftra IP ApS
IPR2026-00102
Page 155 of 177

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Approved for use through 05/31/2024. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	00428-0001-02000
	Application Number	
Title of Invention	MAIN SHAFT FIXTURE	

Filing By Reference:

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

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

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

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	108449		

Domestic Benefit/National Stage Information:

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

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	16/452617	2019-06-26

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	00428-0001-02000
	Application Number	
Title of Invention	MAIN SHAFT FIXTURE	

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16/452617	Division of	15/517288	2017-04-06	10378518	2019-08-13

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
15/517288	a 371 of international	PCT/DK2015/000040	2015-10-06

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)
PA 2014 00573	DK	2014-10-07	

			Remove
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)
PA 2015 00527	DK	2015-09-04	

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

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

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

PTO/AIA/14 (01-22)
Approved for use through 05/31/2024. OMB 0651-0032
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	00428-0001-02000
	Application Number	
Title of Invention	MAIN SHAFT FIXTURE	

Authorization or Opt-Out of Authorization to Permit Access:

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

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

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

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

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

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

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

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

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

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

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

PTO/AIA/14 (01-22)
Approved for use through 05/31/2024. OMB 0651-0032
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	00428-0001-02000
	Application Number	
Title of Invention	MAIN SHAFT FIXTURE	

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	LIFTRA IP APS		
Mailing Address Information For Applicant:			
Address 1	Stationsmestervej 81		
Address 2			
City	Aalborg	**State/Province**	
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	00428-0001-02000
	Application Number	
Title of Invention	MAIN SHAFT FIXTURE	

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Signature	/Dinesh N. Melwani/			Date (YYYY-MM-DD)	2024-01-24
First Name	Dinesh N.	Last Name	Melwani	Registration Number	60670

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	Application Number	
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Document Description: TrackOne Request

PTO/AIA/424 (04-14)

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

First Named Inventor:	Per E. FENGER	Nonprovisional Application Number (if known):	
Title of Invention:	MAIN SHAFT FIXTURE		

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

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

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

3. The applicable box is checked below:

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

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

---OR---

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

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

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

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

Signature /Dinesh N. Melwani/	Date January 24, 2024
Name (Print/Typed) Dinesh N. Melwani	Practitioner Registration Number 60670

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

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MAIN SHAFT FIXTURE

Background of the Invention

Cross-Reference to Related Applications

[0001] This application is a Divisional of U.S. Patent Application No. 15/517,288 filed April 6, 2017, which is a 371 of International Patent Application No. PCT/DK2015/000040 filed October 6, 2015, which claims the benefit of priority to Denmark Patent Application No. PA 2015 00527 filed September 4, 2015, and to Denmark Patent Application No. PA 2014 00573 filed October 7, 2014, the contents of which are incorporated herein by reference in their entirety.

Field of the Invention

[0002] The present invention relates to a main shaft fixture for the fixing of a main shaft on a wind turbine during the execution of installation and repair work in heavy parts of a wind turbine arranged in a nacelle on wind turbines, with the fixture being divided up into a number of sections for installation on stable structural parts in a nacelle in a wind turbine, including the nacelle's bottom frame.

Description of Related Art

[0003] During installation and repair work on the nacelle of wind turbines there is often a need to perform fixing of the main shaft of the wind turbine, for example, with the replacement and servicing of a wind turbine gear box, generator or with the replacement of its main bearing, or other heavy structural parts present in the nacelle of the wind turbine. The stated components, which are mutually conjoined and anchored to the nacelle's bottom frame, are stable in an assembled state, but when separation needs to be undertaken during repairs and servicing of the turbine, static instability and imbalance arises, which can lead to the turbine's structural parts being damaged, so that there is a need to fix the wind turbine main shaft.

[0004] German Patent Application DE 102006013539 A1 (NORDEX ENERGY GMBH) discloses a main shaft fixture for fixing the main shaft on a wind turbine during the execution of installation and repair work on heavy parts that are arranged in the nacelle on wind turbines, with the fixture being divided up into a number of sections for installation on stable

structural parts that are found on a wind turbine nacelle, including the bottom frame of the nacelle.

[0005] Up to now it has been necessary to halt the turbine, i.e., brake it and fix the rotor with a rotor lock, and then mount an actual fixture to firmly hold the main shaft, subsequent to which servicing of the components in the wind turbine nacelle is able to take place. However, it is inappropriate to have to halt the operation of the wind turbine while the mounting of the main shaft fixture is taking place, as the standstill of the wind turbine during the time that is spent to install the fixture involves a not insignificant operating loss in the form of a lack of energy produced (power). Furthermore, the known main shaft fixtures are relatively inflexible in relation to shaft geometry, which means that in practice nearly just as many different fixtures need to be built and stored as there are shaft geometries that exist, which is inappropriate. In addition, the use of self-hoisting cranes, whose winches are placed on the ground surface near the turbine's tower, is increasing, because the use of such involves large savings in the level of expenses for servicing of wind turbines since the use of large mobile cranes for handling the above-mentioned large and heavy components is made superfluous. This causes however a need for facilities for anchoring the self-hoisting crane with the ground-based winch in the nacelle. However, the self-hoisting winch requires furthermore the presence of a lightweight crane, for the hoisting of snatch blocks, etc., that are to be anchored on/in the nacelle or on the blades of the wind turbine, which poses requirements concerning the facilities for mounting the lightweight crane.

[0006] In the event of servicing in particular large wind turbines, it may however be inappropriate to block the main shaft's rotation with an actual rotor lock, but rather be appropriate to simply retain the shaft in position and permit a certain rotation of the shaft, which is possible by turning the blades/nacelle out of the wind so that the shaft via the effects of the wind on the blades only rotates very slowly, or not at all, whereby it is acceptable in terms of safety, to perform service work in the nacelle of the wind turbine concerned.

Summary of the Invention

[0007] Thus, it is the purpose of the invention to specify a main shaft fixture that provide a more universal application in relation to shaft geometry, which moreover does not require halting and fixing of the wind turbine main shaft, but which may however comprise the means for such.

[0008] It is further the purpose of the invention to provide a main shaft fixture that in addition offers facilities for the mounting of a self-hoisting crane, with a ground-based winch.

[0009] It is by the invention realized that this is possible by a main shaft fixture of the nature specified in the introduction, which is characterized by that the main shaft fixture comprises at least three radial displaceable pressure mandrels, substantially symmetrical located around the center axis of the main shaft, the ends of said pressure mandrels facing the main shaft are furnished with a tap shoe, and said pressure mandrels being displaceable between a passive, withdrawn lockable position where the tap shoes are configured to be located at a distance from the surface of the main shaft and an advanced lockable position where the tap shoes are configured to be engaged with the main shaft.

[0010] Considerable flexibility is hereby attained with respect to the main shaft fixture's use for the fixing of main shafts with different geometries on wind turbines, since solely the degree of mobility of the pressure mandrels and the size of the main shaft fixture pose limiting factors for the usability of such. The main shaft fixture is thus both usable for fixing of cylinder-shaped shafts with different diameters and for the fixing of shafts with conical shapes. The main shaft fixture according to the invention is multi-part, and may be mounted on permanent structural parts, preferably the bottom frame of the nacelle, while the rotor of the wind turbine is in operation.

[0011] With the intent of being able to use a self-hoisting crane with a ground-based winch together with the main shaft fixture according to the invention, it may comprise mounting facilities for a self-hoisting crane whose winch is placed on the ground surface ground near the foot of the wind turbine.

[0012] The advance thereof is that the establishment of facilities for the fixing of the wind turbine's main shaft, as well as the establishment of mounting facilities for the self-hoisting crane with a ground-based winch, take place simultaneously, which saves work processes, and space, which are of great importance, as the space in the nacelle in a wind turbine are most often narrow, and furthermore the main shaft fixture as well as the mounting facilities for a self-hoisting crane in the nacelle normally utilize the same permanent structural parts in the nacelle for anchoring.

[0013] With the intent of ensuring easy and rapid establishment of the self-hoisting crane, which requires the hoisting of snatch blocks with wires originating from the ground-

based winch with a lightweight crane which is mounted on stable structural parts in the nacelle, the main shaft fixture may comprise mounting facilities for a lightweight crane.

[0014] For the purpose of securing the rapid fixing of the main shaft using the main shaft fixture according to the invention, the pressure mandrels may be provided with actuators for displacing and retaining the tap shoes in the passive position and the active position, respectively, alternatively in a selectable position between the passive and the active position.

[0015] Time is thereby saved in the displacement of the tap shoes between the passive position, and the active position pressed against the main shaft's surface.

[0016] In a more simple form of embodiment of the main shaft fixture according to the invention, the pressure mandrels may be comprised of threaded bolts whose free ends facing the main shaft are furnished with tap shoes, where the threaded bolts work together with threaded holes in relevant sections of the fixture. The pressure mandrels with the tap shoes are hereby displaced by manual turning of the threaded bolts between the passive position and the active position.

[0017] With the intent of being able to permit rotation of the main shaft during performance of servicing of a relevant wind turbine and in order to protect the main shaft and the main shaft fixture, slide plates may exist between the opposing sides of the main shaft's surface and the tap shoes.

[0018] This enables the main shaft to be fixed in its position by the main shaft fixture, but with the main shaft being permitted to rotate without it being damaged due to the presence of the slide plates.

[0019] In a first embodiment of the slide plates, this could comprise the free ends of tap shoes facing against the main shaft being furnished with slide plates, which in the active extended position are engaged with the main shaft.

[0020] In a further embodiment, the main shaft fixture may according to the invention comprise a multi-part slide plate working in conjunction with the main shaft to be mounted on the main shaft, where the multi-part slide plate in its mounted state on the main shaft cooperates with the tap shoes.

[0021] This enables the tap shoes on the main shaft fixture's pressure mandrel to slide directly on the multi-part slide plate, in the event of a possible rotation of the main shaft caused by the effects of wind on the blades. The tap shoes on the main shaft fixture's pressure mandrels

may cooperate with the multi-part slide plate on the main shaft, with or without slideway linings on the opposing sides of the tap shoes facing the main shaft.

[0022] In a further embodiment of the main shaft fixture as per the invention, it may comprise a multi-part needle bearing, roller bearing, ball bearing, consisting of a, multi-part inner ring, fastened on the main shaft, and a therewith cooperating multi-part outer ring consisting a number of bowed sub segments according to the number of tap shoes mounted on the opposing side of the tap shoes facing the multi-part inner ring, which in the advanced active position of the pressure mandrels form the outer ring at a distance from the external periphery of the multi-part inner ring, and where a suitable number of needle rollers, rollers or balls are placed between the inner ring and outer ring, and where means are present for retaining the needles, rollers, or balls in position between the inner ring and outer ring.

[0023] An actual temporary bearing connection is hereby formed between the main shaft fixture and the main shaft, about which the main shaft is able to rotate.

[0024] With the intent of being able to fix the rotor on the wind turbine after it has been braked to a stop, the main shaft fixture according to the invention, may comprise a rotor lock, for fixing the wind turbine rotor.

[0025] In a preferred embodiment of the rotor lock, it is comprised of a flange, whose bolt circle geometry corresponds to a bolt circle geometry on the rotor, said flange element being fastened at the ends to the first end of two first beam-shaped brackets extending parallel with, and on each side of the main shaft, said beam shaped brackets belonging to the main shaft fixture, and where the other end of the brackets are pivotally mounted with horizontally oriented bolt connections, on other brackets belonging to the main shaft fixture, which are anchored on the bottom frame of the nacelle.

[0026] It is hereby achieved that the rotor can be fixed by introducing a bolt through one or more of the overlapping holes in the bolt circles on the flange fastened to the bottom frame and the bolt circle on the rotor, respectively.

[0027] With the intent of being able to perform replacement of the shaft's main bearing, without being forced to dismount the main shaft, the main shaft fixture may furthermore comprise at least a second actuator, between the nacelle's bottom frame and the opposing side of the first beam-shaped brackets facing such and the nearest rotor lock, where the other actuator is movable between a first passive outer position and an active outer position whereby the flange element is moved vertically.

[0028] This enables the main shaft to be able to be raised from its bearing hanging in the rotor lock, such that the main bearing of the shaft can be replaced or serviced without the necessity of removing the shaft from the nacelle.

[0029] The invention is explained in further detail in the following with reference to the accompanying drawings.

Brief Description of the Drawings

[0030] Fig. 1 is a perspective view of parts of a wind turbine nacelle, presenting the nacelle bottom frame, the wind turbine main shaft, and a main shaft fixture according to the invention, with a lightweight crane and a self-hoisting crane mounted,

[0031] Fig. 2 is a more detailed perspective view from another angle of what is shown in Fig. 1, where the main shaft is made transparent, presenting the pressure mandrel with tap shoe belonging to the main shaft fixture according to the invention,

[0032] Fig. 3 is a more detailed perspective view from another angle of what is shown in Fig. 1, presenting the actuators for raising the main shaft, where the main shaft is made transparent,

[0033] Fig. 4 is a detailed perspective view of the main shaft fixture for a wind turbine, where the tap shoes and the main shaft are furnished with slide plates, and

[0034] Fig. 5 is a detailed perspective view or the main shaft fixture for a wind turbine, where the slide plates are replaced by a multi-part needle bearing/roller bearing/ball bearing formed of a multi-part inner ring fastened to the main shaft and a therewith cooperating multi-part outer ring consisting of bowed sub-segments of the number of tap shoes mounted on the opposing side of the tap shoes facing the inner ring.

Detailed Description of the Invention

[0035] Fig. 1 shows a bottom frame 2 in a nacelle (not shown) on a wind turbine (not shown), where the main shaft 4 of the turbine, with a gear box 6 and a rotor 8, and where the main shaft fixture 10 according to the invention is shown in the mounted state, bearing a lightweight crane 12 and a self-hoisting crane 14 with a ground-based winch (not shown), respectively. The bottom frame 2 has for reasons of clarity been made transparent.

[0036] In the illustrated embodiment, the main shaft fixture 10 is anchored to the bottom frame 2 near the gear box 6 and near the rotor 8, and comprises a multi-part frame 14,

which together with a cross member 16 fastened on it encloses a part of the main shaft 4 between the rotor 8 and the gear box 6. The multi-part frame 14 is anchored on the bottom frame 2.

[0037] Fig. 2 shows what is seen in Fig. 1, but in an end view, seen from the rotor side of the shaft 4, and where the rotor 8 for reasons of clarity has been made transparent. As it appears from Fig. 2, the multi-part frame 14 and cross member 16 comprise in total four pressure mandrels 18 symmetrically placed around the main shaft 2, with tap shoes 20 that are engaged onto the main shaft 4 in order to fix it in place.

[0038] The pressure mandrels 18 may be comprised of hydraulically driven pistons whose free ends comprise the tap shoes 20, but may also be executed in other manners, where they are moved manually between the active position where the tap shoes 20 are engaged with the main shaft 4 and the passive, withdrawn position.

[0039] As it appears from Fig. 3, the main shaft fixture 10 comprises two parallel passing first beams 22, one on each side of the main shaft 4. In first ends of each first beam 22 nearest to the rotor 8, a rotor lock is fastened in the form of a flange element 24, the hole circle geometry 26 of which is similar to the hole circle geometry 28 of the rotor 8 over part of the periphery of the rotor. For locking of the rotor 8, the holes 7 in the rotor 8 and the holes 9 in the flange element 24 are brought to overlap, and subsequently, bolts are inserted through the overlapping holes, which are tightened with nuts, after which the rotor 8 is fixed/locked by the flange element 24.

[0040] The other end of the parallel passing first beams 22 (that nearest to the gear box 6) are pivotally anchored on horizontally oriented bearing bolt 30, on a bracket 32, which is fastened to the bottom frame 2. The parallel passing first beams 22 are mutually connected with second cross members 34, on which bracket facilities 23 are seen for a self-hoisting crane 14 with a ground-based winch (not shown).

[0041] As it appears in Figs. 1 & 3, an actuator 36 is located between the bottom frame 2 and the parallel passing first beams 22. Activation of the actuator 36 will result in a change of the distance between the bottom frame 2 and the first beams 22, in which the flange element 24 is suspended, which will cause the flange element 24 and the rotor 8 and thereby the main shaft 4 to be raised, which will result in the possibility to replace the main shaft's bearing 38 without the necessity of hoisting the main shaft 4 down to the ground, which is quite time-saving when the main shaft bearing 38 has to be repaired or replaced.

[0042] In Fig. 1, it is moreover shown how the main shaft fixture 10 comprises mounting facilities 40 for the lightweight crane 12.

[0043] Fig. 4 shows an embodiment of the main shaft fixture according to the invention, which is specially suited for use for fixing the wind turbine main shaft 4 in position on the nacelle, but where rotation of the main shaft 4 is possible, in the active position of the pressure mandrels/tap shoes (18, 20), engaged with the main shaft.

[0044] As shown in Fig. 4, a slideway 42, 44 is located between the opposing sides of the tap shoes 20 facing the surface of the main shaft 4.

[0045] The slideway may be comprised of slide plates 42 that are fastened to the opposing free ends of the tap shoes 20 facing the main shaft 4, which in their active advanced position are engaged with the main shaft 4, but which alternatively may comprise a multi-part slide plate 44 cooperative working with the main shaft 4, for mounting on the main shaft 4, said multi-part slide plate 44 in its mounted state on the main shaft 4 cooperates with the tap shoes 20. It must be stated that the presence of the multi-part slide plate 44 on the main shaft 4 does not necessarily exclude the presence of the slide plates 42 and the tap shoes 20.

[0046] In a further embodiment, the main shaft fixture 10 is comprised of a multi-part needle bearing/roller bearing/ball bearing 46, formed of a multi-part inner ring 48 fastened on the main shaft as well as, a cooperating multi-part outer ring 50 formed of bowed sub-segments 52 equal to the number of tap shoes mounted on the opposing side of the tap shoes 20 facing the inner ring 48, which in the advanced position of the pressure mandrels form the outer ring 50 at a distance from the outer periphery of the multi-part inner ring 48, and where an appropriate number of needle rollers, rollers, or balls 54 (in the shown embodiment rollers 54) are arranged between the inner ring 48 and the outer ring 50, and where means (not shown) are present for retaining the needles/rollers or balls (54) in position between the inner ring 48 and outer ring 50.

[0047] The means mentioned for fastening of needle rollers/rollers/balls 54 may be formed of cooperating edge delineators in opposing sides of the inner ring 48 and the outer ring 50, alternatively as a means for holding between which the needle rollers/rollers/balls 54 are fastened.

[0048] The presence of the slide plates 42, 44, alternatively the multi-part needle bearing, roller bearing, ball bearing 46, involves the main shaft 4 being permitted to rotate

simultaneously with it being fixed in its position during servicing of the wind turbine, which can serve a purpose namely for larger wind turbines.

[0049] The inventor has recognized that the main shaft fixture 10 can assume other embodiments than disclosed in the preceding and shown in the figures, however such do not change the inventive aspect that is comprised of specifying a main shaft fixture 10 of the given type that comprises adjustable pressure mandrels 18 with tap shoes 20, which causes the fixture 10 to be usable regardless of the geometry of the main shaft 4 on a wind turbine, and thus that such can be mounted without fixing the rotor 8 in place, and furthermore of combining the main shaft fixture with facilities 40 for mounting of a lightweight crane 12 and a self-hoisting crane 14 with a ground-based winch, respectively, as well as a rotor lock 24 and finally of furnishing the main shaft fixture 10 with actuators 36, enabling the main shaft 4 and the main shaft bearing 38 to be raised sufficiently from its bearing in the nacelle that it can be serviced or replaced.

What is claimed is:

1. A self-hoisting crane comprising:

mounting facilities for mounting to a lightweight crane,

a winch located on a ground surface near a foot of the wind turbine, and

a main shaft fixture for fixation of a main shaft on a wind turbine during execution of installation and repair work on heavy parts of a wind turbine, the fixture being divided up into a number of sections for mounting on stable structural parts in a wind turbine nacelle including a bottom frame of the nacelle, wherein the main shaft fixture comprises at least three independently, radially displaceable pressure mandrels for fixing of cylinder-shaped shafts with different diameters and for the fixing of shafts with conical shapes, the pressure mandrels being substantially symmetrical located around a center axis, first ends of said pressure mandrels, in use, facing the main shaft and being furnished with a tap shoe, wherein said pressure mandrels are displaceable between a passive, withdrawn lockable, position where the tap shoes are configured to be located at a distance from the surface of the main shaft and an advanced lockable position where the tap shoes are configured to be engaged with the main shaft, in use, said tap shoes enabling the main shaft to be fixed in position by the main shaft fixture while being permitted to rotate.

2. The self-hoisting crane according to claim 1, wherein the pressure mandrels (18) are provided with actuators for displacing and retaining the tap shoes (20) in the passive position and the active position, respectively, or in a selectable position between the passive and the active position.

3. The self-hoisting crane according to claim 1, wherein the pressure mandrels (18) are comprised of threaded bolts having opposing free ends that face the main shaft and are furnished with tap shoes (20), and wherein said threaded bolts cooperate with threaded holes in respective sections of the fixture (10).

4. The self-hoisting crane according to claim 1, wherein slide plates (42, 44) are located between the opposing sides of the surface of the main shaft and tap shoes.

5. The self-hoisting crane according to claim 4, wherein the slide plates are configured so that the opposing free ends of the tap shoes (20) facing the main shaft (4) are provided with a one of the slide plates (42) which in an active advanced position is engaged with the main shaft (4).

6. The self-hoisting crane according to claim 5, wherein one of the slide plates is a multi-part slide plate (44) cooperating with the main shaft (4) for mounting on the main shaft (4), where the multi-part slide plate (44) in a mounted position on the main shaft (4) cooperates with the tap shoes (20).

7. The self-hoisting crane according to claim 1, further comprising a rotor lock (24) for fixation of the rotor (8) of the wind turbine.

8. A self-hoisting crane with a main shaft fixture (10) for fixation of a main shaft (4) on a wind turbine during execution of installation and repair work on heavy parts of a wind turbine, where the fixture (10) is divided up into a number of sections for mounting on stable structural parts (2) in a nacelle in a wind turbine, including the bottom frame (2) of the nacelle, wherein the main shaft fixture (10) comprises at least three radially displaceable pressure mandrels (18), substantially symmetrical located around a center axis (11) of the main shaft, first ends of said pressure mandrels (18) face the main shaft (4) and are furnished with a tap shoe (20), and wherein said pressure mandrels (18) are displaceable between a passive, withdrawn lockable position where the tap shoes (20) are configured to be located at a distance from the surface of the main shaft (4) and an advanced lockable position where the tap shoes (20) are configured to be engaged with the main shaft (4), further comprising a rotor lock (24) for fixation of the rotor (8) of the wind turbine, further comprising one of a multi-part needle bearing, roller bearing, or ball bearing (46) comprised of a multi-part inner ring (48) fastened to the main shaft (4), and a therewith cooperating multi-part outer ring (50) comprised of bowed sub-segments (52) corresponding to the number of tap shoes, mounted on the opposing side of the tap shoes (20) facing the inner ring (48), which in the advanced active position of the pressure mandrels form the outer ring (50) at a distance from the outer periphery of the multi-part inner ring (48), and where a plurality of needle rollers, rollers, or balls (54) are arranged between the inner ring (48) and the outer ring (50), and where means are present for retaining the needles, rollers, or balls (54) in position between the inner ring (48) and outer ring (50).

9. The self-hoisting crane according to claim 8, wherein main shaft fixture (10) is connected by mounting facilities (40) the crane (12).

ABSTRACT

A main shaft fixture for fixing a main shaft on a wind turbine during installation and repair work on heavy parts of the wind turbine nacelle, in the case where the fixture is formed of several sections for mounting on stable structural parts in the nacelle, including the nacelle's bottom frame. The main shaft fixture has adjustable pressure mandrels with tap shoes, which cause the fixture to be usable regardless of the turbine main shaft geometry, such that it can be mounted without fixing the rotor. The main shaft fixture also has facilities for mounting of a lightweight crane and a self-hoisting crane with a ground-based winch, respectively, as well as a rotor lock which, in combination with actuators of the main shaft fixture, enables the main shaft and the main shaft bearing to be sufficiently displaced vertically from its bearing in the nacelle to service or replace the bearing.