

To: PATDOCTC@fr.com,,
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 26161

Dec 16, 2021 04:18:42 AM

Dear PAIR Customer:

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

The following USPTO patent application(s) associated with your Customer Number, 26161 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

Disclaimer:

The list of documents shown below is provided as a courtesy and is not part of the official file wrapper. The content of the images shown in PAIR is the official record.

Application	Document	Mailroom Date	Attorney Docket No.
16398362	ISSUE.NTF	12/15/2021	15540-0370004

To view your correspondence online or update your email addresses, please visit us anytime at <https://portal.uspto.gov/secure/myportal/privatepair>.

If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE
PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/398,362	01/04/2022	11215761	15540-0370004	2817
26161	7590	12/15/2021		
FISH & RICHARDSON P.C. (BO) P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022				

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

The Patent Term Adjustment is 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 Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

INVENTOR(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional inventors):

Rudolph Huber, Aldingen-Aixheim, GERMANY;
Wolfgang Andreasch, Weinstadt, GERMANY;
Martin Huonker, Dietingen, GERMANY;

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

TRUMPF Laser- und Systemtechnik GmbH, Ditzingen, GERMANY;

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.

Electronic Patent Application Fee Transmittal				
Application Number:		16398362		
Filing Date:		30-Apr-2019		
Title of Invention:		METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY COUPLING DIFFERENT INPUT LASER BEAMS INTO DIFFERENT CORES OF A MULTI-CLAD FIBER		
First Named Inventor/Applicant Name:		Rudolph Huber		
Filer:		Yunbo Guo/Cheryl Forrest		
Attorney Docket Number:		15540-0370004		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	1501	1	1200	1200

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1200

Electronic Acknowledgement Receipt	
EFS ID:	44404119
Application Number:	16398362
International Application Number:	
Confirmation Number:	2817
Title of Invention:	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY COUPLING DIFFERENT INPUT LASER BEAMS INTO DIFFERENT CORES OF A MULTI-CLAD FIBER
First Named Inventor/Applicant Name:	Rudolph Huber
Customer Number:	26161
Filer:	Yunbo Guo/Cheryl Forrest
Filer Authorized By:	Yunbo Guo
Attorney Docket Number:	15540-0370004
Receipt Date:	01-DEC-2021
Filing Date:	30-APR-2019
Time Stamp:	09:56:03
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$1200
RAM confirmation Number	E2021B1056140525
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	ReplytoNOA.pdf	184002	no	3
			68830e188955858bd49129e9bd305ec286664e85		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	38145	no	2
			88820191a5c04cd2f9328b44a08cae6a8c019506		
Warnings:					
Information:					
Total Files Size (in bytes):			222147		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor :	Rudolph Huber	Art Unit :	2874
Application No. :	16/398,362	Examiner :	Michelle R. Connelly
Filed :	April 30, 2019	Confirmation No. :	2817
		Notice of Allowance Date:	September 3, 2021
Title :	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY COUPLING DIFFERENT INPUT LASER BEAMS INTO DIFFERENT CORES OF A MULTI-CLAD FIBER		

MAIL STOP ISSUE FEE

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

REPLY TO NOTICE OF ALLOWANCE

In response to the Notice of Allowance dated September 3, 2021, enclosed is a completed Part B - Fee(s) Transmittal.

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

COMMENTS ON EXAMINER'S REASONS FOR ALLOWANCE

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

First Named Inventor : Rudolph Huber
Application No. : 16/398,362
Filed : April 30, 2019
Page : 2 of 2

Attorney Docket: 15540-0370004 /
SP10120US(PCT)CON3; 18.01127; DS10502

In addition, each dependent claim stands on its own and may be allowable on its own merits. In particular, each dependent claim may be allowable on the basis of a combination of some of the features recited in the dependent claim and its base claim(s), which combination of features may not include all of the limitations identified in the Examiner's reasons for allowance.

Respectfully submitted,

Date: 12/01/2021

/Yunbo Guo/

Yunbo Guo, Reg. No. 70,538

Customer Number 26161
Fish & Richardson P.C.
Telephone: +1 (512) 226-8108
Facsimile: (877) 769-7945

24169990.doc

PART B - FEE(S) TRANSMITTAL

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

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

By fax, send to: (571) 273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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

26161 7590 09/03/2021

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

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/398,362	04/30/2019	Rudolph Huber	15540-0370004	2817

TITLE OF INVENTION: METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY COUPLING DIFFERENT INPUT LASER BEAMS INTO DIFFERENT CORES OF A MULTI-CLAD FIBER

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	LARGE	\$1200	\$0	\$0	\$1200	12/03/2021
EXAMINER	ART UNIT	CLASS-SUBCLASS				
CONNELLY, MICHELLE R.	2874	385-016000				

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) The names of up to 3 registered patent attorneys or agents OR, alternatively, 1 Fish & Richardson P.C.
- (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

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

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

TRUMPF Laser- und Systemtechnik GmbH

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Ditzingen, Germany

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. Fees Submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies

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

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

5. **Change of 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 as a notification of loss of entitlement to micro entity status.
- ☐ Applicant changing to regular undiscounted fee status. **NOTE:** Checking this box will be taken as a notification of loss of entitlement to small or micro entity status, as applicable.

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

Authorized Signature /Yunbo Guo/

Date 12/01/2021

Typed or printed name Yunbo Guo

Registration No. 70,538

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

OMB 0651-0033

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

24169992.doc

To: PATDOCTC@fr.com,,
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 26161

Sep 08, 2021 03:53:49 AM

Dear PAIR Customer:

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

The following USPTO patent application(s) associated with your Customer Number, 26161 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

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Application	Document	Mailroom Date	Attorney Docket No.
16398362	APP.FILE.REC	09/08/2021	15540-0370004

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UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
16/398,362	04/30/2019	2874	2880	15540-0370004	27	4

CONFIRMATION NO. 2817
CORRECTED FILING RECEIPT

26161
FISH & RICHARDSON P.C. (BO)
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022



0000000128241373

Date Mailed: 09/08/2021

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

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

Inventor(s)

Rudolph Huber, Aldingen-Aixheim, GERMANY;
Wolfgang Andreasch, Weinstadt, GERMANY;
Martin Huonker, Dietingen, GERMANY;

Applicant(s)

TRUMPF Laser- und Systemtechnik GmbH, Ditzingen, GERMANY;

Power of Attorney: The patent practitioners associated with Customer Number 26161

Domestic Priority data as claimed by applicant

This application is a CON of 15/279,781 09/29/2016 PAT 10281656
which is a CON of 14/300,138 06/09/2014 PAT 9482821
which is a CON of 13/639,401 12/20/2012 PAT 8781269
which is a 371 of PCT/EP2011/055484 04/08/2011

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.)
GERMANY 102010003750.8 04/08/2010 No Access Code Provided

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

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

If Required, Foreign Filing License Granted: 05/09/2019

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/398,362**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No

Title

METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY COUPLING DIFFERENT INPUT LASER BEAMS INTO DIFFERENT CORES OF A MULTI-CLAD FIBER

Preliminary Class

385

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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

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

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

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

page 2 of 4

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

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

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

NOT GRANTED

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To: PATDOCTC@fr.com,,
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 26161

Sep 03, 2021 04:55:36 AM

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

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Application	Document	Mailroom Date	Attorney Docket No.
16398362	NOA	09/03/2021	15540-0370004

To view your correspondence online or update your email addresses, please visit us anytime at <https://portal.uspto.gov/secure/myportal/privatepair>.

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Monday - Friday 6:00 a.m. to 12:00 a.m.

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PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM



UNITED STATES PATENT AND TRADEMARK OFFICE

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

26161 7590 09/03/2021
FISH & RICHARDSON P.C. (BO)
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

EXAMINER

CONNELLY, MICHELLE R

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 09/03/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/398,362	04/30/2019	Rudolph Huber	15540-0370004	2817

TITLE OF INVENTION: METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE
CHARACTERISTIC BY A MULTI-CLAD FIBER

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	12/03/2021

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

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

HOW TO REPLY TO THIS NOTICE:

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

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

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

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

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

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

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

PART B - FEE(S) TRANSMITTAL

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

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

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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

26161 7590 09/03/2021
FISH & RICHARDSON P.C. (BO)
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/398,362	04/30/2019	Rudolph Huber	15540-0370004	2817

TITLE OF INVENTION: METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE
CHARACTERISTIC BY A MULTI-CLAD FIBER

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	12/03/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
CONNELLY, MICHELLE R	2874	385-016000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

(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) ☐ Advance Order - # of Copies _____

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

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

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

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

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

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

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

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

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

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/398,362	04/30/2019	Rudolph Huber	15540-0370004	2817
26161	7590	09/03/2021	EXAMINER	
FISH & RICHARDSON P.C. (BO)			CONNELLY, MICHELLE R	
P.O. BOX 1022				
MINNEAPOLIS, MN 55440-1022				
			ART UNIT	PAPER NUMBER
			2874	
DATE MAILED: 09/03/2021				

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

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

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

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

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

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

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

Privacy Act Statement

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

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

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

Notice of Allowability	Application No. 16/398,362	Applicant(s) Huber et al.	
	Examiner MICHELLE R CONNELLY	Art Unit 2874	AIA (FITF) Status No

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

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Applicant's Amendment filed on July 19, 2021.
☐ 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 6,8 and 28-30. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
Certified copies:
a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 13/639,401.
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)	5. ☐ Examiner's Amendment/Comment
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.	6. ☒ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.	7. ☐ Other _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.	

/MICHELLE R CONNELLY/ Primary Examiner, Art Unit 2874	
--	--

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

Terminal Disclaimer

The terminal disclaimer filed on July 19, 2021 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent No. 8,781,269 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Amendment

Applicant's Amendment filed July 19, 2021 has been fully considered and entered.

Allowable Subject Matter

Claims 6, 8, and 28-30 are allowed.

The following is an examiner's statement of reasons for allowance: Claims 6, 8, 28 and 29 remain allowable over the prior art of record, which is the most relevant prior art known, for the reasons stated in the Office action mailed April 22, 2021. Claim 30 depends from claim 28.

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 MICHELLE R CONNELLY whose telephone number is (571)272-2345. The examiner can normally be reached on Monday-Friday, 9 AM to 5 PM.

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, Uyen-Chau Le can be reached on 571-272-2397. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <https://ppair-my.uspto.gov/pair/PrivatePair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access

Application/Control Number: 16/398,362
Art Unit: 2874

Page 4

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

/MICHELLE R CONNELLY/
Primary Examiner, Art Unit 2874

Issue Classification 	Application/Control No. 16/398,362	Applicant(s)/Patent Under Reexamination Huber et al.
	Examiner MICHELLE R CONNELLY	Art Unit 2874

CPC						
Symbol					Type	Version
G02B	/	6	/	3508	F	2013-01-01
B23K	/	26	/	073	I	2013-01-01
G02B	/	6	/	03644	I	2013-01-01
G02B	/	6	/	262	I	2013-01-01
G02B	/	6	/	4206	I	2013-01-01
G02B	/	6	/	4296	I	2013-01-01
B23K	/	26	/	064	I	2013-01-01
G02B	/	6	/	02042	I	2013-01-01
G02B	/	6	/	35	I	2013-01-01
B23K	/	26	/	067	I	2013-01-01
B23K	/	2103	/	06	A	2018-08-01

CPC Combination Sets				
Symbol	Type	Set	Ranking	Version
/				

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	5	
/MICHELLE R CONNELLY/ Primary Examiner, Art Unit 2874	28 August 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6

Issue Classification 	Application/Control No. 16/398,362	Applicant(s)/Patent Under Reexamination Huber et al.
	Examiner MICHELLE R CONNELLY	Art Unit 2874

INTERNATIONAL CLASSIFICATION			
CLAIMED			
G02B		6	35
G02B		6	02
B23K		26	073
B23K		26	067
G02B		6	26
NON-CLAIMED			

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

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

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	5	
/MICHELLE R CONNELLY/ Primary Examiner, Art Unit 2874	28 August 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6

Issue Classification 	Application/Control No. 16/398,362	Applicant(s)/Patent Under Reexamination Huber et al.
	Examiner MICHELLE R CONNELLY	Art Unit 2874

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☒ T.D. ☐ R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
-	1	-	10	-	19	3	28								
-	2	-	11	-	20	4	29								
-	3	-	12	-	21	5	30								
-	4	-	13	-	22										
-	5	-	14	-	23										
1	6	-	15	-	24										
-	7	-	16	-	25										
2	8	-	17	-	26										
-	9	-	18	-	27										

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 5	
/MICHELLE R CONNELLY/ Primary Examiner, Art Unit 2874 (Primary Examiner) _____ (Date) 28 August 2021		O.G. Print Claim(s) 1	O.G. Print Figure 6

<i>Search Notes</i> 	Application/Control No. 16/398,362	Applicant(s)/Patent Under Reexamination Huber et al.
	Examiner MICHELLE R CONNELLY	Art Unit 2874

CPC - Searched*		
Symbol	Date	Examiner
G02B 6/3508 ; G02B 6/02042; B23K 26/ 067; B23K 26/064; G02B 6/4206; G02B 6/262; G02B 6/03644; B23K/26073	07/20/2020	AU
Updated above	10/15/2020	AU

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
385	16	07/21/2020	AU

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

Search Notes		
Search Notes	Date	Examiner
EAST, ASSIGNEE and INVENTOR	07/21/2020	AU
https://iq.ip.com/discover	07/20/2020	AU
https://iq.ip.com/discover	07/21/2020	AU
(G02B6/3508 or B23K26/067 or B23K26/064 or G02B6/02042 or G02B6/35 or B23K26/073 or G02B6/03644 or G02B6/262 or G02B6/4206 or G02B6/4296).cpc. limited with text (see attached EAST text search strategy)	04/15/2021	/MC/
Inventor & Assignee search	04/19/2021	/MC/
USPTO EAST (see attached EAST text search strategy)	04/15/2021	/MC/
USPTO EAST (see attached EAST text search strategy)	08/28/2021	/MC/

/AKM E ULLAH/ Primary Examiner, Art Unit 2874	
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<i>Search Notes</i> 	Application/Control No. 16/398,362	Applicant(s)/Patent Under Reexamination Huber et al.
	Examiner MICHELLE R CONNELLY	Art Unit 2874

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
USPTO EAST	(see attached EAST text search strategy)	08/28/2021	/MC/

/AKM E ULLAH/ Primary Examiner, Art Unit 2874	
--	--

<i>Index of Claims</i> 	Application/Control No. 16/398,362	Applicant(s)/Patent Under Reexamination Huber et al.
	Examiner MICHELLE R CONNELLY	Art Unit 2874

✓	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	06/09/2020	10/15/2020	04/19/2021	08/28/2021					
	1	÷	✓	-	-					
	2	÷	✓	-	-					
	3	÷	✓	-	-					
	4	÷	✓	-	-					
	5	÷	✓	-	-					
1	6	÷	O	✓	=					
	7	÷	✓	-	-					
2	8	÷	✓	✓	=					
	9	÷	N	N	-					
	10	÷	N	N	-					
	11	÷	N	N	-					
	12	÷	N	N	-					
	13	÷	N	N	-					
	14	÷	N	N	-					
	15	÷	N	N	-					
	16	÷	N	N	-					
	17	÷	N	N	-					
	18	÷	N	N	-					
	19	÷	N	N	-					
	20	÷	N	N	-					
	21	÷	N	N	-					
	22	÷	N	N	-					
	23	÷	N	N	-					
	24	÷	N	N	-					
	25	÷	N	N	-					
	26	÷	N	N	-					
	27	÷	N	N	-					
3	28			=	=					
4	29			=	=					
5	30				=					

Bibliographic Data

Application No: 16/398,362

Foreign Priority claimed: ☒ Yes ☐ No

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

Verified and Acknowledged:

/MICHELLE R CONNELLY/

Examiner's Signature

Initials

Title:

METHOD AND ARRANGEMENT FOR GENERATING A LASER
BEAM HAVING A DIFFERING BEAM PROFILE
CHARACTERISTIC BY A MULTI-CLAD FIBER

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
04/30/2019	385	2874	15540-0370004
RULE			

APPLICANTS

TRUMPF Laser- und Systemtechnik GmbH, Ditzingen, GERMANY

INVENTORS

Rudolph Huber, Aldingen-Aixheim, GERMANY

Wolfgang Andreasch, Weinstadt, GERMANY

Martin Huonker, Dietingen, GERMANY

CONTINUING DATA

This application is a CON of 15279781 09/29/2016 PAT 10281656

15279781 is a CON of 14300138 06/09/2014 PAT 9482821

14300138 is a CON of 13639401 12/20/2012 PAT 8781269

13639401 is a 371 of PCT/EP2011/055484 04/08/2011

FOREIGN APPLICATIONS

GERMANY DE102010003750.8 04/08/2010

IF REQUIRED, FOREIGN LICENSE GRANTED**

05/09/2019

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\$2,880

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	3	("2019/0258009").URPN.	USPAT	OR	ON	2021/08/28 19:58
L2	1	16/398,362	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/08/28 19:58
L3	9	(G02B6/3508 or B23K26/067 or B23K26/064 or G02B6/02042 or G02B6/35 or B23K26/073 or G02B6/03644 or G02B6/262 or G02B6/4206 or G02B6/4296).cpc. and laser and (((optic\$3 near2 fib\$3) or opticalfib\$3 or optical-fib\$3 or opticfib\$3 or optic-fib\$3 or fibreoptic\$3 or fibre-optic\$3 or fiberoptic\$3 or fiber-optic\$3) same (multi-clad or multiclاد or multicore or multi-core or (multiple adj core) or (plural\$3 near2 core))) and (divid\$3 with (light or beam or input)) and (subbeam or sub-beam)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/08/28 19:58
L4	0	("2020/0310055").URPN.	USPAT	OR	ON	2021/08/28 19:58
L5	3	("2019/0258009").URPN.	USPAT	OR	ON	2021/08/28 19:59
L6	0	("2017/0031105").URPN.	USPAT	OR	ON	2021/08/28 19:59
L7	24	("2015/0293306").URPN.	USPAT	OR	ON	2021/08/28 19:59
L8	47	("2013/0223792").URPN.	USPAT	OR	ON	2021/08/28 19:59
L9	37	("20020071647" "20020168139" "20020172485" "20050031261" "20060251367" "20060263024" "20110305249" "20130064706" "20150217402" "20150378184" "3941670" "3975082" "4475788" "4575181" "5461692" "5475704" "5684642" "6819815" "7372877" "7379237" "7379648" "7592568" "7720340" "7738166" "7809225"	US-PGPUB; USPAT; USOCR	OR	ON	2021/08/28 19:59

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L11	55	("20020071647" "20020168139" "20020172485" "20060251367" "20060263024" "3941670" "4475788" "4575181" "5684642" "7372877" "7379237" "7379648" "7720340" "7738166" "7809225" "7839902" "7933479" "8076632" "8094370" "8456523").PN. OR ("8781269").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2021/08/28 19:59
L12	93	(L4 or L1 or L6 or L7 or L8 or L9 or L10 or L11)	US-PGPUB; USPAT; USOCR	OR	ON	2021/08/28 19:59
L13	10	(G02B6/3508 or B23K26/067 or B23K26/064 or G02B6/02042 or G02B6/35 or B23K26/073 or G02B6/03644 or G02B6/262 or G02B6/4206 or G02B6/4296).cpc. and (((optic\$3 near2 fib\$3) or opticalfib\$3 or optical-fib\$3 or opticfib\$3 or optic-fib\$3 or fibreoptic\$3 or fibre-optic\$3 or fiberoptic\$3 or fiber- optic\$3) same (multi-clad or multiclاد or multicore or multi-core or (multiple adj core) or (plural\$3 near2 core))) and (divid\$3 with (light or beam or input)) and (subbeam or sub-beam)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/08/28 19:59
L14	199	(G02B6/3508 or B23K26/067 or B23K26/064 or G02B6/02042 or G02B6/35 or B23K26/073 or G02B6/03644 or G02B6/262 or G02B6/4206 or G02B6/4296).cpc. and (((optic\$3 near2 fib\$3) or opticalfib\$3 or optical-fib\$3 or opticfib\$3 or optic-fib\$3 or fibreoptic\$3 or fibre-optic\$3 or fiberoptic\$3 or fiber- optic\$3) same (multi-clad or multiclاد or multicore or multi-core or (multiple adj	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/08/28 19:59

		core) or (plural\$3 near2 core))) and (divid\$3 with (light or beam or input))				
L15	5	((laser adj beam) and coupl\$3 and fiber and (multiclad or multi-clad) and (inner near2 core) and ((outer or ring) near2 core) and (subbeam or sub-beam)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/08/28 19:59
L16	1	L13 not L3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/08/28 19:59
L17	5	((laser adj beam) and coupl\$3 and fiber and (multiclad or multi-clad) and (inner near2 core) and ((outer or ring) near2 core) and (subbeam or sub-beam) and divid\$3).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/08/28 19:59
L18	4	((laser adj beam) and coupl\$3 and fiber and (multiclad or multi-clad) and (inner near2 core) and ((outer or ring) near2 core) and (subbeam or sub-beam) and divid\$3 and different).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/08/28 19:59
L19	62	"8781269"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/08/28 19:59
L20	1	("8781269").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2021/08/28 19:59
L21	80	((("HUBER") near3 ("Rudolph")) OR ((("ANDREASCH") near3 ("Wolfgang")) OR ((("HUONKER") near3 ("Martin")))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2021/08/28 19:59
L22	58	((("TRUMPF") near3 ("LASER-") near3 ("UND") near3 ("SYSTEMTECHNIK") near3 ("GMBH"))).AS,AANM.	USPAT	OR	ON	2021/08/28 19:59

L23	7	(L21 or L22) and (((optic\$3 near2 fib\$3) or opticalfib\$3 or optical-fib\$3 or opticfib\$3 or optic-fib\$3 or fibreoptic\$3 or fibre-optic\$3 or fiberoptic\$3 or fiber-optic\$3) same (multi-clad or multiclاد or multicore or multi-core or (multiple adj core) or (plural\$3 near2 core))) and (divid\$3 with (light or beam or input))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/08/28 19:59
L24	18	(1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23) and @pd>"20210419"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/08/28 20:05
S1	1	16/398,362	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/04/15 15:40
S2	8	(G02B6/3508 or B23K26/067 or B23K26/064 or G02B6/02042 or G02B6/35 or B23K26/073 or G02B6/03644 or G02B6/262 or G02B6/4206 or G02B6/4296).cpc. and laser and (((optic\$3 near2 fib\$3) or opticalfib\$3 or optical-fib\$3 or opticfib\$3 or optic-fib\$3 or fibreoptic\$3 or fibre-optic\$3 or fiberoptic\$3 or fiber-optic\$3) same (multi-clad or multiclاد or multicore or multi-core or (multiple adj core) or (plural\$3 near2 core))) and (divid\$3 with (light or beam or input)) and (subbeam or sub-beam)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/04/15 17:17
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S5	0	("2017/0031105").URPN.	USPAT	OR	ON	2021/04/15 17:18
S6	24	("2015/0293306").URPN.	USPAT	OR	ON	2021/04/15 17:18
S7	46	("2013/0223792").URPN.	USPAT	OR	ON	2021/04/15 17:18
S8	37	("20020071647" "20020168139" "20020172485" "20050031261" "20060251367" "20060263024" "20110305249" "20130064706"	US-PGPUB; USPAT; USOCR	OR	ON	2021/04/15 17:19

		"20150217402" "20150378184" "3941670" "3975082" "4475788" "4575181" "5461692" "5475704" "5684642" "6819815" "7372877" "7379237" "7379648" "7592568" "7720340" "7738166" "7809225" "7839902" "7933479" "8008600" "8076632" "8094370" "8326099" "8456523" "8781269" "9482821").PN. OR ("10281656").URPN.				
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S11	92	(S3 or S4 or S5 or S6 or S7 or S8 or S9 or S10)	US-PGPUB; USPAT; USOCR	OR	ON	2021/04/15 17:19
S12	9	(G02B6/3508 or B23K26/067 or B23K26/064 or G02B6/02042 or G02B6/35 or B23K26/073 or G02B6/03644 or G02B6/262 or G02B6/4206 or G02B6/4296).cpc. and (((optic\$3 near2 fib\$3) or opticalfib\$3 or optical-fib\$3 or opticfib\$3 or optic-fib\$3 or fibreoptic\$3 or fibre-optic\$3 or fiberoptic\$3 or fiber- optic\$3) same (multi-clad or multiclاد or multicore or multi-core or (multiple adj core) or (plural\$3 near2 core))) and (divid\$3 with (light or beam or input)) and (subbeam or sub-beam)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/04/15 17:20
S13	186	(G02B6/3508 or B23K26/067 or B23K26/064 or G02B6/02042 or G02B6/35 or B23K26/073 or G02B6/03644 or G02B6/262 or G02B6/4206 or G02B6/4296).cpc. and (((optic\$3 near2	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2021/04/15 17:20

		fib\$3) or opticalfib\$3 or optical-fib\$3 or opticfib\$3 or optic-fib\$3 or fibreoptic\$3 or fibre-optic\$3 or fiberoptic\$3 or fiber-optic\$3) same (multi-clad or multiclاد or multicore or multi-core or (multiple adj core) or (plural\$3 near2 core))) and (divid\$3 with (light or beam or input))	DERWENT; IBM_TDB			
S14	5	((laser adj beam) and coupl\$3 and fiber and (multiclاد or multi-clad) and (inner near2 core) and ((outer or ring) near2 core) and (subbeam or sub-beam)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/04/15 17:22
S15	1	S12 not S2	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/04/15 17:22
S16	5	((laser adj beam) and coupl\$3 and fiber and (multiclاد or multi-clad) and (inner near2 core) and ((outer or ring) near2 core) and (subbeam or sub-beam) and divid\$3).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/04/15 17:24
S17	4	((laser adj beam) and coupl\$3 and fiber and (multiclاد or multi-clad) and (inner near2 core) and ((outer or ring) near2 core) and (subbeam or sub-beam) and divid\$3 and different).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/04/15 17:27
S18	59	"8781269"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/04/19 10:58
S19	1	("8781269").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2021/04/19 10:59
S20	79	((("HUBER") near3 ("Rudolph")) OR ((("ANDREASCH") near3 ("Wolfgang"))) OR ((("HUONKER") near3 ("Martin")))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2021/04/19 11:01

S21	54	((("TRUMPF") near3 ("LASER-") near3 ("UND") near3 ("SYSTEMTECHNIK") near3 ("GMBH"))).AS,AANM.	USPAT	OR	ON	2021/04/19 11:01
S22	7	(S20 or S21) and (((optic\$3 near2 fib\$3) or opticalfib\$3 or optical-fib\$3 or opticfib\$3 or optic-fib\$3 or fibreoptic\$3 or fibre-optic\$3 or fiberoptic\$3 or fiber-optic\$3) same (multi-clad or multiclاد or multicore or multi-core or (multiple adj core) or (plural\$3 near2 core))) and (divid\$3 with (light or beam or input))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/04/19 11:01

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L25	9	(G02B6/3508 or B23K26/067 or B23K26/064 or G02B6/02042 or G02B6/35 or B23K26/073 or G02B6/03644 or G02B6/262 or G02B6/4206 or G02B6/4296).cpc. and laser and (((optic\$3 near2 fib\$3) or opticalfib\$3 or optical-fib\$3 or opticfib\$3 or optic-fib\$3 or fibreoptic\$3 or fibre-optic\$3 or fiberoptic\$3 or fiber-optic\$3) same (multi-clad or multiclاد or multicore or multi-core or (multiple adj core) or (plural\$3 near2 core))) and (divid\$3 with (light or beam or input)) and (subbeam or sub-beam)	US-PGPUB; USPAT	OR	ON	2021/08/28 20:05
L26	10	(G02B6/3508 or B23K26/067 or B23K26/064 or G02B6/02042 or G02B6/35 or B23K26/073 or G02B6/03644 or G02B6/262 or G02B6/4206 or G02B6/4296).cpc. and (((optic\$3 near2 fib\$3) or opticalfib\$3 or optical-fib\$3 or opticfib\$3 or optic-fib\$3 or fibreoptic\$3 or fibre-optic\$3 or fiberoptic\$3 or fiber-optic\$3) same (multi-clad or multiclاد or multicore or multi-core or (multiple adj core) or (plural\$3 near2 core))) and (divid\$3 with (light or beam or input)) and (subbeam or sub-beam)	US-PGPUB; USPAT	OR	ON	2021/08/28 20:05
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L28	5	((laser adj beam) and coupl\$3 and fiber and (multiclad or multi-clad) and (inner near2 core) and ((outer or ring) near2 core) and (subbeam or sub-beam)).clm.	US-PGPUB; USPAT	OR	ON	2021/08/28 20:06
L29	5	((laser adj beam) and coupl\$3 and fiber and (multiclad or multi-clad) and (inner near2 core) and ((outer or ring) near2 core) and (subbeam or sub-beam) and divid\$3).clm.	US-PGPUB; USPAT	OR	ON	2021/08/28 20:06
L30	4	((laser adj beam) and coupl\$3 and fiber and (multiclad or multi-clad) and (inner near2 core) and ((outer or ring) near2 core) and (subbeam or sub-beam) and divid\$3 and different).clm.	US-PGPUB; USPAT	OR	ON	2021/08/28 20:06
L31	194	(26 or 26 or 27 or 28 or 29 or 30)	US-PGPUB; USPAT	OR	ON	2021/08/28 20:08

8/28/2021 8:11:25 PM

C:\Users\mconnellycushwa\Documents\EAST\Workspaces\16398362.wsp

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 16/398,362		Filing Date 04/30/2019		☐ To be Mailed	
ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO									
APPLICATION AS FILED - PART I									
	(Column 1)	(Column 2)							
FOR	NUMBER FILED	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), (l), 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(j))	minus 20 =	*			x \$100 =				
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*			x \$460 =				
☐ 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	07/19/2021	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(j))	* 5	Minus	** 20	= 0		x \$ 100 =	0	
	Independent (37 CFR 1.16(h))	* 2	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		
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(j))	*	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.						LIE			
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".						/TERRANCE R LAWRENCE/			
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".									
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.									

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

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor :	Rudolph Huber	Art Unit :	2874
Application No. :	16/398,362	Examiner :	Michelle R. Connelly
Filed :	April 30, 2019	Conf. No. :	2817
Title :	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER		

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

REPLY TO ACTION OF APRIL 22, 2021

Please consider the following reply.

Amendments to Claims

Listing of Claims

1 - 5. (Cancelled)

6. (Previously Presented) A method of generating a laser beam with different beam profile characteristics, the method comprising:

coupling an input laser beam into a first fiber end of a multi-clad fiber, wherein the coupling comprises electively at least one of

coupling a first input laser beam at least into an inner fiber core of the multi-clad fiber, or

coupling a second, different input laser beam at least into at least one outer ring core of the multi-clad fiber; and

emitting an output laser beam from a second fiber end of the multi-clad fiber,

wherein coupling the input laser beam into the first fiber end of the multi-clad fiber comprises:

dividing the input laser beam into at least two sub-beams including a first sub-beam and a second sub-beam; and

coupling the first sub-beam into the inner fiber core of the multi-clad fiber as the first input laser beam and the second sub-beam into the outer ring core of the multi-clad fiber as the second input laser beam.

7. (Cancelled).

8. (Original) The method of claim 6, wherein the multi-clad fiber comprises a double-clad fiber.

9-27. (Cancelled)

28. (Currently Amended) A method of generating a laser beam with different beam profile characteristics, the method comprising:

coupling an input laser beam into a first fiber end of a multi-clad fiber, wherein the coupling comprises electively at least one of

coupling a first input laser beam at least into an inner fiber core of the multi-clad fiber, or

coupling a second, different input laser beam at least into at least one outer ring core of the multi-clad fiber; and

emitting an output laser beam from a second fiber end of the multi-clad fiber,

wherein the first input laser beam and the second input laser beam are guided respectively in first and second optical fibers,

wherein coupling the first input laser beam at least into the inner fiber core of the multi-clad fiber comprises[[:]] coupling the first input laser beam from the first optical fiber at least into the inner fiber core of the multi-clad fiber, and

wherein coupling the second, different input laser beam into the at least one outer ring core of the multi-clad fiber comprises[[:]] coupling the second input laser beam from the second optical fiber at least into the at least one outer ring core of the multi-clad fiber.

29. (Previously Presented) The method of claim 28, wherein the multi-clad fiber comprises a double-clad fiber.

30. (New) The method of generating a laser beam of claim 28, wherein coupling an input laser beam into a first fiber end of a multi-clad fiber comprises:

coupling a first input laser beam at least into an inner fiber core of the multi-clad fiber, and

coupling a second, different input laser beam at least into at least one outer ring core of the multi-clad fiber.

First Named Inventor : Rudolph Huber
Application No. : 16/398,362
Filed : April 30, 2019
Page : 4 of 5

Attorney Docket: 15540-0370004 /
SP10120US(PCT)CON3; 18.01127; DS10502

REMARKS

Claims 6, 8, 28, and 29 are pending, of which claims 9-27 are withdrawn, claims 28 and 29 are allowed, and claims 6 and 8 are rejected. Applicant has cancelled withdrawn claims 9-27 without prejudice or disclaimer. Claims 1-5 were previously cancelled. Applicant has amended claim 28 to correct minor typographical errors, and added new dependent claim 30. These amendments and new claim add no new matter.

Applicant presents the pending claims for examination in view of the amendments and is filing an electronic Terminal Disclaimer, and thus submits that all claims are now in condition for allowance.

Double Patenting Rejection

Claims 6 and 8 have been rejected on the ground of nonstatutory double patenting as being allegedly unpatentable over claims 1-15 of U.S. Patent No. 8,781,269 B2.

Without agreeing with the present rejection, applicant is submitting an electronic Terminal Disclaimer today to overcome this rejection and put the present application into condition for allowance.

CONCLUSION

All of the dependent claims are patentable for at least similar reasons as those for the claims on which they depend are patentable.

Any circumstance in which applicant has (a) addressed certain comments of the Examiner does not mean that applicant concedes other comments of the Examiner, (b) made arguments for the patentability of some claims does not mean that there are not other good reasons for patentability of those claims and other claims, or (c) amended or canceled a claim does not mean that applicant concedes any of the Examiner's positions with respect to that claim or other claims.

Applicant respectfully requests consideration of all filed IDSs not previously considered, by initialing and returning each Form PTO-1449.

First Named Inventor : Rudolph Huber
Application No. : 16/398,362
Filed : April 30, 2019
Page : 5 of 5

Attorney Docket: 15540-0370004 /
SP10120US(PCT)CON3; 18.01127; DS10502

No fees are believed to be due. However, please apply any necessary charges or credits to Deposit Account 06-1050, referencing the above Attorney Docket number 15540-0370004.

Respectfully submitted,

Date: July 19, 2021

/J. Peter Fasse/

J. Peter Fasse
Reg. No. 32,983

Customer Number 26161
Fish & Richardson P.C.
Telephone: (512) 226-8108
Facsimile: (877) 769-7945

24115629.doc

Electronic Acknowledgement Receipt	
EFS ID:	43280105
Application Number:	16398362
International Application Number:	
Confirmation Number:	2817
Title of Invention:	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER
First Named Inventor/Applicant Name:	Rudolph Huber
Customer Number:	26161
Filer:	J Peter Fasse/Cheryl Forrest
Filer Authorized By:	J Peter Fasse
Attorney Docket Number:	15540-0370004
Receipt Date:	19-JUL-2021
Filing Date:	30-APR-2019
Time Stamp:	10:25:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no				
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		ReplytoOA.pdf	75900	yes	5
			d753c2f0ed76497802e1e8e6a9b79b89e52ebd5d		

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	3
	Applicant Arguments/Remarks Made in an Amendment	4	5
Warnings:			
Information:			
Total Files Size (in bytes):		75900	
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.			

Doc Code: DIST.E.FILE Document Description: Electronic Terminal Disclaimer - Filed		PTO/SB/26 U.S. Patent and Trademark Office Department of Commerce	
Electronic Petition Request	TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT		
Application Number	16398362		
Filing Date	30-Apr-2019		
First Named Inventor	Rudolph Huber		
Attorney Docket Number	15540-0370004		
Title of Invention	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER		
☒ Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action ☒ This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.			
Owner		Percent Interest	
TRUMPF Laser- und Systemtechnik GmbH		100%	
The owner(s) with percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of prior patent number(s) 8781269 as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns. In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later: - expires for failure to pay a maintenance fee; - is held unenforceable; - is found invalid by a court of competent jurisdiction; - is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321; - has all claims canceled by a reexamination certificate; - is reissued; or - is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer. ☒ Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.			

☐ I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.	
Applicant claims the following fee status:	
☐ Small Entity ☐ Micro Entity ☒ Regular Undiscounted	
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.	
THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES	
I certify, in accordance with 37 CFR 1.4(d)(4) that I am:	
☒ An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application Registration Number <u>32983</u>	
☐ A sole inventor	
☐ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application	
☐ A joint inventor; all of whom are signing this request	
Signature	/J. Peter Fasse/
Name	J. Peter Fasse

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

Electronic Patent Application Fee Transmittal				
Application Number:		16398362		
Filing Date:		30-Apr-2019		
Title of Invention:		METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER		
First Named Inventor/Applicant Name:		Rudolph Huber		
Filer:		J Peter Fasse/Cheryl Forrest		
Attorney Docket Number:		15540-0370004		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
STATUTORY OR TERMINAL DISCLAIMER	1814	1	170	170
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				170

Doc Code: DISQ.E.FILE

Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 16398362

Filing Date: 30-Apr-2019

Applicant/Patent under Reexamination: Huber

Electronic Terminal Disclaimer filed on July 19, 2021

☒ APPROVED

This patent is subject to a terminal disclaimer

☐ DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt	
EFS ID:	43280077
Application Number:	16398362
International Application Number:	
Confirmation Number:	2817
Title of Invention:	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER
First Named Inventor/Applicant Name:	Rudolph Huber
Customer Number:	26161
Filer:	J Peter Fasse/Cheryl Forrest
Filer Authorized By:	J Peter Fasse
Attorney Docket Number:	15540-0370004
Receipt Date:	19-JUL-2021
Filing Date:	30-APR-2019
Time Stamp:	10:24:02
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$170
RAM confirmation Number	E20217IA23553137
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Terminal Disclaimer-Filed (Electronic)	eTerminal-Disclaimer.pdf	33480	no	2
			ef99c5b14a80ca3a7b339a3c61d82c1540732b57		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30600	no	2
			f08eca27640e87533cab674413906823be2259b4		
Warnings:					
Information:					
Total Files Size (in bytes):			64080		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

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



**Courtesy Reminder for
Application Serial No: 16/398,362**

Attorney Docket No: 15540-0370004

Customer Number: 26161

Date of Electronic Notification: 04/22/2021

This is a courtesy reminder that new correspondence is available for this application. If you have not done so already, please review the correspondence. The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

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To: PATDOCTC@fr.com,,
From: PAIR_eOfficeAction@uspto.gov
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Subject: Private PAIR Correspondence Notification for Customer Number 26161

Apr 22, 2021 03:59:41 AM

Dear PAIR Customer:

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

The following USPTO patent application(s) associated with your Customer Number, 26161 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

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Application	Document	Mailroom Date	Attorney Docket No.
16398362	CTNF	04/22/2021	15540-0370004
	892	04/22/2021	15540-0370004

To view your correspondence online or update your email addresses, please visit us anytime at <https://sportal.uspto.gov/secure/myportal/privatepair>.

If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/398,362	04/30/2019	Rudolph Huber	15540-0370004	2817
26161	7590	04/22/2021		
FISH & RICHARDSON P.C. (BO)			EXAMINER	
P.O. BOX 1022			CONNELLY, MICHELLE R	
MINNEAPOLIS, MN 55440-1022				
			ART UNIT	PAPER NUMBER
			2874	
			NOTIFICATION DATE	DELIVERY MODE
			04/22/2021	ELECTRONIC

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

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

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

Response to Amendment

Applicant's Amendment filed April 30, 2019 has been fully considered and entered.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be

commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP § 2146 *et seq.* for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

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

Claims 6 and 8 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-15 of U.S. Patent No. 8,781,269 B2. Although the claims at issue are not identical, they are not patentably distinct from each other because claims 1-15 of U.S. Patent No. 8,781,269 B2 at least disclose or suggest all of the limitations of claims 6, 8 of the present application.

Regarding claim 6; U.S. Patent No. 8,781,269 B2 claims a method of generating a laser beam with different beam profile characteristics (see lines 1-2 of claim 1 of U.S. Patent No. 8,781,269 B2), the method comprising:

- coupling an input laser beam into a first fiber end of a multi-clad fiber (see lines 4-5 of claim 1 of U.S. Patent No. 8,781,269 B2),
- wherein the coupling comprises electively at least one of
 - coupling a first input laser beam at least into an inner fiber core of the multi-clad fiber (see lines 13-14 of claim 1 of U.S. Patent No. 8,781,269 B2), or
 - coupling a second, different input laser beam at least into at least one outer ring core of the multi-clad fiber (see lines 15-16 of claim 1 of U.S. Patent No. 8,781,269 B2); and
- emitting an output laser beam from a second fiber end of the multi-clad fiber (see lines 6-7 of claim 1 of U.S. Patent No. 8,781,269 B2),
- wherein coupling the input laser beam into the first fiber end of the multi-clad fiber (see lines 4-5 of claim 1 of U.S. Patent No. 8,781,269 B2) comprises:
 - dividing the input laser beam into at least two sub-beams including a first sub-beam and a second sub-beam (see claim 4 of U.S. Patent No. 8,781,269 B2, wherein the two sub-beams inherently includes a first sub-beam and a second sub-beam); and
 - coupling the first sub-beam into the inner fiber core of the multi-clad fiber as the first input laser beam and the second sub-beam into the outer ring core of the multi-clad fiber as the second input laser beam (each of the sub-beams is coupled into one of the cores,

wherein the cores includes the inner fiber core and the outer ring core; see claim 4 of U.S. Patent No. 8,781,269 B2).

Regarding claim 8; the multi-clad fiber comprises a double-clad fiber (see line 5 of claim 1 of U.S. Patent No. 8,781,269 B2).

Allowable Subject Matter

Claims 6 and 8 would be allowable if the Non-statutory Double Patenting Rejection set forth in this Office action is overcome.

Claims 28 and 29 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record, which is the most relevant prior art known, does not disclose or render obvious:

- The method of generating a laser beam with different beam profile characteristics, as defined by claim 6, *wherein coupling the input laser beam into the first fiber end of the multi-clad fiber comprises: dividing the input laser beam into at least two sub-beams including a first sub-beam and a second sub-beam; and coupling the first sub-beam into the inner fiber core of the multi-clad fiber as the first input laser beam and the second sub-beam into the outer ring core of the multi-clad fiber as the second input laser beam in combination with all of the other limitations of claim 6; or*
- The method of generating a laser beam with different beam profile characteristics, as defined by claim 28, *wherein the first input laser beam and the second input laser beam are guided respectively in*

first and second optical fibers, wherein coupling the first input laser beam at least into the inner fiber core of the multi-clad fiber comprises: coupling the first input laser beam from the first optical fiber at least into the inner fiber core of the multi-clad fiber, and wherein coupling the second, different input laser beam into the at least one outer ring core of the multi-clad fiber comprises: coupling the second input laser beam from the second optical fiber at least into the at least one outer ring core of the multi-clad fiber in combination with all of the other limitations of claim 28.

Claims 8 depends from claim 6 and claim 29 depends from claim 28.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHELLE R CONNELLY whose telephone number is (571)272-2345. The examiner can normally be reached on Monday-Friday, 9 AM to 5 PM.

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, Uyen-Chau Le can be reached on 571-272-2397. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <https://ppair-my.uspto.gov/pair/PrivatePair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MICHELLE R CONNELLY/
Primary Examiner, Art Unit 2874

<i>Notice of References Cited</i>	Application/Control No. 16/398,362		Applicant(s)/Patent Under Reexamination Huber et al.	
	Examiner MICHELLE R CONNELLY		Art Unit 2874	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-8781269-B2	07-2014	Huber; Rudolf	G02B6/02042	385/18
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

<i>Search Notes</i> 	Application/Control No. 16/398,362	Applicant(s)/Patent Under Reexamination Huber et al.
	Examiner MICHELLE R CONNELLY	Art Unit 2874

CPC - Searched*		
Symbol	Date	Examiner
G02B 6/3508 ; G02B 6/02042; B23K 26/ 067; B23K 26/064; G02B 6/4206; G02B 6/262; G02B 6/03644; B23K/26073	07/20/2020	AU
Updated above	10/15/2020	AU

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
385	16	07/21/2020	AU

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

Search Notes		
Search Notes	Date	Examiner
EAST, ASSIGNEE and INVENTOR	07/21/2020	AU
https://iq.ip.com/discover	07/20/2020	AU
https://iq.ip.com/discover	07/21/2020	AU
(G02B6/3508 or B23K26/067 or B23K26/064 or G02B6/02042 or G02B6/35 or B23K26/073 or G02B6/03644 or G02B6/262 or G02B6/4206 or G02B6/4296).cpc. limited with text (see attached EAST text search strategy)	04/15/2021	/MC/
Inventor & Assignee search	04/19/2021	/MC/
USPTO EAST (see attached EAST text search strategy)	04/15/2021	/MC/

/AKM E ULLAH/ Primary Examiner, Art Unit 2874	
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<i>Search Notes</i> 	Application/Control No. 16/398,362	Applicant(s)/Patent Under Reexamination Huber et al.
	Examiner MICHELLE R CONNELLY	Art Unit 2874

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

/AKM E ULLAH/ Primary Examiner, Art Unit 2874	
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<i>Index of Claims</i> 	Application/Control No. 16/398,362	Applicant(s)/Patent Under Reexamination Huber et al.
	Examiner MICHELLE R CONNELLY	Art Unit 2874

✓	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	06/09/2020	10/15/2020	04/19/2021					
	1	÷	✓	-					
	2	÷	✓	-					
	3	÷	✓	-					
	4	÷	✓	-					
	5	÷	✓	-					
	6	÷	O	✓					
	7	÷	✓	-					
	8	÷	✓	✓					
	9	÷	N	N					
	10	÷	N	N					
	11	÷	N	N					
	12	÷	N	N					
	13	÷	N	N					
	14	÷	N	N					
	15	÷	N	N					
	16	÷	N	N					
	17	÷	N	N					
	18	÷	N	N					
	19	÷	N	N					
	20	÷	N	N					
	21	÷	N	N					
	22	÷	N	N					
	23	÷	N	N					
	24	÷	N	N					
	25	÷	N	N					
	26	÷	N	N					
	27	÷	N	N					
	28			=					
	29			=					

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	59	"8781269"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/04/19 10:58
L2	1	("8781269").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2021/04/19 10:59
L3	79	((("HUBER") near3 ("Rudolph")) OR (("ANDREASCH") near3 ("Wolfgang")) OR (("HUONKER") near3 ("Martin"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2021/04/19 11:01
L4	54	((("TRUMPF") near3 ("LASER-") near3 ("UND") near3 ("SYSTEMTECHNIK") near3 ("GMBH"))).AS,AANM.	USPAT	OR	ON	2021/04/19 11:01
L5	7	(3 or 4) and (((optic\$3 near2 fib\$3) or opticalfib\$3 or optical-fib\$3 or opticfib\$3 or optic-fib\$3 or fibreoptic\$3 or fibre- optic\$3 or fiberoptic\$3 or fiber-optic\$3) same (multi-clad or multiclاد or multicore or multi-core or (multiple adj core) or (plural\$3 near2 core))) and (divid\$3 with (light or beam or input))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/04/19 11:01
S1	1	16/398,362	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/04/15 15:40
S2	8	(G02B6/3508 or B23K26/067 or B23K26/064 or G02B6/02042 or G02B6/35 or B23K26/073 or G02B6/03644 or G02B6/262 or G02B6/4206 or G02B6/4296).cpc. and laser and (((optic\$3 near2 fib\$3) or opticalfib\$3 or optical-fib\$3 or opticfib\$3 or optic-fib\$3 or fibreoptic\$3 or fibre-optic\$3 or fiberoptic\$3 or fiber- optic\$3) same (multi-clad or multiclاد or multicore or multi-core or (multiple adj	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/04/15 17:17

		core) or (plural\$3 near2 core))) and (divid\$3 with (light or beam or input)) and (subbeam or sub-beam)				
S3	0	("2020/0310055").URPN.	USPAT	OR	ON	2021/04/15 17:18
S4	3	("2019/0258009").URPN.	USPAT	OR	ON	2021/04/15 17:18
S5	0	("2017/0031105").URPN.	USPAT	OR	ON	2021/04/15 17:18
S6	24	("2015/0293306").URPN.	USPAT	OR	ON	2021/04/15 17:18
S7	46	("2013/0223792").URPN.	USPAT	OR	ON	2021/04/15 17:18
S8	37	("20020071647" "20020168139" "20020172485" "20050031261" "20060251367" "20060263024" "20110305249" "20130064706" "20150217402" "20150378184" "3941670" "3975082" "4475788" "4575181" "5461692" "5475704" "5684642" "6819815" "7372877" "7379237" "7379648" "7592568" "7720340" "7738166" "7809225" "7839902" "7933479" "8008600" "8076632" "8094370" "8326099" "8456523" "8781269" "9482821").PN. OR ("10281656").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2021/04/15 17:19
S9	43	("20020071647" "20020168139" "20020172485" "20050031261" "20060251367" "20060263024" "20130064706" "3941670" "3975082" "4475788" "4575181" "5461682" "5461692" "5684642" "7372877" "7379237" "7379648" "7592568" "7720340" "7738166" "7809225" "7839902" "7933479" "8008600" "8076632" "8094370" "8326099" "8456523" "8781269").PN. OR ("9482821").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2021/04/15 17:19
S10	55	("20020071647" "20020168139" "20020172485" "20060251367" "20060263024" "3941670" "4475788" "4575181" "5684642" "7372877" "7379237" "7379648" "7720340" "7738166" "7809225" "7839902" "7933479" "8076632" "8094370" "8456523").PN. OR ("8781269").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2021/04/15 17:19

S11	92	(S3 or S4 or S5 or S6 or S7 or S8 or S9 or S10)	US-PGPUB; USPAT; USOCR	OR	ON	2021/04/15 17:19
S12	9	(G02B6/3508 or B23K26/067 or B23K26/064 or G02B6/02042 or G02B6/35 or B23K26/073 or G02B6/03644 or G02B6/262 or G02B6/4206 or G02B6/4296).cpc. and (((optic\$3 near2 fib\$3) or opticalfib\$3 or optical-fib\$3 or opticfib\$3 or optic-fib\$3 or fibreoptic\$3 or fibre-optic\$3 or fiberoptic\$3 or fiber-optic\$3) same (multi-clad or multiclاد or multicore or multi-core or (multiple adj core) or (plural\$3 near2 core))) and (divid\$3 with (light or beam or input)) and (subbeam or sub-beam)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/04/15 17:20
S13	186	(G02B6/3508 or B23K26/067 or B23K26/064 or G02B6/02042 or G02B6/35 or B23K26/073 or G02B6/03644 or G02B6/262 or G02B6/4206 or G02B6/4296).cpc. and (((optic\$3 near2 fib\$3) or opticalfib\$3 or optical-fib\$3 or opticfib\$3 or optic-fib\$3 or fibreoptic\$3 or fibre-optic\$3 or fiberoptic\$3 or fiber-optic\$3) same (multi-clad or multiclاد or multicore or multi-core or (multiple adj core) or (plural\$3 near2 core))) and (divid\$3 with (light or beam or input))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/04/15 17:20
S14	5	((laser adj beam) and coupl\$3 and fiber and (multiclاد or multi-clad) and (inner near2 core) and ((outer or ring) near2 core) and (subbeam or sub-beam)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/04/15 17:22
S15	1	S12 not S2	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/04/15 17:22
S16	5	((laser adj beam) and coupl\$3 and fiber and (multiclاد or multi-clad) and (inner near2 core) and ((outer or ring) near2 core) and (subbeam or sub-beam) and divid\$3).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/04/15 17:24

S17	4	((laser adj beam) and coupl\$3 and fiber and (multiclad or multi-clad) and (inner near2 core) and ((outer or ring) near2 core) and (subbeam or sub-beam) and divid\$3 and different).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/04/15 17:27
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EAST Search History (Interference)

<This search history is empty>

4/19/2021 11:12:39 AM

C:\Users\mconnellycushwa\Documents\EAST\Workspaces\16398362.wsp

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 16/398,362		Filing Date 04/30/2019		☐ To be Mailed	
ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO									
APPLICATION AS FILED - PART I									
	(Column 1)	(Column 2)							
FOR	NUMBER FILED	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), (l), 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(j))	minus 20 =	*			x \$100 =				
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*			x \$460 =				
☐ 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	03/26/2021	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(j))	* 23	Minus	** 27	= 0	x \$100 =		0	
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	= 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		
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(j))	*	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.					LIE				
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".					/DEBORAH D SCOTT/				
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".									
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.									

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

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor :	Rudolph Huber	Art Unit :	2874
Application No. :	16/398,362	Examiner :	Akm E. Ullah
Filed :	April 30, 2019	Conf. No. :	2817
Title :	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER		

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

REPLY TO ACTION OF OCTOBER 26, 2020

Please consider the following reply.

First Named Inventor : Rudolph Huber
Application No. : 16/398,362
Filed : April 30, 2019
Page : 2 of 10

Attorney Docket: 15540-0370004 /
SP10120US(PCT)CON3; 18.01127; DS10502

Amendments to the Title:

Please amend the title to:

METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING
A DIFFERING BEAM PROFILE CHARACTERISTIC BY COUPLING DIFFERENT INPUT
LASER BEAMS INTO DIFFERENT CORES OF A MULTI-CLAD FIBER

First Named Inventor : Rudolph Huber
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Filed : April 30, 2019
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Listing of Claims (replacing all previous versions).

1 - 5. (Cancelled).

6. (Currently Amended) A method of generating a laser beam with different beam profile characteristics, the method comprising:

coupling an input laser beam into a first fiber end of a multi-clad fiber, wherein the coupling comprises electively at least one of

coupling a first input laser beam at least into ~~[[the]]~~ an inner fiber core of the multi-clad fiber, ~~[[and]]~~ or

coupling a second, different input laser beam at least into ~~[[the]]~~ at least one outer ring core of the multi-clad fiber; and

emitting an output laser beam from a second fiber end of the multi-clad fiber,

wherein coupling the input laser beam into the first fiber end of the multi-clad fiber comprises:

dividing the input laser beam into at least two sub-beams including a first sub-beam and a second sub-beam; and

coupling the first sub-beam into the inner fiber core of the multi-clad fiber as the first input laser beam and the second sub-beam into the outer ring core of the multi-clad fiber as the second input laser beam.

7. (Cancelled).

8. (Original) The method of claim 6, wherein the multi-clad fiber comprises a double-clad fiber.

9. (Withdrawn) A system for generating a laser beam with different beam profile characteristics, comprising:

a multi-clad fiber having one inner fiber core and at least one outer ring core; and

a switchable device with at least two switch positions, the switchable device configured to couple an input laser beam into a first fiber end of the multi-clad fiber by electively coupling one of

the input laser beam into the inner fiber core of the multi-clad fiber, and
the input laser beam into the at least one outer ring core of the multi-clad fiber.

10. (Withdrawn) The system of claim 9, wherein the switchable device comprises adjustable optical deflector configured to, in the at least two switch positions, deflect the input laser beam in a direction transverse to an axis of a coupling-side face of the multi-clad fiber to varying extents.

11. (Withdrawn) The system of claim 10, wherein the optical deflector comprises an optical device that is positionable in the at least two switch positions transverse to an optical axis of the input laser beam.

12. (Withdrawn) The system of claim 11, wherein the optical device is arrangeable in one of the switch positions outside a beam path of the input laser beam and in at least one other of the switch positions at least partially in the beam path of the laser beam.

13. (Withdrawn) The system of claim 11, wherein the optical device comprises an optical wedge plate.

14. (Withdrawn) The system of claim 9, wherein the switchable device comprises a controller configured to, in the at least two switch positions, move a coupling-side face of the multi-clad fiber in a direction transverse to the input laser beam to varying extents.

15. (Withdrawn) The system of claim 9, wherein the switchable device comprises an adjustable optical device configured to, in the at least two switch positions, project the input laser beam with different beam cross-sections onto a coupling-side face of the multi-clad fiber.

16. (Withdrawn) The system of claim 15, wherein the adjustable optical device is configured to be moved back and forth along an optical axis of the input laser beam axis between the at least two switch positions.

17. (Withdrawn) The system of claim 9, wherein the switchable device comprises an adjustable aperture configured to, in the at least two switch positions, project the input laser beam with different beam cross-sections onto a coupling-side face of the multi-clad fiber.

18. (Withdrawn) The system of claim 9, wherein a diameter of the inner fiber core of the multi-clad fiber is no more than 200 μm .

19. (Withdrawn) The system of claim 9, wherein a ring thickness of the at least one outer ring core of the multi-clad fiber is no smaller than a diameter of the inner fiber core.

20. (Withdrawn) The system of claim 9, wherein, for the multi-clad fiber, a numerical aperture of a first cladding surrounding the inner fiber core is higher than a numerical aperture of a second cladding surrounding the at least one outer ring core.

21. (Withdrawn) The system of claim 9, wherein the switchable device comprises two optical fibers on an input side, via which the first and second sub-beams are supplied, whereby the switchable device electively couples the first sub-beam at least into the inner fiber core of the multi-clad fiber and the second sub-beam at least into at least the one outer ring core of the multi-clad fiber.

22. (Withdrawn) A system for generating a laser beam with different beam profile characteristics, comprising:

- a multi-clad fiber having one inner fiber core and at least one outer ring core; and
- a switchable device with at least two switch positions, the switchable device configured to couple an input laser beam into a first fiber end of the multi-clad fiber by electively coupling one of

a first input laser beam at least into the inner fiber core of the multi-clad fiber, and
a second, different input laser beam at least into the at least one outer ring core of the multi-clad fiber.

23. (Withdrawn) The system of claim 22, wherein the switchable device comprises a beam divider configured to be moved into the input laser beam to divide the input laser beam into at least two sub-beams, each of the at least two sub-beam being coupled into a respective one of the cores of the multi-clad fiber.

24. (Withdrawn) The system of claim 22, wherein a diameter of the inner fiber core of the multi-clad fiber is no more than 200 μm .

25. (Withdrawn) The system of claim 22, wherein a ring thickness of the at least one outer ring core of the multi-clad fiber is no smaller than a diameter of the inner fiber core.

26. (Withdrawn) The system of claim 22, wherein, for the multi-clad fiber, a numerical aperture of a first cladding surrounding the inner fiber core is higher than a numerical aperture of a second cladding surrounding the at least one outer ring core.

27. (Withdrawn) The system of claim 22, wherein the switchable device comprises two optical fibers on an input side, via which the first and second input laser beams are supplied, whereby the switchable device electively couples the first input laser beam at least into the inner fiber core of the multi-clad fiber and the second sub-beam at least into at least one outer ring core of the multi-clad fiber.

28. (New) A method of generating a laser beam with different beam profile characteristics, the method comprising:

coupling an input laser beam into a first fiber end of a multi-clad fiber, wherein the coupling comprises electively at least one of

coupling a first input laser beam at least into an inner fiber core of the

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multi-clad fiber, or

coupling a second, different input laser beam at least into at least one outer ring core of the multi-clad fiber; and

emitting an output laser beam from a second fiber end of the multi-clad fiber,
wherein the first input laser beam and the second input laser beam are guided respectively in first and second optical fibers,

wherein coupling the first input laser beam at least into the inner fiber core of the multi-clad fiber comprises: coupling the first input laser beam from the first optical fiber at least into the inner fiber core of the multi-clad fiber, and

wherein coupling the second, different input laser beam into the at least one outer ring core of the multi-clad fiber comprises: coupling the second input laser beam from the second optical fiber at least into the at least one outer ring core of the multi-clad fiber.

29. (New) The method of claim 28, wherein the multi-clad fiber comprises a double-clad fiber.

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SP10120US(PCT)CON3; 18.01127; DS10502

REMARKS

Claims 1-27 were pending, of which claims 9-27 were withdrawn, claims 1-6 and 8 were rejected, and claim 7 is objected to. The applicant amends claim 6, cancels claims 1-5 and 7, and adds new claims 28 and 29. Support for the amendments and new claims can be found, for example, in the applicant's specification at [0034] and [0048]. No new subject matter has been added. The applicant presents the pending claims for examination in view of the amendments and the following remarks.

Objection to The Title

The title stands objected to be not descriptive. The applicant amends the title accordingly and respectfully requests that the objection be withdrawn.

Allowable Subject Matter

The applicant thanks the Examiner for identifying allowable subject matter in claim 7.

Claim Rejections – 35 USC § 103

Claims 1 - 6 and 8 stand rejected under 35 U.S.C. 103 as being unpatentable over DE 42 00 587 C1 (“Noboru”) in view U.S. Pat. Pub. No. 2006/0219673 (“Varnham”). The rejection is respectfully traversed.

Without conceding propriety of the rejection, and in a continued effort to advance prosecution of the instant application, the applicant has amended independent claim 6 to incorporate limitations corresponding to allowable claim 7, and thus is allowable for at least the same reasons as claim 7. Claims 1-5 and 7 have been cancelled. Claim 8 depends from claim 6. Therefore, the applicant respectfully submits that the rejection be withdrawn and requests a notice of allowance.

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New Claims 28-29

The applicant respectfully submits that new claim 28 is allowable because the cited prior art fails to disclose or suggest at least the following features:

“wherein the first input laser beam and the second input laser beam are guided respectively in first and second optical fibers,
wherein coupling the first input laser beam at least into the inner fiber core of the multi-clad fiber comprises: coupling the first input laser beam from the first optical fiber at least into the inner fiber core of the multi-clad fiber, and
wherein coupling the second, different input laser beam into the at least one outer ring core of the multi-clad fiber comprises: coupling the second input laser beam from the second optical fiber at least into the at least one outer ring core of the multi-clad fiber.”

Claim 29 recites features of original claim 8 and depends from claim 28. Thus, claim 29 is also allowable for at least the same reason as claim 28.

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SP10120US(PCT)CON3; 18.01127; DS10502

Conclusion

By responding in the foregoing remarks only to particular positions taken in the action, the applicant does not acquiesce in other positions that have not been explicitly addressed. In addition, the applicant's selecting some particular arguments for the patentability of a claim should not be understood as implying that no other reasons for the patentability of that claim exist. Finally, the applicant's decision to amend or cancel any claim should not be understood as implying that the applicant agrees with any positions taken in the action with respect to that claim or other claims, or that the applicant adopts any position except as specifically stated in this paper. In particular, by amending or cancelling a claim the applicant does not necessarily concede that the claim prior to amendment or cancellation was unpatentable.

The applicant respectfully requests consideration of all filed IDSs not previously considered, by initialing and returning each Form PTO-1449.

The fees for two-month extension of time are being paid with this reply on the Electronic Filing System. Apply those fees and any other necessary charges or credits to Deposit Account 06-1050, referencing the above attorney docket number.

Respectfully submitted,

Date: 03/26/2021

/Yunbo Guo/

Yunbo Guo
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24066060.doc

Electronic Patent Application Fee Transmittal				
Application Number:		16398362		
Filing Date:		30-Apr-2019		
Title of Invention:		METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER		
First Named Inventor/Applicant Name:		Rudolph Huber		
Filer:		Yunbo Guo/Cheryl Forrest		
Attorney Docket Number:		15540-0370004		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension - 2 months with \$0 paid	1252	1	640	640
Miscellaneous:				
Total in USD (\$)				640

Electronic Acknowledgement Receipt	
EFS ID:	42288953
Application Number:	16398362
International Application Number:	
Confirmation Number:	2817
Title of Invention:	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER
First Named Inventor/Applicant Name:	Rudolph Huber
Customer Number:	26161
Filer:	Yunbo Guo/Cheryl Forrest
Filer Authorized By:	Yunbo Guo
Attorney Docket Number:	15540-0370004
Receipt Date:	26-MAR-2021
Filing Date:	30-APR-2019
Time Stamp:	08:15:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$ 640
RAM confirmation Number	E20213P915332739
Deposit Account	
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1		ReplytoOA.pdf	100210	yes	10
			c5f2a95efec248288f90a7a3ae885a2f8c871902f		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Specification		2	2	
	Claims		3	7	
	Applicant Arguments/Remarks Made in an Amendment		8	10	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	31156	no	2
			b368709395e47e65888e7762a8c5067813833f10		
Warnings:					
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Application	Document	Mailroom Date	Attorney Docket No.
16398362	CTNF	10/26/2020	15540-0370004
	892	10/26/2020	15540-0370004
	1449	10/26/2020	15540-0370004

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/398,362	04/30/2019	Rudolph Huber	15540-0370004	2817

26161	7590	10/26/2020
FISH & RICHARDSON P.C. (BO)		
P.O. BOX 1022		
MINNEAPOLIS, MN 55440-1022		

EXAMINER	
ULLAH, AKM E	

ART UNIT	PAPER NUMBER
2874	

NOTIFICATION DATE	DELIVERY MODE
10/26/2020	ELECTRONIC

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

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

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Notice of Pre-AIA or AIA Status

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

Detailed Action

Applicant cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Status of the Application

Parent Data:

This instant US application serial number 16/398,362, filed 04/30/2019 is a continuation of 15279781, filed 09/29/2016 ,now U.S. Patent #10281656 which is a continuation of 14300138, filed 06/09/2014 ,now U.S. Patent #9482821 which is a continuation of 13639401, filed 12/20/2012 ,now U.S. Patent #8781269 which is a national stage entry of PCT/EP2011/055484 , International Filing Date: 04/08/2011 which also claims a foreign priority to 102010003750.8, filed 04/08/2010.

No Child Data

Claims 1 – 27 are pending in this application.

A two ways restriction was made in this application.

Applicant elected GP I, claims 1- 8 with traverse dated 07-17-2020. Thus, claims 9 - 27 are being withdrawn from consideration.

If applicant is aware of any prior art or any other co- pending application not already of record, he/she is reminded of his/her duty under 37 CFR 1.56 to disclose the same.

If applicant provides prior art, he/she is requested to cite it on form PTO- 1449 in accordance with the guideline set forth in MPEP 609.

The Title Of The Invention is Not Descriptive

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Notice re prior art available under both Pre-AIA and AIA

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 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.

Claim Rejections - 35 USC § 103

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.

This application currently names joint inventors. In considering patentability of the claims the examiner presumes that the subject matter of the various claims was

commonly owned as of the effective filing date of the claimed invention(s) absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and effective filing dates of each claim that was not commonly owned as of the effective filing date of the later invention in order for the examiner to consider the applicability of 35 U.S.C. 102(b)(2)(C) for any potential 35 U.S.C. 102(a)(2) prior art against the later invention.

Claims 1 - 6 and 8 are rejected under 35 U.S.C. 103 as being unpatentable over DE 42 00 587 C1 (Kobayashi, Noboru et al.) to Noboru et al. (cited by applicant) in view Varnham et al (2006/0219673).

DE 42 00 587 C1(Kobayashi, Noboru et al.) disclose a method for changing the beam profile having of a laser beam (figure 5) of a multi-clad fiber, more particularly of a double clad fiber (see figure 7), and coupled out of the other fiber end (figure 5) of the multi-clad fiber), and wherein, for changing the beam profile characteristics of the coupled out laser beam, the laser beam is optionally coupled either at least in the interior fiber core (figure 7, core D) of the multi-clad fiber or at least in at least one outer ring core (figure 7, core E) of the multi-clad fiber.

Noboru et al, may silent of coupling-in a plurality of laser profiles into the fiber.

However, it is very elementary teachings in the art as is evidenced by Varnham et al.

Varnham et al disclose laser devices providing a plurality of laser beams that are all coupled to multimode fiber (P0003- 0004; 0045- 0047 and 0059-0060); figures 1 and 11-12.

Especially figure 12 which disclose that the use of a plurality of laser sources, which sources are coupled t a single optical fiber. It is considered to be implicit that there are other fibers of the instant application, between the multimode fiber of figure 12 and the plurality of laser sources and there are means for combining the plurality of laser beams into the multimode fiber.

Figure 12 also disclose the teachings of a ring shaped power distribution. Figure 5 produced with the same method of coupling a plurality of laser beams from a plurality of laser sources into a single multimode fiber i.e., similar to figure 12.

Figure 2 show that a multimode fiber comprises a first core with a circular cross-section and a second core with an annular shape.

Varnham et al also disclose a laser processing head that directs the composite laser beam to a workpiece (P0045 and 0061).

Regarding claims 5 and 8, wherein the multi-clad fiber comprises a double clad fiber is an inherent teachings of Varnhan et al. Note that an air is also considered to be clad of a fiber.

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filling date of the claimed invention to modify the invention of Noboru et al having a plurality of laser profiles as taught by Varnham et al. since, the apparatus for the industrial processing of a material by optical radiation, which apparatus comprises a

waveguide for delivering the optical radiation, and focusing optics for directing the optical radiation from an output end of the waveguide onto the material, wherein the waveguide has a guidance profile across its cross section defined by its refractive index profile and optical gain profile, and wherein the guidance profile and focusing optics are such that optical power distribution at the surface of the material has first and second optical powers which are located at first and second radii from the center of the optical power distribution and which are of substantially higher intensity than a third optical power at a third radius that is smaller than the first and the second radii.

EXAMINERS NOTE: A reference to specific paragraphs, columns, pages, or figures in a cited prior art reference is not limited to preferred embodiments or any specific examples. It is well settled that a prior art reference, in its entirety, must be considered for all that it expressly teaches and fairly suggests to one having ordinary skill in the art. Stated differently, a prior art disclosure reading on a limitation of Applicant's claim cannot be ignored on the ground that other embodiments disclosed were instead cited. Therefore, the Examiner's citation to a specific portion of a single prior art reference is not intended to exclusively dictate, but rather, to demonstrate an exemplary disclosure commensurate with the specific limitations being addressed. In re Heck, 699 F.2d 1331, 1332-33, 216 USPQ 1038, 1039 (Fed. Cir. 1983) (quoting In re Lemelson, 397 F.2d 1006, 1009, 158 USPQ 275, 277 (CCPA 1968)). In re: Upsher-Smith Labs. v. Pamlab, LLC, 412 F.3d 1319, 1323, 75 USPQ2d 1213, 1215 (Fed. Cir. 2005); In re Fritch, 972 F.2d 1260, 1264, 23 USPQ2d 1780, 1782 (Fed. Cir. 1992); Merck & Co. v. Biocraft Labs., Inc., 874 F.2d 804, 807, 10 USPQ2d 1843, 1846 (Fed. Cir. 1989); In re Fracalossi, 681 F.2d 792, 794 n.1, 215 USPQ 569, 570 n.1 (CCPA 1982); In re

Lamberti, 545 F.2d 747, 750, 192 USPQ 278,280 (CCPA 1976); In re Bozek, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969).

Objection to Claims, Allowable Subject Matter

Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Citation of Relevant Prior Art

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

The references are 5,684,642, 7,933,479, 8,094,737, 8,861,910, 8,781,269, 9,755,739, 2019,002,5502 and 2019,011,8299.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Akm Enayet Ullah whose telephone number is 571-272-2361. The examiner can normally be reached on Monday through Thursday from 6:30 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Uyen-Chau Le, can be reached on 571-272-2397. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**/AKM E ULLAH/
Primary Examiner, Art Unit 2874**

Notice of References Cited	Application/Control No. 16/398,362		Applicant(s)/Patent Under Reexamination Huber et al.	
	Examiner Akm E Ullah		Art Unit 2874	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-5684642-A	11-1997	Zumoto; Nobuyuki	B23K26/032	359/739
*	B	US-7933479-B2	04-2011	Gonthier; Francois	H01S3/094003	385/43
*	C	US-8094370-B2	01-2012	Lewis; Steffan	G02B6/03638	359/341.1
*	D	US-8781269-B2	07-2014	Huber; Rudolf	G02B6/02042	385/18
*	E	US-9755739-B1	09-2017	Wang; Chiachi	H04B10/11	1/1
*	F	US-20190025502-A1	01-2019	Zediker; Mark S.	H01S3/06708	1/1
*	G	US-20190118299-A1	04-2019	Kangastupa; Jarno	G02B6/262	1/1
*	H	US-20060219673-A1	10-2006	Varnham; Malcolm Paul	B23K26/0734	219/121.6
*	I	US-8861910-B2	10-2014	Yun; Seok-Hyun	G02B6/2835	385/43
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

<i>Search Notes</i> 	Application/Control No. 16/398,362	Applicant(s)/Patent Under Reexamination Huber et al.
	Examiner Akm E Ullah	Art Unit 2874

CPC - Searched*		
Symbol	Date	Examiner
G02B 6/3508 ; G02B 6/02042; B23K 26/ 067; B23K 26/064; G02B 6/4206; G02B 6/262; G02B 6/03644; B23K/26073	07/20/2020	AU
Updated above	10/15/2020	AU

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
385	16	07/21/2020	AU

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

Search Notes		
Search Notes	Date	Examiner
EAST, ASSIGNEE and INVENTOR	07/21/2020	AU
https://iq.ip.com/discover	07/20/2020	AU
https://iq.ip.com/discover	07/21/2020	AU

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

/AKM E ULLAH/ Primary Examiner, Art Unit 2874	
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<i>Index of Claims</i> 	Application/Control No. 16/398,362	Applicant(s)/Patent Under Reexamination Huber et al.
	Examiner Akm E Ullah	Art Unit 2874

✓	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	06/09/2020	10/15/2020							
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	2	÷	✓							
	3	÷	✓							
	4	÷	✓							
	5	÷	✓							
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	7	÷	✓							
	8	÷	✓							
	9	÷	N							
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	11	÷	N							
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EAST Search History

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7/21/2020 12:27:10 PM

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7/20/2020 5:40:17 PM

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L6	1,607	G02B6/3508.CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/07/21 11:07
L7	7,073	B23K26/064.CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/07/21 11:08
L8	481,266	G02B6/\$.CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/07/21 11:08

L9	159	(laser adj1 beam)and((multiclad adj1 fiber)or(multi adj1 clad adj fiber))and (coupl\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/07/21 11:14
L10	23	6 and 9	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/07/21 11:14
L11	97	8 and 9	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2020/07/21 11:14

7/21/2020 11:37:00 AM

Sheet 1 of 3

Substitute Disclosure Form	U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No. 15540-0370004	Application No. 16/398,362
Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))		Applicant TRUMPF Laser- und Systemtechnik GmbH	
		Filing Date April 30, 2019	Group Art Unit

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	1.	3,941,670	3/2/1976	Pratt			
	2.	3,975,082	8/17/1976	Winzer			
	3.	4,475,788	10/9/1984	Tomassini et al			
	4.	4,575,181	3/11/1986	Ishikawa			
	5.	5,461,692	10/24/1995	Nagel			
	6.	5,475,704	Dec-95	Lomashevich			
	7.	5,684,642	11/4/1997	Zumoto et al			
	8.	6,819,815	11/16/2004	Corbalis et al.			
	9.	7,372,877	5/13/2008	Shirakawa et al			
	10.	7,379,237	5/27/2008	Di Teodoro et al			
	11.	7,379,648	5/27/2008	Brooks et al			
	12.	7,592,568	9/22/2009	Vamham et al			
	13.	7,720,340	5/18/2010	Lewis et al			
	14.	7,738,166	6/15/2010	Murison et al			
	15.	7,809,225	10/5/2010	Bouma et al			
	16.	7,839,902	11/23/2010	Li et al.			
	17.	7,933,479	4/26/2011	Gonthier et al			
	18.	8,008,600	8/30/2011	Nakamae et al			
	19.	8,076,632	12/13/2011	Kreysing et al			
	20.	8,094,370	1/10/2012	Lewis			
	21.	8,326,099	12/4/2012	Singer et al			
	22.	8,456,523	6/4/2013	Stork Gennant Wersborg			
	23.	8,781,269	7/15/2014	Huber et al			
	24.	9,482,821	11/1/2016	Huber et al.			
	25.	10,281,656	5/7/2019	Huber et al.			
	26.	2002/0071647	6/13/2002	Manzur			

Examiner Signature /AKM E ULLAH/	Date Considered 07/20/2020
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Substitute Disclosure Form

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.E.U/

Sheet 2 of 3

Substitute Disclosure Form	U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No. 15540-0370004	Application No. 16/398,362
Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))		Applicant TRUMPF Laser- und Systemtechnik GmbH	
		Filing Date April 30, 2019	Group Art Unit

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	27.	2002/0168139	11/14/2002	Clarkson et al			
	28.	2002/0172485	11/21/2002	Keaton et al			
	29.	2005/0031261	2/10/2005	Tanaka			
	30.	2006/0251367	11/9/2006	Seifert et al			
	31.	2006/0263024	11/23/2006	Dong et al			
	32.	2013/0064706	3/14/2013	Schwarze et al			
	33.	2011/0305249	12/15/2011	Gapontsev et al.			
	34.	2015/0217402	8/6/2015	Hesse et al.			
	35.	2015/0378184	12/31/2015	Tayebati et al.			

Foreign Patent Documents or Published Foreign Patent Applications								
Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation	
							Yes	No
	36.	CN 1580865	2/16/2005	CN				
	37.	DE 3833992	4/12/1990	DE				
	38.	DE 3833993	4/12/1990	DE				
	39.	DE 4200587	4/1/1993	DE				
	40.	FR 0362466	9/26/1990	EP				
	41.	FR 2284892	4/9/1976	FR				
	42.	GB 2449689	12/3/2008	GB				
	43.	KR 100750511	8/13/2007	KR				
	44.	WO 2009/155536	12/23/2009	WIPO				
	45.	WO 2010009101	1/21/2010	WO				

Other Documents (include Author, Title, Date, and Place of Publication)		
Examiner Initial	Desig. ID	Document
	46.	Copy of Indian Office Action for Indian Application No. 8560/CHENP/2012 by Controller Ambigaapathy A, dated November 20, 2017, 6 pages (with English translation)
	47.	Extended European Search Report dated July 1, 2013
Examiner Signature /AKM E ULLAH/		Date Considered 07/20/2020
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.		

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Sheet 3 of 3

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		Filing Date April 30, 2019	Group Art Unit

Other Documents (include Author, Title, Date, and Place of Publication)		
Examiner Initial	Desig. ID	Document
	48.	German Office Action dated November 22, 2010
	49.	International Search Report dated May 6, 2011

Examiner Signature /AKM E ULLAH/	Date Considered 07/20/2020
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Substitute Disclosure Form

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.E.U/

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1,634	G02B6/3508.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/10/15 10:11
L2	7,282	B23K26/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/10/15 10:12
L3	6,211	B23K26/067.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/10/15 10:12
L4	3,335	B23K26/073.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/10/15 10:13
L5	4,546	G02B6/02042.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/10/15 10:13
L6	50	((("TRUMPF") near3 ("LASER-") near3 ("UND") near3 ("SYSTEMTECHNIK") near3 ("GMBH"))).AS,AANM.	USPAT	OR	OFF	2020/10/15 10:14
L7	48	("20020071647" "20020168139" "20020172485" "20060251367" "20060263024" "3941670" "4475788" "4575181" "5684642" "7372877" "7379237" "7379648"	US-PGPUB; USPAT; USOCR	OR	OFF	2020/10/15 10:16

		"7720340" "7738166" "7809225" "7839902" "7933479" "8076632" "8094370" "8456523").PN. OR ("8781269").URPN.				
L8	79	((("HUBER") near3 ("Rudolph")) OR (("ANDREASCH") near3 ("Wolfgang")) OR (("HUONKER") near3 ("Martin"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2020/10/15 10:20
L9	0	(method adj3 generating adj5 laser adj5 beam)same(diiferent adj3 beam adj3 profile)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/10/15 10:23
L10	0	(method adj3 generating adj5 laser adj5 beam)and(diiferent adj3 beam adj3 profile)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/10/15 10:23
L11	0	(method with generating with laser adj5 beam)and(diiferent with beam adj5 profile)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/10/15 10:24
L12	9,512	(method with generating with laser adj5 beam)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/10/15 10:31
L13	141,677	(generat\$4 with laser adj5 beam)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/10/15 10:31
L14	23	(coupl\$4 with laser adj10 beam)same(inner adj5 fiber adj10 core with multi adj3 clad adj10 fiber)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2020/10/15 10:33

			DERWENT; IBM_TDB			
L15	3	(coupl\$4 with laser adj10 beam)same(inner adj5 fiber adj10 core with multi adj3 clad adj10 fiber with outer adj10 outer adj10 ring adj10 core)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/10/15 10:34
L16	6	(laser adj3 beam with outer adj3 ring adj5 core)and(fiber adj3 multi adj5 clad)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/10/15 10:53
L17	3	"8781269".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/10/15 10:54
L18	0	1 and 9 and 12	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/10/15 11:04
L19	9,512	1 and 2 and 3 and 4 and 5and 12 and 13	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/10/15 11:04
L20	20	14 and 19	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/10/15 11:05

10/15/2020 11:05:43 AM

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor : Rudolph Huber Art Unit : 2874
Application No. : 16/398,362 Examiner : Akm E. Ullah
Filed : April 30, 2019 Conf. No. : 2817
Title : METHOD AND ARRANGEMENT FOR GENERATING A LASER
BEAM HAVING A DIFFERING BEAM PROFILE
CHARACTERISTIC BY A MULTI-CLAD FIBER

Mail Stop Amendment

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

REPLY TO RESTRICTION REQUIREMENT

In response to the restriction requirement made in the action dated June 15, 2020,
identified Group I (claims 1-8) is elected for examination. The election is made without traverse.

Please apply any necessary charges or credits to Deposit Account No. 06-1050,
referencing the above attorney docket number.

Respectfully submitted,

Date: 07/17/2020

/Yunbo Guo/

Yunbo Guo
Reg. No. 70,538

Customer Number 26161
Fish & Richardson P.C.
Telephone: (512) 226-8108
Facsimile: (877) 769-7945

24036814.doc

Electronic Acknowledgement Receipt	
EFS ID:	40029785
Application Number:	16398362
International Application Number:	
Confirmation Number:	2817
Title of Invention:	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER
First Named Inventor/Applicant Name:	Rudolph Huber
Customer Number:	26161
Filer:	Yunbo Guo/Cheryl Forrest
Filer Authorized By:	Yunbo Guo
Attorney Docket Number:	15540-0370004
Receipt Date:	17-JUL-2020
Filing Date:	30-APR-2019
Time Stamp:	10:19:10
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no				
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Response to Election / Restriction Filed	ReplytoRR.pdf	55020 5d119c9bdfc7d59577d6842aadae97bd412fa740	no	1
Warnings:					

Information:	
Total Files Size (in bytes):	55020
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.	

To: PATDOCTC@fr.com,,
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 26161

Jun 15, 2020 03:40:07 AM

Dear PAIR Customer:

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

The following USPTO patent application(s) associated with your Customer Number, 26161 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

Disclaimer:

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Application	Document	Mailroom Date	Attorney Docket No.
16398362	CTRS	06/15/2020	15540-0370004

To view your correspondence online or update your email addresses, please visit us anytime at <https://sportal.uspto.gov/secure/myportal/privatepair>.

If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

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UNITED STATES DEPARTMENT OF COMMERCE
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Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/398,362	04/30/2019	Rudolph Huber	15540-0370004	2817
26161 7590 06/15/2020 FISH & RICHARDSON P.C. (BO) P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			EXAMINER ULLAH, AKM E	
			ART UNIT 2874	PAPER NUMBER
			NOTIFICATION DATE 06/15/2020	DELIVERY MODE ELECTRONIC

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

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

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Notice of Pre-AIA or AIA Status

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

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

121:

GP I. Claims 1- 8, drawn to a method of generating a laser beam with different beam profile characteristics classified in G02B 6/4296 or B23K26/073.

GP II. Claims 9 - 27, drawn to a system, classified in a system for generating a laser beam with different beam profile.

The inventions are independent or distinct, each from the other because:

Inventions GP I and GPII are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by another and materially different apparatus or by hand. For an example a laser beam into a first fiber end of a multi-clad fiber depending on coupling angles of the two beams with variable wavelength.

Restriction for examination purposes as indicated is proper because all the inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and/or examination burden if restriction were not required because one or more of the following reasons apply:

- the invention have acquired a separate status in the art in view of their different classification and/or;
- the invention have acquired a separate status in the art to their recognized divergent subject matter and/or
- the inventions require a different field of search (e.g. searching different classes/subclasses or electronic resources, or employing different strategies or search quires).

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after

the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103 or pre-AIA 35 U.S.C. 103(a) of the other invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be corrected in compliance with 37 CFR 1.48(a) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. A request to correct inventorship under 37 CFR 1.48(a) must be accompanied by an application data sheet in accordance with 37 CFR 1.76 that identifies each inventor by his or her legal name and by the processing fee required under 37 CFR 1.17(i).

The examiner has required restriction between product or apparatus claims and process claims. Where applicant elects claims directed to the product/apparatus, and all product/apparatus claims are subsequently found allowable, withdrawn process claims that include all the limitations of the allowable product/apparatus claims should be considered for rejoinder. All claims directed to a nonelected process invention must include all the limitations of an allowable product/apparatus claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product/apparatus claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product/apparatus are found allowable, an otherwise proper restriction requirement between product/apparatus claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product/apparatus claim will not be rejoined. See MPEP § 821.04. Additionally, in order for rejoinder to occur, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product/apparatus claims. **Failure to do so may result in no rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Akm Enayet Ullah whose telephone number is (571)272-2361. The examiner can normally be reached on M-TH: 6AM - 10 PM.

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, Uyen-Chau Le can be reached on 571-272-2397. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <https://ppair-my.uspto.gov/pair/PrivatePair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/AKM E ULLAH/
Primary Examiner, Art Unit 2874**

<i>Index of Claims</i> 	Application/Control No. 16/398,362	Applicant(s)/Patent Under Reexamination Huber et al.
	Examiner Akm E Ullah	Art Unit 2874

✓	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	06/09/2020								
	1	÷								
	2	÷								
	3	÷								
	4	÷								
	5	÷								
	6	÷								
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Substitute Disclosure Form	U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No. 15540-0370004	Application No. 16/398,362
Information Disclosure Statement by Applicant (Use several sheets if necessary)		Applicant TRUMPF Laser- und Systemtechnik GmbH	
		Filing Date April 30, 2019	Group Art Unit
(37 CFR §1.98(b))			

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	1.	3,941,670	3/2/1976	Pratt			
	2.	3,975,082	8/17/1976	Winzer			
	3.	4,475,788	10/9/1984	Tomassini et al			
	4.	4,575,181	3/11/1986	Ishikawa			
	5.	5,461,692	10/24/1995	Nagel			
	6.	5,475,704	Dec-95	Lomashevich			
	7.	5,684,642	11/4/1997	Zumoto et al			
	8.	6,819,815	11/16/2004	Corbalis et al.			
	9.	7,372,877	5/13/2008	Shirakawa et al			
	10.	7,379,237	5/27/2008	Di Teodoro et al			
	11.	7,379,648	5/27/2008	Brooks et al			
	12.	7,592,568	9/22/2009	Vamham et al			
	13.	7,720,340	5/18/2010	Lewis et al			
	14.	7,738,166	6/15/2010	Murison et al			
	15.	7,809,225	10/5/2010	Bouma et al			
	16.	7,839,902	11/23/2010	Li et al.			
	17.	7,933,479	4/26/2011	Gonthier et al			
	18.	8,008,600	8/30/2011	Nakamae et al			
	19.	8,076,632	12/13/2011	Kreysing et al			
	20.	8,094,370	1/10/2012	Lewis			
	21.	8,326,099	12/4/2012	Singer et al			
	22.	8,456,523	6/4/2013	Stork Gennant Wersborg			
	23.	8,781,269	7/15/2014	Huber et al			
	24.	9,482,821	11/1/2016	Huber et al.			
	25.	10,281,656	5/7/2019	Huber et al.			
	26.	2002/0071647	6/13/2002	Manzur			

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

Substitute Disclosure Form

Substitute Disclosure Form	U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No. 15540-0370004	Application No. 16/398,362
Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))		Applicant TRUMPF Laser- und Systemtechnik GmbH	
		Filing Date April 30, 2019	Group Art Unit

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	27.	2002/0168139	11/14/2002	Clarkson et al			
	28.	2002/0172485	11/21/2002	Keaton et al			
	29.	2005/0031261	2/10/2005	Tanaka			
	30.	2006/0251367	11/9/2006	Seifert et al			
	31.	2006/0263024	11/23/2006	Dong et al			
	32.	2013/0064706	3/14/2013	Schwarze et al			
	33.	2011/0305249	12/15/2011	Gapontsev et al.			
	34.	2015/0217402	8/6/2015	Hesse et al.			
	35.	2015/0378184	12/31/2015	Tayebati et al.			

Foreign Patent Documents or Published Foreign Patent Applications								
Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation	
							Yes	No
	36.	CN 1580865	2/16/2005	CN				
	37.	DE 3833992	4/12/1990	DE				
	38.	DE 3833993	4/12/1990	DE				
	39.	DE 4200587	4/1/1993	DE				
	40.	FR 0362466	9/26/1990	EP				
	41.	FR 2284892	4/9/1976	FR				
	42.	GB 2449689	12/3/2008	GB				
	43.	KR 100750511	8/13/2007	KR				
	44.	WO 2009/155536	12/23/2009	WIPO				
	45.	WO 2010009101	1/21/2010	WO				

Other Documents (include Author, Title, Date, and Place of Publication)		
Examiner Initial	Desig. ID	Document
	46.	Copy of Indian Office Action for Indian Application No. 8560/CHENP/2012 by Controller Ambigaapathy A, dated November 20, 2017, 6 pages (with English translation)
	47.	Extended European Search Report dated July 1, 2013
Examiner Signature		Date Considered
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.		

Substitute Disclosure Form

Substitute Disclosure Form	U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No. 15540-0370004	Application No. 16/398,362
Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))		Applicant TRUMPF Laser- und Systemtechnik GmbH	
		Filing Date April 30, 2019	Group Art Unit

Other Documents (include Author, Title, Date, and Place of Publication)		
Examiner Initial	Desig. ID	Document
	48.	German Office Action dated November 22, 2010
	49.	International Search Report dated May 6, 2011

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

Substitute Disclosure Form

Electronic Acknowledgement Receipt	
EFS ID:	37408120
Application Number:	16398362
International Application Number:	
Confirmation Number:	2817
Title of Invention:	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER
First Named Inventor/Applicant Name:	Rudolph Huber
Customer Number:	26161
Filer:	Yunbo Guo/Cheryl Forrest
Filer Authorized By:	Yunbo Guo
Attorney Docket Number:	15540-0370004
Receipt Date:	09-OCT-2019
Filing Date:	30-APR-2019
Time Stamp:	13:40:43
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no				
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		IDS.pdf	166002	yes	5
			8d1bfa780da81ecedad8a3ae8d37d18e68f9b4ef		

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Transmittal Letter	1	2
	Information Disclosure Statement (IDS) Form (SB08)	3	5
Warnings:			
Information:			
Total Files Size (in bytes):		166002	
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor :	Rudolph Huber	Art Unit :	Unknown
Application No. :	16/398,362	Examiner :	Unknown
Filed :	April 30, 2019	Conf. No. :	2817
Title :	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER		

MAIL STOP AMENDMENT

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

INFORMATION DISCLOSURE STATEMENT

Please consider the documents listed on the disclosure form submitted with this statement. Copies of the documents are being submitted with this statement to the extent required under 37 C.F.R. § 1.98(a)(2).

Under 35 U.S.C. § 120, this application relies on the earlier filing date of application number 13/639,401, filed on December 20, 2012; application number 14/300,138, filed on June 9, 2014; and application number 15/279,781, filed on September 29, 2016. The document corresponding to Desig. ID Nos. 25 has not been submitted to and/or cited by the Office in the prior application. All other listed documents were submitted to and/or cited by the Office in the prior application, and so copies of those documents are not provided in this application.

This statement is being filed within three months of the filing date of the application or before the receipt of a first action on the merits.

First Named Inventor : Rudolph Huber
Application No. : 16/398,362
Filed : April 30, 2019
Page : 2 of 2

Attorney Docket: 15540-
0370004 / SP10120US(PCT)CON3; 18.01127;
DS10502

Apply any necessary charges or credits applicable under 37 C.F.R. § 1.17(p) to deposit account 06-1050, referencing the above attorney docket number.

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

Respectfully submitted,

Date: 10/9/2019

/Yunbo Guo/
Yunbo Guo
Reg. No. 70,538

Customer Number 26161
Fish & Richardson P.C.
Telephone: (512) 226-8108
Facsimile: (877) 769-7945

23945480.doc

To: PATDOCTC@fr.com,,
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 26161

Aug 23, 2019 03:28:41 AM

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Application	Document	Mailroom Date	Attorney Docket No.
16398362	NTC.PUB	08/22/2019	15540-0370004

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/398,362	04/30/2019	Rudolph Huber	15540-0370004

CONFIRMATION NO. 2817

26161
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MINNEAPOLIS, MN 55440-1022

PUBLICATION NOTICE



Title:METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER

Publication No.US-2019-0258009-A1

Publication Date:08/22/2019

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 accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

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

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <https://portal.uspto.gov/pair/PublicPair>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

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

To: PATDOCTC@fr.com,,
From: PAIR_eOfficeAction@uspto.gov
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May 17, 2019 03:34:17 AM

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Application	Document	Mailroom Date	Attorney Docket No.
16398362	N570	05/17/2019	15540-0370004
	APP.FILE.REC	05/17/2019	15540-0370004

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PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 16/398,362				
APPLICATION AS FILED - PART I										
(Column 1)		(Column 2)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)			
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	300			
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	660			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760			
TOTAL CLAIMS (37 CFR 1.16(i))	27	minus 20 = *	7			x 100 =	700			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4	minus 3 = *	1			x 460 =	460			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00			
				TOTAL		TOTAL	2880			
* If the difference in column 1 is less than zero, enter "0" in column 2.										
APPLICATION AS AMENDED - PART II										
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=		x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=		x	=
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE			TOTAL ADD'L FEE	
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=		x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=		x	=
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE			TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.										



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
16/398,362	04/30/2019		2880	15540-0370004	27	4

CONFIRMATION NO. 2817

UPDATED FILING RECEIPT



0000000108242133

26161
FISH & RICHARDSON P.C. (BO)
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

Date Mailed: 05/17/2019

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

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Inventor(s)

Rudolph Huber, Aldingen-Aixheim, GERMANY;
Wolfgang Andreasch, Weinstadt, GERMANY;
Martin Huonker, Dietingen, GERMANY;

Applicant(s)

TRUMPF Laser- und Systemtechnik GmbH, Ditzingen, GERMANY;

Power of Attorney: The patent practitioners associated with Customer Number 26161

Domestic Priority data as claimed by applicant

This application is a CON of 15/279,781 09/29/2016 PAT 10281656
which is a CON of 14/300,138 06/09/2014 PAT 9482821
which is a CON of 13/639,401 12/20/2012 PAT 8781269
which is a 371 of PCT/EP2011/055484 04/08/2011

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.)
GERMANY 102010003750.8 04/08/2010

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

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

If Required, Foreign Filing License Granted: 05/09/2019

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/398,362**

Projected Publication Date: 08/22/2019

Non-Publication Request: No

Early Publication Request: No
Title

METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING
BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER

Preliminary Class

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

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page 2 of 4

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/398,362	04/30/2019	Rudolph Huber	15540-0370004

CONFIRMATION NO. 2817

POA ACCEPTANCE LETTER

26161
FISH & RICHARDSON P.C. (BO)
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022



OC000000108241743

Date Mailed: 05/17/2019

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 05/13/2019.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

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

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To: PATDOCTC@fr.com,,
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Application	Document	Mailroom Date	Attorney Docket No.
16398362	APP.FILE.REC	05/14/2019	15540-0370004
	NTC.MISS.PRT	05/14/2019	15540-0370004

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First Named Inventor :	Rudolph Huber	Art Unit :	Unknown
Application No. :	16/398,362	Examiner :	Unknown
Filed :	April 30, 2019	Conf. No. :	2817
Title :	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER		

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

REQUEST FOR CORRECTED OFFICIAL FILING RECEIPT

Please correct the Filing Receipt for the above-referenced application to include the missing priority information of PCT/EP2011/055484, filed on April 8, 2011. A properly marked-up Supplemental Application Data Sheet is being filed together with this response.

Please supply a corrected Filing Receipt to the undersigned with respect to this application.

No fee is believed to be due. If, however, there are any necessary charges or credits, please apply them to Deposit Account No. 06-1050, referencing the above attorney docket number.

Respectfully submitted,

Date: 05/14/2019

/Yunbo Guo/

Yunbo Guo
Reg. No. 70,538

Customer Number 26161
Fish & Richardson P.C.
Telephone: (512) 226-8108
Facsimile: (877) 769-7945

23894930.doc

Electronic Acknowledgement Receipt	
EFS ID:	36003645
Application Number:	16398362
International Application Number:	
Confirmation Number:	2817
Title of Invention:	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER
First Named Inventor/Applicant Name:	Rudolph Huber
Customer Number:	26161
Filer:	Yunbo Guo/Cheryl Forrest
Filer Authorized By:	Yunbo Guo
Attorney Docket Number:	15540-0370004
Receipt Date:	14-MAY-2019
Filing Date:	30-APR-2019
Time Stamp:	11:22:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant Response to Pre-Exam Formalities Notice	ReplyNTFMP.pdf	56621	no	1
			b71c47de8b1549a415a9fe3996d593e8be462710		

Warnings:

Information:					
2	Application Data Sheet	SuppADS.pdf	173080	no	4
			7a6b48c26f6b7306a2b0bbb1dd148047d8028d4d		
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
3	Request for Corrected Filing Receipt	ReqCorrFR.pdf	39541	no	1
			c61029d5f3fe0e60568af7d32f70278eb19a44d9		
Warnings:					
Information:					
Total Files Size (in bytes):			269242		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor : Rudolph Huber Art Unit : Unknown
Application No. : 16/398,362 Examiner : Unknown
Filed : April 30, 2019 Conf. No. : 2817

Title : METHOD AND ARRANGEMENT FOR GENERATING A LASER
BEAM HAVING A DIFFERING BEAM PROFILE
CHARACTERISTIC BY A MULTI-CLAD FIBER

MAIL STOP MISSING PARTS

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

REPLY TO NOTICE TO FILE MISSING PARTS OF APPLICATION

In response to the Notice to File Missing Parts of Application under 37 CFR §1.53(b) dated May 14, 2019, applicant as a large entity submits herewith the following:

☒ Other: Supplemental Application Data Sheet in compliance with 37 CFR 1.76.

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

Respectfully submitted,

Date: 05/14/2019 _____

/Yunbo Guo/

Yunbo Guo
Reg. No. 70,538

Customer Number 26161
Fish & Richardson P.C.
Telephone: (512) 226-8108
Facsimile: (877) 769-7945

23894927.doc

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	15540-0370004
		Application Number	<u>16/398,362</u>
Title of Invention	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.			

Secrecy Order 37 CFR 5.2

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

Inventor Information:

Inventor 1.					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Rudolph		Huber		
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service					
City	Aldingen-Aixheim	State/Province		Country of Residence	DE
Mailing Address of Inventor:					
Address 1	Johann-Maus-Strasse 2				
Address 2					
City	Ditzingen		State/Province		
Postal Code	D-71254		Country	<u>DE</u>	

Inventor 2.					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Wolfgang		Andreasch		
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service					
City	Weinstadt	State/Province		Country of Residence	DE
Mailing Address of Inventor:					

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	15540-0370004
	Application Number	<u>16/398,362</u>
Title of Invention	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER	

Address 1	Johann-Maus-Strasse 2		
Address 2			
City	Ditzingen	State/Province	
Postal Code	D-71254	Country	DE

Inventor 3.					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Martin		Huonker		
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service					
City	Dietingen	State/Province		Country of Residence	DE
Mailing Address of Inventor:					
Address 1	Johann-Maus-Strasse 2				
Address 2					
City	Ditzingen	State/Province			
Postal Code	D-71254	Country	DE		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this 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		
Application Number	Continuity Type	Prior Application Number	Filing Date (MM/DD/YYYY)
<u>16/398,362</u>	Continuation of	15/279,781	9/29/2016

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	15540-0370004
	Application Number	<u>16/398,362</u>
Title of Invention	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER	

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this 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	Patented		
Application Number	Continuity Type	Prior Application Number	Filing Date (MM/DD/YYYY)
15/279,781	Continuation of	14/300,138	6/9/2014

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this 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	Patented		
Application Number	Continuity Type	Prior Application Number	Filing Date (MM/DD/YYYY)
14/300,138	Continuation of	13/639,401	12/20/2012

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this 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	<u>Pending</u>		
Application Number	Continuity Type	Prior Application Number	Filing Date (MM/DD/YYYY)
<u>13/639,401</u>	<u>a 371 of international</u>	<u>PCT/EP2011/055484</u>	<u>4/8/2011</u>

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(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(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).

Application Number	Country	Filing Date (MM/DD/YYYY)	Access Code (if applicable)
102010003750.8	DE	04/08/2010	

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	15540-0370004
	Application Number	<u>16/398,362</u>
Title of Invention	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER	

Signature:

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18. Please see 37 CFR 1.4(d) for the form of the signature.					
Signature	/Yunbo Guo/			Date (MM/DD/YYYY)	5/14/2019
First Name	Yunbo	Last Name	Guo	Registration Number	70,538

23894918.doc



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/398,362	04/30/2019	Rudolph Huber	15540-0370004

CONFIRMATION NO. 2817

FORMALITIES LETTER

26161

FISH & RICHARDSON P.C. (BO)

P.O. BOX 1022

MINNEAPOLIS, MN 55440-1022



OC000000108086770

Date Mailed: 05/14/2019

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

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

- A complete mailing address that includes either the city and state or city and country, for each inventor has not been submitted. Applicant must provide the mailing address on either:
 - An inventor's oath or declaration in compliance with 37 CFR 1.63, or
 - A properly marked up application data sheet (ADS) in compliance with 37 CFR 1.76.

Note that an inventor's mailing address is required even if a correspondence address has been submitted.

An inventor's mailing address may not necessarily be the same as the correspondence address for the application and must be separately submitted in the manner set forth above. If the inventor lives at a location which is different from the inventor's mailing address, the inventor's residence (either city and state or city and country) must also be separately submitted in the manner set forth above. For lists of valid state and valid country codes, see the Instructions for Application Data Sheet available at <https://www.uspto.gov/patent/forms/forms-patent-applications-filed-or-after-september-16-2012>.

Mailing address information is needed for the following inventor(s): **Rudolph Huber**

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

Replies should be mailed to:

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

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice".
<https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

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

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

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

/ktesfaye/



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
16/398,362	04/30/2019		2880	15540-0370004	27	4

CONFIRMATION NO. 2817

FILING RECEIPT



0000000108086789

26161
FISH & RICHARDSON P.C. (BO)
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

Date Mailed: 05/14/2019

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

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

Inventor(s)

Rudolph Huber, Aldingen-Aixheim, GERMANY;
Wolfgang Andreasch, Weinstadt, GERMANY;
Martin Huonker, Dietingen, GERMANY;

Applicant(s)

TRUMPF Laser- und Systemtechnik GmbH, Ditzingen, GERMANY;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 15/279,781 09/29/2016 PAT 10281656
which is a CON of 14/300,138 06/09/2014 PAT 9482821
which is a CON of 13/639,401 12/20/2012 PAT 8781269

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.)
GERMANY 102010003750.8 04/08/2010

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

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

If Required, Foreign Filing License Granted: 05/09/2019

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/398,362**

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

Non-Publication Request: No

Early Publication Request: No
Title

METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING
BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER

Preliminary Class

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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

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

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

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

page 2 of 4

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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

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

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

NOT GRANTED

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

SelectUSA

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

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

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 16/398,362				
APPLICATION AS FILED - PART I										
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)			
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	300			
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	660			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760			
TOTAL CLAIMS (37 CFR 1.16(i))	27	minus 20 = *	7			x 100 =	700			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4	minus 3 = *	1			x 460 =	460			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL		TOTAL	2880			
APPLICATION AS AMENDED - PART II										
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=		x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=		x	=
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
TOTAL ADD'L FEE								TOTAL ADD'L FEE		
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=		x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=		x	=
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
TOTAL ADD'L FEE								TOTAL ADD'L FEE		
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.										

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

Application Number	16/398,362		
Filing Date	April 30, 2019		
First Named Inventor	Rudolph Huber		
Title	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER		
Art Unit			
Examiner Name			
Attorney Docket Number	15540-0370004		
SIGNATURE of Applicant or Patent Practitioner			
Signature	/Yunbo Guo/	Date (Optional)	
Name	Yunbo Guo	Registration Number	70,538
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			
NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.			
☒ *Total of <u>1</u> forms are submitted.			

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18.01127US4 / 15540-0370004

POWER OF ATTORNEY BY APPLICANT

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

Application Number	Filing Date
16/398,362	April 30, 2019

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

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

26161

OR

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

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

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

OR

- ☒ The address associated with Customer Number: 26161

OR

Firm or Individual Name			
Address			
City	State	Zip	
Country			
Telephone	Email		

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

TRUMPF Laser- und Systemtechnik GmbH

- ☐ Inventor or Joint Inventor (title not required below)
- ☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
- ☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
- ☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.48(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

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

Signature	<i>Klaus Fager</i>	Date (Optional)	
Name	KLAUS FAGER		
Title	MANAGING DIRECTOR		

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

- ☒ *Total of 1 forms are submitted.

23890055.doc

Electronic Acknowledgement Receipt	
EFS ID:	35994424
Application Number:	16398362
International Application Number:	
Confirmation Number:	2817
Title of Invention:	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER
First Named Inventor/Applicant Name:	Rudolph Huber
Customer Number:	26161
Filer:	Yunbo Guo/Cheryl Forrest
Filer Authorized By:	Yunbo Guo
Attorney Docket Number:	15540-0370004
Receipt Date:	13-MAY-2019
Filing Date:	30-APR-2019
Time Stamp:	15:25:37
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	POA.pdf	2009066	no	2
			585fe1dc16264df83e714e15b21f18552123aea2		

Warnings:

Information:	
Total Files Size (in bytes):	2009066
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.	



Street Address
Fish & Richardson P.C.
One Congress Plaza
Suite 810
111 Congress Avenue
Austin, TX 78701

April 30, 2019

Mail Address
P.O. Box 1022
Minneapolis, MN 55440-1022
512 472 5070 main
512 320 8935 fax

Attorney Docket No.: 15540-0370004 / SP10120US(PCT)CON3; 18.01127; DS10502

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

Presented for filing is a new continuation patent application of:

Inventor(s): RUDOLPH HUBER, WOLFGANG ANDREASCH AND MARTIN HUONKER

Title: METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM
HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-
CLAD FIBER

The requirement for a certified copy of the foreign priority document under 37 CFR 1.55 is satisfied in this application, as the certified copy is contained in the file of the related Application No. **13/639,401**, filed **December 20, 2012**.

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

	<u>Pages</u>
Specification	14
Claims	5
Abstract	1
Declaration	3
Drawing(s)	5

Enclosures:

— Application Data Sheet, 9 pages.

Basic Filing Fee			\$300
Search Fee			\$660
Examination Fee			\$760
Total Claims 27	over 20	7 x \$100	\$700
Independent Claims 4	over 3	1 x \$460	\$460

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Commissioner for Patents
April 30, 2019
Page 2

Fee for Multiple Dependent claims	\$0
Application size fee for each 50 pages over 100	
Total Sheets: $23 \times .75 - 100/50 = 0x$	\$0
Surcharge for late filing fee, search fee, examination fee or oath or declaration	\$0
Total Filing fee	\$2880

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

I hereby authorize the USPTO to communicate in response to email communications from the undersigned and practitioners under Customer No. 26161 in accordance with 37 CFR 1.33 and 37 CFR 1.34 concerning any subject matter of this application via email. I understand that a copy of these communications will be made of record in the application file. (MPEP 502.03).

If this application is considered to be incomplete, or if a telephone conference would otherwise be helpful, call the undersigned at (512) 226-8108.

Send all correspondence to:

26161
Customer Number

Respectfully submitted,

/Yunbo Guo/

Yunbo Guo
Registration No. 70,538

Enclosures

YYG/czc
23886182.doc

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER		
First Named Inventor/Applicant Name:		Rudolph Huber		
Filer:		Yunbo Guo/Cheryl Forrest		
Attorney Docket Number:		15540-0370004		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	300	300
UTILITY SEARCH FEE	1111	1	660	660
UTILITY EXAMINATION FEE	1311	1	760	760
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	1202	7	100	700
INDEPENDENT CLAIMS IN EXCESS OF 3	1201	1	460	460
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				2880

Electronic Acknowledgement Receipt	
EFS ID:	35868374
Application Number:	16398362
International Application Number:	
Confirmation Number:	2817
Title of Invention:	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER
First Named Inventor/Applicant Name:	Rudolph Huber
Customer Number:	26161
Filer:	Yunbo Guo/Lisa Peterson
Filer Authorized By:	Yunbo Guo
Attorney Docket Number:	15540-0370004
Receipt Date:	30-APR-2019
Filing Date:	
Time Stamp:	09:37:11
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$2880
RAM confirmation Number	043019INTEFSW00010596061050
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	ADS.pdf	1823127	no	9
			fac2dc9daedef058e8734071043976a2b0498239		
Warnings:					
Information:					
2		Application.pdf	157055	yes	20
			36e1b16a94d91709149485ea3a73bce8a4118673		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Abstract		20	20	
	Claims		15	19	
	Specification		1	14	
Warnings:					
Information:					
3	Drawings-only black and white line drawings	Drawings.pdf	953034	no	5
			fd6dce8db3afd8b69b60e986cf2d628671843c3f		
Warnings:					
Information:					
4	Oath or Declaration filed	ExecutedDeclaration.pdf	778881	no	3
			d029e12c29c1695915a23d8c539e76c2f87a1294		
Warnings:					
Information:					
5	Transmittal of New Application	PAP.pdf	119060	no	2
			dd71aa2ce15c2a9359876136103079527499fa27		

Warnings:					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	38116	no	2
			782d4249c731b5ba584cb2491e200caeca e5e02		
Warnings:					
Information:					
Total Files Size (in bytes):			3869273		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

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	15540-0370004
		Application Number	
Title of Invention	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER		
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	
	Rudolph		Huber		
Residence Information (Select One) US Residency • Non US Residency Active US Military Service					
City	Aldingen-Aixheim		Country of Residenceⁱ	DE	
Mailing Address of Inventor:					
Address 1	Johann-Maus-Strasse 2				
Address 2					
City	Ditzingen		State/Province		
Postal Code	D-71254		Countryⁱ		
Inventor	2				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Wolfgang		Andreasch		
Residence Information (Select One) US Residency • Non US Residency Active US Military Service					
City	Weinstadt		Country of Residenceⁱ	DE	
Mailing Address of Inventor:					
Address 1	Johann-Maus-Strasse 2				
Address 2					
City	Ditzingen		State/Province		
Postal Code	D-71254		Countryⁱ	DE	
Inventor	3				Remove
Legal Name					

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	15540-0370004
		Application Number	
Title of Invention	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER		

Prefix	Given Name	Middle Name	Family Name	Suffix
	Martin		Huonker	
Residence Information (Select One) US Residency ☒ Non US Residency Active US Military Service				
City	Dietingen		Country of Residence ⁱ	DE
Mailing Address of Inventor:				
Address 1	Johann-Maus-Strasse 2			
Address 2				
City	Ditzingen	State/Province		
Postal Code	D-71254	Country ⁱ	DE	
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	26161
Email Address	apsi@fr.com Add Email Remove Email

Application Information:

Title of the Invention	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER		
Attorney Docket Number	15540-0370004	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	5	Suggested Figure for Publication (if any)	

Filing By Reference:

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

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

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	15540-0370004
		Application Number	
Title of Invention	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER		

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	☐	Limited Recognition (37 CFR 11.9)
Customer Number	26161		

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	15279781	2016-09-29		
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15279781	Continuation of	14300138	2014-06-09	9482821	2016-11-01
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14300138	Continuation of	13639401	2012-12-20	8781269	2014-07-15
Prior Application Status	Pending	Remove			
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
13639401	a 371 of international	PCT/US2011/055484	2011-04-08		

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	15540-0370004
		Application Number	
Title of Invention	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER		

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).

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)	Remove
102010003750.8	DE	2010-04-08		

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

Add

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

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	15540-0370004
		Application Number	
Title of Invention	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER		

Authorization or Opt-Out of Authorization to Permit Access:

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

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

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

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

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

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

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

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

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

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

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	15540-0370004
		Application Number	
Title of Invention	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER		

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	TRUMPF Laser- und Systemtechnik GmbH		
Mailing Address Information For Applicant:			
Address 1	Johann-Maus-Strasse 2		
Address 2			
City	Ditzingen	State/Province	
Country	DE	Postal Code	D-71254
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button. Add			

Assignee Information including Non-Applicant Assignee Information:

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	15540-0370004
		Application Number	
Title of Invention	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER		

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

Signature:[Remove](#)

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

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

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

Signature	/Yunbo Guo/		Date (YYYY-MM-DD)	2019-04-30
First Name	Yunbo	Last Name	Guo	Registration Number
				70538
Additional Signature may be generated within this form by selecting the Add button. Add				

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	15540-0370004
		Application Number	
Title of Invention	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY A MULTI-CLAD FIBER		

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ABSTRACT

Methods and systems for generating a laser beam with different beam profile characteristics are provided. In one aspect, a method includes coupling an input laser beam into one fiber end of a multi-clad fiber, in particular a double-clad fiber and
5 emitting an output laser beam from the other fiber end of the multi-clad fiber. To generate different beam profile characteristics of the output laser beam, the input laser beam is electively coupled either at least into the inner fiber core of the multi-clad fiber or at least into at least one outer ring core of the multi-clad fiber, or a first sub-beam of the input laser beam is coupled into at least into the inner fiber core of the multi-clad
10 fiber and a second, different sub-beam of the input laser beam is coupled at least into the at least one outer ring core of the multi-clad fiber.

1. A method of generating a laser beam with different beam profile characteristics, comprising:

coupling an input laser beam into a first fiber end of a multi-clad fiber, wherein the coupling comprises electively one of

5 coupling the input laser beam at least into an inner fiber core of the multi-clad fiber, and

coupling the input laser beam at least into at least one outer ring core of the multi-clad fiber; and

emitting an output laser beam from a second fiber end of the multi-clad fiber.

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2. The method of claim 1, wherein coupling the input laser beam into the first fiber end of the multi-clad fiber comprises:

relatively moving the input laser beam and a coupling-side face of the multi-clad fiber in a direction transverse to the input laser beam.

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3. The method of claim 1, wherein coupling the input laser beam into the first fiber end of the multi-clad fiber comprises:

projecting the input laser beam with respectively different beam cross-sections onto the coupling-side face of the multi-clad fiber.

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4. The method of claim 3, wherein the different beam cross-sections of the input laser beam comprise respectively different beam diameters.

5. The method of claim 1, wherein the multi-clad fiber comprises a double-clad fiber.

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6. A method of generating a laser beam with different beam profile characteristics, comprising:

coupling an input laser beam into a first fiber end of a multi-clad fiber, wherein the coupling comprises electively one of

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coupling a first input laser beam at least into the inner fiber core of the multi-clad fiber, and

coupling a second, different input laser beam at least into the at least one outer ring core of the multi-clad fiber; and

5 emitting an output laser beam from a second fiber end of the multi-clad fiber.

7. The method of claim 6, wherein coupling the input laser beam into the first fiber end of the multi-clad fiber comprises:

dividing the input laser beam into at least two sub-beams including a first sub-beam and a second sub-beam; and

10 coupling the first sub-beam into the inner fiber core of the multi-clad fiber as the first input laser beam and the second sub-beam into the outer ring core of the multi-clad fiber as the second input laser beam.

15 8. The method of claim 6, wherein the multi-clad fiber comprises a double-clad fiber.

9. A system for generating a laser beam with different beam profile characteristics, comprising:

20 a multi-clad fiber having one inner fiber core and at least one outer ring core; and a switchable device with at least two switch positions, the switchable device configured to couple an input laser beam into a first fiber end of the multi-clad fiber by electively coupling one of

the input laser beam into the inner fiber core of the multi-clad fiber, and
25 the input laser beam into the at least one outer ring core of the multi-clad fiber.

10. The system of claim 9, wherein the switchable device comprises adjustable optical deflector configured to, in the at least two switch positions, deflect the input laser
30 beam in a direction transverse to an axis of a coupling-side face of the multi-clad fiber to varying extents.

11. The system of claim 10, wherein the optical deflector comprises an optical device that is positionable in the at least two switch positions transverse to an optical axis of the input laser beam.

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12. The system of claim 11, wherein the optical device is arrangeable in one of the switch positions outside a beam path of the input laser beam and in at least one other of the switch positions at least partially in the beam path of the laser beam.

10 13. The system of claim 11, wherein the optical device comprises an optical wedge plate.

14. The system of claim 9, wherein the switchable device comprises a controller configured to, in the at least two switch positions, move a coupling-side face of the multi-clad fiber in a direction transverse to the input laser beam to varying extents.

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15. The system of claim 9, wherein the switchable device comprises an adjustable optical device configured to, in the at least two switch positions, project the input laser beam with different beam cross-sections onto a coupling-side face of the multi-clad fiber.

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16. The system of claim 15, wherein the adjustable optical device is configured to be moved back and forth along an optical axis of the input laser beam axis between the at least two switch positions.

25 17. The system of claim 9, wherein the switchable device comprises an adjustable aperture configured to, in the at least two switch positions, project the input laser beam with different beam cross-sections onto a coupling-side face of the multi-clad fiber.

18. The system of claim 9, wherein a diameter of the inner fiber core of the multi-clad fiber is no more than 200 μm .

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19. The system of claim 9, wherein a ring thickness of the at least one outer ring core of the multi-clad fiber is no smaller than a diameter of the inner fiber core.

20. The system of claim 9, wherein, for the multi-clad fiber, a numerical aperture of a first cladding surrounding the inner fiber core is higher than a numerical aperture of a second cladding surrounding the at least one outer ring core.

21. The system of claim 9, wherein the switchable device comprises two optical fibers on an input side, via which the first and second sub-beams are supplied, whereby the switchable device electively couples the first sub-beam at least into the inner fiber core of the multi-clad fiber and the second sub-beam at least into at least the one outer ring core of the multi-clad fiber.

22. A system for generating a laser beam with different beam profile characteristics, comprising:
a multi-clad fiber having one inner fiber core and at least one outer ring core; and
a switchable device with at least two switch positions, the switchable device configured to couple an input laser beam into a first fiber end of the multi-clad fiber by electively coupling one of
a first input laser beam at least into the inner fiber core of the multi-clad fiber, and
a second, different input laser beam at least into the at least one outer ring core of the multi-clad fiber.

23. The system of claim 22, wherein the switchable device comprises a beam divider configured to be moved into the input laser beam to divide the input laser beam into at least two sub-beams, each of the at least two sub-beam being coupled into a respective one of the cores of the multi-clad fiber.

24. The system of claim 22, wherein a diameter of the inner fiber core of the multi-clad fiber is no more than 200 μm .

25. The system of claim 22, wherein a ring thickness of the at least one outer ring core of the multi-clad fiber is no smaller than a diameter of the inner fiber core.

5 26. The system of claim 22, wherein, for the multi-clad fiber, a numerical aperture of a first cladding surrounding the inner fiber core is higher than a numerical aperture of a second cladding surrounding the at least one outer ring core.

10 27. The system of claim 22, wherein the switchable device comprises two optical fibers on an input side, via which the first and second input laser beams are supplied, whereby the switchable device electively couples the first input laser beam at least into the inner fiber core of the multi-clad fiber and the second sub-beam at least into at least one outer ring core of the multi-clad fiber.

Method and Arrangement for Generating a Laser Beam Having a Differing Beam Profile Characteristic by a Multi-Clad Fiber

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of and claims priority under 35 U.S.C. §120 to
5 U.S. Serial No. 15/279,781, filed on September 29, 2016, which is a continuation of U.S.
Serial No. 14/300,138, filed on June 9, 2014, now U.S. Patent No. 9,482,821, which is a
continuation of U.S. Serial No. 13/639,401, filed on December 20, 2012, now U.S. Patent
No. 8,781,269, which is a 371 National Phase Application of PCT Application No.
PCT/EP2011/055484 filed on April 8, 2011, which claims priority to German
10 Application No. DE 10 2010 003750.8, filed on April 8, 2010. The entire contents of
these priority applications are incorporated herein by reference.

TECHNICAL FIELD

The invention concerns a method and arrangement for the generation of a laser
15 beam with different beam profile characteristics.

BACKGROUND

In materials processing by means of laser beams, different processes and
applications have different requirements for characteristic laser beam parameters such as
focal diameter, intensity distribution or beam profile quality at the processing point.
20 Therefore, changing a process or application in a laser machining system usually involves
the necessary resetting work, which may range from relatively simple replacement of
individual optical components to transfer to a different system.

For example, DE 38 33 992 A1 describes a method for achieving specific laser
beam properties in which the laser beams of two laser beam sources are coupled into a
25 conventional optical fiber at different coupling angles. A beam is thus created, depending
on the coupling angles of the two laser beams, with various wavelengths which are
selected to suit the biological or medical processing task at hand. In addition to the use of
two laser sources, this method may also employ just one laser source with a variable

wavelength. The coupling conditions into the optical fiber depend greatly on the wavelength here. However, if, for example, the applications do not have different wavelengths or rather even require the use of a single wavelength, the method outlined proves not to be optimum on account of its disproportionate complexity for such cases and its limiting specialization in applications of a different type. Moreover, the method proposed is limited to the beam formation dependent on the wavelength which, in turn, leads to limitations for its potential applications.

SUMMARY

Therefore, the object of the present invention is to indicate a method for generating a laser beam with different laser beam profile characteristics which, using several laser beam sources or just one laser beam source, in particular with a single wavelength, allows an application-specific change to the laser beam characteristics with relatively little effort, and to provide an arrangement for this method. A further aim is to expand the range of adaptation potential of beam profile characteristics to miscellaneous applications as far as possible, while reducing the complexity of the arrangement and the method.

In accordance with the invention, this object is solved by a method in which a laser beam is coupled into one fiber end of a multi-clad fiber, in particular a double-clad fiber, and coupled out of the other end of the multi-clad fiber and, to generate different beam profile characteristics of the output laser beam, the input laser beam is electively coupled either at least into the inner fiber core of the multi-clad fiber or at least into at least one outer ring core of the multi-clad fiber or, however, electively a first laser beam is coupled at least into the inner fiber core of the multi-clad fiber and a different, second laser beam is coupled at least into at least one outer ring core of the multi-clad fiber.

In this invention, a multi-clad fiber means a fiber with one inner fiber core and at least one outer ring core, for example a double-clad fiber with a single outer ring core or also a triple-clad fiber with an additional outer ring core adjacent to the first outer ring core. To change the beam profile characteristics of the output laser beam, the input laser beam is coupled variously into one or more of the cores of the multi-clad fiber.

For the sake of simplicity, the invention will be described in the following using a double-clad fiber. It will be clear to an expert that the principle of the invention can easily also be transferred to multi-clad fibers with additional outer ring cores adjacent to the first outer ring core.

5 A double-clad fiber with two cores has an inner fiber core and cladding surrounding this fiber core that is as thin and low-refractive as possible. This is followed by a single outer ring core which is also surrounded by low-refractive second cladding. This may be followed by an additional layer of glass which determines the external diameter of the fiber but has no influence on its function in terms of beam guidance. This
10 is completed by a coating of a synthetic material such as silicone and/or nylon which serves to protect the fiber.

By using a double-clad fiber, the present invention makes it possible to choose between different beam profile characteristics at the fiber output, depending on whether the beam is coupled into the inner fiber core, the outer ring core or into both the inner
15 fiber core and the outer ring core. In material processing using laser beams, in particular using high power in the kW range, the ability to switch between these coupling variants makes it possible, for example to choose between a comparatively good beam quality with a sharp focus as is required, for example, for a laser cutting process, and, in contrast, a 'reduced' beam quality with a 'blurred' focus with almost uniform intensity distribution
20 in the beam cross-section, which is particularly suitable for welding processes.

To achieve a high laser beam quality, the laser beam is coupled into the inner fiber core of the double-clad fiber, which, in this case, behaves like a conventional standard fiber, the fiber core of which is surrounded by low-refractive cladding. However, if a laser beam with a wider profile and, for example, with uniform intensity is
25 required, the laser beam is coupled into the outer ring core or into both the inner fiber core and the outer ring core. Depending on the application, therefore, at the output of the double-clad fiber, a laser beam can be achieved with a filled circular profile in accordance with the inner fiber core, with a ring profile in accordance with the outer ring core, with a filled circular profile in accordance with the two core areas together (with a
30 narrow missing ring through the first cladding) or with the corresponding intermediate stages of the stated profile characteristics.

In a preferred version of the method in accordance with the invention, for the elective coupling of the laser beam into the double-clad fiber, relative motion takes place between the input laser beam and the coupling-side face of the double-clad fiber in a direction transverse to the laser beam, in particular in the form of parallel displacement. If the coupling-side face of the double-clad fiber is moved transverse to the laser beam, no additional optical elements are required to switch between the various couplings. With sufficiently long free beam propagation of the laser beam before it strikes the double-clad fiber, angular deflection of the laser beam, which is also understood as deflection transverse to the axis of the coupling-side face, is also possible in order to couple the laser beam into the inner fiber core and/or into the outer ring core of the double-clad fiber. In this case, this involves rotation of the laser beam axis about a point instead of displacement, whereby the change in the angle of incidence should remain negligible for the coupling.

In another preferred version of the method in accordance with the invention, for electively coupling of the laser beam into the double-clad fiber, the input laser beam is projected with different beam cross-sections, in particular with different beam diameters, onto the coupling-side face of the double-clad fiber. These different beam diameters can be set, for example with optics that can travel along the laser beam axis such as a lens or aperture which, depending on its travel position, couples the laser beam either only into the inner fiber core or into the outer ring core or into both the inner fiber core and the outer ring core. Alternatively, a different beam cross-section or diameter can also be set by optics such as a lens or aperture being electively moved into or out of the beam path of the laser beam. In another alternative, the beam cross-section or diameter can be adapted to desired coupling conditions into the double-clad fiber using a laser source with alternative guidance options via optical fibers with different beam guidance characteristics, which can, for example, be set via the diameter of the beam guidance optical fiber core. This principle of choosing the coupling conditions into the double-clad fiber can also be applied to the use of the laser beam sources assigned to the upstream optical fibers, in particular to laser beam sources of different beam qualities.

In another preferred version of the method in accordance with the invention, for the coupling of the laser beam both into the inner fiber core and into the at least one outer

ring core, the input laser beam is divided into at least two sub-beams, each of which is coupled into one of the two cores of the double-clad fiber. This allows the division of the beam power between the inner fiber core and the outer ring core to be particularly well controlled if they are to be used simultaneously. With the two sub-beams, it is also possible, in a particularly easy fashion, to omit the area of the first cladding of the double-clad fiber in connection with coupling. Specifically for applications in the high-power area, it is important that no laser beam is coupled into the first or second cladding of the double-clad fiber. Any such beam coupled into the cladding is propagated with a large angle in relation to the fiber axis in the inner fiber core or outer ring core and emerges at the fiber end also with a large angle, as a result of which connecting optics can become heated. In addition, a beam in the second cladding can destroy the coating of the fiber. To safely prevent the propagation of the laser beam in the cladding, mode strippers can be used, for example. Accordingly, it is preferred also not to couple any laser beam into the double-clad fiber during the switching process in order to prevent any propagation in the cladding. This can be done, for example, by switching the laser off or deflecting the beam into an absorber by using beam shutters.

In another aspect, the invention also concerns an arrangement suitable for implementing the method described above. The arrangement in accordance with the invention comprises a double-clad fiber with one inner fiber core and at least one outer ring core and a switchable device with at least two switch positions in which the input laser beam is electively coupled either at least into the inner fiber core of the double-clad fiber or at least into the at least one outer ring core of the double-clad fiber or, electively, a first laser beam is coupled at least into the inner fiber core of the multi-clad fiber and a different, second laser beam is coupled at least into one outer ring core of the multi-clad fiber.

In a preferred embodiment of the arrangement in accordance with the invention, the switchable device is formed by adjustable deflection optics which, in their at least two switch positions, deflect an input laser beam in a direction transverse to the axis of the coupling-side face of the double-clad fiber to varying extents or formed by a control device which, in its at least two switch positions, moves the coupling-side face in a direction transverse to the input laser beam to varying extents. Deflection optics in

accordance with the invention mean any adjustable optics that couples a laser beam, depending on the adjustment position, into at least partially different fiber areas of the double-clad fiber.

In another preferred embodiment of the arrangement in accordance with the invention, the switchable device is formed by mobile optics or a mobile aperture which, in their at least two switch positions, project the input laser beam with different beam cross-sections, in particular with different beam diameters, onto the coupling-side face of the double-clad fiber. The mobile optics can, for example, be prisms, plane-parallel (glass) plates, convex and concave lenses, mirrors, diffractive optical elements, etc. individually or in combinations.

It is particularly preferred for the optics to be formed by a beam divider, in particular by an optical wedge plate that can be moved into the laser beam, to divide the input laser beam into at least two sub-beams, each of which is coupled into one of the cores of the double-clad fiber. Advantageously, the division of the intensity between the inner fiber core and the outer ring core depends on how far the beam divider intervenes in the beam path. This makes it possible to adapt the intensity division and thus the beam profile of the output laser beam optimally to each application.

However, the wedge plate can also be used as a beam switch to couple the laser beam in its entirety either into the inner fiber core or into the outer ring core. Moving/displacing the coupling optics transverse to the optical axis of the laser beam causes a comparable effect. In this version, the coupling optics are located in the beam path in the switchable states, producing different beam deflections, depending on the position of the coupling optics. As the beam is not divided here and the intensities cannot be divided via sub-beams, it is preferred to deflect either into the inner fiber core or into the outer ring core and to switch between at least two states representing these positions.

Preferably, the diameter of the inner fiber core of the double-clad fiber is maximum approximately 200 μm , in particular maximum approximately 150 μm , preferably maximum approximately 120 μm . For example, with a diameter of the inner fiber core of approximately 100 μm , a good quality of the output laser beam can be achieved for demanding laser applications, such as laser cutting processes, in connection with the beam being coupled into the inner fiber core.

The ring thickness of the at least one outer ring core of the double-clad fiber is preferably greater than or equal to the diameter of the inner fiber core. The outer ring diameter corresponds to the wider laser beam profile required for specific applications, such as laser welding, and is approximately 600 μm or 400 μm , for example, depending on the application.

In an advantageous embodiment of the arrangement in accordance with the invention, the numerical aperture of the first cladding surrounding the inner fiber core is higher than the numerical aperture of the second cladding surrounding the at least one outer ring core in a double-clad fiber. As a result, a beam coupled inadvertently into the first cladding can penetrate the second cladding and be emitted and displayed there by a mode stripper. This facilitates the adjustment of the inner fiber core and fault monitoring. For example, the first cladding has a standard numerical aperture of 0.22 (tolerance ± 0.02), whereby the second cladding in this case preferably has a numerical aperture of 0.18 (tolerance ± 0.015) and should be thick enough to guide the laser beam well, for example 10 μm thick, preferably less, such as 3 to 5 μm , with a cladding core diameter ratio (CCDR) of 1.2. The first cladding forms a conventional transport fiber with the inner fiber core.

In another preferred embodiment, the switchable device has, on the input side, at least two optical fibers via which at least two different laser beams can be supplied, whereby the switchable device electively couples one laser beam at least into the inner fiber core of the multi-clad fiber and the other laser beam at least into at least one outer ring core of the multi-clad fiber.

The embodiments described with the use of one or more laser beam sources can also be used in combination, for example within a cascaded system.

Further advantages of the invention are provided in the following description and the drawing. The embodiments shown and described should not be considered to be an exhaustive list. They are instead examples for the purposes of describing the invention. Similarly, the above-mentioned characteristics and those described below can be used individually or in any combinations.

The invention is presented in a number of embodiments in the drawing and will be described in further detail in the following description. The presentation in the figures

in the drawing should only be considered to be an outline. It contains no restrictions in respect of details or dimensions and is not to scale.

DESCRIPTION OF DRAWINGS

5 Figs. 1, 2A, 2B, and 3 show three arrangements in accordance with the invention for generating a laser beam with different beam profile characteristics, in which a laser beam is coupled into the fiber end of a double-clad fiber and emitted from the other fiber end of the double-clad fiber.

Fig. 4 shows the radial course of the refractive index of the double-clad fiber shown in Figs. 1 to 3.

10 Figs. 5A, 5B and 5C show various possible beam profiles of the laser beam emitted from the double-clad fiber in Figs. 1 to 3.

Fig. 6 shows another arrangement in accordance with the invention for generating a laser beam with different beam profile characteristics, whereby, electively, a first laser beam is coupled into the inner fiber core of a double-clad fiber and a different, second
15 laser beam is coupled both into the inner fiber core and into the outer ring core of the double-clad fiber.

DETAILED DESCRIPTION

Figs. 1 to 3 show three different arrangements 10, 20, 30 for generating a laser beam with different beam profile characteristics, whereby the laser beam is coupled into
20 one fiber end 1a of a multi-clad fiber 1, which is a double-clad fiber 1 in the present case, and is emitted from the other fiber end 1b of the double-clad fiber 1. The input laser beam is labelled 2 and the emitted laser beam is labelled 3.

As shown in Fig. 1, the double-clad fiber 1 has an inner fiber core 4 (for example of undoped quartz glass) with a refractive index n_1 and thin first cladding 5 (for example
25 of doped quartz glass) surrounding the inner fiber core 4, the refractive index n_2 of which is lower than n_1 . This is followed by an outer ring core 6 (for example of undoped quartz glass) with refractive index n_3 which is also surrounded by low-refractive second cladding 7 (for example of doped quartz glass) with refractive index n_4 . The refractive indices n_1 and n_3 can be the same or different; the same applies to the refractive indices

n_2 and n_4 . This may be followed by an additional layer of glass (not shown) which determines the external diameter of the fiber but has no influence on its function in terms of beam guidance. This is typically completed by a coating (not shown) of a synthetic material such as silicone and/or nylon which serves to protect the fiber.

Fig. 4 shows an outline of the radial dependence of the refractive index n within the double-clad fiber 1, where $n_1 = n_3$ and $n_2 = n_4$. The figure shows an area with radius r_1 and high refractive index n_1 corresponding to the inner fiber core 4, a ring area between radii r_1 and r_2 with lower refractive index n_2 corresponding to the first cladding 5, a ring area with external radius r_3 and high refractive index n_1 corresponding to the outer ring core 6 and, finally, the second cladding 7 with low refractive index n_2 . On account of the lower refractive index of the cladding 5, 7, light is guided in the inner fiber core 4 and in the outer ring core 6 by means of total reflection.

To change the beam profile characteristics of the emitted laser beam 3, it is possible, as described below in detail, for the input laser beam 2 striking the coupling-side face 8 of the double-clad fiber 1 to be coupled, by means of a switchable device, electively either into the inner fiber core 4 or into the outer ring core 6 or both into the inner fiber core 4 and into the outer ring core 6 of the double-clad fiber 1.

In the arrangement 10 shown in Fig. 1, the switchable device for electively coupling the laser beam 2 into the double-clad fiber 1 is formed by adjustable deflection optics 11 with two switch positions, which are represented by continuous and dotted lines. In these two switch positions, the laser beam 2 focused on the coupling-side face 8 is deflected in a direction 12 transverse to the axis of the coupling-side face 8 to varying extents, in particular displaced in parallel to varying extents. In one switch position, the laser beam 2 is coupled centrally or eccentrically to the fiber axis only into the inner fiber core 4 and in the other switch position it is coupled eccentrically to the fiber axis only into the outer ring core 6. In the first case, the emitted laser beam 3 has the beam profile shown in Fig. 5A, i.e. a narrow filled circular profile 51 corresponding to the inner fiber core 4, and a comparatively high beam quality with a sharp focus, as is required for material processing, for example for a laser cutting process. In the second case, the emitted laser beam 3 has the wider beam profile shown in Fig. 5B, i.e. a ring profile 52 corresponding to the outer ring core 6, and a comparatively lower beam quality, as is

required for material processing, for example for a laser welding process. Under suitable coupling conditions into the outer ring core 6, the emitted laser beam 3 has a top hat ring beam profile, the quality of which is suitable for many applications.

The deflection optics 11, the components of which are not shown individually in Fig. 1, are based on beam deflection principles familiar to an expert. In particular, a deflection mirror can be used here. The location of the coupling into the coupling-side face of the double-clad fiber 1 can be determined by the angular position of the deflection mirror or the deflection mirror can deflect the beam, depending on position, to various outputs which, in turn, define various coupling areas. A semireflecting deflection mirror or a deflection mirror that is only partially in the beam path can also perform the described function of a beam divider. Preferably, the deflection optics 11 contain additional means for coupling the laser beam 2 into the coupling-side face 8 of the double-clad fiber 1, such as, for example, a focusing lens, which can alternatively also be arranged before or after the deflection optics 11.

A sufficiently long double-clad fiber 1 also allows for angularly homogeneous intensity distribution in the output laser beam 3 with eccentric coupling of the laser beam 2 to the fiber axis into the inner fiber core 4 or the outer ring core 6.

If, however, the beam is coupled both into the inner fiber core 4 and into the outer ring core 6 of the double-clad fiber 1, the output laser beam 3 has the uniformly filled wide beam profile 53 shown in Fig. 5C with an omitted ring corresponding to the first cladding 5.

Alternatively (or in addition) to the deflection optics 11, the switchable device for electively coupling the laser beam 2 into the double-clad fiber 1 can also be formed, for example, by a motor-driven control device 13 which displaces the coupling-side face 8 of the double-clad fiber 1 in a direction 12 transverse to the input laser beam 2 to varying extents, whereby the laser beam 2 focused on the coupling-side face 8 can be coupled either into the inner fiber core 4 or into the outer ring core 6.

In the arrangement 20 shown in Fig. 2A, the switchable device for electively coupling the laser beam 2 into the double-clad fiber 1 is formed by adjustable telescopic/expansion optics 21 which are shown here only in outline. In their switch positions, not shown here, the telescopic/expansion optics 21 expand the input laser beam

2 to different beam diameters. Depending on the beam diameter, the laser beam 2 is then projected by coupling optics (for example a lens) 22 with different beam diameters, in this case different focal diameters, onto the coupling-side face 8 of the double-clad fiber 1. As shown with continuous and dotted lines, the laser beam 2 is, for example, coupled
5 centrically only into the inner fiber core 4 in one switch position of the telescopic/expansion optics 21 and coupled centrically both into the inner fiber core 4 and into the outer ring core 6 in another switch position. In the first case, the output laser beam 3 has beam profile 51 and in the second case beam profile 53.

Via the diameter of the expanded laser beam 2, the proportion of the laser beam
10 coupled into the outer ring core 6 can be set continuously and thus also the intensity distribution into the inner fiber core 4 and the outer ring core 6, allowing the beam profile of the output laser beam 3 to be adapted to each application optimally.

In the arrangement 20 shown in Fig. 2B, the switchable device for electively coupling the laser beam 2 into the double-clad fiber 1 is formed by focusing optics 23
15 shown here as a lens which can be displaced along the laser beam axis to various switch positions, which are represented by continuous, dotted, and dashed and dotted lines. In these switch positions, the input laser beam 2 is coupled by the focusing optics 23 with different beam diameters onto the coupling-side face 8 of the double-clad fiber 1. In one switch position, the focused laser beam 2 is coupled centrically only into the inner fiber
20 core 4. In the two other switch positions, the defocused laser beam 2 is coupled centrically both into the inner fiber core 4 and into the outer ring core 6. In the first case, the output laser beam 3 has beam profile 51 and in the second case beam profile 53.

In the arrangement 30 shown in Fig. 3, the switchable device for electively coupling the laser beam 2 into the double-clad fiber 1 is formed by a beam switch
25 implemented here only by way of example as an optical wedge plate 31 which can be adjusted continuously between two end positions that are shown with continuous and dotted lines. In one of its end positions, the optical wedge plate 31 is arranged outside the beam path of the input laser beam 2 so that the entire input laser beam 2 is coupled via coupling optics (for example a lens) 32 only into the inner fiber core 4, whereby the
30 output laser beam 3 has beam profile 51. In its other end position, shown by the dotted line, the wedge plate 31 is arranged in the entire beam path of the laser beam 2 so that the

entire laser beam 2 is deflected by the wedge plate 31 and is coupled via the coupling optics 32 only into the outer ring core 6, whereby the output laser beam 3 has beam profile 52.

5 Moving/displacing the coupling optics 32 transverse to the optical axis of the laser beam 2 causes a comparable effect. In this version, the coupling optics 32 are located in the beam path in the switchable states, producing different beam deflections, depending on the position of the coupling optics 32. As the beam is not divided here and the intensities cannot be divided via sub-beams, it is preferred to deflect either into the inner fiber core 4 or into the outer ring core 6 and to switch between at least two states
10 representing these positions.

As indicated with a dotted line, partially introducing the wedge plate 31 into the input laser beam 2 creates two sub-beams 2a, 2b, so that here, for example, the optical wedge plate 31 acts as a beam divider. The first sub-beam 2a is not influenced by the wedge plate 31 and thus continues to be coupled via the coupling optics 32 into the inner
15 fiber core 4, while the second sub-beam 2b is deflected by the wedge plate 31 in relation to the first sub-beam 2a and coupled via the coupling optics 32 into the outer ring core 6. The output laser beam 3 has beam profile 53. Partially introducing the wedge plate 31 into the input laser beam 2 therefore creates two sub-beams 2a, 2b, with a division of intensity between the inner fiber core 4 and the outer ring core 6, depending on the
20 degree of introduction, whereby the beam profile of the output laser beam 3 can be optimally adapted to each application.

Moreover, the two sub-beams 2a, 2b offer the significant advantage that they omit the area of the first cladding 5 in connection with coupling. Specifically for applications in the high-power area, it is important that no laser beam is coupled into the inner or outer
25 cladding 5, 7. This beam is propagated with a large angle in the inner core or outer ring core and emerges at the fiber end also with a large angle, as a result of which connecting optics can become heated. In addition, the beam in the outer cladding 7 can destroy the coating of the fiber 1.

A diameter of the inner fiber core 4 of approximately 100 μm guarantees, for
30 typical applications with high power in the kW range, the production of good beam profile quality in connection with coupling the laser beam 2 into the inner fiber core 4.

The first cladding 5 is already sufficiently thick, at approximately 10 μm , preferably at approximately 5 μm , to guide the laser beam well. With a ring thickness of the outer ring core 6 of approximately 240 μm , the external diameter of the outer ring core 6 is approximately 600 μm . For certain applications, such as laser welding, this corresponds to the necessary widening of the laser beam profile.

Fig. 6 shows another arrangement 60 for generating a laser beam with different beam profile characteristics, whereby, electively, a first laser beam 61 is coupled into the inner fiber core 4 of the double-clad fiber 1 and a different, second laser beam 62 is coupled both into the inner fiber core 4 and into the outer ring core 6 of the double-clad fiber 1. The two laser beams 61, 62, which can, for example, have different beam qualities, are guided in optical fibers 63, 64 to switching optics 65 (for example an optical switch system), shown here only in outline, which can be switched between two switch positions. In one switch position, the first laser beam 61 with the higher beam quality is coupled into the inner fiber core 4 of the double-clad fiber 1 and, in the second switch position, the second laser beam 62 is coupled both into the inner fiber core 4 and into the outer ring core 6 of the double-clad fiber 1. In the first case, the output laser beam 3 has beam profile 51 and in the second case beam profile 53. The double-clad fiber 1 leads to a laser processing machine (not shown) so that the arrangement 60 is used to switch laser beams 61, 62 with different beam qualities for the laser processing machine. However, the laser beam 62 can also only be directed at the outer ring core 6 of the double-clad fiber 1 via the switching optics 65.

Up to now, laser processing machines that are to be supplied with several laser beams of different beam qualities needed several sockets for the various optical fibers and a corresponding optical switch system to allow the various laser beams to be coupled into the following beam path. For a desired laser beam, the appropriate optical fiber cable has to be manually replugged, which is undesirable on account of an increased risk of soiling, or beam guidance optics are required on the laser processing machines themselves. This is disadvantageous as several optical fiber cables have to be laid within the laser processing machine, the entire switching optics have to be mounted and moved on the axis system of the laser processing machine and the size of the switching optics, in

connection with the space available, limits the possibilities or the possible optical concepts.

5 In the arrangement 60, the switching optics 65 are supplied on the input side by two lasers with the two laser beams of different beam qualities, and the respective laser beams 61, 62 are coupled into the central double-clad fiber 1 via the switching optics 65. In this way, the switching between the two laser beams 61, 62 is separated from the axis system of the laser processing machine and takes place outside the laser processing machine itself. The laser beams are then supplied to the machine via the double-clad fiber 1. One or more additional light-guiding ring cores around the outer ring core 6 are also
10 conceivable so that additional laser beams with different beam qualities can be guided via the switching optics 65.

A number of embodiments of the invention have been described. Nevertheless, it will be understood that various modifications may be made without departing from the spirit and scope of the invention. Accordingly, other embodiments are within the scope
15 of the following claims.

WHAT IS CLAIMED IS:

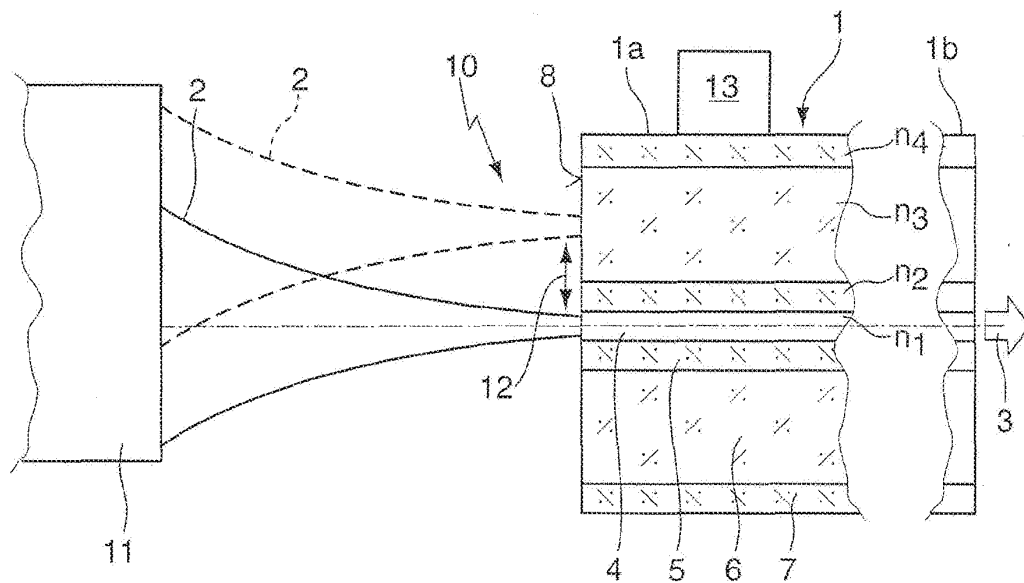


Fig. 1

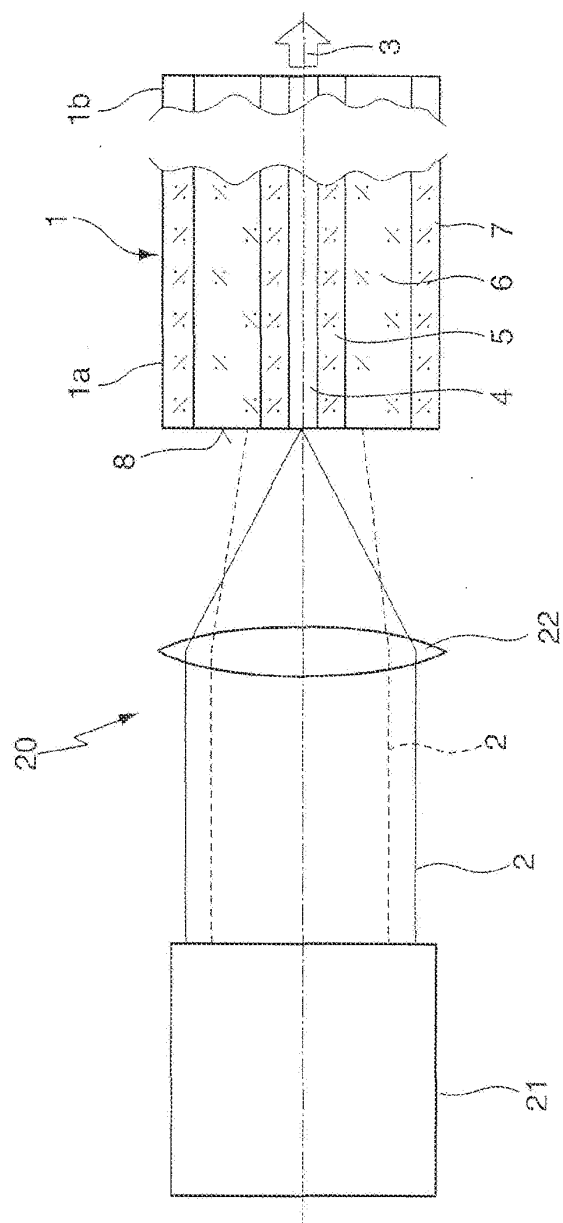


Fig. 2A

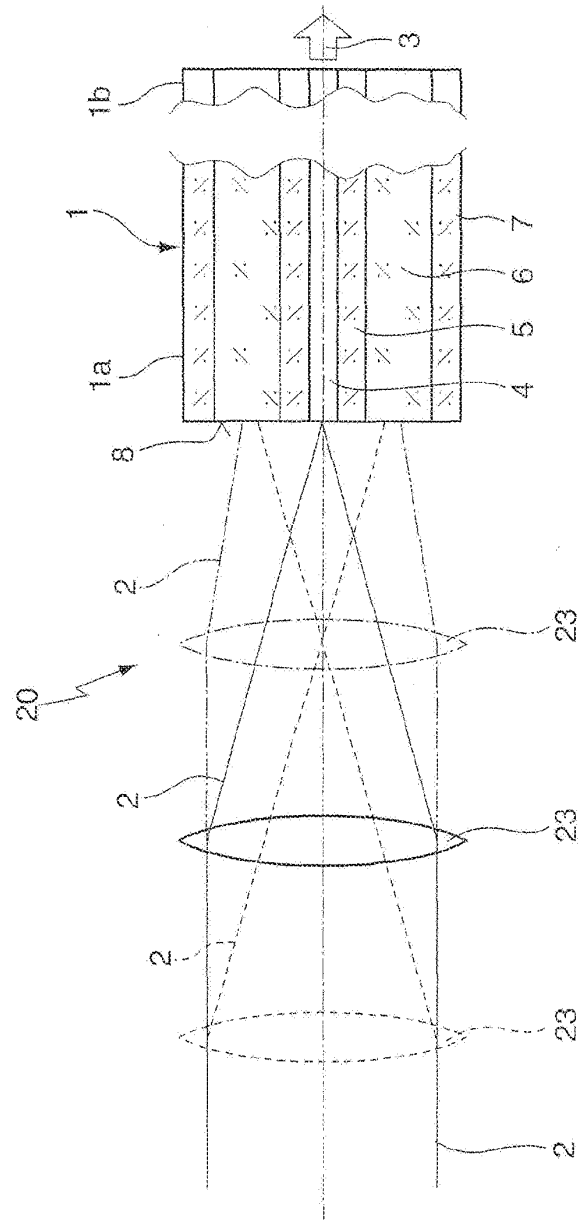


Fig. 2B

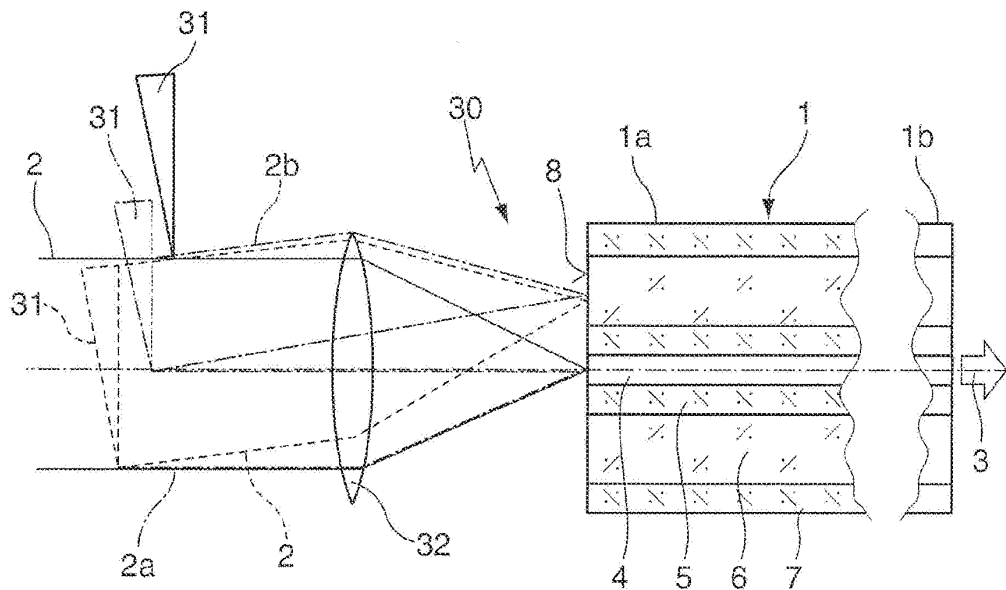


Fig. 3

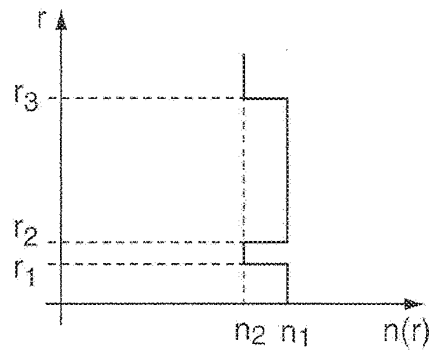


Fig. 4

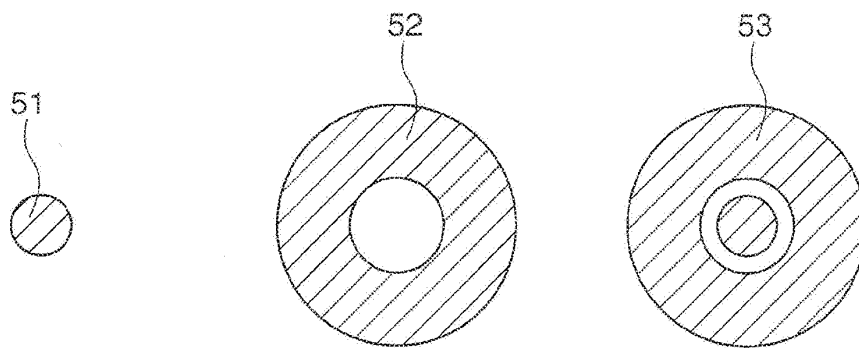


Fig. 5A

Fig. 5B

Fig. 5C



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ERKLÄRUNG (37 CFR 1.63) FÜR UTILITY- ODER DESIGNANMELDUNG MITTELS EINES ANMELDEFORMULARS
DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET
(37 CFR 1.76)

Bezeichnung der Erfindung Title of Invention	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY MEANS OF A MULTI-CLAD FIBER
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ERKLÄRUNG (37 CFR 1.63) FÜR UTILITY- ODER DESIGNANMELDUNG MITTELS EINES ANMELDEFORMULARS
DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET
(37 CFR 1.76)

Bezeichnung der Erfindung Title of Invention	METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY MEANS OF A MULTI-CLAD FIBER
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Attorney Docket No. 15540-0370003
/ Client Ref. SP10120US(PCT)CON2; 18.01127; DS10502

15.01.127
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ERKLÄRUNG (37 CFR 1.63) FÜR UTILITY- ODER DESIGNANMELDUNG MITTELS EINES ANMELDEFORMULARS
DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET
(37 CFR 1.76)

Bezeichnung der Erfindung **TITLE OF INVENTION** **METHOD AND ARRANGEMENT FOR GENERATING A LASER BEAM HAVING A DIFFERING BEAM PROFILE CHARACTERISTIC BY MEANS OF A MULTI-CLAD FIBER**

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LEGAL NAME OF INVENTOR

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