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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/598,033	02/22/2022	11253719	JOOVV.004A.C2	3718

124179 7590 02/02/2022

Gallium Law
445 Minnesota St
Suite 1500
St. Paul, MN 55101

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 193 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):

Justin Strahan, San Clemente, CA;
Scott Nelson, San Clemente, CA;

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

Joovv, Inc., San Clemente, CA;

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Inventor: Justin Strahan

Examiner: Tammie K. Marlen

Group Art Unit: 3792

Application No.: 16/598,033

Filed: October 10, 2019

Docket No.: JOOVV.004A.C2

Title: PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE

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

Dear Examiner:

The Applicant thanks the Examiner for allowing the claims. The Applicant agrees that the claims are patentable.

The Applicant does not take any position regarding the Examiner's reasons for allowance. Therefore, future reviewers of the prosecution history should not attribute the Examiner's reasons for allowance to the Applicant as any indication of the basis for the Applicant's belief that the claims are patentable. The Applicant respectfully submits that there may be additional reasons for patentability. These additional reasons include reasons not explicitly stated in the record. The Applicant may raise these additional reasons in the future.

The Applicant respectfully reserves the right to traverse characterizations of what any references may show or teach, alone or in combination. Although the Applicant amended the claims to expedite allowance, the Applicant is not conceding that any previously pending claims are not allowable. The Applicant reserves the right to prosecute previously pending claims, claims of broader scope, and claims based on any subject matter supported by the present disclosure or

any future disclosure. The Applicant has not disclaimed or disavowed any subject matter supported by the present application.

Respectfully submitted,

/Wesley Schwie/

Wesley Schwie
Reg. No. 64,950
Phone: 651-428-9828
Date: January 14, 2022

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)

124179 7590 10/15/2021

Gallium Law
445 Minnesota St
Suite 1500
St. Paul, MN 55101

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.

Wesley Schwie	(Typed or printed name)
/Wesley Schwie/	(Signature)
2022-01-14	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/598,033	10/10/2019	Justin Strahan	JOOVV.004A.C2	3718

TITLE OF INVENTION: PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$600	$0.00	$0.00	$600	01/18/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
MARLEN, TAMMIE K	3792	607-088000

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 Wesley E. Schwie, Esq.
2 Gallium Law
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: JOOVV, INC.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): SAN CLEMENTE, CALIFORNIA

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 /Wesley Schwie/ Date 2022-01-14

Typed or printed name Wesley Schwie Registration No. 64,950

Exhibit 1003 - 4

Electronic Patent Application Fee Transmittal

Application Number:	16598033
Filing Date:	10-Oct-2019
Title of Invention:	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS
First Named Inventor/Applicant Name:	Justin Strahan
Filer:	Wesley Edward Schwie/Megan Howard
Attorney Docket Number:	JOOVV.004A.C2

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	2501	1	600	600

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**600**

Electronic Acknowledgement Receipt

EFS ID:	44755188
Application Number:	16598033
International Application Number:	
Confirmation Number:	3718
Title of Invention:	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS
First Named Inventor/Applicant Name:	Justin Strahan
Customer Number:	124179
Filer:	Wesley Edward Schwie/Megan Howard
Filer Authorized By:	Wesley Edward Schwie
Attorney Docket Number:	JOOVV.004A.C2
Receipt Date:	14-JAN-2022
Filing Date:	10-OCT-2019
Time Stamp:	18:37:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$600
RAM confirmation Number	E20221DI38582011
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	Miscellaneous Incoming Letter	2022-01-14-allowance-response-JOOVV-004A-C2.pdf	98066 3eef8381bed598233af756fdfdd36ba631b3074b	no	2
Warnings:					
Information:					
2	Issue Fee Payment (PTO-85B)	2022-01-14-issue-fee-transmittal-JOOVV-004A-C2.pdf	979485 5a9ad104041895bc6744c06c9820b1b4a3cb77b8	no	1
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	38242 fccd78aad2471484b3b4a8f9a3004876449a631d	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1115793		

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/598,033	10/10/2019	Justin Strahan	JOOVV.004A.C2	3718

124179 7590 10/27/2021

Gallium Law
445 Minnesota St
Suite 1500
St. Paul, MN 55101

EXAMINER	
MARLEN, TAMMIE K	

ART UNIT	PAPER NUMBER
3792	

NOTIFICATION DATE	DELIVERY MODE
10/27/2021	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):

docketing@galliumlaw.com

Corrected ***Notice of Allowability***	**Application No.** 16/598,033	**Applicant(s)** Strahan et al.	
	Examiner TAMMIE K MARLEN	**Art Unit** 3792	**AIA (FITF) Status** Yes

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

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

1. ☑ This communication is responsive to the IDS filed on September 30, 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 1-8 and 10-21 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information , please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some* c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date Attached.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/TAMMIE K MARLEN/
Primary Examiner, Art Unit 3792

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/598,033	Strahan et al.
	Examiner	Art Unit
	TAMMIE K MARLEN	3792

CPC - Searched*		
Symbol	**Date**	**Examiner**
A61N5/06,0616	07/16/2021	TKM
A61N2005/0636,064,0663,0659,6658,0629	07/16/2021	TKM
Updated above	09/30/2021	TKM
Updated above	10/21/2021	TKM

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

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

Search Notes		
Search Notes	**Date**	**Examiner**
Inventor name search	07/16/2021	TKM
Text-limited and related application search -- see search history printout	07/16/2021	TKM
Consulted Alyssa Alter	07/16/2021	TKM
Updated above	09/30/2021	TKM
Updated above	10/21/2021	TKM

/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792	

Exhibit 1003, 11

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/598,033	Strahan et al.
	Examiner	Art Unit
	TAMMIE K MARLEN	3792

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
	PGPUB text search -- see interference search printout	09/30/2021	TKM
	Updated above	10/21/2021	TKM

/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792	

Exhibit 1003 - 12

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/598,033	Strahan et al.
	Examiner	**Art Unit**
	TAMMIE K MARLEN	3792

CPC						
Symbol					**Type**	**Version**
A61N	/	5	/	06	F	2013-01-01
A61N	/	2005	/	0659	A	2013-01-01
A61N	/	2005	/	064	A	2013-01-01
A61N	/	2005	/	0629	A	2013-01-01
A61N	/	2005	/	0663	A	2013-01-01

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

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792	21 October 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	3

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/598,033	Strahan et al.
	Examiner	**Art Unit**
	TAMMIE K MARLEN	3792

INTERNATIONAL CLASSIFICATION					
CLAIMED					
A61N5/06	/	5	/	06	

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

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

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792	21 October 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	3

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/598,033	Strahan et al.
	Examiner	**Art Unit**
	TAMMIE K MARLEN	3792

☐ 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	1	10	10	19	19										
2	2	11	11	20	20										
3	3	12	12	8	21										
9	4	13	13												
4	5	14	14												
5	6	15	15												
6	7	16	16												
7	8	17	17												
	9	18	18												

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792	21 October 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	3

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	103	("10357567" | "10672306" | "10706770" | "10828505" | "11033752" | "1660794" | "20030216795" | "20030233138" | "20040014199" | "20040188573" | "20040193234" | "20050075703" | "20050116667" | "20050210722" | "20050230573" | "20050237739" | "20060030908" | "20060217787" | "20060241726" | "20070038206" | "20070084108" | "20070129776" | "20080210659" | "20080306576" | "20080312721" | "20090012588" | "20090058153" | "20090262533" | "20100265711" | "20100277105" | "20100303603" | "20100324611" | "20110176297" | "20120020109" | "20120030873" | "20120075871" | "20120283622" | "20130101953" | "20130163235" | "20130279160" | "20130282082" | "20130289673" | "20130304164" | "20140031906" | "20140049942" | "20140197124" | "20140202493" | "20140241008" | "20140303547" | "20150051671" | "20150062900" | "20150198298" | "20150265846" | "20160015999" | "20160106950" | "20160232822" | "20160286616" | "20170007846" | "20170053570" | "20170074474" | "20170274222" | "20180008839" | "20180036553" | "20180051862" | "20180141499" | "20180288840" | "20180292055" | "20180345034" | "20190388707" | "20200060868" | "20200086135" | "20200121944" | "20200324104" | "20200353273" | "2327346" | "3416852" | "4312361" | "4673152" | "4736555" | "4740707" | "5515900" | "5616140" | "5698866" | "5759139" | "5761839" | "5800478" | "6054968" | "6290713" | "6494910" | "6508262" | "6645230" | "6663659" | "6853151" | "6870673" | "7033381" | "7578600" | "7863641" | "8043349" | "8376602" | "8454214" | "9399146" | "9551893" | "9707665").PN.	US-PGPUB; USPAT	OR	ON	2021/10/21 15:14

L2	2	("0845917").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2021/10/21 15:17
S1	0	((("JOOVV") near3 ("INC"))).AS,AANM.	USPAT	OR	ON	2019/02/06 08:45
S2	542	((("NELSON") near3 ("Scott")) OR (("STRAHAN") near3 ("Justin"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2019/02/06 08:45
S3	1	S2 and (light with therap$9)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 08:50
S4	2	S2 and (light same therap$9)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:29
S5	6,612	A61N5/06.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31
S6	8,383	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31
S7	1,283	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31
S8	282	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31
S9	4,014	A61N2005/0663.cpc.	US-PGPUB; USPAT;	OR	ON	2019/02/06 09:31

			USOCR; FPRS; EPO; JPO; DERWENT			
S10	6,514	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31
S11	275	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31
S12	492	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31
S13	37	"2044943"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:48
S14	47	"2044973"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:52
S15	9	vibor.in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:52
S18	6,612	A61N5/06.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S19	8,383	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR;	OR	ON	2019/02/06 15:46

			FPRS; EPO; JPO; DERWENT			
S20	1,283	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S21	282	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S22	4,014	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S23	6,514	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S24	275	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S25	492	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S26	21,950	S18 S19 S20 S21 S22 S23 S24 S25	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S27	3,441	S26 and ((red with light) ("near" with infrared))	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2019/02/06 15:54

			JPO; DERWENT			
S28	3,441	S26 and ((red with light) ("near" with infrared))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:54
S29	6,613	A61N5/06.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S30	8,387	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S31	1,283	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S32	282	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S33	4,014	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S34	6,516	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S35	275	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2019/02/07 10:22

			JPO; DERWENT			
S36	493	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S37	21,956	S29 S30 S31 S32 S33 S34 S35 S36	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S38	98	S37 and ((lead leading) with (follow followed following))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:23
S39	301	S37 and (bluetooth)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:25
S40	3,443	S37 and ((red with light) ("near" with infrared))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:26
S41	212	S40 and (bluetooth)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:26
S42	21	(US-20180236259-$ or US-20170007844-$ or US-20150134032-$ or US-20120265275-$ or US-20140350644-$ or US-20120150265-$ or US-20180015297-$ or US-20180193660-$ or US-20180280718-$ or US-20070016269-$ or US-20180345034-$ or US-20110054573-$ or US-20100017953-$ or US-20160129279-$ or US-20170231058-$ or US-20170238401-$ or US-20160235980-$ or US-20180133497-$	US-PGPUB; USPAT; FPRS	OR	ON	2019/03/25 15:34

		or US-20180008839-$).did. or (US-9950136-$).did. or (WO-2018067411-$).did.				
S43	6,980	A61N5/06.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S44	8,972	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S45	1,313	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S46	299	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S47	4,302	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S48	6,909	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S49	296	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S50	540	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2019/07/03 13:58

			JPO; DERWENT			
S51	23,205	S43 S44 S45 S46 S47 S48 S49 S50	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S52	3,623	S51 and ((red with light) ("near" with infrared))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S53	784	S51 and ((red with light) and ("near" with infrared))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S56	4	("20060229689" | "20070129777" | "4844069" | "5733032").PN.	US-PGPUB; USPAT	OR	ON	2019/10/16 13:30
S57	7,333	A61N5/06.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S58	9,641	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S59	1,307	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S60	317	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S61	4,687	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR;	OR	ON	2019/12/02 15:18

			FPRS; EPO; JPO; DERWENT			
S62	7,372	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S63	335	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S64	578	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S65	24,594	S57 S58 S59 S60 S61 S62 S63 S64	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S66	1,755	S65 and (light with indicat$6)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S67	1,330	S65 and (light near5 indicat$6)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S68	578	((("NELSON") near3 ("Scott")) OR (("STRAHAN") near3 ("Justin"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2019/12/03 14:36
S69	3	S68 and (light same therap$9)	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2019/12/03 14:36

			JPO; DERWENT			
S70	35	("20040008523" | "20060007059" | "20060020308" | "20060229689" | "20070068055" | "20070129777" | "20070276455" | "20080119831" | "20080141572" | "20080269849" | "20090288340" | "20100309659" | "20110054573" | "20120019490" | "20120104977" | "20120243227" | "20140081357" | "20140226329" | "20150202455" | "20150307332" | "20160076708" | "20170118838" | "20180043178" | "20180056087" | "20180111001" | "4844069" | "5733032" | "6626932" | "8481982" | "9227082" | "9311847" | "9353924" | "9416551" | "9852666" | "9943042").PN.	US-PGPUB; USPAT	OR	ON	2020/03/02 14:36
S71	19	("20030009205" | "20040068305" | "20050085875" | "20080046044" | "20080091250" | "20080114418" | "20090318908" | "20100045175" | "20100045189" | "20100076529" | "20130190842" | "20130229802" | "20130301264" | "20150267907" | "20150297914" | "20160158574" | "20160367833" | "6955684" | "8066403").PN.	US-PGPUB; USPAT	OR	ON	2020/03/02 14:36
S72	54	S70 S71	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:41
S73	29	S72 and (lead follow)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:43
S74	45	S72 and (control controlled controlling instruct$6)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:43
S75	7,642	A61N5/06.cpc.	US-PGPUB; USPAT; USOCR;	OR	ON	2020/03/02 14:45

			FPRS; EPO; JPO; DERWENT			
S76	10,010	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S77	1,368	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S78	338	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S79	4,900	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S80	7,699	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S81	377	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S82	613	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S83	25,560	S75 S76 S77 S78 S79 S80 S81 S82	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2020/03/02 14:45

			JPO; DERWENT			
S84	397	S83 and ((lead leading follow followed following) with mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:47
S85	1,222	S83 and ((light near3 (device panel)) with (control controlled controlling instruct$6))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:52
S86	649	S85 and (switch button)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:53
S87	649	(US-20150182758-$ or US-20070239142-$ or US-20070038206-$ or US-20070198004-$ or US-20070213696-$ or US-20070213698-$ or US-20070239143-$ or US-20190076669-$ or US-20150238774-$ or US-20160287896-$ or US-20190001148-$ or US-20160287894-$ or US-20100174345-$ or US-20160054023-$ or US-20190167400-$ or US-20150126806-$ or US-20050177093-$ or US-20060217690-$ or US-20140121631-$ or US-20160250498-$ or US-20040210277-$ or US-20190038913-$ or US-20170215958-$ or US-20170215960-$ or US-20080077200-$ or US-20100198201-$).did. or (US-20070248930-$ or US-20100318161-$ or US-20130253620-$ or US-20150079536-$ or US-20150140502-$ or US-20170080249-$ or US-20180014924-$ or US-20180140406-$ or US-20190201711-$ or US-20140072932-$ or US-20170312538-$ or US-20130280671-$ or US-20180117356-$ or US-20190209857-$ or US-20060200212-$ or US-20100305668-$ or US-20130289674-$ or US-20120148976-$ or US-20140121731-$ or US-20160096037-$	US-PGPUB; USPAT; USOCR; FPRS; DERWENT	OR	ON	2020/03/02 14:53

		or US-20190117994-$ or US-20190083202-$ or US-20110166631-$ or US-20150051671-$ or US-20030188378-$ or US-20040107496-$ or US-20120116485-$).did. or (US-20180177976-$ or US-20040193234-$ or US-20040008523-$ or US-20070073365-$ or US-20060111761-$ or US-20040024431-$ or US-20020188334-$ or US-20050065579-$ or US-20160166847-$ or US-20200022866-$ or US-20130304019-$ or US-20100305554-$ or US-20140052050-$ or US-20190091097-$ or US-20170095398-$ or US-20080262576-$ or US-20090143842-$ or US-20180193622-$ or US-20140194954-$ or US-20140135798-$ or US-20090281604-$ or US-20150327653-$ or US-20150360014-$ or US-20170128319-$ or US-20180250402-$ or US-20160287895-$ or US-20170198017-$).did. or (US-20130019325-$ or US-20130089503-$ or US-20130090454-$ or US-20150072394-$ or US-20160222073-$ or US-20170066806-$ or US-20180044388-$ or US-20180244737-$ or US-20190071476-$ or US-20180020523-$ or US-20190030359-$ or US-20110319878-$ or US-20060287695-$ or US-20080221646-$ or US-20110022130-$ or US-20160166850-$ or US-20160206897-$ or US-20060235493-$ or US-20080269730-$ or US-20180050221-$ or US-20180236258-$ or US-20080009839-$ or US-20170225012-$ or US-20130079759-$ or US-20160166849-$ or US-20160166853-$ or US-20100121419-$).did. or (US-20130274836-$ or US-20160008627-$ or US-20120065709-$ or US-20100100160-$ or US-20030032900-$ or US-20040260209-$ or US-20040260210-$ or US-20040077977-$ or US-20070027411-$ or US-20140005757-$ or US-20160067026-$ or US-20190099613-$ or US-20150141877-$ or US-20110106223-$ or US-20140005590-$ or US-20070032846-$ or US-20130331766-$ or US-20190111240-$ or US-				

		20040232359-$ or US-20050187596-$ or US-20150025601-$ or US-20130296978-$ or US-20080035864-$ or US-20090112297-$ or US-20120022619-$ or US-20140222120-$ or US-20140207215-$).did. or (US-20160339262-$ or US-20170182332-$ or US-20070276455-$ or US-20110212410-$ or US-20050197682-$ or US-20200016024-$ or US-20180369604-$ or US-20170056686-$ or US-20180111002-$ or US-20190336789-$ or US-20130053928-$ or US-20060167531-$ or US-20060195165-$ or US-20060271024-$ or US-20080208297-$ or US-20170113063-$ or US-20170274222-$ or US-20150237686-$ or US-20150305969-$ or US-20170156662-$ or US-20090143773-$ or US-20150165230-$ or US-20150217130-$ or US-20180147415-$ or US-20120209357-$ or US-20140276247-$ or US-20190151655-$).did. or (US-20170100585-$ or US-20140276248-$ or US-20060183516-$ or US-20100179469-$ or US-20030216795-$ or US-20150283400-$ or US-20170232268-$ or US-20180311386-$ or US-20180326104-$ or US-20190083667-$ or US-20190358353-$ or US-20160375161-$ or US-20160375163-$ or US-20180243452-$ or US-20180243453-$ or US-20180311387-$ or US-20190216957-$ or US-20130303972-$ or US-20120089204-$ or US-20150088232-$ or US-20130282080-$ or US-20080125834-$ or US-20170143972-$ or US-20190217100-$ or US-20110301673-$ or US-20160199664-$ or US-20130324788-$).did. or (US-20180093092-$ or US-20160016004-$ or US-20150246240-$ or US-20180304091-$ or US-20140371826-$ or US-20110066213-$ or US-20170164876-$ or US-20180178034-$ or US-20020183811-$ or US-20050015124-$ or US-20050177208-$ or US-20060276862-$ or US-20070282402-$ or US-20080288032-$ or US-20110004280-$ or US-20110196457-$ or US-20130013032-$				

		or US-20130018442-$ or US-20140206947-$ or US-20150290028-$ or US-20190030360-$ or US-20050045189-$ or US-20110208272-$ or US-20120265182-$ or US-20130165912-$ or US-20140330351-$ or US-20160250497-$).did. or (US-20150127076-$ or US-20130274839-$ or US-20140288351-$ or US-20160374758-$ or US-20170136257-$ or US-20180015297-$ or US-20180221683-$ or US-20180001108-$ or US-20190091065-$ or US-20150005750-$ or US-20150057701-$ or US-20180092773-$ or US-20110144410-$ or US-20180250492-$ or US-20190366119-$ or US-20180154167-$ or US-20140088668-$ or US-20170333727-$ or US-20170136258-$ or US-20160375265-$ or US-20190366114-$ or US-20180333589-$ or US-20170072217-$ or US-20160096033-$ or US-20070073198-$ or US-20180206779-$ or US-20190029755-$).did. or (US-20060241495-$ or US-20040044384-$ or US-20100114264-$ or US-20070208395-$ or US-20150283025-$ or US-20170080250-$ or US-20190029907-$ or US-20180333588-$ or US-20020188218-$ or US-20130190845-$ or US-20140039473-$ or US-20170319866-$ or US-20160175610-$ or US-20160016001-$ or US-20010021812-$ or US-20040143308-$ or US-20070249716-$ or US-20100191172-$ or US-20110282266-$ or US-20130102906-$ or US-20150105667-$ or US-20140074193-$ or US-20180193662-$ or US-20030011538-$ or US-20010028227-$ or US-20030100837-$ or US-20080183081-$).did. or (US-20020135763-$ or US-20040218177-$ or US-20090225391-$ or US-20110051216-$ or US-20180133431-$ or US-20180133504-$ or US-20180133507-$ or US-20190255350-$ or US-20190269936-$ or US-20190314641-$ or US-20160375162-$ or US-20190224350-$ or US-20030125649-$ or US-20060161226-$ or US-20080125620-$ or US-				

		20060030907-$ or US-20070203432-$ or US-20170028215-$ or US-20170028216-$ or US-20170172660-$ or US-20160158569-$ or US-20050015121-$ or US-20180043130-$ or US-20180236262-$ or US-20160287333-$ or US-20180064954-$ or US-20110022128-$).did. or (US-20160184604-$ or US-20150142086-$ or US-20180236259-$ or US-20100196343-$ or US-20140236265-$ or US-20090222068-$ or US-20170333729-$ or US-20040153130-$ or US-20130006119-$ or US-20170100607-$ or US-20130006118-$ or US-20160256053-$ or US-20090204188-$ or US-20190060662-$ or US-20190224495-$ or US-20150297912-$ or US-20120296150-$ or US-20140194955-$ or US-20080275533-$ or US-20080091250-$ or US-20080103560-$ or US-20060235346-$ or US-20120197358-$ or US-20140277291-$ or US-20160166851-$ or US-20120203310-$ or US-20120215291-$).did. or (US-20130253619-$ or US-20160144149-$ or US-20110184499-$ or US-20090177256-$ or US-20110125231-$ or US-20150335911-$ or US-20140194957-$ or US-20170065826-$ or US-20190008678-$ or US-20190008679-$ or US-20170231058-$ or US-20170238401-$ or US-20160367834-$ or US-20040249423-$ or US-20060009822-$ or US-20150217142-$ or US-20170231733-$ or US-20190142691-$ or US-20190240110-$ or US-20190143138-$ or US-20170333728-$ or US-20200001106-$ or US-20080172045-$ or US-20040111132-$ or US-20180036553-$ or US-20120078329-$ or US-20030019028-$).did. or (US-20030000010-$ or US-20190209858-$ or US-20170086274-$ or US-20180177017-$ or US-20120041523-$ or US-20040046108-$ or US-20170028214-$ or US-20110176326-$ or US-20030109906-$ or US-20030125782-$ or US-20030181962-$ or US-20040220513-$ or US-20030212442-$ or US-20030144712-$				

		or US-20020198575-$ or US-20070016269-$ or US-20170239490-$ or US-20160045758-$ or US-20180296852-$ or US-20100324631-$ or US-20160067087-$ or US-20160067086-$ or US-20190142636-$ or US-20050203592-$ or US-20130289670-$ or US-20180369602-$ or US-20170156971-$).did. or (US-20140046127-$ or US-20140088470-$ or US-20140179994-$ or US-20160296417-$ or US-20190290535-$ or US-20040210275-$ or US-20050043653-$ or US-20100060195-$ or US-20120030873-$ or US-20170136259-$ or US-20090216219-$ or US-20120263793-$ or US-20170014511-$ or US-20170021040-$ or US-20180185518-$ or US-20070060984-$ or US-20080077198-$ or US-20110238141-$ or US-20140052221-$ or US-20110098789-$ or US-20090270848-$ or US-20150057725-$ or US-20180369609-$ or US-20190246463-$ or US-20190223270-$ or US-20150048742-$ or US-20160219675-$).did. or (US-20170215253-$ or US-20130096657-$ or US-20120277659-$ or US-20150230863-$ or US-20080033512-$ or US-20190240468-$ or US-20140202493-$ or US-20150245703-$ or US-20190083809-$ or US-20080065176-$).did. or (US-9555261-$ or US-9370449-$ or US-10058711-$ or US-8506612-$ or US-7131990-$ or US-10064255-$ or US-9333371-$ or US-10485612-$ or US-10524861-$ or US-8636727-$ or US-8900282-$ or US-9308389-$ or US-9730780-$ or US-9242118-$ or US-9993658-$ or US-6681417-$ or US-7013504-$ or US-7201766-$ or US-7815668-$ or US-7001413-$ or US-6666878-$ or US-6149611-$ or US-5336159-$ or US-10478636-$ or US-8556887-$ or US-10166168-$).did. or (US-10179085-$ or US-10293148-$ or US-5645578-$ or US-5891186-$ or US-10334933-$ or US-9604073-$ or US-9359449-$ or US-9079940-$ or US-9249234-$ or US-9365628-$ or US-9505817-$ or US-9840541-$ or US-9969783-$ or US-				

		10087223-$ or US-10538560-$ or US-9084885-$ or US-10143060-$ or US-7351253-$ or US-8734498-$ or US-9592404-$ or US-9592405-$ or US-9782604-$ or US-9974971-$ or US-10252078-$ or US-7479136-$ or US-9814903-$ or US-9623259-$).did. or (US-9849303-$ or US-10080634-$ or US-9550070-$ or US-6861658-$ or US-7476888-$ or US-7994489-$ or US-7921853-$ or US-8945197-$ or US-8956396-$ or US-10512586-$ or US-9901747-$ or US-8109981-$ or US-10426971-$ or US-9872813-$ or US-10390755-$ or US-9913993-$ or US-9561357-$ or US-9061128-$ or US-6447537-$ or US-6413268-$ or US-10265539-$ or US-10363325-$ or US-10434202-$ or US-9700641-$ or US-10456485-$ or US-8980174-$ or US-8979914-$).did. or (US-8486124-$ or US-10166401-$ or US-10022556-$ or US-9597479-$ or US-10137311-$ or US-8945196-$ or US-10071261-$ or US-9610460-$ or US-10383550-$ or US-10384075-$ or US-9162078-$ or US-7144248-$ or US-7276059-$ or US-7886749-$ or US-7891361-$ or US-8454669-$ or US-8486056-$ or US-8746253-$ or US-10420954-$ or US-9327138-$ or US-7931028-$ or US-8286641-$ or US-8393330-$ or US-9968799-$ or US-8858607-$ or US-10518103-$ or US-10092449-$).did. or (US-10456298-$ or US-9763827-$ or US-10456294-$ or US-9061135-$ or US-5634711-$ or US-10441742-$ or US-9889314-$ or US-10561854-$ or US-10245442-$ or US-10525276-$ or US-6749624-$ or US-9782603-$ or US-6860896-$ or US-6659964-$ or US-6223071-$ or US-6709446-$ or US-7190109-$ or US-7723910-$ or US-8030836-$ or US-8216289-$ or US-8758418-$ or US-9723991-$ or US-8702772-$ or US-7221104-$ or US-6166496-$ or US-6211626-$ or US-6292901-$).did. or (US-6340868-$ or US-6459919-$ or US-6528954-$ or US-6720745-$ or US-7308296-$ or US-7796319-$ or US-6781691-$ or US-7151601-$ or US-8570635-$ or US-10279192-$ or US-10293177-$ or US-				

		10307611-$ or US-7846084-$ or US-7654949-$ or US-7141028-$ or US-10569097-$ or US-10105548-$ or US-10471231-$ or US-10039931-$ or US-10478635-$ or US-10112057-$ or US-8996131-$ or US-9539438-$ or US-9373807-$ or US-7686839-$ or US-6471716-$ or US-8435276-$).did. or (US-10099065-$ or US-10173072-$ or US-9950190-$ or US-9649506-$ or US-10315043-$ or US-9289623-$ or US-9248309-$ or US-10384070-$ or US-10285857-$ or US-9622911-$ or US-10052496-$ or US-9138595-$ or US-8956363-$ or US-10307330-$ or US-4444189-$ or US-10406379-$ or US-6866678-$ or US-6601247-$ or US-6877171-$ or US-9844116-$ or US-7084389-$ or US-10525275-$ or US-6602275-$ or US-6896693-$ or US-8057525-$ or US-6094595-$ or US-9999783-$).did. or (US-10092770-$ or US-10518105-$ or US-8721695-$ or US-10219944-$ or US-10357424-$ or US-9144531-$ or US-9393175-$ or US-9402780-$ or US-9603770-$ or US-6013096-$ or US-9974972-$ or US-6350275-$ or US-7736382-$ or US-8985119-$ or US-8506613-$ or US-7988688-$ or US-8784461-$ or US-8012189-$ or US-8317848-$ or US-8551150-$ or US-8518027-$ or US-9687671-$ or US-9302118-$ or US-9313860-$ or US-9655206-$ or US-10244606-$ or US-10045820-$).did. or (US-8080047-$ or US-9032576-$).did. or (US-2003527-$ or US-1656777-$ or US-2148174-$).did. or (JP-WO2008069103-$ or CN-101589651-$ or WO-2008069103-$ or EP-2106198-$ or CN-201052342-$).did. or (WO-2016040534-$ or CN-106377846-$ or US-20170216620-$ or KR-2016030687-$ or US-20170326383-$ or US-20060030908-$ or US-20180361170-$ or US-20160059034-$ or WO-2010033494-$ or KR-1676857-$).did.				
S88	649	S87 and ((light near3 (device panel)) with (control controlled controlling instruct$6))	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2020/03/02 14:54

			JPO; DERWENT			
S90	14	((("JOOVV") near3 ("INC"))).AS,AANM.	USPAT	OR	ON	2021/07/16 13:47
S91	652	((("STRAHAN") near3 ("Justin")) OR (("NELSON") near3 ("Scott"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:47
S92	85	("20030188378" | "20060217789" | "20120296260" | "20130172963" | "20140190537" | "20160175610" | "20170028216" | "20170080246" | "20170131693" | "20190167519" | "5645578" | "8337538" | "9440041" | "9884204" | "10440794" | "20040162596" | "20130304019" | "20160016001" | "20180236259" | "20200121944" | "D877919" | "D877920" | "D877921" | "D877922" | "D877923" | "D892343" | "D892344" | "D892345" | "D893737" | "D895822" | "20030009205" | "20040068305" | "20050085875" | "20070217199" | "20080046044" | "20080091250" | "20080114418" | "20090318908" | "20100045175" | "20100045189" | "20100076529" | "20130190842" | "20130229802" | "20130301264" | "20150267907" | "20150297914" | "20160158574" | "20160367833" | "6955684" | "8066403" | "20040008523" | "20060007059" | "20060020308" | "20060229689" | "20070068055" | "20070129777" | "20070276455" | "20080119831" | "20080141572" | "20080269849" | "20090288340" | "20100309659" | "20110054573" | "20120019490" | "20120104977" | "20120243227" | "20140081357" | "20140226329" | "20150202455" | "20150307332" | "20160076708" | "20170118838" | "20180043178" | "20180056087" | "20180111001" | "4844069" | "5733032" | "6626932" | "8481982" | "9227082" | "9311847" | "9353924" | "9416551" | "9852666" | "9943042").PN.	US-PGPUB; USPAT	OR	ON	2021/07/16 13:47
S93	8,503	A61N5/06.cpc.	US-PGPUB; USPAT;	OR	ON	2021/07/16 13:48

			USOCR; FPRS; EPO; JPO; DERWENT			
S94	11,438	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S95	1,468	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S96	399	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S97	6,030	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S98	9,064	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S99	473	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S100	738	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S101	29,195	S93 S94 S95 S96 S97 S98 S99 S100	US-PGPUB; USPAT; USOCR;	OR	ON	2021/07/16 13:48

			FPRS; EPO; JPO; DERWENT			
S102	1,944	S101 and button	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S103	2,314	S101 and (press pressed pressing)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:59
S104	1,388	S103 and ((red infrared ir) with light)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 14:00
S105	696	S104 and (treatment near3 time)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 14:01
S106	696	(US-20200139112-$ or US-20200253811-$ or US-20050154381-$ or US-20050154382-$ or US-20070198004-$ or US-20070213696-$ or US-20070038206-$ or US-20070213698-$ or US-20070239142-$ or US-20070239143-$ or US-20100286673-$ or US-20090254076-$ or US-20080147054-$ or US-20210169682-$ or US-20180264284-$ or US-20180014777-$ or US-20170225006-$ or US-20190168016-$ or US-20190240502-$ or US-20160287894-$ or US-20200108268-$ or US-20130324909-$ or US-20050197681-$ or US-20180311507-$ or US-20090247932-$ or US-20080108982-$).did. or (US-20110202116-$ or US-20130274834-$ or US-20090112192-$ or US-20150112411-$ or US-20170215958-$ or US-20170216619-$ or US-20170215960-$ or US-20170215959-$ or US-20140005758-$ or US-	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2021/07/16 14:09

		20190232079-$ or US-20160113941-$ or US-20190387973-$ or US-20190388150-$ or US-20190388151-$ or US-20200237228-$ or US-20210212568-$ or US-20180093106-$ or US-20060183072-$ or US-20160354535-$ or US-20200069851-$ or US-20110213319-$ or US-20140107595-$ or US-20150080788-$ or US-20180140755-$ or US-20100049177-$ or US-20210154093-$ or US-20130190613-$).did. or (US-20040224288-$ or US-20110208274-$ or US-20150057598-$ or US-20090087816-$ or US-20120156635-$ or US-20150056568-$ or US-20090118721-$ or US-20080267814-$ or US-20090105790-$ or US-20090299441-$ or US-20110082525-$ or US-20140212331-$ or US-20130345146-$ or US-20150306417-$ or US-20080139992-$ or US-20080131968-$ or US-20090299263-$ or US-20080138772-$ or US-20120319010-$ or US-20150157876-$ or US-20110295343-$ or US-20100274329-$ or US-20070248930-$ or US-20120148976-$ or US-20160096037-$ or US-20190117994-$ or US-20120148975-$).did. or (US-20180140864-$ or US-20130196284-$ or US-20170173359-$ or US-20190299022-$ or US-20200016426-$ or US-20200023191-$ or US-20190083202-$ or US-20110166631-$ or US-20060129211-$ or US-20200238100-$ or US-20060253176-$ or US-20200345472-$ or US-20160206738-$ or US-20200009249-$ or US-20130310905-$ or US-20210093886-$ or US-20200391051-$ or US-20090177253-$ or US-20140135798-$ or US-20040260367-$ or US-20090254154-$ or US-20190232077-$ or US-20100211136-$ or US-20100016841-$ or US-20070179571-$ or US-20100204762-$ or US-20200330786-$).did. or (US-20120016174-$ or US-20190262626-$ or US-20100010594-$ or US-20100010592-$ or US-20100105977-$ or US-20100094384-$ or US-20190060664-$ or US-20190070036-$				

		or US-20190070425-$ or US-20190070433-$ or US-20200069460-$ or US-20210000644-$ or US-20120197357-$ or US-20180193664-$ or US-20210178184-$ or US-20050234383-$ or US-20070129778-$ or US-20200360724-$ or US-20140074191-$ or US-20150058204-$ or US-20140074194-$ or US-20140364924-$ or US-20120065709-$ or US-20160008627-$ or US-20080091179-$ or US-20030032900-$ or US-20040260210-$).did. or (US-20040260209-$ or US-20040077977-$ or US-20070027411-$ or US-20200163899-$ or US-20200384253-$ or US-20190111240-$ or US-20020002391-$ or US-20060206173-$ or US-20060195165-$ or US-20080208297-$ or US-20060167531-$ or US-20060271024-$ or US-20190022220-$ or US-20170156662-$ or US-20070282400-$ or US-20100292746-$ or US-20080172113-$ or US-20080172114-$ or US-20130317574-$ or US-20150283402-$ or US-20190224497-$ or US-20070016254-$ or US-20080109052-$ or US-20210145514-$ or US-20210177968-$ or US-20120209357-$ or US-20210101019-$).did. or (US-20100179469-$ or US-20090062785-$ or US-20100184669-$ or US-20130183354-$ or US-20140155333-$ or US-20110282333-$ or US-20150209181-$ or US-20200000638-$ or US-20200384287-$ or US-20190022406-$ or US-20190070432-$ or US-20200391050-$ or US-20120053394-$ or US-20060206174-$ or US-20080004611-$ or US-20210138249-$ or US-20210001146-$ or US-20180185667-$ or US-20210001147-$ or US-20210023391-$ or US-20170164876-$ or US-20070156124-$ or US-20150290442-$ or US-20140343574-$ or US-20170245876-$ or US-20190223914-$ or US-20120022435-$).did. or (US-20150231379-$ or US-20150272623-$ or US-20170319835-$ or US-20170319836-$ or US-20190336740-$ or US-20210154454-$ or US-				

		20210154455-$ or US-20190083806-$ or US-20190117992-$ or US-20210093882-$ or US-20110071602-$ or US-20140074195-$ or US-20150290028-$ or US-20200179220-$ or US-20130274839-$ or US-20190030358-$ or US-20150127076-$ or US-20140288351-$ or US-20140277294-$ or US-20140067024-$ or US-20160367832-$ or US-20160008623-$ or US-20180015297-$ or US-20210046163-$ or US-20170050043-$ or US-20170216617-$ or US-20150057701-$).did. or (US-20180092773-$ or US-20200107956-$ or US-20150005750-$ or US-20190091065-$ or US-20070185553-$ or US-20090240310-$ or US-20110144410-$ or US-20170136258-$ or US-20160129281-$ or US-20070239233-$ or US-20110295186-$ or US-20120330219-$ or US-20150231407-$ or US-20170072217-$ or US-20160121108-$ or US-20070016255-$ or US-20070016256-$ or US-20100256552-$ or US-20110130729-$ or US-20110137214-$ or US-20120016275-$ or US-20050143793-$ or US-20150374819-$ or US-20200179514-$ or US-20190029755-$ or US-20200253813-$ or US-20180104509-$).did. or (US-20180104506-$ or US-20210038910-$ or US-20190344095-$ or US-20150196639-$ or US-20200338360-$ or US-20070208395-$ or US-20210146152-$ or US-20180015301-$ or US-20200360715-$ or US-20140358199-$ or US-20180256917-$ or US-20100324632-$ or US-20200069468-$ or US-20120283710-$ or US-20120283711-$ or US-20120283803-$ or US-20120226268-$ or US-20120232536-$ or US-20120232537-$ or US-20120232538-$ or US-20120232539-$ or US-20120239016-$ or US-20140005756-$ or US-20210007898-$ or US-20140272761-$ or US-20010021812-$ or US-20040143308-$).did. or (US-20070249716-$ or US-20100191172-$ or US-20110282266-$ or US-20130102906-$ or US-20150105667-$				

		or US-20200289321-$ or US-20110125226-$ or US-20180133431-$ or US-20180133504-$ or US-20190255350-$ or US-20190269936-$ or US-20190314641-$ or US-20210121713-$ or US-20180133507-$ or US-20040054386-$ or US-20130197473-$ or US-20180325593-$ or US-20120078160-$ or US-20140194770-$ or US-20100160904-$ or US-20170028215-$ or US-20160106999-$ or US-20200188688-$ or US-20200391049-$ or US-20200376292-$ or US-20050070977-$ or US-20190009102-$).did. or (US-20180236262-$ or US-20180111004-$ or US-20170000252-$ or US-20160361229-$ or US-20180104145-$ or US-20210128404-$ or US-20210077350-$ or US-20150127070-$ or US-20170014305-$ or US-20110172745-$ or US-20120283622-$ or US-20130184693-$ or US-20170173360-$ or US-20090222068-$ or US-20110059116-$ or US-20130078265-$ or US-20140335110-$ or US-20130226268-$ or US-20130006118-$ or US-20160256053-$ or US-20140066974-$ or US-20210045844-$ or US-20140378831-$ or US-20170182264-$ or US-20200101241-$ or US-20210093884-$ or US-20040236267-$).did. or (US-20080208294-$ or US-20140222116-$ or US-20110123958-$ or US-20140194955-$ or US-20080275533-$ or US-20080103560-$ or US-20080103563-$ or US-20080119913-$ or US-20120283709-$ or US-20130030423-$ or US-20200009399-$ or US-20110184500-$ or US-20150119960-$ or US-20070123808-$ or US-20060058714-$ or US-20080243039-$ or US-20090177256-$ or US-20110125231-$ or US-20120065712-$ or US-20040106082-$ or US-20060281042-$ or US-20090056044-$ or US-20110200959-$ or US-20150119771-$ or US-20070129776-$ or US-20210196505-$ or US-20190175935-$).did. or (US-20160367833-$ or US-20200316398-$ or US-20200324136-$ or US-				

		20200061386-$ or US-20190192873-$ or US-20200054890-$ or US-20200230430-$ or US-20210038906-$ or US-20200061385-$ or US-20190192872-$ or US-20190388698-$ or US-20190192875-$ or US-20190201705-$ or US-20180236254-$ or US-20190201706-$ or US-20170087379-$ or US-20020026225-$ or US-20190201713-$ or US-20190217119-$ or US-20190143138-$ or US-20180147416-$ or US-20080172045-$ or US-20060229690-$ or US-20180036553-$ or US-20200360714-$ or US-20190351247-$ or US-20200345242-$).did. or (US-20190365569-$ or US-20120197135-$ or US-20150165238-$ or US-20210128935-$ or US-20210128936-$ or US-20210128937-$ or US-20210128938-$ or US-20210138259-$ or US-20170028214-$ or US-20200222714-$ or US-20200298014-$ or US-20200197718-$ or US-20030125782-$ or US-20050187595-$ or US-20110060266-$ or US-20190078073-$ or US-20080125836-$ or US-20110144723-$ or US-20080004565-$ or US-20200179713-$ or US-20050107851-$ or US-20040138727-$ or US-20190351252-$ or US-20190015679-$ or US-20060253177-$ or US-20130225971-$ or US-20160045761-$).did. or (US-20160038763-$ or US-20160045759-$ or US-20160045760-$ or US-20160045763-$ or US-20160051834-$ or US-20160051835-$ or US-20160056653-$ or US-20190308031-$ or US-20160317833-$ or US-20160067087-$ or US-20160067086-$ or US-20190142636-$ or US-20200315844-$ or US-20110015707-$ or US-20110160814-$ or US-20100076529-$ or US-20160263393-$ or US-20110021970-$ or US-20140243934-$ or US-20150251016-$ or US-20190336785-$ or US-20170043178-$ or US-20200078600-$ or US-20180133319-$ or US-20170050046-$ or US-20200222711-$ or US-20130103017-$).did. or (US-20110098789-$ or US-20150057725-$				

		or US-20100049180-$ or US-20030181949-$ or US-20060241726-$ or US-20140128941-$ or US-20180146520-$ or US-20190246463-$ or US-20180178030-$ or US-20180178031-$ or US-20040243114-$ or US-20080275532-$ or US-20160228184-$ or US-20100204686-$ or US-20040225339-$ or US-20200038673-$ or US-20200038530-$ or US-20200078482-$ or US-20120289948-$ or US-20120283712-$ or US-20190357976-$).did. or (US-8915948-$ or US-7220254-$ or US-7309335-$ or US-10953240-$ or US-9968800-$ or US-9492681-$ or US-6676654-$ or US-10632324-$ or US-7887533-$ or US-7914523-$ or US-10524861-$ or US-10413748-$ or US-10485612-$ or US-10543040-$ or US-10300296-$ or US-10272096-$ or US-11013413-$ or US-10821297-$ or US-10413644-$ or US-8529548-$ or US-8845619-$ or US-9545463-$ or US-11013837-$ or US-8945104-$ or US-10485983-$ or US-8506979-$).did. or (US-8535359-$ or US-7470124-$ or US-8983257-$ or US-7713294-$ or US-10729524-$ or US-9242118-$ or US-10987521-$ or US-10758738-$ or US-10413608-$ or US-10864273-$ or US-9463332-$ or US-10188872-$ or US-10357662-$ or US-7575589-$ or US-10758743-$ or US-10695579-$ or US-10857376-$ or US-10315042-$ or US-10653889-$ or US-10695577-$ or US-7303578-$ or US-11033754-$ or US-9149331-$ or US-10758405-$ or US-10932945-$ or US-10945878-$ or US-8475507-$).did. or (US-4930504-$ or US-10960224-$ or US-7730893-$ or US-10695582-$ or US-8888830-$ or US-8974443-$ or US-4686986-$ or US-9504826-$ or US-6267779-$ or US-8109981-$ or US-10390755-$ or US-8523925-$ or US-9943379-$ or US-10905898-$ or US-8915253-$ or US-9060843-$ or US-7878965-$ or US-7918779-$ or US-8518870-$ or US-9504745-$ or US-8945101-$ or US-10525280-$ or US-10532222-$ or US-8517909-$ or US-8088057-$ or US-7942869-$ or US-10821298-$).did. or				

		(US-10383550-$ or US-9566088-$ or US-9662482-$ or US-10251675-$ or US-8048089-$ or US-9474886-$ or US-9550052-$ or US-9814868-$ or US-10357641-$ or US-10357642-$ or US-10974061-$ or US-8608786-$ or US-10583307-$ or US-8900283-$ or US-9968799-$ or US-8858607-$ or US-9295855-$ or US-9399146-$ or US-10864380-$ or US-9763827-$ or US-10456294-$ or US-10092449-$ or US-10456298-$ or US-8620451-$ or US-10561854-$ or US-10589121-$ or US-10874875-$).did. or (US-8025689-$ or US-8083787-$ or US-8187310-$ or US-8187311-$ or US-8685073-$ or US-10588972-$ or US-11020181-$ or US-10406380-$ or US-10709897-$ or US-10632325-$ or US-8535361-$ or US-9220915-$ or US-9414888-$ or US-9789332-$ or US-8523849-$ or US-9005262-$ or US-9308391-$ or US-9848959-$ or US-9723991-$ or US-7190109-$ or US-7723910-$ or US-8030836-$ or US-8216289-$ or US-8758418-$ or US-6223071-$ or US-6709446-$ or US-9023089-$).did. or (US-10279192-$ or US-10293177-$ or US-10702705-$ or US-10843006-$ or US-10307611-$ or US-9144690-$ or US-9227082-$ or US-9192780-$ or US-9017391-$ or US-9814906-$ or US-9962225-$ or US-8685010-$ or US-10569097-$ or US-10709898-$ or US-4838271-$ or US-4842356-$ or US-4865035-$ or US-10905897-$ or US-9950189-$ or US-9936795-$ or US-9775774-$ or US-10869812-$ or US-8979912-$ or US-9630002-$ or US-10478635-$ or US-10639495-$ or US-10052376-$).did. or (US-9373807-$ or US-10052393-$ or US-10342933-$ or US-8790381-$ or US-7354433-$ or US-10376455-$ or US-9808646-$ or US-8033284-$ or US-8316860-$ or US-9950190-$ or US-5616140-$ or US-10493170-$ or US-8679102-$ or US-8961577-$ or US-10493295-$ or US-7384405-$ or US-7896908-$ or US-8313518-$ or US-7467946-$ or US-7942667-$ or US-6616447-$ or US-7144249-$ or US-10016337-$ or US-9108045-$ or US-6494900-$ or US-				

		6063108-$ or US-10183174-$).did. or (US-10632323-$ or US-10874874-$ or US-5830211-$ or US-10632321-$ or US-10556122-$ or US-10821295-$ or US-10709894-$ or US-10478633-$ or US-10688310-$ or US-10478634-$ or US-10493293-$ or US-10569095-$ or US-10569094-$ or US-10549109-$ or US-5755752-$ or US-6033431-$ or US-6866678-$ or US-7762964-$ or US-9060791-$ or US-10143861-$ or US-10525275-$ or US-10683494-$ or US-10913943-$ or US-8308784-$ or US-9993659-$ or US-7309348-$ or US-10090694-$).did. or (US-10195458-$ or US-10213618-$ or US-10272257-$ or US-10434325-$ or US-10881550-$ or US-10219944-$ or US-10596037-$ or US-7255691-$ or US-8192473-$ or US-9833509-$ or US-9962441-$ or US-9526914-$ or US-9526913-$ or US-10384071-$ or US-10493296-$ or US-9302116-$ or US-10596387-$ or US-8685008-$ or US-8518027-$ or US-9302118-$ or US-9877361-$ or US-11006488-$ or US-10220221-$ or US-7136405-$ or US-10034710-$ or US-9308390-$ or US-8251982-$).did. or (US-3085568-$).did. or (US-20200197718-$).did.				
S107	696	S106 and (treatment near3 time)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 14:10
S108	215	S106 and ((adjust input) with time)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 14:55
S110	344	S104 and ((adjust input) with time)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 14:55
S111	702	S101 and ((red infrared ir) with light) and ((adjust input) with time)	US-PGPUB; USPAT; USOCR;	OR	ON	2021/07/16 14:56

			FPRS; EPO; JPO; DERWENT			
S112	702	(US-20080058783-$ or US-20180014777-$ or US-20170225006-$ or US-20190168016-$ or US-20190240502-$ or US-20200178473-$ or US-20200108272-$ or US-20160310754-$ or US-20060217690-$ or US-20040147986-$ or US-20150112411-$ or US-20120265120-$ or US-20140005758-$ or US-20190232079-$ or US-20130013031-$ or US-20080077200-$ or US-20160235983-$ or US-20160235980-$ or US-20150025599-$ or US-20110208274-$ or US-20150057598-$ or US-20090118721-$ or US-20090299263-$ or US-20080139992-$ or US-20130345146-$ or US-20150306417-$).did. or (US-20080131968-$ or US-20080267814-$ or US-20090105790-$ or US-20090299441-$ or US-20110082525-$ or US-20140212331-$ or US-20120319010-$ or US-20150157876-$ or US-20110295343-$ or US-20100191093-$ or US-20100189224-$ or US-20100191105-$ or US-20100187304-$ or US-20100189219-$ or US-20100191091-$ or US-20100191092-$ or US-20100191107-$ or US-20080058587-$ or US-20080058649-$ or US-20080058785-$ or US-20080058786-$ or US-20080058788-$ or US-20080058795-$ or US-20080059070-$ or US-20080103355-$ or US-20150157877-$ or US-20170080249-$).did. or (US-20190201711-$ or US-20150140502-$ or US-20180014924-$ or US-20180140406-$ or US-20210068936-$ or US-20190083202-$ or US-20110166631-$ or US-20190262629-$ or US-20130116616-$ or US-20170182333-$ or US-20180177976-$ or US-20200114117-$ or US-20080281383-$ or US-20210128238-$ or US-20180369608-$ or US-20180221681-$ or US-20180021591-$ or US-20170157430-$ or US-20170157431-$ or US-20050065579-$	US-PGPUB; USPAT; DERWENT	OR	ON	2021/07/16 14:58

		or US-20190015682-$ or US-20170181796-$ or US-20200094015-$ or US-20150065821-$ or US-20130304019-$ or US-20090143842-$ or US-20070255266-$).did. or (US-20110178510-$ or US-20200391051-$ or US-20160310593-$ or US-20090177253-$ or US-20090281604-$ or US-20040260367-$ or US-20100010594-$ or US-20120016174-$ or US-20190262626-$ or US-20100010592-$ or US-20100094384-$ or US-20100105977-$ or US-20160237126-$ or US-20180051058-$ or US-20130224821-$ or US-20160002302-$ or US-20190241627-$ or US-20140155962-$ or US-20140157174-$ or US-20210113853-$ or US-20120197357-$ or US-20190336326-$ or US-20210031050-$ or US-20190224491-$ or US-20160129280-$ or US-20020074559-$ or US-20130073010-$).did. or (US-20170115162-$ or US-20170118854-$ or US-20190145820-$ or US-20190008964-$ or US-20130218240-$ or US-20140005590-$ or US-20160129279-$ or US-20130296978-$ or US-20150025601-$ or US-20070276455-$ or US-20110212410-$ or US-20100121420-$ or US-20190336789-$ or US-20060195165-$ or US-20080208297-$ or US-20060167531-$ or US-20060271024-$ or US-20130066403-$ or US-20150163889-$ or US-20200094071-$ or US-20210145514-$ or US-20120209357-$ or US-20140276248-$ or US-20190151655-$ or US-20140276247-$ or US-20170100585-$ or US-20100179469-$).did. or (US-20070244527-$ or US-20110282333-$ or US-20150209181-$ or US-20200000638-$ or US-20050053106-$ or US-20200384287-$ or US-20170119466-$ or US-20200046427-$ or US-20130324788-$ or US-20040166146-$ or US-20080058689-$ or US-20120053394-$ or US-20060206174-$ or US-20150039061-$ or US-20210138249-$ or US-20180333587-$ or US-20210001146-$ or US-20180185667-$ or US-				

		20210001147-$ or US-20210023385-$ or US-20210023391-$ or US-20160016004-$ or US-20200282230-$ or US-20120316623-$ or US-20110071602-$ or US-20140074195-$ or US-20200093945-$).did. or (US-20190366120-$ or US-20200086134-$ or US-20200406051-$ or US-20200376291-$ or US-20200384283-$ or US-20130274839-$ or US-20190030358-$ or US-20140288351-$ or US-20140067024-$ or US-20160008623-$ or US-20160367832-$ or US-20210085995-$ or US-20190299021-$ or US-20180169430-$ or US-20170050043-$ or US-20190111252-$ or US-20200174277-$ or US-20200233230-$ or US-20200384684-$ or US-20180064953-$ or US-20170281965-$ or US-20190328905-$ or US-20210038743-$ or US-20200060923-$ or US-20190290881-$ or US-20190366119-$ or US-20180263695-$).did. or (US-20140088668-$ or US-20150153062-$ or US-20160331991-$ or US-20160096033-$ or US-20050143793-$ or US-20170326381-$ or US-20180311464-$ or US-20170032521-$ or US-20190029755-$ or US-20210031051-$ or US-20180104509-$ or US-20180104506-$ or US-20210038910-$ or US-20200345970-$ or US-20170361125-$ or US-20140271479-$ or US-20170202912-$ or US-20140187998-$ or US-20140364721-$ or US-20200179717-$ or US-20140207211-$ or US-20190117307-$ or US-20190117995-$ or US-20200023192-$ or US-20190029907-$ or US-20090177190-$ or US-20180133497-$).did. or (US-20190117308-$ or US-20210162162-$ or US-20210095825-$ or US-20180216791-$ or US-20200063927-$ or US-20200360715-$ or US-20130190845-$ or US-20120283710-$ or US-20120283711-$ or US-20120283803-$ or US-20120226268-$ or US-20120232536-$ or US-20120232537-$ or US-20120232538-$ or US-20120232539-$ or US-20120239016-$ or US-20140005756-$				

		or US-20160016001-$ or US-20200289321-$ or US-20180193662-$ or US-20030011538-$ or US-20010028227-$ or US-20030100837-$ or US-20080183081-$ or US-20200261738-$ or US-20190314641-$ or US-20180133431-$).did. or (US-20180133504-$ or US-20190255350-$ or US-20190269936-$ or US-20210121713-$ or US-20180133507-$ or US-20170043179-$ or US-20110098781-$ or US-20140303528-$ or US-20210063964-$ or US-20200178892-$ or US-20150054415-$ or US-20160193478-$ or US-20160219671-$ or US-20130140988-$ or US-20140217902-$ or US-20140306620-$ or US-20200289841-$ or US-20190076668-$ or US-20110190749-$ or US-20130345687-$ or US-20170304003-$ or US-20060030907-$ or US-20070203432-$ or US-20080125620-$ or US-20210038911-$ or US-20180353770-$ or US-20200391049-$).did. or (US-20050015121-$ or US-20160023017-$ or US-20200368550-$ or US-20170326380-$ or US-20210085993-$ or US-20180111004-$ or US-20160008628-$ or US-20120215155-$ or US-20180235808-$ or US-20190365564-$ or US-20210022948-$ or US-20200289054-$ or US-20210077350-$ or US-20190217347-$ or US-20130184693-$ or US-20080269847-$ or US-20030002297-$ or US-20100069824-$ or US-20020183809-$ or US-20120010684-$ or US-20120143288-$ or US-20120143289-$ or US-20120143290-$ or US-20120143291-$ or US-20200054891-$ or US-20140066974-$ or US-20210108771-$).did. or (US-20210128942-$ or US-20180056027-$ or US-20070203550-$ or US-20090204188-$ or US-20140330195-$ or US-20200246179-$ or US-20210001141-$ or US-20080091250-$ or US-20080275533-$ or US-20080103560-$ or US-20080065056-$ or US-20080103563-$ or US-20090227996-$ or US-20080119913-$ or US-20060030908-$ or US-				

		20090254156-$ or US-20110251659-$ or US-20140012353-$ or US-20120197358-$ or US-20050245998-$ or US-20170050042-$ or US-20180093103-$ or US-20160106998-$ or US-20140296944-$ or US-20200391046-$ or US-20150335246-$ or US-20120283709-$).did. or (US-20130030423-$ or US-20090177256-$ or US-20110125231-$ or US-20060281042-$ or US-20090056044-$ or US-20110200959-$ or US-20140194957-$ or US-20170065826-$ or US-20190008678-$ or US-20190008679-$ or US-20170231058-$ or US-20170238401-$ or US-20120029417-$ or US-20140088439-$ or US-20060009822-$ or US-20030156831-$ or US-20040184793-$ or US-20170208673-$ or US-20200222712-$ or US-20210069525-$ or US-20190192872-$ or US-20190192873-$ or US-20190201705-$ or US-20200061385-$ or US-20200230430-$ or US-20210038906-$ or US-20190192875-$).did. or (US-20190388698-$ or US-20180236254-$ or US-20200054890-$ or US-20200061386-$ or US-20170106201-$ or US-20160136385-$ or US-20020026225-$ or US-20190201713-$ or US-20190217119-$ or US-20190143138-$ or US-20180147416-$ or US-20180110566-$ or US-20110087312-$ or US-20040111132-$ or US-20200406000-$ or US-20200360714-$ or US-20130041309-$ or US-20190209858-$ or US-20160287898-$ or US-20200360547-$ or US-20180077767-$ or US-20200214101-$ or US-20150102749-$ or US-20170086273-$ or US-20120041523-$ or US-20200267814-$ or US-20040075065-$).did. or (US-20050093485-$ or US-20130023960-$ or US-20130023961-$ or US-20130023962-$ or US-20130023963-$ or US-20130023964-$ or US-20130023965-$ or US-20130023967-$ or US-20200197718-$ or US-20050187595-$ or US-20080004565-$ or US-20150230862-$ or US-20040138727-$ or US-20050107851-$				

		or US-20060253177-$ or US-20130225971-$ or US-20100324631-$ or US-20160067087-$ or US-20160067086-$ or US-20190142636-$ or US-20200315844-$ or US-20200390803-$ or US-20180369602-$ or US-20190366117-$ or US-20100060195-$ or US-20100076250-$ or US-20060235494-$).did. or (US-20160374173-$ or US-20180199411-$ or US-20200163184-$ or US-20150335742-$ or US-20160136386-$ or US-20160136452-$ or US-20170049890-$ or US-20180055933-$ or US-20090018621-$ or US-20070060984-$ or US-20110238141-$ or US-20080077198-$ or US-20140052221-$ or US-20130103017-$ or US-20110098789-$ or US-20150057725-$ or US-20100049180-$ or US-20080033412-$ or US-20140128941-$ or US-20180146520-$ or US-20190246463-$ or US-20190335551-$ or US-20150231408-$ or US-20190373687-$ or US-20160219675-$ or US-20190223270-$ or US-20170215253-$).did. or (US-20150048742-$ or US-20210212184-$ or US-20180193186-$ or US-20080027516-$ or US-20210205632-$ or US-20040243114-$ or US-20130137992-$ or US-20200038673-$ or US-20200054893-$ or US-20120289948-$ or US-20120283712-$ or US-20190357976-$ or US-20150230863-$ or US-20190357771-$ or US-20130172965-$ or US-20140022162-$ or US-20170308170-$ or US-20190240468-$ or US-20180140863-$ or US-20140023993-$ or US-20190083809-$ or US-20210093888-$ or US-20210196977-$ or US-20160331308-$ or US-20170361076-$ or US-20170172658-$ or US-20190125448-$).did. or (US-9968800-$ or US-6676654-$ or US-7147654-$ or US-8838228-$ or US-10589120-$ or US-10300296-$ or US-9545463-$ or US-9517355-$ or US-8506979-$ or US-8535359-$ or US-8983257-$ or US-7713294-$ or US-8111809-$ or US-8254524-$ or US-8031838-$ or US-8116429-$ or US-				

		8041008-$ or US-8083406-$ or US-8249218-$ or US-8047714-$ or US-8145295-$ or US-8160680-$ or US-8180436-$ or US-8936629-$ or US-9220917-$ or US-9730780-$).did. or (US-10729524-$ or US-9597527-$ or US-10130827-$ or US-10806890-$ or US-7367342-$ or US-10456604-$ or US-10668305-$ or US-10758738-$ or US-10322293-$ or US-7918229-$ or US-6623511-$ or US-8781545-$ or US-10857376-$ or US-10758743-$ or US-10653889-$ or US-10315042-$ or US-7303578-$ or US-10695577-$ or US-9850290-$ or US-10196431-$ or US-9175095-$ or US-9340589-$ or US-9126034-$ or US-8784462-$ or US-8475507-$ or US-7064498-$ or US-10709600-$).did. or (US-10527490-$ or US-10527491-$ or US-10732034-$ or US-11045548-$ or US-9205277-$ or US-9550070-$ or US-7921853-$ or US-8956396-$ or US-8945197-$ or US-8109981-$ or US-9326363-$ or US-9061128-$ or US-9561357-$ or US-6120529-$ or US-8945101-$ or US-9597479-$ or US-7304201-$ or US-8517909-$ or US-8088057-$ or US-10821298-$ or US-10137311-$ or US-8608786-$ or US-10806944-$ or US-10744337-$ or US-8900283-$ or US-8858607-$ or US-9399146-$).did. or (US-10518100-$ or US-10918859-$ or US-10901231-$ or US-10967565-$ or US-5634711-$ or US-4560883-$ or US-10849990-$ or US-10973576-$ or US-9889314-$ or US-9945577-$ or US-9782603-$ or US-10137277-$ or US-9824444-$ or US-11020181-$ or US-10406380-$ or US-10149983-$ or US-9636380-$ or US-10478639-$ or US-10953239-$ or US-10589115-$ or US-11033331-$ or US-10502374-$ or US-10900621-$ or US-4614866-$ or US-4724835-$ or US-9220915-$ or US-9414888-$).did. or (US-9789332-$ or US-8523849-$ or US-9005262-$ or US-9308391-$ or US-10940328-$ or US-7221104-$ or US-6528954-$ or US-6166496-$ or US-6211626-$ or US-6292901-$ or US-6340868-$ or US-6720745-$ or US-7308296-$ or US-6459919-$ or US-10702705-$ or US-				

		10279192-$ or US-10293177-$ or US-10843006-$ or US-10307611-$ or US-10525279-$ or US-8761874-$ or US-8983596-$ or US-9289574-$ or US-9913341-$ or US-9693414-$ or US-8686641-$ or US-8941329-$).did. or (US-9024536-$ or US-9554856-$ or US-10194986-$ or US-7141028-$ or US-7654949-$ or US-7846084-$ or US-9827440-$ or US-10786685-$ or US-10994313-$ or US-4233493-$ or US-10478635-$ or US-10639495-$ or US-8029553-$ or US-11007373-$ or US-6443974-$ or US-6395016-$ or US-7051738-$ or US-8317781-$ or US-8480721-$ or US-9017392-$ or US-9072892-$ or US-9522287-$ or US-10434280-$ or US-8435276-$ or US-9486447-$ or US-9764155-$ or US-9498640-$).did. or (US-10086211-$ or US-9216300-$ or US-9662409-$ or US-8679102-$ or US-7896908-$ or US-8313518-$ or US-7467946-$ or US-7942667-$ or US-9622911-$ or US-10285857-$ or US-11033429-$ or US-9138595-$ or US-7120353-$ or US-7142779-$ or US-10932345-$ or US-10478633-$ or US-10709894-$ or US-10478634-$ or US-10688310-$ or US-10493293-$ or US-10556122-$ or US-10632321-$ or US-10821295-$ or US-10569094-$ or US-10569095-$ or US-5755752-$ or US-6033431-$).did. or (US-6866678-$ or US-10950052-$ or US-10974065-$ or US-10595376-$ or US-9794996-$ or US-9532423-$ or US-7229467-$ or US-6828576-$ or US-9011508-$ or US-8998914-$ or US-8747447-$ or US-8834545-$ or US-8840654-$ or US-8894697-$ or US-9011509-$ or US-7309348-$ or US-11058889-$ or US-10194984-$ or US-8721695-$ or US-10881550-$ or US-10219944-$ or US-10596037-$ or US-6689124-$ or US-6013096-$ or US-8257416-$ or US-9913345-$ or US-10390407-$).did. or (US-9833509-$ or US-9962441-$ or US-7736382-$ or US-8985119-$ or US-7988688-$ or US-8506613-$ or US-8784461-$ or US-8685008-$ or US-8518027-$ or US-9302118-$ or US-9877361-$ or US-11006488-$ or US-10328276-$ or US-				

		9655206-$ or US-10959311-$ or US-10244606-$ or US-9313860-$ or US-7136405-$ or US-9308390-$ or US-10045820-$ or US-9696804-$ or US-8574280-$ or US-10953236-$ or US-9687152-$ or US-9789295-$).did. or (BR-102016030258-$ or CN-109364381-$ or CN-110585001-$ or US-20200197718-$).did.				
S113	702	S112 and ((adjust input) with time)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 14:58
S114	19	("20030009205" | "20040068305" | "20050085875" | "20080046044" | "20080091250" | "20080114418" | "20090318908" | "20100045175" | "20100045189" | "20100076529" | "20130190842" | "20130229802" | "20130301264" | "20150267907" | "20150297914" | "20160158574" | "20160367833" | "6955684" | "8066403").PN.	US-PGPUB; USPAT	OR	ON	2021/07/16 15:38
S115	85	("20030188378" | "20060217789" | "20120296260" | "20130172963" | "20140190537" | "20160175610" | "20170028216" | "20170080246" | "20170131693" | "20190167519" | "5645578" | "8337538" | "9440041" | "9884204" | "10440794" | "20040162596" | "20130304019" | "20160016001" | "20180236259" | "20200121944" | "D877919" | "D877920" | "D877921" | "D877922" | "D877923" | "D892343" | "D892344" | "D892345" | "D893737" | "D895822" | "20030009205" | "20040068305" | "20050085875" | "20070217199" | "20080046044" | "20080091250" | "20080114418" | "20090318908" | "20100045175" | "20100045189" | "20100076529" | "20130190842" | "20130229802" | "20130301264" | "20150267907" | "20150297914" | "20160158574" | "20160367833" | "6955684" | "8066403" | "20040008523" | "20060007059" | "20060020308" | "20060229689" | "20070068055" | "20070129777" |	US-PGPUB; USPAT	OR	ON	2021/07/16 15:38

		"20070276455" | "20080119831" | "20080141572" | "20080269849" | "20090288340" | "20100309659" | "20110054573" | "20120019490" | "20120104977" | "20120243227" | "20140081357" | "20140226329" | "20150202455" | "20150307332" | "20160076708" | "20170118838" | "20180043178" | "20180056087" | "20180111001" | "4844069" | "5733032" | "6626932" | "8481982" | "9227082" | "9311847" | "9353924" | "9416551" | "9852666" | "9943042").PN.				
S116	8,722	A61N5/06.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/09/29 14:56
S117	11,815	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/09/29 14:56
S118	1,483	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/09/29 14:56
S119	411	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/09/29 14:56
S120	6,263	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/09/29 14:56
S121	9,384	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/09/29 14:56

S122	497	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/09/29 14:56
S123	758	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/09/29 14:56
S124	30,057	S116 S117 S118 S119 S120 S121 S122 S123	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/09/29 14:56
S125	480	S124 and ((lead leading follow followed following) with mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/09/29 14:56
S126	31	S124 and (((lead leading) and (follow followed following)) with mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/09/29 14:59
S127	94	S124 and (((lead led leading) and (follow followed following)) with mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/09/29 14:59
S128	14	("10064940" | "10363434" | "10632325" | "10881550" | "20020198575" | "20060229689" | "20150112411" | "20190030359" | "20200269065" | "20200360714" | "5996728" | "6896693" | "7932482" | "8425577").PN.	US-PGPUB; USPAT	OR	ON	2021/09/30 13:20
S129	1	S128 and (((lead led leading) and (follow followed following)) with mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/09/30 13:23

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S54	0	((red with light) and ("near" with infrared with light) AND housing AND communicat$6 AND button AND (control$6 microcontrol$6 process$6 microprocess$6)).clm.	US-PGPUB; USPAT	OR	ON	2019/07/03 14:47
S55	11	((red with light) and ("near" with infrared with light) AND housing AND communicat$6 AND (control$6 microcontrol$6 process$6 microprocess$6)).clm.	US-PGPUB; USPAT	OR	ON	2019/07/03 14:48
S89	10	((red with light) and ("near" with infrared with light) AND housing AND switch$6).clm.	US-PGPUB; USPAT	OR	ON	2020/03/03 13:34
S130	3	((red with light) and ("near" with infrared with light) AND (lead$4 with mode) AND (follow$5 with mode)).clm.	US-PGPUB; USPAT	OR	ON	2021/09/30 13:00

10/21/2021 3:22:31 PM
C:\Users\theller\Documents\EAST\Workspaces\16598033.wsp

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

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16598033
Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Tammie K. Marlen
Attorney Docket Number	JOOVV.004A.C2

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	1660794		1928-02-28	HUDSON	
	2	2327346		1943-08-24	FUREDY	
	3	3416852		1968-12-17	GOLDBECK	
	4	4312361		1982-01-26	NICHOLSON	
	5	4673152		1987-06-16	BROWN	
	6	4736555		1988-04-12	NAGARE	
	7	4740707		1988-04-26	THAW	
	8	5515900		1996-05-14	WEST	

Exhibit 1003 - 58

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

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Examiner Name	Tammie K. Marlen
Attorney Docket Number	JOOVV.004A.C2

	9	5616140		1997-04-01	PRESCOTT	
	10	5698866		1997-12-16	DOIRON	
	11	5759139		1998-06-02	WRIGHT	
	12	5761839		1998-06-09	HEIKKILA	
	13	5800478		1998-09-01	CHEN	
	14	6054968		2000-04-25	DE MATTEO	
	15	6290713		2001-09-18	RUSSELL	
	16	6494910		2002-12-17	GANEM	
	17	6508262		2003-01-21	TAKAYAMA	
	18	6645230		2003-11-11	WHITEHURST	
	19	6663659		2003-12-16	MCDANIEL	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

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	20	6853151		2005-02-08	LEONG	
	21	6870673		2005-03-22	CROMER	
	22	7033381		2006-04-25	LARSEN	
	23	7578600		2009-08-25	CZAJKOWSKI	
	24	7863641		2011-01-04	DAHM	
	25	8043349		2011-10-25	SPRINGER	
	26	8376602		2013-02-19	KLIPSTEIN	
	27	8454214		2013-06-04	KAZAOKA	
	28	9399146		2016-07-26	JONES	
	29	9551893		2017-01-24	AN	
	30	9707665		2017-07-18	SMITH	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

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	First Named Inventor	Justin Strahan
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	Examiner Name	Tammie K. Marlen
	Attorney Docket Number	JOOVV.004A.C2

	31	10357567		2019-07-23	LUNDAHL	
	32	10672306		2020-06-02	WHIDDEN	
	33	10706770		2020-07-07	HALL	
	34	10828505		2020-11-10	NELSON	
	35	11033752		2021-06-15	STRAHAN	

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20030216795		2003-11-20	HARTH	
	2	20030233138		2003-12-18	SPOONER	
	3	20040014199		2004-01-22	STREETER	
	4	20040188573		2004-09-30	WEATHERLY	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

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First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Tammie K. Marlen
Attorney Docket Number	JOOVV.004A.C2

	5	20040193234		2004-09-30	BUTLER	
	6	20050075703		2005-04-07	LARSEN	
	7	20050116667		2005-06-02	MUELLER	
	8	20050210722		2005-09-29	GRAEF	
	9	20050230573		2005-10-20	LIGERTWOOD	
	10	20050237739		2005-10-27	LEE	
	11	20060030908		2006-02-09	POWELL	
	12	20060217787		2006-09-28	OLSON	
	13	20060241726		2006-10-26	WHITEHURST	
	14	20070038206		2007-02-15	ALTSHULER	
	15	20070084108		2007-04-19	HERTLEIN	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

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	Examiner Name	Tammie K. Marlen
	Attorney Docket Number	JOOVV.004A.C2

	16	20070129776		2007-06-07	ROBINS	
	17	20080210659		2008-09-04	MCKINNEY	
	18	20080306576		2008-12-11	BOYDEN	
	19	20080312721		2008-12-18	LEMIEUX	
	20	20090012588		2009-01-08	SPRINGER	
	21	20090058153		2009-03-05	SHAFER	
	22	20090262533		2009-10-22	LIU	
	23	20100265711		2010-10-21	LEE	
	24	20100277105		2010-11-04	OYAMA	
	25	20100303603		2010-12-02	GALANTE	
	26	20100324611		2010-12-23	DEMING	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

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Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Tammie K. Marlen
Attorney Docket Number	JOOVV.004A.C2

	27	20110176297		2011-07-21	HSIA	
	28	20120020109		2012-01-26	KIM	
	29	20120030873		2012-02-09	TURTZO	
	30	20120075871		2012-03-29	CHEN	
	31	20120283622		2012-11-08	NATH	
	32	20130101953		2013-04-25	STONE	
	33	20130163235		2013-06-27	CHUANG	
	34	20130279160		2013-10-24	MYERS	
	35	20130282082		2013-10-24	DAIJO	
	36	20130289673		2013-10-31	MATSUBARA	
	37	20130304164		2013-11-14	ZANATA	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16598033
	Filing Date	2019-10-10
	First Named Inventor	Justin Strahan
	Art Unit	3792
	Examiner Name	Tammie K. Marlen
	Attorney Docket Number	JOOVV.004A.C2

	38	20140031906		2014-01-30	BREZINSKI	
	39	20140049942		2014-02-20	CHILTON	
	40	20140197124		2014-07-17	MCPHILLIPS	
	41	20140202493		2014-07-24	ZELICKSON	
	42	20140241008		2014-08-28	KIM	
	43	20140303547		2014-10-09	LOUPIS	
	44	20150051671		2015-02-19	BROWNE	
	45	20150062900		2015-03-05	FERRO	
	46	20150198298		2015-07-16	SCARLATA	
	47	20150265846		2015-09-24	BAIRD	
	48	20160015999		2016-01-21	DABNEY	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	16598033
Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Tammie K. Marlen
Attorney Docket Number	JOOVV.004A.C2

	49	20160106950		2016-04-21	VASAPOLLO	
	50	20160232822		2016-08-11	WARD	
	51	20160286616		2016-09-29	VAN DE VEN	
	52	20170007846		2017-01-12	RABIN	
	53	20170053570		2017-02-23	COX	
	54	20170074474		2017-03-16	BAILEY	
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	56	20180008839		2018-01-11	HAMID	
	57	20180036553		2018-02-08	SHIIBASHI	
	58	20180051862		2018-02-22	MEUMANN	
	59	20180141499		2018-05-24	NEWMAN	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	First Named Inventor	Justin Strahan
	Art Unit	3792
	Examiner Name	Tammie K. Marlen
	Attorney Docket Number	JOOVV.004A.C2

	60	20180288840		2018-10-04	KOGURE	
	61	20180292055		2018-10-11	MOIOLI	
	62	20180345034		2018-12-06	BUTZLOFF	
	63	20190388707		2019-12-26	SHENFARBER	
	64	20200060868		2020-02-27	SIVAN	
	65	20200086135		2020-03-19	JOHNSON	
	66	20200121944		2020-04-23	STRAHAN	
	67	20200324104		2020-10-15	LABUSCHAGNE	
	68	20200353273		2020-11-12	ZUCCO	

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

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16598033
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Art Unit	3792
Examiner Name	Tammie K. Marlen
Attorney Docket Number	JOOVV.004A.C2

	1						

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	U.S. Patent No. 845,917, issued 1907-03-05 to WORLEY (unable to add this patent no. in appropriate place, "Invalid Patent Number Format" error message)	

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

EXAMINER SIGNATURE

Examiner Signature	/TAMMIE K MARLEN/	Date Considered	10/21/2021

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

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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16598033
Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Tammie K. Marlen
Attorney Docket Number	JOOVV.004A.C2

CERTIFICATION STATEMENT

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

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

OR

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

See attached certification statement.

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

A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Wesley Schwie/	Date (YYYY-MM-DD)	2021-09-30
Name/Print	Wesley Schwie	Registration Number	64,950

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

Privacy Act Statement

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

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

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

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

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

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

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

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

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

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

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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

124179 7590 10/15/2021

Gallium Law
445 Minnesota St
Suite 1500
St. Paul, MN 55101

EXAMINER	
MARLEN, TAMMIE K	
ART UNIT	PAPER NUMBER
3792	

DATE MAILED: 10/15/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/598,033	10/10/2019	Justin Strahan	JOOVV.004A.C2	3718

TITLE OF INVENTION: PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$600	$0.00	$0.00	$600	01/18/2022

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.

Exhibit 1003 - 71

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)

124179 7590 10/15/2021

Gallium Law
445 Minnesota St
Suite 1500
St. Paul, MN 55101

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.
16/598,033	10/10/2019	Justin Strahan	JOOVV.004A.C2	3718

TITLE OF INVENTION: PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$600	$0.00	$0.00	$600	01/18/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
MARLEN, TAMMIE K	3792	607-088000

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. _____

Exhibit 1003 - 72

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.
16/598,033	10/10/2019	Justin Strahan	JOOVV.004A.C2	3718

124179 7590 10/15/2021

Gallium Law
445 Minnesota St
Suite 1500
St. Paul, MN 55101

EXAMINER	
MARLEN, TAMMIE K	
ART UNIT	PAPER NUMBER
3792	

DATE MAILED: 10/15/2021

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.

Exhibit 1003 - 73

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

Notice of Allowability	Application No. 16/598,033	Applicant(s) Strahan et al.	
	Examiner TAMMIE K MARLEN	Art Unit 3792	AIA (FITF) Status Yes

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

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

1. ☑ This communication is responsive to the amended claims filed on 8/31/2021.
   ☐ 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 1-8 and 10-21 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information , please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some* c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date Attached.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/TAMMIE K MARLEN/
Primary Examiner, Art Unit 3792

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

2. The amendment filed on August 31, 2021 has been received and considered. By this amendment, claims 1, 2, 5, 10, and 12 are amended, claim 9 is cancelled, claim 21 is added, and claims 1-8 and 10-21 are now pending in the application. It is noted that two sets of claim amendments and two sets of specification amendments were submitted on August 31, 2021. This allowance is based on the set of claims and the specification that include amendments, rather than the re-submitted originals.

Allowable Subject Matter

3. Claims 1-8 and 10-21 are allowed.

4. The following is an examiner's statement of reasons for allowance: It is in the opinion of the examiner that the art of record neither anticipates nor renders obvious "placing the first light therapy device in a lead mode; and placing the second light therapy device in a follow mode whereby the second light therapy device performs operations as instructed by the first light therapy device" in combination with the rest of the claimed limitations set forth in the independent claim.

Searching by the Examiner yielded prior art as cited in the previous Office Actions. Based on Applicant's arguments and the Examiner's review of the Office Action mailed on July 21, 2021, the subject matter is deemed to be allowable. Further explanation can be reviewed in the Applicant's arguments filed on August 31, 2021. Therefore, it is concluded by the examiner that claims 1-8 and 10-21 of the present invention are allowable.

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

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TAMMIE K MARLEN whose telephone number is (571)272-1986. The examiner can normally be reached on Monday through Friday from 8 am until 4 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, Carl Layno can be reached on 571-272-4949. 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.

/TAMMIE K MARLEN/
Primary Examiner, Art Unit 3792

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/598,033	Strahan et al.
	Examiner	**Art Unit**
	TAMMIE K MARLEN	3792

CPC						
Symbol					**Type**	**Version**
A61N	/	5	/	06	F	2013-01-01
A61N	/	2005	/	0659	A	2013-01-01
A61N	/	2005	/	064	A	2013-01-01
A61N	/	2005	/	0629	A	2013-01-01
A61N	/	2005	/	0663	A	2013-01-01

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

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792	30 September 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	3

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/598,033	Strahan et al.
	Examiner	**Art Unit**
	TAMMIE K MARLEN	3792

INTERNATIONAL CLASSIFICATION					
CLAIMED					
A61N5/06	/	5	/	06	

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

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

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792	30 September 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	3

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/598,033	Strahan et al.
	Examiner	Art Unit
	TAMMIE K MARLEN	3792

☐ 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	1	10	10	19	19										
2	2	11	11	20	20										
3	3	12	12	8	21										
9	4	13	13												
4	5	14	14												
5	6	15	15												
6	7	16	16												
7	8	17	17												
	9	18	18												

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792	30 September 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	3

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/598,033	Strahan et al.
	Examiner	Art Unit
	TAMMIE K MARLEN	3792

CPC - Searched*		
Symbol	**Date**	**Examiner**
A61N5/06,0616	07/16/2021	TKM
A61N2005/0636,064,0663,0659,6658,0629	07/16/2021	TKM
Updated above	09/30/2021	TKM

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

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

Search Notes		
Search Notes	**Date**	**Examiner**
Inventor name search	07/16/2021	TKM
Text-limited and related application search -- see search history printout	07/16/2021	TKM
Consulted Alyssa Alter	07/16/2021	TKM
Updated above	09/30/2021	TKM

/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792	

Exhibit 1003 - 81

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/598,033	Strahan et al.
	Examiner	Art Unit
	TAMMIE K MARLEN	3792

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	PGPUB text search -- see interference search printout	09/30/2021	TKM

/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792	

Bibliographic Data

Application No: 16/598,033

Foreign Priority claimed: ○ Yes ◉ No

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

Verified and Acknowledged: /TAMMIE K MARLEN/ (Examiner's Signature) | (Initials)

Title: PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/10/2019	607	3792	JOOVV.004A.C2
RULE			

APPLICANTS

Joovv, Inc., San Clemente, CA,

INVENTORS

Justin Strahan, San Clemente, CA, UNITED STATES

Scott Nelson, San Clemente, CA, UNITED STATES

CONTINUING DATA

This application is a CON of 16584784 09/26/2019 PAT 10639495

This application is a CON of 16227289 12/20/2018 PAT 10478635

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

10/28/2019

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED STATES

ADDRESS

Gallium Law
445 Minnesota St
Suite 1500
St. Paul, MN 55101
UNITED STATES

FILING FEE RECEIVED

$785

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

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16598033
Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Tammie K. Marlen
Attorney Docket Number	JOOVV.004A.C2

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	10064940		2018-09-04	NAGER	
	2	10363434		2019-07-30	MARCHESE	
	3	5996728		1999-12-07	STARK	
	4	6896693		2005-05-24	SULLIVAN	
	5	10881550		2021-01-05	TEDFORD	
	6	8425577		2013-04-23	VARGAS	
	7	10632325		2020-04-28	LIM	
	8	7932482		2011-04-26	NORWOOD	

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

Exhibit 1003 - 84

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16598033
Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Tammie K. Marlen
Attorney Docket Number	JOOVV.004A.C2

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20020198575		2002-12-26	SULLIVAN	
	2	20190030359		2019-01-31	DIJKSTRA	
	3	20200269065		2020-08-27	BROENG	
	4	20200360714		2020-11-19	SHTERZER	
	5	20060229689		2006-10-12	FERGUSON	
	6	20150112411		2015-04-23	BECKMAN	

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FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16598033
Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Tammie K. Marlen
Attorney Docket Number	JOOVV.004A.C2

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	GREEN ENVY SUPPLY - How to Hang Light Reflector Using Rope Reel Ratchet Hangers - YouTube - video by user Green Envy Supply - First available January 15, 2017 - Available from Internet <URL: https://www.youtube.com/watch?v=W2z0m_7o-Y0>	

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

EXAMINER SIGNATURE

Examiner Signature	/TAMMIE K MARLEN/	Date Considered	09/30/2021

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

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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16598033
Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Tammie K. Marlen
Attorney Docket Number	JOOVV.004A.C2

CERTIFICATION STATEMENT

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

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

OR

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

See attached certification statement.

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

A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Wesley Schwie/	Date (YYYY-MM-DD)	2021-09-29
Name/Print	Wesley Schwie	Registration Number	64,950

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

Privacy Act Statement

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

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

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

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

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

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

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

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

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

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

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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	14	("10064940" | "10363434" | "10632325" | "10881550" | "20020198575" | "20060229689" | "20150112411" | "20190030359" | "20200269065" | "20200360714" | "5996728" | "6896693" | "7932482" | "8425577").PN.	US-PGPUB; USPAT	OR	ON	2021/09/30 13:20
S1	0	((("JOOVV") near3 ("INC"))).AS,AANM.	USPAT	OR	ON	2019/02/06 08:45
S2	542	((("NELSON") near3 ("Scott")) OR (("STRAHAN") near3 ("Justin"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2019/02/06 08:45
S3	1	S2 and (light with therap$9)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 08:50
S4	2	S2 and (light same therap$9)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:29
S5	6,612	A61N5/06.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31
S6	8,383	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31
S7	1,283	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2019/02/06 09:31

			JPO; DERWENT			
S8	282	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31
S9	4,014	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31
S10	6,514	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31
S11	275	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31
S12	492	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31
S13	37	"2044943"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:48
S14	47	"2044973"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:52
S15	9	vibor.in.	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2019/02/06 09:52

			JPO; DERWENT			
S18	6,612	A61N5/06.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S19	8,383	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S20	1,283	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S21	282	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S22	4,014	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S23	6,514	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S24	275	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S25	492	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2019/02/06 15:46

			JPO; DERWENT			
S26	21,950	S18 S19 S20 S21 S22 S23 S24 S25	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S27	3,441	S26 and ((red with light) ("near" with infrared))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:54
S28	3,441	S26 and ((red with light) ("near" with infrared))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:54
S29	6,613	A61N5/06.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S30	8,387	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S31	1,283	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S32	282	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S33	4,014	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2019/02/07 10:22

			JPO; DERWENT			
S34	6,516	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S35	275	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S36	493	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S37	21,956	S29 S30 S31 S32 S33 S34 S35 S36	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S38	98	S37 and ((lead leading) with (follow followed following))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:23
S39	301	S37 and (bluetooth)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:25
S40	3,443	S37 and ((red with light) ("near" with infrared))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:26
S41	212	S40 and (bluetooth)	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2019/02/07 10:26

			JPO; DERWENT			
S42	21	(US-20180236259-$ or US-20170007844-$ or US-20150134032-$ or US-20120265275-$ or US-20140350644-$ or US-20120150265-$ or US-20180015297-$ or US-20180193660-$ or US-20180280718-$ or US-20070016269-$ or US-20180345034-$ or US-20110054573-$ or US-20100017953-$ or US-20160129279-$ or US-20170231058-$ or US-20170238401-$ or US-20160235980-$ or US-20180133497-$ or US-20180008839-$).did. or (US-9950136-$).did. or (WO-2018067411-$).did.	US-PGPUB; USPAT; FPRS	OR	ON	2019/03/25 15:34
S43	6,980	A61N5/06.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S44	8,972	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S45	1,313	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S46	299	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S47	4,302	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S48	6,909	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR;	OR	ON	2019/07/03 13:58

			FPRS; EPO; JPO; DERWENT			
S49	296	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S50	540	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S51	23,205	S43 S44 S45 S46 S47 S48 S49 S50	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S52	3,623	S51 and ((red with light) ("near" with infrared))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S53	784	S51 and ((red with light) and ("near" with infrared))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S56	4	("20060229689" | "20070129777" | "4844069" | "5733032").PN.	US-PGPUB; USPAT	OR	ON	2019/10/16 13:30
S57	7,333	A61N5/06.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S58	9,641	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S59	1,307	A61N2005/0636.cpc.	US-PGPUB; USPAT;	OR	ON	2019/12/02 15:18

			USOCR; FPRS; EPO; JPO; DERWENT			
S60	317	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S61	4,687	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S62	7,372	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S63	335	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S64	578	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S65	24,594	S57 S58 S59 S60 S61 S62 S63 S64	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S66	1,755	S65 and (light with indicat$6)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S67	1,330	S65 and (light near5 indicat$6)	US-PGPUB; USPAT; USOCR;	OR	ON	2019/12/02 15:18

			FPRS; EPO; JPO; DERWENT			
S68	578	((("NELSON") near3 ("Scott")) OR (("STRAHAN") near3 ("Justin"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2019/12/03 14:36
S69	3	S68 and (light same therap$9)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/03 14:36
S70	35	("20040008523" | "20060007059" | "20060020308" | "20060229689" | "20070068055" | "20070129777" | "20070276455" | "20080119831" | "20080141572" | "20080269849" | "20090288340" | "20100309659" | "20110054573" | "20120019490" | "20120104977" | "20120243227" | "20140081357" | "20140226329" | "20150202455" | "20150307332" | "20160076708" | "20170118838" | "20180043178" | "20180056087" | "20180111001" | "4844069" | "5733032" | "6626932" | "8481982" | "9227082" | "9311847" | "9353924" | "9416551" | "9852666" | "9943042").PN.	US-PGPUB; USPAT	OR	ON	2020/03/02 14:36
S71	19	("20030009205" | "20040068305" | "20050085875" | "20080046044" | "20080091250" | "20080114418" | "20090318908" | "20100045175" | "20100045189" | "20100076529" | "20130190842" | "20130229802" | "20130301264" | "20150267907" | "20150297914" | "20160158574" | "20160367833" | "6955684" | "8066403").PN.	US-PGPUB; USPAT	OR	ON	2020/03/02 14:36
S72	54	S70 S71	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:41
S73	29	S72 and (lead follow)	US-PGPUB; USPAT; USOCR;	OR	ON	2020/03/02 14:43

			FPRS; EPO; JPO; DERWENT			
S74	45	S72 and (control controlled controlling instruct$6)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:43
S75	7,642	A61N5/06.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S76	10,010	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S77	1,368	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S78	338	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S79	4,900	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S80	7,699	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S81	377	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2020/03/02 14:45

			JPO; DERWENT			
S82	613	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S83	25,560	S75 S76 S77 S78 S79 S80 S81 S82	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S84	397	S83 and ((lead leading follow followed following) with mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:47
S85	1,222	S83 and ((light near3 (device panel)) with (control controlled controlling instruct$6))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:52
S86	649	S85 and (switch button)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:53
S87	649	(US-20150182758-$ or US-20070239142-$ or US-20070038206-$ or US-20070198004-$ or US-20070213696-$ or US-20070213698-$ or US-20070239143-$ or US-20190076669-$ or US-20150238774-$ or US-20160287896-$ or US-20190001148-$ or US-20160287894-$ or US-20100174345-$ or US-20160054023-$ or US-20190167400-$ or US-20150126806-$ or US-20050177093-$ or US-20060217690-$ or US-20140121631-$ or US-20160250498-$ or US-20040210277-$ or US-20190038913-$ or US-20170215958-$ or US-20170215960-$ or US-20080077200-$ or US-20100198201-$).did. or (US-	US-PGPUB; USPAT; USOCR; FPRS; DERWENT	OR	ON	2020/03/02 14:53

		20070248930-$ or US-20100318161-$ or US-20130253620-$ or US-20150079536-$ or US-20150140502-$ or US-20170080249-$ or US-20180014924-$ or US-20180140406-$ or US-20190201711-$ or US-20140072932-$ or US-20170312538-$ or US-20130280671-$ or US-20180117356-$ or US-20190209857-$ or US-20060200212-$ or US-20100305668-$ or US-20130289674-$ or US-20120148976-$ or US-20140121731-$ or US-20160096037-$ or US-20190117994-$ or US-20190083202-$ or US-20110166631-$ or US-20150051671-$ or US-20030188378-$ or US-20040107496-$ or US-20120116485-$).did. or (US-20180177976-$ or US-20040193234-$ or US-20040008523-$ or US-20070073365-$ or US-20060111761-$ or US-20040024431-$ or US-20020188334-$ or US-20050065579-$ or US-20160166847-$ or US-20200022866-$ or US-20130304019-$ or US-20100305554-$ or US-20140052050-$ or US-20190091097-$ or US-20170095398-$ or US-20080262576-$ or US-20090143842-$ or US-20180193622-$ or US-20140194954-$ or US-20140135798-$ or US-20090281604-$ or US-20150327653-$ or US-20150360014-$ or US-20170128319-$ or US-20180250402-$ or US-20160287895-$ or US-20170198017-$).did. or (US-20130019325-$ or US-20130089503-$ or US-20130090454-$ or US-20150072394-$ or US-20160222073-$ or US-20170066806-$ or US-20180044388-$ or US-20180244737-$ or US-20190071476-$ or US-20180020523-$ or US-20190030359-$ or US-20110319878-$ or US-20060287695-$ or US-20080221646-$ or US-20110022130-$ or US-20160166850-$ or US-20160206897-$ or US-20060235493-$ or US-20080269730-$ or US-20180050221-$ or US-20180236258-$ or US-20080009839-$ or US-20170225012-$ or US-20130079759-$ or US-20160166849-$ or US-20160166853-$				

		or US-20100121419-$).did. or (US-20130274836-$ or US-20160008627-$ or US-20120065709-$ or US-20100100160-$ or US-20030032900-$ or US-20040260209-$ or US-20040260210-$ or US-20040077977-$ or US-20070027411-$ or US-20140005757-$ or US-20160067026-$ or US-20190099613-$ or US-20150141877-$ or US-20110106223-$ or US-20140005590-$ or US-20070032846-$ or US-20130331766-$ or US-20190111240-$ or US-20040232359-$ or US-20050187596-$ or US-20150025601-$ or US-20130296978-$ or US-20080035864-$ or US-20090112297-$ or US-20120022619-$ or US-20140222120-$ or US-20140207215-$).did. or (US-20160339262-$ or US-20170182332-$ or US-20070276455-$ or US-20110212410-$ or US-20050197682-$ or US-20200016024-$ or US-20180369604-$ or US-20170056686-$ or US-20180111002-$ or US-20190336789-$ or US-20130053928-$ or US-20060167531-$ or US-20060195165-$ or US-20060271024-$ or US-20080208297-$ or US-20170113063-$ or US-20170274222-$ or US-20150237686-$ or US-20150305969-$ or US-20170156662-$ or US-20090143773-$ or US-20150165230-$ or US-20150217130-$ or US-20180147415-$ or US-20120209357-$ or US-20140276247-$ or US-20190151655-$).did. or (US-20170100585-$ or US-20140276248-$ or US-20060183516-$ or US-20100179469-$ or US-20030216795-$ or US-20150283400-$ or US-20170232268-$ or US-20180311386-$ or US-20180326104-$ or US-20190083667-$ or US-20190358353-$ or US-20160375161-$ or US-20160375163-$ or US-20180243452-$ or US-20180243453-$ or US-20180311387-$ or US-20190216957-$ or US-20130303972-$ or US-20120089204-$ or US-20150088232-$ or US-20130282080-$ or US-20080125834-$ or US-20170143972-$ or US-20190217100-$ or US-				

		20110301673-$ or US-20160199664-$ or US-20130324788-$).did. or (US-20180093092-$ or US-20160016004-$ or US-20150246240-$ or US-20180304091-$ or US-20140371826-$ or US-20110066213-$ or US-20170164876-$ or US-20180178034-$ or US-20020183811-$ or US-20050015124-$ or US-20050177208-$ or US-20060276862-$ or US-20070282402-$ or US-20080288032-$ or US-20110004280-$ or US-20110196457-$ or US-20130013032-$ or US-20130018442-$ or US-20140206947-$ or US-20150290028-$ or US-20190030360-$ or US-20050045189-$ or US-20110208272-$ or US-20120265182-$ or US-20130165912-$ or US-20140330351-$ or US-20160250497-$).did. or (US-20150127076-$ or US-20130274839-$ or US-20140288351-$ or US-20160374758-$ or US-20170136257-$ or US-20180015297-$ or US-20180221683-$ or US-20180001108-$ or US-20190091065-$ or US-20150005750-$ or US-20150057701-$ or US-20180092773-$ or US-20110144410-$ or US-20180250492-$ or US-20190366119-$ or US-20180154167-$ or US-20140088668-$ or US-20170333727-$ or US-20170136258-$ or US-20160375265-$ or US-20190366114-$ or US-20180333589-$ or US-20170072217-$ or US-20160096033-$ or US-20070073198-$ or US-20180206779-$ or US-20190029755-$).did. or (US-20060241495-$ or US-20040044384-$ or US-20100114264-$ or US-20070208395-$ or US-20150283025-$ or US-20170080250-$ or US-20190029907-$ or US-20180333588-$ or US-20020188218-$ or US-20130190845-$ or US-20140039473-$ or US-20170319866-$ or US-20160175610-$ or US-20160016001-$ or US-20010021812-$ or US-20040143308-$ or US-20070249716-$ or US-20100191172-$ or US-20110282266-$ or US-20130102906-$ or US-20150105667-$ or US-20140074193-$ or US-20180193662-$				

		or US-20030011538-$ or US-20010028227-$ or US-20030100837-$ or US-20080183081-$).did. or (US-20020135763-$ or US-20040218177-$ or US-20090225391-$ or US-20110051216-$ or US-20180133431-$ or US-20180133504-$ or US-20180133507-$ or US-20190255350-$ or US-20190269936-$ or US-20190314641-$ or US-20160375162-$ or US-20190224350-$ or US-20030125649-$ or US-20060161226-$ or US-20080125620-$ or US-20060030907-$ or US-20070203432-$ or US-20170028215-$ or US-20170028216-$ or US-20170172660-$ or US-20160158569-$ or US-20050015121-$ or US-20180043130-$ or US-20180236262-$ or US-20160287333-$ or US-20180064954-$ or US-20110022128-$).did. or (US-20160184604-$ or US-20150142086-$ or US-20180236259-$ or US-20100196343-$ or US-20140236265-$ or US-20090222068-$ or US-20170333729-$ or US-20040153130-$ or US-20130006119-$ or US-20170100607-$ or US-20130006118-$ or US-20160256053-$ or US-20090204188-$ or US-20190060662-$ or US-20190224495-$ or US-20150297912-$ or US-20120296150-$ or US-20140194955-$ or US-20080275533-$ or US-20080091250-$ or US-20080103560-$ or US-20060235346-$ or US-20120197358-$ or US-20140277291-$ or US-20160166851-$ or US-20120203310-$ or US-20120215291-$).did. or (US-20130253619-$ or US-20160144149-$ or US-20110184499-$ or US-20090177256-$ or US-20110125231-$ or US-20150335911-$ or US-20140194957-$ or US-20170065826-$ or US-20190008678-$ or US-20190008679-$ or US-20170231058-$ or US-20170238401-$ or US-20160367834-$ or US-20040249423-$ or US-20060009822-$ or US-20150217142-$ or US-20170231733-$ or US-20190142691-$ or US-20190240110-$ or US-20190143138-$ or US-20170333728-$ or US-				

		20200001106-$ or US-20080172045-$ or US-20040111132-$ or US-20180036553-$ or US-20120078329-$ or US-20030019028-$).did. or (US-20030000010-$ or US-20190209858-$ or US-20170086274-$ or US-20180177017-$ or US-20120041523-$ or US-20040046108-$ or US-20170028214-$ or US-20110176326-$ or US-20030109906-$ or US-20030125782-$ or US-20030181962-$ or US-20040220513-$ or US-20030212442-$ or US-20030144712-$ or US-20020198575-$ or US-20070016269-$ or US-20170239490-$ or US-20160045758-$ or US-20180296852-$ or US-20100324631-$ or US-20160067087-$ or US-20160067086-$ or US-20190142636-$ or US-20050203592-$ or US-20130289670-$ or US-20180369602-$ or US-20170156971-$).did. or (US-20140046127-$ or US-20140088470-$ or US-20140179994-$ or US-20160296417-$ or US-20190290535-$ or US-20040210275-$ or US-20050043653-$ or US-20100060195-$ or US-20120030873-$ or US-20170136259-$ or US-20090216219-$ or US-20120263793-$ or US-20170014511-$ or US-20170021040-$ or US-20180185518-$ or US-20070060984-$ or US-20080077198-$ or US-20110238141-$ or US-20140052221-$ or US-20110098789-$ or US-20090270848-$ or US-20150057725-$ or US-20180369609-$ or US-20190246463-$ or US-20190223270-$ or US-20150048742-$ or US-20160219675-$).did. or (US-20170215253-$ or US-20130096657-$ or US-20120277659-$ or US-20150230863-$ or US-20080033512-$ or US-20190240468-$ or US-20140202493-$ or US-20150245703-$ or US-20190083809-$ or US-20080065176-$).did. or (US-9555261-$ or US-9370449-$ or US-10058711-$ or US-8506612-$ or US-7131990-$ or US-10064255-$ or US-9333371-$ or US-10485612-$ or US-10524861-$ or US-8636727-$ or US-8900282-$ or US-9308389-$ or US-9730780-$ or US-				

		9242118-$ or US-9993658-$ or US-6681417-$ or US-7013504-$ or US-7201766-$ or US-7815668-$ or US-7001413-$ or US-6666878-$ or US-6149611-$ or US-5336159-$ or US-10478636-$ or US-8556887-$ or US-10166168-$).did. or (US-10179085-$ or US-10293148-$ or US-5645578-$ or US-5891186-$ or US-10334933-$ or US-9604073-$ or US-9359449-$ or US-9079940-$ or US-9249234-$ or US-9365628-$ or US-9505817-$ or US-9840541-$ or US-9969783-$ or US-10087223-$ or US-10538560-$ or US-9084885-$ or US-10143060-$ or US-7351253-$ or US-8734498-$ or US-9592404-$ or US-9592405-$ or US-9782604-$ or US-9974971-$ or US-10252078-$ or US-7479136-$ or US-9814903-$ or US-9623259-$).did. or (US-9849303-$ or US-10080634-$ or US-9550070-$ or US-6861658-$ or US-7476888-$ or US-7994489-$ or US-7921853-$ or US-8945197-$ or US-8956396-$ or US-10512586-$ or US-9901747-$ or US-8109981-$ or US-10426971-$ or US-9872813-$ or US-10390755-$ or US-9913993-$ or US-9561357-$ or US-9061128-$ or US-6447537-$ or US-6413268-$ or US-10265539-$ or US-10363325-$ or US-10434202-$ or US-9700641-$ or US-10456485-$ or US-8980174-$ or US-8979914-$).did. or (US-8486124-$ or US-10166401-$ or US-10022556-$ or US-9597479-$ or US-10137311-$ or US-8945196-$ or US-10071261-$ or US-9610460-$ or US-10383550-$ or US-10384075-$ or US-9162078-$ or US-7144248-$ or US-7276059-$ or US-7886749-$ or US-7891361-$ or US-8454669-$ or US-8486056-$ or US-8746253-$ or US-10420954-$ or US-9327138-$ or US-7931028-$ or US-8286641-$ or US-8393330-$ or US-9968799-$ or US-8858607-$ or US-10518103-$ or US-10092449-$).did. or (US-10456298-$ or US-9763827-$ or US-10456294-$ or US-9061135-$ or US-5634711-$ or US-10441742-$ or US-9889314-$ or US-10561854-$ or US-10245442-$ or US-10525276-$ or US-6749624-$ or US-9782603-$ or US-				

		6860896-$ or US-6659964-$ or US-6223071-$ or US-6709446-$ or US-7190109-$ or US-7723910-$ or US-8030836-$ or US-8216289-$ or US-8758418-$ or US-9723991-$ or US-8702772-$ or US-7221104-$ or US-6166496-$ or US-6211626-$ or US-6292901-$).did. or (US-6340868-$ or US-6459919-$ or US-6528954-$ or US-6720745-$ or US-7308296-$ or US-7796319-$ or US-6781691-$ or US-7151601-$ or US-8570635-$ or US-10279192-$ or US-10293177-$ or US-10307611-$ or US-7846084-$ or US-7654949-$ or US-7141028-$ or US-10569097-$ or US-10105548-$ or US-10471231-$ or US-10039931-$ or US-10478635-$ or US-10112057-$ or US-8996131-$ or US-9539438-$ or US-9373807-$ or US-7686839-$ or US-6471716-$ or US-8435276-$).did. or (US-10099065-$ or US-10173072-$ or US-9950190-$ or US-9649506-$ or US-10315043-$ or US-9289623-$ or US-9248309-$ or US-10384070-$ or US-10285857-$ or US-9622911-$ or US-10052496-$ or US-9138595-$ or US-8956363-$ or US-10307330-$ or US-4444189-$ or US-10406379-$ or US-6866678-$ or US-6601247-$ or US-6877171-$ or US-9844116-$ or US-7084389-$ or US-10525275-$ or US-6602275-$ or US-6896693-$ or US-8057525-$ or US-6094595-$ or US-9999783-$).did. or (US-10092770-$ or US-10518105-$ or US-8721695-$ or US-10219944-$ or US-10357424-$ or US-9144531-$ or US-9393175-$ or US-9402780-$ or US-9603770-$ or US-6013096-$ or US-9974972-$ or US-6350275-$ or US-7736382-$ or US-8985119-$ or US-8506613-$ or US-7988688-$ or US-8784461-$ or US-8012189-$ or US-8317848-$ or US-8551150-$ or US-8518027-$ or US-9687671-$ or US-9302118-$ or US-9313860-$ or US-9655206-$ or US-10244606-$ or US-10045820-$).did. or (US-8080047-$ or US-9032576-$).did. or (US-2003527-$ or US-1656777-$ or US-2148174-$).did. or (JP-WO2008069103-$ or CN-101589651-$ or WO-2008069103-$ or EP-2106198-$				

		or CN-201052342-$).did. or (WO-2016040534-$ or CN-106377846-$ or US-20170216620-$ or KR-2016030687-$ or US-20170326383-$ or US-20060030908-$ or US-20180361170-$ or US-20160059034-$ or WO-2010033494-$ or KR-1676857-$).did.				
S88	649	S87 and ((light near3 (device panel)) with (control controlled controlling instruct$6))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:54
S90	14	((("JOOVV") near3 ("INC"))).AS,AANM.	USPAT	OR	ON	2021/07/16 13:47
S91	652	((("STRAHAN") near3 ("Justin")) OR (("NELSON") near3 ("Scott"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:47
S92	85	("20030188378" | "20060217789" | "20120296260" | "20130172963" | "20140190537" | "20160175610" | "20170028216" | "20170080246" | "20170131693" | "20190167519" | "5645578" | "8337538" | "9440041" | "9884204" | "10440794" | "20040162596" | "20130304019" | "20160016001" | "20180236259" | "20200121944" | "D877919" | "D877920" | "D877921" | "D877922" | "D877923" | "D892343" | "D892344" | "D892345" | "D893737" | "D895822" | "20030009205" | "20040068305" | "20050085875" | "20070217199" | "20080046044" | "20080091250" | "20080114418" | "20090318908" | "20100045175" | "20100045189" | "20100076529" | "20130190842" | "20130229802" | "20130301264" | "20150267907" | "20150297914" | "20160158574" | "20160367833" | "6955684" | "8066403" | "20040008523" | "20060007059" | "20060020308" | "20060229689" | "20070068055" | "20070129777" | "20070276455" | "20080119831" | "20080141572" | "20080269849" | "20090288340" | "20100309659" | "20110054573" | "20120019490" | "20120104977" | "20120243227" |	US-PGPUB; USPAT	OR	ON	2021/07/16 13:47

		"20140081357" | "20140226329" | "20150202455" | "20150307332" | "20160076708" | "20170118838" | "20180043178" | "20180056087" | "20180111001" | "4844069" | "5733032" | "6626932" | "8481982" | "9227082" | "9311847" | "9353924" | "9416551" | "9852666" | "9943042").PN.				
S93	8,503	A61N5/06.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S94	11,438	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S95	1,468	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S96	399	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S97	6,030	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S98	9,064	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S99	473	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2021/07/16 13:48

			JPO; DERWENT			
S100	738	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S101	29,195	S93 S94 S95 S96 S97 S98 S99 S100	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S102	1,944	S101 and button	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S103	2,314	S101 and (press pressed pressing)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:59
S104	1,388	S103 and ((red infrared ir) with light)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 14:00
S105	696	S104 and (treatment near3 time)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 14:01
S106	696	(US-20200139112-$ or US-20200253811-$ or US-20050154381-$ or US-20050154382-$ or US-20070198004-$ or US-20070213696-$ or US-20070038206-$ or US-20070213698-$ or US-20070239142-$ or US-20070239143-$ or US-20100286673-$ or US-20090254076-$ or US-20080147054-$ or US-20210169682-$ or US-20180264284-$ or US-20180014777-$ or US-20170225006-$ or US-20190168016-$	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2021/07/16 14:09

		or US-20190240502-$ or US-20160287894-$ or US-20200108268-$ or US-20130324909-$ or US-20050197681-$ or US-20180311507-$ or US-20090247932-$ or US-20080108982-$).did. or (US-20110202116-$ or US-20130274834-$ or US-20090112192-$ or US-20150112411-$ or US-20170215958-$ or US-20170216619-$ or US-20170215960-$ or US-20170215959-$ or US-20140005758-$ or US-20190232079-$ or US-20160113941-$ or US-20190387973-$ or US-20190388150-$ or US-20190388151-$ or US-20200237228-$ or US-20210212568-$ or US-20180093106-$ or US-20060183072-$ or US-20160354535-$ or US-20200069851-$ or US-20110213319-$ or US-20140107595-$ or US-20150080788-$ or US-20180140755-$ or US-20100049177-$ or US-20210154093-$ or US-20130190613-$).did. or (US-20040224288-$ or US-20110208274-$ or US-20150057598-$ or US-20090087816-$ or US-20120156635-$ or US-20150056568-$ or US-20090118721-$ or US-20080267814-$ or US-20090105790-$ or US-20090299441-$ or US-20110082525-$ or US-20140212331-$ or US-20130345146-$ or US-20150306417-$ or US-20080139992-$ or US-20080131968-$ or US-20090299263-$ or US-20080138772-$ or US-20120319010-$ or US-20150157876-$ or US-20110295343-$ or US-20100274329-$ or US-20070248930-$ or US-20120148976-$ or US-20160096037-$ or US-20190117994-$ or US-20120148975-$).did. or (US-20180140864-$ or US-20130196284-$ or US-20170173359-$ or US-20190299022-$ or US-20200016426-$ or US-20200023191-$ or US-20190083202-$ or US-20110166631-$ or US-20060129211-$ or US-20200238100-$ or US-20060253176-$ or US-20200345472-$ or US-20160206738-$ or US-20200009249-$ or US-20130310905-$ or US-20210093886-$ or US-20200391051-$				

		or US-20090177253-$ or US-20140135798-$ or US-20040260367-$ or US-20090254154-$ or US-20190232077-$ or US-20100211136-$ or US-20100016841-$ or US-20070179571-$ or US-20100204762-$ or US-20200330786-$).did. or (US-20120016174-$ or US-20190262626-$ or US-20100010594-$ or US-20100010592-$ or US-20100105977-$ or US-20100094384-$ or US-20190060664-$ or US-20190070036-$ or US-20190070425-$ or US-20190070433-$ or US-20200069460-$ or US-20210000644-$ or US-20120197357-$ or US-20180193664-$ or US-20210178184-$ or US-20050234383-$ or US-20070129778-$ or US-20200360724-$ or US-20140074191-$ or US-20150058204-$ or US-20140074194-$ or US-20140364924-$ or US-20120065709-$ or US-20160008627-$ or US-20080091179-$ or US-20030032900-$ or US-20040260210-$).did. or (US-20040260209-$ or US-20040077977-$ or US-20070027411-$ or US-20200163899-$ or US-20200384253-$ or US-20190111240-$ or US-20020002391-$ or US-20060206173-$ or US-20060195165-$ or US-20080208297-$ or US-20060167531-$ or US-20060271024-$ or US-20190022220-$ or US-20170156662-$ or US-20070282400-$ or US-20100292746-$ or US-20080172113-$ or US-20080172114-$ or US-20130317574-$ or US-20150283402-$ or US-20190224497-$ or US-20070016254-$ or US-20080109052-$ or US-20210145514-$ or US-20210177968-$ or US-20120209357-$ or US-20210101019-$).did. or (US-20100179469-$ or US-20090062785-$ or US-20100184669-$ or US-20130183354-$ or US-20140155333-$ or US-20110282333-$ or US-20150209181-$ or US-20200000638-$ or US-20200384287-$ or US-20190022406-$ or US-20190070432-$ or US-20200391050-$ or US-20120053394-$ or US-20060206174-$ or US-20080004611-$ or US-				

		20210138249-$ or US-20210001146-$ or US-20180185667-$ or US-20210001147-$ or US-20210023391-$ or US-20170164876-$ or US-20070156124-$ or US-20150290442-$ or US-20140343574-$ or US-20170245876-$ or US-20190223914-$ or US-20120022435-$).did. or (US-20150231379-$ or US-20150272623-$ or US-20170319835-$ or US-20170319836-$ or US-20190336740-$ or US-20210154454-$ or US-20210154455-$ or US-20190083806-$ or US-20190117992-$ or US-20210093882-$ or US-20110071602-$ or US-20140074195-$ or US-20150290028-$ or US-20200179220-$ or US-20130274839-$ or US-20190030358-$ or US-20150127076-$ or US-20140288351-$ or US-20140277294-$ or US-20140067024-$ or US-20160367832-$ or US-20160008623-$ or US-20180015297-$ or US-20210046163-$ or US-20170050043-$ or US-20170216617-$ or US-20150057701-$).did. or (US-20180092773-$ or US-20200107956-$ or US-20150005750-$ or US-20190091065-$ or US-20070185553-$ or US-20090240310-$ or US-20110144410-$ or US-20170136258-$ or US-20160129281-$ or US-20070239233-$ or US-20110295186-$ or US-20120330219-$ or US-20150231407-$ or US-20170072217-$ or US-20160121108-$ or US-20070016255-$ or US-20070016256-$ or US-20100256552-$ or US-20110130729-$ or US-20110137214-$ or US-20120016275-$ or US-20050143793-$ or US-20150374819-$ or US-20200179514-$ or US-20190029755-$ or US-20200253813-$ or US-20180104509-$).did. or (US-20180104506-$ or US-20210038910-$ or US-20190344095-$ or US-20150196639-$ or US-20200338360-$ or US-20070208395-$ or US-20210146152-$ or US-20180015301-$ or US-20200360715-$ or US-20140358199-$ or US-20180256917-$ or US-20100324632-$ or US-20200069468-$ or US-20120283710-$				

		or US-20120283711-$ or US-20120283803-$ or US-20120226268-$ or US-20120232536-$ or US-20120232537-$ or US-20120232538-$ or US-20120232539-$ or US-20120239016-$ or US-20140005756-$ or US-20210007898-$ or US-20140272761-$ or US-20010021812-$ or US-20040143308-$).did. or (US-20070249716-$ or US-20100191172-$ or US-20110282266-$ or US-20130102906-$ or US-20150105667-$ or US-20200289321-$ or US-20110125226-$ or US-20180133431-$ or US-20180133504-$ or US-20190255350-$ or US-20190269936-$ or US-20190314641-$ or US-20210121713-$ or US-20180133507-$ or US-20040054386-$ or US-20130197473-$ or US-20180325593-$ or US-20120078160-$ or US-20140194770-$ or US-20100160904-$ or US-20170028215-$ or US-20160106999-$ or US-20200188688-$ or US-20200391049-$ or US-20200376292-$ or US-20050070977-$ or US-20190009102-$).did. or (US-20180236262-$ or US-20180111004-$ or US-20170000252-$ or US-20160361229-$ or US-20180104145-$ or US-20210128404-$ or US-20210077350-$ or US-20150127070-$ or US-20170014305-$ or US-20110172745-$ or US-20120283622-$ or US-20130184693-$ or US-20170173360-$ or US-20090222068-$ or US-20110059116-$ or US-20130078265-$ or US-20140335110-$ or US-20130226268-$ or US-20130006118-$ or US-20160256053-$ or US-20140066974-$ or US-20210045844-$ or US-20140378831-$ or US-20170182264-$ or US-20200101241-$ or US-20210093884-$ or US-20040236267-$).did. or (US-20080208294-$ or US-20140222116-$ or US-20110123958-$ or US-20140194955-$ or US-20080275533-$ or US-20080103560-$ or US-20080103563-$ or US-20080119913-$ or US-20120283709-$ or US-20130030423-$ or US-20200009399-$ or US-20110184500-$ or US-				

		20150119960-$ or US-20070123808-$ or US-20060058714-$ or US-20080243039-$ or US-20090177256-$ or US-20110125231-$ or US-20120065712-$ or US-20040106082-$ or US-20060281042-$ or US-20090056044-$ or US-20110200959-$ or US-20150119771-$ or US-20070129776-$ or US-20210196505-$ or US-20190175935-$).did. or (US-20160367833-$ or US-20200316398-$ or US-20200324136-$ or US-20200061386-$ or US-20190192873-$ or US-20200054890-$ or US-20200230430-$ or US-20210038906-$ or US-20200061385-$ or US-20190192872-$ or US-20190388698-$ or US-20190192875-$ or US-20190201705-$ or US-20180236254-$ or US-20190201706-$ or US-20170087379-$ or US-20020026225-$ or US-20190201713-$ or US-20190217119-$ or US-20190143138-$ or US-20180147416-$ or US-20080172045-$ or US-20060229690-$ or US-20180036553-$ or US-20200360714-$ or US-20190351247-$ or US-20200345242-$).did. or (US-20190365569-$ or US-20120197135-$ or US-20150165238-$ or US-20210128935-$ or US-20210128936-$ or US-20210128937-$ or US-20210128938-$ or US-20210138259-$ or US-20170028214-$ or US-20200222714-$ or US-20200298014-$ or US-20200197718-$ or US-20030125782-$ or US-20050187595-$ or US-20110060266-$ or US-20190078073-$ or US-20080125836-$ or US-20110144723-$ or US-20080004565-$ or US-20200179713-$ or US-20050107851-$ or US-20040138727-$ or US-20190351252-$ or US-20190015679-$ or US-20060253177-$ or US-20130225971-$ or US-20160045761-$).did. or (US-20160038763-$ or US-20160045759-$ or US-20160045760-$ or US-20160045763-$ or US-20160051834-$ or US-20160051835-$ or US-20160056653-$ or US-20190308031-$ or US-20160317833-$ or US-20160067087-$ or US-20160067086-$				

		or US-20190142636-$ or US-20200315844-$ or US-20110015707-$ or US-20110160814-$ or US-20100076529-$ or US-20160263393-$ or US-20110021970-$ or US-20140243934-$ or US-20150251016-$ or US-20190336785-$ or US-20170043178-$ or US-20200078600-$ or US-20180133319-$ or US-20170050046-$ or US-20200222711-$ or US-20130103017-$).did. or (US-20110098789-$ or US-20150057725-$ or US-20100049180-$ or US-20030181949-$ or US-20060241726-$ or US-20140128941-$ or US-20180146520-$ or US-20190246463-$ or US-20180178030-$ or US-20180178031-$ or US-20040243114-$ or US-20080275532-$ or US-20160228184-$ or US-20100204686-$ or US-20040225339-$ or US-20200038673-$ or US-20200038530-$ or US-20200078482-$ or US-20120289948-$ or US-20120283712-$ or US-20190357976-$).did. or (US-8915948-$ or US-7220254-$ or US-7309335-$ or US-10953240-$ or US-9968800-$ or US-9492681-$ or US-6676654-$ or US-10632324-$ or US-7887533-$ or US-7914523-$ or US-10524861-$ or US-10413748-$ or US-10485612-$ or US-10543040-$ or US-10300296-$ or US-10272096-$ or US-11013413-$ or US-10821297-$ or US-10413644-$ or US-8529548-$ or US-8845619-$ or US-9545463-$ or US-11013837-$ or US-8945104-$ or US-10485983-$ or US-8506979-$).did. or (US-8535359-$ or US-7470124-$ or US-8983257-$ or US-7713294-$ or US-10729524-$ or US-9242118-$ or US-10987521-$ or US-10758738-$ or US-10413608-$ or US-10864273-$ or US-9463332-$ or US-10188872-$ or US-10357662-$ or US-7575589-$ or US-10758743-$ or US-10695579-$ or US-10857376-$ or US-10315042-$ or US-10653889-$ or US-10695577-$ or US-7303578-$ or US-11033754-$ or US-9149331-$ or US-10758405-$ or US-10932945-$ or US-10945878-$ or US-8475507-$).did. or (US-4930504-$ or US-10960224-$ or US-7730893-$ or US-				

		10695582-$ or US-8888830-$ or US-8974443-$ or US-4686986-$ or US-9504826-$ or US-6267779-$ or US-8109981-$ or US-10390755-$ or US-8523925-$ or US-9943379-$ or US-10905898-$ or US-8915253-$ or US-9060843-$ or US-7878965-$ or US-7918779-$ or US-8518870-$ or US-9504745-$ or US-8945101-$ or US-10525280-$ or US-10532222-$ or US-8517909-$ or US-8088057-$ or US-7942869-$ or US-10821298-$).did. or (US-10383550-$ or US-9566088-$ or US-9662482-$ or US-10251675-$ or US-8048089-$ or US-9474886-$ or US-9550052-$ or US-9814868-$ or US-10357641-$ or US-10357642-$ or US-10974061-$ or US-8608786-$ or US-10583307-$ or US-8900283-$ or US-9968799-$ or US-8858607-$ or US-9295855-$ or US-9399146-$ or US-10864380-$ or US-9763827-$ or US-10456294-$ or US-10092449-$ or US-10456298-$ or US-8620451-$ or US-10561854-$ or US-10589121-$ or US-10874875-$).did. or (US-8025689-$ or US-8083787-$ or US-8187310-$ or US-8187311-$ or US-8685073-$ or US-10588972-$ or US-11020181-$ or US-10406380-$ or US-10709897-$ or US-10632325-$ or US-8535361-$ or US-9220915-$ or US-9414888-$ or US-9789332-$ or US-8523849-$ or US-9005262-$ or US-9308391-$ or US-9848959-$ or US-9723991-$ or US-7190109-$ or US-7723910-$ or US-8030836-$ or US-8216289-$ or US-8758418-$ or US-6223071-$ or US-6709446-$ or US-9023089-$).did. or (US-10279192-$ or US-10293177-$ or US-10702705-$ or US-10843006-$ or US-10307611-$ or US-9144690-$ or US-9227082-$ or US-9192780-$ or US-9017391-$ or US-9814906-$ or US-9962225-$ or US-8685010-$ or US-10569097-$ or US-10709898-$ or US-4838271-$ or US-4842356-$ or US-4865035-$ or US-10905897-$ or US-9950189-$ or US-9936795-$ or US-9775774-$ or US-10869812-$ or US-8979912-$ or US-9630002-$ or US-10478635-$ or US-10639495-$ or US-10052376-$).did. or (US-9373807-$ or				

		US-10052393-$ or US-10342933-$ or US-8790381-$ or US-7354433-$ or US-10376455-$ or US-9808646-$ or US-8033284-$ or US-8316860-$ or US-9950190-$ or US-5616140-$ or US-10493170-$ or US-8679102-$ or US-8961577-$ or US-10493295-$ or US-7384405-$ or US-7896908-$ or US-8313518-$ or US-7467946-$ or US-7942667-$ or US-6616447-$ or US-7144249-$ or US-10016337-$ or US-9108045-$ or US-6494900-$ or US-6063108-$ or US-10183174-$).did. or (US-10632323-$ or US-10874874-$ or US-5830211-$ or US-10632321-$ or US-10556122-$ or US-10821295-$ or US-10709894-$ or US-10478633-$ or US-10688310-$ or US-10478634-$ or US-10493293-$ or US-10569095-$ or US-10569094-$ or US-10549109-$ or US-5755752-$ or US-6033431-$ or US-6866678-$ or US-7762964-$ or US-9060791-$ or US-10143861-$ or US-10525275-$ or US-10683494-$ or US-10913943-$ or US-8308784-$ or US-9993659-$ or US-7309348-$ or US-10090694-$).did. or (US-10195458-$ or US-10213618-$ or US-10272257-$ or US-10434325-$ or US-10881550-$ or US-10219944-$ or US-10596037-$ or US-7255691-$ or US-8192473-$ or US-9833509-$ or US-9962441-$ or US-9526914-$ or US-9526913-$ or US-10384071-$ or US-10493296-$ or US-9302116-$ or US-10596387-$ or US-8685008-$ or US-8518027-$ or US-9302118-$ or US-9877361-$ or US-11006488-$ or US-10220221-$ or US-7136405-$ or US-10034710-$ or US-9308390-$ or US-8251982-$).did. or (US-3085568-$).did. or (US-20200197718-$).did.				
S107	696	S106 and (treatment near3 time)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 14:10
S108	215	S106 and ((adjust input) with time)	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2021/07/16 14:55

			JPO; DERWENT			
S110	344	S104 and ((adjust input) with time)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 14:55
S111	702	S101 and ((red infrared ir) with light) and ((adjust input) with time)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 14:56
S112	702	(US-20080058783-$ or US-20180014777-$ or US-20170225006-$ or US-20190168016-$ or US-20190240502-$ or US-20200178473-$ or US-20200108272-$ or US-20160310754-$ or US-20060217690-$ or US-20040147986-$ or US-20150112411-$ or US-20120265120-$ or US-20140005758-$ or US-20190232079-$ or US-20130013031-$ or US-20080077200-$ or US-20160235983-$ or US-20160235980-$ or US-20150025599-$ or US-20110208274-$ or US-20150057598-$ or US-20090118721-$ or US-20090299263-$ or US-20080139992-$ or US-20130345146-$ or US-20150306417-$).did. or (US-20080131968-$ or US-20080267814-$ or US-20090105790-$ or US-20090299441-$ or US-20110082525-$ or US-20140212331-$ or US-20120319010-$ or US-20150157876-$ or US-20110295343-$ or US-20100191093-$ or US-20100189224-$ or US-20100191105-$ or US-20100187304-$ or US-20100189219-$ or US-20100191091-$ or US-20100191092-$ or US-20100191107-$ or US-20080058587-$ or US-20080058649-$ or US-20080058785-$ or US-20080058786-$ or US-20080058788-$ or US-20080058795-$ or US-20080059070-$ or US-20080103355-$ or US-20150157877-$ or US-20170080249-$).did. or (US-20190201711-$ or US-20150140502-$	US-PGPUB; USPAT; DERWENT	OR	ON	2021/07/16 14:58

		or US-20180014924-$ or US-20180140406-$ or US-20210068936-$ or US-20190083202-$ or US-20110166631-$ or US-20190262629-$ or US-20130116616-$ or US-20170182333-$ or US-20180177976-$ or US-20200114117-$ or US-20080281383-$ or US-20210128238-$ or US-20180369608-$ or US-20180221681-$ or US-20180021591-$ or US-20170157430-$ or US-20170157431-$ or US-20050065579-$ or US-20190015682-$ or US-20170181796-$ or US-20200094015-$ or US-20150065821-$ or US-20130304019-$ or US-20090143842-$ or US-20070255266-$).did. or (US-20110178510-$ or US-20200391051-$ or US-20160310593-$ or US-20090177253-$ or US-20090281604-$ or US-20040260367-$ or US-20100010594-$ or US-20120016174-$ or US-20190262626-$ or US-20100010592-$ or US-20100094384-$ or US-20100105977-$ or US-20160237126-$ or US-20180051058-$ or US-20130224821-$ or US-20160002302-$ or US-20190241627-$ or US-20140155962-$ or US-20140157174-$ or US-20210113853-$ or US-20120197357-$ or US-20190336326-$ or US-20210031050-$ or US-20190224491-$ or US-20160129280-$ or US-20020074559-$ or US-20130073010-$).did. or (US-20170115162-$ or US-20170118854-$ or US-20190145820-$ or US-20190008964-$ or US-20130218240-$ or US-20140005590-$ or US-20160129279-$ or US-20130296978-$ or US-20150025601-$ or US-20070276455-$ or US-20110212410-$ or US-20100121420-$ or US-20190336789-$ or US-20060195165-$ or US-20080208297-$ or US-20060167531-$ or US-20060271024-$ or US-20130066403-$ or US-20150163889-$ or US-20200094071-$ or US-20210145514-$ or US-20120209357-$ or US-20140276248-$ or US-20190151655-$ or US-20140276247-$ or US-20170100585-$ or US-20100179469-$).did. or (US-				

		20070244527-$ or US-20110282333-$ or US-20150209181-$ or US-20200000638-$ or US-20050053106-$ or US-20200384287-$ or US-20170119466-$ or US-20200046427-$ or US-20130324788-$ or US-20040166146-$ or US-20080058689-$ or US-20120053394-$ or US-20060206174-$ or US-20150039061-$ or US-20210138249-$ or US-20180333587-$ or US-20210001146-$ or US-20180185667-$ or US-20210001147-$ or US-20210023385-$ or US-20210023391-$ or US-20160016004-$ or US-20200282230-$ or US-20120316623-$ or US-20110071602-$ or US-20140074195-$ or US-20200093945-$).did. or (US-20190366120-$ or US-20200086134-$ or US-20200406051-$ or US-20200376291-$ or US-20200384283-$ or US-20130274839-$ or US-20190030358-$ or US-20140288351-$ or US-20140067024-$ or US-20160008623-$ or US-20160367832-$ or US-20210085995-$ or US-20190299021-$ or US-20180169430-$ or US-20170050043-$ or US-20190111252-$ or US-20200174277-$ or US-20200233230-$ or US-20200384684-$ or US-20180064953-$ or US-20170281965-$ or US-20190328905-$ or US-20210038743-$ or US-20200060923-$ or US-20190290881-$ or US-20190366119-$ or US-20180263695-$).did. or (US-20140088668-$ or US-20150153062-$ or US-20160331991-$ or US-20160096033-$ or US-20050143793-$ or US-20170326381-$ or US-20180311464-$ or US-20170032521-$ or US-20190029755-$ or US-20210031051-$ or US-20180104509-$ or US-20180104506-$ or US-20210038910-$ or US-20200345970-$ or US-20170361125-$ or US-20140271479-$ or US-20170202912-$ or US-20140187998-$ or US-20140364721-$ or US-20200179717-$ or US-20140207211-$ or US-20190117307-$ or US-20190117995-$ or US-20200023192-$ or US-20190029907-$ or US-20090177190-$				

		or US-20180133497-$).did. or (US-20190117308-$ or US-20210162162-$ or US-20210095825-$ or US-20180216791-$ or US-20200063927-$ or US-20200360715-$ or US-20130190845-$ or US-20120283710-$ or US-20120283711-$ or US-20120283803-$ or US-20120226268-$ or US-20120232536-$ or US-20120232537-$ or US-20120232538-$ or US-20120232539-$ or US-20120239016-$ or US-20140005756-$ or US-20160016001-$ or US-20200289321-$ or US-20180193662-$ or US-20030011538-$ or US-20010028227-$ or US-20030100837-$ or US-20080183081-$ or US-20200261738-$ or US-20190314641-$ or US-20180133431-$).did. or (US-20180133504-$ or US-20190255350-$ or US-20190269936-$ or US-20210121713-$ or US-20180133507-$ or US-20170043179-$ or US-20110098781-$ or US-20140303528-$ or US-20210063964-$ or US-20200178892-$ or US-20150054415-$ or US-20160193478-$ or US-20160219671-$ or US-20130140988-$ or US-20140217902-$ or US-20140306620-$ or US-20200289841-$ or US-20190076668-$ or US-20110190749-$ or US-20130345687-$ or US-20170304003-$ or US-20060030907-$ or US-20070203432-$ or US-20080125620-$ or US-20210038911-$ or US-20180353770-$ or US-20200391049-$).did. or (US-20050015121-$ or US-20160023017-$ or US-20200368550-$ or US-20170326380-$ or US-20210085993-$ or US-20180111004-$ or US-20160008628-$ or US-20120215155-$ or US-20180235808-$ or US-20190365564-$ or US-20210022948-$ or US-20200289054-$ or US-20210077350-$ or US-20190217347-$ or US-20130184693-$ or US-20080269847-$ or US-20030002297-$ or US-20100069824-$ or US-20020183809-$ or US-20120010684-$ or US-20120143288-$ or US-20120143289-$ or US-20120143290-$ or US-20120143291-$ or US-				

		20200054891-$ or US-20140066974-$ or US-20210108771-$).did. or (US-20210128942-$ or US-20180056027-$ or US-20070203550-$ or US-20090204188-$ or US-20140330195-$ or US-20200246179-$ or US-20210001141-$ or US-20080091250-$ or US-20080275533-$ or US-20080103560-$ or US-20080065056-$ or US-20080103563-$ or US-20090227996-$ or US-20080119913-$ or US-20060030908-$ or US-20090254156-$ or US-20110251659-$ or US-20140012353-$ or US-20120197358-$ or US-20050245998-$ or US-20170050042-$ or US-20180093103-$ or US-20160106998-$ or US-20140296944-$ or US-20200391046-$ or US-20150335246-$ or US-20120283709-$).did. or (US-20130030423-$ or US-20090177256-$ or US-20110125231-$ or US-20060281042-$ or US-20090056044-$ or US-20110200959-$ or US-20140194957-$ or US-20170065826-$ or US-20190008678-$ or US-20190008679-$ or US-20170231058-$ or US-20170238401-$ or US-20120029417-$ or US-20140088439-$ or US-20060009822-$ or US-20030156831-$ or US-20040184793-$ or US-20170208673-$ or US-20200222712-$ or US-20210069525-$ or US-20190192872-$ or US-20190192873-$ or US-20190201705-$ or US-20200061385-$ or US-20200230430-$ or US-20210038906-$ or US-20190192875-$).did. or (US-20190388698-$ or US-20180236254-$ or US-20200054890-$ or US-20200061386-$ or US-20170106201-$ or US-20160136385-$ or US-20020026225-$ or US-20190201713-$ or US-20190217119-$ or US-20190143138-$ or US-20180147416-$ or US-20180110566-$ or US-20110087312-$ or US-20040111132-$ or US-20200406000-$ or US-20200360714-$ or US-20130041309-$ or US-20190209858-$ or US-20160287898-$ or US-20200360547-$ or US-20180077767-$ or US-20200214101-$ or US-20150102749-$				

		or US-20170086273-$ or US-20120041523-$ or US-20200267814-$ or US-20040075065-$).did. or (US-20050093485-$ or US-20130023960-$ or US-20130023961-$ or US-20130023962-$ or US-20130023963-$ or US-20130023964-$ or US-20130023965-$ or US-20130023967-$ or US-20200197718-$ or US-20050187595-$ or US-20080004565-$ or US-20150230862-$ or US-20040138727-$ or US-20050107851-$ or US-20060253177-$ or US-20130225971-$ or US-20100324631-$ or US-20160067087-$ or US-20160067086-$ or US-20190142636-$ or US-20200315844-$ or US-20200390803-$ or US-20180369602-$ or US-20190366117-$ or US-20100060195-$ or US-20100076250-$ or US-20060235494-$).did. or (US-20160374173-$ or US-20180199411-$ or US-20200163184-$ or US-20150335742-$ or US-20160136386-$ or US-20160136452-$ or US-20170049890-$ or US-20180055933-$ or US-20090018621-$ or US-20070060984-$ or US-20110238141-$ or US-20080077198-$ or US-20140052221-$ or US-20130103017-$ or US-20110098789-$ or US-20150057725-$ or US-20100049180-$ or US-20080033412-$ or US-20140128941-$ or US-20180146520-$ or US-20190246463-$ or US-20190335551-$ or US-20150231408-$ or US-20190373687-$ or US-20160219675-$ or US-20190223270-$ or US-20170215253-$).did. or (US-20150048742-$ or US-20210212184-$ or US-20180193186-$ or US-20080027516-$ or US-20210205632-$ or US-20040243114-$ or US-20130137992-$ or US-20200038673-$ or US-20200054893-$ or US-20120289948-$ or US-20120283712-$ or US-20190357976-$ or US-20150230863-$ or US-20190357771-$ or US-20130172965-$ or US-20140022162-$ or US-20170308170-$ or US-20190240468-$ or US-20180140863-$ or US-20140023993-$ or US-20190083809-$ or US-				

		20210093888-$ or US-20210196977-$ or US-20160331308-$ or US-20170361076-$ or US-20170172658-$ or US-20190125448-$).did. or (US-9968800-$ or US-6676654-$ or US-7147654-$ or US-8838228-$ or US-10589120-$ or US-10300296-$ or US-9545463-$ or US-9517355-$ or US-8506979-$ or US-8535359-$ or US-8983257-$ or US-7713294-$ or US-8111809-$ or US-8254524-$ or US-8031838-$ or US-8116429-$ or US-8041008-$ or US-8083406-$ or US-8249218-$ or US-8047714-$ or US-8145295-$ or US-8160680-$ or US-8180436-$ or US-8936629-$ or US-9220917-$ or US-9730780-$).did. or (US-10729524-$ or US-9597527-$ or US-10130827-$ or US-10806890-$ or US-7367342-$ or US-10456604-$ or US-10668305-$ or US-10758738-$ or US-10322293-$ or US-7918229-$ or US-6623511-$ or US-8781545-$ or US-10857376-$ or US-10758743-$ or US-10653889-$ or US-10315042-$ or US-7303578-$ or US-10695577-$ or US-9850290-$ or US-10196431-$ or US-9175095-$ or US-9340589-$ or US-9126034-$ or US-8784462-$ or US-8475507-$ or US-7064498-$ or US-10709600-$).did. or (US-10527490-$ or US-10527491-$ or US-10732034-$ or US-11045548-$ or US-9205277-$ or US-9550070-$ or US-7921853-$ or US-8956396-$ or US-8945197-$ or US-8109981-$ or US-9326363-$ or US-9061128-$ or US-9561357-$ or US-6120529-$ or US-8945101-$ or US-9597479-$ or US-7304201-$ or US-8517909-$ or US-8088057-$ or US-10821298-$ or US-10137311-$ or US-8608786-$ or US-10806944-$ or US-10744337-$ or US-8900283-$ or US-8858607-$ or US-9399146-$).did. or (US-10518100-$ or US-10918859-$ or US-10901231-$ or US-10967565-$ or US-5634711-$ or US-4560883-$ or US-10849990-$ or US-10973576-$ or US-9889314-$ or US-9945577-$ or US-9782603-$ or US-10137277-$ or US-9824444-$ or US-11020181-$ or US-10406380-$ or US-10149983-$ or US-9636380-$ or US-10478639-$ or US-				

		10953239-$ or US-10589115-$ or US-11033331-$ or US-10502374-$ or US-10900621-$ or US-4614866-$ or US-4724835-$ or US-9220915-$ or US-9414888-$).did. or (US-9789332-$ or US-8523849-$ or US-9005262-$ or US-9308391-$ or US-10940328-$ or US-7221104-$ or US-6528954-$ or US-6166496-$ or US-6211626-$ or US-6292901-$ or US-6340868-$ or US-6720745-$ or US-7308296-$ or US-6459919-$ or US-10702705-$ or US-10279192-$ or US-10293177-$ or US-10843006-$ or US-10307611-$ or US-10525279-$ or US-8761874-$ or US-8983596-$ or US-9289574-$ or US-9913341-$ or US-9693414-$ or US-8686641-$ or US-8941329-$).did. or (US-9024536-$ or US-9554856-$ or US-10194986-$ or US-7141028-$ or US-7654949-$ or US-7846084-$ or US-9827440-$ or US-10786685-$ or US-10994313-$ or US-4233493-$ or US-10478635-$ or US-10639495-$ or US-8029553-$ or US-11007373-$ or US-6443974-$ or US-6395016-$ or US-7051738-$ or US-8317781-$ or US-8480721-$ or US-9017392-$ or US-9072892-$ or US-9522287-$ or US-10434280-$ or US-8435276-$ or US-9486447-$ or US-9764155-$ or US-9498640-$).did. or (US-10086211-$ or US-9216300-$ or US-9662409-$ or US-8679102-$ or US-7896908-$ or US-8313518-$ or US-7467946-$ or US-7942667-$ or US-9622911-$ or US-10285857-$ or US-11033429-$ or US-9138595-$ or US-7120353-$ or US-7142779-$ or US-10932345-$ or US-10478633-$ or US-10709894-$ or US-10478634-$ or US-10688310-$ or US-10493293-$ or US-10556122-$ or US-10632321-$ or US-10821295-$ or US-10569094-$ or US-10569095-$ or US-5755752-$ or US-6033431-$).did. or (US-6866678-$ or US-10950052-$ or US-10974065-$ or US-10595376-$ or US-9794996-$ or US-9532423-$ or US-7229467-$ or US-6828576-$ or US-9011508-$ or US-8998914-$ or US-8747447-$ or US-8834545-$ or US-8840654-$ or US-8894697-$ or US-9011509-$ or US-7309348-$ or US-				

		11058889-$ or US-10194984-$ or US-8721695-$ or US-10881550-$ or US-10219944-$ or US-10596037-$ or US-6689124-$ or US-6013096-$ or US-8257416-$ or US-9913345-$ or US-10390407-$).did. or (US-9833509-$ or US-9962441-$ or US-7736382-$ or US-8985119-$ or US-7988688-$ or US-8506613-$ or US-8784461-$ or US-8685008-$ or US-8518027-$ or US-9302118-$ or US-9877361-$ or US-11006488-$ or US-10328276-$ or US-9655206-$ or US-10959311-$ or US-10244606-$ or US-9313860-$ or US-7136405-$ or US-9308390-$ or US-10045820-$ or US-9696804-$ or US-8574280-$ or US-10953236-$ or US-9687152-$ or US-9789295-$).did. or (BR-102016030258-$ or CN-109364381-$ or CN-110585001-$ or US-20200197718-$).did.				
S113	702	S112 and ((adjust input) with time)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 14:58
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S118	1,483	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/09/29 14:56
S119	411	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/09/29 14:56

S120	6,263	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/09/29 14:56
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S125	480	S124 and ((lead leading follow followed following) with mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/09/29 14:56
S126	31	S124 and (((lead leading) and (follow followed following)) with mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/09/29 14:59
S127	94	S124 and (((lead led leading) and (follow followed following)) with mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/09/29 14:59

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	3	((red with light) and ("near" with infrared with light) AND (lead$4 with mode) AND (follow$5 with mode)).clm.	US-PGPUB; USPAT	OR	ON	2021/09/30 13:00
S54	0	((red with light) and ("near" with infrared with light) AND housing AND communicat$6 AND button AND (control$6 microcontrol$6 process$6 microprocess$6)).clm.	US-PGPUB; USPAT	OR	ON	2019/07/03 14:47
S55	11	((red with light) and ("near" with infrared with light) AND housing AND communicat$6 AND (control$6 microcontrol$6 process$6 microprocess$6)).clm.	US-PGPUB; USPAT	OR	ON	2019/07/03 14:48
S89	10	((red with light) and ("near" with infrared with light) AND housing AND switch$6).clm.	US-PGPUB; USPAT	OR	ON	2020/03/03 13:34

9/30/2021 1:22:52 PM
C:\Users\theller\Documents\EAST\Workspaces\16598033.wsp

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16598033
Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Tammie K. Marlen
Attorney Docket Number	JOOVV.004A.C2

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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	Examiner Name	Tammie K. Marlen
	Attorney Docket Number	JOOVV.004A.C2

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	Attorney Docket Number	JOOVV.004A.C2

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	35	11033752		2021-06-15	STRAHAN	

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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	Attorney Docket Number	JOOVV.004A.C2

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	Attorney Docket Number	JOOVV.004A.C2

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	Attorney Docket Number	JOOVV.004A.C2

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	U.S. Patent No. 845,917, issued 1907-03-05 to WORLEY (unable to add this patent no. in appropriate place; "Invalid Patent Number Format" error message)	

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

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

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

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16598033
	Filing Date	2019-10-10
	First Named Inventor	Justin Strahan
	Art Unit	3792
	Examiner Name	Tammie K. Marlen
	Attorney Docket Number	JOOVV.004A.C2

CERTIFICATION STATEMENT

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

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

OR

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

See attached certification statement.

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

A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Wesley Schwie/	Date (YYYY-MM-DD)	2021-09-30
Name/Print	Wesley Schwie	Registration Number	64,950

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

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

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

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

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

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

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

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

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

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

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

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

Electronic Patent Application Fee Transmittal

Application Number:	16598033
Filing Date:	10-Oct-2019
Title of Invention:	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS
First Named Inventor/Applicant Name:	Justin Strahan
Filer:	Wesley E. Schwie/Talia Childs
Attorney Docket Number:	JOOVV.004A.C2

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

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

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	2806	1	130	130
		Total in USD ($)		**130**

Electronic Acknowledgement Receipt

EFS ID:	43921815
Application Number:	16598033
International Application Number:	
Confirmation Number:	3718
Title of Invention:	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS
First Named Inventor/Applicant Name:	Justin Strahan
Customer Number:	124179
Filer:	Wesley E. Schwie/Talia Childs
Filer Authorized By:	Wesley E. Schwie
Attorney Docket Number:	JOOVV.004A.C2
Receipt Date:	30-SEP-2021
Filing Date:	10-OCT-2019
Time Stamp:	22:06:54
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$130
RAM confirmation Number	E20219TM07380290
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	Transmittal Letter	2021-09-30-ids-transmittal-JOOVV-004A-C2.pdf	81835 af7a7608576f046532bcfd25c915964546a404de	no	1
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	2021-09-30-ids-JOOVV-004A-C2.pdf	1037305 9add6ce69f9c37914de592e8e3bc47cbdddec009	no	13
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	37926 742f91436dd1fa6ecfffc8cb8944bce251ae3438	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1157066		

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Inventor: Justin Strahan

Examiner: Tammie K. Marlen

Group Art Unit: 3792

Application No.: 16/598,033

Filed: October 10, 2019

Docket No.: JOOVV.004A.C2

Title: PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

INFORMATION DISCLOSURE STATEMENT

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

Dear Examiner:

Please see the Information Disclosure Statement submitted with this letter. The Information Disclosure Statement is being filed after the period specified in 37 CFR 1.97(b). In compliance with 37 CFR 1.97(c), the fee set forth in 37 CFR 1.17(p) has been submitted herewith.

Respectfully submitted,

/Wesley E. Schwie/

Wesley E. Schwie
Reg. No. 64,950
651-428-9828
Date: September 30, 2021

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16598033
Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Tammie K. Marlen
Attorney Docket Number	JOOVV.004A.C2

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	10064940		2018-09-04	NAGER	
	2	10363434		2019-07-30	MARCHESE	
	3	5996728		1999-12-07	STARK	
	4	6896693		2005-05-24	SULLIVAN	
	5	10881550		2021-01-05	TEDFORD	
	6	8425577		2013-04-23	VARGAS	
	7	10632325		2020-04-28	LIM	
	8	7932482		2011-04-26	NORWOOD	

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16598033
Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Tammie K. Marlen
Attorney Docket Number	JOOVV.004A.C2

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20020198575		2002-12-26	SULLIVAN	
	2	20190030359		2019-01-31	DIJKSTRA	
	3	20200269065		2020-08-27	BROENG	
	4	20200360714		2020-11-19	SHTERZER	
	5	20060229689		2006-10-12	FERGUSON	
	6	20150112411		2015-04-23	BECKMAN	

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

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							

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NON-PATENT LITERATURE DOCUMENTS Remove

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16598033
	Filing Date	2019-10-10
	First Named Inventor	Justin Strahan
	Art Unit	3792
	Examiner Name	Tammie K. Marlen
	Attorney Docket Number	JOOVV.004A.C2

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	GREEN ENVY SUPPLY - How to Hang Light Reflector Using Rope Reel Ratchet Hangers - YouTube - video by user Green Envy Supply - First available January 15, 2017 - Available from Internet <URL: https://www.youtube.com/watch?v=W2z0m_7o-Y0>	

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

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

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

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

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	Application Number	16598033
	Filing Date	2019-10-10
	First Named Inventor	Justin Strahan
	Art Unit	3792
	Examiner Name	Tammie K. Marlen
	Attorney Docket Number	JOOVV.004A.C2

CERTIFICATION STATEMENT

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OR

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See attached certification statement.

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

A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Wesley Schwie/	Date (YYYY-MM-DD)	2021-09-29
Name/Print	Wesley Schwie	Registration Number	64,950

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

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

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

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

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

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

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

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

Electronic Acknowledgement Receipt

EFS ID:	43906961
Application Number:	16598033
International Application Number:	
Confirmation Number:	3718
Title of Invention:	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS
First Named Inventor/Applicant Name:	Justin Strahan
Customer Number:	124179
Filer:	Wesley E. Schwie/Talia Childs
Filer Authorized By:	Wesley E. Schwie
Attorney Docket Number:	JOOVV.004A.C2
Receipt Date:	29-SEP-2021
Filing Date:	10-OCT-2019
Time Stamp:	20:11:13
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	2021-09-29-ids-transmittal-JOOVV-004A-C2.pdf	82403 0b9c17cdb42e7d5e954457de69f0ef1426a4fcb5	no	1

Warnings:

Exhibit 1003 - 153

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	2021-09-29-ids-JOOVV-004A-C2.pdf	1035076 7dca0db68dbb08314d292fb827c5f38375883d76	no	5
Warnings:					
Information:					
3	Non Patent Literature	1-Green_Envy.pdf	2435126 7a16546931f1ab22e2f4497d43cc564c9b49ff7f	no	1
Warnings:					
Information:					
		Total Files Size (in bytes):	3552605		

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Inventor: Justin Strahan

Examiner: Tammie K. Marlen

Group Art Unit: 3792

Application No.: 16/598,033

Filed: October 10, 2019

Docket No.: JOOVV.004A.C2

Title: PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

INFORMATION DISCLOSURE STATEMENT

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

Dear Examiner:

Please see the Information Disclosure Statement submitted with this letter. The Information Disclosure Statement is being filed after the period specified in 37 CFR 1.97(b). In compliance with 37 CFR 1.97(c), Applicant has certified the statement specified in 37 CFR 1.97(e)(2). Thus, no fee is required.

Respectfully submitted,

/Wesley E. Schwie/

Wesley E. Schwie
Reg. No. 64,950
651-428-9828
Date: September 29, 2021

Electronic Acknowledgement Receipt

EFS ID:	43654032
Application Number:	16598033
International Application Number:	
Confirmation Number:	3718
Title of Invention:	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS
First Named Inventor/Applicant Name:	Justin Strahan
Customer Number:	124179
Filer:	Wesley E. Schwie/Isabel Fox
Filer Authorized By:	Wesley E. Schwie
Attorney Docket Number:	JOOVV.004A.C2
Receipt Date:	31-AUG-2021
Filing Date:	10-OCT-2019
Time Stamp:	19:42:54
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	Amendment/Req. Reconsideration-After Non-Final Reject	2021-08-31-response-JOOVV-004A-C2.pdf	156898 d26058a34ae87c18a44572312d4eaadc7f224251	no	9

Warnings:

Information:					
2	Specification	2021-08-31-clean-specification-JOOVV-004A-C2.pdf	199231 b8ff1c1435f8d09f571d8ec1a245aee26eb50757	no	20
Warnings:					
Information:					
			Total Files Size (in bytes):	356129	

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Inventor: Justin Strahan

Examiner: Tammie K. Marlen

Group Art Unit: 3792

Application No.: 16/598,033

Filed: October 10, 2019

Docket No.: JOOVV.004A.C2

Title: PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

RESPONSE TO NON-FINAL OFFICE ACTION DATED JULY 21, 2021

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

Dear Examiner:

REPLY PURSUANT TO 37 CFR § 1.111

In response to the Non-Final Office Action dated **July 21, 2021**, reconsideration is respectfully requested in view of the amendments and/or remarks as indicated below:

Amendments to the Specification begin on page 2 of this paper.
A listing of the Claims begins on page 3 of this paper.
Remarks begin on page 7 of this paper.

Applicant believes the claims to be in condition for allowance. If Examiner disagrees, Applicant openly invites Examiner to call Applicant's representative Wesley Schwie (651.428.9828). Thank you.

AMENDMENTS TO THE SPECIFICATION

Please amend the CROSS-REFERENCE TO RELATED APPLICATIONS as indicated below:

CROSS-REFERENCE TO RELATED APPLICATIONS

The entire contents of the following application are incorporated by reference herein: U.S. Patent ~~Application~~ No. ~~15/616,028~~10,828,505; filed June 7, 2017; issued November 10, 2020; and entitled THERAPEUTIC LIGHT SOURCE AND HANGING APPARATUS.

The entire contents of the following application are incorporated by reference herein: PCT Patent Application No. PCT/US18/18288; filed March 1, 2018; and entitled THERAPEUTIC LIGHT SOURCE AND MOUNTING APPARATUS.

The entire contents of the following application are incorporated by reference herein: U.S. Patent ~~Application~~ No. ~~16/167,385~~11,033,752; filed October 22, 2018; issued June 15, 2021; and entitled PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS.

The entire contents of the following application are incorporated by reference herein: U.S. Patent ~~Application~~ No. ~~16/227,289~~10,478,635; filed December 20, 2018; issued November 19, 2019; and entitled PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS.

The entire contents of the following application are incorporated by reference herein: U.S. Patent ~~Application~~ No. ~~16/584,784~~10,639,495; filed September 26, 2019; issued May 5, 2020; and entitled PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS.

CLAIMS

Please amend the claims as indicated below:

1. (Currently amended) A method for providing a light therapy treatment, comprising:

providing a first light therapy device comprising a first housing and a first plurality of lights configured to emit at least one of red light and near infrared light;

providing a second light therapy device comprising a second housing and a second plurality of lights configured to emit at least one of red light and near infrared light;

communicatively coupling the first light therapy device directly to the second light therapy device; [[and]]

emitting at least one of red light and near infrared light from at least a portion of the first plurality of lights and at least a portion of the second plurality of lights;

placing the first light therapy device in a lead mode; and

placing the second light therapy device in a follow mode whereby the second light therapy device performs operations as instructed by the first light therapy device.

2. (Currently amended) The method of claim 1, ~~further comprising using a control panel coupled to the first housing of the first light therapy device to emit~~ wherein the emitting at least one of red light and near infrared light from at least the portion of the first plurality of lights and at least the portion of the second plurality of lights is accomplished using a control panel coupled to the first housing of the first light therapy device.

3. (Original) The method of claim 2, further comprising pressing a first input button on the control panel of the first light therapy device, wherein the emitting occurs in response to the pressing.

4. (Original) The method of claim 2, further comprising pausing the emitting in response to pressing a first input button on the control panel of the first light therapy device.

5. (Currently amended) The method of claim [[2]]3, further comprising setting a treatment time by pressing a second input button on the control panel of the first light therapy device, wherein

the treatment time comprises a duration of time that the first light therapy device and the second light therapy device emit at least one of red light and near infrared light.

6. (Original) The method of claim 5, further comprising displaying an indication of the treatment time on a first display located on the control panel of the first light therapy device.

7. (Original) The method of claim 6, wherein the treatment time is 20 minutes.

8. (Original) The method of claim 5, further comprising increasing the treatment time by pressing the second input button a second time.

9. (Canceled).

10. (Currently amended) The method of claim [[9]]1, further comprising:

selecting the lead mode via a first switch coupled to the first light therapy device, wherein the first light therapy device is placed in the lead mode via the first switch; and

selecting the follow mode via a second switch coupled to the second light therapy device, wherein the second light therapy device is placed in the follow mode via the second switch.

11. (Original) The method of claim 1, further comprising indicating, via a first pair of indication lights on the first light therapy device, whether at least one of red light and near infrared light is being emitted from at least the portion of the first plurality of lights.

12. (Currently amended) The method of claim 11, further comprising indicating, via a second pair of indication lights on the second light therapy device, whether at least one of red light and near infrared light is being emitted from at least the portion of the second plurality of lights.

13. (Original) The method of claim 1, wherein emitting at least one of red light and near infrared light from at least the portion of the first plurality of lights and at least the portion of the second plurality of lights comprises:

emitting red light from at least the portion of the first plurality of lights; and

emitting red light from at least the portion of the second plurality of lights.

14. (Original) The method of claim 1, wherein emitting at least one of red light and near infrared light from at least the portion of the first plurality of lights and at least the portion of the second plurality of lights comprises:

emitting near infrared light from at least the portion of the first plurality of lights; and

emitting near infrared light from at least the portion of the second plurality of lights.

15. (Original) The method of claim 1, wherein emitting at least one of red light and near infrared light from at least a portion of the first plurality of lights and at least a portion of the second plurality of lights comprises:

emitting red light from at least the portion of the first plurality of lights; and

emitting near infrared light from the portion of the second plurality of lights.

16. (Original) The method of claim 1, wherein communicatively coupling the first light therapy device directly to the second light therapy device comprises coupling the first light therapy device and the second light therapy device via a wired connection.

17. (Original) The method of claim 16, wherein coupling the first light therapy device and the second light therapy device via the wired connection comprises:

inserting a first end of a communication cable into a first communication port on the first light therapy device; and

inserting a second end of the communication cable into a second communication port on the second light therapy device.

18. (Original) The method of claim 1, wherein communicatively coupling the first light therapy device directly to the second light therapy device comprises coupling the first light therapy device and the second light therapy device via a wireless connection.

19. (Original) The method of claim 1, further comprising:

providing a third light therapy device comprising a third housing and a third plurality of

lights configured to emit at least one of red light and near infrared light;

providing a fourth light therapy device comprising a fourth housing and a fourth plurality of lights configured to emit at least one of red light and near infrared light;

communicatively coupling each of the third light therapy device and the fourth light therapy device directly to at least one of the first light therapy device and the second light therapy device; and

emitting at least one of red light and near infrared light from at least a portion of the third plurality of lights and at least a portion of the fourth plurality of lights.

20. (Original) The method of claim 19, further comprising:

providing a fifth light therapy device comprising a fifth housing and a fifth plurality of lights configured to emit at least one of red light and near infrared light;

providing a sixth light therapy device comprising a sixth housing and a sixth plurality of lights configured to emit at least one of red light and near infrared light;

communicatively coupling each of the fifth light therapy device and the sixth light therapy device directly to at least one of the first light therapy device, the second light therapy device, the third light therapy device, and the fourth light therapy device; and

emitting at least one of red light and near infrared light from at least a portion of the fifth plurality of lights and at least a portion of the sixth plurality of lights.

21. (New) The method of claim 8, wherein increasing the treatment time comprises increasing the treatment time by the duration of time equal to the treatment time.

REMARKS

Claims 1-20 were previously pending. Claims 1-8 and 11-20 were rejected. Applicant has amended Claims 1, 2, 5, 10, and 12; canceled Claim 9; and added new Claim 21. No new matter has been added. Favorable reconsideration and allowance of the application is respectfully requested.

Allowable Subject Matter

The Examiner indicated that Claims 9 and 10 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant sincerely thanks Examiner Marlen for the indication of allowable subject matter, and has, as discussed below, effectively rewritten Claim 9 into independent form by including the subject matter from Claim 9 in Claim 1.

Objections to the Specification

The specification was objected to because the "CROSS-REFERENCE TO RELATED APPLICATIONS" section did not reflect the present status of each application. Applicant has amended the Cross-Reference section, a shown on page 2 of this response, to reflect the present status of each application. A clean version of the amended specification will be submitted with this response.

Claim Rejections Under 35 U.S.C. § 112

Claims 2-8 and 12 were rejected under 35 U.S.C. § 112(b) as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor regards as the invention. Applicant has amended Claim 5 to depend from Claim 3, which recites "a first input button." Applicant has amended Claim 12 to depend from Claim 11, which recites "a first pair of indication lights on the first light therapy device." To prevent confusion in the claim language, Applicant has recited a *first* pair of indication lights on the *first* light therapy device (see Claim 11) and a *second* pair of indication lights on the *second* light therapy device (see Claim 12). Claim 12 is not intended to convey that the second pair of indication lights implies a first pair of indication lights on the second light therapy device.

With regard to the 35 U.S.C. § 112(b) rejection of Claim 2, the Office Action stated that

"it is unclear if this is in addition to the emitting that is required by claim 1 or is intended to further define the emitting step of claim 1." (See Office Action, page 3.) To clarify that Claim 2 is indeed intended to further define the emitting step of Claim 1, Applicant has amended Claim 2 to recite: "The method of claim 1, wherein the emitting at least one of red light and near infrared light from at least the portion of the first plurality of lights and at least the portion of the second plurality of lights is accomplished using a control panel coupled to the first housing of the first light therapy device." Applicant respectfully asserts that the amendments to Claims 2, 5, and 12 overcome the §112 rejection. Accordingly, Applicant respectfully requests withdrawal of the rejection to Claims 2-8 and 12 under 35 U.S.C. § 112(b).

Claim Rejections Under 35 U.S.C. § 102

Claims 1-8 and 11-19 were rejected under 35 U.S.C. § 102(a)(1) as being anticipated by U.S. Patent Publication No. 2011/0054573 ("Mitchell"). Claims 1-4, 11-14, 16, 19, and 20 were rejected under 35 U.S.C. § 102(a)(1)/(2) as being anticipated by U.S. Patent Publication No. 2018/008839 ("Hamid").

As discussed above, the Examiner indicated on page 9 of the Office Action that Claims 9 and 10 "would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims." Applicant has amended Claim 1 to incorporate all of the subject matter of Claim 9, thereby effectively rewriting Claim 9 in independent form, including all of the limitations of the base claim (Claim 1). Claim 9 previously depended directly from Claim 1, with no intervening claims.

As such, Applicant respectfully asserts that the amendment to Claim 1 to incorporate the allowable subject matter from Claim 9 overcomes the 35 U.S.C. § 102 rejections, both over Mitchell and Hamid. Accordingly, Applicant respectfully requests withdrawal of the rejection to independent Claim 1 (and dependent claims 2-8 and 11-19) under 35 U.S.C. § 102.

New Claims

Claim 21 has been added, and recites: "The method of claim 8, wherein increasing the treatment time comprises increasing the treatment time by the duration of time equal to the treatment time." Claim 21 presents no new matter. Claim 21 is supported by Applicant's specification on page 11, lines 27-29: "Each additional press 704 of the time button 112 may

increase the treatment time by the same predetermined amount of time 706."

No Disclaimers or Disavowals

Although the Applicant has amended the claims to expedite allowance, the Applicant is not conceding that any previously pending claims are not allowable. The Applicant reserves the right to prosecute previously pending claims, claims of broader scope, and claims based on any subject matter supported by the present disclosure or any future disclosure. The Applicant has not disclaimed or disavowed any subject matter supported by the present application.

Conclusion

The Applicant has endeavored to amend the application based on the Examiner's comments to expedite allowance. No new matter has been added. Based on the above remarks and the amendments, the Applicant believes the application is in condition for allowance. If any questions remain, the Examiner is invited to contact the undersigned.

Respectfully submitted,

/Wesley Schwie/

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Date: August 31, 2021

Attachments: Clean Specification

PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

CROSS-REFERENCE TO RELATED APPLICATIONS

The entire contents of the following application are incorporated by reference herein: U.S. Patent No. 10,828,505; filed June 7, 2017; issued November 10, 2020; and entitled THERAPEUTIC LIGHT SOURCE AND HANGING APPARATUS.

The entire contents of the following application are incorporated by reference herein: PCT Patent Application No. PCT/US18/18288; filed March 1, 2018; and entitled THERAPEUTIC LIGHT SOURCE AND MOUNTING APPARATUS.

The entire contents of the following application are incorporated by reference herein: U.S. Patent No. 11,033,752; filed October 22, 2018; issued June 15, 2021; and entitled PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS.

The entire contents of the following application are incorporated by reference herein: U.S. Patent No. 10,478,635; filed December 20, 2018; issued November 19, 2019; and entitled PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS.

The entire contents of the following application are incorporated by reference herein: U.S. Patent No. 10,639,495; filed September 26, 2019; issued May 5, 2020; and entitled PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS.

BACKGROUND

Field

Various embodiments disclosed herein relate to photobiomodulation therapy systems and methods.

Description of Related Art

Photobiomodulation therapy (or light therapy) is a therapeutic technique that uses low-level wavelengths of light to improve health and treat a variety of health conditions, including skin issues, such as wrinkles, scars, and persistent wounds, among many other conditions. Similar to how plants use sunlight to heal and grow, humans and animals are able to harness these

wavelengths of light and turn them into cellular energy. This treatment stimulates the body's natural healing processes.

Currently, there are a number of photobiomodulation therapy devices available on the market. However, many of these devices are too small and require multiple sessions to treat large areas. As a result, there is a need for a photobiomodulation therapy system that can treat several areas in fewer treatments.

SUMMARY

This disclosure includes a variety of communicatively coupled light therapy systems. In some embodiments, the light therapy system includes a first light therapy device comprising a first housing, a first plurality of lights arranged and configured to emit at least one of red light and near infrared light, and a first communication module communicatively coupled to the first plurality of lights. Some embodiments may also include a second light therapy device configured to be communicatively coupled to the first light therapy device. The second light therapy device may have a second housing, a second plurality of light arranged and configured to emit at least one of red light and near infrared light, and a second communication module communicatively coupled to the second plurality of lights.

The first communication module and the second communication module may be communicatively coupled via a wireless connection such as a Bluetooth connection. Alternatively, some embodiments may be communicatively coupled via a wired connection. In some embodiments, the first light therapy device further comprises a first plurality of communication ports coupled to the first housing and communicatively coupled to the first communication module. Similarly, the second light therapy device may also further comprise a second plurality of communication ports coupled to the second housing and communicatively coupled to the second communication module. The first light therapy device and the second light therapy device may me communicatively coupled via a wired connection from the first plurality of communication ports to the second plurality of communication ports.

The first light therapy device and the second light therapy device may each be configured to operate in one of a lead mode and a follow mode. When the first light therapy device operates in the lead mode and the second light therapy device operates in the follow mode, the second light device may perform operations as instructed by the first light therapy device.

In some embodiments, the first light therapy device and the second light therapy device may each be configured to operate in a neutral mode. For example, when the second light therapy device operates in the neutral mode the second light therapy device may operate independently of the first light therapy device.

To control the light therapy device, some embodiments may further comprise a first plurality of input buttons coupled to the first housing and communicatively coupled to the first communication module. Accordingly, the system may further include a second plurality of input buttons coupled to the second housing and communicatively coupled to the second communication module. The first plurality of input buttons may be arranged and configured to control a treatment time of the first light therapy device, cause light to be emitted from at least a portion of the first plurality of lights, and cause light not to be emitted from at least a portion of the first plurality of lights. Likewise, the second plurality of input buttons may be arranged and configured to control a treatment time of the second light therapy device, cause light to be emitted from at least a portion of the second plurality of lights, and cause light not to be emitted from at least a portion of the second plurality of lights.

In some embodiments, the first plurality of input buttons may comprise a first time button, a first play/pause button, and a first mode button. Similarly, the second plurality of input buttons may comprise a second time button, a second play/pause button, and a second mode button.

In some embodiments, a first press of the first time button may increase the treatment time of the first light therapy device by a predetermined amount of time. Similarly, a first press of the second time button may increase the treatment time of the second light therapy device by the predetermined amount of time. A first press of the first play/pause button may cause at least a portion of the first plurality of lights to emit light and a second press of the first play/pause button may cause at least a portion of the first plurality of lights to not emit light. Likewise, a first press of the second play/pause button may cause at least a portion of the second plurality of lights to emit light and a second press of the second play/pause button may cause at least a portion of the second plurality of lights to not emit light.

Even still, in some embodiments, a first press of the first mode button may cause at least a portion of red lights of the first plurality of lights to emit red light and at least a portion of near infrared lights of the first plurality of lights to not emit near infrared light. Furthermore, a second press of the first mode button may cause at least a portion of red lights of the first plurality of lights

to not emit red light and at least a portion of near infrared lights of the first plurality of lights to emit near infrared light. Similarly, a first press of the second mode button may cause at least a portion of red lights of the second plurality of lights to emit red light and at least a portion of near infrared lights of the second plurality of lights to not emit near infrared light. Furthermore, a second press of the second mode button may cause at least a portion of red lights of the second plurality of lights to not emit red light and at least a portion of near infrared lights of the second plurality of lights to emit near infrared light.

To indicate which lights will be used during treatment, some embodiments of the system may further comprise a first pair of indication lights that may be coupled to the first housing and communicatively coupled to the first plurality of input buttons. In some embodiments, the first pair of indication lights may be arranged and configured to indicate whether a portion of red lights of the first plurality of lights is emitting red light and whether a portion of near infrared lights of the first plurality of lights is emitting near infrared light. Similarly, in some embodiments, the system further includes a second pair of indication lights coupled to the second housing and communicatively coupled to the second plurality of input buttons. The second pair of indication lights may be arranged and configured to indicate whether a portion of red lights of the second plurality of lights is emitting red light and whether a portion of near infrared lights of the second plurality of lights is emitting near infrared light.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other features, aspects, and advantages are described below with reference to the drawings, which are intended to illustrate, but not to limit, the invention. In the drawings, like reference characters denote corresponding features consistently throughout similar embodiments.

Figure 1 illustrates a front view of a light therapy system, according to some embodiments.

Figure 2 illustrates a front view of a light therapy system communicatively coupled wirelessly, according to some embodiments.

Figure 3 illustrates a top perspective view of a light therapy system, according to some embodiments.

Figure 4a illustrates a back view of a light therapy device, according to some embodiments.

Figure 4b illustrates a back view of a light therapy system communicatively coupled via a wired connection.

Figure 5 illustrates a back view of a light therapy system, according to some embodiments.

Figure 6A illustrates a top left perspective view of a light therapy system, according to some embodiments.

Figure 6B illustrates a zoomed in view of a control panel, according to some embodiments.

Figure 7 illustrates a flow chart for operating the time button, according to some embodiments.

Figure 8 illustrates a flow chart for operating the play/pause button, according to some embodiments.

Figure 9 illustrates a flow chart for operating the mode button, according to some embodiments.

DETAILED DESCRIPTION

Although certain embodiments and examples are disclosed below, inventive subject matter extends beyond the specifically disclosed embodiments to other alternative embodiments and/or uses, and to modifications and equivalents thereof. Thus, the scope of the claims appended hereto is not limited by any of the particular embodiments described below. For example, in any system or device disclosed herein, the acts or operations of the system or device may be performed in any suitable sequence and are not necessarily limited to any particular disclosed sequence. Various operations may be described as multiple discrete operations in turn, in a manner that may be helpful in understanding certain embodiments; however, the order of description should not be construed to imply that these operations are order dependent. Additionally, the structures, methods, and/or procedures described herein may be embodied as integrated components or as separate components.

For purposes of comparing various embodiments, certain aspects and advantages of these embodiments are described. Not necessarily all such aspects or advantages are achieved by any particular embodiment. Thus, for example, various embodiments may be carried out in a manner that achieves or optimizes one advantage or group of advantages as taught herein without necessarily achieving other aspects or advantages as may also be taught or suggested herein.

INDEX OF COMPONENTS

10 – Light therapy system

12 – Light therapy device
14 – Housing
16 – Plurality of lights
24 – Communication module
26 – Plurality of communication ports
28 – Communication Cable
70 – Lead mode
80 – Follow mode
90 – Neutral mode
92 – Power switch
100 – Control panel
110 – Plurality of buttons
112 – Time button
114 – Play/pause button
116 – Mode button
120 – Pair of indication lights

INTRODUCTION

Light therapy provides an alternative option for treating many common ailments and diseases. For example, when the human body is exposed to red light, blue light, green light, and/or near infrared light, subjects can expect to see improvement in multiple skin conditions, weight loss, muscle recovery, sexual performance, joint pain, and thyroid function. Instead of using prescription medications to solve these many problems, light therapy can be used in place of these traditional remedies to achieve safe and effective results.

Many top professionals have adopted light therapy, but oftentimes the light therapy devices and systems used are not big enough to treat an entire body at once. Accordingly, many embodiments described herein enable two or more light therapy devices to be communicatively coupled together to form a light therapy system. In doing so, the area of treatment can be expanded to reduce the time and number of treatments to achieve the desired results.

SYSTEM EMBODIMENTS

Fig. 1 illustrates an embodiment of a light therapy system 10 having a first light therapy device 12a and a second light therapy device 12b. In some embodiments, the first light therapy device 12a may have a first housing 14a, a first plurality of lights 16a, and a first communication module 24a. The first plurality of lights 16a may be mechanically coupled to the first housing 14a. In some embodiments, the first plurality of lights 16a may be red lights, near infrared lights, or some combination of red lights and near infrared lights. The first communication module 24a may be communicatively coupled to the first plurality of lights 16a such that the first plurality of lights 16a may receive instructions and thereby operate in a specific manner.

Furthermore, Fig. 1 also shows the light therapy system 10 having a second light therapy device 12b, which is communicatively coupled to the first light therapy device 12a. Similar to the first light therapy device 12a, the second light therapy device 12b may include a second housing 14b, a second plurality of lights 16b, and a second communication module 24b. The second plurality of lights 16b may be mechanically coupled to the second housing 14b. In some embodiments, the second plurality of lights 16b may be red lights, near infrared lights, or some combination of red lights and near infrared lights. The second communication module 24b may be communicatively coupled to the second plurality of lights 16b such that the second plurality of lights 16b may also receive instructions.

In many embodiments, the light therapy devices 12 are communicatively coupled to each other. In this regard, the first therapy device 12a may be communicatively coupled to the second light therapy device 12b whereby either of the devices 12 is able to control the other respective device 12. Such functionality may allow one or more light devices 12 to act as one cohesive system to more effectively provide treatment for a patient.

Because multiple light therapy devices 12 may be communicatively coupled together, this may allow for the light therapy system 10 to be located in one location or various remote locations. For example, in some embodiments, a light therapy system 10a may comprise two or more light therapy devices communicatively coupled together and physically located within close proximity of each other, such as in the same treatment room. However, in some embodiments, a light therapy system 10b may comprise two or more light therapy devices communicatively coupled together but the two or more light therapy devices are physically located remotely with respect to each other, such as in different cities. Communicatively coupling remotely located light therapy devices

12 may be effective for a variety of scenarios, such as a clinician who is remotely located with respect to a patient and thereby wants to render treatment for the patient. The clinician may communicatively couple a light therapy device 12, or a remote computing device (e.g. a smartphone), located in the clinician's office to one or more light therapy devices 12 located nearby the patient. The clinician may thereby treat the patient, even though the clinician and patient are physically located in remote locations with respect to the other.

To achieve the communicative coupling, the devices 12 may be communicatively coupled via communication modules 24. For example, Fig. 2 depicts a light therapy system 10 including a first light therapy device 12a having a first communication module 24a, a second light therapy device 12b having a second communication module 24b, a third light therapy device 12c having a third communication module 24c, and a fourth light therapy device 12d having a fourth communication module 24d. Fig. 3 illustrates another embodiment of a light therapy system 10 in which there are multiple light therapy devices 12a, 12b, 12c, and 12d that are communicatively coupled wirelessly. In this embodiment, a user is standing in the middle of the light therapy system 10 to treat the entire body with light therapy simultaneously. The light therapy devices 12 may be communicatively coupled wirelessly by any suitable communication protocol, such as Zigbee, Bluetooth, BLE, Z-Wave, near-field communication (NFC), cellular network protocols (3G, 4G, 5G), Wi-Fi, and the like. The person of ordinary skill in the art may select a protocol that suits the needs and physical locations of the light therapy devices 12 being communicatively coupled together.

While Figs. 1, 2, and 3 illustrate 2 or 4 light therapy devices in communication with each other; it should be appreciated that any number of light therapy devices may be communicatively coupled together. For example, in some embodiments, the light therapy system includes 3, 5, 6, 7, 8 or more devices communicatively coupled together. Generally, any number of devices may be communicatively coupled using any respective communication protocol.

Furthermore, the light therapy system 10 may also include other devices, such as remote computing devices (e.g. smartphone, tablet, computer, and the like), located remotely with respect to the light devices 12. In this regard, a plurality of light devices 12 may be communicatively coupled to one another, and the plurality of light devices 12 may further be communicatively coupled to a remote computing device operated by a third party. For example, a third party clinician or technician may communicatively couple their remote computing device to the light therapy

system 10 to remotely communicate with the system 10. This may assist clinicians in providing treatment to patients, technicians in troubleshooting problems with the light therapy system, and the like.

Light therapy devices 12 may also be communicatively coupled via a wired connection. To communicatively couple light therapy devices 12 via a wired connection, some embodiments feature a plurality of communication ports 26 which may be located on the housing 14. In some embodiments, at least one port of the plurality of communication ports 26 may be configured to send signal from the first light therapy device 12a to the second light therapy device 12b. Similarly, at least one port of the plurality of communication ports 26 may be configured to receive signal from another light therapy device 12. In some embodiments, a communication cable 28 may be inserted into the pluralities of communication ports 26 to communicatively couple the light therapy devices 12.

As shown in Fig. 4b, which illustrates the backside of a light therapy system 10, a plurality of light therapy devices 12 may be communicatively coupled together using communication cables 28 to thereby form the system 10. Communicatively coupling the light therapy devices 12 in this way allows the light therapy devices 12 to be controlled by one set of instructions. As shown in Fig. 4a, each light therapy device 12 may comprise a plurality of communication ports 26 used to communicatively couple more than one device 12 together via wires. As shown in Fig. 4b, a first light therapy device 12a is communicatively coupled to the second light therapy device 12b by a first communication cable 28a, which is inserted into the first plurality of communication ports 26a and the second plurality of communication ports 26b. In a similar fashion, the second light therapy device 12b may be communicatively coupled to a third light therapy device 12c by inserting a second communication cable 28b into the second plurality of communication ports 26b and the third plurality of communication ports 26c. A fourth light therapy device 12d may be communicatively coupled to the light therapy system 10 by inserting a third communication cable 28c into the third plurality of communication ports 26c and the fourth plurality of communication ports 26d. Similarly, a fifth light therapy device 12e may be communicatively coupled to the light therapy system 10 by inserting a fourth communication cable 28d into the fourth plurality of communication ports 26d and the fifth plurality of communication ports 26e. Finally, a sixth light therapy device 12f may be communicatively coupled to the light therapy system 10 by inserting a fifth communication cable 28e into the fifth plurality of communication ports 26e and a sixth

plurality of communication ports 26f. Communicatively coupling the light therapy devices 12 in this way enables the entire light therapy system 10 to be controlled one set of input commands.

The embodiment depicted in Fig. 4b has six light therapy devices 12 communicatively coupled via communication cables 28. In some embodiments, there may only be two light therapy devices 12. In other embodiments, there may be more than six light therapy devices 12 communicatively coupled via a wired or a wireless connection. Additionally, the light therapy devices 12 may be communicatively coupled in series or in parallel. The light therapy system 10 of Fig. 4b is communicatively coupled in series. Alternatively, the first light therapy device 12a may communicatively couple to the second light therapy device 12b and the third light therapy device 12c directly. For example, the first communication cable 28a may be inserted into the first plurality of communication ports 26a and the second plurality of communications ports 26b. Similarly, the second communication cable 28b may also be inserted into the first plurality of communication ports 26a and the third plurality of communication ports 26c. This pattern may continue for as many light therapy devices 12 as necessary, or the light therapy devices 12 may be communicatively coupled in any combination of series and parallel wired connections.

To ensure that the light therapy devices 12 operate in the same way, some embodiments feature a lead mode 70 and a follow mode 80. A light therapy device 12 that is configured to be in the lead mode 70 may send operation instructions to all other light therapy devices 12 in the system 10. A light therapy device 12 that is configured to be in the follow mode 80 may receive operation instructions from a light therapy device 12 that is in the lead mode 70.

Fig. 5 illustrates a light therapy system 10 with a first light therapy device 12a having a power switch 92, a lead mode 70, a follow mode 80, and a neutral mode 90. A user may thereby select the desired mode by switching a three-way toggle switch between lead mode 70, follow mode 80, and neutral mode 90. In some embodiments, a light therapy system 10 may comprise a first light therapy device 12a configured to be in the lead mode 70, while all other light therapy devices 12 are in the follow mode 80. Configuring the light therapy system 10 in this way may force the light therapy devices 12 to operate in the same way. In some embodiments, there may be more than one light therapy device 12 in the lead mode 70. For example, a light therapy system 10 may comprise six light therapy devices 12, whereby two light therapy devices 12 are in the lead mode and four light therapy devices 12 are in the follow mode. In such embodiments, either of the two light therapy devices 12 in the lead mode may control the other four light devices 12 in the

follow mode. It should be appreciated that any number of light therapy devices may be in the follow mode 80.

A light therapy device 12 configured to be in neutral mode 90 may operate on its own and may ignore instructions sent from a light therapy device 12 in the lead mode 70. In this manner, the light therapy device(s) 12 in the neutral mode may ignore incoming signals. In some embodiments, there may be none, one, or more than one light therapy device 12 in the lead mode 70, none, one, or more than one light therapy device 12 in the follow mode 80, and none, one, or more than one light therapy device 12 in neutral mode 90. Any combination of light therapy devices 12 configured in the lead mode 70, the follow mode 80, and the neutral mode 90 may be used to achieve any combination of treatment types.

As shown in Fig. 6a, in order to control the first light therapy device 12a, some embodiments feature a first control panel 100a located on the first housing 14a and communicatively coupled to the first communication module 24a. The first control panel 100a may allow a user to control a treatment time and cause at least a portion of the first plurality of lights 16a to either emit or not emit red light or near infrared light. Similarly, the second light therapy device 12b may have a second control panel 100b located on the second housing 14b and communicatively coupled to the second communication module 24b. The second control panel 100b may implement the same controls as the first control panel 100a.

Fig. 6a shows one embodiment of a light therapy system 10 with a first light therapy device 12a featuring a control panel 100. Fig. 6b shows a similar embodiment zoomed in to the control panel 100 having a plurality of input buttons 110, a time button 112, a play/pause button 114, a mode button 116, and a pair of indication lights 120. Figs. 7, 8, and 9 show a flow chart of what each button may do when pressed.

In some embodiments, the plurality of input buttons 110 may have a time button 112 which, when pressed a first time 700, may be configured to increase the treatment time by a predetermined amount of time 702. In some embodiments, the predetermined amount of time may be one minute, five minutes, or any amount of time including negative amounts of time. Each additional press 704 of the time button 112 may increase the treatment time by the same predetermined amount of time 706. In some embodiments, the control panel 100 may be configured to have a predetermined maximum treatment time, for example twenty minutes. In embodiments such as these, if the treatment time is set to the predetermined maximum treatment time and the time button 112 is

pressed once more the treatment time may change to a predetermined minimum treatment time instead of adding another predetermined amount of time. If the light therapy device 12 is in the lead mode 70, the treatment time may be sent to other light therapy devices 12 in the system 10 that are configured to be in the follow mode 80. If the light therapy device 12 is in the neutral mode 90, the treatment time may not be sent to any other light therapy devices 12 in the system 10 and the light therapy device 12 may ignore other incoming instructions.

The plurality of input buttons 110 may also have a play/pause button 114 which, when pressed a first time 800, may be configured to cause at least a portion of the plurality of lights 16 to emit red light and/or near infrared light 802. In some embodiments, the play/pause button 114, when pressed a second time 804, may be configured to cause at least a portion of the plurality of lights 16 to not emit red light and/or near infrared light 806. The play/pause button 114 may start, pause, or continue the treatment time as set by the time button 112. This allows the user to pause the treatment session without having to restart from the beginning. Pressing the play/pause button 114 on light therapy devices 12 configured to be in the lead mode 70 may start the treatment for other light therapy devices 12 in the system 10 including those in follow mode 80. Generally, light therapy devices 12 in the lead mode 70 may send instructions to other light therapy devices 12 in the follow mode 80 to operate in the same way.

Furthermore, the plurality of input buttons 110 may also have a mode button 116. When the mode button 116 is pressed this may change the type of light emitted from at least a portion of the plurality of lights 16 during treatment. For instance, in some embodiments, at least a portion of the plurality of lights 16 may be configured to automatically emit both red light and near infrared light when the treatment starts, but when the mode button 116 is pressed a first time 900 at least a portion of the plurality of lights 16 may be configured to emit red light and not emit near infrared light 902 when treatment starts. In some embodiments, when the mode button 116 is pressed a second time 904 at least a portion of the plurality of lights 16 may be configured to emit near infrared light and not emit red light 906 when treatment starts. Similarly, in other embodiments, a third press of the mode button 116 may configure at least a portion of the plurality of lights 16 to emit both red light and near infrared light. Although only one set of press button commands is specifically mentioned herein, it should be appreciated that any order or combination of button presses may be used. For example, in some embodiments, when the mode button 116 is pressed a first time 900 at least a portion of the plurality of lights 16 may be configured to emit both red light

and near infrared light 902 when treatment starts. However, it should be appreciated that any light wavelength or combination of light wavelengths from 100 to 1,000 nanometers (nm), such as UV, blue, green, red, and near-infrared, may be implemented in the system 10 and thereby emitted or not emitted from the plurality of lights 16. Accordingly, any of the input buttons 110 may be arranged and configured to control the plurality of lights 16 to emit and/or not emit light included in any combination of light wavelengths from 100 to 1,000 nm.

With continued reference to Fig. 6b, when the light therapy system 10 has not yet started treatment or is paused it may be difficult to determine if the treatment will consist of red light, near infrared light, or both. To make it easier to determine which lights are active, some embodiments feature a pair of indication lights 120 located on the control panel 100. One light of the pair of indication lights 120 may be labeled red and the other may be labeled near infrared or simply infrared. The pair of indication lights 120 may indicate to a user the typed of light that will be emitted when the treatment starts or continues by illuminating one or both indication lights 120. For example, in some embodiments, when the plurality of lights 16 is configured to emit only red light during treatment the indication light labeled red may be illuminated and the indication light labeled infrared may not be illuminated. Similarly, when the plurality of lights 16 is configured to emit only near infrared light during treatment the indication light labeled infrared may be illuminated and the indication light labeled red may not be illuminated. Moreover, when the plurality of lights 16 is configured to emit both red light and near infrared light during treatment the indication light labeled red may be illuminated and the indication light labeled infrared may also be illuminated.

INTERPRETATION

None of the steps described herein is essential or indispensable. Any of the steps can be adjusted or modified. Other or additional steps can be used. Any portion of any of the steps, processes, structures, and/or devices disclosed or illustrated in one embodiment, flowchart, or example in this specification can be combined or used with or instead of any other portion of any of the steps, processes, structures, and/or devices disclosed or illustrated in a different embodiment, flowchart, or example. The embodiments and examples provided herein are not intended to be discrete and separate from each other.

The section headings and subheadings provided herein are nonlimiting. The section

headings and subheadings do not represent or limit the full scope of the embodiments described in the sections to which the headings and subheadings pertain. For example, a section titled "Topic 1" may include embodiments that do not pertain to Topic 1 and embodiments described in other sections may apply to and be combined with embodiments described within the "Topic 1" section.

Some of the devices, systems, embodiments, and processes use computers. Each of the routines, processes, methods, and algorithms described in the preceding sections may be embodied in, and fully or partially automated by, code modules executed by one or more computers, computer processors, or machines configured to execute computer instructions. The code modules may be stored on any type of non-transitory computer-readable storage medium or tangible computer storage device, such as hard drives, solid state memory, flash memory, optical disc, and/or the like. The processes and algorithms may be implemented partially or wholly in application-specific circuitry. The results of the disclosed processes and process steps may be stored, persistently or otherwise, in any type of non-transitory computer storage such as, e.g., volatile or non-volatile storage.

The various features and processes described above may be used independently of one another, or may be combined in various ways. All possible combinations and subcombinations are intended to fall within the scope of this disclosure. In addition, certain method, event, state, or process blocks may be omitted in some implementations. The methods, steps, and processes described herein are also not limited to any particular sequence, and the blocks, steps, or states relating thereto can be performed in other sequences that are appropriate. For example, described tasks or events may be performed in an order other than the order specifically disclosed. Multiple steps may be combined in a single block or state. The example tasks or events may be performed in serial, in parallel, or in some other manner. Tasks or events may be added to or removed from the disclosed example embodiments. The example systems and components described herein may be configured differently than described. For example, elements may be added to, removed from, or rearranged compared to the disclosed example embodiments.

Conditional language used herein, such as, among others, "can," "could," "might," "may," "e.g.," and the like, unless specifically stated otherwise, or otherwise understood within the context as used, is generally intended to convey that certain embodiments include, while other embodiments do not include, certain features, elements and/or steps. Thus, such conditional language is not generally intended to imply that features, elements and/or steps are in any way

required for one or more embodiments or that one or more embodiments necessarily include logic for deciding, with or without author input or prompting, whether these features, elements and/or steps are included or are to be performed in any particular embodiment. The terms "comprising," "including," "having," and the like are synonymous and are used inclusively, in an open-ended fashion, and do not exclude additional elements, features, acts, operations and so forth. Also, the term "or" is used in its inclusive sense (and not in its exclusive sense) so that when used, for example, to connect a list of elements, the term "or" means one, some, or all of the elements in the list. Conjunctive language such as the phrase "at least one of X, Y, and Z," unless specifically stated otherwise, is otherwise understood with the context as used in general to convey that an item, term, etc. may be either X, Y, or Z. Thus, such conjunctive language is not generally intended to imply that certain embodiments require at least one of X, at least one of Y, and at least one of Z to each be present.

The term "and/or" means that "and" applies to some embodiments and "or" applies to some embodiments. Thus, A, B, and/or C can be replaced with A, B, and C written in one sentence and A, B, or C written in another sentence. A, B, and/or C means that some embodiments can include A and B, some embodiments can include A and C, some embodiments can include B and C, some embodiments can only include A, some embodiments can include only B, some embodiments can include only C, and some embodiments can include A, B, and C. The term "and/or" is used to avoid unnecessary redundancy.

While certain example embodiments have been described, these embodiments have been presented by way of example only, and are not intended to limit the scope of the inventions disclosed herein. Thus, nothing in the foregoing description is intended to imply that any particular feature, characteristic, step, module, or block is necessary or indispensable. Indeed, the novel methods and systems described herein may be embodied in a variety of other forms; furthermore, various omissions, substitutions, and changes in the form of the methods and systems described herein may be made without departing from the spirit of the inventions disclosed herein.

WHAT IS CLAIMED IS:

1. A method for providing a light therapy treatment, comprising:

providing a first light therapy device comprising a first housing and a first plurality of lights configured to emit at least one of red light and near infrared light;

providing a second light therapy device comprising a second housing and a second plurality of lights configured to emit at least one of red light and near infrared light;

communicatively coupling the first light therapy device directly to the second light therapy device; and

emitting at least one of red light and near infrared light from at least a portion of the first plurality of lights and at least a portion of the second plurality of lights.

2. The method of claim 1, further comprising using a control panel coupled to the first housing of the first light therapy device to emit at least one of red light and near infrared light from at least the portion of the first plurality of lights and at least the portion of the second plurality of lights.

3. The method of claim 2, further comprising pressing a first input button on the control panel of the first light therapy device, wherein the emitting occurs in response to the pressing.

4. The method of claim 2, further comprising pausing the emitting in response to pressing a first input button on the control panel of the first light therapy device.

5. The method of claim 2, further comprising setting a treatment time by pressing a second input button on the control panel of the first light therapy device, wherein the treatment time comprises a duration of time that the first light therapy device and the second light therapy device emit at least one of red light and near infrared light.

6. The method of claim 5, further comprising displaying an indication of the treatment time on a first display located on the control panel of the first light therapy device.

7. The method of claim 6, wherein the treatment time is 20 minutes.

8. The method of claim 5, further comprising increasing the treatment time by pressing the second input button a second time.

9. The method of claim 1, further comprising:

placing the first light therapy device in a lead mode; and

placing the second light therapy device in a follow mode whereby the second light therapy device performs operations as instructed by the first light therapy device.

10. The method of claim 9, further comprising:

selecting the lead mode via a first switch coupled to the first light therapy device, wherein the first light therapy device is placed in the lead mode via the first switch; and

selecting the follow mode via a second switch coupled to the second light therapy device, wherein the second light therapy device is placed in the follow mode via the second switch.

11. The method of claim 1, further comprising indicating, via a first pair of indication lights on the first light therapy device, whether at least one of red light and near infrared light is being emitted from at least the portion of the first plurality of lights.

12. The method of claim 1, further comprising indicating, via a second pair of indication lights on the second light therapy device, whether at least one of red light and near infrared light is being emitted from at least the portion of the second plurality of lights.

13. The method of claim 1, wherein emitting at least one of red light and near infrared light from at least the portion of the first plurality of lights and at least the portion of the second plurality of lights comprises:

emitting red light from at least the portion of the first plurality of lights; and

emitting red light from at least the portion of the second plurality of lights.

14. The method of claim 1, wherein emitting at least one of red light and near infrared light from at least the portion of the first plurality of lights and at least the portion of the second plurality

of lights comprises:

emitting near infrared light from at least the portion of the first plurality of lights; and

emitting near infrared light from at least the portion of the second plurality of lights.

15. The method of claim 1, wherein emitting at least one of red light and near infrared light from at least a portion of the first plurality of lights and at least a portion of the second plurality of lights comprises:

emitting red light from at least the portion of the first plurality of lights; and

emitting near infrared light from the portion of the second plurality of lights.

16. The method of claim 1, wherein communicatively coupling the first light therapy device directly to the second light therapy device comprises coupling the first light therapy device and the second light therapy device via a wired connection.

17. The method of claim 16, wherein coupling the first light therapy device and the second light therapy device via the wired connection comprises:

inserting a first end of a communication cable into a first communication port on the first light therapy device; and

inserting a second end of the communication cable into a second communication port on the second light therapy device.

18. The method of claim 1, wherein communicatively coupling the first light therapy device directly to the second light therapy device comprises coupling the first light therapy device and the second light therapy device via a wireless connection.

19. The method of claim 1, further comprising:

providing a third light therapy device comprising a third housing and a third plurality of lights configured to emit at least one of red light and near infrared light;

providing a fourth light therapy device comprising a fourth housing and a fourth plurality of lights configured to emit at least one of red light and near infrared light;

communicatively coupling each of the third light therapy device and the fourth light therapy device directly to at least one of the first light therapy device and the second light therapy device; and

emitting at least one of red light and near infrared light from at least a portion of the third plurality of lights and at least a portion of the fourth plurality of lights.

20. The method of claim 19, further comprising:

providing a fifth light therapy device comprising a fifth housing and a fifth plurality of lights configured to emit at least one of red light and near infrared light;

providing a sixth light therapy device comprising a sixth housing and a sixth plurality of lights configured to emit at least one of red light and near infrared light;

communicatively coupling each of the fifth light therapy device and the sixth light therapy device directly to at least one of the first light therapy device, the second light therapy device, the third light therapy device, and the fourth light therapy device; and

emitting at least one of red light and near infrared light from at least a portion of the fifth plurality of lights and at least a portion of the sixth plurality of lights.

ABSTRACT

Photobiomodulation therapy systems provide a highly effective way to treat many common ailments to the human body. Many embodiments described herein enable two or more light therapy devices to be communicatively coupled together in various ways. In some embodiments, the light therapy system includes a first light device and a second light device arranged and configured to be communicatively coupled to the first light device. Each of the light devices may include a housing, a communication module, and a plurality of lights arranged and configured to emit at least one of red light and near infrared light.

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/598,033	Filing Date 10/10/2019	☑ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $50 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $230 =	
☐ 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	08/31/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 1	Minus	*** 3	= 0		x $240 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

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

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

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

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/598,033	10/10/2019	Justin Strahan	JOOVV.004A.C2	3718

124179 7590 07/21/2021

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EXAMINER	
MARLEN, TAMMIE K	

ART UNIT	PAPER NUMBER
3792	

NOTIFICATION DATE	DELIVERY MODE
07/21/2021	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):

talia@schwielaw.com
wes@schwielaw.com

Office Action Summary	Application No. 16/598,033	Applicant(s) Strahan et al.	
	Examiner TAMMIE K MARLEN	Art Unit 3792	AIA (FITF) Status Yes

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

Period for Reply

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

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

Status

1)☑ Responsive to communication(s) filed on 10 October 2019.

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

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

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

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

Disposition of Claims*

5) ☑ Claim(s) 1-20 is/are pending in the application.

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

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-8 and 11-20 is/are rejected.

8) ☑ Claim(s) 9-10 is/are objected to.

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

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

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

11)☑ The drawing(s) filed on 10 October 2019 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

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

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

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

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

Attachment(s)

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

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

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

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

Information Disclosure Statement

2. Applicant should note that the large number of references in the attached IDS have been considered by the examiner in the same manner as other documents in Office search files are considered by the examiner while conducting a search of the prior art in a proper field of search. **See MPEP 609.05(b).** Applicant is requested to point out any particular references in the IDS which they believe may be of particular relevance to the instant claimed invention in response to this office action.

Drawings

3. The Applicant is reminded to carefully review the drawing figures and the accompanying specification to ensure that all reference numerals present in the drawing figures are defined within the specification.

Specification

4. The disclosure is objected to because of the following informalities: "CROSS-REFERENCE TO RELATED APPLICATIONS" portion of the specification should be updated to indicate the present status of all applications referred to therein.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

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

> (b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

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

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 2-8 and 12 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor (or for applications subject to pre-AIA 35 U.S.C. 112, the applicant), regards as the invention.

7. Claim 2 recites the limitation "using a control panel coupled to the first housing of the first light therapy device to emit at least one of red light and near infrared light from at least the portion of the first plurality of lights and at least the portion of the second plurality of lights" in lines 1-3. It is unclear if this is in addition to the emitting that is required by claim 1 or is intended to further define the emitting step of claim 1.

8. Claim 5 recites the limitation "a second input button" in lines 1-2. A first input button has not been previously recited in claims 1, 2, or 5.

9. Claim 12 recites the limitation "a second pair of indication lights on the second light therapy device" in lines 1-2. A first pair of indication lights on the second light therapy device has not been previously recited.

10. Claims 3, 4, and 6-8 are rejected, as they are dependent upon an indefinite claim.

Claim Rejections - 35 USC § 102

11. 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.

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention.

> (a)(2) the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.

13. Claims 1-8 and 11-19 are rejected under 35 U.S.C. 102(a)(1) as being anticipated by Mitchell (U.S. 2011/0054573). Regarding claim 1, Mitchell discloses a method for providing a light therapy treatment, comprising: providing a first light therapy device comprising a first housing 404 and a first plurality of lights 406 configured to emit at least one of red light and near infrared light (see Figure 4 where one of the emitter pads 404 is considered the "first light therapy device" and paragraph [0030], which describes that the emitter pads emit near-infrared light); providing a second light therapy device comprising a second housing 404 and a second plurality of lights 406 configured to emit at least one of red light and near infrared light (see Figure 4 where one of the emitter pads 404 is considered the "second light therapy device" and paragraph [0030], which describes that the emitter pads emit near-infrared light); communicatively coupling the first light therapy device directly to the second light therapy device (see paragraph [0030], which describes the emitter pads communicatively coupled via a wired or wireless link); and emitting at least one of red light and near infrared light from at least a portion of the first plurality of lights and at least a portion of the second plurality of lights (see paragraph [0030], which it is described that the control unit 402 instructs first and second emitters to emit near infrared light).

14. Regarding claim 2, Mitchell discloses using a control panel 402 coupled to the first housing of the first light therapy device to emit at least one of red light and near infrared light from at least the portion of the first plurality of lights and at least the portion of the second plurality of lights (see paragraph [0030]).

15. Regarding claim 3, Mitchell discloses pressing a first input button on the control panel of the first light therapy device, wherein the emitting occurs in response to the pressing (see paragraph [0034], which describes the input device 590 that may be a touch-sensitive screen for input).

16. Regarding claim 4, Mitchell discloses pausing the emitting in response to pressing a first input button on the control panel of the first light therapy device (see the "OFF" button on the control module 308 in Figure 3, where pressing the "OFF" button would pause the emitting).

17. Regarding claim 5, Mitchell discloses setting a treatment time by pressing a second input button on the control panel of the first light therapy device, wherein the treatment time comprises a duration of time that the first light therapy device and the second light therapy device emit at least one of red light and near infrared light (see paragraph [0040]).

18. Regarding claim 6, Mitchell discloses displaying an indication of the treatment time on a first display 570 located on the control panel of the first light therapy device (see Figure 5 and paragraph [0034]).

19. Regarding claim 7, Mitchell discloses that the treatment time may be 30 minutes or 60 minutes (see paragraph [0040]). It is respectfully submitted that the claim limitation "wherein the treatment time is 20 minutes" is satisfied by the disclosure of Mitchell, as 20 minutes is part of both 30 minutes and 60 minutes.

20. Regarding claim 8, Mitchell discloses that the treatment time is set by a user as "30 or 60 minutes (see paragraph [0040]). It is respectfully submitted that it would be inherently necessary to press the input button a second time to increase the treatment time.

21. Regarding claim 11, it is respectfully submitted that each of the emitter pads 404 includes a plurality of emitters 406 (see Figure 4). The term "indication light" does not carry patentable weight beyond being additional lights and, thus, it is respectfully submitted that a pair of the emitters can be considered the "first pair of indication lights" as claimed. Furthermore, if the emitters 406 are emitting light, then they would be "indicating, via a first pair of indication lights on the first light therapy device, whether at least one of red light and near infrared light is being emitted from at least the portion of the first plurality of lights" as claimed.

22. Regarding claim 12, it is respectfully submitted that each of the emitter pads 404 includes a plurality of emitters 406 (see Figure 4). The term "indication light" does not carry patentable

weight beyond being additional lights and, thus, it is respectfully submitted that a pair of the emitters can be considered the "second pair of indication lights" as claimed. Furthermore, if the emitters 406 are emitting light, then they would be "indicating, via a second pair of indication lights on the second light therapy device, whether at least one of red light and near infrared light is being emitted from at least the portion of the second plurality of lights" as cliamed.

23. Regarding claim 13, Mitchell discloses that the emitter can emit light having a wavelength between approximately 700 nanometers and 1000 nanometers (see paragraph [0039]). It is respectfully submitted that the wavelength of red light is between 620 nanometers and 750 nanometers. As such, Mitchell discloses emitting light having a wavelength within the range of red light from the first and second plurality of lights.

24. Regarding claim 14, Mitchell discloses emitting near infrared light from at least the portion of the first plurality of lights; and emitting near infrared light from at least the portion of the second plurality of lights (see paragraph [0030]).

25. Regarding claim 15, Mitchell discloses emitting light at a wavelength of red light (see paragraph [0039]) and emitting light at a wavelength of near infrared light (see paragraph [0030]), and that the wavelength is controllable by a user (see paragraph [0039]). As such, Mitchell discloses that emitting at least one of red light and near infrared light from at least a portion of the first plurality of lights and at least a portion of the second plurality of lights comprises: emitting red light from at least the portion of the first plurality of lights; and emitting near infrared light from the portion of the second plurality of lights.

26. Regarding claim 16, Mitchell discloses that communicatively coupling the first light therapy device directly to the second light therapy device comprises coupling the first light therapy device and the second light therapy device via a wired connection (see paragraph [0030]).

27. Regarding claim 17, Mitchell discloses that coupling the first light therapy device and the second light therapy device via the wired connection comprises: inserting a first end of a communication cable into a first communication port on the first light therapy device; and inserting

a second end of the communication cable into a second communication port on the second light therapy device (see Figure 4).

28. Regarding claim 18, Mitchell discloses that communicatively coupling the first light therapy device directly to the second light therapy device comprises coupling the first light therapy device and the second light therapy device via a wireless connection (see paragraph [0030]).

29. Regarding claim 19, Mitchell discloses providing a third light therapy device comprising a third housing and a third plurality of lights configured to emit at least one of red light and near infrared light, providing a fourth light therapy device comprising a fourth housing and a fourth plurality of lights configured to emit at least one of red light and near infrared light; communicatively coupling each of the third light therapy device and the fourth light therapy device directly to at least one of the first light therapy device and the second light therapy device; and emitting at least one of red light and near infrared light from at least a portion of the third plurality of lights and at least a portion of the fourth plurality of lights (see Figure 4).

30. Claims 1-4, 11-14, 16, 19, and 20 are rejected under 35 U.S.C. 102(a)(1)/(2) as being anticipated by Hamid (U.S. 2018/0008839). Regarding claim 1, Hamid discloses a method for providing a light therapy treatment, comprising: providing a first light therapy device 130 comprising a first housing and a first plurality of lights configured to emit at least one of red light and near infrared light (see Figure 1 and paragraph [0036]); providing a second light therapy 131 device comprising a second housing and a second plurality of lights configured to emit at least one of red light and near infrared light (see Figure 1 and paragraph [0036]); communicatively coupling the first light therapy device directly to the second light therapy device (see Figures 1 and 2); and emitting at least one of red light and near infrared light from at least a portion of the first plurality of lights and at least a portion of the second plurality of lights (see paragraph [0036]).

31. Regarding claim 2, Hamid discloses using a control panel 110 coupled to the first housing of the first light therapy device to emit at least one of red light and near infrared light from at least

the portion of the first plurality of lights and at least the portion of the second plurality of lights (see Figure 1).

32. Regarding claim 3, Hamid discloses pressing a first input button on the control panel of the first light therapy device, wherein the emitting occurs in response to the pressing (see Figure 4, where the first "quick press" of the master switch button 404 turns the apparatus on).

33. Regarding claim 4, Hamid discloses pausing the emitting in response to pressing a first input button on the control panel of the first light therapy device (see Figure 4, where the "long press" of master switch button 404 turns the device office, which would pause the emitting).

34. Regarding claim 11, Hamid discloses indicating, via a first pair of indication lights 119A-C on the first light therapy device, whether at least one of red light and near infrared light is being emitted from at least the portion of the first plurality of lights (see Figure 1 and paragraph [0023]).

35. Regarding claim 12 Hamid discloses indicating, via a second pair of indication lights 119A-C on the second light therapy device, whether at least one of red light and near infrared light is being emitted from at least the portion of the second plurality of lights (see Figure 1 and paragraph [0023]).

36. Regarding claim 13, Hamid discloses emitting light at a wavelength of 678 nm (see paragraph [0018]). As the wavelength of red light is between 620 nanometers and 750 nanometers, it is respectfully submitted that Hamid discloses emitting light having a wavelength within the range of red light from the first and second plurality of lights.

37. Regarding claim 14, Hamid discloses emitting near infrared light from at least the portion of the first plurality of lights; and emitting near infrared light from at least the portion of the second plurality of lights (see paragraph [0036]).

38. Regarding claim 16, Hamid discloses that communicatively coupling the first light therapy device directly to the second light therapy device comprises coupling the first light therapy device and the second light therapy device via a wired connection (see Figure 1).

39. Regarding claim 19, Hamid discloses providing a third light therapy device comprising a third housing and a third plurality of lights configured to emit at least one of red light and near infrared light, providing a fourth light therapy device comprising a fourth housing and a fourth plurality of lights configured to emit at least one of red light and near infrared light; communicatively coupling each of the third light therapy device and the fourth light therapy device directly to at least one of the first light therapy device and the second light therapy device; and emitting at least one of red light and near infrared light from at least a portion of the third plurality of lights and at least a portion of the fourth plurality of lights (see Figure 1).

40. Regarding claim 20, Hamid discloses providing a fifth light therapy device comprising a fifth housing and a fifth plurality of lights configured to emit at least one of red light and near infrared light; providing a sixth light therapy device comprising a sixth housing and a sixth plurality of lights configured to emit at least one of red light and near infrared light; communicatively coupling each of the fifth light therapy device and the sixth light therapy device directly to at least one of the first light therapy device, the second light therapy device, the third light therapy device, and the fourth light therapy device; and emitting at least one of red light and near infrared light from at least a portion of the fifth 16 plurality of lights and at least a portion of the sixth plurality of lights (see Figure 1).

Allowable Subject Matter

41. Claims 9 and 10 are 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.

Conclusion

42. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TAMMIE K MARLEN whose telephone number is (571)272-1986. The examiner can normally be reached on Monday through Friday from 8 am until 4 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, Carl Layno can be reached on 571-272-4949. 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.

/TAMMIE K MARLEN/
Primary Examiner, Art Unit 3792

Notice of References Cited	Application/Control No. 16/598,033	Applicant(s)/Patent Under Reexamination Strahan et al.	
	Examiner TAMMIE K MARLEN	Art Unit 3792	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-20180008839-A1	01-2018	Hamid; Tamim	A61N5/0617	1/1
	B					
	C					
	D					
	E					
	F					
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FOREIGN PATENT DOCUMENTS

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

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/598,033	Strahan et al.
	Examiner	Art Unit
	TAMMIE K MARLEN	3792

CPC - Searched*		
Symbol	Date	Examiner
A61N5/06,0616	07/16/2021	TKM
A61N2005/0636,064,0663,0659,6658,0629	07/16/2021	TKM

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

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

Search Notes		
Search Notes	Date	Examiner
Inventor name search	07/16/2021	TKM
Text-limited and related application search -- see search history printout	07/16/2021	TKM
Consulted Alyssa Alter	07/16/2021	TKM

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

/TAMMIE K MARLEN/ Primary Examiner, Art Unit 3792	

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

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16598033
Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Niketa I. Patel
Attorney Docket Number	JOOVV.004A.C2

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	10440794		2019-10-08	ALEXANDER	
	2	D877919		2020-03-10	STRAHAN	
	3	D877920		2020-03-10	NELSON	
	4	D877921		2020-03-10	NELSON	
	5	D877922		2020-03-10	STRAHAN	
	6	D877923		2020-03-10	STRAHAN	
	7	D892343		2020-08-04	STRAHAN	
	8	D892344		2020-08-04	NELSON	

Exhibit 1003 - 201

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	First Named Inventor	Justin Strahan
	Art Unit	3792
	Examiner Name	Niketa I. Patel
	Attorney Docket Number	JOOVV.004A.C2

	9	D892345		2020-08-04	STRAHAN	
	10	D893737		2020-08-18	NELSON	
	11	D895822		2020-09-08	NELSON	

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	1	20040162596		2004-08-19	ALTSHULER	
	2	20130304019		2013-11-14	COOPER	
	3	20160016001		2016-01-21	LOUPIS	
	4	20180236259		2018-08-23	NELSON	
	5	20200121944		2020-04-23	STRAHAN	

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Attorney Docket Number	JOOVV.004A.C2

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2018152278	WO		2018-08-23	NELSON		
	2	2020086494	WO		2020-04-30	JOOVV, INC.		
	3	2020131235	WO		2020-06-25	JOOVV, INC.		

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	PCT International Search Report and Written Opinion in International Application No. PCT/US2019/059845, dated December 11, 2019, 7 pages	
	2	PCT International Search Report and Written Opinion in International Application No. PCT/US2019/057292, dated January 7, 2020, 8 pages	
	3	PCT International Search Report and Written Opinion in International Application No. PCT/US2020/038187, dated August 19, 2020, 8 pages	

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EXAMINER SIGNATURE

Examiner Signature	/TAMMIE K MARLEN/	Date Considered	07/16/2021

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	Application Number	16598033
	Filing Date	2019-10-10
	First Named Inventor	Justin Strahan
	Art Unit	3792
	Examiner Name	Niketa I. Patel
	Attorney Docket Number	JOOVV.004A.C2

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(Not for submission under 37 CFR 1.99)

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Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Niketa I. Patel
Attorney Docket Number	JOOVV.004A.C2

CERTIFICATION STATEMENT

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

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

OR

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

See attached certification statement.

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

☒ A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Wesley Schwie/	Date (YYYY-MM-DD)	2020-09-15
Name/Print	Wesley Schwie	Registration Number	64,950

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

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

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

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

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

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

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

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	0	((("JOOVV") near3 ("INC"))).AS,AANM.	USPAT	OR	ON	2019/02/06 08:45
S2	542	((("NELSON") near3 ("Scott")) OR (("STRAHAN") near3 ("Justin"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2019/02/06 08:45
S3	1	S2 and (light with therap$9)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 08:50
S4	2	S2 and (light same therap$9)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:29
S5	6,612	A61N5/06.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31
S6	8,383	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31
S7	1,283	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31
S8	282	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31

S9	4,014	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31
S10	6,514	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31
S11	275	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31
S12	492	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:31
S13	37	"2044943"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:48
S14	47	"2044973"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:52
S15	9	vibor.in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 09:52
S18	6,612	A61N5/06.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46

S19	8,383	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S20	1,283	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S21	282	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S22	4,014	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S23	6,514	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S24	275	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S25	492	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46
S26	21,950	S18 S19 S20 S21 S22 S23 S24 S25	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:46

S27	3,441	S26 and ((red with light) ("near" with infrared))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:54
S28	3,441	S26 and ((red with light) ("near" with infrared))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/06 15:54
S29	6,613	A61N5/06.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S30	8,387	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S31	1,283	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S32	282	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S33	4,014	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S34	6,516	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22

S35	275	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S36	493	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S37	21,956	S29 S30 S31 S32 S33 S34 S35 S36	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:22
S38	98	S37 and ((lead leading) with (follow followed following))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:23
S39	301	S37 and (bluetooth)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:25
S40	3,443	S37 and ((red with light) ("near" with infrared))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:26
S41	212	S40 and (bluetooth)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/02/07 10:26
S42	21	(US-20180236259-$ or US-20170007844-$ or US-20150134032-$ or US-20120265275-$ or US-20140350644-$ or US-20120150265-$ or US-20180015297-$ or US-20180193660-$ or US-20180280718-$ or US-20070016269-$ or US-20180345034-$ or US-20110054573-$	US-PGPUB; USPAT; FPRS	OR	ON	2019/03/25 15:34

		or US-20100017953-$ or US-20160129279-$ or US-20170231058-$ or US-20170238401-$ or US-20160235980-$ or US-20180133497-$ or US-20180008839-$).did. or (US-9950136-$).did. or (WO-2018067411-$).did.				
S43	6,980	A61N5/06.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S44	8,972	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S45	1,313	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S46	299	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S47	4,302	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S48	6,909	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S49	296	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58

S50	540	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S51	23,205	S43 S44 S45 S46 S47 S48 S49 S50	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S52	3,623	S51 and ((red with light) ("near" with infrared))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S53	784	S51 and ((red with light) and ("near" with infrared))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/07/03 13:58
S56	4	("20060229689" | "20070129777" | "4844069" | "5733032").PN.	US-PGPUB; USPAT	OR	ON	2019/10/16 13:30
S57	7,333	A61N5/06.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S58	9,641	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S59	1,307	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S60	317	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2019/12/02 15:18

			JPO; DERWENT			
S61	4,687	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S62	7,372	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S63	335	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S64	578	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S65	24,594	S57 S58 S59 S60 S61 S62 S63 S64	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S66	1,755	S65 and (light with indicat$6)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S67	1,330	S65 and (light near5 indicat$6)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/02 15:18
S68	578	((("NELSON") near3 ("Scott")) OR (("STRAHAN") near3 ("Justin"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2019/12/03 14:36

S69	3	S68 and (light same therap$9)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2019/12/03 14:36
S70	35	("20040008523" | "20060007059" | "20060020308" | "20060229689" | "20070068055" | "20070129777" | "20070276455" | "20080119831" | "20080141572" | "20080269849" | "20090288340" | "20100309659" | "20110054573" | "20120019490" | "20120104977" | "20120243227" | "20140081357" | "20140226329" | "20150202455" | "20150307332" | "20160076708" | "20170118838" | "20180043178" | "20180056087" | "20180111001" | "4844069" | "5733032" | "6626932" | "8481982" | "9227082" | "9311847" | "9353924" | "9416551" | "9852666" | "9943042").PN.	US-PGPUB; USPAT	OR	ON	2020/03/02 14:36
S71	19	("20030009205" | "20040068305" | "20050085875" | "20080046044" | "20080091250" | "20080114418" | "20090318908" | "20100045175" | "20100045189" | "20100076529" | "20130190842" | "20130229802" | "20130301264" | "20150267907" | "20150297914" | "20160158574" | "20160367833" | "6955684" | "8066403").PN.	US-PGPUB; USPAT	OR	ON	2020/03/02 14:36
S72	54	S70 S71	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:41
S73	29	S72 and (lead follow)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:43
S74	45	S72 and (control controlled controlling instruct$6)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:43

S75	7,642	A61N5/06.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S76	10,010	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S77	1,368	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S78	338	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S79	4,900	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S80	7,699	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S81	377	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S82	613	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45

S83	25,560	S75 S76 S77 S78 S79 S80 S81 S82	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:45
S84	397	S83 and ((lead leading follow followed following) with mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:47
S85	1,222	S83 and ((light near3 (device panel)) with (control controlled controlling instruct$6))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:52
S86	649	S85 and (switch button)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:53
S87	649	(US-20150182758-$ or US-20070239142-$ or US-20070038206-$ or US-20070198004-$ or US-20070213696-$ or US-20070213698-$ or US-20070239143-$ or US-20190076669-$ or US-20150238774-$ or US-20160287896-$ or US-20190001148-$ or US-20160287894-$ or US-20100174345-$ or US-20160054023-$ or US-20190167400-$ or US-20150126806-$ or US-20050177093-$ or US-20060217690-$ or US-20140121631-$ or US-20160250498-$ or US-20040210277-$ or US-20190038913-$ or US-20170215958-$ or US-20170215960-$ or US-20080077200-$ or US-20100198201-$).did. or (US-20070248930-$ or US-20100318161-$ or US-20130253620-$ or US-20150079536-$ or US-20150140502-$ or US-20170080249-$ or US-20180014924-$ or US-20180140406-$ or US-20190201711-$ or US-20140072932-$ or US-20170312538-$ or US-20130280671-$ or US-20180117356-$ or US-20190209857-$	US-PGPUB; USPAT; USOCR; FPRS; DERWENT	OR	ON	2020/03/02 14:53

		or US-20060200212-$ or US-20100305668-$ or US-20130289674-$ or US-20120148976-$ or US-20140121731-$ or US-20160096037-$ or US-20190117994-$ or US-20190083202-$ or US-20110166631-$ or US-20150051671-$ or US-20030188378-$ or US-20040107496-$ or US-20120116485-$).did. or (US-20180177976-$ or US-20040193234-$ or US-20040008523-$ or US-20070073365-$ or US-20060111761-$ or US-20040024431-$ or US-20020188334-$ or US-20050065579-$ or US-20160166847-$ or US-20200022866-$ or US-20130304019-$ or US-20100305554-$ or US-20140052050-$ or US-20190091097-$ or US-20170095398-$ or US-20080262576-$ or US-20090143842-$ or US-20180193622-$ or US-20140194954-$ or US-20140135798-$ or US-20090281604-$ or US-20150327653-$ or US-20150360014-$ or US-20170128319-$ or US-20180250402-$ or US-20160287895-$ or US-20170198017-$).did. or (US-20130019325-$ or US-20130089503-$ or US-20130090454-$ or US-20150072394-$ or US-20160222073-$ or US-20170066806-$ or US-20180044388-$ or US-20180244737-$ or US-20190071476-$ or US-20180020523-$ or US-20190030359-$ or US-20110319878-$ or US-20060287695-$ or US-20080221646-$ or US-20110022130-$ or US-20160166850-$ or US-20160206897-$ or US-20060235493-$ or US-20080269730-$ or US-20180050221-$ or US-20180236258-$ or US-20080009839-$ or US-20170225012-$ or US-20130079759-$ or US-20160166849-$ or US-20160166853-$ or US-20100121419-$).did. or (US-20130274836-$ or US-20160008627-$ or US-20120065709-$ or US-20100100160-$ or US-20030032900-$ or US-20040260209-$ or US-20040260210-$ or US-20040077977-$ or US-20070027411-$ or US-20140005757-$ or US-20160067026-$ or US-20190099613-$ or US-				

		20150141877-$ or US-20110106223-$ or US-20140005590-$ or US-20070032846-$ or US-20130331766-$ or US-20190111240-$ or US-20040232359-$ or US-20050187596-$ or US-20150025601-$ or US-20130296978-$ or US-20080035864-$ or US-20090112297-$ or US-20120022619-$ or US-20140222120-$ or US-20140207215-$).did. or (US-20160339262-$ or US-20170182332-$ or US-20070276455-$ or US-20110212410-$ or US-20050197682-$ or US-20200016024-$ or US-20180369604-$ or US-20170056686-$ or US-20180111002-$ or US-20190336789-$ or US-20130053928-$ or US-20060167531-$ or US-20060195165-$ or US-20060271024-$ or US-20080208297-$ or US-20170113063-$ or US-20170274222-$ or US-20150237686-$ or US-20150305969-$ or US-20170156662-$ or US-20090143773-$ or US-20150165230-$ or US-20150217130-$ or US-20180147415-$ or US-20120209357-$ or US-20140276247-$ or US-20190151655-$).did. or (US-20170100585-$ or US-20140276248-$ or US-20060183516-$ or US-20100179469-$ or US-20030216795-$ or US-20150283400-$ or US-20170232268-$ or US-20180311386-$ or US-20180326104-$ or US-20190083667-$ or US-20190358353-$ or US-20160375161-$ or US-20160375163-$ or US-20180243452-$ or US-20180243453-$ or US-20180311387-$ or US-20190216957-$ or US-20130303972-$ or US-20120089204-$ or US-20150088232-$ or US-20130282080-$ or US-20080125834-$ or US-20170143972-$ or US-20190217100-$ or US-20110301673-$ or US-20160199664-$ or US-20130324788-$).did. or (US-20180093092-$ or US-20160016004-$ or US-20150246240-$ or US-20180304091-$ or US-20140371826-$ or US-20110066213-$ or US-20170164876-$ or US-20180178034-$ or US-20020183811-$ or US-20050015124-$ or US-20050177208-$				

		or US-20060276862-$ or US-20070282402-$ or US-20080288032-$ or US-20110004280-$ or US-20110196457-$ or US-20130013032-$ or US-20130018442-$ or US-20140206947-$ or US-20150290028-$ or US-20190030360-$ or US-20050045189-$ or US-20110208272-$ or US-20120265182-$ or US-20130165912-$ or US-20140330351-$ or US-20160250497-$).did. or (US-20150127076-$ or US-20130274839-$ or US-20140288351-$ or US-20160374758-$ or US-20170136257-$ or US-20180015297-$ or US-20180221683-$ or US-20180001108-$ or US-20190091065-$ or US-20150005750-$ or US-20150057701-$ or US-20180092773-$ or US-20110144410-$ or US-20180250492-$ or US-20190366119-$ or US-20180154167-$ or US-20140088668-$ or US-20170333727-$ or US-20170136258-$ or US-20160375265-$ or US-20190366114-$ or US-20180333589-$ or US-20170072217-$ or US-20160096033-$ or US-20070073198-$ or US-20180206779-$ or US-20190029755-$).did. or (US-20060241495-$ or US-20040044384-$ or US-20100114264-$ or US-20070208395-$ or US-20150283025-$ or US-20170080250-$ or US-20190029907-$ or US-20180333588-$ or US-20020188218-$ or US-20130190845-$ or US-20140039473-$ or US-20170319866-$ or US-20160175610-$ or US-20160016001-$ or US-20010021812-$ or US-20040143308-$ or US-20070249716-$ or US-20100191172-$ or US-20110282266-$ or US-20130102906-$ or US-20150105667-$ or US-20140074193-$ or US-20180193662-$ or US-20030011538-$ or US-20010028227-$ or US-20030100837-$ or US-20080183081-$).did. or (US-20020135763-$ or US-20040218177-$ or US-20090225391-$ or US-20110051216-$ or US-20180133431-$ or US-20180133504-$ or US-20180133507-$ or US-20190255350-$ or US-20190269936-$ or US-				

		20190314641-$ or US-20160375162-$ or US-20190224350-$ or US-20030125649-$ or US-20060161226-$ or US-20080125620-$ or US-20060030907-$ or US-20070203432-$ or US-20170028215-$ or US-20170028216-$ or US-20170172660-$ or US-20160158569-$ or US-20050015121-$ or US-20180043130-$ or US-20180236262-$ or US-20160287333-$ or US-20180064954-$ or US-20110022128-$).did. or (US-20160184604-$ or US-20150142086-$ or US-20180236259-$ or US-20100196343-$ or US-20140236265-$ or US-20090222068-$ or US-20170333729-$ or US-20040153130-$ or US-20130006119-$ or US-20170100607-$ or US-20130006118-$ or US-20160256053-$ or US-20090204188-$ or US-20190060662-$ or US-20190224495-$ or US-20150297912-$ or US-20120296150-$ or US-20140194955-$ or US-20080275533-$ or US-20080091250-$ or US-20080103560-$ or US-20060235346-$ or US-20120197358-$ or US-20140277291-$ or US-20160166851-$ or US-20120203310-$ or US-20120215291-$).did. or (US-20130253619-$ or US-20160144149-$ or US-20110184499-$ or US-20090177256-$ or US-20110125231-$ or US-20150335911-$ or US-20140194957-$ or US-20170065826-$ or US-20190008678-$ or US-20190008679-$ or US-20170231058-$ or US-20170238401-$ or US-20160367834-$ or US-20040249423-$ or US-20060009822-$ or US-20150217142-$ or US-20170231733-$ or US-20190142691-$ or US-20190240110-$ or US-20190143138-$ or US-20170333728-$ or US-20200001106-$ or US-20080172045-$ or US-20040111132-$ or US-20180036553-$ or US-20120078329-$ or US-20030019028-$).did. or (US-20030000010-$ or US-20190209858-$ or US-20170086274-$ or US-20180177017-$ or US-20120041523-$ or US-20040046108-$ or US-20170028214-$ or US-20110176326-$				

		or US-20030109906-$ or US-20030125782-$ or US-20030181962-$ or US-20040220513-$ or US-20030212442-$ or US-20030144712-$ or US-20020198575-$ or US-20070016269-$ or US-20170239490-$ or US-20160045758-$ or US-20180296852-$ or US-20100324631-$ or US-20160067087-$ or US-20160067086-$ or US-20190142636-$ or US-20050203592-$ or US-20130289670-$ or US-20180369602-$ or US-20170156971-$).did. or (US-20140046127-$ or US-20140088470-$ or US-20140179994-$ or US-20160296417-$ or US-20190290535-$ or US-20040210275-$ or US-20050043653-$ or US-20100060195-$ or US-20120030873-$ or US-20170136259-$ or US-20090216219-$ or US-20120263793-$ or US-20170014511-$ or US-20170021040-$ or US-20180185518-$ or US-20070060984-$ or US-20080077198-$ or US-20110238141-$ or US-20140052221-$ or US-20110098789-$ or US-20090270848-$ or US-20150057725-$ or US-20180369609-$ or US-20190246463-$ or US-20190223270-$ or US-20150048742-$ or US-20160219675-$).did. or (US-20170215253-$ or US-20130096657-$ or US-20120277659-$ or US-20150230863-$ or US-20080033512-$ or US-20190240468-$ or US-20140202493-$ or US-20150245703-$ or US-20190083809-$ or US-20080065176-$).did. or (US-9555261-$ or US-9370449-$ or US-10058711-$ or US-8506612-$ or US-7131990-$ or US-10064255-$ or US-9333371-$ or US-10485612-$ or US-10524861-$ or US-8636727-$ or US-8900282-$ or US-9308389-$ or US-9730780-$ or US-9242118-$ or US-9993658-$ or US-6681417-$ or US-7013504-$ or US-7201766-$ or US-7815668-$ or US-7001413-$ or US-6666878-$ or US-6149611-$ or US-5336159-$ or US-10478636-$ or US-8556887-$ or US-10166168-$).did. or (US-10179085-$ or US-10293148-$ or US-5645578-$ or US-5891186-$ or US-10334933-$ or US-				

		9604073-$ or US-9359449-$ or US-9079940-$ or US-9249234-$ or US-9365628-$ or US-9505817-$ or US-9840541-$ or US-9969783-$ or US-10087223-$ or US-10538560-$ or US-9084885-$ or US-10143060-$ or US-7351253-$ or US-8734498-$ or US-9592404-$ or US-9592405-$ or US-9782604-$ or US-9974971-$ or US-10252078-$ or US-7479136-$ or US-9814903-$ or US-9623259-$).did. or (US-9849303-$ or US-10080634-$ or US-9550070-$ or US-6861658-$ or US-7476888-$ or US-7994489-$ or US-7921853-$ or US-8945197-$ or US-8956396-$ or US-10512586-$ or US-9901747-$ or US-8109981-$ or US-10426971-$ or US-9872813-$ or US-10390755-$ or US-9913993-$ or US-9561357-$ or US-9061128-$ or US-6447537-$ or US-6413268-$ or US-10265539-$ or US-10363325-$ or US-10434202-$ or US-9700641-$ or US-10456485-$ or US-8980174-$ or US-8979914-$).did. or (US-8486124-$ or US-10166401-$ or US-10022556-$ or US-9597479-$ or US-10137311-$ or US-8945196-$ or US-10071261-$ or US-9610460-$ or US-10383550-$ or US-10384075-$ or US-9162078-$ or US-7144248-$ or US-7276059-$ or US-7886749-$ or US-7891361-$ or US-8454669-$ or US-8486056-$ or US-8746253-$ or US-10420954-$ or US-9327138-$ or US-7931028-$ or US-8286641-$ or US-8393330-$ or US-9968799-$ or US-8858607-$ or US-10518103-$ or US-10092449-$).did. or (US-10456298-$ or US-9763827-$ or US-10456294-$ or US-9061135-$ or US-5634711-$ or US-10441742-$ or US-9889314-$ or US-10561854-$ or US-10245442-$ or US-10525276-$ or US-6749624-$ or US-9782603-$ or US-6860896-$ or US-6659964-$ or US-6223071-$ or US-6709446-$ or US-7190109-$ or US-7723910-$ or US-8030836-$ or US-8216289-$ or US-8758418-$ or US-9723991-$ or US-8702772-$ or US-7221104-$ or US-6166496-$ or US-6211626-$ or US-6292901-$).did. or (US-6340868-$ or US-6459919-$ or US-6528954-$ or US-				

		6720745-$ or US-7308296-$ or US-7796319-$ or US-6781691-$ or US-7151601-$ or US-8570635-$ or US-10279192-$ or US-10293177-$ or US-10307611-$ or US-7846084-$ or US-7654949-$ or US-7141028-$ or US-10569097-$ or US-10105548-$ or US-10471231-$ or US-10039931-$ or US-10478635-$ or US-10112057-$ or US-8996131-$ or US-9539438-$ or US-9373807-$ or US-7686839-$ or US-6471716-$ or US-8435276-$).did. or (US-10099065-$ or US-10173072-$ or US-9950190-$ or US-9649506-$ or US-10315043-$ or US-9289623-$ or US-9248309-$ or US-10384070-$ or US-10285857-$ or US-9622911-$ or US-10052496-$ or US-9138595-$ or US-8956363-$ or US-10307330-$ or US-4444189-$ or US-10406379-$ or US-6866678-$ or US-6601247-$ or US-6877171-$ or US-9844116-$ or US-7084389-$ or US-10525275-$ or US-6602275-$ or US-6896693-$ or US-8057525-$ or US-6094595-$ or US-9999783-$).did. or (US-10092770-$ or US-10518105-$ or US-8721695-$ or US-10219944-$ or US-10357424-$ or US-9144531-$ or US-9393175-$ or US-9402780-$ or US-9603770-$ or US-6013096-$ or US-9974972-$ or US-6350275-$ or US-7736382-$ or US-8985119-$ or US-8506613-$ or US-7988688-$ or US-8784461-$ or US-8012189-$ or US-8317848-$ or US-8551150-$ or US-8518027-$ or US-9687671-$ or US-9302118-$ or US-9313860-$ or US-9655206-$ or US-10244606-$ or US-10045820-$).did. or (US-8080047-$ or US-9032576-$).did. or (US-2003527-$ or US-1656777-$ or US-2148174-$).did. or (JP-WO2008069103-$ or CN-101589651-$ or WO-2008069103-$ or EP-2106198-$ or CN-201052342-$).did. or (WO-2016040534-$ or CN-106377846-$ or US-20170216620-$ or KR-2016030687-$ or US-20170326383-$ or US-20060030908-$ or US-20180361170-$ or US-20160059034-$ or WO-2010033494-$ or KR-1676857-$).did.				

S88	649	S87 and ((light near3 (device panel)) with (control controlled controlling instruct$6))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2020/03/02 14:54
S90	14	((("JOOVV") near3 ("INC"))).AS,AANM.	USPAT	OR	ON	2021/07/16 13:47
S91	652	((("STRAHAN") near3 ("Justin")) OR (("NELSON") near3 ("Scott"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:47
S92	85	("20030188378" | "20060217789" | "20120296260" | "20130172963" | "20140190537" | "20160175610" | "20170028216" | "20170080246" | "20170131693" | "20190167519" | "5645578" | "8337538" | "9440041" | "9884204" | "10440794" | "20040162596" | "20130304019" | "20160016001" | "20180236259" | "20200121944" | "D877919" | "D877920" | "D877921" | "D877922" | "D877923" | "D892343" | "D892344" | "D892345" | "D893737" | "D895822" | "20030009205" | "20040068305" | "20050085875" | "20070217199" | "20080046044" | "20080091250" | "20080114418" | "20090318908" | "20100045175" | "20100045189" | "20100076529" | "20130190842" | "20130229802" | "20130301264" | "20150267907" | "20150297914" | "20160158574" | "20160367833" | "6955684" | "8066403" | "20040008523" | "20060007059" | "20060020308" | "20060229689" | "20070068055" | "20070129777" | "20070276455" | "20080119831" | "20080141572" | "20080269849" | "20090288340" | "20100309659" | "20110054573" | "20120019490" | "20120104977" | "20120243227" | "20140081357" | "20140226329" | "20150202455" | "20150307332" | "20160076708" | "20170118838" | "20180043178" | "20180056087" | "20180111001" | "4844069" | "5733032" | "6626932" | "8481982" | "9227082" | "9311847" | "9353924" |	US-PGPUB; USPAT	OR	ON	2021/07/16 13:47

		"9416551" | "9852666" | "9943042").PN.				
S93	8,503	A61N5/06.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S94	11,438	A61N5/0616.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S95	1,468	A61N2005/0636.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S96	399	A61N2005/064.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S97	6,030	A61N2005/0663.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S98	9,064	A61N2005/0659.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S99	473	A61N2005/0658.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S100	738	A61N2005/0629.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	ON	2021/07/16 13:48

			JPO; DERWENT			
S101	29,195	S93 S94 S95 S96 S97 S98 S99 S100	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S102	1,944	S101 and button	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:48
S103	2,314	S101 and (press pressed pressing)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 13:59
S104	1,388	S103 and ((red infrared ir) with light)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 14:00
S105	696	S104 and (treatment near3 time)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 14:01
S106	696	(US-20200139112-$ or US-20200253811-$ or US-20050154381-$ or US-20050154382-$ or US-20070198004-$ or US-20070213696-$ or US-20070038206-$ or US-20070213698-$ or US-20070239142-$ or US-20070239143-$ or US-20100286673-$ or US-20090254076-$ or US-20080147054-$ or US-20210169682-$ or US-20180264284-$ or US-20180014777-$ or US-20170225006-$ or US-20190168016-$ or US-20190240502-$ or US-20160287894-$ or US-20200108268-$ or US-20130324909-$ or US-20050197681-$ or US-20180311507-$ or US-20090247932-$ or US-20080108982-$).did. or (US-	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2021/07/16 14:09

		20110202116-$ or US-20130274834-$ or US-20090112192-$ or US-20150112411-$ or US-20170215958-$ or US-20170216619-$ or US-20170215960-$ or US-20170215959-$ or US-20140005758-$ or US-20190232079-$ or US-20160113941-$ or US-20190387973-$ or US-20190388150-$ or US-20190388151-$ or US-20200237228-$ or US-20210212568-$ or US-20180093106-$ or US-20060183072-$ or US-20160354535-$ or US-20200069851-$ or US-20110213319-$ or US-20140107595-$ or US-20150080788-$ or US-20180140755-$ or US-20100049177-$ or US-20210154093-$ or US-20130190613-$).did. or (US-20040224288-$ or US-20110208274-$ or US-20150057598-$ or US-20090087816-$ or US-20120156635-$ or US-20150056568-$ or US-20090118721-$ or US-20080267814-$ or US-20090105790-$ or US-20090299441-$ or US-20110082525-$ or US-20140212331-$ or US-20130345146-$ or US-20150306417-$ or US-20080139992-$ or US-20080131968-$ or US-20090299263-$ or US-20080138772-$ or US-20120319010-$ or US-20150157876-$ or US-20110295343-$ or US-20100274329-$ or US-20070248930-$ or US-20120148976-$ or US-20160096037-$ or US-20190117994-$ or US-20120148975-$).did. or (US-20180140864-$ or US-20130196284-$ or US-20170173359-$ or US-20190299022-$ or US-20200016426-$ or US-20200023191-$ or US-20190083202-$ or US-20110166631-$ or US-20060129211-$ or US-20200238100-$ or US-20060253176-$ or US-20200345472-$ or US-20160206738-$ or US-20200009249-$ or US-20130310905-$ or US-20210093886-$ or US-20200391051-$ or US-20090177253-$ or US-20140135798-$ or US-20040260367-$ or US-20090254154-$ or US-20190232077-$ or US-20100211136-$ or US-20100016841-$ or US-20070179571-$ or US-20100204762-$				

		or US-20200330786-$).did. or (US-20120016174-$ or US-20190262626-$ or US-20100010594-$ or US-20100010592-$ or US-20100105977-$ or US-20100094384-$ or US-20190060664-$ or US-20190070036-$ or US-20190070425-$ or US-20190070433-$ or US-20200069460-$ or US-20210000644-$ or US-20120197357-$ or US-20180193664-$ or US-20210178184-$ or US-20050234383-$ or US-20070129778-$ or US-20200360724-$ or US-20140074191-$ or US-20150058204-$ or US-20140074194-$ or US-20140364924-$ or US-20120065709-$ or US-20160008627-$ or US-20080091179-$ or US-20030032900-$ or US-20040260210-$).did. or (US-20040260209-$ or US-20040077977-$ or US-20070027411-$ or US-20200163899-$ or US-20200384253-$ or US-20190111240-$ or US-20020002391-$ or US-20060206173-$ or US-20060195165-$ or US-20080208297-$ or US-20060167531-$ or US-20060271024-$ or US-20190022220-$ or US-20170156662-$ or US-20070282400-$ or US-20100292746-$ or US-20080172113-$ or US-20080172114-$ or US-20130317574-$ or US-20150283402-$ or US-20190224497-$ or US-20070016254-$ or US-20080109052-$ or US-20210145514-$ or US-20210177968-$ or US-20120209357-$ or US-20210101019-$).did. or (US-20100179469-$ or US-20090062785-$ or US-20100184669-$ or US-20130183354-$ or US-20140155333-$ or US-20110282333-$ or US-20150209181-$ or US-20200000638-$ or US-20200384287-$ or US-20190022406-$ or US-20190070432-$ or US-20200391050-$ or US-20120053394-$ or US-20060206174-$ or US-20080004611-$ or US-20210138249-$ or US-20210001146-$ or US-20180185667-$ or US-20210001147-$ or US-20210023391-$ or US-20170164876-$ or US-20070156124-$ or US-20150290442-$ or US-20140343574-$ or US-				

		20170245876-$ or US-20190223914-$ or US-20120022435-$).did. or (US-20150231379-$ or US-20150272623-$ or US-20170319835-$ or US-20170319836-$ or US-20190336740-$ or US-20210154454-$ or US-20210154455-$ or US-20190083806-$ or US-20190117992-$ or US-20210093882-$ or US-20110071602-$ or US-20140074195-$ or US-20150290028-$ or US-20200179220-$ or US-20130274839-$ or US-20190030358-$ or US-20150127076-$ or US-20140288351-$ or US-20140277294-$ or US-20140067024-$ or US-20160367832-$ or US-20160008623-$ or US-20180015297-$ or US-20210046163-$ or US-20170050043-$ or US-20170216617-$ or US-20150057701-$).did. or (US-20180092773-$ or US-20200107956-$ or US-20150005750-$ or US-20190091065-$ or US-20070185553-$ or US-20090240310-$ or US-20110144410-$ or US-20170136258-$ or US-20160129281-$ or US-20070239233-$ or US-20110295186-$ or US-20120330219-$ or US-20150231407-$ or US-20170072217-$ or US-20160121108-$ or US-20070016255-$ or US-20070016256-$ or US-20100256552-$ or US-20110130729-$ or US-20110137214-$ or US-20120016275-$ or US-20050143793-$ or US-20150374819-$ or US-20200179514-$ or US-20190029755-$ or US-20200253813-$ or US-20180104509-$).did. or (US-20180104506-$ or US-20210038910-$ or US-20190344095-$ or US-20150196639-$ or US-20200338360-$ or US-20070208395-$ or US-20210146152-$ or US-20180015301-$ or US-20200360715-$ or US-20140358199-$ or US-20180256917-$ or US-20100324632-$ or US-20200069468-$ or US-20120283710-$ or US-20120283711-$ or US-20120283803-$ or US-20120226268-$ or US-20120232536-$ or US-20120232537-$ or US-20120232538-$ or US-20120232539-$ or US-20120239016-$ or US-20140005756-$				

		or US-20210007898-$ or US-20140272761-$ or US-20010021812-$ or US-20040143308-$).did. or (US-20070249716-$ or US-20100191172-$ or US-20110282266-$ or US-20130102906-$ or US-20150105667-$ or US-20200289321-$ or US-20110125226-$ or US-20180133431-$ or US-20180133504-$ or US-20190255350-$ or US-20190269936-$ or US-20190314641-$ or US-20210121713-$ or US-20180133507-$ or US-20040054386-$ or US-20130197473-$ or US-20180325593-$ or US-20120078160-$ or US-20140194770-$ or US-20100160904-$ or US-20170028215-$ or US-20160106999-$ or US-20200188688-$ or US-20200391049-$ or US-20200376292-$ or US-20050070977-$ or US-20190009102-$).did. or (US-20180236262-$ or US-20180111004-$ or US-20170000252-$ or US-20160361229-$ or US-20180104145-$ or US-20210128404-$ or US-20210077350-$ or US-20150127070-$ or US-20170014305-$ or US-20110172745-$ or US-20120283622-$ or US-20130184693-$ or US-20170173360-$ or US-20090222068-$ or US-20110059116-$ or US-20130078265-$ or US-20140335110-$ or US-20130226268-$ or US-20130006118-$ or US-20160256053-$ or US-20140066974-$ or US-20210045844-$ or US-20140378831-$ or US-20170182264-$ or US-20200101241-$ or US-20210093884-$ or US-20040236267-$).did. or (US-20080208294-$ or US-20140222116-$ or US-20110123958-$ or US-20140194955-$ or US-20080275533-$ or US-20080103560-$ or US-20080103563-$ or US-20080119913-$ or US-20120283709-$ or US-20130030423-$ or US-20200009399-$ or US-20110184500-$ or US-20150119960-$ or US-20070123808-$ or US-20060058714-$ or US-20080243039-$ or US-20090177256-$ or US-20110125231-$ or US-20120065712-$ or US-20040106082-$ or US-20060281042-$ or US-				

		20090056044-$ or US-20110200959-$ or US-20150119771-$ or US-20070129776-$ or US-20210196505-$ or US-20190175935-$).did. or (US-20160367833-$ or US-20200316398-$ or US-20200324136-$ or US-20200061386-$ or US-20190192873-$ or US-20200054890-$ or US-20200230430-$ or US-20210038906-$ or US-20200061385-$ or US-20190192872-$ or US-20190388698-$ or US-20190192875-$ or US-20190201705-$ or US-20180236254-$ or US-20190201706-$ or US-20170087379-$ or US-20020026225-$ or US-20190201713-$ or US-20190217119-$ or US-20190143138-$ or US-20180147416-$ or US-20080172045-$ or US-20060229690-$ or US-20180036553-$ or US-20200360714-$ or US-20190351247-$ or US-20200345242-$).did. or (US-20190365569-$ or US-20120197135-$ or US-20150165238-$ or US-20210128935-$ or US-20210128936-$ or US-20210128937-$ or US-20210128938-$ or US-20210138259-$ or US-20170028214-$ or US-20200222714-$ or US-20200298014-$ or US-20200197718-$ or US-20030125782-$ or US-20050187595-$ or US-20110060266-$ or US-20190078073-$ or US-20080125836-$ or US-20110144723-$ or US-20080004565-$ or US-20200179713-$ or US-20050107851-$ or US-20040138727-$ or US-20190351252-$ or US-20190015679-$ or US-20060253177-$ or US-20130225971-$ or US-20160045761-$).did. or (US-20160038763-$ or US-20160045759-$ or US-20160045760-$ or US-20160045763-$ or US-20160051834-$ or US-20160051835-$ or US-20160056653-$ or US-20190308031-$ or US-20160317833-$ or US-20160067087-$ or US-20160067086-$ or US-20190142636-$ or US-20200315844-$ or US-20110015707-$ or US-20110160814-$ or US-20100076529-$ or US-20160263393-$ or US-20110021970-$ or US-20140243934-$ or US-20150251016-$				

		or US-20190336785-$ or US-20170043178-$ or US-20200078600-$ or US-20180133319-$ or US-20170050046-$ or US-20200222711-$ or US-20130103017-$).did. or (US-20110098789-$ or US-20150057725-$ or US-20100049180-$ or US-20030181949-$ or US-20060241726-$ or US-20140128941-$ or US-20180146520-$ or US-20190246463-$ or US-20180178030-$ or US-20180178031-$ or US-20040243114-$ or US-20080275532-$ or US-20160228184-$ or US-20100204686-$ or US-20040225339-$ or US-20200038673-$ or US-20200038530-$ or US-20200078482-$ or US-20120289948-$ or US-20120283712-$ or US-20190357976-$).did. or (US-8915948-$ or US-7220254-$ or US-7309335-$ or US-10953240-$ or US-9968800-$ or US-9492681-$ or US-6676654-$ or US-10632324-$ or US-7887533-$ or US-7914523-$ or US-10524861-$ or US-10413748-$ or US-10485612-$ or US-10543040-$ or US-10300296-$ or US-10272096-$ or US-11013413-$ or US-10821297-$ or US-10413644-$ or US-8529548-$ or US-8845619-$ or US-9545463-$ or US-11013837-$ or US-8945104-$ or US-10485983-$ or US-8506979-$).did. or (US-8535359-$ or US-7470124-$ or US-8983257-$ or US-7713294-$ or US-10729524-$ or US-9242118-$ or US-10987521-$ or US-10758738-$ or US-10413608-$ or US-10864273-$ or US-9463332-$ or US-10188872-$ or US-10357662-$ or US-7575589-$ or US-10758743-$ or US-10695579-$ or US-10857376-$ or US-10315042-$ or US-10653889-$ or US-10695577-$ or US-7303578-$ or US-11033754-$ or US-9149331-$ or US-10758405-$ or US-10932945-$ or US-10945878-$ or US-8475507-$).did. or (US-4930504-$ or US-10960224-$ or US-7730893-$ or US-10695582-$ or US-8888830-$ or US-8974443-$ or US-4686986-$ or US-9504826-$ or US-6267779-$ or US-8109981-$ or US-10390755-$ or US-8523925-$ or US-9943379-$ or US-10905898-$ or US-8915253-$ or US-				

		9060843-$ or US-7878965-$ or US-7918779-$ or US-8518870-$ or US-9504745-$ or US-8945101-$ or US-10525280-$ or US-10532222-$ or US-8517909-$ or US-8088057-$ or US-7942869-$ or US-10821298-$).did. or (US-10383550-$ or US-9566088-$ or US-9662482-$ or US-10251675-$ or US-8048089-$ or US-9474886-$ or US-9550052-$ or US-9814868-$ or US-10357641-$ or US-10357642-$ or US-10974061-$ or US-8608786-$ or US-10583307-$ or US-8900283-$ or US-9968799-$ or US-8858607-$ or US-9295855-$ or US-9399146-$ or US-10864380-$ or US-9763827-$ or US-10456294-$ or US-10092449-$ or US-10456298-$ or US-8620451-$ or US-10561854-$ or US-10589121-$ or US-10874875-$).did. or (US-8025689-$ or US-8083787-$ or US-8187310-$ or US-8187311-$ or US-8685073-$ or US-10588972-$ or US-11020181-$ or US-10406380-$ or US-10709897-$ or US-10632325-$ or US-8535361-$ or US-9220915-$ or US-9414888-$ or US-9789332-$ or US-8523849-$ or US-9005262-$ or US-9308391-$ or US-9848959-$ or US-9723991-$ or US-7190109-$ or US-7723910-$ or US-8030836-$ or US-8216289-$ or US-8758418-$ or US-6223071-$ or US-6709446-$ or US-9023089-$).did. or (US-10279192-$ or US-10293177-$ or US-10702705-$ or US-10843006-$ or US-10307611-$ or US-9144690-$ or US-9227082-$ or US-9192780-$ or US-9017391-$ or US-9814906-$ or US-9962225-$ or US-8685010-$ or US-10569097-$ or US-10709898-$ or US-4838271-$ or US-4842356-$ or US-4865035-$ or US-10905897-$ or US-9950189-$ or US-9936795-$ or US-9775774-$ or US-10869812-$ or US-8979912-$ or US-9630002-$ or US-10478635-$ or US-10639495-$ or US-10052376-$).did. or (US-9373807-$ or US-10052393-$ or US-10342933-$ or US-8790381-$ or US-7354433-$ or US-10376455-$ or US-9808646-$ or US-8033284-$ or US-8316860-$ or US-9950190-$ or US-5616140-$ or US-10493170-$ or US-8679102-$ or US-				

		8961577-$ or US-10493295-$ or US-7384405-$ or US-7896908-$ or US-8313518-$ or US-7467946-$ or US-7942667-$ or US-6616447-$ or US-7144249-$ or US-10016337-$ or US-9108045-$ or US-6494900-$ or US-6063108-$ or US-10183174-$).did. or (US-10632323-$ or US-10874874-$ or US-5830211-$ or US-10632321-$ or US-10556122-$ or US-10821295-$ or US-10709894-$ or US-10478633-$ or US-10688310-$ or US-10478634-$ or US-10493293-$ or US-10569095-$ or US-10569094-$ or US-10549109-$ or US-5755752-$ or US-6033431-$ or US-6866678-$ or US-7762964-$ or US-9060791-$ or US-10143861-$ or US-10525275-$ or US-10683494-$ or US-10913943-$ or US-8308784-$ or US-9993659-$ or US-7309348-$ or US-10090694-$).did. or (US-10195458-$ or US-10213618-$ or US-10272257-$ or US-10434325-$ or US-10881550-$ or US-10219944-$ or US-10596037-$ or US-7255691-$ or US-8192473-$ or US-9833509-$ or US-9962441-$ or US-9526914-$ or US-9526913-$ or US-10384071-$ or US-10493296-$ or US-9302116-$ or US-10596387-$ or US-8685008-$ or US-8518027-$ or US-9302118-$ or US-9877361-$ or US-11006488-$ or US-10220221-$ or US-7136405-$ or US-10034710-$ or US-9308390-$ or US-8251982-$).did. or (US-3085568-$).did. or (US-20200197718-$).did.				
S107	696	S106 and (treatment near3 time)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 14:10
S108	215	S106 and ((adjust input) with time)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 14:55
S110	344	S104 and ((adjust input) with time)	US-PGPUB; USPAT; USOCR;	OR	ON	2021/07/16 14:55

			FPRS; EPO; JPO; DERWENT			
S111	702	S101 and ((red infrared ir) with light) and ((adjust input) with time)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 14:56
S112	702	(US-20080058783-$ or US-20180014777-$ or US-20170225006-$ or US-20190168016-$ or US-20190240502-$ or US-20200178473-$ or US-20200108272-$ or US-20160310754-$ or US-20060217690-$ or US-20040147986-$ or US-20150112411-$ or US-20120265120-$ or US-20140005758-$ or US-20190232079-$ or US-20130013031-$ or US-20080077200-$ or US-20160235983-$ or US-20160235980-$ or US-20150025599-$ or US-20110208274-$ or US-20150057598-$ or US-20090118721-$ or US-20090299263-$ or US-20080139992-$ or US-20130345146-$ or US-20150306417-$).did. or (US-20080131968-$ or US-20080267814-$ or US-20090105790-$ or US-20090299441-$ or US-20110082525-$ or US-20140212331-$ or US-20120319010-$ or US-20150157876-$ or US-20110295343-$ or US-20100191093-$ or US-20100189224-$ or US-20100191105-$ or US-20100187304-$ or US-20100189219-$ or US-20100191091-$ or US-20100191092-$ or US-20100191107-$ or US-20080058587-$ or US-20080058649-$ or US-20080058785-$ or US-20080058786-$ or US-20080058788-$ or US-20080058795-$ or US-20080059070-$ or US-20080103355-$ or US-20150157877-$ or US-20170080249-$).did. or (US-20190201711-$ or US-20150140502-$ or US-20180014924-$ or US-20180140406-$ or US-20210068936-$ or US-20190083202-$ or US-20110166631-$ or US-20190262629-$ or US-20130116616-$ or US-20170182333-$ or US-20180177976-$	US-PGPUB; USPAT; DERWENT	OR	ON	2021/07/16 14:58

		or US-20200114117-$ or US-20080281383-$ or US-20210128238-$ or US-20180369608-$ or US-20180221681-$ or US-20180021591-$ or US-20170157430-$ or US-20170157431-$ or US-20050065579-$ or US-20190015682-$ or US-20170181796-$ or US-20200094015-$ or US-20150065821-$ or US-20130304019-$ or US-20090143842-$ or US-20070255266-$).did. or (US-20110178510-$ or US-20200391051-$ or US-20160310593-$ or US-20090177253-$ or US-20090281604-$ or US-20040260367-$ or US-20100010594-$ or US-20120016174-$ or US-20190262626-$ or US-20100010592-$ or US-20100094384-$ or US-20100105977-$ or US-20160237126-$ or US-20180051058-$ or US-20130224821-$ or US-20160002302-$ or US-20190241627-$ or US-20140155962-$ or US-20140157174-$ or US-20210113853-$ or US-20120197357-$ or US-20190336326-$ or US-20210031050-$ or US-20190224491-$ or US-20160129280-$ or US-20020074559-$ or US-20130073010-$).did. or (US-20170115162-$ or US-20170118854-$ or US-20190145820-$ or US-20190008964-$ or US-20130218240-$ or US-20140005590-$ or US-20160129279-$ or US-20130296978-$ or US-20150025601-$ or US-20070276455-$ or US-20110212410-$ or US-20100121420-$ or US-20190336789-$ or US-20060195165-$ or US-20080208297-$ or US-20060167531-$ or US-20060271024-$ or US-20130066403-$ or US-20150163889-$ or US-20200094071-$ or US-20210145514-$ or US-20120209357-$ or US-20140276248-$ or US-20190151655-$ or US-20140276247-$ or US-20170100585-$ or US-20100179469-$).did. or (US-20070244527-$ or US-20110282333-$ or US-20150209181-$ or US-20200000638-$ or US-20050053106-$ or US-20200384287-$ or US-20170119466-$ or US-20200046427-$ or US-20130324788-$ or US-				

		20040166146-$ or US-20080058689-$ or US-20120053394-$ or US-20060206174-$ or US-20150039061-$ or US-20210138249-$ or US-20180333587-$ or US-20210001146-$ or US-20180185667-$ or US-20210001147-$ or US-20210023385-$ or US-20210023391-$ or US-20160016004-$ or US-20200282230-$ or US-20120316623-$ or US-20110071602-$ or US-20140074195-$ or US-20200093945-$).did. or (US-20190366120-$ or US-20200086134-$ or US-20200406051-$ or US-20200376291-$ or US-20200384283-$ or US-20130274839-$ or US-20190030358-$ or US-20140288351-$ or US-20140067024-$ or US-20160008623-$ or US-20160367832-$ or US-20210085995-$ or US-20190299021-$ or US-20180169430-$ or US-20170050043-$ or US-20190111252-$ or US-20200174277-$ or US-20200233230-$ or US-20200384684-$ or US-20180064953-$ or US-20170281965-$ or US-20190328905-$ or US-20210038743-$ or US-20200060923-$ or US-20190290881-$ or US-20190366119-$ or US-20180263695-$).did. or (US-20140088668-$ or US-20150153062-$ or US-20160331991-$ or US-20160096033-$ or US-20050143793-$ or US-20170326381-$ or US-20180311464-$ or US-20170032521-$ or US-20190029755-$ or US-20210031051-$ or US-20180104509-$ or US-20180104506-$ or US-20210038910-$ or US-20200345970-$ or US-20170361125-$ or US-20140271479-$ or US-20170202912-$ or US-20140187998-$ or US-20140364721-$ or US-20200179717-$ or US-20140207211-$ or US-20190117307-$ or US-20190117995-$ or US-20200023192-$ or US-20190029907-$ or US-20090177190-$ or US-20180133497-$).did. or (US-20190117308-$ or US-20210162162-$ or US-20210095825-$ or US-20180216791-$ or US-20200063927-$ or US-20200360715-$ or US-20130190845-$ or US-20120283710-$				

		or US-20120283711-$ or US-20120283803-$ or US-20120226268-$ or US-20120232536-$ or US-20120232537-$ or US-20120232538-$ or US-20120232539-$ or US-20120239016-$ or US-20140005756-$ or US-20160016001-$ or US-20200289321-$ or US-20180193662-$ or US-20030011538-$ or US-20010028227-$ or US-20030100837-$ or US-20080183081-$ or US-20200261738-$ or US-20190314641-$ or US-20180133431-$).did. or (US-20180133504-$ or US-20190255350-$ or US-20190269936-$ or US-20210121713-$ or US-20180133507-$ or US-20170043179-$ or US-20110098781-$ or US-20140303528-$ or US-20210063964-$ or US-20200178892-$ or US-20150054415-$ or US-20160193478-$ or US-20160219671-$ or US-20130140988-$ or US-20140217902-$ or US-20140306620-$ or US-20200289841-$ or US-20190076668-$ or US-20110190749-$ or US-20130345687-$ or US-20170304003-$ or US-20060030907-$ or US-20070203432-$ or US-20080125620-$ or US-20210038911-$ or US-20180353770-$ or US-20200391049-$).did. or (US-20050015121-$ or US-20160023017-$ or US-20200368550-$ or US-20170326380-$ or US-20210085993-$ or US-20180111004-$ or US-20160008628-$ or US-20120215155-$ or US-20180235808-$ or US-20190365564-$ or US-20210022948-$ or US-20200289054-$ or US-20210077350-$ or US-20190217347-$ or US-20130184693-$ or US-20080269847-$ or US-20030002297-$ or US-20100069824-$ or US-20020183809-$ or US-20120010684-$ or US-20120143288-$ or US-20120143289-$ or US-20120143290-$ or US-20120143291-$ or US-20200054891-$ or US-20140066974-$ or US-20210108771-$).did. or (US-20210128942-$ or US-20180056027-$ or US-20070203550-$ or US-20090204188-$ or US-20140330195-$ or US-20200246179-$ or US-				

		20210001141-$ or US-20080091250-$ or US-20080275533-$ or US-20080103560-$ or US-20080065056-$ or US-20080103563-$ or US-20090227996-$ or US-20080119913-$ or US-20060030908-$ or US-20090254156-$ or US-20110251659-$ or US-20140012353-$ or US-20120197358-$ or US-20050245998-$ or US-20170050042-$ or US-20180093103-$ or US-20160106998-$ or US-20140296944-$ or US-20200391046-$ or US-20150335246-$ or US-20120283709-$).did. or (US-20130030423-$ or US-20090177256-$ or US-20110125231-$ or US-20060281042-$ or US-20090056044-$ or US-20110200959-$ or US-20140194957-$ or US-20170065826-$ or US-20190008678-$ or US-20190008679-$ or US-20170231058-$ or US-20170238401-$ or US-20120029417-$ or US-20140088439-$ or US-20060009822-$ or US-20030156831-$ or US-20040184793-$ or US-20170208673-$ or US-20200222712-$ or US-20210069525-$ or US-20190192872-$ or US-20190192873-$ or US-20190201705-$ or US-20200061385-$ or US-20200230430-$ or US-20210038906-$ or US-20190192875-$).did. or (US-20190388698-$ or US-20180236254-$ or US-20200054890-$ or US-20200061386-$ or US-20170106201-$ or US-20160136385-$ or US-20020026225-$ or US-20190201713-$ or US-20190217119-$ or US-20190143138-$ or US-20180147416-$ or US-20180110566-$ or US-20110087312-$ or US-20040111132-$ or US-20200406000-$ or US-20200360714-$ or US-20130041309-$ or US-20190209858-$ or US-20160287898-$ or US-20200360547-$ or US-20180077767-$ or US-20200214101-$ or US-20150102749-$ or US-20170086273-$ or US-20120041523-$ or US-20200267814-$ or US-20040075065-$).did. or (US-20050093485-$ or US-20130023960-$ or US-20130023961-$ or US-20130023962-$ or US-20130023963-$				

		or US-20130023964-$ or US-20130023965-$ or US-20130023967-$ or US-20200197718-$ or US-20050187595-$ or US-20080004565-$ or US-20150230862-$ or US-20040138727-$ or US-20050107851-$ or US-20060253177-$ or US-20130225971-$ or US-20100324631-$ or US-20160067087-$ or US-20160067086-$ or US-20190142636-$ or US-20200315844-$ or US-20200390803-$ or US-20180369602-$ or US-20190366117-$ or US-20100060195-$ or US-20100076250-$ or US-20060235494-$).did. or (US-20160374173-$ or US-20180199411-$ or US-20200163184-$ or US-20150335742-$ or US-20160136386-$ or US-20160136452-$ or US-20170049890-$ or US-20180055933-$ or US-20090018621-$ or US-20070060984-$ or US-20110238141-$ or US-20080077198-$ or US-20140052221-$ or US-20130103017-$ or US-20110098789-$ or US-20150057725-$ or US-20100049180-$ or US-20080033412-$ or US-20140128941-$ or US-20180146520-$ or US-20190246463-$ or US-20190335551-$ or US-20150231408-$ or US-20190373687-$ or US-20160219675-$ or US-20190223270-$ or US-20170215253-$).did. or (US-20150048742-$ or US-20210212184-$ or US-20180193186-$ or US-20080027516-$ or US-20210205632-$ or US-20040243114-$ or US-20130137992-$ or US-20200038673-$ or US-20200054893-$ or US-20120289948-$ or US-20120283712-$ or US-20190357976-$ or US-20150230863-$ or US-20190357771-$ or US-20130172965-$ or US-20140022162-$ or US-20170308170-$ or US-20190240468-$ or US-20180140863-$ or US-20140023993-$ or US-20190083809-$ or US-20210093888-$ or US-20210196977-$ or US-20160331308-$ or US-20170361076-$ or US-20170172658-$ or US-20190125448-$).did. or (US-9968800-$ or US-6676654-$ or US-7147654-$ or US-8838228-$ or US-				

		10589120-$ or US-10300296-$ or US-9545463-$ or US-9517355-$ or US-8506979-$ or US-8535359-$ or US-8983257-$ or US-7713294-$ or US-8111809-$ or US-8254524-$ or US-8031838-$ or US-8116429-$ or US-8041008-$ or US-8083406-$ or US-8249218-$ or US-8047714-$ or US-8145295-$ or US-8160680-$ or US-8180436-$ or US-8936629-$ or US-9220917-$ or US-9730780-$).did. or (US-10729524-$ or US-9597527-$ or US-10130827-$ or US-10806890-$ or US-7367342-$ or US-10456604-$ or US-10668305-$ or US-10758738-$ or US-10322293-$ or US-7918229-$ or US-6623511-$ or US-8781545-$ or US-10857376-$ or US-10758743-$ or US-10653889-$ or US-10315042-$ or US-7303578-$ or US-10695577-$ or US-9850290-$ or US-10196431-$ or US-9175095-$ or US-9340589-$ or US-9126034-$ or US-8784462-$ or US-8475507-$ or US-7064498-$ or US-10709600-$).did. or (US-10527490-$ or US-10527491-$ or US-10732034-$ or US-11045548-$ or US-9205277-$ or US-9550070-$ or US-7921853-$ or US-8956396-$ or US-8945197-$ or US-8109981-$ or US-9326363-$ or US-9061128-$ or US-9561357-$ or US-6120529-$ or US-8945101-$ or US-9597479-$ or US-7304201-$ or US-8517909-$ or US-8088057-$ or US-10821298-$ or US-10137311-$ or US-8608786-$ or US-10806944-$ or US-10744337-$ or US-8900283-$ or US-8858607-$ or US-9399146-$).did. or (US-10518100-$ or US-10918859-$ or US-10901231-$ or US-10967565-$ or US-5634711-$ or US-4560883-$ or US-10849990-$ or US-10973576-$ or US-9889314-$ or US-9945577-$ or US-9782603-$ or US-10137277-$ or US-9824444-$ or US-11020181-$ or US-10406380-$ or US-10149983-$ or US-9636380-$ or US-10478639-$ or US-10953239-$ or US-10589115-$ or US-11033331-$ or US-10502374-$ or US-10900621-$ or US-4614866-$ or US-4724835-$ or US-9220915-$ or US-9414888-$).did. or (US-9789332-$ or US-8523849-$ or US-9005262-$ or US-				

		9308391-$ or US-10940328-$ or US-7221104-$ or US-6528954-$ or US-6166496-$ or US-6211626-$ or US-6292901-$ or US-6340868-$ or US-6720745-$ or US-7308296-$ or US-6459919-$ or US-10702705-$ or US-10279192-$ or US-10293177-$ or US-10843006-$ or US-10307611-$ or US-10525279-$ or US-8761874-$ or US-8983596-$ or US-9289574-$ or US-9913341-$ or US-9693414-$ or US-8686641-$ or US-8941329-$).did. or (US-9024536-$ or US-9554856-$ or US-10194986-$ or US-7141028-$ or US-7654949-$ or US-7846084-$ or US-9827440-$ or US-10786685-$ or US-10994313-$ or US-4233493-$ or US-10478635-$ or US-10639495-$ or US-8029553-$ or US-11007373-$ or US-6443974-$ or US-6395016-$ or US-7051738-$ or US-8317781-$ or US-8480721-$ or US-9017392-$ or US-9072892-$ or US-9522287-$ or US-10434280-$ or US-8435276-$ or US-9486447-$ or US-9764155-$ or US-9498640-$).did. or (US-10086211-$ or US-9216300-$ or US-9662409-$ or US-8679102-$ or US-7896908-$ or US-8313518-$ or US-7467946-$ or US-7942667-$ or US-9622911-$ or US-10285857-$ or US-11033429-$ or US-9138595-$ or US-7120353-$ or US-7142779-$ or US-10932345-$ or US-10478633-$ or US-10709894-$ or US-10478634-$ or US-10688310-$ or US-10493293-$ or US-10556122-$ or US-10632321-$ or US-10821295-$ or US-10569094-$ or US-10569095-$ or US-5755752-$ or US-6033431-$).did. or (US-6866678-$ or US-10950052-$ or US-10974065-$ or US-10595376-$ or US-9794996-$ or US-9532423-$ or US-7229467-$ or US-6828576-$ or US-9011508-$ or US-8998914-$ or US-8747447-$ or US-8834545-$ or US-8840654-$ or US-8894697-$ or US-9011509-$ or US-7309348-$ or US-11058889-$ or US-10194984-$ or US-8721695-$ or US-10881550-$ or US-10219944-$ or US-10596037-$ or US-6689124-$ or US-6013096-$ or US-8257416-$ or US-9913345-$ or US-10390407-$).did. or (US-9833509-$ or				

		US-9962441-$ or US-7736382-$ or US-8985119-$ or US-7988688-$ or US-8506613-$ or US-8784461-$ or US-8685008-$ or US-8518027-$ or US-9302118-$ or US-9877361-$ or US-11006488-$ or US-10328276-$ or US-9655206-$ or US-10959311-$ or US-10244606-$ or US-9313860-$ or US-7136405-$ or US-9308390-$ or US-10045820-$ or US-9696804-$ or US-8574280-$ or US-10953236-$ or US-9687152-$ or US-9789295-$).did. or (BR-102016030258-$ or CN-109364381-$ or CN-110585001-$ or US-20200197718-$).did.				
S113	702	S112 and ((adjust input) with time)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2021/07/16 14:58
S114	19	("20030009205" | "20040068305" | "20050085875" | "20080046044" | "20080091250" | "20080114418" | "20090318908" | "20100045175" | "20100045189" | "20100076529" | "20130190842" | "20130229802" | "20130301264" | "20150267907" | "20150297914" | "20160158574" | "20160367833" | "6955684" | "8066403").PN.	US-PGPUB; USPAT	OR	ON	2021/07/16 15:38
S115	85	("20030188378" | "20060217789" | "20120296260" | "20130172963" | "20140190537" | "20160175610" | "20170028216" | "20170080246" | "20170131693" | "20190167519" | "5645578" | "8337538" | "9440041" | "9884204" | "10440794" | "20040162596" | "20130304019" | "20160016001" | "20180236259" | "20200121944" | "D877919" | "D877920" | "D877921" | "D877922" | "D877923" | "D892343" | "D892344" | "D892345" | "D893737" | "D895822" | "20030009205" | "20040068305" | "20050085875" | "20070217199" | "20080046044" | "20080091250" | "20080114418" | "20090318908" | "20100045175" | "20100045189" | "20100076529" | "20130190842" | "20130229802" | "20130301264" |	US-PGPUB; USPAT	OR	ON	2021/07/16 15:38

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EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S54	0	((red with light) and ("near" with infrared with light) AND housing AND communicat$6 AND button AND (control$6 microcontrol$6 process$6 microprocess$6)).clm.	US-PGPUB; USPAT	OR	ON	2019/07/03 14:47
S55	11	((red with light) and ("near" with infrared with light) AND housing AND communicat$6 AND (control$6 microcontrol$6 process$6 microprocess$6)).clm.	US-PGPUB; USPAT	OR	ON	2019/07/03 14:48
S89	10	((red with light) and ("near" with infrared with light) AND housing AND switch$6).clm.	US-PGPUB; USPAT	OR	ON	2020/03/03 13:34

7/16/2021 7:20:02 PM
C:\Users\theller\Documents\EAST\Workspaces\16598033.wsp

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

PTO/SB/08a (02-18)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16598033
Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Tammie K. Marlen
Attorney Docket Number	JOOVV.004A.C2

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	9884204		2018-02-06	DOLLERIS	
	2	9440041		2016-09-13	LACAYO	
	3	8337538		2012-12-25	FORD	
	4	5645578		1997-07-08	DAFFER	

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	1	20120296260		2012-11-22	VIZETHUM	
	2	20190167519		2019-06-06	KAPS	

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	First Named Inventor	Justin Strahan
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	Examiner Name	Tammie K. Marlen
	Attorney Docket Number	JOOVV.004A.C2

	3	20130172963		2013-07-04	MOFFAT	
	4	20170131693		2017-05-11	SHURTLEFF	
	5	20170028216		2017-02-02	MEDENDORP	
	6	20160175610		2016-06-23	LIVINGSTON	
	7	20140190537		2014-07-10	BENDA	
	8	20060217789		2006-09-28	PEREZ	
	9	20030188378		2003-10-09	BRUNELLE	
	10	20170080246		2017-03-23	KNIGHT	

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	1							

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Examiner Name	Tammie K. Marlen
Attorney Docket Number	JOOVV.004A.C2

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
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Examiner Signature	/TAMMIE K MARLEN/	Date Considered	07/16/2021

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

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

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First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Tammie K. Marlen
Attorney Docket Number	JOOVV.004A.C2

CERTIFICATION STATEMENT

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

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

OR

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

See attached certification statement.

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

☒ A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Wesley Schwie/	Date (YYYY-MM-DD)	2020-12-18
Name/Print	Wesley Schwie	Registration Number	64,950

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

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

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

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

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

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

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

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

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

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Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Niketa I. Patel
Attorney Docket Number	JOOVV.004A.C2

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6955684		2005-10-18	SAVAGE	
	2	8066403		2011-11-29	SANFILIPPO	

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U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20040068305		2004-04-08	BANSAL	
	2	20030009205		2003-01-09	BIEL	
	3	20050085875		2005-04-21	VAN ZUYLEN	
	4	20080046044		2008-02-21	JAHNIGEN	

Exhibit 1003 - 251

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	16598033
Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Niketa I. Patel
Attorney Docket Number	JOOVV.004A.C2

	5	20080091250		2008-04-17	POWELL	
	6	20080114418		2008-05-15	MYEONG	
	7	20090318908		2009-12-24	VAN PIETERSON	
	8	20100045175		2010-02-25	MATHAI	
	9	20100045189		2010-02-25	STORCH	
	10	20100076529		2010-03-25	TUCKER	
	11	20130190842		2013-07-25	HACCO	
	12	20130229802		2013-09-05	FUKUSHIMA	
	13	20130301264		2013-11-14	EMERICUS	
	14	20150267907		2015-09-24	THOMPSON	
	15	20150297914		2015-10-22	HAMID	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

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Examiner Name	Niketa I. Patel
Attorney Docket Number	JOOVV.004A.C2

	16	20160158574		2016-06-09	ECKHOUSE	
	17	20160367833		2016-12-22	SALINAS	
	18	20070217199		2007-09-20	ADAM	

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

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Examiner Signature	/TAMMIE K MARLEN/	Date Considered	07/16/2021

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

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Examiner Name	Niketa I. Patel
Attorney Docket Number	JOOVV.004A.C2

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

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Art Unit	3792
Examiner Name	Niketa I. Patel
Attorney Docket Number	JOOVV.004A.C2

CERTIFICATION STATEMENT

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

OR

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

See attached certification statement.

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

☒ A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Wesley Schwie/	Date (YYYY-MM-DD)	2020-02-14
Name/Print	Wesley Schwie	Registration Number	64,950

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Privacy Act Statement

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

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

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

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

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

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

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

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

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

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

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

PTO/SB/08a (01-10)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16598033
Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	
Attorney Docket Number	JOOVV.004A.C2

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	8481982		2013-07-09	JOHNSON	
	2	6626932		2003-09-30	WHITEHURST	
	3	9227082		2016-01-05	MCDANIEL	
	4	9311847		2016-04-12	HALL	
	5	9353924		2016-05-31	SCARLATA	
	6	9416551		2016-08-16	HALL	
	7	9852666		2017-12-26	WARD	
	8	9943042		2018-04-17	THOSTESON	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	First Named Inventor	Justin Strahan
	Art Unit	3792
	Examiner Name	
	Attorney Docket Number	JOOVV.004A.C2

	9	4844069		1989-07-04	MORI	
	10	5733032		1998-03-31	BOLTA	

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20090288340		2009-11-26	HESS	
	2	20100309659		2010-12-09	JENNY	
	3	20120104977		2012-05-03	MCKENZIE	
	4	20040008523		2004-01-15	BUTLER	
	5	20150307332		2015-10-29	HUANG	
	6	20100309659		2010-11-04	MORTON	
	7	20110054573		2011-03-03	MITCHELL	

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	First Named Inventor	Justin Strahan
	Art Unit	3792
	Examiner Name	
	Attorney Docket Number	JOOVV.004A.C2

	8	20180056087		2018-03-01	RIBEIRO	
	9	20060020308		2006-01-26	MULDNER	
	10	20060007059		2006-01-12	BELL	
	11	20070068055		2007-03-29	SEGAN	
	12	20070276455		2007-11-29	FISET	
	13	20080119831		2008-05-22	MYEONG	
	14	20080141572		2008-06-19	TOMICH	
	15	20080269849		2008-10-30	LEWIS	
	16	20120019490		2012-01-26	HUANG	
	17	20120243227		2012-09-27	SHIMIZU	
	18	20140081357		2014-03-20	LEGERTON	

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Art Unit	3792
Examiner Name	
Attorney Docket Number	JOOVV.004A.C2

	19	20140226329		2014-08-14	ORAW	
	20	20150202455		2015-07-23	WILLIAMS	
	21	20160076708		2016-03-17	SHIRILLA	
	22	20170118838		2017-04-27	WILLIAMS	
	23	20180043178		2018-02-15	IGUCHI	
	24	20180111001		2018-04-26	SEGEL	
	25	20060229689		2006-10-12	FERGUSON	
	26	20070129777		2007-06-07	BOLTA	

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	101244434B1	KR		2013-03-18	KIM		

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First Named Inventor	Justin Strahan
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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T5
	1	KIND LED GROW LIGHTS, "Kind LED Grow Lights K5 Series Instructions" - Downloaded on October 1, 2018 from https://www.kindledgrowlights.com/pages/k5-setup	
	2	MOUSER ELECTRONICS, "Enclosures and Racks" - Downloaded on October 4, 2018 from http://www.mouser.com/catalog/catalogusd/648/dload/pdf/ENCLOSECTION.pdf; prior art publication at least as of 2015	
	3	KIND LED GROW LIGHTS, "Kind LED Grow Lights - Voted Best LED Grow Lights of 2014!" - Downloaded on October 2, 2018 from https://www.youtube.com/watch?v=NQDWBXIMxrk; prior part publication at least as of May 26, 2017	
	4	WRETHAOFFGRID, "Ohuhu Pair of 1/8" Grow Light Rope Hanger Review" - Downloaded on October 5, 2018 from https://www.youtube.com/watch?v=gYCsNQ9LELM; prior art publication at least as of September 29, 2016	
	5	OXO, "OXO Over The Door Hooks & Racks" - Downloaded on October 5, 2018 from https://www.youtube.com/watch?v=1WziS-a7LMI; prior part publication at least as of February 11, 2014	
	6	WOODWORKERS STORE, "Swivel Mirror Screw" - Downloaded on October 4, 2018 from http://go.rockler.com/tech/Swivel-Mirror-Screws-Instructions.pdf; prior art publication at least as of 1990	
	7	KIND LED GROW LIGHTS, "K5 Series XL1000 Indoor LED Grow Light" - Downloaded on October 4, 2018 form https://www.kindledgrowlights.com/products/k5-xl1000	
	8	SWEDISH LED GROW LIGHTS, "300W Full Spectrum Led Grow Lights 85-265V 5730SMD USA/DE/AU/CA Stock Hanging Kit For Plants Veg Hydroponics Grow Led" - Downloaded on June 5, 2017 from http://swedishledgrowlights.com/product/300w-full-spectrum-led-grow-lights-85-265v-5730smd-usa-de-au-ca-stock-hanging-kit-for-plants-veg-hydroponics-grow-led/	
	9	WARP LIGHT, "About the Quantum Light WARP 10®" - Downloaded on September 19, 2019 from https://www.warp-light.com/Quantum_light_warp_10.html; prior art publication at least as of November 30, 2012	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.K.M./

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	10	PCT International Search Report and Written Opinion in International Application No. PCT/US2018/018288, dated October 29, 2018, 11 pages
	11	PCT International Preliminary Report on Patentability in International Application No. PCT/US2018/018288, dated August 20, 2019, 9 pages

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

EXAMINER SIGNATURE

Examiner Signature	/TAMMIE K MARLEN/	Date Considered	07/16/2021

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

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CERTIFICATION STATEMENT

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See attached certification statement.

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

☒ A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Wesley Schwie/	Date (YYYY-MM-DD)	2019-12-04
Name/Print	Wesley Schwie	Registration Number	64,950

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Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Tammie K. Marlen
Attorney Docket Number	JOOVV.004A.C2

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	9884204		2018-02-06	DOLLERIS	
	2	9440041		2016-09-13	LACAYO	
	3	8337538		2012-12-25	FORD	
	4	5645578		1997-07-08	DAFFER	

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20120296260		2012-11-22	VIZETHUM	
	2	20190167519		2019-06-06	KAPS	

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	Examiner Name	Tammie K. Marlen
	Attorney Docket Number	JOOVV.004A.C2

	3	20130172963		2013-07-04	MOFFAT	
	4	20170131693		2017-05-11	SHURTLEFF	
	5	20170028216		2017-02-02	MEDENDORP	
	6	20160175610		2016-06-23	LIVINGSTON	
	7	20140190537		2014-07-10	BENDA	
	8	20060217789		2006-09-28	PEREZ	
	9	20030188378		2003-10-09	BRUNELLE	
	10	20170080246		2017-03-23	KNIGHT	

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

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16598033
Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Tammie K. Marlen
Attorney Docket Number	JOOVV.004A.C2

NON-PATENT LITERATURE DOCUMENTS			Remove
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

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

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

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

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16598033
	Filing Date	2019-10-10
	First Named Inventor	Justin Strahan
	Art Unit	3792
	Examiner Name	Tammie K. Marlen
	Attorney Docket Number	JOOVV.004A.C2

CERTIFICATION STATEMENT

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

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

OR

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

See attached certification statement.

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

☒ A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Wesley Schwie/	Date (YYYY-MM-DD)	2020-12-18
Name/Print	Wesley Schwie	Registration Number	64,950

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

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

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

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

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

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

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

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

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

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

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

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

Electronic Acknowledgement Receipt

EFS ID:	41435131
Application Number:	16598033
International Application Number:	
Confirmation Number:	3718
Title of Invention:	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS
First Named Inventor/Applicant Name:	Justin Strahan
Customer Number:	124179
Filer:	Wesley E. Schwie/Talia Childs
Filer Authorized By:	Wesley E. Schwie
Attorney Docket Number:	JOOVV.004A.C2
Receipt Date:	18-DEC-2020
Filing Date:	10-OCT-2019
Time Stamp:	15:59:45
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	2020-12-18-ids-transmittal-JOOVV-004A-C2.pdf	82446 d6ca0093687e29b6bc095adb9bd0773da75ddf38	no	1

Warnings:

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	2020-12-18-ids-JOOVV-004A-C2.pdf	1034972 4be5c41fefe8edb232cf8b883917e725d57d3f99	no	5
Warnings:					
Information:					
			Total Files Size (in bytes):	1117418	

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Inventor: Justin Strahan

Examiner: Tammie K. Marlen

Group Art Unit: 3792

Application No.: 16/598,033

Filed: October 10, 2019

Docket No.: JOOVV.004A.C2

Title: PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

INFORMATION DISCLOSURE STATEMENT

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

Dear Examiner:

Please see the Information Disclosure Statement submitted with this letter. The Information Disclosure Statement is being filed prior to the first action on the merits. Thus, no fee is required.

Respectfully submitted,

/Wesley E. Schwie/

Wesley E. Schwie
Reg. No. 64,950
651-428-9828
Date: December 18, 2020

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16598033
Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Niketa I. Patel
Attorney Docket Number	JOOVV.004A.C2

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	10440794		2019-10-08	ALEXANDER	
	2	D877919		2020-03-10	STRAHAN	
	3	D877920		2020-03-10	NELSON	
	4	D877921		2020-03-10	NELSON	
	5	D877922		2020-03-10	STRAHAN	
	6	D877923		2020-03-10	STRAHAN	
	7	D892343		2020-08-04	STRAHAN	
	8	D892344		2020-08-04	NELSON	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16598033
	Filing Date	2019-10-10
	First Named Inventor	Justin Strahan
	Art Unit	3792
	Examiner Name	Niketa I. Patel
	Attorney Docket Number	JOOVV.004A.C2

	9	D892345		2020-08-04	STRAHAN	
	10	D893737		2020-08-18	NELSON	
	11	D895822		2020-09-08	NELSON	

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

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20040162596		2004-08-19	ALTSHULER	
	2	20130304019		2013-11-14	COOPER	
	3	20160016001		2016-01-21	LOUPIS	
	4	20180236259		2018-08-23	NELSON	
	5	20200121944		2020-04-23	STRAHAN	

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

FOREIGN PATENT DOCUMENTS Remove

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Niketa I. Patel
Attorney Docket Number	JOOVV.004A.C2

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2018152278	WO		2018-08-23	NELSON		
	2	2020086494	WO		2020-04-30	JOOVV, INC.		
	3	2020131235	WO		2020-06-25	JOOVV, INC.		

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	PCT International Search Report and Written Opinion in International Application No. PCT/US2019/059845, dated December 11, 2019, 7 pages	
	2	PCT International Search Report and Written Opinion in International Application No. PCT/US2019/057292, dated January 7, 2020, 8 pages	
	3	PCT International Search Report and Written Opinion in International Application No. PCT/US2020/038187, dated August 19, 2020, 8 pages	

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

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16598033
	Filing Date	2019-10-10
	First Named Inventor	Justin Strahan
	Art Unit	3792
	Examiner Name	Niketa I. Patel
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Attorney Docket Number	JOOVV.004A.C2

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OR

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See attached certification statement.

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

☒ A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Wesley Schwie/	Date (YYYY-MM-DD)	2020-09-15
Name/Print	Wesley Schwie	Registration Number	64,950

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

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference **JOOVV. 004A.PCT**	**FOR FURTHER ACTION**	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. **PCT/US2019/059845**	International filing date *(day/month/year)* **05 November 2019 (05.11.2019)**	(Earliest) Priority Date *(day/month/year)* **20 December 2018 (20.12.2018)**
Applicant **JOOVV, INC.**		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language**, the international search was carried out on the basis of:

   ☑ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

   b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

   c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

   ☑ the text is approved as submitted by the applicant.

   ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

   ☑ the text is approved as submitted by the applicant.

   ☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

   a. the figure of the **drawings** to be published with the abstract is Figure No. 1

   ☑ as suggested by the applicant.

   ☐ as selected by this Authority, because the applicant failed to suggest a figure.

   ☐ as selected by this Authority, because this figure better characterizes the invention.

   b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2019/059845

A. CLASSIFICATION OF SUBJECT MATTER

IPC: A61N 5/06
CPC: A61N 5/062, 2005/0652, 5/0601, 5/0616, 2005/0644

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

CPC: CPC: A61N 5/062, 2005/0652, 5/0601, 5/0616, 2005/0644/A61N 5/06

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

US-PGPUB, USPAT, USOCR, EPO, JPO, DERWENT: light, and, Justin, Scott, NELSON, STRAHAN, therapy, near, INV, same, red, infrared, following, Bluetooth, followed, lead, follow, leading, indicate, control, housing, microcontrols, button, communicate, button, microprocess, process

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2007/0217199 A1 (ADAM ET AL.) 20 September 2007 (20.09.2007) . See entire documents.	12-20
Y	See entire documents.	1-7 and 9-11
Y	US 2011/0054573 A1 (MITCHELL) 03 March 2011 (03.03.2011) . See entire documents.	1-7, 10, and 11

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
08 December 2019 (08.12.2019)	11DEC 2019

Name and mailing address of the ISA/US	Authorized officer
COMMISSIONER FOR PATENTS MAIL STOP PCT, ATTN: ISA/US P.O. BOX 1450 ALEXANDRIA, VA 22313-1450, UNITED STATES OF AMERICA Facsimile No. (571)273-8300	HARRY C. KIM Telephone No. 571-272-4300

Form PCT/ISA/210 (second sheet) (July 2019)

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:
WESLEY SCHWIE
SCHWIE LAW, LLC
445 MINNESOTA ST.
SUITE 1500
ST. PAUL, MINNESOTA 55101
UNITED STATES OF AMERICA

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	11 DEC 2019
Applicant's or agent's file reference: **JOOVV. 004A.PCT**	**FOR FURTHER ACTION** See paragraph 2 below
International application No.: **PCT/US2019/059845**	International filing date *(day/month/year)*: **05 November 2019 (05.11.2019)**
Priority date *(day/month/year)*: **20 December 2018 (20.12.2018)**	
International Patent Classification (IPC) or both national classification and IPC: IPC: A61N 5/06; CPC: A61N 5/062, 2005/0652, 5/0601, 5/0616, 2005/0644	
Applicant: **JOOVV, INC.**	

1. This opinion contains indications relating to the following items:

- [x] Box No. I — Basis of the opinion
- [ ] Box No. II — Priority
- [ ] Box No. III — Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV — Lack of unity of invention
- [x] Box No. V — Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI — Certain documents cited
- [ ] Box No. VII — Certain defects in the international application
- [ ] Box No. VIII — Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer
COMMISSIONER FOR PATENTS MAIL STOP PCT, ATTN: ISA/US P.O. BOX 1450 ALEXANDRIA, VA 22313-1450, UNITED STATES OF AMERICA	**08 December 2019 (08.12.2019)**	**HARRY C. KIM**
Facsimile No. (571)273-8300		Telephone No. 571-272-4300

Form PCT/ISA/237 (Cover sheet) (revised January 2019)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/059845

Box No. I **Basis of the opinion**

1. With regard to the **language**, this opinion has been established on the basis of:
   - [x] the international application in the language in which it was filed.
   - [ ] a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. [ ] This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(b)).

3. [ ] With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
   - a. [ ] forming part of the international application as filed:
     - [ ] in the form of an Annex C/ST.25 text file.
     - [ ] on paper or in the form of an image file.
   - b. [ ] furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
   - c. [ ] furnished subsequent to the international filing date for the purposes of international search only:
     - [ ] in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).
     - [ ] on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

4. [ ] In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/059845

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-7, and 8-11	YES
	Claims	12-20	NO
Inventive step (IS)	Claims	8	YES
	Claims	1-7, 9-16, and 17-20	NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims	NONE	NO

2. Citations and explanations :

EXPLANATION

Claims **12-20 lacks** novelty under PCT Article 33(2) as being anticipated by Adam et al. (U.S. 2007/0217199.

Regarding claim 12, Adam discloses a light therapy device 100, comprising: a housing 110; a first plurality of lights 156 coupled to the housing and configured to emit red light (see paragraphs [0009] and [0056]); a second plurality of lights 156 coupled to the housing and configured to emit near infrared light (see paragraphs [0009] and [0056] and Table 1, which gives the wavelength of the infrared light as being in the near infrared zone); and a control panel coupled to a surface of the housing, wherein the control panel comprises an input button 106, a first indication light 108/160/174/176, and a second indication light 108/160/174/176 (see paragraphs [0051] and [0066] which describe multiple indication lights), wherein the first indication light and the second indication light are communicatively coupled to the input button, and wherein the first indication light is configured to indicate whether the light therapy device is set to emit light from at least a portion of the first plurality of lights and the second indication light is configured to indicate whether the light therapy device is set to emit light from at least a portion of the second plurality of lights (see Figures 1, 4, 6, and 11 and paragraphs [0051], [0066], [0082], and [0102]).

Regarding claims 13-15, it is respectfully submitted that when the charger of the light therapy device is considered part of the light therapy device, the power cord of the light therapy device is a wired connection to a second device, the power connection. Furthermore, the structure of the second light therapy device does not have an impact on the light therapy device and, thus, fails to further define the claim over that of Adam. Furthermore, it is respectfully submitted that when the charger is not considered to be part of the light therapy device, the inductive charging between the light therapy device and the charger is a wireless connection between the light therapy devices and a second device.

Regarding claim 16, it is respectfully submitted that the power cord 188 shown in Figures 14-16 is a communication cable between the light therapy device and a second device.

Regarding claim 17, it is respectfully submitted that the light therapy device of Adam is configured to operate in each of a lead mode and a follow mode because the light therapy device of Adam is a stand-alone device that both leads and follows according to its programming. It is respectfully submitted that any structure of a "second light therapy device" with which the light therapy device is configured to communicate fails to further define the light therapy device over that of the prior art.

Regarding claim 18, it is respectfully submitted that control actuator 106 comprises a first switch which permits manual control of the microprocessor and is, thus, configured to select each of the lead mode and the follow mode.

Regarding claim 19, Adam discloses that the control panel comprises a countdown treatment timer (see paragraph [0078]).

Regarding claim 20, Adam discloses that the control panel is coupled to a side surface of the housing (see Figure 1).

Claims **1-7, 10 and 11 lacks** an inventive step under PCT Article 33(3) as being obvious over Mitchell (U.S. 2011/0054573) in view of Adam (U.S. 2007/0217199).

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement**

Regarding claim 1, Mitchell discloses the invention substantially as claimed, including, a light therapy system 100/300/400, comprising: a first light therapy device 108/302/404 comprising a first housing, a first plurality of lights 106/304/406 coupled to the first housing and configured to emit at least one of red light and near infrared light (see Figures 1-4 and Abstract), and a first control panel 116/308/402 comprising a first input button 112/114 (see Figures 1, 3, and 4). However, Mitchell fails to disclose a first pair of indication lights communicatively coupled to the first input button, the first pair of indication lights configured to indicate whether the first plurality of lights is set to emit red light, infrared light, or both. Adam teaches a light therapy system comprising: first a light therapy device 100 comprising a first housing; a first plurality of lights 156 coupled to the first housing and configured to emit at least one of red light and near infrared light (see paragraph [0056] and Table 1), and a first control panel comprising a first input button 106 and a pair of indication lights 108/174/176 configured to indicate whether the first plurality of lights is set to emit red light, infrared light, or both (see Figures 1, 6, 8, and 11 and paragraphs [0050], [0051], [0066], [0078], [0082], and [0102]). Adam teaches that the first pair of indication lights provide the advantage of providing feedback to a user of the device about the light treatment is being applied to the patient (see paragraphs [0082] and [0102]). It would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to light therapy device Mitchell to include a pair of indication lights, as taught by Adam, in order to provide feedback to a user of the device about the light treatment that is being applied to the patient, and as it has been held that combing prior art elements according to known methods to yield predictable results requires only routine skill in the art.

Further, while Mitchell discloses a number of light therapy devices 404 (see Figure 4), Mitchell fails to disclose each light therapy device including its own control panel comprising an input button and a pair of indication lights communicatively coupled to the input button, the pair of indication lights configured to indicate whether the plurality of lights of the light therapy device is set to emit red light, infrared light, or both. It would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to duplicate the modified light therapy device of Mitchell in view of Adam, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. MPEP 2144.04.

Regarding claim 2, it can be seen in Figure 1B of Mitchell that the control panel is coupled to a side surface of the housing.

Regarding claims 3 and 4, Mitchell discloses in the embodiment of Figure 4 that the emitter pads 404 are connected via a wired or wireless link to control unit 402 (see paragraph [0030]). It is respectfully submitted that the modified light therapy devices that each include a control panel comprising an input button and a pair of indication lights, would likewise have a wired or wireless connection to the control unit 402 that includes control for all of the light therapy devices.

Regarding claim 5, it can be seen in Figure 4 of Mitchell that the light therapy devices 404 are connected to control box 402 via communication cables.

Regarding claim 6, Mitchell discloses that each of the first light therapy device and the second light therapy device is configured to operate in at least one of a lead mode and a follow mode (both devices are controlled by control unit 402 and, thus, the first light therapy device and the second light therapy device are configured to operate in a follow mode, see paragraph [0030]). Further, it is respectfully submitted that the claim, as written, does not require that the first light therapy device operate in the lead mode, but rather only requires that *when* the first light therapy device operates in the lead mode and the second light therapy device operates in the follow mode, the second light therapy device performs operations as instructed by the first light therapy device. The Examiner respectfully submits that it is inherent that the second light therapy device performs operations as instructed by the first light therapy device *when* the first light therapy device operates in the lead mode and the second light therapy device operates in the follow mode, as this is essentially the definition of the lead mode and the follow mode.

Regarding claim 7, it is respectfully submitted that the terms "lead mode" and "follow mode" are arbitrary terms that fail to further limit the claimed invention over that of the prior art.

Regarding claim 10, Mitchell discloses that the first and second plurality of lights are configured to emit near infrared light (see Abstract).

Box No. V — Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement

Regarding claim 11, Mitchell discloses that the control panel 116 can indicate a treatment time (see paragraph [0023]) and, thus, each of the first and second control panels would be configured to indicate the treatment time.

Claims 1, 2, 6, 7, and 9-11 are rejected under 35 U.S.C. 103 as being unpatentable over Adam (U.S. 2007/0217199, cited above).

Regarding claims 1 and 2, Adam discloses the invention substantially as claimed, including a light therapy device 100, comprising: a housing 110; a first plurality of lights 156 coupled to the housing and configured to emit at least one of red light and near infrared light (see paragraphs [0009] and [0056] and Table 1, which gives the wavelength of the infrared light as being in the near infrared zone); and a control panel coupled to a side surface of the housing, wherein the control panel comprises an input button 106, and a pair of indication lights 108/160/174/176 (see paragraphs [0051] and [0066] which describe multiple indication lights), the pair of indication lights configured to indicate whether the first plurality of lights is set to emit red light, infrared light, or both (see Figures 1, 4, 6, and 11 and paragraphs [0051], [0066], [0082], and [0102]). However, Adam fails to disclose a second light therapy device. It would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to duplicate the light therapy device of Adam, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art.

Regarding claim 6, it is respectfully submitted that in modified Adam, each of the first light therapy device and the second light therapy device is configured to operate in at least one of a lead mode and a follow mode because the light therapy device of Adam is described essentially as an autonomous device. Further, it is respectfully submitted that the claim, as written, does not require that the first light therapy device operate in the lead mode, but rather only requires that *when* the first light therapy device operates in the lead mode and the second light therapy device operates in the follow mode, the second light therapy device performs operations as instructed by the first light therapy device. The Examiner respectfully submits that it is inherent that the second light therapy device performs operations as instructed by the first light therapy device *when* the first light therapy device operates in the lead mode and the second light therapy device operates in the follow mode, as this is essentially the definition of the lead mode and the follow mode.

Regarding claim 7, it is respectfully submitted that the terms "lead mode" and "follow mode" are arbitrary terms that fail to further limit the claimed invention over that of the prior art.

Regarding claim 9, Adam discloses that a first portion of the first plurality of lights is configured to emit red light and a first portion of the second plurality of lights is configured to emit red light (see paragraphs [0009] and [0056] and Table 1, which gives the wavelength of the infrared light as being in the near infrared zone).

Regarding claim 10, Adam discloses that the first and second plurality of lights are configured to emit near infrared light (see paragraphs [0009] and [0056] and Table 1, which gives the wavelength of the infrared light as being in the near infrared zone).

Regarding claim 11, Adam discloses that the control panel comprises a countdown treatment timer (see paragraph [0078]).

Claim**8 meets** the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest **the claims limitations**.

Claims **1-20 meets** the criteria set out in PCT Article 33(4), and thus **have** industrial applicability because the subject matter claimed can be made or used in industry.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference JOOVV.003A.PCT	**FOR FURTHER ACTION**	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US2019/057292	International filing date *(day/month/year)* 21 October 2019	(Earliest) Priority Date *(day/month/year)* 22 October 2018
Applicant JOOVV, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language**, the international search was carried out on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

   b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

   c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II)

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

   a. the figure of the **drawings** to be published with the abstract is Figure No. 2

   ☒ as suggested by the applicant.

   ☐ as selected by this Authority, because the applicant failed to suggest a figure.

   ☐ as selected by this Authority, because this figure better characterizes the invention.

   b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2019/057292

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - A61N 5/00; A61N 5/01; A61N 5/06 (2019.01)
CPC - A61N 5/0616; A61N 2005/0636; A61N 2005/0652 (2019.08)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
See Search History document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
See Search History document

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
See Search History document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Mini_Solo_Duo_Quad_Elite_-_User_Manual. Joovv. 7 August 2018. [retrieved 28 November 2019]. Retrieved from the Internet: <URL: https://cdn.shopify.com/s/files/1/1155/1360/files/Joovv_-_Mini_Solo_Duo_Quad_Elite_-_User_Manual.pdf> Sections 1-3, 5-8	1-11, 14-20
Y		12, 13
Y	JOOVV. Red Light Therapy for Your Entire Body. Archive.org. 08 August 2018 [Retrieved on 28 November 2019] Retrieved from the Internet: <URL: https://web.archive.org/web/20180808180609/https://joovv.com> entire document	12, 13
A	JOOVV. Choosing the Right Joovv. YouTube. 6 August 2018. [Retrieved on 28 November 2019]. Retrieved from the Internet. <URL:https://www.youtube.com/watch?v=OiE9dOcM6mE&rel=0&showinfo=0&autoplay=0> entire video	1-20
A	JOOVV. The New Joovv. YouTube. 1 October 2018. [retrieved on 27 November 2019]. Retrieved from the Internet: <URL: https://www.youtube.com/watch?time_continue=12&v=fvp86CNhd8Js&feature=emb_logo> entire video	1-20
A	US 2016/0236259 A1 (JOOVV, INC.) 23 August 2018 (23.08.2018) entire document	1-20
A	US 2006/0229689 A1 (FERGUSON et al) 12 October 2006 (12.10.2006) entire document	1-20
A	US 2004/0068305 A1 (BANSAL et al) 08 April 2004 (08.04.2004) entire document	1-20

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
03 December 2019	07 JAN 2020
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 571-273-8300	Authorized officer Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (January 2015)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: WESLEY SCHWIE
SCHWIE LAW, LLC
445 MINNESOTA ST.
SUITE 1500
ST. PAUL, MN 55101

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)* 07 JAN 2020

Applicant's or agent's file reference
JOOVV.003A.PCT

FOR FURTHER ACTION
See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2019/057292	21 October 2019	22 October 2018

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - A61N 5/00; A61N 5/01; A61N 5/06 (2019.01)
CPC - A61N 5/0616; A61N 2005/0636; A61N 2005/0652 (2019.08)

Applicant JOOVV, INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability, citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 571-273-8300	03 December 2019	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (January 2015)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2018/057292

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a)).

3. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:

   a. ☐ forming part of the international application as filed:

      ☐ in the form of an Annex C/ST.25 text file.

      ☐ on paper or in the form of an image file.

   b. ☐ furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.

   c. ☐ furnished subsequent to the international filing date for the purposes of international search only:

      ☐ in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).

      ☐ on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/057292

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	12, 13, 15, 16, 20	YES
	Claims	1-11, 14, 17-19	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-20	NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims	None	NO

2. Citations and explanations:

Claims 1-11, 14, and 17-19 lack novelty under PCT Article 33(2) as being anticipated by JOOVV (hereinafter JOOVV1).

Regarding Claim 1, JOOVV1, in the field of light therapy, discloses a light therapy system (pg. 2, col. 2, para. 1 treatment of light therapy), comprising: a first light therapy device comprising a first rigid housing (#1 Lead device with a rigid housing, Fig. G, pg. 6.6) and a first plurality of lights (lights shown as dots on #1 Lead, Fig. G pg. 6.6) configured to emit at least one of red light and near infrared light (red and infrared options on control panel, Fig. H, pg. 6.7 and pg. 6.8, col. 1, para. 1 explains the default wavelength mode utilizes both red and near infrared wavelengths); and a second light therapy device comprising a second rigid housing (#2 Follow device or #3 Follow device, Fig. G, pg. 6.6) and a second plurality of lights (lights shown as dots on the four devices Fig. G pg. 6.6) configured to emit at least one of red light and near infrared light (red and infrared options on control panel, Fig. H, pg. 6.7 and pg. 6.8, col. 1, para. 1 explains the default wavelength mode utilizes both red and near infrared wavelengths), wherein the first rigid housing is configured to be detachably coupled to the second rigid housing (Fig. A, pg. 6.2 and Step 2, pg. 6.2 explains placing the connection bars on the pair of Joovv devices to couple #1 Lead device to #2 Follow device and Step 8, pg. 6.6 explains lining up the threaded posts with the holes in the end caps of the upper devices, then, sliding the lower threaded posts into the holes and slide back to lock in place, as shown in Figure G to couple #3 Follow device to #1 Lead device).

Regarding Claim 2, JOOVV1 discloses the light therapy system of claim 1, wherein the first light therapy device (#1 Lead device, Fig. A, pg. 6.2) and the second light therapy device (#2 Follow device, Fig. A, pg. 6.2) are configured to be detachably coupled in a side-by-side orientation (Fig. A, pg. 6.2 and Step 2, pg. 6.2 explains placing the connection bars on a pair of Joovv devices).

Regarding Claim 3, JOOVV1 discloses the light therapy system of claim 1, wherein the first light therapy device (#1 Lead device, Fig. G, pg. 6.6) and the second light therapy device (#3 Follow device, Fig. F, pg. 6.6) are configured to be detachably coupled in a top-to-bottom orientation (Step 8, pg. 6.6 explains lining up the threaded posts with the holes in the end caps of the upper devices, then, sliding the lower threaded posts into the holes and slide back to lock in place, as shown in Figure G).

Regarding Claim 4, JOOVV1 discloses the light therapy system of claim 1, further comprising a coupling system coupled to a bottom surface of the first rigid housing (slotted holes on the bottom of the #1 Lead device, Fig. G, pg. 6.6) and a top surface of the second rigid housing (threaded posts on #3 Follow device, Fig. G, pg. 6.6), wherein the coupling system is configured to detachably couple the first rigid housing to the second rigid housing (Step 8, pg. 6.6 explains lining up the threaded posts with the holes in the end caps of the upper devices, then, sliding the lower threaded posts into the holes and slide back to lock in place, as shown in Figure G).

Regarding Claim 5, JOOVV1 discloses the light therapy system of claim 4, wherein the first light therapy device (#1 Lead device, Fig. G, pg. 6.6) comprises a first aperture located on the bottom surface of the first rigid housing (right-side aperture located on the bottom surface of #1 Lead device, Fig. G, pg. 6.6), and a second aperture located on the bottom surface of the first rigid housing (left-side aperture located on the bottom surface of #1 Lead device, Fig. G, pg. 6.6), and wherein the coupling system comprises a first post extending from the top surface of the second rigid housing (right-side post extending from the top surface of #3 Follow device, Fig. G, pg. 6.6), and a second post extending from the top surface of the second rigid housing (left-side post extending from the top surface of #3 Follow device, Fig. G, pg. 6.6), the first post being configured to detachably couple to the first aperture, and the second post being configured to detachably couple to the second aperture (Step 8, pg. 6.6 explains lining up the threaded posts with the holes in the end caps of the upper devices, then, sliding the lower threaded posts into the holes and slide back to lock in place, as shown in Figure G).

Regarding Claim 6, JOOVV1 discloses the light therapy system of claim 1, further comprising a first bracket (upper connection bar, Fig. A, pg. 6.2) configured to couple to both a back surface of the first rigid housing (back surface of #1 Lead device, Fig. A, pg. 6.2) and a back surface of the second rigid housing (back surface of #2 Follow device, Fig. A, pg. 6.2) to thereby couple the first rigid housing to the second rigid housing (Fig. A, pg. 6.2 and Step 2, pg. 6.2 explains placing the connection bars on a pair of Joovv devices).

Regarding Claim 7, JOOVV1 discloses the light therapy system of claim 6, further comprising a second bracket (lower connection bar, Fig. a, pg. 6.2) configured to couple to both a back surface of the first rigid housing (back surface of #1 Lead device, Fig. A, pg. 6.2) and a back surface of the second rigid housing (back surface of #2 Follow device, Fig. A, pg. 6.2) to thereby couple the first rigid housing to the second rigid housing (Fig. A, pg. 6.2 and Step 2, pg. 6.2 explains placing the connection bars on a pair of Joovv devices).

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding Claim 8, JOOVV1 discloses the light therapy system of claim 1, further comprising: a third light therapy device comprising a third rigid housing (#3 Follow device, Fig. G, pg. 6.6) and a third plurality of lights (lights shown as dots on #3 Follow device, Fig. G, pg. 6.6) configured to emit at least one of red light and near infrared light (red and infrared options on control panel, Fig. H, pg. 6.7 and pg. 6.8, col. 1, para. 1 explains the default wavelength mode utilizes both red and near infrared wavelengths); and a fourth light therapy device comprising a fourth rigid housing (#4 Follow device, Fig. G, pg. 6.6) and a fourth plurality of lights (lights shown as dots on #4 Follow device, Fig. G, pg. 6.6) configured to emit at least one of red light and near infrared light (red and infrared options on control panel, Fig. H, pg. 6.7 and pg. 6.8, col. 1, para. 1 explains the default wavelength mode utilizes both red and near infrared wavelengths), wherein the third light therapy device and the fourth light therapy device are each configured to be detachably coupled to at least one of the first light therapy device (#1 Lead device, Fig. G, pg. 6.6) and the second light therapy device (#2 Follow device, Fig. G, pg. 6.6 and that figure shows #3 Follow device detachably coupled to #1 lead device and #4 Follow device detachably coupled to #2 Follow device).

Regarding Claim 9, JOOVV1 discloses the light therapy system of claim 8, wherein the first light therapy device (#1 Lead device, Fig. G, pg. 6.6) comprises a first aperture located on a bottom surface of the first rigid housing (right-side aperture on the bottom surface of #1 Lead device, Fig. G, pg. 6.6), wherein the second light therapy device (#2 Follow device, Fig. G, pg. 6.6) comprises a second aperture located on a bottom surface of the second rigid housing (right-side aperture on the bottom of #2 Follow device, Fig. G, pg. 6.6), wherein the third light therapy device comprises a first post extending from a top surface of the third rigid housing (right-side post extending from the top surface of #3 Follow device, Fig. G, pg. 6.6), the first post configured to detachably couple to the first aperture (Step 6, pg. 6.6 explains lining up the threaded posts with the holes in the end caps of the upper devices, then, sliding the lower threaded posts into the holes and slide back to lock in place, as shown in Figure G, pg. 6.6), and wherein the fourth light therapy device comprises a second post extending from a top surface of the fourth rigid housing (right-side post extending from the top surface of #4 Follow device, Fig. G, pg. 6.6), the second post configured to detachably couple to the second aperture (Step 6, pg. 6.6 explains lining up the threaded posts with the holes in the end caps of the upper devices, then, sliding the lower threaded posts into the holes and slide back to lock in place, as shown in Figure G, pg. 6.6).

Regarding Claim 10, JOOVV1 discloses the light therapy system of claim 8, further comprising: a first bracket configured to detachably couple to the first rigid housing and the second rigid housing (upper connection bar, Fig. B, pg. 6.11), wherein a first portion of the first bracket is configured to couple to a back surface of the first rigid housing (left half of the upper connection bar coupled to the back surface of #1 Lead device, Fig. B, pg. 6.11), and a second portion of the first bracket is configured to couple to a back surface of the second rigid housing (right half of the upper connection bar coupled to the back surface of #2 Follow device, Fig. B, pg. 6.11); and a second bracket configured to detachably couple to the third rigid housing and the fourth rigid housing (lower connection bar, Fig. B, pg. 6.11), wherein a first portion of the second bracket is configured to couple to a back surface of the third rigid housing (left half of the lower connection bar coupled to the back surface of #3 Follow device, Fig. B, pg. 6.11), and a second portion of the second bracket is configured to couple to a back surface of the fourth rigid housing (right half of the lower connection bar coupled to the back surface of #4 Follow device, Fig. B, pg. 6.11).

Regarding Claim 11, JOOVV1 discloses the light therapy system of claim 8, further comprising a quad bracket configured to be detachably coupled to a back surface of the first rigid, a back surface of the second rigid housing, a back surface of the third rigid housing, and a back surface of the fourth rigid housing to thereby couple the first rigid housing, the second rigid housing, the third rigid housing and the fourth rigid housing together housing (quad bracket attached to the four devices by Allen screws as seen in the center of Fig. A, pg. 6.10 and Step 2, pg. 6.10 explains that the Joovv Quad bracket is placed on top of the four Joovv devices, aligning the bracket holes with the corresponding holes on the Joovv devices, attaching the bracket using 24 M4x6mm Allen screws and hand tightening using the included Allen wrench, as shown in Figure A).

Regarding Claim 14, JOOVV1 discloses the light therapy system of claim 1, further comprising an attachment system (threaded posts, cables, snap links and door hooks, Fig. F, Step 7, pg. 7.6) configured to couple to a top surface of the first rigid housing (threaded posts attached to the top surface of the left side device, Fig. D, pg. 7.5), wherein the attachment system is configured to detachably couple the first rigid housing and the second rigid housing to at least one of a door stand (Fig. F shows the first and second rigid housings with the attachment system and Step 7 explains holding the upper pair of Joovv devices #1 and #2 while the other person connects the snap links to the door hooks) and a wall stand.

Regarding Claim 17, JOOVV1 discloses the light therapy system of claim 1, wherein the first light therapy device (#1 Lead device, Fig. B, pg. 6.3) is configured to be electrically coupled to the second light therapy device (#2 Follow device is electrically connected to #1 Lead device, Fig. B, pg. 6.3 and Step 3, pg. 6.3 explains patch cables that came with the Quad connection kit plug into the male sockets on devices #1 and #3 and into the female sockets on devices #2 and #4, as shown in Figure B).

Regarding Claim 18, JOOVV1 discloses the light therapy system of claim 1, wherein a first portion of the first plurality of lights is configured to emit red light (Fig. G shows a first red portion of the plurality of lights of the #1 Lead device) and a first portion of the second plurality of lights (Fig. G shows a first red portion of the plurality of lights of the #2 Follow device) is configured to emit red light (Fig. G shows red lights configured to emit red light and Step 9, pg. 6.14 explains the default wavelength mode utilizes both red and near infrared wavelengths; after pausing the treatment session, one can change the mode to use only the red or near infrared LEDs by selecting the "Mode" button on the control panel Fig. D, pg. 6.13).

Regarding Claim 19, JOOVV1 discloses the light therapy system of claim 18, wherein a second portion of the first plurality of lights is configured to emit near infrared light (Fig. G shows a second gray portion of the plurality of lights of the #1 Lead device to indicate lights configured to emit near infrared light) and a second portion of the second plurality of lights is configured to emit near infrared light (Fig. G shows a second gray portion of the plurality of lights of the #2 Follow device to indicate lights configured to emit near infrared light and Step 9, pg. 6.14 explains the default wavelength mode utilizes both red and near infrared wavelengths; after pausing the treatment session, one can change the mode to use only the red or near infrared LEDs by selecting the "Mode" button on the control panel Fig. D, pg. 6.13).

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Claims 15, 16, and 20 lack an inventive step under PCT Article 33(3) as being obvious over JOOVV (hereinafter JOOVV1).

Regarding Claim 15, JOOVV1 discloses the light therapy system of claim 14, wherein the attachment system comprises: a first post extending from the top surface of the first rigid housing (Fig. D, pg. 7.5 shows a back view with a right-side post extending from the top of the left side device); a second post extending from the top surface of the first rigid housing (left-side post extending from the top of the left side device, Fig. D, pg. 7.5), the second post spaced from the first post (Fig. D, pg. 7.5 shows the two post spaced apart); and a cable configured to couple to at least one of the door stand (Fig. F, pg. 6.6 shows a cable, with a snap link extending from the left-side post to the right-side post, coupled to a door stand) and the wall stand.
JOOVV1 fails to explicitly disclose a cable extending from the first post to the second post.
It would have been obvious to one of ordinary skill in the art at the time of the invention to use a single cable, since the use of a one piece construction instead of the cable and snap link structure disclosed in the prior art would have required only routine skill in the art. The motivation for doing so would have been to reduce the number of parts required for installation thereby reducing the number of steps required for the door mounting process (JOOVV1, Step 5, pg. 6.5).

Regarding Claim 16, JOOVV1 discloses the light therapy system of claim 1, further comprising an attachment system configured to couple to a top surface of the first rigid housing (posts and cable attachment system at the top of the right-side device, Fig. F, pg. 6.6) and a top surface of the second rigid housing (posts and cable attachment system at the top of the left-side device, Fig. F, pg. 6.6), wherein the attachment system is configured to detachably couple the first rigid housing and the second rigid housing to at least one of a door stand (Fig. F, pg. 6.6 shows the first and second devices detachably coupled to a door stand) and a wall stand, wherein the attachment system further comprises: a first post extending from the top surface of the first rigid housing (right-side post extending from the top surface of the right-side device, Fig. F, pg. 6.6); a second post extending from the top surface of the first rigid housing (left-side post extending from the top surface of the right-side device, Fig. F, pg. 6.6), the second post spaced from the first post (Fig. F, pg. 6.6 shows the first post spaced from the second post); a first cable (cable extending from right-side post extending from the top surface of the right-side device, Fig. F, pg. 6.6), the first cable configured to couple to at least one of the door stand (Fig. F, pg. 6.6 shows a cable with a snap link extending from the right-side post coupled to a door stand) and the wall stand; a third post extending from the top surface of the second rigid housing (right-side post extending from the top surface of the left-side device, Fig. F, pg. 6.6); a fourth post extending from the top surface of the second rigid housing (left-side post extending from the top surface of the left-side device, Fig. F, pg. 6.6), the fourth post spaced from the third post; a second cable (Fig. F, pg. 6.6 shows the fourth post spaced from the third post); a second cable (cable extending from right-side post extending from the top surface of the left-side device, Fig. F, pg. 6.6, the second cable configured to couple to at least one of the door stand (Fig. F, pg. 6.6 shows a cable with a snap link extending from the right-side post coupled to a door stand) and the wall stand.
JOOVV1 fails to explicitly disclose the first cable extending from the first post to the second post and the second cable extending from the third post to the fourth post.
It would have been obvious to one of ordinary skill in the art at the time of the invention to use a single cable, since the use of a one piece construction instead of the cable and snap link structure disclosed in the prior art would have required only routine skill in the art. The motivation for doing so would have been to reduce the number of parts required for installation thereby reducing the number of steps required for the door mounting process (JOOVV1, Step 5, pg. 6.5).

Regarding Claim 20, JOOVV1 discloses the light therapy system of claim 1, however the first embodiment of JOOVV1 fails to explicitly disclose wherein the first plurality of lights are at least partially encompassed within the first rigid housing and thereby protrude through the first rigid housing, and wherein the second plurality of lights are at least partially encompassed within the second rigid housing and thereby protrude through the second rigid housing.
JOOVV1, in a second embodiment (Joovv Elite, Section 7 and shown in the photo on pg. 1), teaches wherein the first plurality of lights are at least partially encompassed within the first rigid housing and thereby protrude through the first rigid housing (pg. 1 shows a photo of the modular light system with a first plurality of red lights partially encompassed within the first rigid housing and thereby protrude through the first rigid housing shown as the upper right-side device), and wherein the second plurality of lights are at least partially encompassed within the second rigid housing and thereby protrude through the second rigid housing (pg. 1 shows a photo of the modular light system with a second plurality of gray lights partially encompassed within the first rigid housing and thereby protrude through the second rigid housing shown as the upper, center device).
It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Quad system of JOOVV1 with the teaching of the Elite, six device system of JOOVV1. The motivation for doing so would have been to implement the same devices in different configurations thereby providing a range of product sizes (JOOVV1, Joovv Quad pg. 6.9 and Joovv Elite pg. 7.1)

Claims 12 and 13 lack an inventive step under PCT Article 33(3) as being obvious over JOOVV (hereinafter JOOVV1) in view of JOOVV (hereinafter JOOVV2).

Regarding Claim 12, JOOVV1 discloses the light therapy system of claim 11, further comprising a mobile stand (optional mounting system mobile stand, pg. 6.9) however JOOVV1 fails to explicitly disclose a mobile stand having at least one vertical arm configured to couple to the quad bracket.
JOOVV2, in the field of light therapy (pg. 1), teaches a light therapy system comprising a mobile stand (Joovv Quad shown in the table on pg. 5) having at least one vertical arm configured to couple to the quad bracket (center image for using a mobile stand showing a quad bracket coupled to the mobile stand, pg. 10).
It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the mobile stand of JOOVV1 with the teaching of a quad bracket attached to at least one vertical arm of the mobile stand of JOOVV2 for the purpose of attaching the multi-device light therapy system to a mobile stand and thereby provide a modular system that is easy to use anywhere (JOOV2, pg. 10).

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Regarding Claim 13, modified JOOVV1 discloses the light therapy system of claim 12, however JOOVV1 fails to explicitly disclose wherein the mobile stand comprises: at least one horizontal leg coupled to the at least one vertical arm, wherein the at least one horizontal leg is configured to stabilize the mobile stand; and a plurality of casters extending from the at least one horizontal leg, the plurality of casters configured to contact a ground surface and thereby enable the mobile stand to roll along the ground surface. JOOVV2 teaches wherein the mobile stand comprises: at least one horizontal leg coupled to the at least one vertical arm (Referring to the photo shown on page 1, the mobile stand has multiple horizontal legs), wherein the at least one horizontal leg is configured to stabilize the mobile stand (horizontal legs extend perpendicularly outward from the horizontal bar beneath the device to stabilize the mobile stand); and a plurality of casters extending from the at least one horizontal leg (the photo on page 1 shows casters), the plurality of casters configured to contact a ground surface and thereby enable the mobile stand to roll along the ground surface (the casters in the photo on page 1 are configured contact a ground surface and roll along the ground).
It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the mobile stand of JOOVV1 with the teaching of JOOVV2 for the purpose of attaching the multi-device light therapy system to a stable mobile stand and thereby provide a large modular system that is easy to use anywhere (JOOV2, pg. 10).

Claims 1-20 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference JOOVV.007A.PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below
International application No. PCT/US2020/038187	International filing date (day/month/year) 17 June 2020 (17.06.2020)	(Earliest) Priority Date (day/month/year) 18 June 2019 (18.06.2019)

Applicant JOOVV, INC.

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☑ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

☑ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☑ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 1

☑ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2020/038187

A. CLASSIFICATION OF SUBJECT MATTER

IPC: A61N 5/06
CPC: A61N 5/0614, 2005/0636, 2005/0655, 2005/0652, 5/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

CPC: A61N 5/0616, 2005/0626, 063, 0632, 064, 0652, 0659, 0663, 0664

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2016/0016001 A1 (LOUPIS ET AL.) 21 January 2016 (21.01.2016), entire document.	1-20
Y	US 10, 440,794 B2 (ALEXANDER ET AL.) 08 October 2019 (08.10.2019), entire document.	7, 15, 20
Y	US 2004/0162596 A1 (ALTSHULER ET AL.) 19 August 2004 (19.08.2004), entire document.	13-14
Y	US 2013/0304019 A1 (COOPER ET AL.) 14 November 2013 (14.11.2013), entire document.	17-19

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"D" document cited by the applicant in the international application
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
12 August 2020 (12.08.2020)	19 AUG 2020
Name and mailing address of the ISA/US COMMISSIONER FOR PATENTS MAIL STOP PCT, ATTN: ISA/US P.O. BOX 1450 ALEXANDRIA, VA 22313-1450, UNITED STATES OF AMERICA Facsimile No. (571)273-8300	Authorized officer HARRY KIM Telephone No. 571-272-4300

Form PCT/ISA/210 (second sheet) (July 2019)

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:
WESLEY SCHWIE
SCHWIE LAW, LLC
445 MINNESOTA ST.
SUITE 1500
ST. PAUL, MINNESOTA 55101
UNITED STATES OF AMERICA

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Applicant's or agent's file reference: JOOVV.007A.PCT	Date of mailing (*day/month/year*): 19 AUG 2020 FOR FURTHER ACTION: See paragraph 2 below

International application No.	International filing date (*day/month/year*)	Priority date (*day/month/year*)
PCT/US2020/038187	17 June 2020 (17.06.2020)	18 June 2019 (18.06.2019)

International Patent Classification (IPC) or both national classification and IPC
IPC: A61N 5/06
CPC: A61N 5/0614, 2005/0636, 5/06, 2005/0655, 2005/0652

Applicant: JOOVV, INC.

1. This opinion contains indications relating to the following items:

- [x] Box No. I — Basis of the opinion
- [ ] Box No. II — Priority
- [ ] Box No. III — Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV — Lack of unity of invention
- [x] Box No. V — Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI — Certain documents cited
- [ ] Box No. VII — Certain defects in the international application
- [x] Box No. VIII — Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer
COMMISSIONER FOR PATENTS MAIL STOP PCT, ATTN: ISA/US P.O. BOX 1450 ALEXANDRIA, VA 22313-1450, UNITED STATES OF AMERICA	12 August 2020 (12.08.2020)	HARRY KIM
Facsimile No. (571)273-8300		Telephone No. 571-272-4300

Form PCT/ISA/237 (Cover sheet) (revised January 2019)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2020/038187

Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of:
   - [x] the international application in the language in which it was filed.
   - [ ] a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. [ ] This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(b)).

3. [ ] With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
   - a. [ ] forming part of the international application as filed:
     - [ ] in the form of an Annex C/ST.25 text file.
     - [ ] on paper or in the form of an image file.
   - b. [ ] furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
   - c. [ ] furnished subsequent to the international filing date for the purposes of international search only:
     - [ ] in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).
     - [ ] on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

4. [ ] In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2020/038187

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-20	YES
	Claims	NONE	NO
Inventive step (IS)	Claims	NONE	YES
	Claims	1-20	NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims	NONE	NO

2. Citations and explanations :

EXPLANATION

Claims 1-6, 8-12, and 16 lacks an inventive step under PCT Article 33(3), as being obvious over multiple embodiments of Loupis (US 2016/0016001 A1).

Regarding claim 1, Loupis discloses a light therapy system (eg. Fig. 1-2), comprising: at least one light therapy panel (eg. array 112), wherein each light therapy panel of the at least one light therapy panel comprises a first housing (eg. Fig. 1, head 106) and a first plurality of lights arranged and in multiple embodiments, configured to emit at least one of red light and infrared light (eg. Para. 1 and 102. visible and infrared); a console hub communicatively and electrically coupled to the at least one light therapy panel (eg. Fig. 4 and 6, computing device 400, Para. 172-176), the console hub configured to operate the at least one light therapy panel; and a remote control unit communicatively coupled to the console hub, wherein the remote control unit is configured to operate at least one of the console hub and the at least one light therapy panel (eg. Para. 181, remote computer to load instructions).

It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to have combined the embodiments of Loupis to have multiple wavelengths of

visible and infrared light to achieve different therapeutic effects to maximize treatment (eg. 153, different wavelengths and power intensities having different therapeutic affects).

Regarding claim 2, Loupis discloses a first light therapy panel of the at least one light therapy panel comprises at least one light therapy unit and at least one light therapy pallet (eg. Para. 151-152, panels/ substrate); wherein each light therapy unit of the at least one light therapy unit is elongate along a first direction; and wherein each light therapy pallet of the at least one light therapy pallet extends along a second direction that is perpendicular to the first direction (eg. Fig. 2 and 4A-D with rectangular panels, Para. 151-152, curved panels put together).

Regarding claim 3, Loupis discloses a first light therapy pallet of the at least one light therapy pallet comprises a first light therapy unit, a second light therapy unit, and a third light therapy unit aligned along the second direction; wherein the first light therapy unit is located between the second light therapy unit and the third light therapy unit; and wherein the first light therapy unit, the second light therapy unit, and the third light therapy unit are electrically coupled (eg. Para. 44, multiple connectable panels that are electrically coupled with a panel controller to control light emission from panels).

Regarding claim 4, Loupis discloses the first housing defines a curvature such that the first light therapy pallet curves along a third direction that is perpendicular to both the first direction and the second direction (eg. Para. 44 and 152, curved light emitting panels connected to each other and angled with respect to each other such that it is possible to radiate light to different sides of a curved or irregular treatment site).

Regarding claim 5, Loupis discloses a first heat sink mechanically coupled to the first light therapy unit, the second light therapy unit, and the third light therapy unit, wherein the first heat sink is at least partially located within the first housing (eg. Para. 45, cooling heatsink system, fan, vent, heat shield, etc. connected to the units).

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement

Regarding claim 6, Loupis discloses a fourth light therapy unit, a fifth light therapy unit, a sixth light therapy unit, a seventh light therapy unit, a second heat sink, and a third heat sink, wherein the second heat sink is mechanically coupled to the fourth light therapy unit and the sixth light therapy unit and the third heat sink is mechanically coupled to the fifth light therapy unit and the seventh light therapy unit, and wherein the second heat sink and the third heat sink are at least partially located within the first housing (eg. Para. 45, see claim 5,). The examiner notes that the addition of more therapy units and heat sinks mechanically coupled is merely a duplication of parts.

Regarding claim 8, Loupis discloses the first light therapy panel comprises at least seven light therapy units, wherein the at least seven light therapy units are aligned along at least one of the first direction and the second direction (eg. Fig. 1 and 4A-C, Para. 45, duplication of parts. See claim 6).

Regarding claim 9, Loupis discloses the first light therapy panel comprises at least five light therapy pallets, wherein the at least five light therapy pallets are aligned along the first direction (eg. Para. 44 and 152). The examiner takes note that this is merely a design choice to align each array of LEDs into a rectangular shape.

Regarding claim 10, Loupis discloses each light therapy unit of the at least one light therapy unit comprises at least one LED cluster comprising six or more light emitting sources (eg. Para. 43-44, groups of LEDs). The examiner notes that adding more LEDs to an array is merely a duplication of parts .

Regarding claim 11, Loupis discloses at least one LED cluster comprises: a first light emitting source capable of emitting royal blue light within a wavelength of approximately 380 nm to 505 nm, I a second light emitting source capable of emitting blue light within a wavelength of 2 approximately 410 nm to 530 nm, a third light emitting source capable of emitting green light within a wavelength of approximately 470 nm to 600 nm, a fourth light emitting source capable of emitting amber light within a

wavelength of approximately 545 nm to 660 nm, a fifth light emitting source capable of emitting red light within a wavelength of approximately 590 nm to 720 nm; and a sixth light emitting source capable of emitting NIR light within a wavelength of approximately 725 nm to 900 nm (eg. Para. 7-9, combinations of LEDs emitting peak wavelengths of different colors throughout the visible and infrared spectrum).

Regarding claim 12, Loupis discloses each light therapy unit of the at least one light therapy unit comprises a first LED cluster, a second LED cluster, a third LED cluster, and a fourth LED cluster, wherein each of the first LED cluster, the second LED cluster, the third LED cluster, and the fourth LED cluster are aligned along the first direction (eg. Para. 42-44, multiple sets of LED arrays arranged along a panel).\

Regarding claim 16, Loupis discloses a second light therapy panel communicatively and electrically coupled to the console hub, the second light therapy panel comprising a second housing and a second plurality of lights arranged and configured to emit at 2 least one of red light and infrared light (eg. Loupis, Para. 42-44, multiple LEDs with arranged in multiple panels to emit different light wavelengths).

Claims 7, 15, and 20 lacks an inventive step under PCT Article 33(3), as being obvious over multiple embodiments of Loupis (US 2016/0016001 A1) in view of Alexander (US 10440794 B2).

Regarding claim 7, Loupis discloses the invention of claim 3, but does not disclose first light 33 therapy unit comprises a controller board and a board-to-board connector capable of electrically and communicatively coupling with another controller board.

Alexander discloses a modular light panel control system that has lighting units that can be expanded by coupling the units together via connectors (eg. Fig. 1-2, 10A-C, 12 Col. 10, Ln. 48- Col. 11,

Ln. 54).

It would have been obvious to have combined the invention of Loupis with the modular control system taught by Alexander to provide better control over specific zones and optimize treatment to target areas without unintentionally irradiating non-target areas.

Regarding claim 15, the combined invention of Loupis and Alexander discloses the console hub further comprises a liquid crystal display (LCD) touch screen arranged and configured to receive commands to

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement

operate the console hub (eg. Alexander, Col. 5, Ln. 40 - Col. 6, Ln. 16, touch sensitive surface for control of color selection).

Regarding claim 20, the combined invention of Loupis and Alexander discloses a console hub extender communicatively and electrically coupled to the console hub and at least one additional light therapy panel, such that the console hub extender enables inclusion of at least five light therapy panels in the light therapy system (eg. Alexander, Fig. 1-2,10A-C, 12 Col. 10, Ln. 48- Col. 11, Ln. 54).

Claims 13-14 lacks an inventive step under PCT Article 33(3), as being obvious over multiple embodiments of Loupis (US 2016/0016001 A1) in view of Altshuler (US 2004/0162596 A1).

Regarding claim 13, Loupis discloses the invention of claim 10, but does not disclose light therapy unit of the at least one light therapy unit further comprises a lens located over a single LED cluster of the at least one LED cluster, wherein the lens comprises a Fresnel lens.

Altshuler teaches a light therapy system with a Fresnel lens over the light emitters (eg. Para. 100).

It would have been obvious to have combined the invention of Loupis with the Fresnel lens as taught by Altshuler to prevent divergent irradiation of non-targeted tissues and maintain a more uniform illumination pattern to improve safety (eg. Altshuler, Para. 100).

Regarding claim 14, the combined invention of Loupis and Altshuler discloses four LED clusters and four Fresnel lenses, such that each LED duster of the four LED dusters is configured to emit light

through a single Fresnel lens of the four Fresnel lenses (eg. Altshuler Para. 26 and 100). The examiner notes that adding more Fresnel Lenses is merely a duplication of parts .

Claims 17-19 lacks an inventive step under PCT Article 33(3), as being obvious over multiple embodiments of Loupis (US 2016/0016001 A1) in view of Cooper (US 2013/0304019 A1).

Regarding claim 17, Loupis discloses the invention of claim 16, but does not disclose the first light therapy panel is located adjacent the second light therapy panel, the first light therapy panel and the second light therapy panel are configured to curve at least 90-degrees.

Cooper teaches adjacent flexible light emitting array that can bend to 180 degrees (eg. Fig. 13-15).

It would have been obvious to have modified the invention of Loupis to have a higher degree of flexibility as taught by Cooper to allow better conformation of the light emitters to improve treatments of various anatomical regions.

Regarding claim 18, the combined invention of Loupis and Cooper discloses a third light therapy panel communicatively and electrically coupled to the console hub, the third light therapy panel comprising a third housing and a third plurality of lights arranged and configured to emit at least one of red light and infrared light, and a fourth light therapy panel communicatively and electrically coupled to the console hub, the fourth light therapy panel comprising a fourth housing and a fourth plurality of lights arranged and configured to emit at least one of red light and infrared light (eg. Cooper, Fig. 13-15).

Regarding claim 19, the combined invention of Loupis and Cooper discloses the first light therapy panel is located adjacent the second light therapy panel, the second light therapy panel is located adjacent the third light therapy panel, and the third light therapy panel is located adjacent the fourth light therapy panel, the first light therapy panel, the second light therapy panel, the third light

therapy panel, and the fourth light therapy panel are configured to curve at least 180-degrees (eg. Cooper, Fig. 13-15).

Claims 1-20 meet the criteria set out in the PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2020/036187

Box No. VIII **Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claims 2-3, 5-8, 10 and 12-13 objected to under PCT Article 6 as lacking clarity because claims 2-3, 5-8, 10 and 12-13 indefinite for the following reason(s): Regarding claim 2-3, 5-8,10, and 12-13, it is unclear what elements of the light therapy system in claim 1 are part of the "light therapy unit" and whether the therapy units are connected to each other or a common controller.

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Declarations under Rule 4.17:
— *of inventorship (Rule 4.17(iv))*

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(54) **Title:** THERAPEUTIC LIGHT SOURCE AND MOUNTING APPARATUS

(57) **Abstract:** A light therapy assembly, comprising a hollow housing, wherein a first surface has a plurality of openings, and the first side and the second side have a plurality of slots, a plurality of light emitting diodes (LED) arranged in predetermined arrays secured within the hollow housing so that the plurality of LEDs are substantially aligned with the plurality of openings, a plurality of attachment means secured to the first end of the hollow housing, and a positioning system comprising a plurality of attachment members, wherein the plurality of attachment members are detachably engaged with the plurality of attachment means, a connection means attached to the plurality of attachment members, a winching system integrated with the connection means, wherein the winching system adjusts the height of the hollow housing, and a mounting system connected to the winching system to secure the positioning system and the hollow housing.

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THERAPEUTIC LIGHT SOURCE AND MOUNTING APPARATUS

BACKGROUND OF THE INVENTION

[0001] The present invention relates to a light source for use in therapy, and more particularly for treating a large external surface of a person with an easy to use hanging apparatus so the light source is adjustable.

[0002] Specifically, light therapy involves having red or near infrared (NIR) light wavelengths emitted directly through the skin. Red or NIR light can penetrate the skin to impact tissue, muscles, joints, and other body parts below the skin, at which point it has positive effects on cellular energy and multiple nervous system and metabolic processes.

[0003] Light therapy has shown promise for treating symptoms of joint pain or osteoarthritis due to aging, those caused by cancer treatments like chemotherapy or radiation, hair loss, wounds or incisions, acne, wrinkles and skin discoloration, chronic muscular pain, neurological damage, and tissue damage (often at the root of tears, sprains or pulls).

[0004] Many of the current light therapy devices and lighting arrays are designed for desktop use or are complete chambers which the user enters. The vast majority of light therapy devices on the market are either hand-held (very small treatment area) or a countertop unit that treats the face. Tanning salons offer light therapy treatment sessions in converted tanning beds using fluorescent circuits but the cost and size make these devices impractical for home use. In addition, the fluorescent circuits are very inefficient so the intensity of the light compromises the effectiveness of these devices.

[0005] Therefore, what is needed and heretofore lacking in prior light therapy solutions is a lighting apparatus that can be easily adjusted to the desired height of the user to expose the desired area to the light therapy.

SUMMARY

[0006] According to one aspect of the present invention, a therapy lighting assembly, comprising a hollow housing having a first surface, a second surface, a first side, a second side, and a first end, wherein the first surface has a first plurality of openings, the second surface has a second plurality of openings, and the first side and the second side have a plurality of slots, a plurality of light emitting diodes (LED) arranged in predetermined arrays secured within the hollow housing so that the plurality of LEDs are substantially aligned with the plurality of openings, a plurality of attachment means secured to the first end of the hollow housing, and a positioning system comprising of a plurality of attachment members, wherein the plurality of attachment members are detachably engaged with the plurality of attachment means, a connection means attached to the plurality of attachment members, a winching system integrated with the connection means, wherein the winching system adjusts the height of the hollow housing, and a mounting system connected to the winching system to secure the positioning system and the hollow housing.

[0007] According to another aspect of the present invention, a therapy lighting assembly, comprising a hollow housing, a hollow extruded core having a first surface, a first open end and a second open end and a plurality of openings are arranged on the first surface, a first end plate having a plurality of slots attached to the first open end of the hollow extruded core, a second end plate having a plurality of slots attached to the first open end of the hollow extruded core, a plurality of light emitting diodes (LED) encapsulated in an enclosure with a lens, wherein the lens directs the light emitted from the LED in a predetermined direction, and the plurality of LEDs are arranged in predetermined arrays secured within the hollow housing so that the plurality of LEDs are substantially aligned with the plurality of openings on the first surface of the hollow extruded core, a control panel attached to the hollow housing, wherein the control panel controls the plurality of LEDs, a positioning system comprising of a plurality of attachment members, wherein the plurality of attachment members are detachably engaged with the plurality of attachment means, a connection means attached to the plurality of attachment members, a winching system integrated with the connection means, wherein the winching system adjusts the height of the hollow housing, and a mounting system connected to the winching system to secure the positioning system and the hollow housing, and an electrical system providing adequate power to the therapy lighting assembly.

[0008] According to yet another aspect of the present invention, a therapy lighting assembly, comprising a plurality of light emitting diodes (LED) arranged in a predetermined array within a housing, wherein the housing has a top surface, a plurality of threaded posts attached to the top surface of the housing, a plurality of threaded caps designed to detachably engage the threaded posts, a plurality of cables, wherein each of the plurality of cables are attached to one of the plurality of thread caps at a first end and the second end of the cable is looped, a releasable shackle inserted through the loops of the plurality of cables, a rope inserted through the releasable shackle, wherein the rope passes through a ratcheting pulley; and a hook having a protrusion, wherein the ratcheting pulley releasably engages with the protraction of the hook.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] Figure 1 depicts an isometric view of a hanging therapy light assembly, in accordance with one embodiment of the present invention.

[0011] Figure 2 depicts a front view of a therapy light enclosure and a positioning system, in accordance with one embodiment of the present invention.

[0012] Figure 3 depicts a front view of the therapy light enclosure, in accordance with one embodiment of the present invention.

[0013] Figure 4 depicts a side view of the therapy light enclosure, in accordance with one embodiment of the present invention.

[0014] Figure 5 depicts a rear view of the therapy light enclosure, in accordance with one embodiment of the present invention.

[0015] Figure 6 depicts an isometric view of a hanging therapy light assembly, in accordance with another embodiment of the present invention.

[0016] Figure 7 depicts a front view of the therapy light enclosure, in accordance with another embodiment of the present invention.

[0017] Figure 8 depicts a side view of the therapy light enclosure, in accordance with another embodiment of the present invention.

[0018] Figure 9 depicts a rear view of the therapy light enclosure, in accordance with another embodiment of the present invention.

[0019] Figure 10 depicts a schematic view of the electrical components of the therapy light assembly, in accordance with one embodiment of the present invention.

[0020] Figure 11 depicts a perspective view of the therapy light enclosure secured to a vertical mount, in accordance with one embodiment of the present invention.

[0021] Figure 12 depicts a perspective view of the therapy light enclosure secured to a mount, in accordance with another embodiment of the present invention.

[0022] Figure 13 depicts a perspective view of the therapy light enclosure assembly, in accordance with one embodiment of the present invention.

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DETAILED DESCRIPTION OF THE INVENTION

[0023] The present invention describes a light emitting diode (LED) light display device. The light therapy device (LTD) is designed to hang on a door or solid structure to allow for easy use and convenient storage. The height of the LTD is also adjustable to allow for adjustments on the area of the user's body which is exposed to the LEDs. Major advantages of the LTD is the large treatment area, the adjustable height, compact design, and easy method of installing the LTD.

[0024] As will be apparent to those of skill in the art upon reading this disclosure, each of the individual embodiments described and illustrated herein has discrete components and features which may be readily separated from or combined with the features of any of the other embodiments without departing from the scope or spirit of the present invention. It is to be understood that this invention is not limited to particular embodiments described, as such may, of course, vary. It is also to be understood that the terminology used herein is for the purpose of describing particular embodiments only, and is not intended to be limiting, since the scope of the present invention will be limited only by the appended claims.

[0025] Unless defined otherwise, all technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this invention belongs. Although any methods and materials similar or equivalent to those described herein may also be used in the practice or testing of the present invention, the preferred methods and materials are now described.

[0026] It must be noted that as used herein and in the appended claims, the singular forms "a", "an", and "the" include plural referents unless the context clearly dictates otherwise. It is further noted that the claims may be drafted to exclude any optional element. As such, this statement is intended to serve as antecedent basis for use of such exclusive terminology as "solely," "only" and the like in connection with the recitation of claim elements, or use of a "negative" limitation.

[0027] Figure 1 depicts an isometric view of a hanging therapy light assembly, 100, in accordance with one embodiment of the present invention. The hanging therapy light assembly 100 is comprised of a therapy light enclosure 200 and a positioning system 300. The hanging therapy light assembly 100 allows a user to experience the benefits of a professional therapy light setup in

a smaller structure, that is easily customizable to direct the effects of the LTD on to the specific areas of the user's body and also allow the user the comfort of experiencing the benefits of the LTD in the comfort of their own home.

[0028] In the depicted embodiment, the light therapy (LT) enclosure 200 is hung from a door via the mounting system 300. The LT enclosure 200 is depicted with five (5) light panels in a single column. In additional embodiments, the LT enclosure 200 may have more or less light panels, and may have more than one (1) column of light panels.

[0029] Figure 2 depicts a front view of the upper portion of the LT enclosure 200 and the positioning system 300, in accordance with one embodiment of the present invention. The positioning system 300 is comprised of an attachment means 302, a suspension system 304, and a mounting member 306. The positioning system 300 provides the benefits of allowing the user to customize the height and position of the LT enclosure 200, the positioning system 300 allows the user to easily raise, lower, or rotate the LT enclosure 200 to the desired position. As well as allow the user to easily install and remove the LT enclosure 200.

[0030] The attachment means 302 is designed to detachably engage with an anchor member on the LT enclosure 200 that is connected to the positioning system 300 securing the LT enclosure 200 with the positioning system 300. In the depicted embodiment, the attachment means 302 is a cap with a threaded internal compartment that is designed to mate with an anchor member on the LT enclosure with a reciprocal thread. A cord 303 is attached to each attachment means 302 and is connected to a detachable fastener 305. The cord 303 may be made from various materials provided they are able to support the weight of the LT enclosure 200. The length of the cords 303 is predetermined to provide a substantially level and secure position. The detachable fastener 305 is designed to allow the user to connect and disconnect the cords 303 from the positioning system 304 with ease. In the depicted embodiment, the detachable fastener 305 is a carabiner. In additional embodiments, the detachable fastener 305 may be various clips, clasps, hooks, latches or the like that are detachable.

[0031] The positioning system 304 allows the user to position the LT enclosure 200 at a desired height or position. In the depicted embodiment, the positioning system 304 is a pulley 309 with a cable 307 threaded through the pulley 309 and attached to the detachable fastener 305. The pulley

309 may be, but not limited, various pulleys that are self-locking, ratchet style pulleys, or the pulleys that allow a user to lock or hold the therapy light enclosure 200 in place without the user's assistance. In one embodiment, the pulley 309 has a lever which disengages the locking system so that the user can easily lower the LT enclosure 200. In additional embodiments, the lever or disengagement member may be various designs or structures known to those in the art. In some embodiments, the pulley 309 is motorized allowing an electronically or mechanically controlled raising and lowering of the LT enclosure 200.

[0032] The cable 307 is of a predetermined length to allow a user to easily access the cable 307 to pull the LT enclosure 200 to a desired height/position. The cable 307 is made from a material such as steel, aluminum, copper, or fabrics that are able to support the LT enclosure 200. In the depicted embodiment, the pulley 309 is connected to a hook 308. The hook 308 provides the necessary attachment means to connect the LT enclosure 200 to the mounting member 306. In various other embodiments, other styles of locking pulleys may be used, as well as a pulley that does not lock but the user can tie down the cord to keep the LT enclosure 200 in a desired position or height.

[0033] The mounting member 306 is designed to secure the LT enclosure 200 to a door, wall, or other structural surface in which the user desires to mount the LT enclosure 200 to. In the depicted embodiment, the mounting member 306 is a custom made, over-the-door hook for which the pulley system 304 is attached to via hook 308. The over-the-door hook allows for easy installation and removal on a door or door-like structure. In additional embodiments, various types of mounting systems may be used that are both removable or permanent that are known to those skilled in the art. In additional embodiments, the mounting member 306 may be a free-standing hanging system.

[0034] Figure 3 depicts a front view of the LT enclosure 200, in accordance with one embodiment of the present invention. In the depicted view, the LT enclosure 200 is comprised of the housing 202 and six (6) rows of the LT diodes 400. In additional embodiments, there may be more or less rows of LT diodes 400 and more than one column of LT panels 400.

[0035] The housing 202 contains and protects the sensitive elements of LT panel(s) 400 and the associated electrical components. In the depicted embodiment, the housing 202 has a plurality of openings sized to receive the LT panel(s) 400. The LT panel(s) 400 are secured in place with fasteners 402 or various other attachment means, such as, but not limited to, pressure clips, bolts,

screws, clips, clamps, or the like. In the depicted embodiment, the housing 202 is a substantially rectangular design. In additional embodiments, the housing 202 may have a square, circular, or other shape dependent upon the intended area or portion of the user's body that is to be affected by the LT panels 400. In additional embodiments, the housing 202 may have a modular design, wherein LT panels 400 or LT enclosures 200 may be attached and detached, and the housing 202 may be made from, but not limited to aluminum, steel, iron, copper, brass, bronze, zinc, stainless steel, or the like.

[0036] In the depicted embodiment, the attachment members 216 are shown on the top surface of the housing 202. The attachment members 216 are positioned a predetermined distance from the outer edges of the housing 202 to provide a stable and level design. The attachment members 216 may be integrated into the housing 202 or may be detachable to allow for easy replacement based on the type of attachment means 302 used in the positioning system 300.

[0037] The LT panel 400 provides the therapeutic light within the desired wavelength to the user. The LT panel 400 is comprised of a plurality of LED circuits 404 designed to produce the specific and predetermined wavelengths of light. The light is within a band of red and infrared wavelengths. It is this bandwidth of the LED circuits 404 in the red and infrared portion of spectrum that allows the body's inflammation response to be activated in cells near to the skin surface without damaging the skin, thereby enabling non-ablative skin rejuvenation phototherapy to occur, i.e., the body's natural healing process may be trigged even though no actual damage has been incurred.

[0038] In one embodiment, all of the LED circuits 404 in the LT panel 400 have a mid-spectrum wavelength of about 660 nm, i.e., red, half maximum (FWHM) wavelength range that extends from about 600 nm to about 700 nm. In another embodiment, all of the LED circuits 404 have a light spectrum emitted by a band of infrared LED circuits with a mid-spectrum wavelength of about 850 nm, i.e., infra-red, half maximum (FWHM) wavelength range that extends from about 700 nm to about 900 nm. In additional embodiments, the LED circuits 404 within the LT panel 400 may be mixed between the 660 nm and the 850 nm. It is the narrow bandwidth of the LED circuits within the red and infrared portion of spectrum that allows the cells to increase ATP production and, thereby, their metabolism, and so aid the rejuvenation process. In additional embodiments, the LED circuits 404 wavelength may be extended beyond the limits listed above,

provided the wavelength still provides the same benefits at a cellular level. In additional embodiments, the wavelength produced by the LED circuits 404 may be within the infrared spectrum. In additional embodiments, the wavelength produced by the LED circuits 404 may be in the blue or UV spectrum as well.

[0039] The LED circuits 404 are arranged in predetermined arrays. The purpose of the array is to create a structure of LED circuits 404 that produce the desired light at a predetermined concentration and coverage area, from a predetermined distance. In one embodiment, the LED circuits 404 are positioned within the LT panels 400 so that the light is projected in a substantially straight direction. In additional embodiments, the LED circuits 404 may be angled within the LT panels 400 to direct the light in a predetermined direction.

[0040] In the depicted embodiment, the LED circuits are positioned in a square array. In additional embodiments, various array patterns may be used, such, but not limited to rectangular, circular, hexagonal, and the like. In one embodiment, the LT panels 400 are designed to produce approximately 110 mW/cm^2 from a distance of approximately six (6) inches. Each panel covers approximately an eighteen (18) inches by fourteen (14) inches area of the user's body. Thus, in one embodiment, the user needs exposure for approximately four (4) minutes to receive the desired results from the LT panel 400.

[0041] In the depicted embodiment, each LED circuit 404 is placed within a specialized chamber and receded a predetermined distance from the surface of the LT panel 400 to concentrate the light produced from the LED circuit 404 in a predetermined direction and intensity. In one embodiment, each LED circuit 404 chamber has a clear lens to protect the LED circuit 404 from debris or damage. In some embodiments, the lens has a predetermined density and curvature to produce refraction of the light, thereby directing the light emitted from the LED circuit 404 at a predetermined angle. This refraction assists in achieving the substantially complete coverage of the user's body when they are positioned using the predetermined distance from the LT panel 400. In one embodiment, the lenses refract the light at sixty (60) degrees. In additional embodiments, the lenses refract the light at, ninety (90), one hundred and twenty (120), or various other degrees.

[0042] Figure 4 depicts a side view of the LT enclosure 200, in accordance with one embodiment of the present invention. The side of the LT enclosure 200 has a plurality of ventilation openings

206 to improve air flow within, into, and out of the housing 202. In the depicted embodiment, the ventilation openings 206 are small circular openings cover a predetermined section of the side of the housing 202. In additional embodiments, the ventilation openings 206 may be slots or openings of various other shapes. In additional embodiments, the portion of the side of the housing 202 which has the ventilation openings 206 may be adjusted based on the required airflow.

[0043] In the depicted embodiment, the side of the LT enclosure 200 has a control panel 208 that is used to control the various functions of the hanging LT apparatus 100. The control panel 208 may be used for, but not limited to turning on the LT panels 300, turning on the fans 500, setting a timer for the LT panels 400 or the fans 500 are active for, or the like. In some embodiments, the control panel 208 may be used to raise and lower the LT enclosure 200 if the mounting system 300 is motorized. In some embodiments, the control panel 208 may be controlled by wireless technology such as, for example, Bluetooth® or other near field communication systems. In additional embodiments, the control panel 208 may be placed in various locations on the LT enclosure 202 provided the control panel 208 is easily accessible and does not interfere with the LT functionality.

[0044] In the depicted embodiment, a plurality of bumpers 210 disposed on the rear side of the LT enclosure 200 to offset the LT enclosure 200 from a surface. This assists in providing excess airflow behind the LT enclosure to provide adequate air flow within and around the LT enclosure 200. The bumpers 210 are made of an elastic material such as rubber to assist in absorbing shock as well. The bumpers 210 may be made of various other materials known to those skilled in the art.

[0045] Figure 5 depicts a rear view of the LT enclosure 200, in accordance with one embodiment of the present invention. The rear side of the therapy light enclosure 200 has a plurality of ventilation slots 214 to allow air to enter or exit the housing 202. In some embodiments, a fan is positioned near the ventilation slots 214 to assist in cooling the LT panels 400 and the electrical system. The plurality of ventilation slots 214 are positioned in predetermined locations that coincide with the positioning of the LT panels 400 and the electrical system. In the depicted embodiment, a plurality of bumpers 210 are positioned on the rear side of the housing 202 to assist

in leveling the LT enclosure 200 against a surface. In the depicted embodiment, a power switch 213 and a power outlet 215 are shown.

[0046] Figures 6-9 depict an isometric view of a hanging LT enclosure 600, in accordance with another embodiment of the present invention. In the depicted embodiment, the hanging LT enclosure 600 has a central housing 604, a top plate 602, and a bottom plate 606. In this embodiment, the LT panels are enclosed entirely within the central housing, and the LED circuits align with the openings 603. The top plate 602 is secured to the central housing 604 and has a plurality of slots 605 to allow for air to enter and/or exit the interior of the central housing 604. In one embodiment, fans are secured to the top plate 602 to further increase the volume of air entering and/or exiting the interior compartment of the central housing 604. The top plate 602 has attachment members 216 to connect to the positioning system 300. In one embodiment, the attachment members 216 and the top plate 604 are a unitary design. In the depicted embodiment, the power switch 213 and the power outlet 215 are located on the side of the central housing 604. In additional embodiments, the positioning of these elements may be in various locations. In many embodiments, the bottom plate 606 has similar slots to the slots 605 in the top plate 604 to allow air flow throughout the entire central housing 604. The rear side of the central housing 604 has bumpers 210. In the depicted embodiments, the rear side of the central housing 604 is removable to allow access to the internal components. In additional embodiments, the central housing 604 is a solid unitary design in which the internal components are inserted through the top or bottom and secured once inserted.

[0047] Figure 10 depicts a block diagram of the electrical components of the LT assembly 100, in accordance with one embodiment of the present invention. The electrical components of the depicted embodiment include, a power switch 213, a power outlet 215, at least one fan 500, the LT panel 400, the control panel 208, and the pulley 309 connected electronically to supply the necessary power to operate each element of the hanging LT assembly 100. Various electrical setups and structures are possible to those skilled in the arts.

[0048] A power supply is used to power the therapy light panel 400, the fans 500, the control panel 208, and the various other electrical components of the hanging LT apparatus 100. In the depicted embodiment, the power supply is a power outlet 215 exposed on the surface of the housing 202.

In additional embodiments, the power supply may be an internal battery that is rechargeable and the power outlet 215 is used to recharge the battery.

[0049] In the depicted embodiment, the switch 213 is used to turn on or off the electronic elements of the hanging LT apparatus 100. In some embodiments, the switch is not required or is incorporated into the control panel 208.

[0050] The fans 500 are positioned in close proximity to the LT panels 300 to provide efficient and effective cooling. This may involve the fans 500 being mounted directly to the LT panels 300. The fans 500 may also be mounted directly to the housing 202. The fan 500 are located to be substantially in line with the LT panel 204 to provide the greatest amount of air flow over the LT panel 204 to remove the heat produced by the LED circuits and the electrical systems. In one embodiment, the fan may be a dual ball bearing, 120 mm, .10A 12V cooling fan. In additional embodiments, the fan 500 may have various other sizes, speeds, power consumptions, and designs. In one embodiment, the fans 500 are able to switch directions so that the air flow can be modified. In one embodiment, the fans are attached to the LT enclosure 200. In another embodiment, the ventilation slots 214 are approximately the same size as the fans. In additional embodiments, the ventilation slots 214 may take on a variety of shapes to further assist in the ventilation of the internal compartment of the housing 202. In additional embodiments, the fans 500 are attached to the top plate 604, the bottom plate 606, or both. In some embodiments, fans 500 are located externally and directed at the user to provide a cooling feature for the user.

[0051] The control panel 208 is used to control the various settings and power options of the hanging LT assembly 100. The control panel 208 is located on the external surface of the LT enclosure 200, 600. The control panel 208 may control, but not limited to, the power of the therapy light panels 400, the time the LT panels 400 are active, the intensity of the LT panels 400, the speed of the fans 500, and the pulley 309 if the pulley is motorized. In various embodiments, the control panel 208 may control many of these features automatically or they may be controlled by the user.

[0052] Figure 11 depicts a perspective view of the LT enclosure 200 secured to a mount 700, in accordance with one embodiment of the present invention. In the depicted embodiment, the LT enclosure 200 is secured to the mount 700 to allow for the LT enclosure 200 to be usable in a space

where a wall or mountable surface is not accessible. The mount 700 provides a stable structure for the LT enclosure 200. In the depicted embodiment, the mount 700 is comprised of base members 702, 703, and 704, vertical supports 705 and 706. The base members 702, 703, and 704 are designed to provide a stable design so that the weight of the LT enclosure 200 is properly distributed across the base members. In additional embodiments, more base members maybe used to provide a more stable mount 700. The length of the base members 702, 703, and 704 are predetermined based on the size and type of LT enclosure 200 which is to be mounted on the mount 700. The vertical supports 705 and 706 are of a predetermined length. In some embodiments, element 702, 703, 704, 705, and 706 are of substantially equal cross-sectional dimensions. In additional embodiments, the elements 702, 703, 704, 705, and 706 are of different and/or predetermined cross-sectional dimensions. In the depicted embodiment, these elements 702, 703, 704, 705, and 706 have a substantially square cross section. In additional embodiments, the elements 702, 703, 704, 705, and 706 may have different or varying cross sectional shapes.

[0053] The LT enclosure 200 is secured to the mount 700 using mounts 707. In the depicted embodiment a set of four (4) mounts707 are used are used to secure the LT enclosure 200 to the mount 700. In the depicted embodiment, the LT enclosure 200 and the vertical supports 705 and 706 have predetermined securement openings to secure the mounts 707. In additional embodiments, the LT enclosure 200 or the vertical supports 705 and 706 may have various openings or designed for the mating of the mounts 707. In some embodiments, the mounts 707 are detachable from the LT enclosure 200 and the vertical supports 705 and 706. In additional embodiments, the vertical supports 705 and 706 may be integrated with the mounts 707.In some embodiments, various mounts 707, may be employed, such as, magnets, latches, locks, hooks, clasps, or additional types of detachable mounting systems.

[0054] In the depicted embodiment, the base members 702 and 703 have a set of casters 708, attached to allow for the LT enclosure 200 to be moved around a space with greater ease. In various embodiments, the mount 700 may be stationary, or may have various types of rolling or moving devices to allow for increased mobility of the mount 700. In various embodiments, the mount 700 may be made from steel, aluminum, or other metals or materials that can support the LT enclosure 200.

[0055] Figure 12 depicts a perspective view of the LT enclosure 200 secured to a mount 700A, in accordance with one embodiment of the present invention. In the depicted embodiment, the mount 700A with horizontal supports 709 and 710. The horizontal supports 709 and 710 are of a predetermined length, cross section, and thickness similar to the other members of the mount 700 (shown in Figure 11). The horizontal supports 709 and 710 are secured to vertical supports 706 and 707 at predetermined positions. In the depicted embodiment, horizontal support 709 has an opening 709A at each end and horizontal support 710 also has an opening 710A at each end. The opening 709A is designed to allow securement of various mounts 700A (as shown in Figure 13).

[0056] ,

[0057] Figure 13 depicts a perspective view of a LT enclosure 200 assembly, in accordance with one embodiment of the present invention. In the depicted embodiment, four (4) LT enclosures 200 are secured to a respective mounts 700A and each of the mounts 700A is secured to the other mounts 700A through the horizontal supports. In the depicted embodiment, the horizontal supports are off set to allow for the openings 709A to substantially align so that a fastener is used to secure the mounts 700A together. In some embodiments, the mounts 700A are able to move so they LT enclosure 200 position can be easily adjusted.. In the depicted embodiment, the attachment members are offset to allow for the vertical alignment. In various embodiments, the mounts 700A are secured to one another by various detachable attachments such as magnets, latches, fasteners, or the like. In these various embodiments, the horizontal supports 709 and 710 are positioned accordingly to allow for proper securement. In the depicted embodiment, opposing mounts 700A have horizontal supports at substantially similar positions, so the overlay of the openings 709A and 710A can occur. In additional embodiments, more or less than four (4) assemblies may be attached to provide the desired exposure area to the light.

[0058] The invention is inclusive of combinations of the embodiments or embodiments described herein. References to “a particular embodiment” or “embodiment” and the like refer to features that are present in at least one embodiment of the invention. Separate references to “an embodiment” or “particular embodiments” or “embodiments” or the like do not necessarily refer to the same embodiment or embodiments; however, such embodiments are not mutually exclusive, unless so indicated or as are readily apparent to one of skill in the art. The use of singular or plural

in referring to "method" or "methods" and the like is not limiting. The word "or" is used in this disclosure in a non-exclusive sense, unless otherwise explicitly noted.

[0059] While this invention has been described in conjunction with the specific embodiments outlined above, it is evident that many alternatives, modifications and variations will be apparent to those skilled in the art. Accordingly, the preferred embodiments of the invention, as set forth above, are intended to be illustrative, not limiting. Various changes may be made without departing from the spirit and scope of this invention. The present invention shall be easily carried out by an ordinary skilled person in the art, and any modifications and changes are deemed to be within the scope of the present invention.

[0060] This written description uses examples to disclose the invention, including the best mode, and also to enable any person skilled in the art to practice embodiments of the invention, including making and using any devices or systems and performing any incorporated methods. The patentable scope of the invention is defined by the claims, and may include other examples that occur to those skilled in the art. Such other examples are intended to be within the scope of the claims if they have structural elements that do not differ from the literal language of the claims, or if they include equivalent structural elements with insubstantial differences from the literal language of the claims.

[0061] All publications and patents cited in this specification are herein incorporated by reference as if each individual publication or patent were specifically and individually indicated to be incorporated by reference and are incorporated herein by reference to disclose and describe the methods and/or materials in connection with which the publications are cited. The citation of any publication is for its disclosure prior to the filing date and should not be construed as an admission that the present invention is not entitled to antedate such publication by virtue of prior invention. Further, the dates of publication provided may be different from the actual publication dates which may need to be independently confirmed.

CLAIMS

What is claimed is:

1. A light therapy assembly, comprising:

a hollow housing having a first surface, a second surface, a first side, a second side, a first end and a second end, wherein the first surface has a first plurality of openings, the second surface has a second plurality of openings, and the first side and the second side have a plurality of slots;

a plurality of light emitting diodes (LED) arranged in predetermined arrays secured within the hollow housing so that the plurality of LEDs are substantially aligned with the plurality of openings on the first surface;

a plurality of attachment means secured to the first end of the hollow housing; and

a positioning system comprising;

a plurality of attachment members, wherein the plurality of attachment members are detachably engaged with the plurality of attachment means,

a connection means attached to the plurality of attachment members,

a winching system integrated with the connection means, wherein the winching system adjusts the height of the hollow housing, and

a mounting system connected to the winching system to secure the positioning system and the hollow housing.

2. The light therapy assembly of claim 1, wherein the winching system is electronically activated.

3. The light therapy assembly of claim 2, further comprising a plurality of fans attached to the hollow housing, wherein the fans provide improved air flow within the hollow housing.

4. The light therapy assembly of claim 1, further comprising a control panel attached one of the first surface, second surface, first side, or second side.

5. The light therapy assembly of claim 4, wherein the control panel controls the functionality of the LEDs, the plurality of fans, and the winching system.

6. The light therapy assembly of claim 1, wherein the each of the plurality LEDs have a wavelength of 660 nm.

7. The light therapy assembly of claim 1, wherein the each of the plurality LEDs have a wavelength of 850 nm.

8. The light therapy assembly of claim 1, wherein a first portion of the plurality LEDs have a wavelength of 660 nm and a second portion of the plurality of LEDs have a wavelength of 850nm.

9. The light therapy assembly of claim 1, wherein the each of the plurality LEDs have a wavelength of at least 600nm and at greatest 700nm.

10. The light therapy assembly of claim 1, wherein the each of the plurality LEDs have a wavelength of at least 700nm and at greatest 900nm.

11. The light therapy assembly of claim 1, wherein a first portion of the plurality LEDs have a wavelength of at least 600nm and at greatest 700nm and a second portion of the plurality of LEDs have a wavelength of at least 700nm and at a greatest 900nm.

12. The light therapy assembly of claim 8, wherein the first portion of the plurality LEDs and the second portion of the plurality of LEDs are substantially equally distributed amongst the first and second portions.

13. The light therapy assembly of claim 1, wherein the housing is comprised of a first plate consisting of the first surface, the first side, and the second side and a second plate consisting of the first end, the second surface and a second end, wherein the first plate is secured to the second plate.

14. The light therapy assembly of claim 1, wherein the housing is comprised of a hollow extruded core having a first open end and a second open end, a first end plate attached to the first open end, and a second end plate attached to the second open end.

15. The light therapy assembly of claim 1, wherein the first end plate has a plurality of slots positioned in predetermined locations and at least two openings designed to receive the plurality of attachment members.

16. The light therapy assembly of claim 1, wherein the first portion of the plurality of LEDs and the second portion of the plurality of LEDs can be activated independently of one another.

17. A light therapy assembly, comprising:

a hollow housing comprising;

a hollow extruded core having a having a first surface, a first open end and a second open end and a plurality of openings are arranged on the first surface,

a first end plate having a plurality of slots attached to the first open end of the hollow extruded core,

a second end plate having a plurality of slots attached to the first open end of the hollow extruded core,

a plurality of light emitting diodes (LED) encapsulated in an enclosure with a lens, wherein the lens directs the light emitted from the LED in a predetermined direction, and the plurality of LEDs are arranged in predetermined arrays secured within the hollow housing so that the plurality of LEDs are substantially aligned with the plurality of openings on the first surface of the hollow extruded core;

a control panel attached to the hollow housing, wherein the control panel controls the plurality of LEDs; and

an electrical system providing adequate power to the therapy lighting assembly.

18. A light therapy assembly, comprising:

a hollow housing having a first surface, a second surface, a first side, a second side, a first end and a second end, wherein the first surface has a first plurality of openings, the second surface has a second plurality of openings, and the first side and the second side have a plurality of slots;

a plurality of light emitting diodes (LED) arranged in predetermined arrays secured within the hollow housing so that the plurality of LEDs are substantially aligned with the plurality of openings on the first surface; and

a plurality of attachment means secured to the first end of the hollow housing.

19. The light therapy assembly of claim 18, further comprising a mounting system, wherein the mounting system is comprised of a plurality of base members, at least two vertical members secured to a first group of the base members, and a plurality of attachment members secured to the at least two vertical members, and a plurality of securing means attached to the plurality of attachment members to secure the LT assembly to the mounting system.

20. The light therapy assembly of claim 19, wherein the mounting system further comprising a plurality of casters attached to the plurality of base members.

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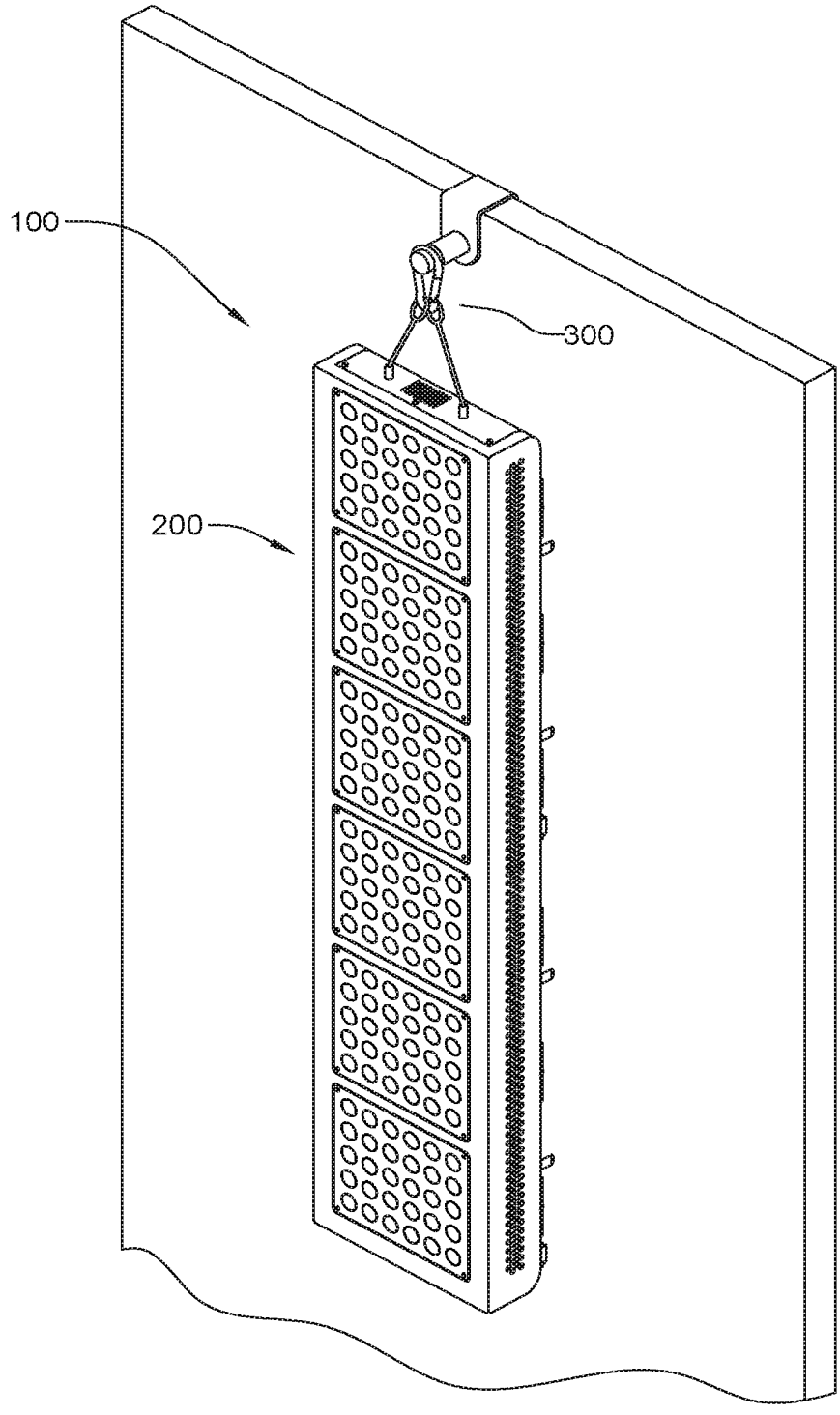


FIG. 1

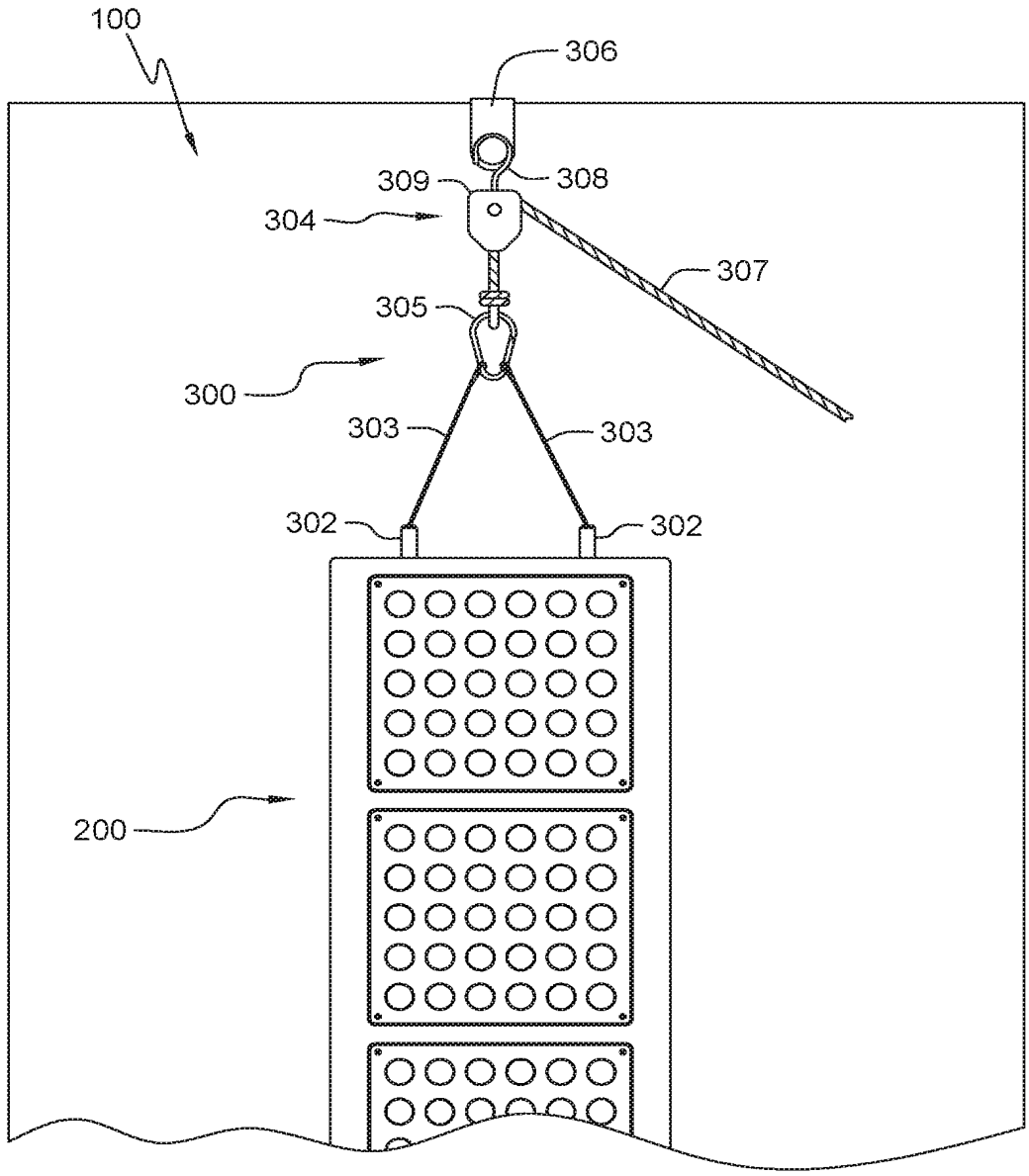


FIG. 2

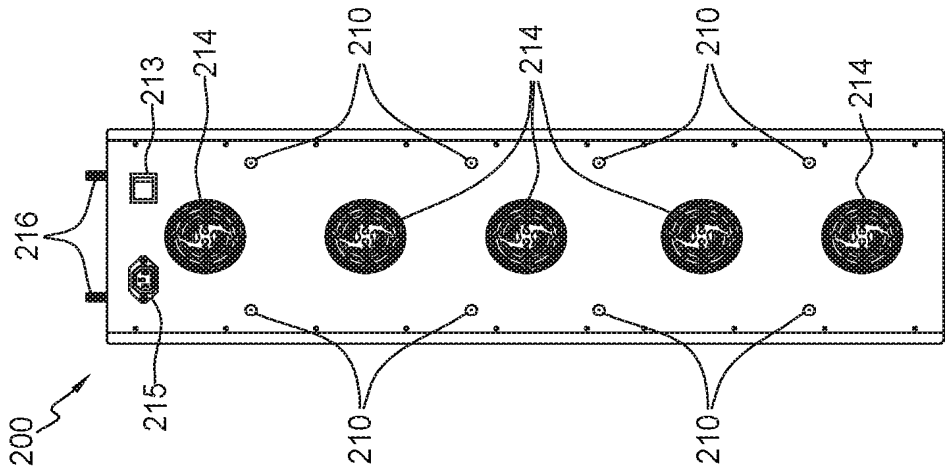


FIG. 5

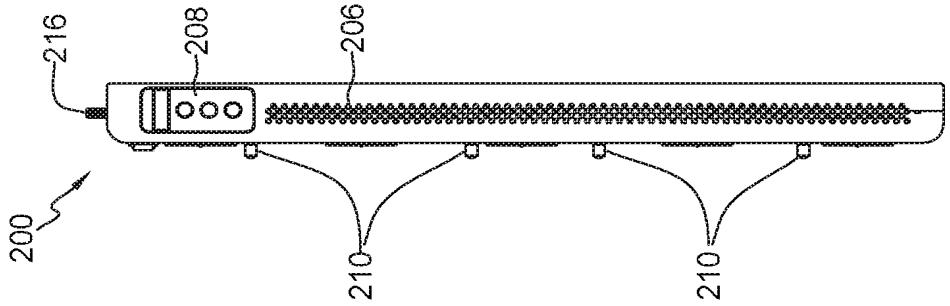


FIG. 4

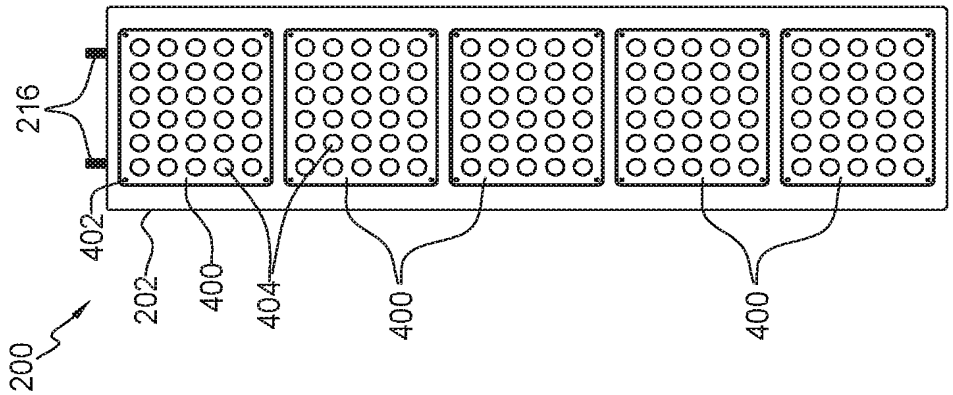


FIG. 3

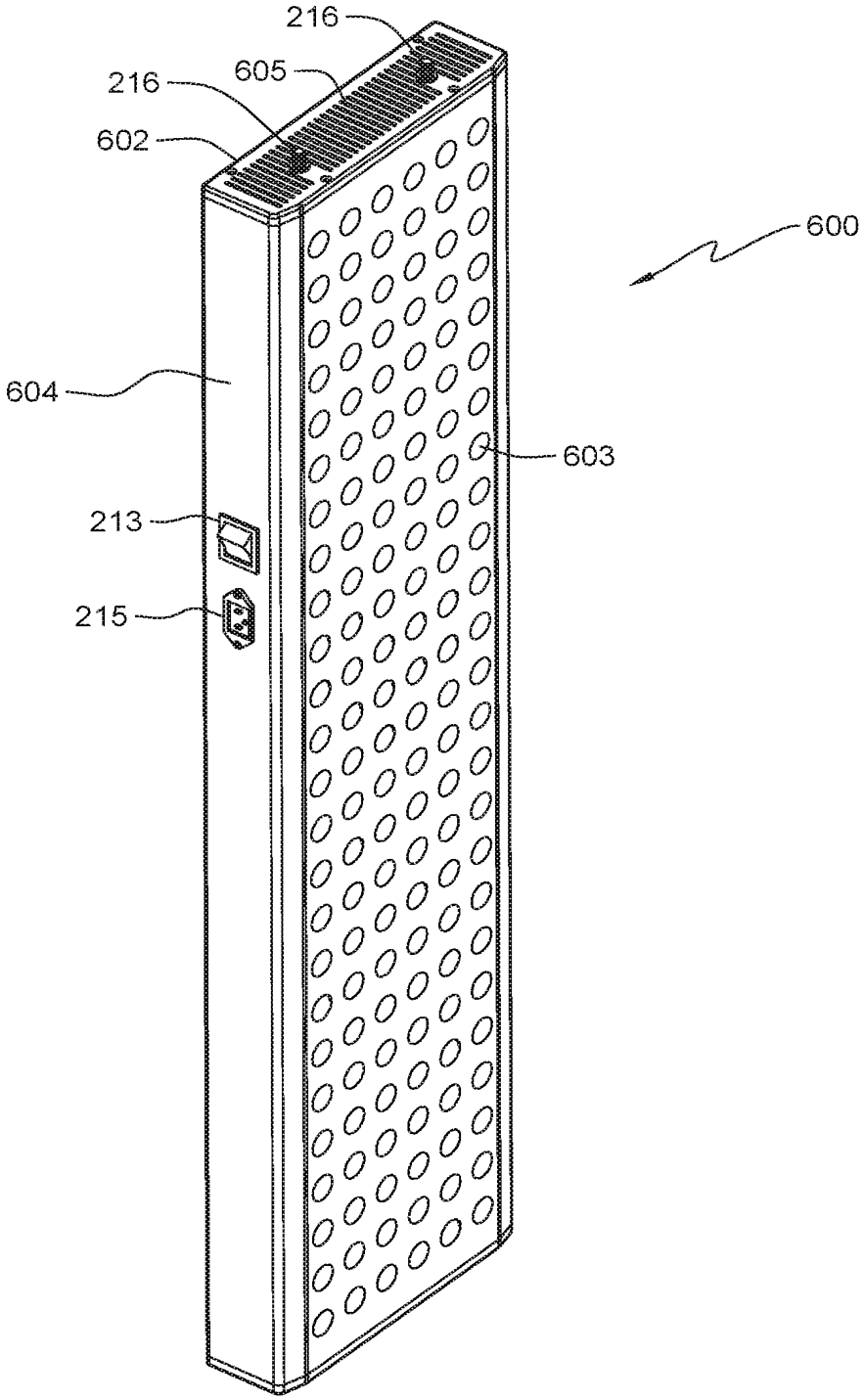


FIG. 6

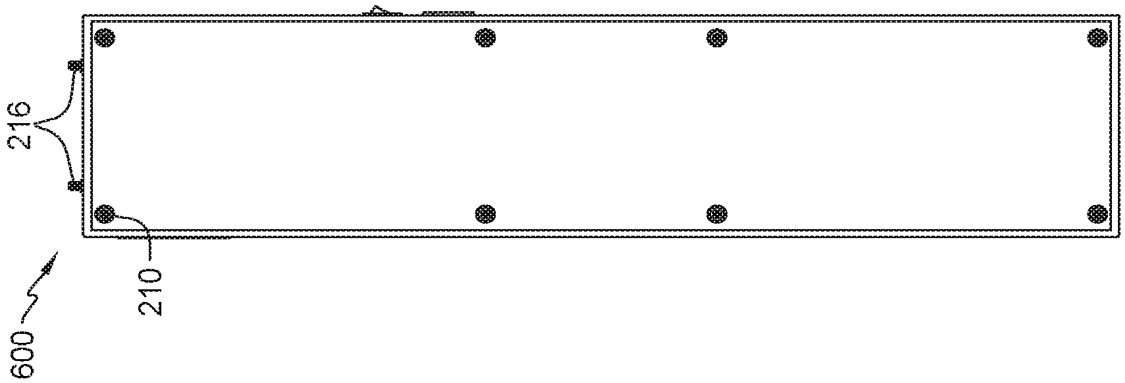


FIG. 9

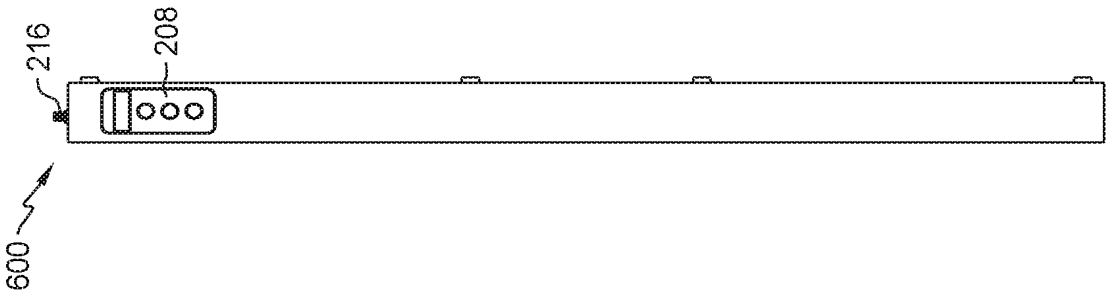


FIG. 8

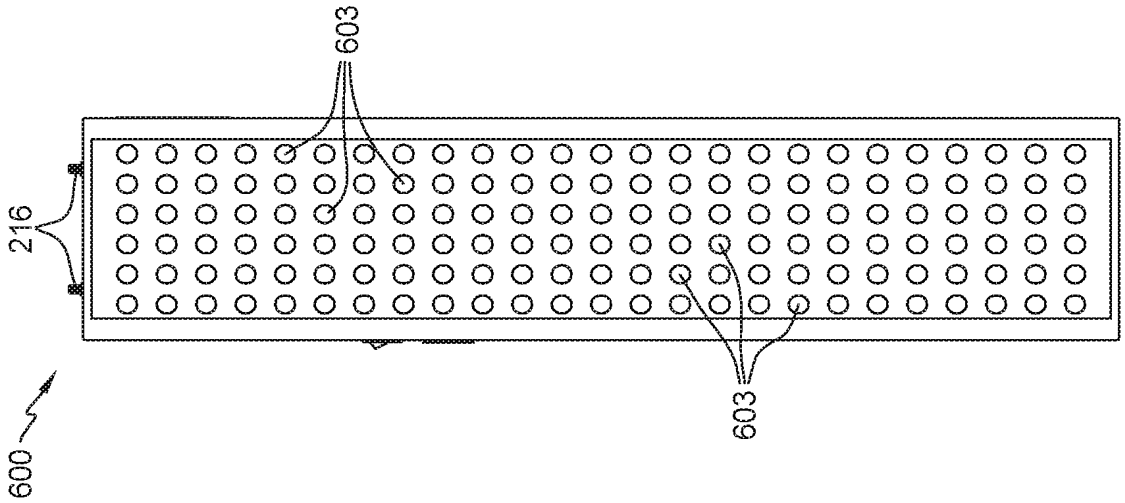


FIG. 7

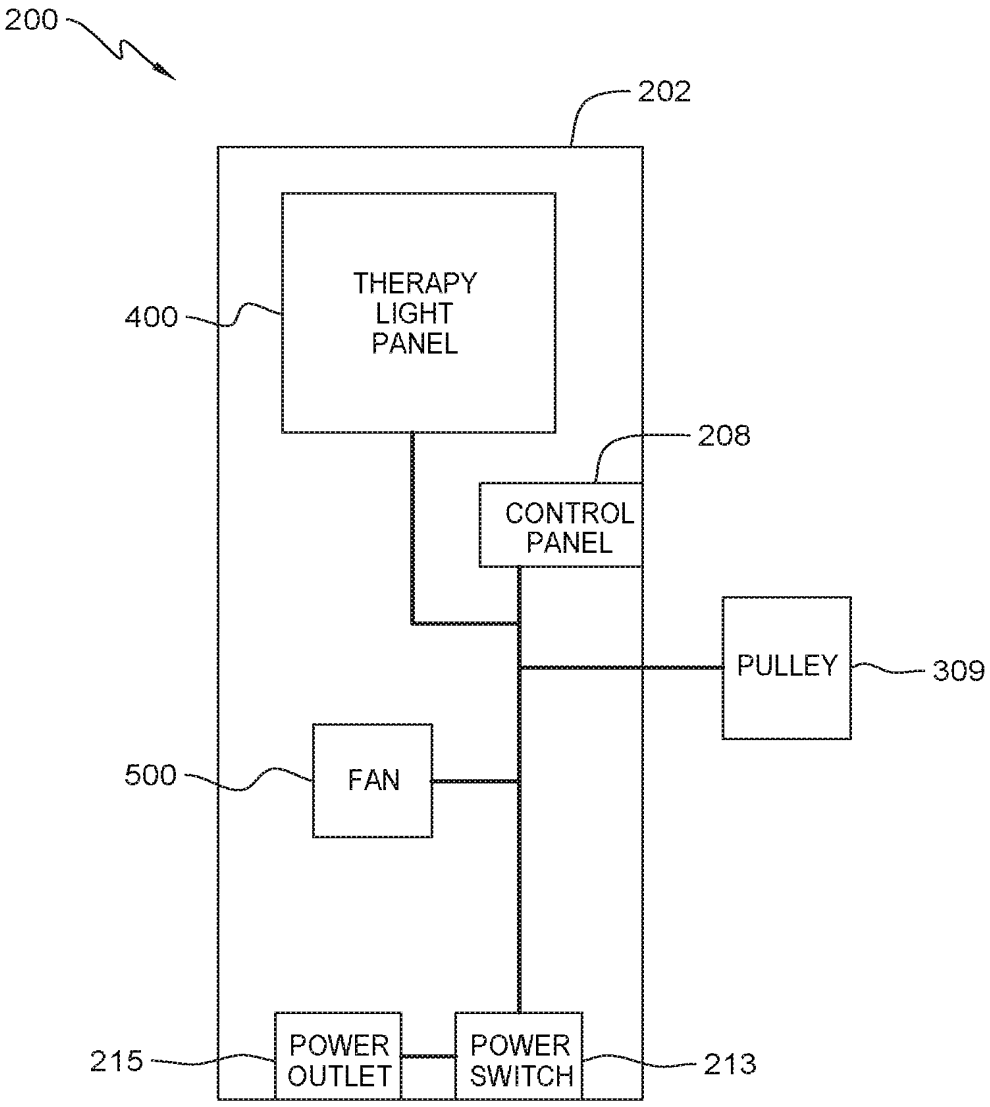

200
202
THERAPY LIGHT PANEL
400
208
CONTROL PANEL
PULLEY
309
FAN
500
POWER OUTLET
215
POWER SWITCH
213

FIG. 10

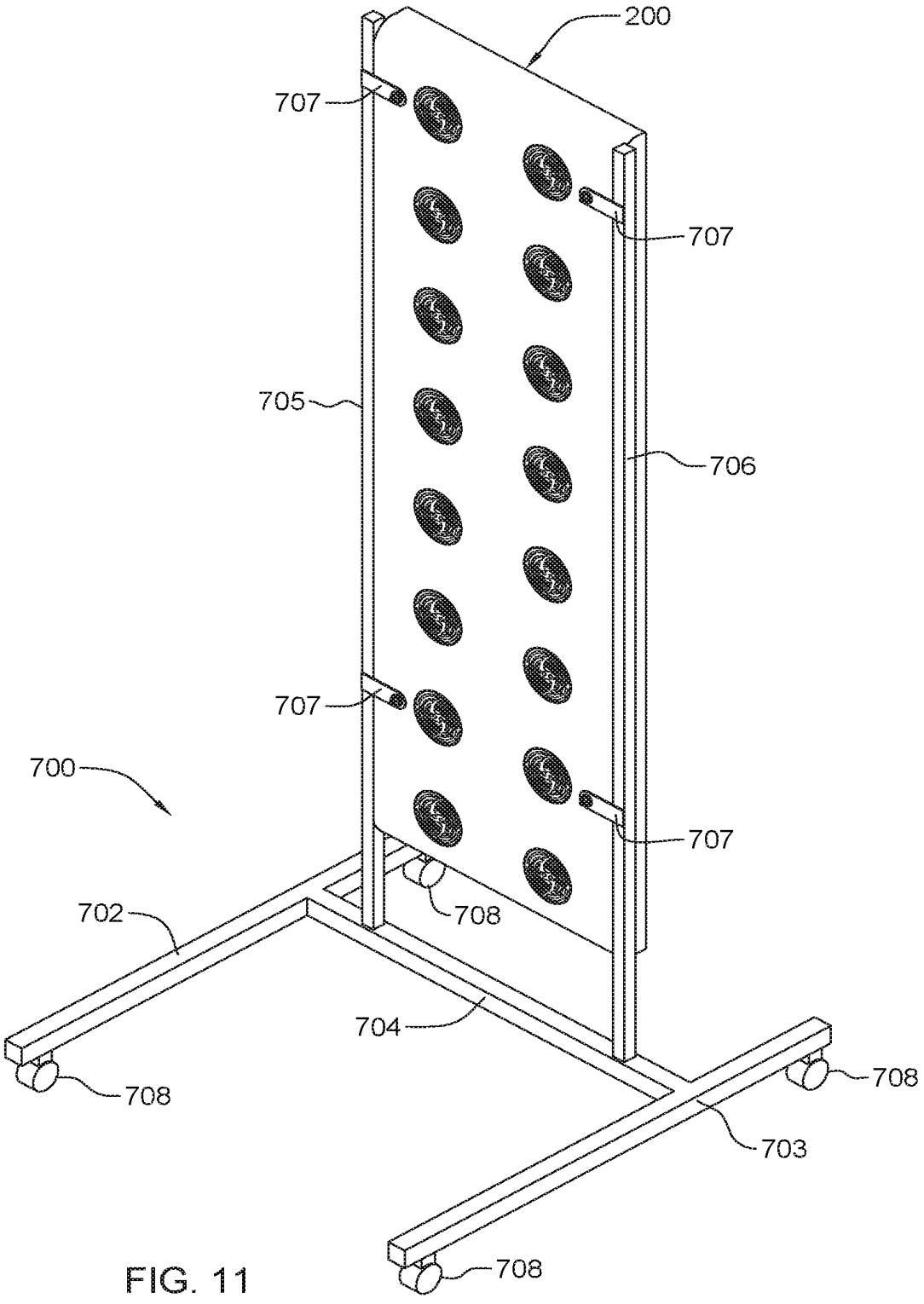


FIG. 11

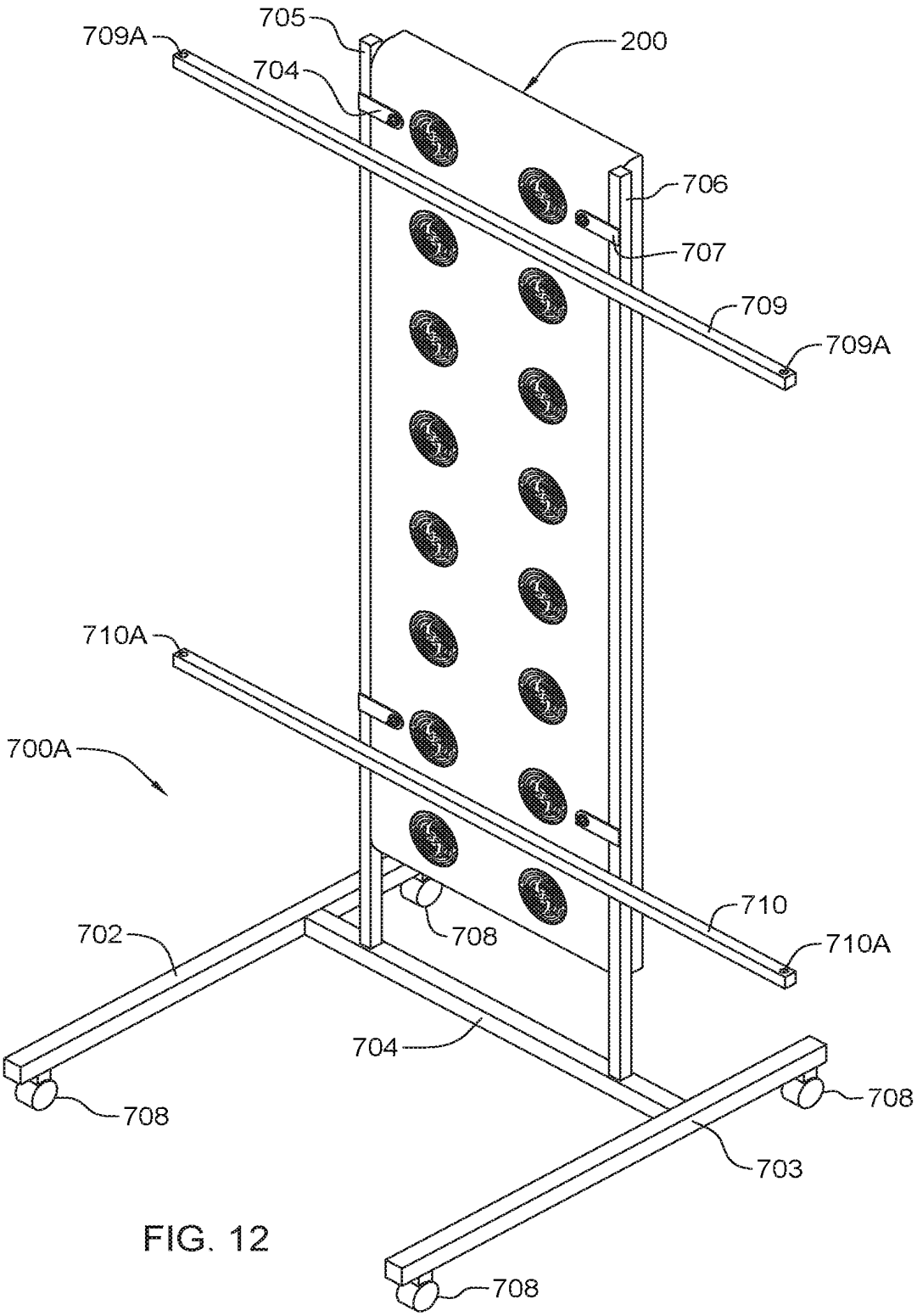

705
709A
200
704
706
707
709
709A
710A
700A
710
708
702
710A
704
708
708
703
708

FIG. 12

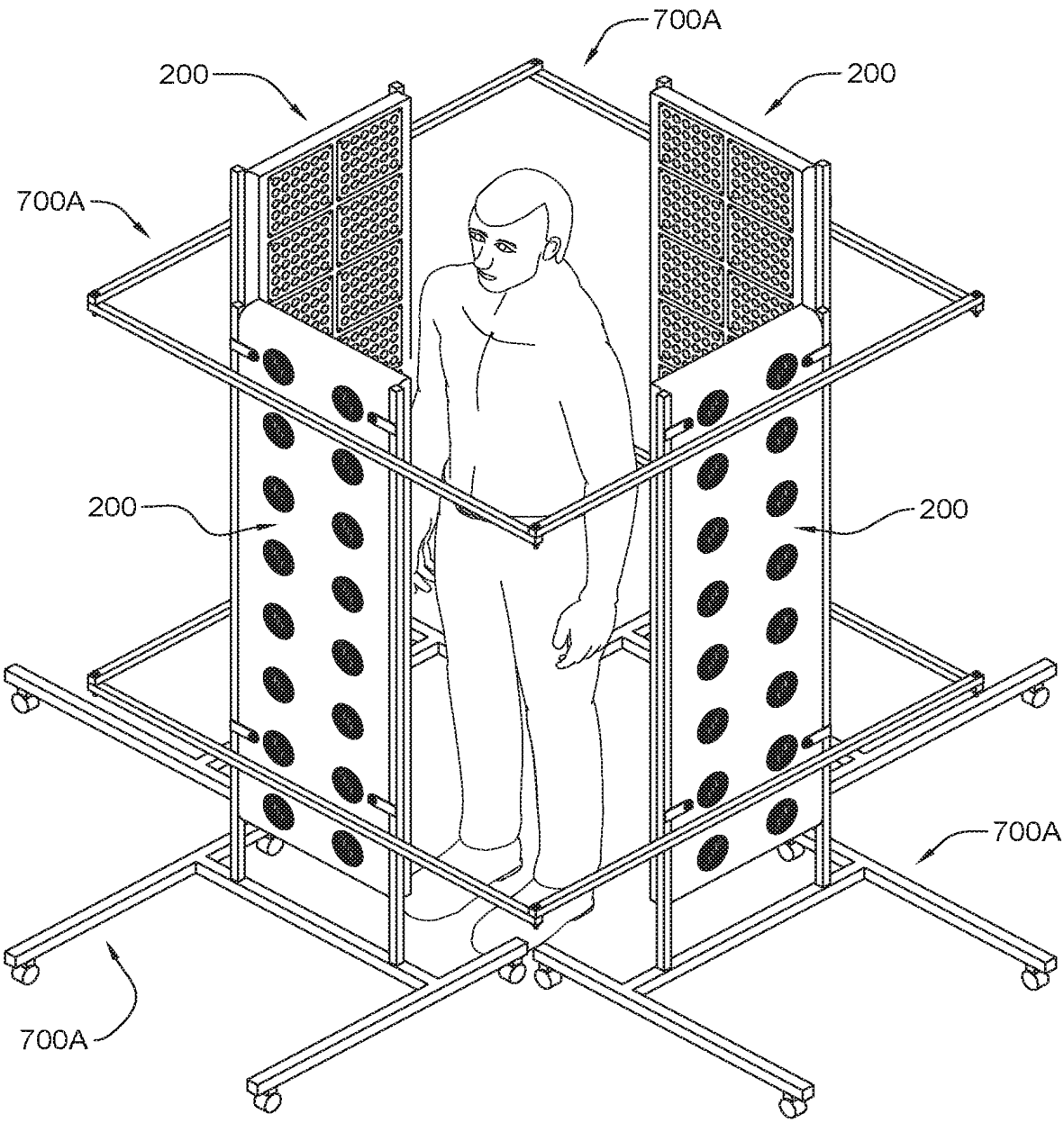


FIG. 13

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(54) Title: PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

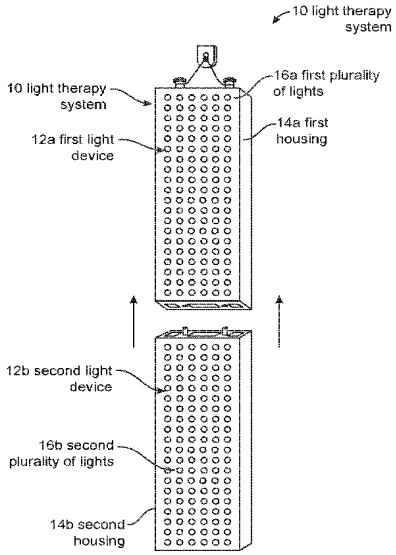


FIG. 2

(57) Abstract: Photobiomodulation therapy systems provide a highly effective way to treat many common ailments to the human body. Many embodiments described herein enable two or more light therapy devices to be coupled together in various ways. In some embodiments, a light therapy system comprises a first light therapy device comprising a first rigid housing and a first plurality of lights configured to emit at least one of red light and near infrared light; and a second light therapy device comprising a second rigid housing and a second plurality of lights configured to emit at least one of red light and near infrared light. In some embodiments, the first rigid housing is configured to be detachably coupled to the second rigid housing.

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PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

CROSS-REFERENCE TO RELATED APPLICATIONS

The entire contents of the following application are incorporated by reference herein: U.S. Patent Application No. 15/616,028; filed June 7, 2017; and entitled THERAPEUTIC LIGHT SOURCE AND HANGING APPARATUS.

The entire contents of the following application are incorporated by reference herein: PCT Patent Application No. PCT/US18/18288; filed March 1, 2018; and entitled THERAPEUTIC LIGHT SOURCE AND MOUNTING APPARATUS.

The entire contents of the following application are incorporated by reference herein: U.S. Patent Application No. 16/167,385; filed October 22, 2018; and entitled PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS.

The entire contents of the following application are incorporated by reference herein: U.S. Patent Application No. 16/227,289; filed December 20, 2018; and entitled PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS.

The entire contents of the following application are incorporated by reference herein: U.S. Patent Application No. 16/584,784; filed September 26, 2019; and entitled PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS.

The entire contents of the following application are incorporated by reference herein: U.S. Patent Application No. 16/598,033; filed October 10, 2019; and entitled PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS.

BACKGROUND

Field

Various embodiments disclosed herein relate to photobiomodulation therapy systems and methods.

Background

Photobiomodulation therapy (or light therapy) is a therapeutic technique that uses low-level wavelengths of light to improve health and treat a variety of health conditions, including skin issues, such as wrinkles, scars, and persistent wounds, among many other conditions. Similar to how plants use sunlight to heal and grow, humans and animals are able to harness these wavelengths of light and turn them into cellular energy. This treatment stimulates the body's natural healing processes.

Currently, there are a number of photobiomodulation therapy devices available on the market. However, many of these devices are too small and require multiple sessions to treat large areas. As a result, there is a need for a photobiomodulation therapy system that can treat several areas in fewer treatments.

SUMMARY

The disclosure includes a variety of embodiments whereby two or more light devices are electrically and/or mechanically coupled together to form a modular photobiomodulation therapy system. The term "photobiomodulation" shall be used interchangeably with the term "light". For the purposes of this disclosure, "photobiomodulation" and "light" shall include wavelengths of light in the red, blue, green, and near infrared spectrums.

In some embodiments, the photobiomodulation therapy system includes a first light device and a second light device arranged and configured to be coupled to the first light device. The first light device may include a first housing and a first plurality of lights arranged and configured to emit at least one of red light, blue light, green light, and/or near infrared light. Additionally, the second light device may include a second housing and a second plurality of lights arranged and configured to emit at least one of red light, blue light, green light, and/or near infrared light. In some embodiments, the first light device is arranged and configured to be electrically coupled to the second light device.

In many embodiments, the first light device comprises a first power management system electrically coupled to the first plurality of lights, and the second light device comprises a second power management system electrically coupled to the second plurality of lights. Embodiments may thereby include a first power cord arranged and configured to be electrically coupled to the first power management system and a first power outlet. Additionally, embodiments may include

a second power cord arranged and configured to be electrically coupled to the first power management system and the second power management system. This may allow the first light device and the second light device to be electrically paired together in series.

The photobiomodulation therapy system can be expanded by adding a third light device arranged and configured to be coupled to at least one of the first light device and the second light device, and a fourth light device arranged and configured to be coupled to at least one of the first light device, second light device, and third light device. The third light device may include a third housing, a third plurality of lights arranged and configured to emit at least one of red light, blue light, green light, and/or near infrared light, and a third power management system electrically coupled to the third plurality of lights. Accordingly, the fourth light device may include a fourth housing, a fourth plurality of lights arranged and configured to emit at least one of red light, blue light, green light, and/or near infrared light, and a fourth power management system electrically coupled to the fourth plurality of lights. Embodiments may thereby include a third power cord arranged and configured to be electrically coupled to the third power management system and a second power outlet. Additionally, embodiments may include a fourth power cord arranged and configured to be electrically coupled to the third power management system and the fourth power management system. This may allow the third light device and the fourth light device to be electrically coupled in series, and these together are in parallel with the first light device and the second light device.

Embodiments may also include a third power cord that can be arranged and configured to be electrically coupled to the second power management system and a third power management system. Additionally, embodiments may include a fourth power cord that may also be arranged and configured to be electrically coupled to the third power management system and the fourth power management system. This may allow the first light device, second light device, third light device, and fourth light device to all be electrically coupled in series.

The photobiomodulation therapy system can further be expanded to include a fifth light device arranged and configured to be coupled to at least one of the first light device, second light device, third light device, and fourth light device, and a sixth light device arranged and configured to be coupled to at least one of the first light device, second light device, third light device, fourth light device, and fifth light device. The fifth light device may include a fifth housing, a fifth plurality of lights arranged and configured to emit at least one of red light, blue light, green light,

and/or near infrared light, and a fifth power management system electrically coupled to the fifth plurality of lights. Likewise, the sixth light device may include a sixth housing, a sixth plurality of lights arranged and configured to emit at least one of red light, blue light, green light, and/or near infrared light, and a sixth power management system electrically coupled to the sixth plurality of lights. Such embodiments may thereby include a fourth power cord electrically coupled to the second power outlet. Additionally, embodiments may include a fifth power cord arranged and configured to be electrically coupled to the fourth power management system and the fifth power management system, and a sixth power cord arranged and configured to be electrically coupled to the fifth power management system and the sixth power management system. This may allow the fourth light device, fifth light device, and sixth light device to be electrically coupled in series, and paired together in parallel with the first, second, and third light devices.

Alternatively, embodiments may be configured whereby all of the light devices are coupled together in series. In this regard, embodiments may thereby include the fourth power cord arranged and configured to be electrically coupled to the third power management system and the fourth power management system. Accordingly, embodiments may include a fifth power cord arranged and configured to be electrically coupled to the fourth power management system and a fifth power management system, and a sixth power cord arranged and configured to be electrically coupled to the fifth power management system and the sixth power management system. As previously stated, this may allow the first light device, second light device, third light device, fourth light device, fifth light device, and sixth light device to all be electrically coupled in series.

In addition to electrical coupling, two or more light devices may be mechanically coupled together to form a variety of sizes and configurations. In some embodiments, the system includes a first aperture located on a bottom side of the first housing, and a second aperture located on the bottom side of the first housing. Additionally, embodiments may include a first attachment member extending from a top surface of the second housing. The first attachment member may be arranged and configured to be detachably coupled to the first aperture to thereby couple the first housing to the second housing. Accordingly, embodiments may include a second attachment member extending from the top surface of the second housing. The second attachment member may be arranged and configured to be detachably coupled to the second aperture to thereby couple the first housing to the second housing. Mechanically coupling the first light device and the second light device in this way achieves a top-to-bottom orientation.

Alternatively, some embodiments may be mechanically coupled in a side-by-side orientation. In some embodiments, the system includes a first bracket arranged and configured to be detachably coupled to a back side of the first housing and a back side of the second housing to thereby detachably couple the first housing to the second housing. Additionally, some embodiments include a second bracket arranged and configured to be detachably coupled to the back side of the first housing and the back side of the second housing to detachably couple the first housing to the second housing.

In some embodiments, the system includes a door stand to thereby mount the light therapy system to a door. In this regard, some embodiments include a first attachment member extending from a top surface of the first housing. The first attachment member may be arranged and configured to be detachably coupled to a first door stand. Additionally, some embodiments include a second attachment member extending from the top surface of the first housing. The second attachment member may be arranged and configured to be detachably coupled to the first door stand. Accordingly, some embodiments include a third attachment member extending from a top surface of the second housing. The third attachment member may be arranged and configured to be detachably coupled to a second door stand. Additionally, some embodiments include a fourth attachment member extending from the top surface of the second housing. Likewise, the fourth attachment member may be arranged and configured to be detachably coupled to the second door stand.

From a mechanical coupling perspective, the light therapy system can be expanded by adding a third light device arranged and configured to be detachably coupled to at least one of the first light device and the second light device, and a fourth light device arranged and configured to be detachably coupled to at least one of the first light device, second light device, and third light device. The third light device may include a third housing and a third plurality of lights arranged and configured to emit at least one of red light, blue light, green light, and/or near infrared light. Accordingly, the fourth light device may include a fourth housing and a fourth plurality of lights arranged and configured to emit at least one of red light, blue light, green light, and/or near infrared light. Some embodiments include a third bracket arranged and configured to be detachably coupled to a back side of the third housing and a back side of the fourth housing to thereby detachably couple the third housing to the fourth housing. Additionally, some embodiments include a fourth bracket arranged and configured to be detachably coupled to the back side of the third housing and

the back side of the fourth housing to thereby detachably couple the third housing to the fourth housing.

Even still, in some embodiments, the system includes a first aperture and a second aperture both located on a bottom side of the first housing, and a third aperture and a fourth aperture both located on a bottom side of the second housing. Some embodiments may thereby include a fifth attachment member extending from a top surface of the third housing. The fifth attachment member may be arranged and configured to be detachably coupled to the first aperture. Accordingly, some embodiments include a sixth attachment member extending from the top surface of the third housing. The sixth attachment member may be arranged and configured to be detachably coupled to the second aperture. Some embodiments may also include a seventh attachment member extending from a top surface of the fourth housing. The seventh attachment member may be arranged and configured to be detachably coupled to the third aperture. Even still, some embodiments may include an eighth attachment member extending from the top surface of the fourth housing. The eighth attachment member may be arranged and configured to be detachably coupled to the fourth aperture.

Some system embodiments disclosed herein include a mobile stand. In this regard, the first housing and the second housing may include a top side, a bottom side, a front side, and a back side. The system may further include a third light device arranged and configured to be detachably coupled to at least one of the first light device and the second light device, and a fourth light device arranged and configured to be detachably coupled to at least one of the first light device, the second light device, and the third light device. In some embodiments, the third light device includes a third housing and a third plurality of lights arranged and configured to emit at least one of red light, blue light, green light, and/or near infrared light. Accordingly, in some embodiments, the fourth light device includes a fourth housing and a fourth plurality of lights arranged and configured to emit at least one of red light, blue light, green light, and/or near infrared light. Additionally, some embodiments include a first bracket arranged and configured to be detachably coupled to a back side of the first housing and a back side of the second housing to thereby detachably couple the first housing to the second housing. Similarly, some embodiments include a second bracket arranged and configured to be detachably coupled to a back side of the third housing and a back side of the fourth housing to thereby detachably couple the third housing to the fourth housing. Some embodiments include a quad bracket arranged and configured to be detachably coupled to

the back side of the first housing, the back side of the second housing, the back side of the third housing, and the back side of the fourth housing to thereby detachably couple the first housing, second housing, third housing, and fourth housing together. The quad bracket may be arranged and configured to be detachably coupled to a mobile stand.

In some embodiments, the first housing and the second housing may include a top side, a bottom side, a front side, and a back side. The system may further include a third light device arranged and configured to be detachably coupled to at least one of the first light device and the second light device, a fourth light device arranged and configured to be detachably coupled to at least one of the first light device, the second light device, and the third light device, a fifth light device arranged and configured to be detachably coupled to at least one of the first light device, the second light device, the third light device, and the fourth light device, and a sixth light device arranged and configured to be detachably coupled to at least one of the first light device, the second light device, the third light device, the fourth light device, and the fifth light device. In some embodiments, the third light device includes a third housing and a third plurality of lights arranged and configured to emit at least one of red light, blue light, green light, and/or near infrared light. Accordingly, in some embodiments the fourth light device includes a fourth housing and a fourth plurality of lights arranged and configured to emit at least one of red light, blue light, green light, and/or near infrared light. Similarly, in some embodiments the fifth light device includes a fifth housing and a fifth plurality of lights arranged and configured to emit at least one of red light, blue light, green light, and/or near infrared light. Finally, some embodiments include the sixth light device, which includes a sixth housing and a sixth plurality of lights arranged and configured to emit at least one of red light, blue light, green light, and/or near infrared light. Additionally, some embodiments include a first bracket arranged and configured to be detachably coupled to a back side of the first housing, a back side of the second housing, and a back side of the fifth housing to thereby detachably couple the first light device, second light device, and fifth light device together. Accordingly, some embodiments include a second bracket arranged and configured to be detachably coupled to a back side of the third housing, a back side of the fourth housing, and a back side of the sixth housing to thereby detachably couple the third light device, fourth light device, and sixth light device together. Additionally, some embodiments include a large bracket arranged and configured to be detachably coupled to the back side of the first housing, the back side of the second housing, the back side of the third housing, the back side of the fourth housing,

the back side of the fifth housing, and the back side of the sixth housing to thereby detachably couple the first light device, second light device, third light device, fourth light device, fifth light device, and sixth light device together. In some embodiments, the large bracket is arranged and configured to be detachably coupled to a mobile stand.

In some embodiments, the system further includes the mobile stand having at least one vertical arm arranged and configured to couple to the large bracket. Additionally, in some embodiments, the mobile stand includes at least one horizontal leg arranged and configured to contact a floor surface.

In some embodiments, the first light device is a first modular light device and the second light device is a second modular light device whereby each of the first and second modular light devices are arranged and configured to be mechanically coupled in at least one of a side-by-side orientation and a top-to-bottom orientation. Furthermore, in some embodiments, the system includes a third modular light device and a fourth modular light device each arranged and configured to be mechanically coupled to at least one of the first, second, third, and fourth modular light devices in at least one of a side-by-side orientation and a top-to-bottom orientation.

The disclosure also includes a light therapy system, comprising a first light therapy device comprising a first rigid housing and a first plurality of lights configured to emit at least one of red light and near infrared light; and a second light therapy device comprising a second rigid housing and a second plurality of lights configured to emit at least one of red light and near infrared light, wherein the first rigid housing is configured to be detachably coupled to the second rigid housing.

In some embodiments. the first light therapy device and the second light therapy device are configured to be detachably coupled in a side-by-side orientation. In some embodiments, the first light therapy device and the second light therapy device are configured to be detachably coupled in a top-to-bottom orientation.

In some embodiments, the light therapy system further comprises a coupling system coupled to a bottom surface of the first rigid housing and a top surface of the second rigid housing, wherein the coupling system is configured to detachably couple the first rigid housing to the second rigid housing. In some embodiments, the first light therapy device comprises a first aperture located on the bottom surface of the first rigid housing, and a second aperture located on the bottom surface of the first rigid housing. In some embodiments, the coupling system comprises a first post extending from the top surface of the second rigid housing, and a second post extending from the

top surface of the second rigid housing, the first post being configured to detachably couple to the first aperture, and the second post being configured to detachably couple to the second aperture.

In some embodiments, the light therapy system further comprises a first bracket configured to couple to both a back surface of the first rigid housing and a back surface of the second rigid housing to thereby couple the first rigid housing to the second rigid housing. Additionally, in some embodiments, the light therapy system further comprises a second bracket configured to couple to both the back surface of the first rigid housing and the back surface of the second rigid housing to thereby couple the first rigid housing to the second rigid housing.

Some embodiments further comprise: a third light therapy device comprising a third rigid housing and a third plurality of lights configured to emit at least one of red light and near infrared light; and a fourth light therapy device comprising a fourth rigid housing and a fourth plurality of lights configured to emit at least one of red light and near infrared light, wherein the third light therapy device and the fourth light therapy device are each configured to be detachably coupled to at least one of the first light therapy device and the second light therapy device.

In some embodiments, the first light therapy device comprises a first aperture located on a bottom surface of the first rigid housing, and the second light therapy device comprises a second aperture located on a bottom surface of the second rigid housing, wherein the third light therapy device comprises a first post extending from a top surface of the third rigid housing, the first post configured to detachably couple to the first aperture, and wherein the fourth light therapy device comprises a second post extending from a top surface of the fourth rigid housing, the second post configured to detachably couple to the second aperture.

In some embodiments, the light therapy system further comprises a first bracket configured to detachably couple to the first rigid housing and the second rigid housing, wherein a first portion of the first bracket is configured to couple to a back surface of the first rigid housing, and a second portion of the first bracket is configured to couple to a back surface of the second rigid housing; and a second bracket configured to detachably couple to the third rigid housing and the fourth rigid housing, wherein a first portion of the second bracket is configured to couple to a back surface of the third rigid housing, and a second portion of the second bracket is configured to couple to a back surface of the fourth rigid housing.

In some embodiments, the light therapy system further comprises a quad bracket configured to be detachably coupled to a back surface of the first rigid housing, a back surface of

the second rigid housing, a back surface of the third rigid housing, and a back surface of the fourth rigid housing to thereby couple the first rigid housing, the second rigid housing, the third rigid housing and the fourth rigid housing together. In some embodiments, the light therapy system further comprises a mobile stand having at least one vertical arm configured to couple to the quad bracket.

In some embodiments, the mobile stand comprises at least one horizontal leg coupled to the at least one vertical arm, wherein the at least one horizontal leg is configured to stabilize the mobile stand; and a plurality of casters extending from the at least one horizontal leg, the plurality of casters configured to contact a ground surface and thereby enable the mobile stand to roll along the ground surface.

In some embodiments, the light therapy system further comprises an attachment system configured to couple to a top surface of the first rigid housing, wherein the attachment system is configured to detachably couple the first rigid housing and the second rigid housing to at least one of a door stand and a wall stand.

In some embodiments, the attachment system comprises: a first post extending from the top surface of the first rigid housing; a second post extending from the top surface of the first rigid housing, the second post spaced from the first post; and a cable extending from the first post to the second post, the cable configured to couple to at least one of the door stand and the wall stand.

In some embodiments, the light therapy system further comprises an attachment system configured to couple to a top surface of the first rigid housing and a top surface of the second rigid housing, wherein the attachment system is configured to detachably couple the first rigid housing and the second rigid housing to at least one of a door stand and a wall stand, wherein the attachment system further comprises: a first post extending from the top surface of the first rigid housing; a second post extending from the top surface of the first rigid housing, the second post spaced from the first post; a first cable extending from the first post to the second post, the first cable configured to couple to at least one of the door stand and the wall stand; a third post extending from the top surface of the second rigid housing; a fourth post extending from the top surface of the second rigid housing, the fourth post spaced from the third post; a second cable extending from the third post to the fourth post, the second cable configured to couple to at least one of the door stand and the wall stand.

In some embodiments, wherein the first light therapy device is configured to be electrically coupled to the second light therapy device.

In some embodiments, a first portion of the first plurality of lights is configured to emit red light and a first portion of the second plurality of lights is configured to emit red light. In some embodiments, a second portion of the first plurality of lights is configured to emit near infrared light and a second portion of the second plurality of lights is configured to emit near infrared light.

In some embodiments, the first plurality of lights are at least partially encompassed within the first rigid housing and thereby protrude through the first rigid housing, and wherein the second plurality of lights are at least partially encompassed within the second rigid housing and thereby protrude through the second rigid housing.

The disclosure also include a photobiomodulation therapy system, comprising: a first light device comprising a first rigid housing, a first printed circuit board (PCB) located within the first rigid housing, and a first plurality of light sources electrically coupled to the first PCB, wherein the first plurality of light sources are at least partially encompassed within the first rigid housing and thereby protrude through the first rigid housing, and wherein a first portion of the first plurality of light sources emits near infrared light and a second portion of the first plurality of light sources emits red light; a second light device arranged and configured to be detachably coupled to the first light device, the second light device having a second rigid housing, a second printed circuit board (PCB) located within the second rigid housing, and a second plurality of light sources electrically coupled to the second PCB, wherein the second plurality of light sources are at least partially encompassed within the second rigid housing and thereby protrude through the second rigid housing, and wherein a first portion of the second plurality of light sources emits near infrared light and a second portion of the second plurality of light sources emits red light; a first aperture located on a bottom side of the first rigid housing; a second aperture located on the bottom side of the first rigid housing; a first attachment member extending from a top surface of the second rigid housing, wherein the first attachment member is arranged and configured to be detachably coupled to the first aperture to thereby couple the first rigid housing to the second rigid housing; and a second attachment member extending from the top surface of the second rigid housing, wherein the second attachment member is arranged and configured to be detachably coupled to the second aperture to thereby couple the first rigid housing to the second rigid housing.

In some embodiments, the first light device is arranged and configured to be electrically coupled to the second light device. In some embodiments, the first light device comprises a first power management system electrically coupled to the first plurality of light sources, and the second light device comprises a second power management system electrically coupled to the second plurality of light sources.

In some embodiments, the system further comprises: a first power cord arranged and configured to be electrically coupled to the first power management system and a first power outlet; and a second power cord arranged and configured to be electrically coupled to the first power management system and the second power management system.

In some embodiments, the system further comprises: a third power cord arranged and configured to be electrically coupled to a third power management system and a second power outlet; and a fourth power cord arranged and configured to be electrically coupled to the third power management system and a fourth power management system.

In some embodiments, the system further comprises: a fifth light device arranged and configured to be detachably coupled to at least one of the first light device, the second light device, the third light device, and the fourth light device, the fifth light device comprising a fifth rigid housing, a fifth printed circuit board (PCB) located within the fifth rigid housing, a fifth plurality of light sources electrically coupled to the fifth PCB, wherein the fifth plurality of light sources are at least partially encompassed within the fifth rigid housing and thereby protrude through the fifth rigid housing, and wherein a first portion of the fifth plurality of light sources emits near infrared light and a second portion of the fifth plurality of light sources emits red light, and a fifth power management system electrically coupled to the fifth plurality of light sources; and a sixth light device arranged and configured to be detachably coupled to at least one of the first light device, the second light device, the third light device, the fourth light device, and the fifth light device, the sixth light device comprising a sixth rigid housing, a sixth printed circuit board (PCB) located within the sixth rigid housing, a sixth plurality of light sources electrically coupled to the sixth PCB, wherein the sixth plurality of light sources are at least partially encompassed within the sixth rigid housing and thereby protrude through the sixth rigid housing, and wherein a first portion of the sixth plurality of light sources emits near infrared light and a second portion of the sixth plurality of light sources emits red light, and a sixth power management system electrically coupled to the sixth plurality of light sources.

In some embodiments, the system further comprises: a third power cord arranged and configured to be electrically coupled to a second power management system and ~~the~~ a third power management system; a fourth power cord arranged and configured to be electrically coupled to a fourth power management system and a second power outlet; a fifth power cord arranged and configured to be electrically coupled to the fourth power management system and the fifth power management system; and a sixth power cord arranged and configured to be electrically coupled to the fifth power management system and the sixth power management system.

In some embodiments, the system further comprises: a third power cord arranged and configured to be electrically coupled to a second power management system and a third power management system; and a fourth power cord arranged and configured to be electrically coupled to the third power management system and a fourth power management system.

In some embodiments, the system further comprises: a fifth light device arranged and configured to be detachably coupled to at least one of the first light device, the second light device, the third light device, and the fourth light device, the fifth light device comprising a fifth rigid housing, a fifth printed circuit board (PCB) located within the fifth rigid housing, a fifth plurality of light sources electrically coupled to the fifth PCB, wherein the fifth plurality of light sources are at least partially encompassed within the fifth rigid housing and thereby protrude through the fifth rigid housing, and wherein a first portion of the fifth plurality of light sources emits near infrared light and a second portion of the fifth plurality of light sources emits red light, and a fifth power management system electrically coupled to the fifth plurality of light sources; a sixth light device arranged and configured to be detachably coupled to at least one of the first light device, the second light device, the third light device, the fourth light device, and the fifth light device, the sixth light device comprising a sixth rigid housing, a sixth printed circuit board (PCB) located within the sixth rigid housing, a sixth plurality of light sources electrically coupled to the sixth PCB, wherein the sixth plurality of light sources are at least partially encompassed within the sixth rigid housing and thereby protrude through the sixth rigid housing, and wherein a first portion of the sixth plurality of light sources emits near infrared light and a second portion of the sixth plurality of light sources emits red light, and a sixth power management system electrically coupled to the sixth plurality of light sources; a fifth power cord arranged and configured to be electrically coupled to the fourth power management system and the fifth power management

system; and a sixth power cord arranged and configured to be electrically coupled to the fifth power management system and the sixth power management system.

In some embodiments, the system further comprises: a first bracket arranged and configured to be detachably coupled to a back side of the first rigid housing and a back side of the second rigid housing to thereby detachably couple the first rigid housing to the second rigid housing; a second bracket arranged and configured to be detachably coupled to the back side of the first rigid housing and the back side of the second rigid housing to thereby detachably couple the first rigid housing to the second rigid housing; a first attachment member extending from a top surface of the first rigid housing, wherein the first attachment member is arranged and configured to be detachably coupled to a first door stand; a second attachment member extending from the top surface of the first rigid housing, wherein the second attachment member is arranged and configured to be detachably coupled to the first door stand; a third attachment member extending from a top surface of the second rigid housing, wherein the third attachment member is arranged and configured to be detachably coupled to a second door stand; and a fourth attachment member extending from the top surface of the second rigid housing, wherein the fourth attachment member is arranged and configured to be detachably coupled to the second door stand.

In some embodiments, the system further comprises: a third light device arranged and configured to be detachably coupled to at least one of the first light device and the second light device, the third light device comprising a third rigid housing, a third printed circuit board (PCB) located within the third rigid housing, and a third plurality of light sources electrically coupled to the third PCB, wherein the third plurality of light sources are at least partially encompassed within the third rigid housing and thereby protrude through the third rigid housing, and wherein a first portion of the third plurality of light sources emits near infrared light and a second portion of the third plurality of light sources emits red light; a fourth light device arranged and configured to be detachably coupled to at least one of the first light device, the second light device, and the third light device, the fourth light device comprising a fourth rigid housing, a fourth printed circuit board (PCB) located within the fourth rigid housing, and a fourth plurality of light sources electrically coupled to the fourth PCB, wherein the fourth plurality of light sources are at least partially encompassed within the fourth rigid housing and thereby protrude through the fourth rigid housing, and wherein a first portion of the fourth plurality of light sources emits near infrared light and a second portion of the fourth plurality of light sources emits red light; a third bracket arranged and

configured to be detachably coupled to a back side of the third rigid housing and a back side of the fourth rigid housing to thereby detachably couple the third rigid housing to the fourth rigid housing; and a fourth bracket arranged and configured to be detachably coupled to the back side of the third rigid housing and the back side of the fourth rigid housing to thereby detachably couple the third rigid housing to the fourth rigid housing.

In some embodiments, the system further comprises: a first aperture and a second aperture both located on a bottom side of the first rigid housing; a third aperture and a fourth aperture both located on a bottom side of the second rigid housing; a fifth attachment member extending from a top surface of the third rigid housing, wherein the fifth attachment member is arranged and configured to be detachably coupled to the first aperture; a sixth attachment member extending from the top surface of the third rigid housing, wherein the sixth attachment member is arranged and configured to be detachably coupled to the second aperture; a seventh attachment member extending from a top surface of the fourth rigid housing, wherein the seventh attachment member is arranged and configured to be detachably coupled to the third aperture; and an eighth attachment member extending from the top surface of the fourth rigid housing, wherein the eighth attachment member is arranged and configured to be detachably coupled to the fourth aperture.

In some embodiments, each of the first rigid housing and the second rigid housing comprises a top side, a bottom side, a front side, and a back side, the system further comprising: a first bracket arranged and configured to be detachably coupled to a back side of the first rigid housing and a back side of the second rigid housing to thereby detachably couple the first rigid housing to the second rigid housing; and a second bracket arranged and configured to be detachably coupled to a back side of the third rigid housing and a back side of the fourth rigid housing to thereby detachably couple the third rigid housing to the fourth rigid housing.

In some embodiments, each of the first rigid housing and the second rigid housing comprises a top side, a bottom side, a front side, and a back side, the system further comprising: a third light device arranged and configured to be detachably coupled to at least one of the first light device and the second light device, the third light device comprising a third rigid housing, a third printed circuit board (PCB) located within the third rigid housing, and a third plurality of light sources electrically coupled to the third PCB, wherein the third plurality of light sources are at least partially encompassed within the third rigid housing and thereby protrude through the third rigid housing, and wherein a first portion of the third plurality of light sources emits near infrared

light and a second portion of the third plurality of light sources emits red light; a fourth light device arranged and configured to be detachably coupled to at least one of the first light device, the second light device, and the third light device, the fourth light device comprising a fourth rigid housing, a fourth printed circuit board (PCB) located within the fourth rigid housing, and a fourth plurality of light sources electrically coupled to the fourth PCB, wherein the fourth plurality of light sources are at least partially encompassed within the fourth rigid housing and thereby protrude through the fourth rigid housing, and wherein a first portion of the fourth plurality of light sources emits near infrared light and a second portion of the fourth plurality of light sources emits red light; a fifth light device arranged and configured to be detachably coupled to at least one of the first light device, the second light device, the third light device, and the fourth light device, the fifth light device comprising a fifth rigid housing, a fifth printed circuit board (PCB) located within the fifth rigid housing, and a fifth plurality of light sources electrically coupled to the fifth PCB, wherein the fifth plurality of light sources are at least partially encompassed within the fifth rigid housing and thereby protrude through the fifth rigid housing, and wherein a first portion of the fifth plurality of light sources emits near infrared light and a second portion of the fifth plurality of light sources emits red light; a sixth light device arranged and configured to be detachably coupled to at least one of the first light device, the second light device, the third light device, the fourth light device, and the fifth light device, the sixth light device comprising a sixth rigid housing, a sixth printed circuit board (PCB) located within the sixth rigid housing, and a sixth plurality of light sources electrically coupled to the sixth PCB, wherein the sixth plurality of light sources are at least partially encompassed within the sixth rigid housing and thereby protrude through the sixth rigid housing, and wherein a first portion of the sixth plurality of light sources emits near infrared light and a second portion of the sixth plurality of light sources emits red light; a first bracket arranged and configured to be detachably coupled to a back side of the first rigid housing, a back side of the second rigid housing, and a back side of the fifth rigid housing to thereby detachably couple the first light device, second light device, and fifth light device together; a second bracket arranged and configured to be detachably coupled to a back side of the third rigid housing, a back side of the fourth rigid housing, and a back side of the sixth rigid housing to thereby detachably couple the third light device, fourth light device, and sixth light device together; and a large bracket arranged and configured to be detachably coupled to the back side of the first rigid housing, the back side of the second rigid housing, the back side of the third rigid housing, the back side of the

fourth rigid housing, the back side of the fifth rigid housing, and the back side of the sixth rigid housing to thereby detachably couple the first light device, second light device, third light device, fourth light device, fifth light device, and sixth light device together, wherein the large bracket is arranged and configured to be detachably coupled to a mobile stand.

In some embodiments, the first light device is a first modular light device and the second light device is a second modular light device, the system further comprising a third modular light device and a fourth modular light device, whereby each of the first, second, third, and fourth modular light devices are arranged and configured to be mechanically coupled to at least one of the first, second, third, and fourth modular light devices in at least one of a side-by-side orientation and a top-to-bottom orientation.

The disclosure also includes a photobiomodulation therapy system, comprising: a first light device comprising a first rigid housing, a first printed circuit board (PCB) located within the first rigid housing, and a first plurality of light sources electrically coupled to the first PCB, wherein the first plurality of light sources are at least partially encompassed within the first rigid housing and thereby protrude through the first rigid housing, and wherein a first portion of the first plurality of light sources emits near infrared light and a second portion of the first plurality of light sources emits red light; a second light device arranged and configured to be detachably coupled to the first light device, the second light device having a second rigid housing, a second printed circuit board (PCB) located within the second rigid housing, and a second plurality of light sources electrically coupled to the second PCB, wherein the second plurality of light sources are at least partially encompassed within the second rigid housing and thereby protrude through the second rigid housing, and wherein a first portion of the second plurality of light sources emits near infrared light and a second portion of the second plurality of light sources emits red light; a third light device arranged and configured to be detachably coupled to at least one of the first light device and the second light device, the third light device having a third rigid housing, a third printed circuit board (PCB) located within the third rigid housing, and a third plurality of light sources electrically coupled to the PCB, wherein the third plurality of light sources are at least partially encompassed within the third rigid housing and thereby protrude through the third rigid housing, and wherein a first portion of the third plurality of light sources emits near infrared light and a second portion of the third plurality of light sources emits red light; and a fourth light device arranged and configured to be detachably coupled to at least one of the first light device, the second

light device, and the third light device, the fourth light device having a fourth rigid housing, a fourth printed circuit board (PCB) located within the fourth rigid housing, and a fourth plurality of light sources electrically coupled to the PCB, wherein the fourth plurality of light sources are at least partially encompassed within the fourth rigid housing and thereby protrude through the fourth rigid housing, and wherein a first portion of the fourth plurality of light sources emits near infrared light and a second portion of the fourth plurality of light sources emits red light.

A photobiomodulation therapy system, comprising: a first light device comprising a first rigid housing, a first printed circuit board (PCB) located within the first rigid housing, and a first plurality of light sources electrically coupled to the first PCB, wherein the first plurality of light sources are at least partially encompassed within the first rigid housing and thereby protrude through the first rigid housing, and wherein a first portion of the first plurality of light sources emits near infrared light and a second portion of the first plurality of light sources emits red light; a second light device arranged and configured to be detachably coupled to the first light device, the second light device having a second rigid housing, a second printed circuit board (PCB) located within the second rigid housing, and a second plurality of light sources electrically coupled to the second PCB, wherein the second plurality of light sources are at least partially encompassed within the second rigid housing and thereby protrude through the second rigid housing, and wherein a first portion of the second plurality of light sources emits near infrared light and a second portion of the second plurality of light sources emits red light; a third light device arranged and configured to be detachably coupled to at least one of the first light device and the second light device, the third light device having a third rigid housing, a third printed circuit board (PCB) located within the third rigid housing, and a third plurality of light sources electrically coupled to the PCB, wherein the third plurality of light sources are at least partially encompassed within the third rigid housing and thereby protrude through the third rigid housing, and wherein a first portion of the third plurality of light sources emits near infrared light and a second portion of the third plurality of light sources emits red light; a fourth light device arranged and configured to be detachably coupled to at least one of the first light device, the second light device, and the third light device, the fourth light device having a fourth rigid housing, a fourth printed circuit board (PCB) located within the fourth rigid housing, and a fourth plurality of light sources electrically coupled to the PCB, wherein the fourth plurality of light sources are at least partially encompassed within the fourth rigid housing and thereby protrude through the fourth rigid housing, and wherein a first

portion of the fourth plurality of light sources emits near infrared light and a second portion of the fourth plurality of light sources emits red light; and a mobile stand having at least one vertical arm arranged and configured to couple to a large bracket, the mobile stand comprising at least one horizontal leg arranged and configured to contact a floor surface.

In some embodiments, the at least one vertical arm is arranged and configured to rotate about a first axis and a second axis, wherein the second axis is different than the first axis. In some embodiments, the at least one vertical arm is arranged and configured to position at least one of the first light device, the second light device, the third light device, and the fourth light device.

In some embodiments, the system further comprises a quad bracket arranged and configured to be detachably coupled to the back side of the first rigid housing, the back side of the second rigid housing, the back side of the third rigid housing, and the back side of the fourth rigid housing to thereby detachably couple the first rigid housing, second rigid housing, third rigid housing and fourth rigid housing together, wherein the quad bracket is arranged and configured to be detachably coupled to the mobile stand.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other features, aspects, and advantages are described below with reference to the drawings, which are intended to illustrate, but not to limit, the invention. In the drawings, like reference characters denote corresponding features consistently throughout similar embodiments.

Figure 1 illustrates a perspective view of an embodiment of a light therapy system, according to some embodiments.

Figure 2 illustrates a perspective view of a light therapy system, specifically how a first housing mechanically couples with a second housing, according to some embodiments.

Figure 3 illustrates a back view of a light therapy system, specifically how a first light device electrically couples with a second light device, according to some embodiments.

Figure 4 illustrates a perspective view of a light therapy system having four light devices mechanically coupled, according to some embodiments.

Figure 5 illustrates a back view of a light therapy system in which a first light device is electrically coupled to a first power outlet and a second light device, and a third light device electrically coupled to a second power outlet and a fourth light device, according to some embodiments.

Figure 6 illustrates a back view of a light therapy system in which a first light device is electrically coupled to a first power outlet and a second light device, the second light device is also electrically coupled to a third light device, and the third light device is also electrically coupled to a fourth light device, according to some embodiments.

Figure 7 illustrates a perspective view of a light therapy system having six light devices mechanically coupled together, according to some embodiments.

Figure 8 illustrates a back view of a light therapy system, specifically showing six light devices mechanically and electrically coupled together, according to some embodiments.

Figure 9 illustrates a back view of another light therapy system, specifically showing six light devices mechanically and electrically coupled together, according to some embodiments.

Figure 10 illustrates a perspective view of a light therapy system in which a first light device is mechanically coupled with a second light device in a top-to-bottom orientation, according to some embodiments.

Figure 11 illustrates a back view of a light therapy system in which a first light device is mechanically coupled to a second light device in a side-by-side orientation, according to some embodiments.

Figure 12 illustrates a front view of a light therapy system that has four light devices mechanically coupled and is mounted to a door via a first and a second door stand, according to some embodiments.

Figure 13 illustrates a back view of a light therapy system in which a first light device is mechanically coupled to a second light device via a first and a second bracket, and a third light device is mechanically coupled to a fourth light device via a third and a fourth bracket, according to some embodiments.

Figure 14 illustrates a perspective view of a light therapy system mounted to a door, specifically showing a third and fourth housing mechanically coupled with a first and second housing, according to some embodiments.

Figure 15A illustrates a back view of a light therapy system in which first, second, third, and fourth light devices are mechanically coupled via a first bracket, a second bracket, and a quad bracket, according to some embodiments.

Figure 15B illustrates a back view of a light therapy system in which first, second, third, and fourth light devices are mechanically coupled via a first bracket, a second bracket, and a quad

bracket, whereby the quad bracket is mechanically coupled with a mobile stand, according to some embodiments.

Figure 15C illustrates a perspective view of a mobile stand, according to some embodiments.

Figure 16 illustrates a perspective view of one possible embodiment of a light therapy system mounted to a mobile stand that is capable of rotation on two axes, according to some embodiments.

Figure 17 illustrates a perspective view of a light therapy system mounted to a mobile stand in which a first and second light device have a first form factor, and a third and fourth light device have a second form factor, according to some embodiments.

Figure 18A illustrates a back view of a light therapy system in which first, second, third, fourth, fifth, and sixth light devices are mechanically coupled via a first bracket, a second bracket, and a large bracket, according to some embodiments.

Figure 18B illustrates a back view of a light therapy system in which first, second, third, fourth, fifth, and sixth light devices are mechanically coupled via a first bracket, a second bracket, and a large bracket that is mechanically coupled with a mobile stand, according to some embodiments.

Figure 19 illustrates a perspective view of a light therapy system that includes a mini stand, according to some embodiments.

Figure 20 illustrates a perspective view of a light therapy system that includes a wall mount for attaching the system to a substrate, such as a wall, according to some embodiments.

Figures 21A illustrates a perspective view of a partial light device with the lights protruding from the rigid housing, according to some embodiments.

Figure 21B illustrates a side cross-sectional view of a light device whereby the lights are at least partially encompassed within the rigid housing and at least partially protruding from the rigid housing, according to some embodiments.

DETAILED DESCRIPTION

Although certain embodiments and examples are disclosed below, inventive subject matter extends beyond the specifically disclosed embodiments to other alternative embodiments and/or uses, and to modifications and equivalents thereof. Thus, the scope of the claims appended hereto

is not limited by any of the particular embodiments described below. For example, in any system or method disclosed herein, the acts or operations of the system or process may be performed in any suitable sequence and are not necessarily limited to any particular disclosed sequence. Various operations may be described as multiple discrete operations in turn, in a manner that may be helpful in understanding certain embodiments; however, the order of description should not be construed to imply that these operations are order dependent. Additionally, the structures, systems, and/or devices described herein may be embodied as integrated components or as separate components.

For purposes of comparing various embodiments, certain aspects and advantages of these embodiments are described. Not necessarily all such aspects or advantages are achieved by any particular embodiment. Thus, for example, various embodiments may be carried out in a manner that achieves or optimizes one advantage or group of advantages as taught herein without necessarily achieving other aspects or advantages as may also be taught or suggested herein.

INTRODUCTION

Photobiomodulation therapy provides an alternative option for treating many common ailments and diseases. For example, when the human body is exposed to red light, blue light, green light, and/or near infrared light, subjects can expect to see improvement in multiple skin conditions, weight loss, muscle recovery, sexual performance, joint pain, and thyroid function. Instead of using prescription medications to solve these many problems, light therapy can be used in place of these traditional remedies to achieve safe and effective results.

Light therapy has been adopted by many top professionals, but oftentimes the light therapy devices and systems used are not big enough to treat an entire body at once. Accordingly, many embodiments described herein enable two or more light therapy devices to be coupled together in various ways. In doing so, the area of treatment can be expanded to reduce the time and number of treatments to achieve the desired results.

The disclosure includes a light therapy system 10 that includes two or more light devices 12. For example, in some embodiments as shown in Fig. 1, the system 10 includes four light devices, such as a first light device 12a, a second light device 12b, a third light device 12c, and a fourth light device 12d. As will be shown and described, the four light devices 12 may be electrically and mechanically coupled together. The light therapy system 10 may further include

an auxiliary mounting device, such as a mobile stand and/or a door stand, to assist in transporting and positioning the system 10.

In order to describe specific features and components of the light therapy system 10, we now refer to Fig. 2, which illustrates a perspective view of an embodiment of a system 10 having the light devices arranged in a top-to-bottom orientation. As shown, the system 10 may include a first light device 12a comprising a first housing 14a and a first plurality of lights 16a, and a second light device 12b comprising a second housing 14b and a second plurality of lights 16b. In many embodiments, the first housing and the second housing are constructed of rigid materials. As such, in many embodiments, the housing(s) is(are) rigid. The second light device 12b may be arranged and configured to couple to the first light device 12a. In many embodiments, the first rigid housing 14a is configured to be detachably coupled to the second rigid housing 14b. Both the first plurality of lights 16a and the second plurality of lights 16b are arranged and configured to emit red light, blue light, green light, and/or near infrared light. In some embodiments, the plurality of lights 16a and 16b may comprise a plurality of light emitting diodes (LED). Although LEDs are specifically mentioned herein, any light source capable of emitting red light, blue light, green light, and/or near infrared light may be appropriate. Furthermore, each light of the plurality of lights may be configured to emit both red light, blue light, green light, and/or near infrared light, or each light may be configured to only emit red light, blue light, green light, and/or near infrared light.

In some embodiments, the first light device 12a is arranged and configured to electrically couple to the second light device 12b. Fig. 3 illustrates one embodiment of how this may be achieved. The first light device 12a may comprise a first power management system 18a, which is electrically coupled to the first plurality of lights 16a. Likewise, the second light device 12b may comprise a second power management system 18b, which is electrically coupled to the second plurality of lights 16b. In some embodiments, the power management systems 18 may include an input port configured to receive a cord to thereby transfer power into the light devices 12, and an output port configured to transfer power out of the light device 12. Moreover, Fig. 3 illustrates the light devices arranged in a top-to-bottom orientation.

Fig. 3 further illustrates an embodiment which has a first power cord 20a electrically coupled to the first power management system 18a and a first power outlet 22a. Furthermore, Fig. 3 illustrates a second power cord 20b electrically coupled to the second power management system

18b. In such embodiments, power may pass through the first light device 12a via the second power cord 20b such that the second light device 12b will have sufficient power to perform as expected.

The power cord(s) 20 may also be configured to send signals from one light device 12 to another. This can be advantageous to ensure that multiple light devices 12 perform the same task. For example, a user may wish to use only red light, blue light, green light, and/or near infrared light, or any combination of lights. In some embodiments, a user may input instructions into the first light device 12a, and the signal will be carried through by the second power cord 20b to the second light device 12b. In this regard, the second light device 12b will be paired to the first light device 12a.

Some treatments may require a larger therapy area than that provided by two light devices. Accordingly, Fig. 4 illustrates a perspective view of an embodiment which comprises, in addition to the first light device 12a and the second light device 12b, a third light device 12c configured to be electrically coupled with the first light device 12a and/or the second device 12b. The third light device 12c may comprise a third housing 14c, a third plurality of lights 16c, and a third power management system 18c (Fig.5). The embodiment depicted in Fig. 4 also shows a fourth light device 12d configured to be coupled with any one of the first light device 12a, second light device 12b, and/or the third light device 12c. The fourth light device 12d may also comprise a fourth housing 14d, a fourth plurality of lights 16d, and a fourth power management system 18d (Fig.5). The third plurality of lights 16c and the fourth plurality of lights 16d may also be configured to emit red light, blue light, green light, and/or near infrared light.

The light therapy system 10 may be arranged in a variety of electrical configurations, whereby light devices 12 are electrically coupled in series. Specifically, Figs. 5, 6, 8, and 9 illustrate two different scenarios of how the system 10 may be coupled. With respect to Figs. 5 and 8, the system 10 may be electrically coupled in series having a maximum number of three light devices 12 per series. In other words, three light devices may be electrically coupled in series to a power outlet 22. Because there are four light devices 12 in Fig. 5, the configuration thereby requires two power outlets 22a and 22b. As such, following the discussion with respect to Fig. 3, a third power cord 20c may be electrically coupled to a third power management system 18c and a second power outlet 22b. As well, a fourth power cord 20d may be electrically coupled to the third power management system 18c and a fourth power management system 18d. In this regard, the second and fourth light devices 12b, 12d may thereby receive electrical power from the first

and third light devices 12a, 12c, respectively, which in turn receive electrical power from the first and second power outlets 22a, 22b, respectively.

Now, with respect to Figs. 6 and 9, some embodiments may be configured with no limit on the number of light devices 12 electrically coupled in series. Again, building from the configuration disclosed with respect to Fig. 3, the third power cord 20c may be electrically coupled to the second power management system 18b and the third power management system 18c. The fourth power cord 28d may be electrically coupled to the third power management system 18c and the fourth power management system 18d. Coupling the third power cord in this way removes the need for the second power outlet 22b. This configuration may be advantageous depending on the power requirements of the light therapy system 10. For example, smaller light devices may require less power to achieve the desired outcome. However, a larger light device may require a great deal more power than only one power outlet can provide.

Figs. 7, 8, and 9 depict how some embodiments of a light therapy system 10 may be further expanded from four to six light devices and how the light devices may be electrically coupled to provide necessary power. As illustrated, a fifth light device 12e may be coupled to the any one of the first, second, third, or fourth light devices 12a, 12b, 12c, 12d. The fifth light device 12e may comprise a fifth housing 14e, a fifth plurality of lights 16e, and a fifth power management system 18e. The fifth power management system 18e may be electrically coupled with the fifth plurality of lights 16e. A sixth light device 12f may be configured to be coupled to any one of the first, second, third, fourth, or fifth light devices 12a, 12b, 12c, 12d, 12e. The sixth light device 12f may comprise a sixth housing 14f, a sixth plurality of lights 16f, and a sixth power management system 18f. The sixth power management system 18f may be electrically coupled with the sixth plurality of lights 16f. It should be appreciated that the plurality of lights 16e and 16f are configured to emit red light, blue light, green light, and/or near infrared light.

Revisiting the manner in which the light devices 12 may be electrically coupled in series we now refer to Fig. 8, which illustrates a light therapy system 10 having six light devices 12a, 12b, 12c, 12d, 12e, and 12f. Because the embodiment illustrated in Fig. 8 is limited to three devices in series, the system 10 thereby requires two power outlets 22a, 22b. Continuing with the discussion from Fig. 5, the fourth power cord 20d may be electrically coupled to the fourth power management system 18d and the second power outlet 22b. A fifth power cord 20e may be electrically coupled to the fourth power management system 18d and the fifth power management

system 18e. The sixth power cord 20f may be electrically coupled to the fifth power management system 18e and the sixth power management system 18f. In this embodiment the first through third light devices 12a, 12b, and 12c are connected in a first series, and the fourth through sixth light devices 12d, 12e, and 12f are connected in a second series.

As well, Fig. 9 shows another embodiment in which the light devices 12a, 12b, 12c, 12d, 12e, and 12f are connected in one series. Continuing with the discussion from Fig. 6, the fourth power cord 20d may be electrically coupled to the third power management system 18c and the fourth power management system 18d. The fifth power cord 20e may be electrically coupled to the fourth power management system 18d and the fifth power management system 18e. The sixth power cord 20f may thereby be electrically coupled to the fifth power management system 18e and the sixth power management system 18f. Configuring the light therapy system 10 in this manner avoids the need for the second power outlet 22b.

The disclosure also includes embodiments whereby multiple light devices 12 are mechanically coupled together to form a variety of light system sizes and configurations. In doing so, mechanical coupling allows the light devices 12 to work together, as a system, to create one large treatment area. Fig. 10 illustrates an embodiment of how two light devices 12 may be configured for mechanical coupling in a top-to-bottom orientation. The light therapy system 10 of Fig. 10 comprises a first aperture 30a and a second aperture 30b located on the bottom surface 32 of the first housing 14a. A first attachment member 34a and a second attachment member 34b are located on the top surface 36 of the second housing 14b whereby the first and second attachment members 34a, 34b are spaced from each other. The attachment members 34 may be thereby securely fit into the apertures 30 to mechanically couple the light devices 12 together. The attachment members 34 shown in Fig. 10 are posts, but any mechanism suitable for mechanical coupling may be implemented. For example, light devices 12 may be mechanically coupled together via adhesive, bolts, and the like. It should be appreciated that the attachment members 34 are detachably coupled with the apertures 30 such that a user may detach the light devices 12 from one another.

Fig. 11 depicts an embodiment of a light therapy system 10 in which two light devices 12 are mechanically coupled in a side-by-side orientation. The embodiment in Fig. 11 shows a first bracket 38a mechanically coupled to the back side 40 of the first and second light devices 12a and 12b. Similarly, a second bracket 38b is also mechanically coupled to the back side 40 of the first

and second light devices 12a and 12b. It should be appreciated that the brackets 38 are detachably coupled to the light devices 12.

It may be beneficial for the light therapy system 10 to be mounted to an auxiliary support, such as a door stand 42 or a mobile stand 50. This can be achieved in several ways. Fig. 12 shows one embodiment in which two light devices 12a and 12b are mechanically coupled in a side-by-side orientation and mounted to a first and a second door stand 42a and 42b. In doing so, a first attachment member 39a and a second attachment member 39b may extend from the top surface 36 and be detachably coupled to the first door stand 42a. Similarly, the second door stand 42b is detachably coupled to the third attachment member 39c and the fourth attachment member 39d. Moreover, attachment members 39a, 39b, 39c, and 39d may also be referred to as posts. Collectively, one or all of the posts 39a, 39b, 39c, and 39d may be referred to as the attachment system. The attachment system may thereby be configured to detachably couple one or more of the rigid housings to at least one of a door stand and a wall stand. Furthermore, the posts 39a, 39b, 39c, and 39d may be spaced from each other along the top surface of the respective housing.

Figs. 13 and 14 show light therapy system 10 embodiments that combine the top-to-bottom coupling with the side-by-side coupling to achieve a two by two grid of light devices 12. Fig. 13 illustrates a third bracket 38c and a fourth bracket 38d coupled to the back side 40 of the third housing 14c and the fourth housing 14d. Fig. 14 illustrates a fifth attachment post 34e, a sixth attachment post 34f, a seventh attachment post 34g, and an eighth attachment post 34h coupled to the top surface 36 of the third light device 12c and the fourth light device 12d. The illustration in Fig. 14 further depicts the two by two grid of light devices 12 mounted to door stands 42. Collectively, one or all of the attachment posts 34a, 34b, 34c, 34d, 34e, 34f, 34g, and 34h may be referred to as the coupling system. In this regard, the coupling system is configured to detachably couple the first rigid housing 14a to the second rigid housing 14b.

In other embodiments, the four light devices 12 may be mechanically coupled together in other arrangements. For example, one embodiment may have all four light devices 12 coupled together in a side-by-side orientation forming a one by four grid. In other examples, three light devices 12 may be coupled together in a side-by-side orientation and the fourth light device 12d may be coupled to any one of the other three light devices 12 in a top-to-bottom orientation. Another possible embodiment may feature a four by one grid in which the four light devices 12 are all coupled in a top-to-bottom orientation. Generally, it should be appreciated that any

arrangement or configuration of light devices may be achieved using the modular concepts disclosed herein.

In order to facilitate ease of using the light therapy system 10 and/or individual light device(s) 12, the disclosure also includes various devices for mounting the system 10 and/or light device(s) 12. For example, users may wish to mount the system 10 and/or device(s) 12 to a stand, such as a mobile stand 50, table top stand 59 (or mini stand 59), wall stand 58, and the like. A stand may thereby allow the system 10 and/or device(s) 12 to be easily transported from one place to another and then quickly configured in a variety of positions to effectively apply therapy to any treatment zone on a patient. Additionally, a stand may allow a user to set up the system 10 and/or light device 12 in an easy to access yet out of the way location, such as the wall stand 58.

Now with reference to the figures, as shown in Figs. 15A, 15B, 15C, 16, and 17, the light therapy system 10 includes a mobile stand 50 that couples to one or more brackets on the back side of the various light devices 12. With regard to the four light device embodiment, the first bracket 38a may be coupled the to the back side 40 of the first housing 14a and the second housing 14b and the second bracket 38b may be coupled to the back side 40 of the third housing 14c and the fourth housing 14d. A quad bracket 44 may thereby be coupled to the back side 40 of the first housing 14a, second housing 14b, third housing 14c, and the fourth housing 14d. Accordingly, the mobile stand 50 may be detachably coupled to the light devices 12, the bracket(s) 38, and/or quad bracket 44.

The mobile stand 50a may include one or more horizontal legs 54 to stabilize the system 10. The one or more horizontal legs 54 may include casters to make it easier for a user to move the mobile stand 50a. Casters are not necessary though, for example, wheels may be implemented instead. Even still, the horizontal legs 54 may not include casters or wheels, and the horizontal legs 54 may be affixed to a ground surface or not affixed and free to move with respect to the ground surface. In any case, the horizontal leg 54 may provide balance and stability to the mobile stand 50a. To achieve this, some part of the horizontal leg 54 may contact the ground surface.

Fig. 17 shows yet another embodiment of a mobile stand 50b. In this embodiment, the mobile stand 50b is configured such that the light devices 12 can be rotated on a first axis 60 and/or a second axis 62. Being able to rotate the light devices 12 along two axes 60, 62 may allow the system 10 to be moved into any possible position to accommodate a desired treatment. For example, if a person is lying down on a flat surface, such as a bed, the light devices 12 can be

aimed downwards toward the flat surface, and treatment can be applied to a user's entire front or back side.

With regards to Figs. 16 and 19, the light devices 12 may define more than one form factor 56. Fig. 16 shows an embodiment in which the light therapy system 10 is made up of light devices 12 with two different form factors 56a and 56b. The first form factor 56a in Fig. 16 is shorter than the second form factor 56b. Different form factors 56 can be advantageous in situations when a larger treatment area is required than one light device 12 can provide, but there is a lack of space for a second equal size light device 12. Another benefit is that smaller form factors 56a cost less than a larger form factors 56b. In this regard, a user may purchase a smaller light device, such as an entry level device, and then add on to the system 10 once they become familiar and comfortable with the performance of the smaller light device. In some embodiments, the different form factors 56 may be configured to be modular. In this way, any amount of smaller form factor 56a light devices 12 and larger form factor 56b light devices may be mechanically coupled together in either a side-by-side orientation or a top-to-bottom orientation. This allows the light therapy system 10 to be configured into a customizable shape and size for unique treatment areas.

An example of a modular embodiment can be seen in Fig. 18A. The illustration shows six light devices 12a, 12b, 12c, 12d, 12e, and 12f mechanically coupled into a two by three grid. Light devices 12a, 12b, and 12c are coupled together via the first bracket 38a, and the light devices 12d, 12e, and 12f are coupled together via the second bracket 38b. As shown, the large bracket 64 located in the middle may mechanically couple all six of the light devices 12 together. Fig. 18B shows an embodiment in which the large bracket 64 also serves as a mount to couple the light system 10 to a mobile stand 50c.

Generally, Figs. 18A and 18B illustrate the potential for expansion of the system 10. Accordingly, it should be appreciated that any size and shape of brackets 38, 44 may be used to accommodate expansion beyond six light devices 12. In this regard, the system 10 may be configured to have 8, 10, 12, 14, 16, and 24 or more light devices 12 working together as one unified light therapy system 10.

As shown in Fig. 19, the disclosure also includes a single light therapy device that may be arranged and configured with any of the features described herein. As such, a single light therapy device 12 configured to be electrically and/or mechanically coupled to additional light therapy

devices. In this regard, the single light therapy device may include any of the features described in the specification and/or shown in the figures.

Furthermore, with continued reference to Fig. 19, the disclosure includes a mini stand 59, which allows the light therapy system and/or one or more light devices (12) to be mounted on a table top, desk, counter, and the like. In this regard, the mini stand 59 may be arranged and configured to couple to a light device 12, such as a smaller light device 12, or plurality of light devices 12 all of which may define smaller form factors sized and configured to sit atop a table top, etc. The mini stand 59 may be able to pivot, raise, and/or lower in any direction with respect to the base of the mini stand 59.

As shown in Fig. 20, the system 10 and/or one or more light devices 12 may also be coupled to a wall mount 58, which can be mounted to a substrate, such as a wall. Specifically, the system 10 may include one or more attachment members 39, or posts 39, located at the top of the respective light device(s) 12. A first portion of the wall mount 58 may thereby be coupled to a wall, while a second portion of the wall mount 58 may be coupled to the attachment member(s) 39 to thereby couple the system 10 and/or light device(s) 12 to the substrate or wall. In this regard, the wall mount 58 may allow the system 10 and/or light device(s) 12 to be mounted in an easy to reach location yet physically situated out of the way to thereby reduce space requirements. Similar to any of the embodiments described throughout, the wall mount 58 may be used to mount one light device 12 or two or more light devices 12.

Figs. 21A and 21B illustrate a partial light therapy device. As shown in Fig. 21A, the light therapy device 12 may include a plurality of lights 17 that protrude from the rigid housing 14. In this regard, the light(s) 17 may extend from an interior portion of the rigid housing 14, as shown in Fig. 21B, through a light aperture in the rigid housing 14 whereby the light(s) 17 extend away from a surface of the rigid housing 14, as shown in Fig. 21A. In this regard, the lights 17 may at least be partially encompassed within the rigid housing and thereby protrude through the rigid housing 14.

INTERPRETATION

None of the steps described herein is essential or indispensable. Any of the steps can be adjusted or modified. Other or additional steps can be used. Any portion of any of the steps, processes, structures, and/or devices disclosed or illustrated in one embodiment, flowchart, or

example in this specification can be combined or used with or instead of any other portion of any of the steps, processes, structures, and/or devices disclosed or illustrated in a different embodiment, flowchart, or example. The embodiments and examples provided herein are not intended to be discrete and separate from each other.

The section headings and subheadings provided herein are nonlimiting. The section headings and subheadings do not represent or limit the full scope of the embodiments described in the sections to which the headings and subheadings pertain. For example, a section titled "Topic 1" may include embodiments that do not pertain to Topic 1 and embodiments described in other sections may apply to and be combined with embodiments described within the "Topic 1" section.

Some of the devices, systems, embodiments, and processes use computers. Each of the routines, processes, methods, and algorithms described in the preceding sections may be embodied in, and fully or partially automated by, code modules executed by one or more computers, computer processors, or machines configured to execute computer instructions. The code modules may be stored on any type of non-transitory computer-readable storage medium or tangible computer storage device, such as hard drives, solid state memory, flash memory, optical disc, and/or the like. The processes and algorithms may be implemented partially or wholly in application-specific circuitry. The results of the disclosed processes and process steps may be stored, persistently or otherwise, in any type of non-transitory computer storage such as, e.g., volatile or non-volatile storage.

The various features and processes described above may be used independently of one another, or may be combined in various ways. All possible combinations and subcombinations are intended to fall within the scope of this disclosure. In addition, certain method, event, state, or process blocks may be omitted in some implementations. The methods, steps, and processes described herein are also not limited to any particular sequence, and the blocks, steps, or states relating thereto can be performed in other sequences that are appropriate. For example, described tasks or events may be performed in an order other than the order specifically disclosed. Multiple steps may be combined in a single block or state. The example tasks or events may be performed in serial, in parallel, or in some other manner. Tasks or events may be added to or removed from the disclosed example embodiments. The example systems and components described herein may be configured differently than described. For example, elements may be added to, removed from, or rearranged compared to the disclosed example embodiments.

Conditional language used herein, such as, among others, "can," "could," "might," "may," "e.g.," and the like, unless specifically stated otherwise, or otherwise understood within the context as used, is generally intended to convey that certain embodiments include, while other embodiments do not include, certain features, elements and/or steps. Thus, such conditional language is not generally intended to imply that features, elements and/or steps are in any way required for one or more embodiments or that one or more embodiments necessarily include logic for deciding, with or without author input or prompting, whether these features, elements and/or steps are included or are to be performed in any particular embodiment. The terms "comprising," "including," "having," and the like are synonymous and are used inclusively, in an open-ended fashion, and do not exclude additional elements, features, acts, operations and so forth. Also, the term "or" is used in its inclusive sense (and not in its exclusive sense) so that when used, for example, to connect a list of elements, the term "or" means one, some, or all of the elements in the list. Conjunctive language such as the phrase "at least one of X, Y, and Z," unless specifically stated otherwise, is otherwise understood with the context as used in general to convey that an item, term, etc. may be either X, Y, or Z. Thus, such conjunctive language is not generally intended to imply that certain embodiments require at least one of X, at least one of Y, and at least one of Z to each be present.

The term "and/or" means that "and" applies to some embodiments and "or" applies to some embodiments. Thus, A, B, and/or C can be replaced with A, B, and C written in one sentence and A, B, or C written in another sentence. A, B, and/or C means that some embodiments can include A and B, some embodiments can include A and C, some embodiments can include B and C, some embodiments can only include A, some embodiments can include only B, some embodiments can include only C, and some embodiments can include A, B, and C. The term "and/or" is used to avoid unnecessary redundancy.

While certain example embodiments have been described, these embodiments have been presented by way of example only, and are not intended to limit the scope of the inventions disclosed herein. Thus, nothing in the foregoing description is intended to imply that any particular feature, characteristic, step, module, or block is necessary or indispensable. Indeed, the novel methods and systems described herein may be embodied in a variety of other forms; furthermore, various omissions, substitutions, and changes in the form of the methods and systems described herein may be made without departing from the spirit of the inventions disclosed herein.

WHAT IS CLAIMED IS:

1. A light therapy system, comprising:

a first light therapy device comprising a first rigid housing and a first plurality of lights configured to emit at least one of red light and near infrared light; and

a second light therapy device comprising a second rigid housing and a second plurality of lights configured to emit at least one of red light and near infrared light,

wherein the first rigid housing is configured to be detachably coupled to the second rigid housing.

2. The light therapy system of claim 1, wherein the first light therapy device and the second light therapy device are configured to be detachably coupled in a side-by-side orientation.

3. The light therapy system of claim 1, wherein the first light therapy device and the second light therapy device are configured to be detachably coupled in a top-to-bottom orientation.

4. The light therapy system of claim 1, further comprising a coupling system coupled to a bottom surface of the first rigid housing and a top surface of the second rigid housing, wherein the coupling system is configured to detachably couple the first rigid housing to the second rigid housing.

5. The light therapy system of claim 4, wherein the first light therapy device comprises a first aperture located on the bottom surface of the first rigid housing, and a second aperture located on the bottom surface of the first rigid housing, and

wherein the coupling system comprises a first post extending from the top surface of the second rigid housing, and a second post extending from the top surface of the second rigid housing, the first post being configured to detachably couple to the first aperture, and the second post being configured to detachably couple to the second aperture.

6. The light therapy system of claim 1, further comprising a first bracket configured to couple to both a back surface of the first rigid housing and a back surface of the second rigid housing to thereby couple the first rigid housing to the second rigid housing.

7. The light therapy system of claim 6, further comprising a second bracket configured to couple to both the back surface of the first rigid housing and the back surface of the second rigid housing to thereby couple the first rigid housing to the second rigid housing.

8. The light therapy system of claim 1, further comprising:

a third light therapy device comprising a third rigid housing and a third plurality of lights configured to emit at least one of red light and near infrared light; and

a fourth light therapy device comprising a fourth rigid housing and a fourth plurality of lights configured to emit at least one of red light and near infrared light,

wherein the third light therapy device and the fourth light therapy device are each configured to be detachably coupled to at least one of the first light therapy device and the second light therapy device.

9. The light therapy system of claim 8, wherein the first light therapy device comprises a first aperture located on a bottom surface of the first rigid housing,

wherein the second light therapy device comprises a second aperture located on a bottom surface of the second rigid housing,

wherein the third light therapy device comprises a first post extending from a top surface of the third rigid housing, the first post configured to detachably couple to the first aperture, and

wherein the fourth light therapy device comprises a second post extending from a top surface of the fourth rigid housing, the second post configured to detachably couple to the second aperture.

10. The light therapy system of claim 8, further comprising:

a first bracket configured to detachably couple to the first rigid housing and the second rigid housing, wherein a first portion of the first bracket is configured to couple to a back surface of the first rigid housing, and a second portion of the first bracket is configured to couple to a back surface of the second rigid housing; and

a second bracket configured to detachably couple to the third rigid housing and the fourth rigid housing, wherein a first portion of the second bracket is configured to couple to a back surface of the third rigid housing, and a second portion of the second bracket is configured to couple to a back surface of the fourth rigid housing.

11. The light therapy system of claim 8, further comprising a quad bracket configured to be detachably coupled to a back surface of the first rigid housing, a back surface of the second rigid housing, a back surface of the third rigid housing, and a back surface of the fourth rigid housing to thereby couple the first rigid housing, the second rigid housing, the third rigid housing and the fourth rigid housing together.

12. The light therapy system of claim 11, further comprising a mobile stand having at least one vertical arm configured to couple to the quad bracket.

13. The light therapy system of claim 12, wherein the mobile stand comprises:

at least one horizontal leg coupled to the at least one vertical arm, wherein the at least one horizontal leg is configured to stabilize the mobile stand; and

a plurality of casters extending from the at least one horizontal leg, the plurality of casters configured to contact a ground surface and thereby enable the mobile stand to roll along the ground surface.

14. The light therapy system of claim 1, further comprising an attachment system configured to couple to a top surface of the first rigid housing, wherein the attachment system is configured to detachably couple the first rigid housing and the second rigid housing to at least one of a door stand and a wall stand.

15. The light therapy system of claim 14, wherein the attachment system comprises:

a first post extending from the top surface of the first rigid housing;

a second post extending from the top surface of the first rigid housing, the second post spaced from the first post; and

a cable extending from the first post to the second post, the cable configured to couple to at least one of the door stand and the wall stand.

16. The light therapy system of claim 1, further comprising an attachment system configured to couple to a top surface of the first rigid housing and a top surface of the second rigid housing, wherein the attachment system is configured to detachably couple the first rigid housing and the second rigid housing to at least one of a door stand and a wall stand, wherein the attachment system further comprises:

a first post extending from the top surface of the first rigid housing;

a second post extending from the top surface of the first rigid housing, the second post spaced from the first post;

a first cable extending from the first post to the second post, the first cable configured to couple to at least one of the door stand and the wall stand;

a third post extending from the top surface of the second rigid housing;

a fourth post extending from the top surface of the second rigid housing, the fourth post spaced from the third post;

a second cable extending from the third post to the fourth post, the second cable configured to couple to at least one of the door stand and the wall stand.

17. The light therapy system of claim 1, wherein the first light therapy device is configured to be electrically coupled to the second light therapy device.

18. The light therapy system of claim 1, wherein a first portion of the first plurality of lights is configured to emit red light and a first portion of the second plurality of lights is configured to emit red light.

19. The light therapy system of claim 18, wherein a second portion of the first plurality of lights is configured to emit near infrared light and a second portion of the second plurality of lights is configured to emit near infrared light.

20. The light therapy system of claim 1, wherein the first plurality of lights are at least partially encompassed within the first rigid housing and thereby protrude through the first rigid housing, and wherein the second plurality of lights are at least partially encompassed within the second rigid housing and thereby protrude through the second rigid housing.

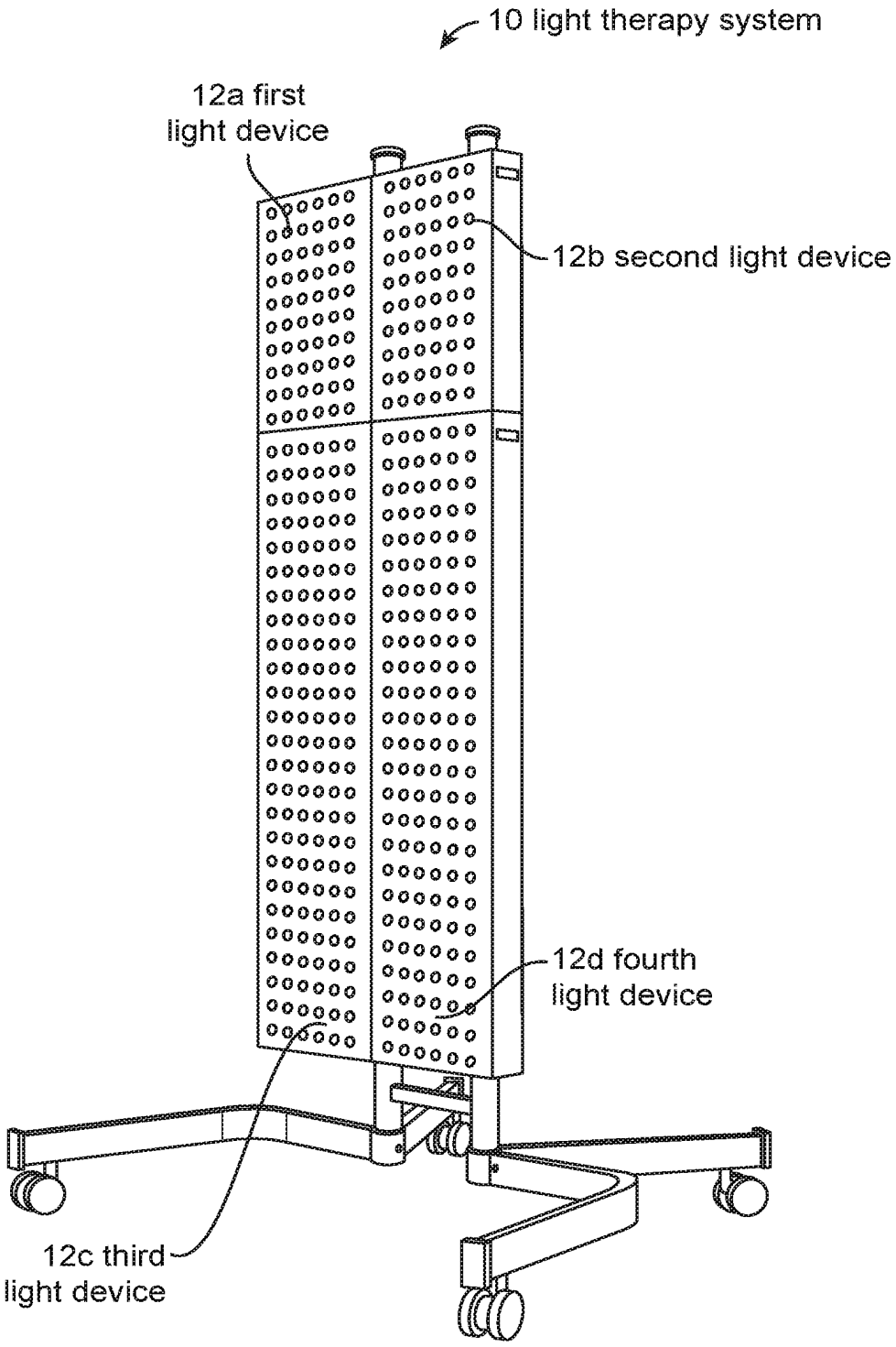

10 light therapy system
12a first light device
12b second light device
12d fourth light device
12c third light device

FIG. 1

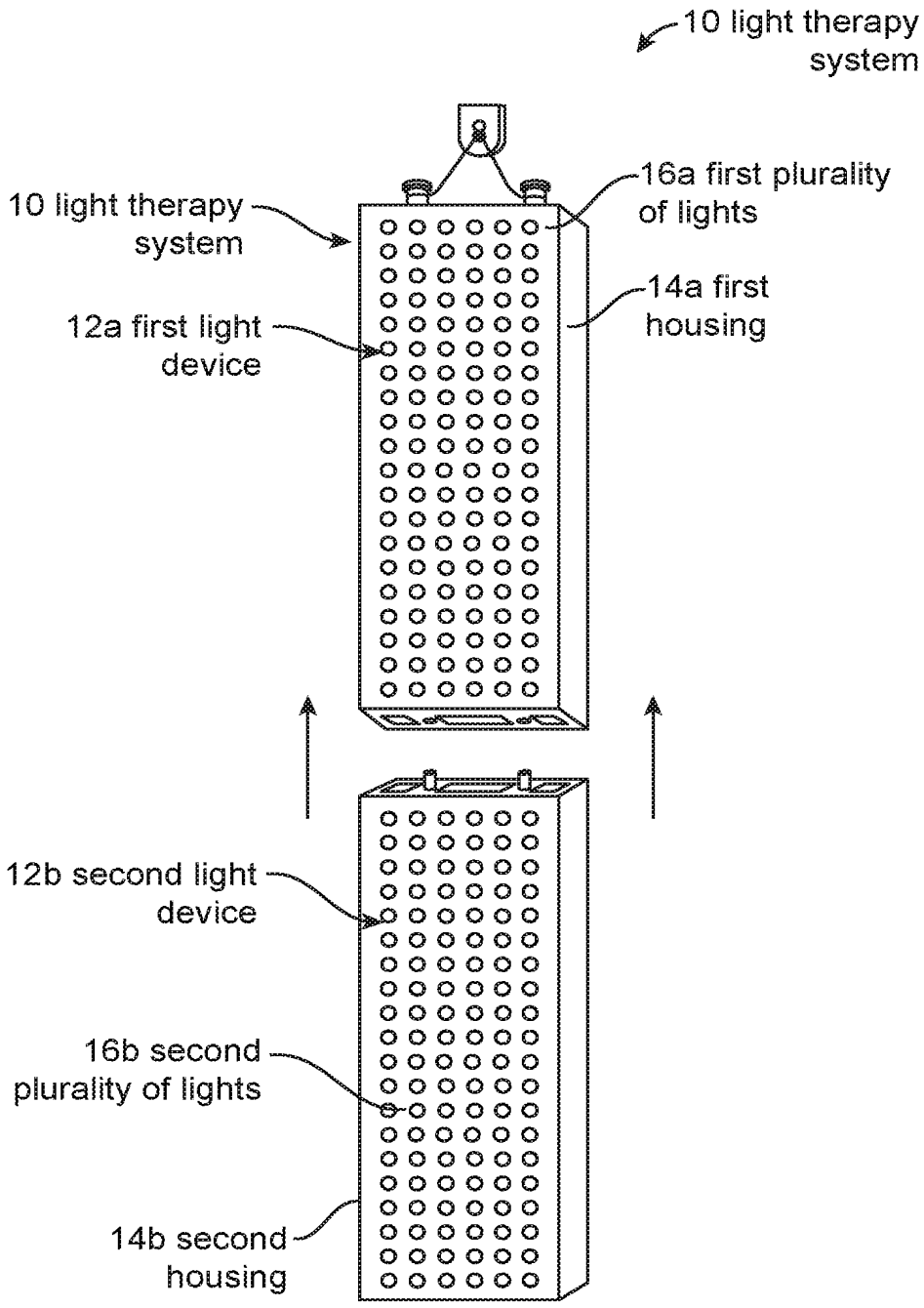

10 light therapy system
10 light therapy system
16a first plurality of lights
14a first housing
12a first light device
12b second light device
16b second plurality of lights
14b second housing

FIG. 2

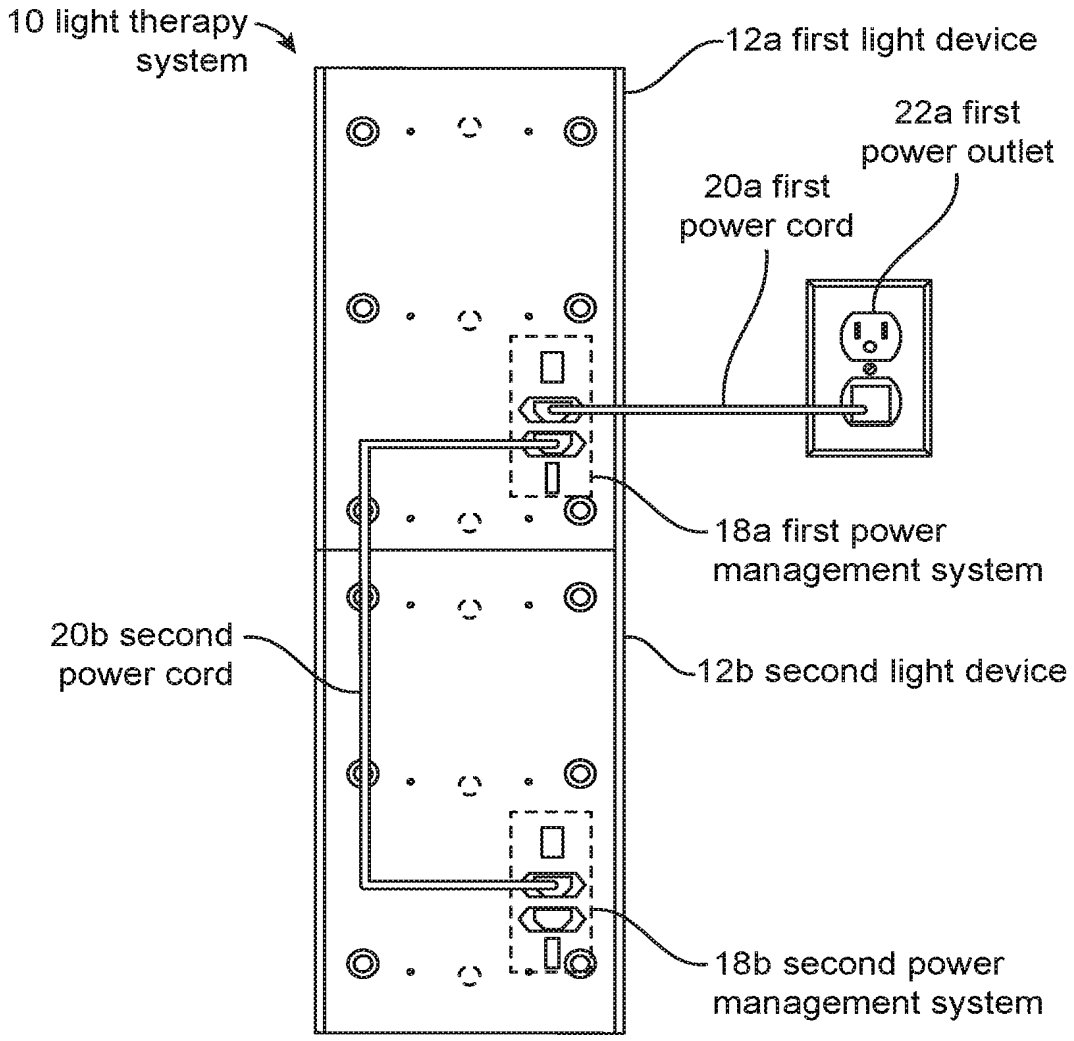

10 light therapy system
12a first light device
22a first power outlet
20a first power cord
18a first power management system
20b second power cord
12b second light device
18b second power management system

FIG. 3

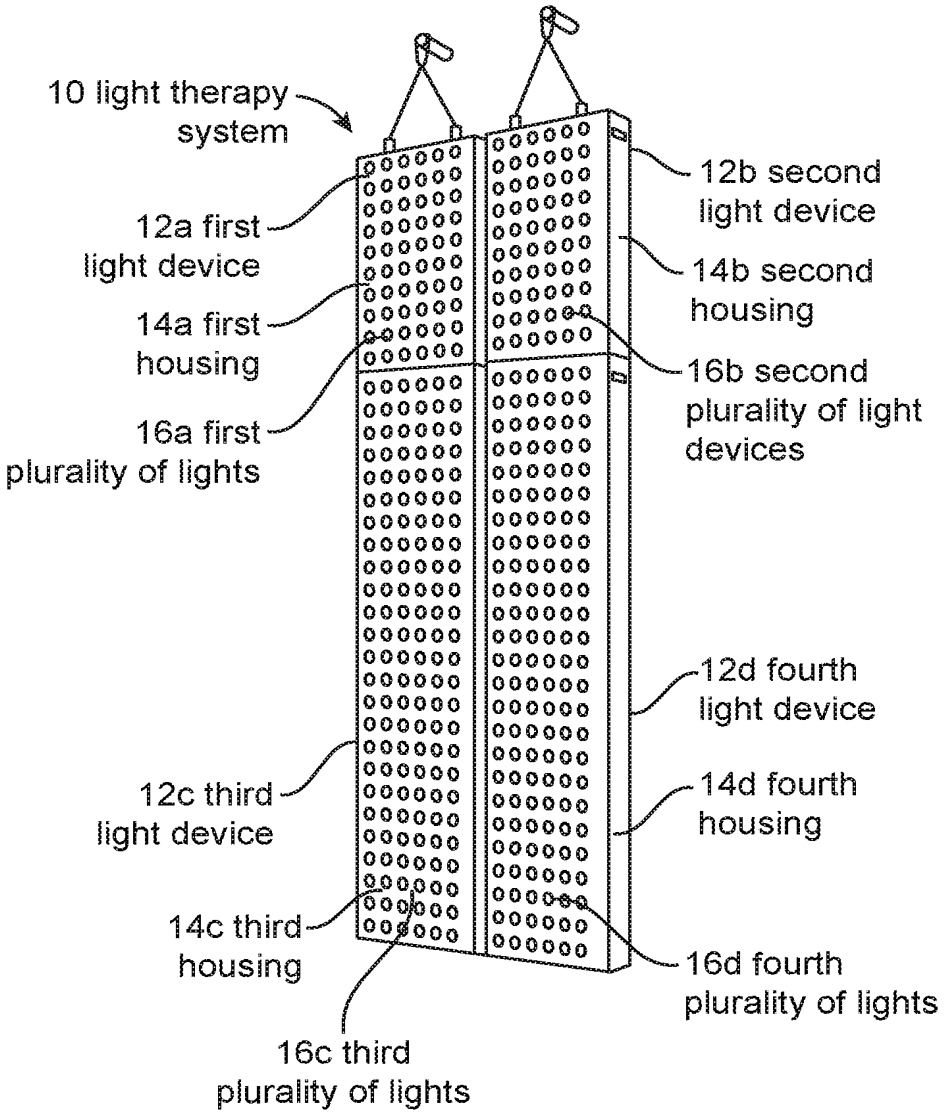

10 light therapy system
12a first light device
14a first housing
16a first plurality of lights
12b second light device
14b second housing
16b second plurality of light devices
12d fourth light device
14d fourth housing
16d fourth plurality of lights
12c third light device
14c third housing
16c third plurality of lights

FIG. 4

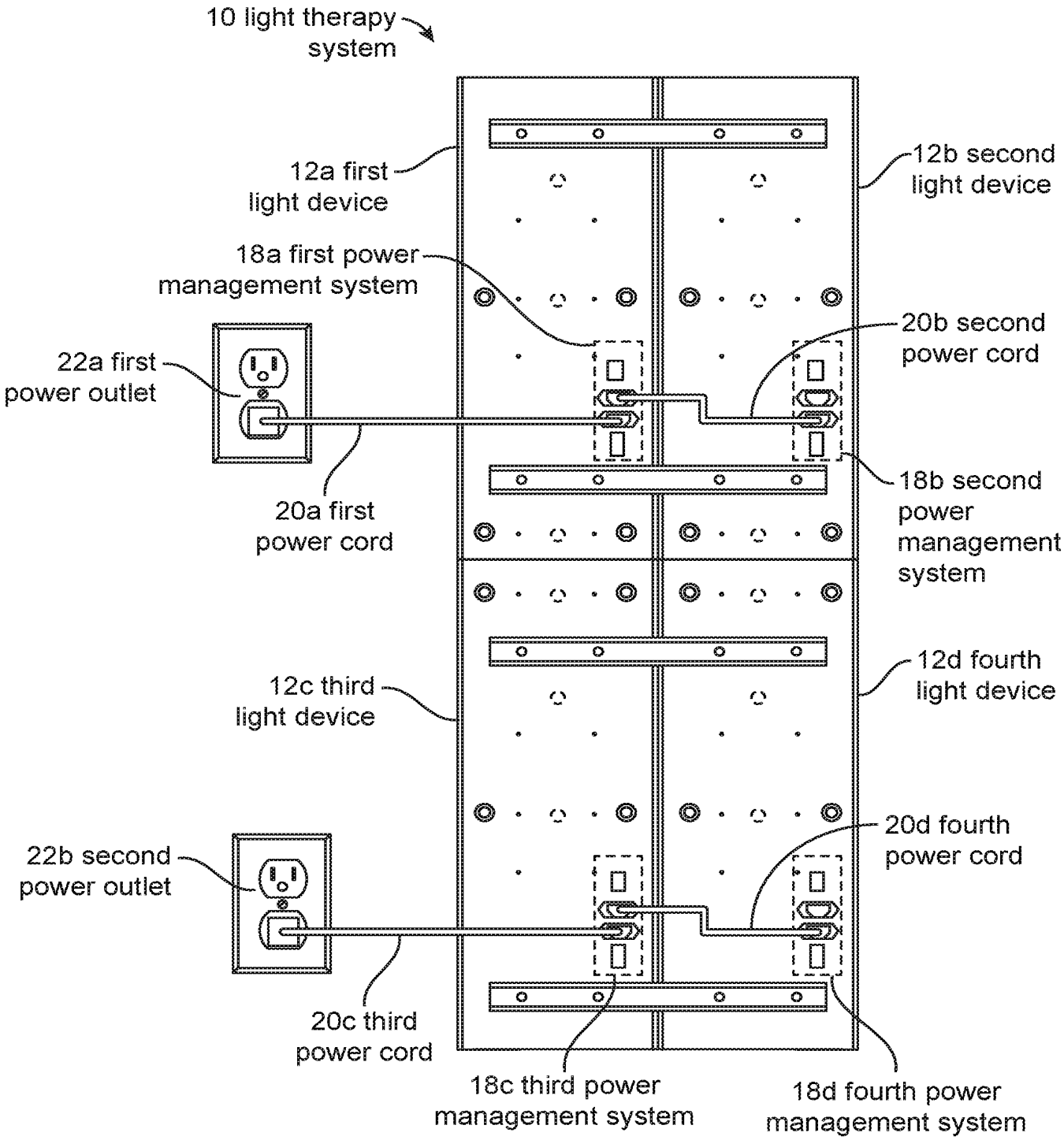

10 light therapy system
12a first light device
12b second light device
18a first power management system
20b second power cord
22a first power outlet
18b second power management system
20a first power cord
12c third light device
12d fourth light device
22b second power outlet
20d fourth power cord
20c third power cord
18c third power management system
18d fourth power management system

FIG. 5

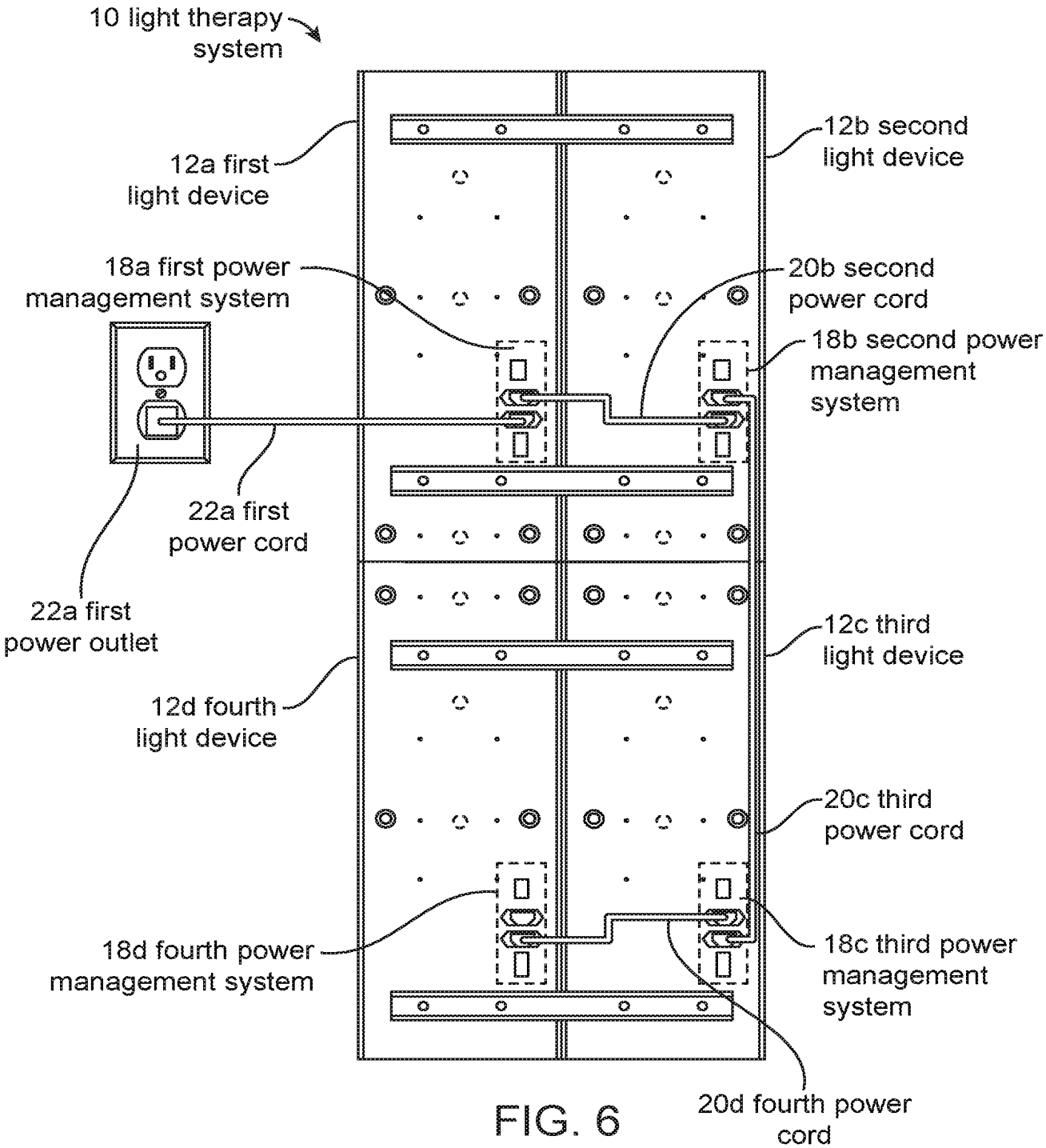

10 light therapy system
12a first light device
12b second light device
18a first power management system
20b second power cord
18b second power management system
22a first power cord
22a first power outlet
12c third light device
12d fourth light device
20c third power cord
18d fourth power management system
18c third power management system
20d fourth power cord

FIG. 6

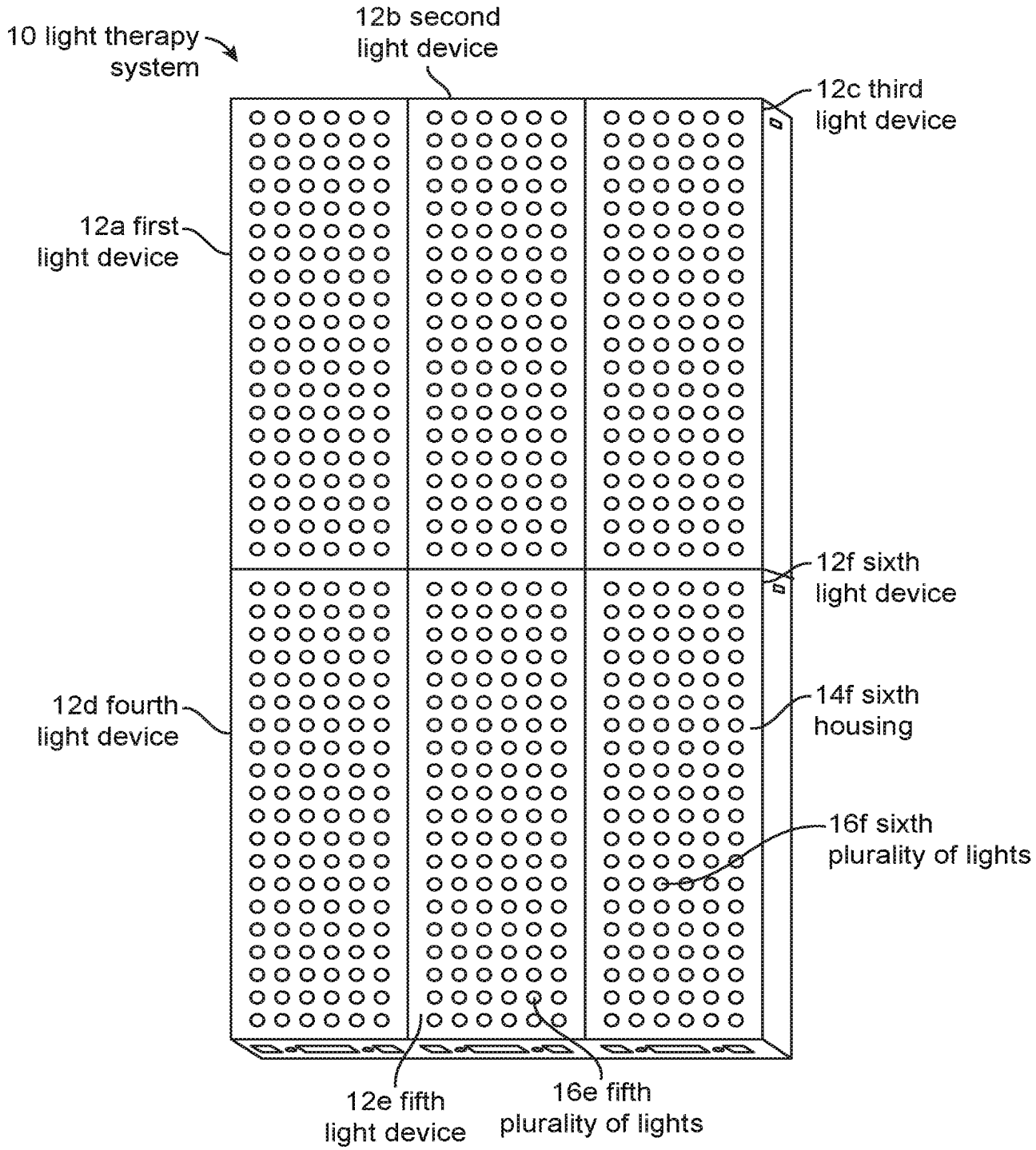

10 light therapy system
12b second light device
12c third light device
12a first light device
12f sixth light device
12d fourth light device
14f sixth housing
16f sixth plurality of lights
12e fifth light device
16e fifth plurality of lights

FIG. 7

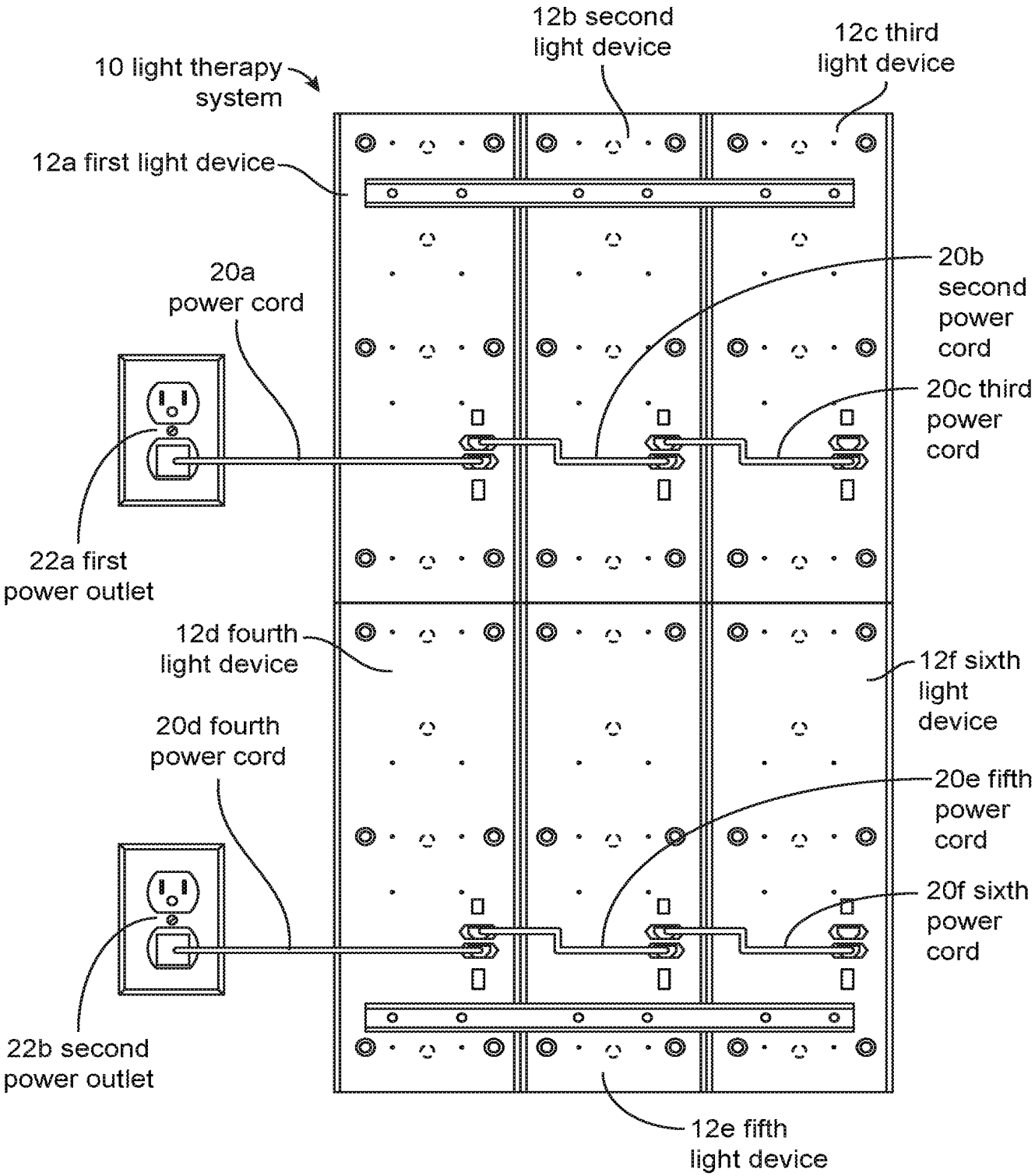

10 light therapy system
12a first light device
12b second light device
12c third light device
20a power cord
20b second power cord
20c third power cord
22a first power outlet
12d fourth light device
12f sixth light device
20d fourth power cord
20e fifth power cord
20f sixth power cord
22b second power outlet
12e fifth light device

FIG. 8

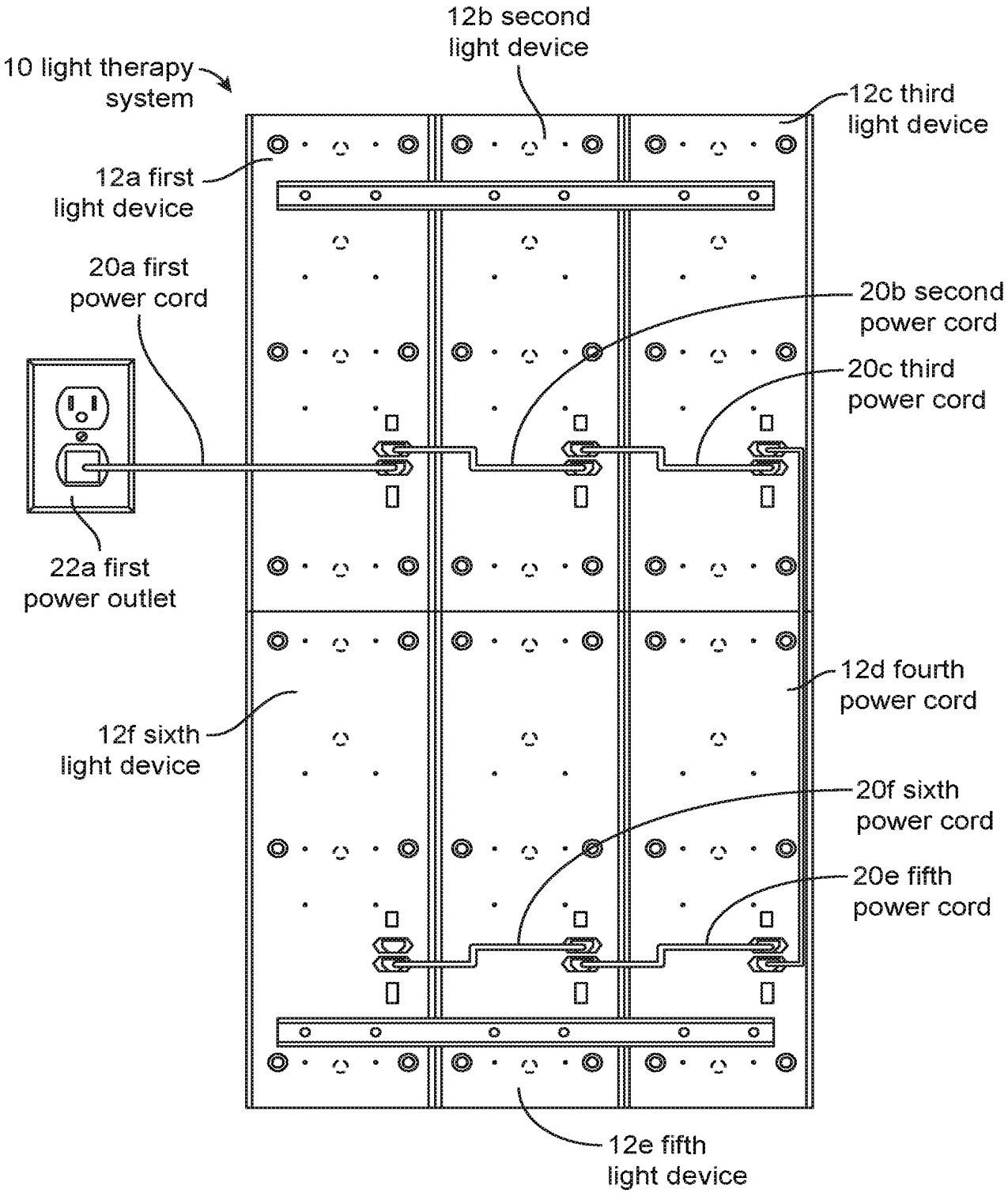

12b second light device
10 light therapy system
12c third light device
12a first light device
20a first power cord
20b second power cord
20c third power cord
22a first power outlet
12d fourth power cord
12f sixth light device
20f sixth power cord
20e fifth power cord
12e fifth light device

FIG. 9

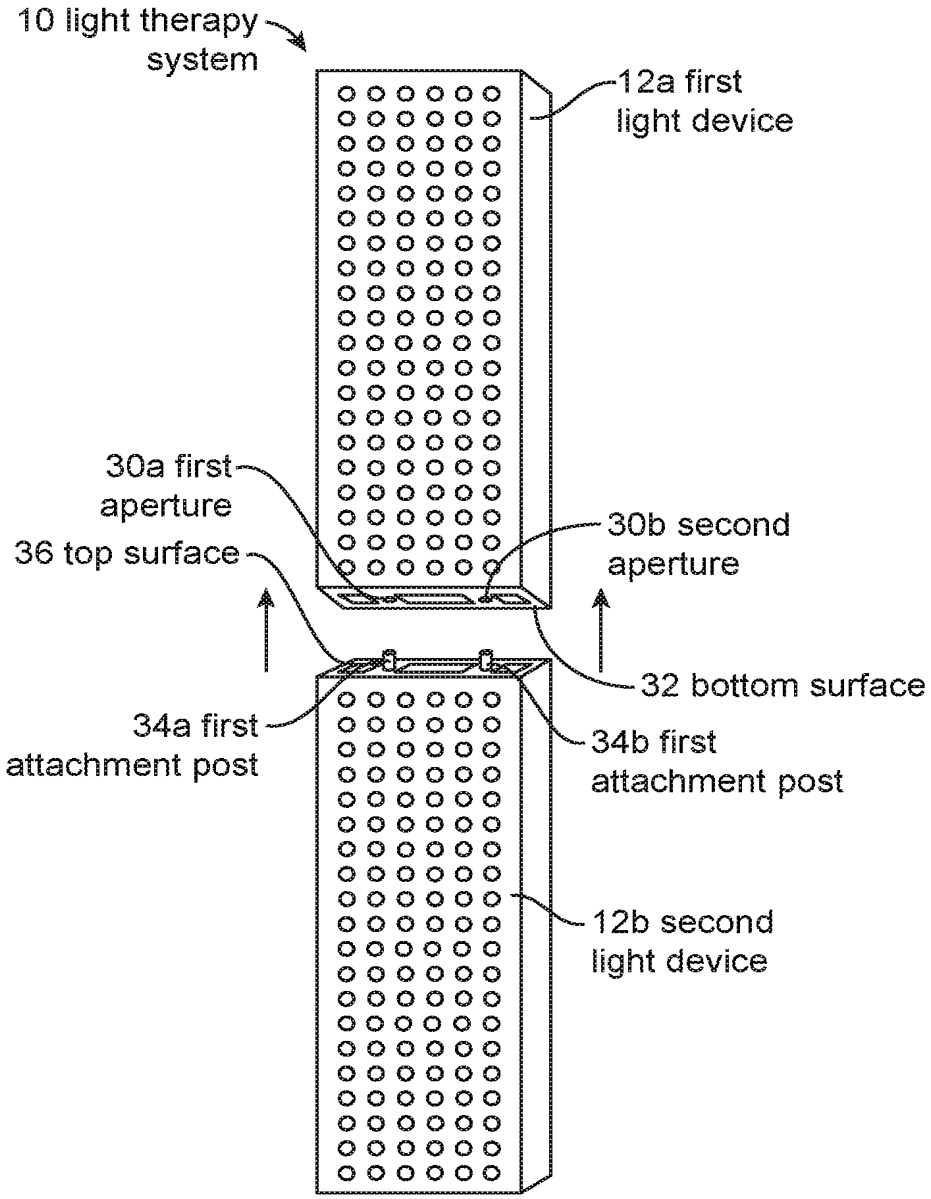

10 light therapy system
12a first light device
30a first aperture
36 top surface
30b second aperture
32 bottom surface
34a first attachment post
34b first attachment post
12b second light device

FIG. 10

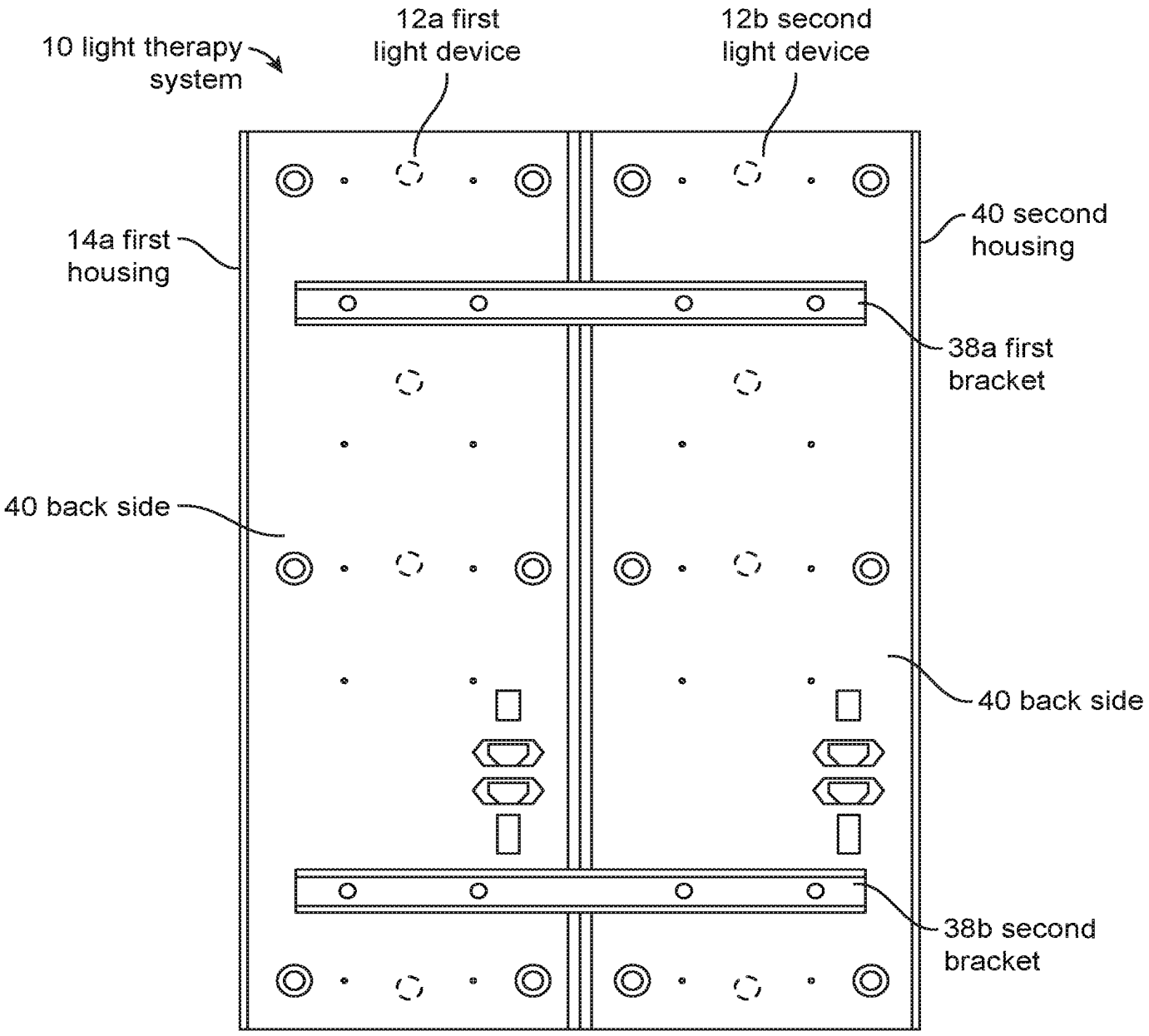

10 light therapy system
12a first light device
12b second light device
14a first housing
40 second housing
38a first bracket
40 back side
40 back side
38b second bracket

FIG. 11

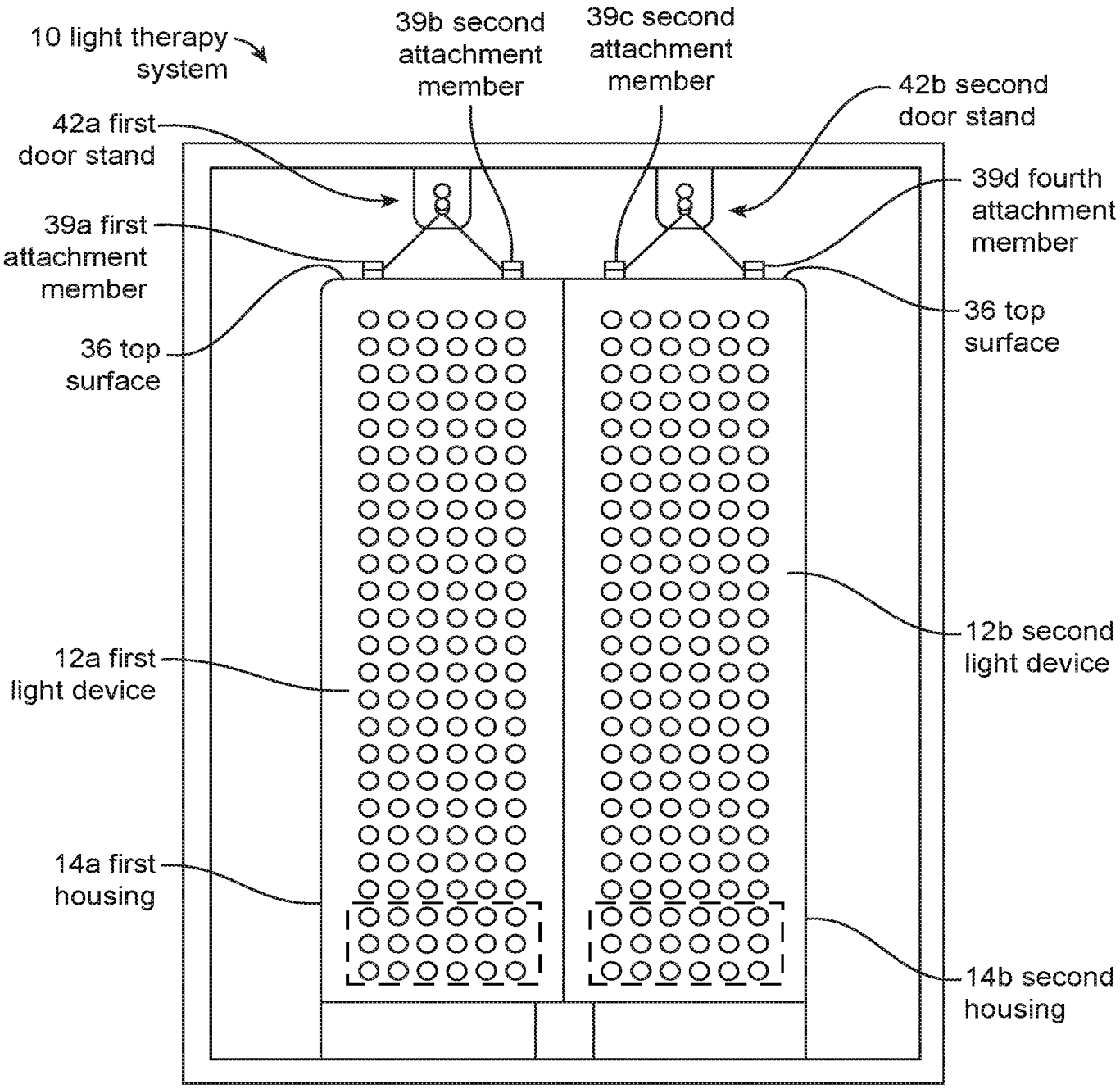

10 light therapy system
39b second attachment member
39c second attachment member
42b second door stand
42a first door stand
39d fourth attachment member
39a first attachment member
36 top surface
36 top surface
12b second light device
12a first light device
14a first housing
14b second housing

FIG. 12

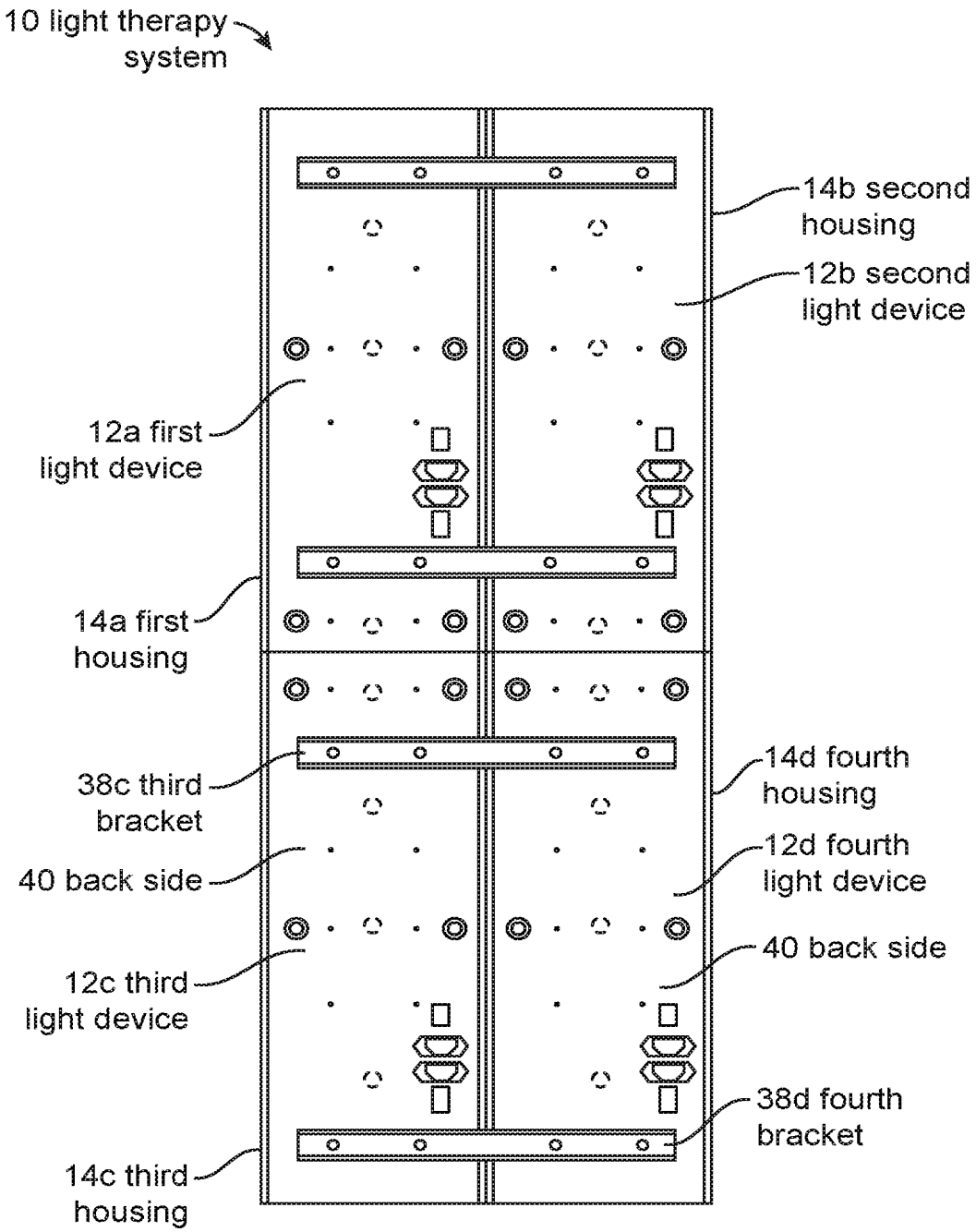

10 light therapy system
14b second housing
12b second light device
12a first light device
14a first housing
38c third bracket
14d fourth housing
40 back side
12d fourth light device
12c third light device
40 back side
38d fourth bracket
14c third housing

FIG. 13

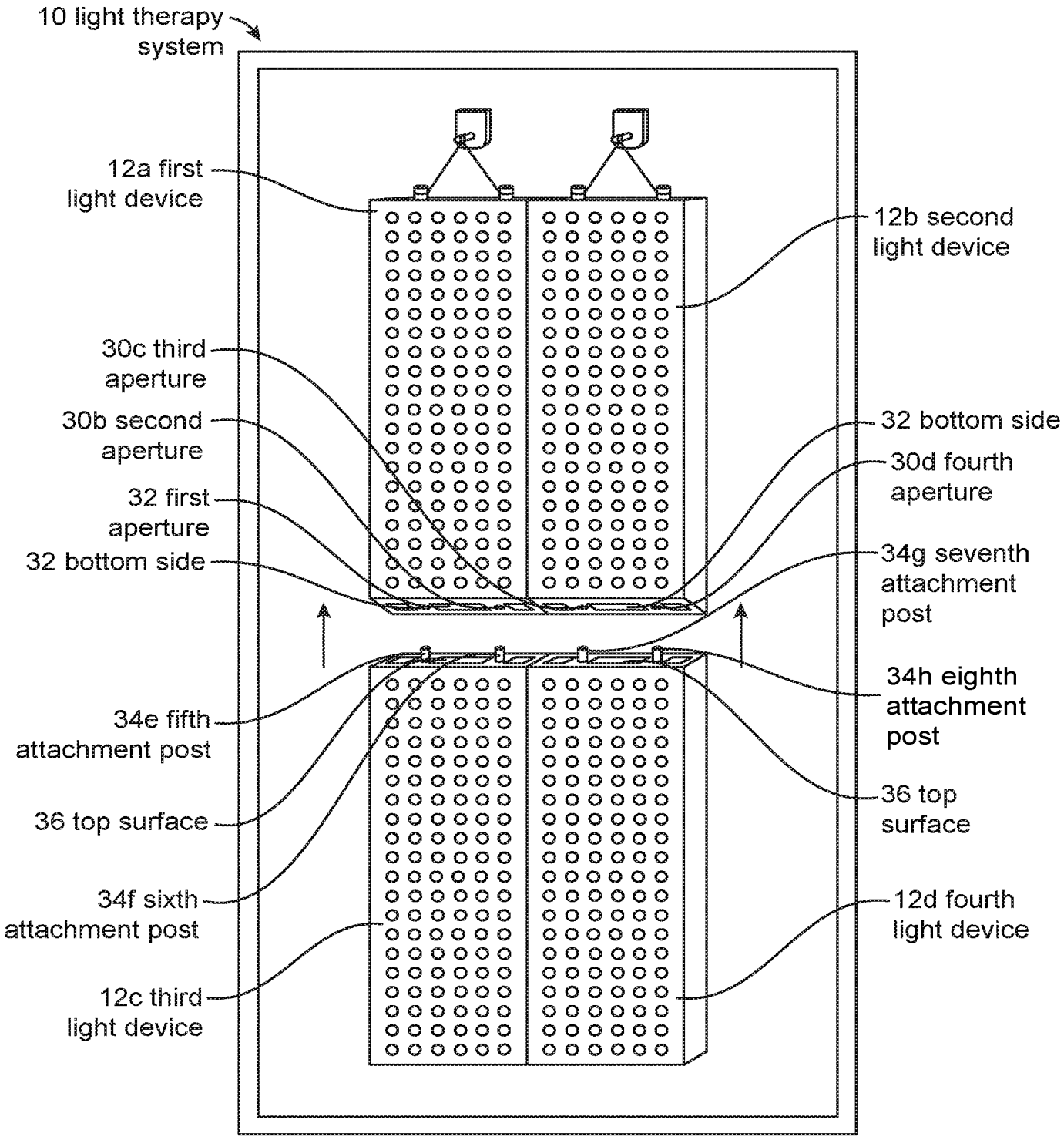

10 light therapy system
12a first light device
12b second light device
30c third aperture
30b second aperture
32 first aperture
32 bottom side
32 bottom side
30d fourth aperture
34g seventh attachment post
34h eighth attachment post
34e fifth attachment post
36 top surface
36 top surface
34f sixth attachment post
12c third light device
12d fourth light device

FIG. 14

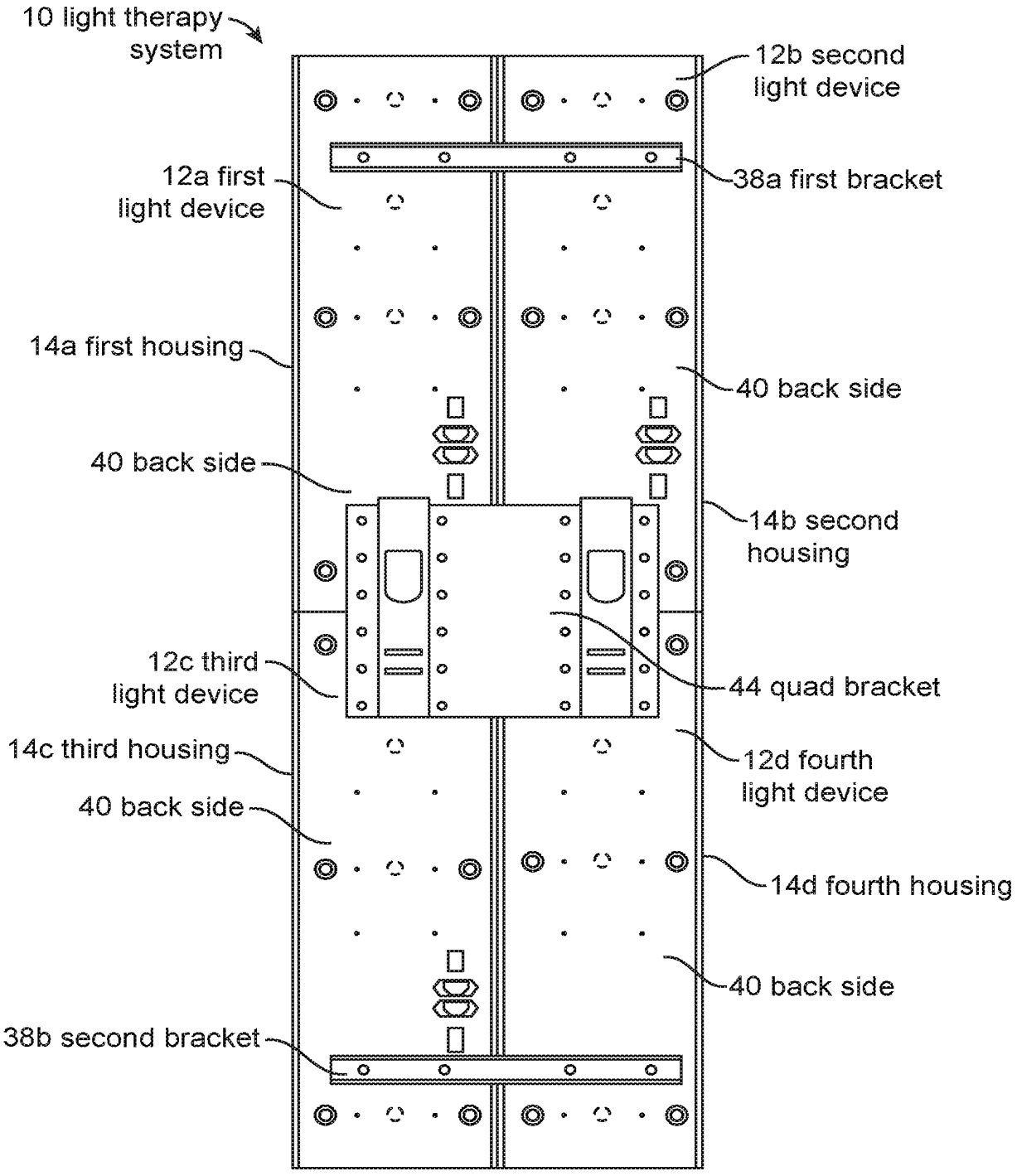

10 light therapy system
12b second light device
38a first bracket
12a first light device
14a first housing
40 back side
40 back side
14b second housing
12c third light device
44 quad bracket
14c third housing
12d fourth light device
40 back side
14d fourth housing
40 back side
38b second bracket

FIG. 15A

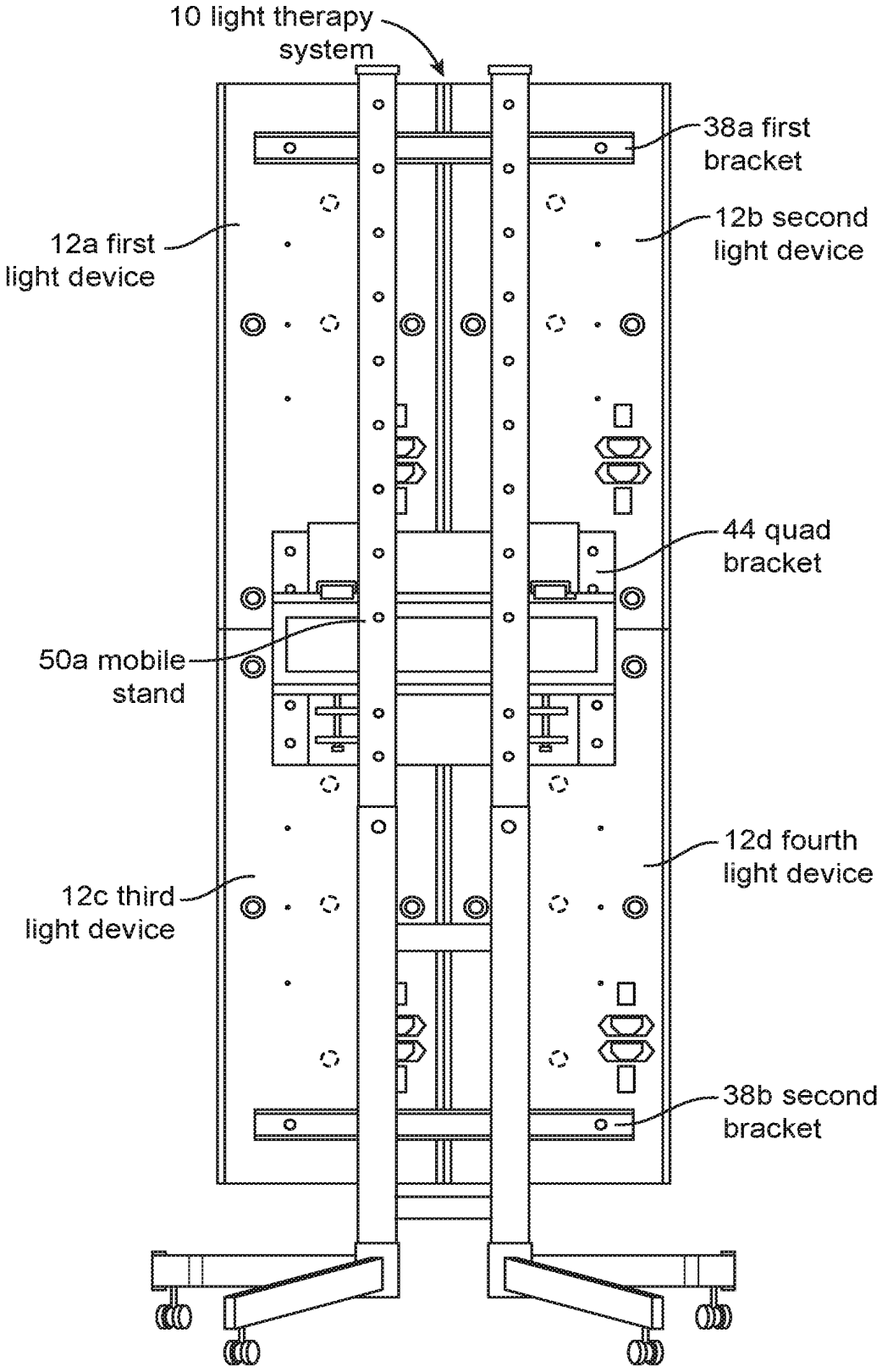

10 light therapy system
38a first bracket
12b second light device
12a first light device
44 quad bracket
50a mobile stand
12d fourth light device
12c third light device
38b second bracket

FIG. 15B

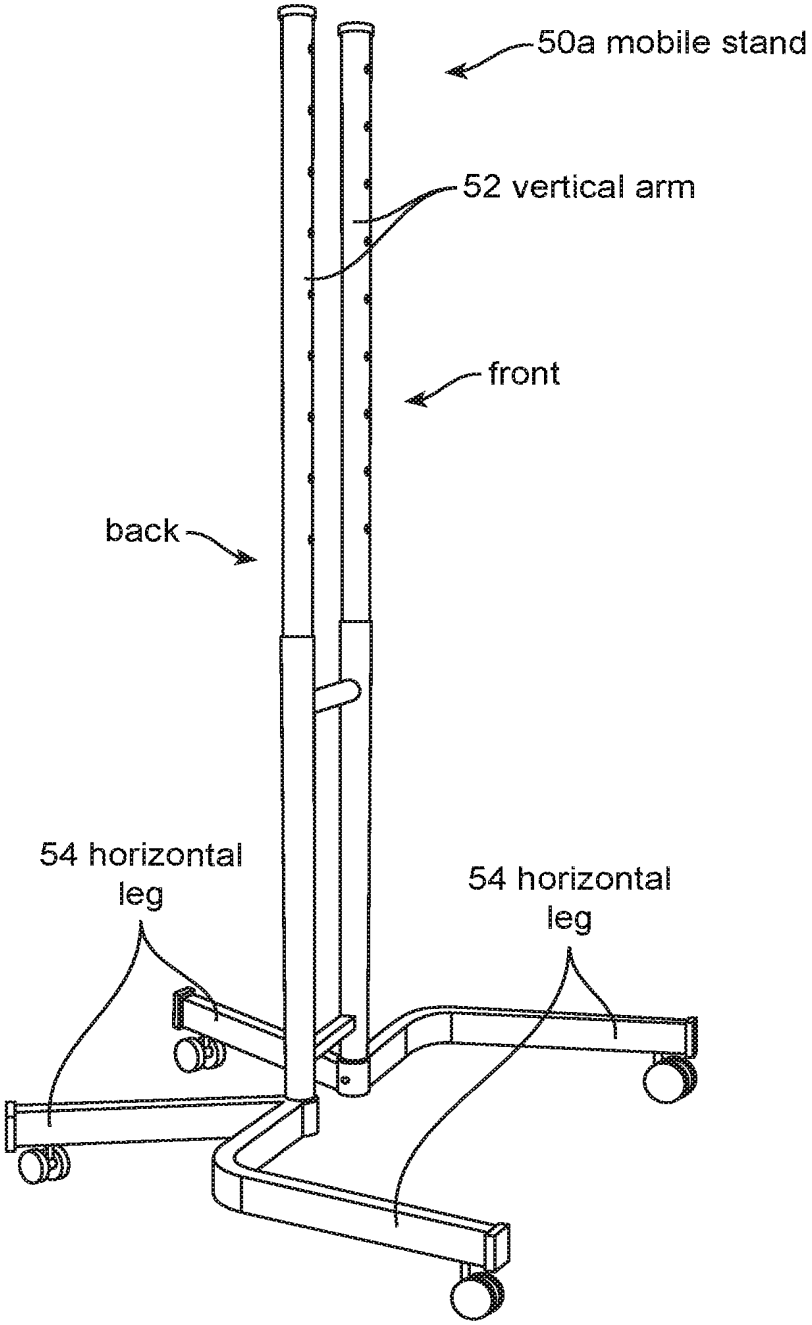

50a mobile stand
52 vertical arm
front
back
54 horizontal leg
54 horizontal leg

FIG. 15C

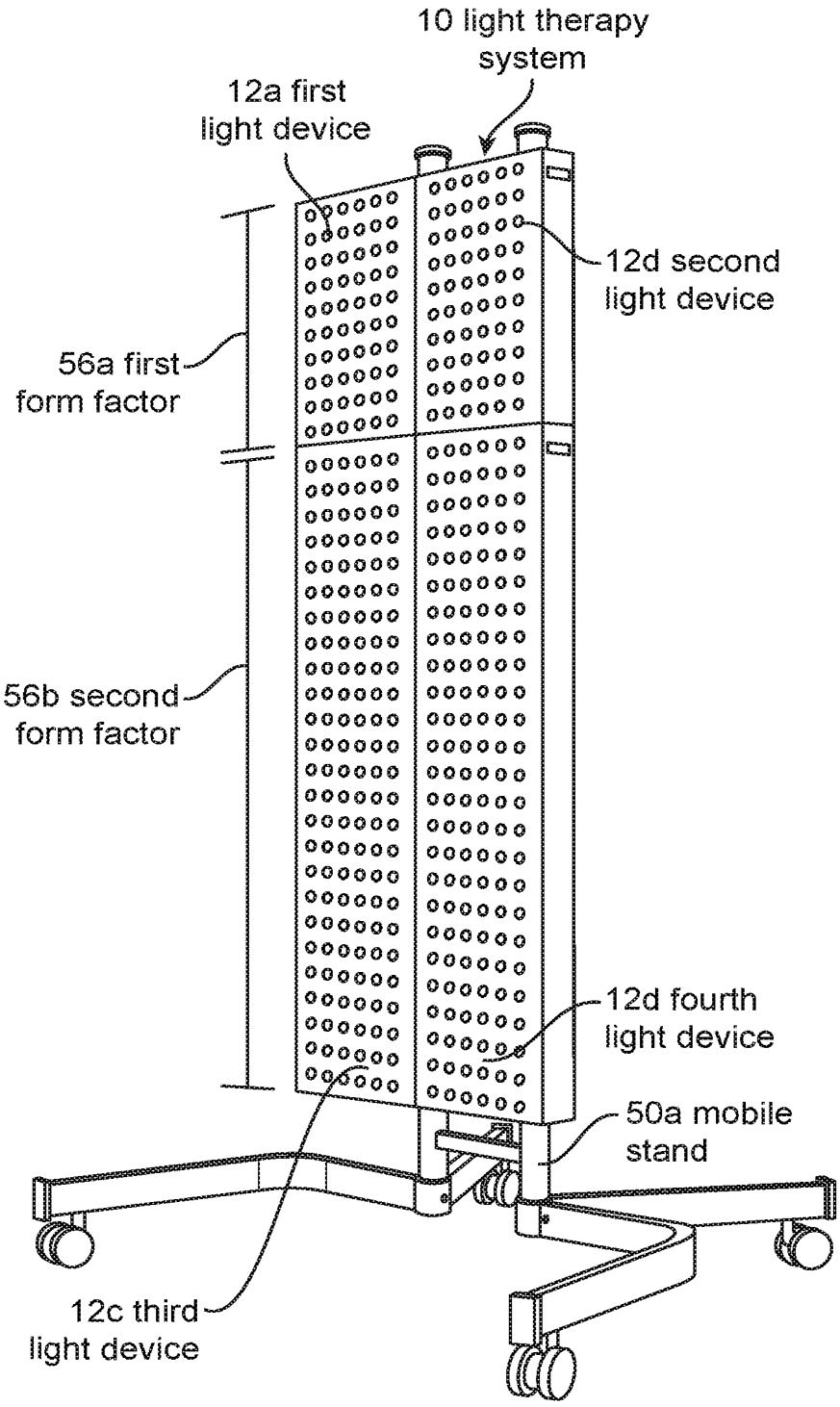

10 light therapy system
12a first light device
12d second light device
56a first form factor
56b second form factor
12d fourth light device
50a mobile stand
12c third light device

FIG. 16

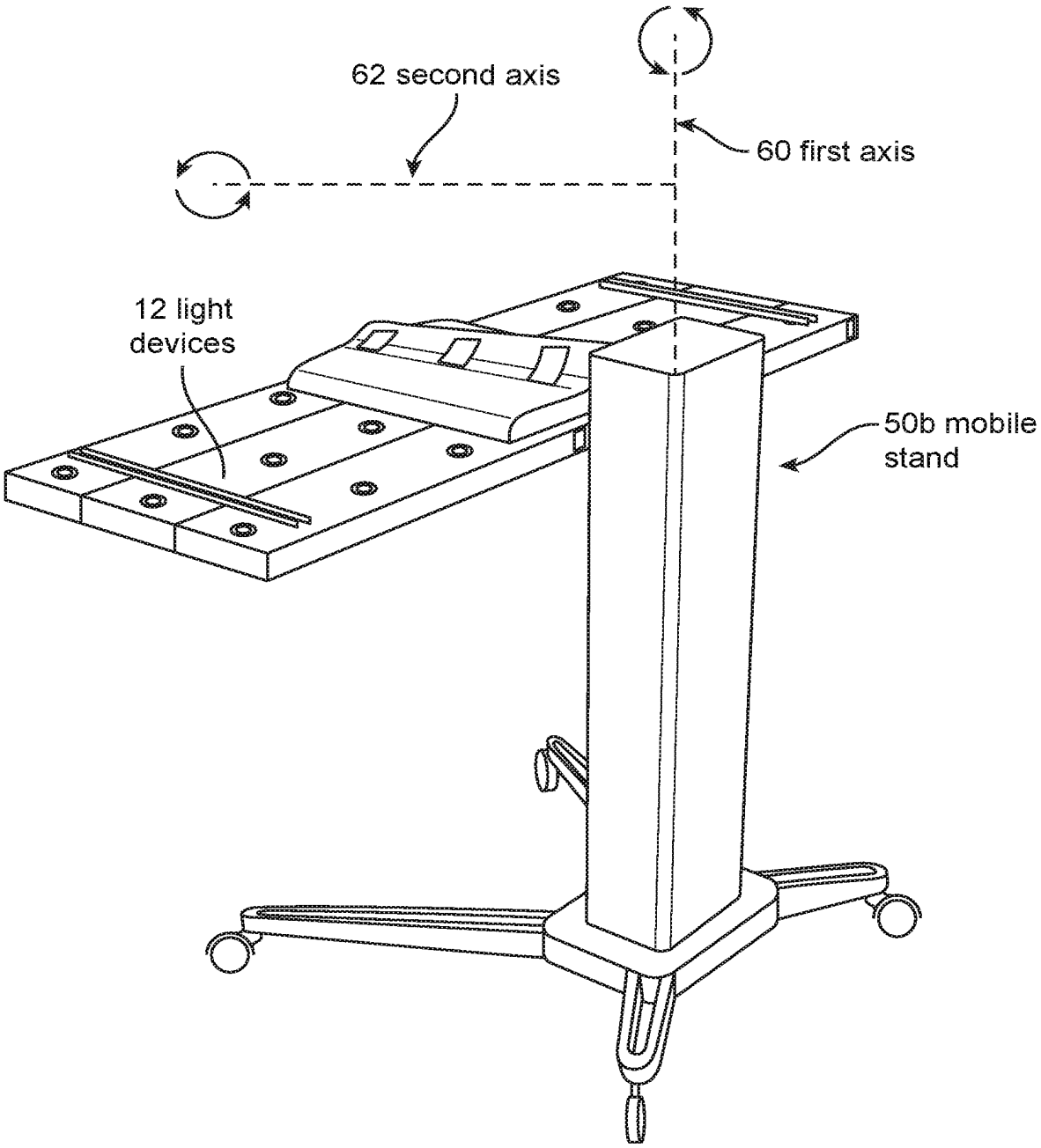

62 second axis
60 first axis
12 light devices
50b mobile stand

FIG. 17

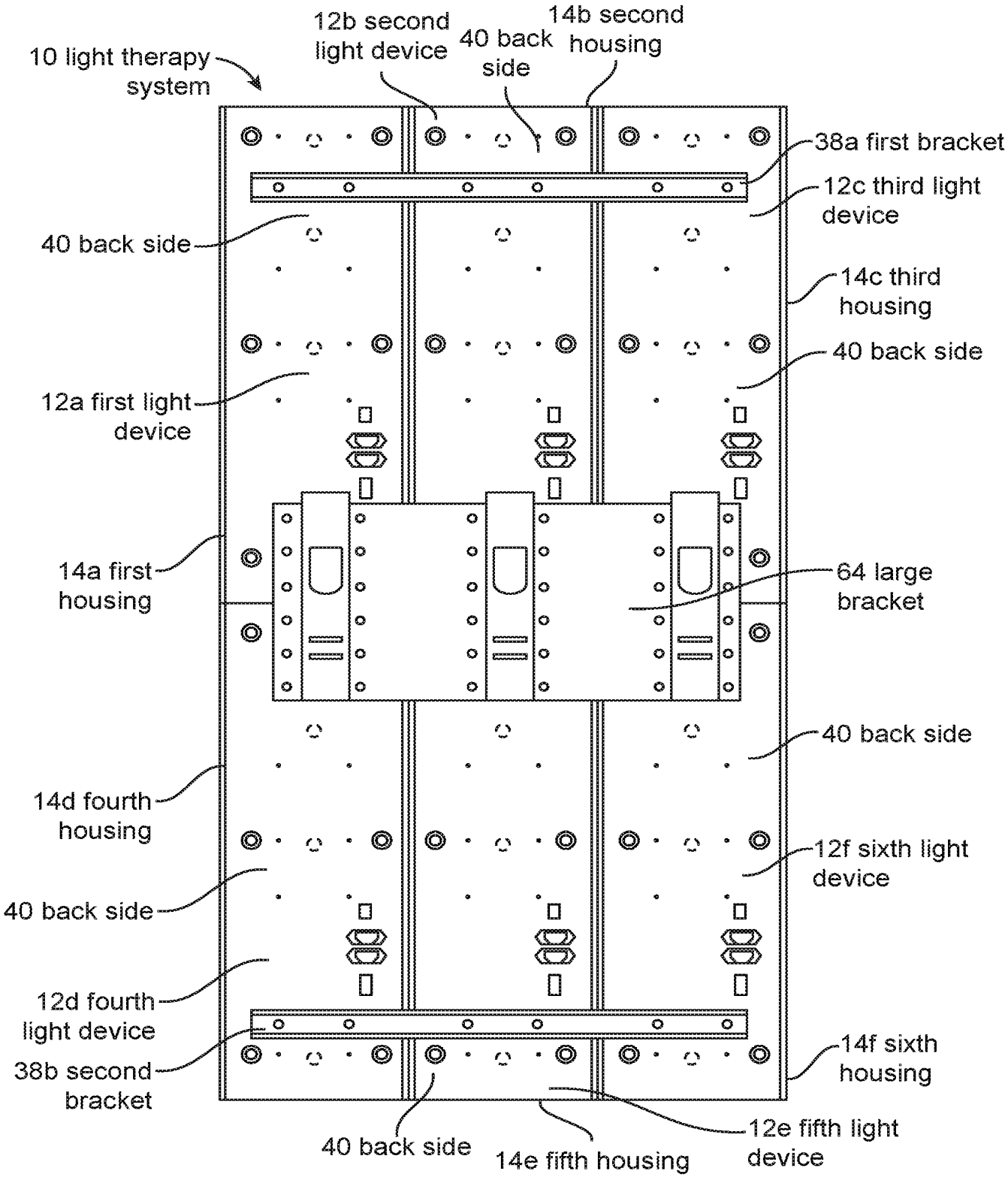

10 light therapy system
12b second light device
40 back side
14b second housing
38a first bracket
12c third light device
40 back side
14c third housing
40 back side
12a first light device
14a first housing
64 large bracket
40 back side
14d fourth housing
12f sixth light device
40 back side
12d fourth light device
38b second bracket
14f sixth housing
40 back side
14e fifth housing
12e fifth light device

FIG. 18A

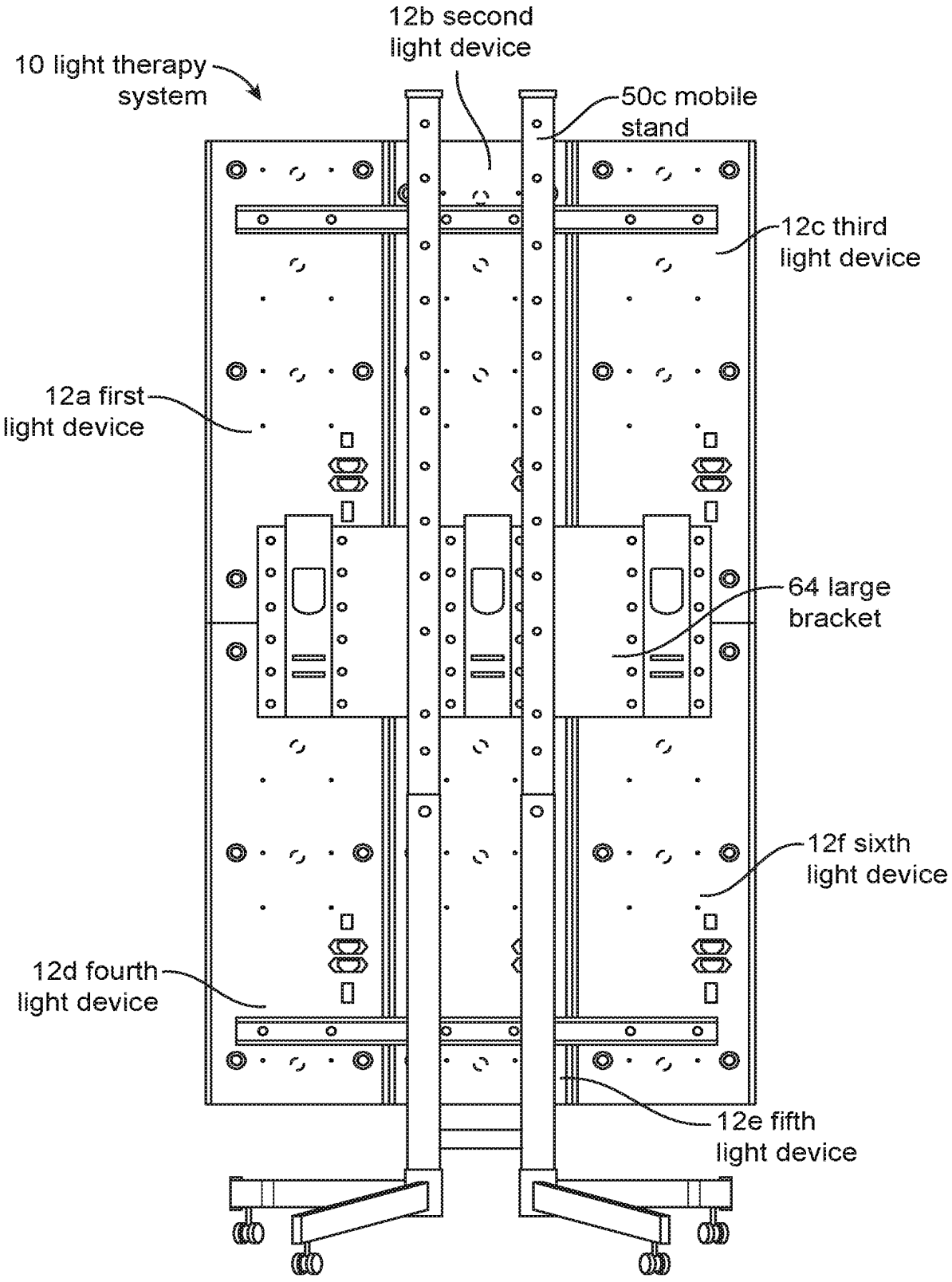

10 light therapy system
12b second light device
50c mobile stand
12c third light device
12a first light device
64 large bracket
12f sixth light device
12d fourth light device
12e fifth light device

FIG. 18B

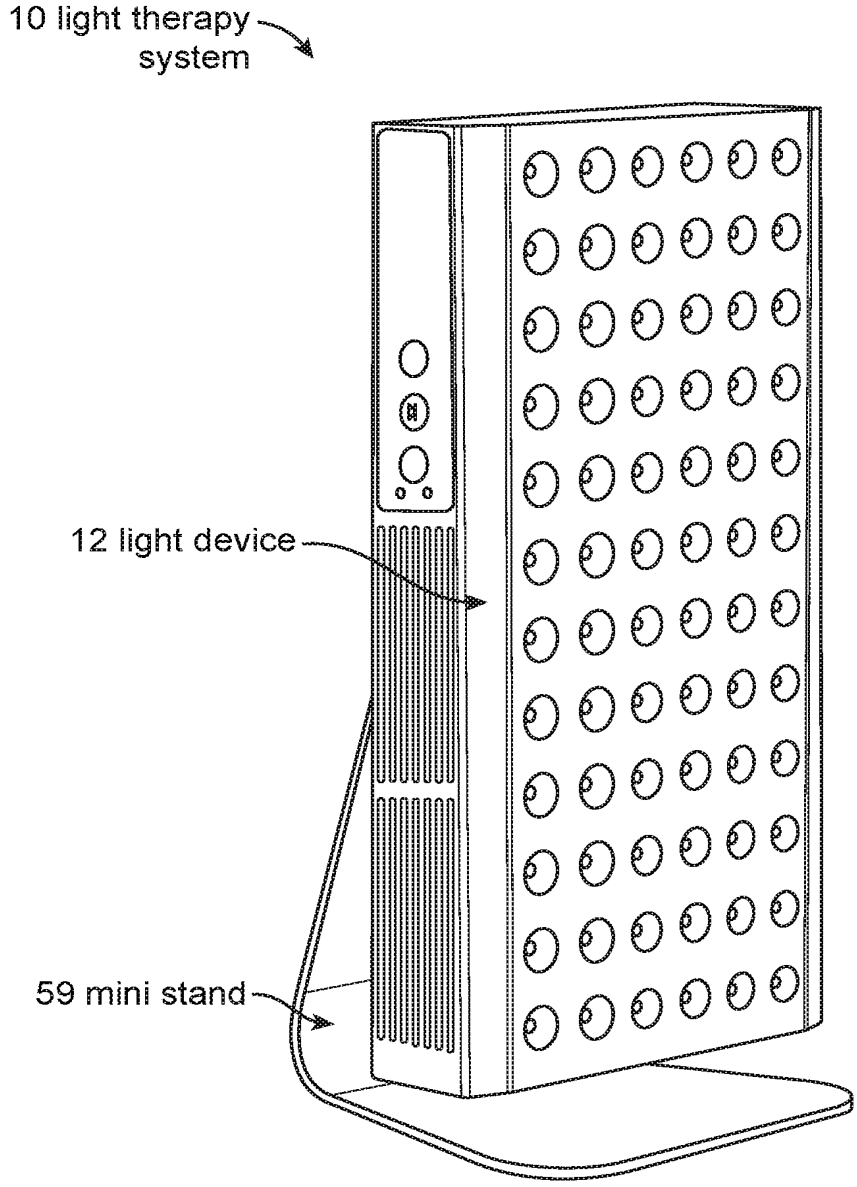


FIG. 19

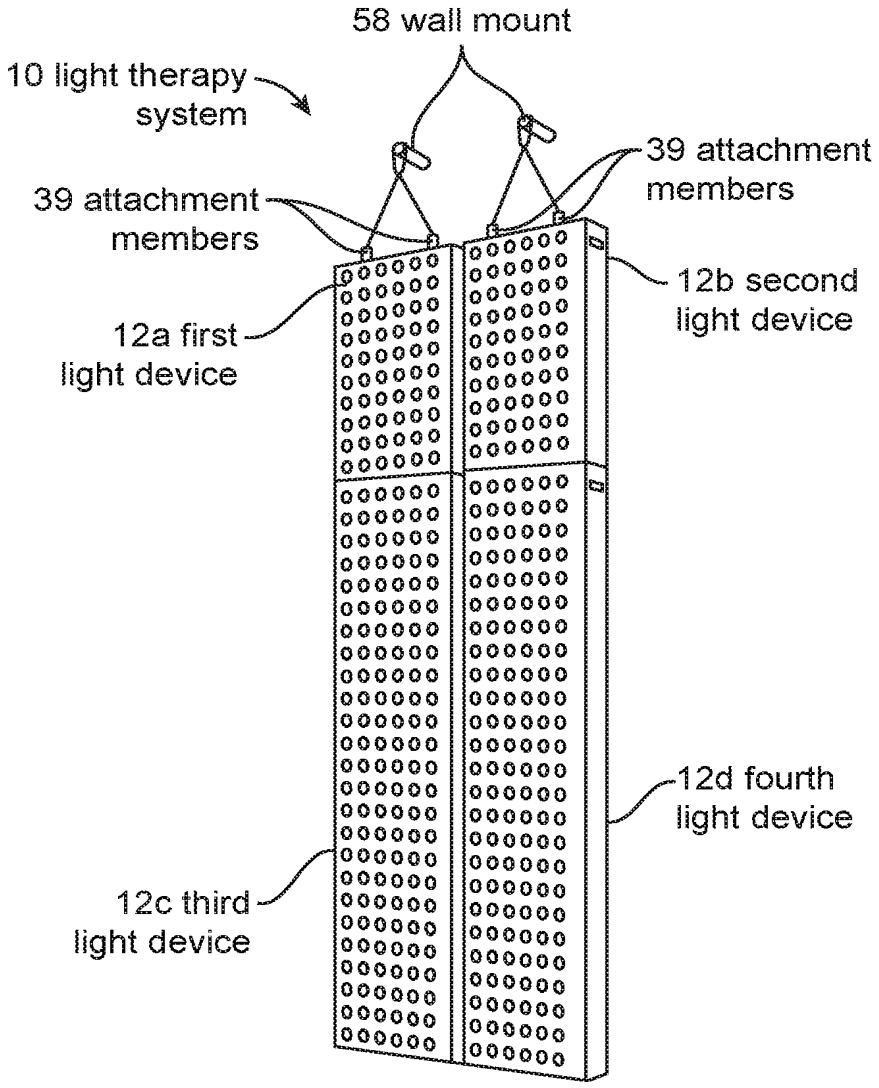

58 wall mount
10 light therapy system
39 attachment members
39 attachment members
12b second light device
12a first light device
12d fourth light device
12c third light device

FIG. 20

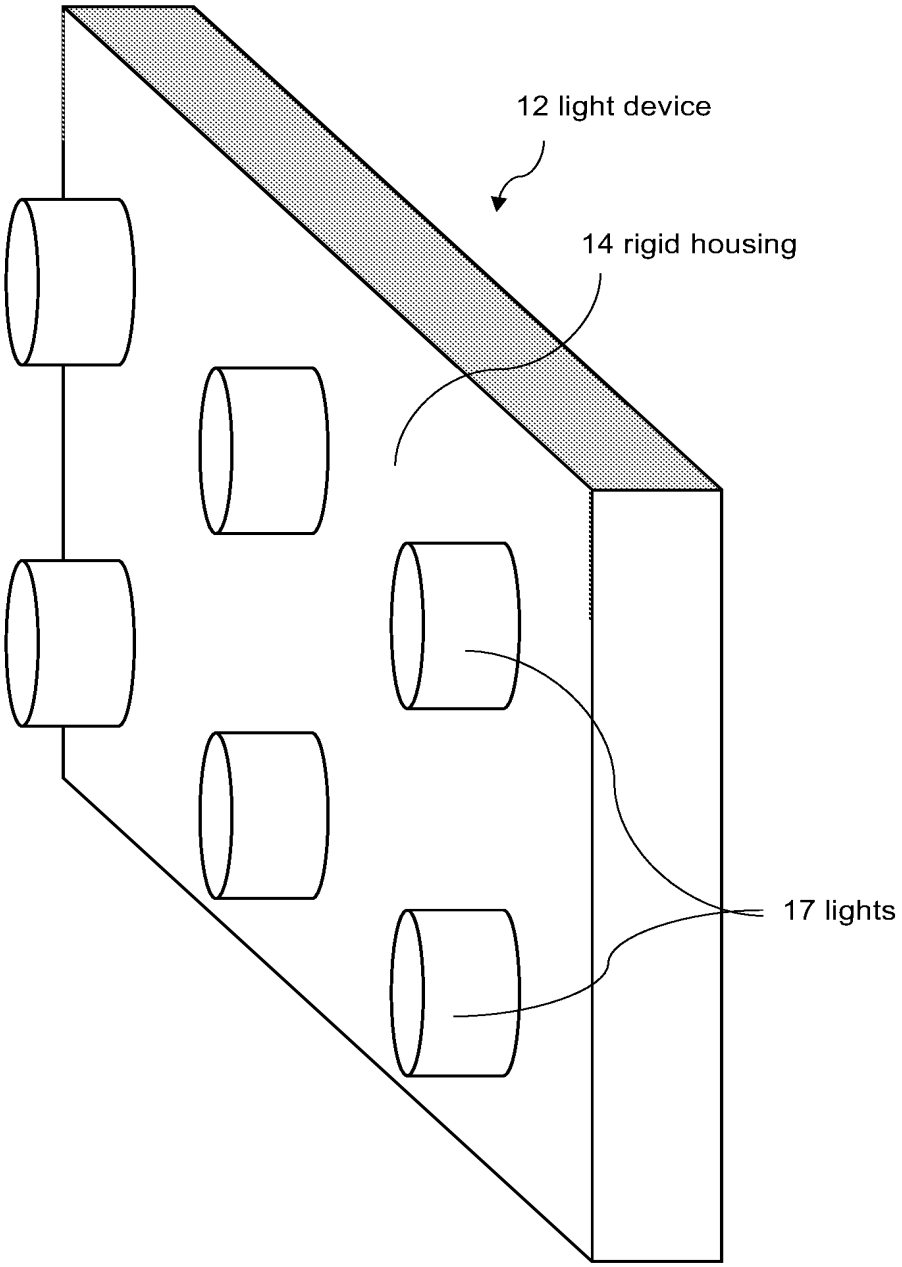


FIG. 21A

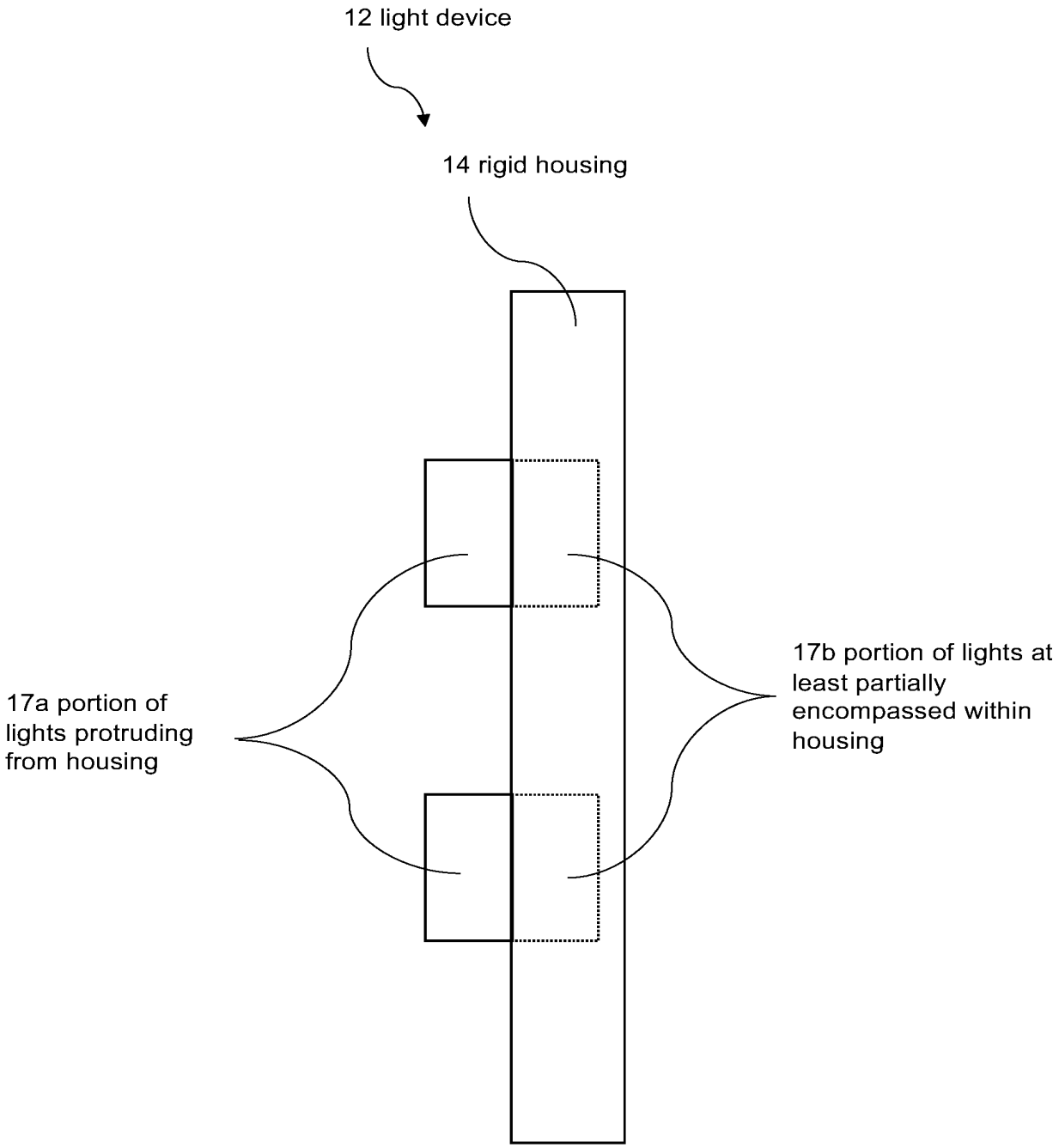

12 light device
14 rigid housing
17a portion of lights protruding from housing
17b portion of lights at least partially encompassed within housing

FIG. 21B

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2019/057292

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - A61N 5/00; A61N 5/01; A61N 5/06 (2019.01)
CPC - A61N 5/0616; A61N 2005/0636; A61N 2005/0652 (2019.08)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
See Search History document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
See Search History document

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
See Search History document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	Mini_Solo_Duo_Quad_Elite_-_User_Manual. Joovv. 7 August 2018. [retrieved 28 November 2019]. Retrieved from the Internet: <URL: https://cdn.shopify.com/s/files/1/1155/1380/files/Joovv_-_Mini_Solo_Duo_Quad_Elite_-_User_Manual.pdf> Sections 1-3, 5-8	1-11, 14-20 --- 12, 13
Y	JOOVV. Red Light Therapy for Your Entire Body. Archive.org. 08 August 2018 [Retrieved on 28 November 2019] Retrieved from the Internet: <URL: https://web.archive.org/web/20180808180609/https://joovv.com> entire document	12, 13
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A	US 2004/0068305 A1 (BANSAL et al) 08 April 2004 (08.04.2004) entire document	1-20

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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 571-273-8300	Authorized officer Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

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(54) **Title:** PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

(57) **Abstract:** Photobiomodulation therapy systems provide a highly effective way to treat many common ailments to the human body. Many embodiments described herein enable two or more light therapy devices to be communicatively coupled together in various ways. In some embodiments, the light therapy system includes a first light device and a second light device arranged and configured to be communicatively coupled to the first light device. Each of the light devices may include a housing and a plurality of lights arranged and configured to emit at least one of red light and near infrared light.

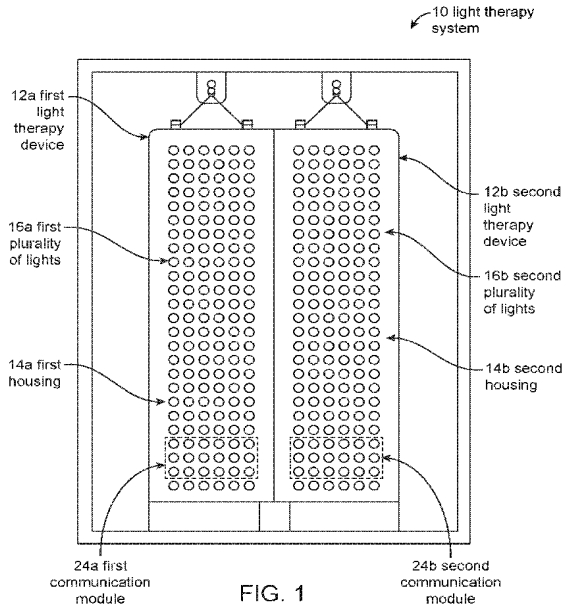


FIG. 1

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PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

CROSS-REFERENCE TO RELATED APPLICATIONS

The entire contents of the following application are incorporated by reference herein: U.S. Patent Application No. 15/616,028; filed June 7, 2017; and entitled THERAPEUTIC LIGHT SOURCE AND HANGING APPARATUS.

The entire contents of the following application are incorporated by reference herein: PCT Patent Application No. PCT/US18/18288; filed March 1, 2018; and entitled THERAPEUTIC LIGHT SOURCE AND MOUNTING APPARATUS.

The entire contents of the following application are incorporated by reference herein: U.S. Patent Application No. 16/167,385; filed October 22, 2018; and entitled PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS.

The entire contents of the following application are incorporated by reference herein: U.S. Patent Application No. 16/227,289; filed December 20, 2018; and entitled PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS.

The entire contents of the following application are incorporated by reference herein: U.S. Patent Application No. 16/584,784; filed September 26, 2019; and entitled PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS.

The entire contents of the following application are incorporated by reference herein: U.S. Patent Application No. 16/598,033; filed October 10, 2019; and entitled PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS.

BACKGROUND

Field

Various embodiments disclosed herein relate to photobiomodulation therapy systems and methods.

Description of Related Art

Photobiomodulation therapy (or light therapy) is a therapeutic technique that uses low-level wavelengths of light to improve health and treat a variety of health conditions, including skin issues, such as wrinkles, scars, and persistent wounds, among many other conditions. Similar to how plants use sunlight to heal and grow, humans and animals are able to harness these wavelengths of light and turn them into cellular energy. This treatment stimulates the body's natural healing processes.

Currently, there are a number of photobiomodulation therapy devices available on the market. However, many of these devices are too small and require multiple sessions to treat large areas. As a result, there is a need for a photobiomodulation therapy system that can treat several areas in fewer treatments.

SUMMARY

This disclosure includes a variety of communicatively coupled light therapy systems. In some embodiments, the light therapy system includes a first light therapy device comprising a first housing, a first plurality of lights arranged and configured to emit at least one of red light and near infrared light, and a first communication module communicatively coupled to the first plurality of lights. Some embodiments may also include a second light therapy device configured to be communicatively coupled to the first light therapy device. The second light therapy device may have a second housing, a second plurality of light arranged and configured to emit at least one of red light and near infrared light, and a second communication module communicatively coupled to the second plurality of lights.

The first communication module and the second communication module may be communicatively coupled via a wireless connection such as a Bluetooth connection. Alternatively, some embodiments may be communicatively coupled via a wired connection. In some embodiments, the first light therapy device further comprises a first plurality of communication ports coupled to the first housing and communicatively coupled to the first communication module. Similarly, the second light therapy device may also further comprise a second plurality of communication ports coupled to the second housing and communicatively coupled to the second communication module. The first light therapy device and the second light therapy device may me communicatively coupled via a wired connection from the first plurality of communication ports to the second plurality of communication ports.

The first light therapy device and the second light therapy device may each be configured to operate in one of a lead mode and a follow mode. When the first light therapy device operates in the lead mode and the second light therapy device operates in the follow mode, the second light device may perform operations as instructed by the first light therapy device.

In some embodiments, the first light therapy device and the second light therapy device may each be configured to operate in a neutral mode. For example, when the second light therapy device operates in the neutral mode the second light therapy device may operate independently of the first light therapy device.

To control the light therapy device, some embodiments may further comprise a first plurality of input buttons coupled to the first housing and communicatively coupled to the first communication module. Accordingly, the system may further include a second plurality of input buttons coupled to the second housing and communicatively coupled to the second communication module. The first plurality of input buttons may be arranged and configured to control a treatment time of the first light therapy device, cause light to be emitted from at least a portion of the first plurality of lights, and cause light not to be emitted from at least a portion of the first plurality of lights. Likewise, the second plurality of input buttons may be arranged and configured to control a treatment time of the second light therapy device, cause light to be emitted from at least a portion of the second plurality of lights, and cause light not to be emitted from at least a portion of the second plurality of lights.

In some embodiments, the first plurality of input buttons may comprise a first time button, a first play/pause button, and a first mode button. Similarly, the second plurality of input buttons may comprise a second time button, a second play/pause button, and a second mode button.

In some embodiments, a first press of the first time button may increase the treatment time of the first light therapy device by a predetermined amount of time. Similarly, a first press of the second time button may increase the treatment time of the second light therapy device by the predetermined amount of time. A first press of the first play/pause button may cause at least a portion of the first plurality of lights to emit light and a second press of the first play/pause button may cause at least a portion of the first plurality of lights to not emit light. Likewise, a first press of the second play/pause button may cause at least a portion of the second plurality of lights to emit light and a second press of the second play/pause button may cause at least a portion of the second plurality of lights to not emit light.

Even still, in some embodiments, a first press of the first mode button may cause at least a portion of red lights of the first plurality of lights to emit red light and at least a portion of near infrared lights of the first plurality of lights to not emit near infrared light. Furthermore, a second press of the first mode button may cause at least a portion of red lights of the first plurality of lights to not emit red light and at least a portion of near infrared lights of the first plurality of lights to emit near infrared light. Similarly, a first press of the second mode button may cause at least a portion of red lights of the second plurality of lights to emit red light and at least a portion of near infrared lights of the second plurality of lights to not emit near infrared light. Furthermore, a second press of the second mode button may cause at least a portion of red lights of the second plurality of lights to not emit red light and at least a portion of near infrared lights of the second plurality of lights to emit near infrared light.

To indicate which lights will be used during treatment, some embodiments of the system may further comprise a first pair of indication lights that may be coupled to the first housing and communicatively coupled to the first plurality of input buttons. In some embodiments, the first pair of indication lights may be arranged and configured to indicate whether a portion of red lights of the first plurality of lights is emitting red light and whether a portion of near infrared lights of the first plurality of lights is emitting near infrared light. Similarly, in some embodiments, the system further includes a second pair of indication lights coupled to the second housing and communicatively coupled to the second plurality of input buttons. The second pair of indication lights may be arranged and configured to indicate whether a portion of red lights of the second plurality of lights is emitting red light and whether a portion of near infrared lights of the second plurality of lights is emitting near infrared light.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other features, aspects, and advantages are described below with reference to the drawings, which are intended to illustrate, but not to limit, the invention. In the drawings, like reference characters denote corresponding features consistently throughout similar embodiments.

Figure 1 illustrates a front view of a light therapy system, according to some embodiments.

Figure 2 illustrates a front view of a light therapy system communicatively coupled wirelessly, according to some embodiments.

Figure 3 illustrates a front view of a light therapy system, according to some embodiments.

Figure 4a illustrates a back view of a light therapy device, according to some embodiments.

Figure 4b illustrates a back view of a light therapy system communicatively coupled via a wired connection.

Figure 5 illustrates a back view of a light therapy system, according to some embodiments.

Figure 6A illustrates a top left perspective view of a light therapy system, according to some embodiments.

Figure 6B illustrates a zoomed in view of a control panel, according to some embodiments.

Figure 7 illustrates a flow chart for operating the time button, according to some embodiments.

Figure 8 illustrates a flow chart for operating the play/pause button, according to some embodiments.

Figure 9 illustrates a flow chart for operating the mode button, according to some embodiments.

DETAILED DESCRIPTION

Although certain embodiments and examples are disclosed below, inventive subject matter extends beyond the specifically disclosed embodiments to other alternative embodiments and/or uses, and to modifications and equivalents thereof. Thus, the scope of the claims appended hereto is not limited by any of the particular embodiments described below. For example, in any system or device disclosed herein, the acts or operations of the system or device may be performed in any suitable sequence and are not necessarily limited to any particular disclosed sequence. Various operations may be described as multiple discrete operations in turn, in a manner that may be helpful in understanding certain embodiments; however, the order of description should not be construed to imply that these operations are order dependent. Additionally, the structures, methods, and/or procedures described herein may be embodied as integrated components or as separate components.

For purposes of comparing various embodiments, certain aspects and advantages of these embodiments are described. Not necessarily all such aspects or advantages are achieved by any particular embodiment. Thus, for example, various embodiments may be carried out in a manner that achieves or optimizes one advantage or group of advantages as taught herein without necessarily achieving other aspects or advantages as may also be taught or suggested herein.

INDEX OF COMPONENTS

10 – Light therapy system
12 – Light therapy device
14 – Housing
16 – Plurality of lights
24 – Communication module
26 – Plurality of communication ports
28 – Communication Cable
70 – Lead mode
80 – Follow mode
90 – Neutral mode
92 – Power switch
100 – Control panel
110 – Plurality of buttons
112 – Time button
114 – Play/pause button
116 – Mode button
120 – Pair of indication lights

INTRODUCTION

Light therapy provides an alternative option for treating many common ailments and diseases. For example, when the human body is exposed to red light, blue light, green light, and/or near infrared light, subjects can expect to see improvement in multiple skin conditions, weight loss, muscle recovery, sexual performance, joint pain, and thyroid function. Instead of using prescription medications to solve these many problems, light therapy can be used in place of these traditional remedies to achieve safe and effective results.

Many top professionals have adopted light therapy, but oftentimes the light therapy devices and systems used are not big enough to treat an entire body at once. Accordingly, many embodiments described herein enable two or more light therapy devices to be communicatively

coupled together to form a light therapy system. In doing so, the area of treatment can be expanded to reduce the time and number of treatments to achieve the desired results.

SYSTEM EMBODIMENTS

Figure 1 illustrates an embodiment of a light therapy system 10 having a first light therapy device 12a and a second light therapy device 12b. In some embodiments, the first light therapy device 12a may have a first housing 14a, a first plurality of lights 16a, and a first communication module 24a. The first plurality of lights 16a may be mechanically coupled to the first housing 14a. In some embodiments, the first plurality of lights 16a may be red lights, near infrared lights, or some combination of red lights and near infrared lights. The first communication module 24a may be communicatively coupled to the first plurality of lights 16a such that the first plurality of lights 16a may receive instructions and thereby operate in a specific manner.

Furthermore, Figure 1 also shows the light therapy system 10 having a second light therapy device 12b, which is communicatively coupled to the first light therapy device 12a. Similar to the first light therapy device 12a, the second light therapy device 12b may include a second housing 14b, a second plurality of lights 16b, and a second communication module 24b. The second plurality of lights 16b may be mechanically coupled to the second housing 14b. In some embodiments, the second plurality of lights 16b may be red lights, near infrared lights, or some combination of red lights and near infrared lights. The second communication module 24b may be communicatively coupled to the second plurality of lights 16b such that the second plurality of lights 16b may also receive instructions.

In many embodiments, the light therapy devices 12 are communicatively coupled to each other. In this regard, the first therapy device 12a may be communicatively coupled to the second light therapy device 12b whereby either of the devices 12 is able to control the other respective device 12. Such functionality may allow one or more light devices 12 to act as one cohesive system to more effectively provide treatment for a patient.

Because multiple light therapy devices 12 may be communicatively coupled together, this may allow for the light therapy system 10 to be located in one location or various remote locations. For example, in some embodiments, a light therapy system 10a may comprise two or more light therapy devices communicatively coupled together and physically located within close proximity of each other, such as in the same treatment room. However, in some embodiments, a light therapy

system 10b may comprise two or more light therapy devices communicatively coupled together but the two or more light therapy devices are physically located remotely with respect to each other, such as in different cities. Communicatively coupling remotely located light therapy devices 12 may be effective for a variety of scenarios, such as a clinician who is remotely located with respect to a patient and thereby wants to render treatment for the patient. The clinician may communicatively couple a light therapy device 12, or a remote computing device (e.g. a smartphone), located in the clinician's office to one or more light therapy devices 12 located nearby the patient. The clinician may thereby treat the patient, even though the clinician and patient are physically located in remote locations with respect to the other.

To achieve the communicative coupling, the devices 12 may be communicatively coupled via communication modules 24. For example, Figure 2 depicts a light therapy system 10 including a first light therapy device 12a having a first communication module 24a, a second light therapy device 12b having a second communication module 24b, a third light therapy device 12c having a third communication module 24c, and a fourth light therapy device 12d having a fourth communication module 24d. The light therapy devices 12 may be communicatively coupled wirelessly by any suitable communication protocol, such as Zigbee, Bluetooth, BLE, Z-Wave, near-field communication (NFC), cellular network protocols (3G, 4G, 5G), Wi-Fi, and the like. The person of ordinary skill in the art may select a protocol that suits the needs and physical locations of the light therapy devices 12 being communicatively coupled together.

Figure 3 illustrates an embodiment of a light therapy system 10 in which there are four light therapy devices 12a, 12b, 12c, and 12d physically coupled to one another. In this embodiment, the housing of one light therapy device, such as the first light therapy device 12a, may be mechanically coupled to at least one other light therapy device, such as light therapy devices 12b, 12c, and/or 12d. Mechanical coupling may be achieved by any suitable attachment means, and in many embodiments, includes detachable coupling. In addition to mechanical coupling of the housings, multiple light therapy devices 12 may be communicatively coupled via any suitable wireless communication protocol, as described above. In this regard, the various light devices 12 do not need to be physically coupled together and can be remotely located with respect to each other, all the while still being communicatively coupled together to share data and control commands between light therapy devices.

While Figures 1, 2, and 3 illustrate 2 or 4 light therapy devices in communication with each other; it should be appreciated that any number of light therapy devices may be communicatively coupled together. For example, in some embodiments, the light therapy system includes 3, 5, 6, 7, 8 or more devices communicatively coupled together. Generally, any number of devices may be communicatively coupled using any respective communication protocol.

Furthermore, the light therapy system 10 may also include other devices, such as remote computing devices (e.g. smartphone, tablet, computer, and the like), located remotely with respect to the light devices 12. In this regard, a plurality of light devices 12 may be communicatively coupled to one another, and the plurality of light devices 12 may further be communicatively coupled to a remote computing device operated by a third party. For example, a third party clinician or technician may communicatively couple their remote computing device to the light therapy system 10 to remotely communicate with the system 10. This may assist clinicians in providing treatment to patients, technicians in troubleshooting problems with the light therapy system, and the like.

Light therapy devices 12 may also be communicatively coupled via a wired connection. To communicatively couple light therapy devices 12 via a wired connection, some embodiments feature a plurality of communication ports 26 which may be located on the housing 14. In some embodiments, at least one port of the plurality of communication ports 26 may be configured to send signal from the first light therapy device 12a to the second light therapy device 12b. Similarly, at least one port of the plurality of communication ports 26 may be configured to receive signal from another light therapy device 12. In some embodiments, a communication cable 28 may be inserted into the pluralities of communication ports 26 to communicatively couple the light therapy devices 12. The communication cable 28 may comprise an RJ11 cable, an RJ6 cable, and the like. It should be appreciated that any appropriate type of communication cable 28, used to transfer data, may be used in the system to communicatively couple light therapy devices 12 via a wired connection.

As shown in Figure 4b, which illustrates the backside of a light therapy system 10, a plurality of light therapy devices 12 may be communicatively coupled together using communication cables 28 to thereby form the system 10. Communicatively coupling the light therapy devices 12 in this way allows the light therapy devices 12 to be controlled by one set of instructions. As shown in Figure 4a, each light therapy device 12 may comprise a plurality of

communication ports 26 used to communicatively couple more than one device 12 together via wires. As shown in Figure 4b, a first light therapy device 12a is communicatively coupled to the second light therapy device 12b by a first communication cable 28a, which is inserted into the first plurality of communication ports 26a and the second plurality of communication ports 26b. In a similar fashion, the second light therapy device 12b may be communicatively coupled to a third light therapy device 12c by inserting a second communication cable 28b into the second plurality of communication ports 26b and the third plurality of communication ports 26c. A fourth light therapy device 12d may be communicatively coupled to the light therapy system 10 by inserting a third communication cable 28c into the third plurality of communication ports 26c and the fourth plurality of communication ports 26d. Similarly, a fifth light therapy device 12e may be communicatively coupled to the light therapy system 10 by inserting a fourth communication cable 28d into the fourth plurality of communication ports 26d and the fifth plurality of communication ports 26e. Finally, a sixth light therapy device 12f may be communicatively coupled to the light therapy system 10 by inserting a fifth communication cable 28e into the fifth plurality of communication ports 26e and a sixth plurality of communication ports 26f. Communicatively coupling the light therapy devices 12 in this way enables the entire light therapy system 10 to be controlled one set of input commands.

The embodiment depicted in Figure 4b has six light therapy devices 12 communicatively coupled via communication cables 28. In some embodiments, there may only be two light therapy devices 12. In other embodiments, there may be more than six light therapy devices 12 communicatively coupled via a wired or a wireless connection. Additionally, the light therapy devices 12 may be communicatively coupled in series or in parallel. The light therapy system 10 of Figure 4b is communicatively coupled in series. Alternatively, the first light therapy device 12a may communicatively couple to the second light therapy device 12b and the third light therapy device 12c directly. For example, the first communication cable 28a may be inserted into the first plurality of communication ports 26a and the second plurality of communications ports 26b. Similarly, the second communication cable 28b may also be inserted into the first plurality of communication ports 26a and the third plurality of communication ports 26c. This pattern may continue for as many light therapy devices 12 as necessary, or the light therapy devices 12 may be communicatively coupled in any combination of series and parallel wired connections.

To ensure that the light therapy devices 12 operate in the same way, some embodiments feature a lead mode 70 and a follow mode 80. A light therapy device 12 that is configured to be in the lead mode 70 may send operation instructions to all other light therapy devices 12 in the system 10. A light therapy device 12 that is configured to be in the follow mode 80 may receive operation instructions from a light therapy device 12 that is in the lead mode 70.

Figure 5 illustrates a light therapy system 10 with a first light therapy device 12a having a power switch 92, a lead mode 70, a follow mode 80, and a neutral mode 90. A user may thereby select the desired mode by switching a three-way toggle switch between lead mode 70, follow mode 80, and neutral mode 90. In some embodiments, a light therapy system 10 may comprise a first light therapy device 12a configured to be in the lead mode 70, while all other light therapy devices 12 are in the follow mode 80. Configuring the light therapy system 10 in this way may force the light therapy devices 12 to operate in the same way. In some embodiments, there may be more than one light therapy device 12 in the lead mode 70. For example, a light therapy system 10 may comprise six light therapy devices 12, whereby two light therapy devices 12 are in the lead mode and four light therapy devices 12 are in the follow mode. In such embodiments, either of the two light therapy devices 12 in the lead mode may control the other four light devices 12 in the follow mode. It should be appreciated that any number of light therapy devices may be in the follow mode 80.

A light therapy device 12 configured to be in neutral mode 90 may operate on its own and may ignore instructions sent from a light therapy device 12 in the lead mode 70. In this manner, the light therapy device(s) 12 in the neutral mode may ignore incoming signals. In some embodiments, there may be none, one, or more than one light therapy device 12 in the lead mode 70, none, one, or more than one light therapy device 12 in the follow mode 80, and none, one, or more than one light therapy device 12 in neutral mode 90. Any combination of light therapy devices 12 configured in the lead mode 70, the follow mode 80, and the neutral mode 90 may be used to achieve any combination of treatment types.

As previously discussed, some embodiments of the light therapy system 10 use hardwire connections to communicatively couple together multiple light therapy devices 12. Communication cables 28, such as RJ11 cables, may be used to facilitate such hardwire connections. When using communication cables 28 the light therapy device 12 may appear different from what is shown in Figures 4A and 5. In some embodiments, the light therapy device

12 does not have the power switch 92 and/or the three-way toggle switch used to set lead mode 70, follow mode 80, and neutral mode 90. A light therapy device 12 may include dual RJ11 (or similar) connections to facilitate "daisy-chaining" of multiple light therapy devices 12. In some embodiments, the plurality of communication ports 26 comprise the dual RJ11 (or similar) connections.

As shown in Figure 6a, in order to control the first light therapy device 12a, some embodiments feature a first control panel 100a located on the first housing 14a and communicatively coupled to the first communication module 24a. The first control panel 100a may allow a user to control a treatment time and cause at least a portion of the first plurality of lights 16a to either emit or not emit red light or near infrared light. Similarly, the second light therapy device 12b may have a second control panel 100b located on the second housing 14b and communicatively coupled to the second communication module 24b. The second control panel 100b may implement the same controls as the first control panel 100a. In some embodiments, when the second light therapy device 12b is in the follow mode 80, the second control panel 100b displays one or more characters to illustrate that the control panel 100b is currently not active. In some embodiments, the control panel displays a single character, such as a colon (":"). In some embodiments, the control panel 100 of the light therapy device 12 in the lead mode is active and displays information related to the treatment (e.g., the control panel of the lead device displays the current treatment time remaining). Accordingly, in such embodiments, the control panel(s) 100 of the light therapy device(s) 12 in the follow mode illustrates a static image to indicate that the control panel of the follow device is deactivated; thus, enabling one control panel 100 to control the whole light therapy system 10.

Figure 6a shows one embodiment of a light therapy system 10 with a first light therapy device 12a featuring a control panel 100. Figure 6b shows a similar embodiment zoomed in to the control panel 100 having a plurality of input buttons 110, a time button 112, a play/pause button 114, a mode button 116, and a pair of indication lights 120. Figures 7, 8, and 9 show a flow chart of what each button may do when pressed. Though not shown in Figures 6A or 6B, in some embodiments the control panel 100 also includes a power button and a pulse button. The indication lights 120 may also include an indication light for a pulse mode, which will be discussed further on.

In some embodiments, the plurality of input buttons 110 may have a time button 112 which, when pressed a first time 700, may be configured to increase the treatment time by a predetermined amount of time 702. In some embodiments, the predetermined amount of time may be one minute, five minutes, or any amount of time including negative amounts of time. Each additional press 704 of the time button 112 may increase the treatment time by the same predetermined amount of time 706. In some embodiments, the control panel 100 may be configured to have a predetermined maximum treatment time, for example twenty minutes. In embodiments such as these, if the treatment time is set to the predetermined maximum treatment time and the time button 112 is pressed once more the treatment time may change to a predetermined minimum treatment time instead of adding another predetermined amount of time. If the light therapy device 12 is in the lead mode 70, the treatment time may be sent to other light therapy devices 12 in the system 10 that are configured to be in the follow mode 80. If the light therapy device 12 is in the neutral mode 90, the treatment time may not be sent to any other light therapy devices 12 in the system 10 and the light therapy device 12 may ignore other incoming instructions.

The plurality of input buttons 110 may also have a play/pause button 114 which, when pressed a first time 800, may be configured to cause at least a portion of the plurality of lights 16 to emit red light and/or near infrared light 802. In some embodiments, the play/pause button 114, when pressed a second time 804, may be configured to cause at least a portion of the plurality of lights 16 to not emit red light and/or near infrared light 806. The play/pause button 114 may start, pause, or continue the treatment time as set by the time button 112. This allows the user to pause the treatment session without having to restart from the beginning. Pressing the play/pause button 114 on light therapy devices 12 configured to be in the lead mode 70 may start the treatment for other light therapy devices 12 in the system 10 including those in follow mode 80. Generally, light therapy devices 12 in the lead mode 70 may send instructions to other light therapy devices 12 in the follow mode 80 to operate in the same way.

Furthermore, the plurality of input buttons 110 may also have a mode button 116. When the mode button 116 is pressed this may change the type of light emitted from at least a portion of the plurality of lights 16 during treatment. For instance, in some embodiments, at least a portion of the plurality of lights 16 may be configured to automatically emit both red light and near infrared light when the treatment starts, but when the mode button 116 is pressed a first time 900 at least a portion of the plurality of lights 16 may be configured to emit red light and not emit near infrared

light 902 when treatment starts. In some embodiments, when the mode button 116 is pressed a second time 904 at least a portion of the plurality of lights 16 may be configured to emit near infrared light and not emit red light 906 when treatment starts. Similarly, in other embodiments, a third press of the mode button 116 may configure at least a portion of the plurality of lights 16 to emit both red light and near infrared light. Although only one set of press button commands is specifically mentioned herein, it should be appreciated that any order or combination of button presses may be used. For example, in some embodiments, when the mode button 116 is pressed a first time 900 at least a portion of the plurality of lights 16 may be configured to emit both red light and near infrared light 902 when treatment starts. However, it should be appreciated that any light wavelength or combination of light wavelengths from 100 to 1,000 nanometers (nm), such as UV, blue, green, red, and near-infrared, may be implemented in the system 10 and thereby emitted or not emitted from the plurality of lights 16. Accordingly, any of the input buttons 110 may be arranged and configured to control the plurality of lights 16 to emit and/or not emit light included in any combination of light wavelengths from 100 to 1,000 nm.

The plurality of input buttons 110 may also have a pulse button (not shown), which may be used to select a pulse setting. In some embodiments, three pulse settings are available: P1, P2, and Pulse OFF. P1 may set to 10Hz pulsing with a 50% duty cycle, meaning that the lights 16 (red and/or near infrared) pulse 10 times every second and the lights 16 are on 50% of the time and off 50% of the time. For example, in a 10 minute treatment period, the lights 16 would be on for a cumulative 5 minutes and off for a cumulative 5 minutes. P2 may set to 40Hz pulsing with a 50% duty cycle, meaning that the lights 16 pulse 40 times per second and again the lights 16 are on 50% of the time and off 50% of the time. Pulse OFF mode may mean that the lights 16 do not pulse. Other pulse modes including different pulsing frequencies and different duty cycles may be available.

In some embodiments, when the pulse button is pressed a first time, a time display of the control panel 100 shows the selected pulse mode (P1, P2, or OFF). A user may cycle through the available pulse modes by pressing the play/pause button 114. A user may select a pulse mode by pressing the pulse button when the desired mode is shown on the time display. Once a mode is selected (including OFF mode), the time display will revert back to operation mode and resume counting the time for the current treatment session.

With continued reference to Figure 6b, when the light therapy system 10 has not yet started treatment or is paused it may be difficult to determine if the treatment will consist of red light, near infrared light, or both. To make it easier to determine which lights are active, some embodiments feature a pair of indication lights 120 located on the control panel 100. One light of the pair of indication lights 120 may be labeled red and the other may be labeled near infrared or simply infrared. The pair of indication lights 120 may indicate to a user the type of light that will be emitted when the treatment starts or continues by illuminating one or both indication lights 120. For example, in some embodiments, when the plurality of lights 16 is configured to emit only red light during treatment the indication light labeled red may be illuminated and the indication light labeled infrared may not be illuminated. Similarly, when the plurality of lights 16 is configured to emit only near infrared light during treatment the indication light labeled infrared may be illuminated and the indication light labeled red may not be illuminated. Moreover, when the plurality of lights 16 is configured to emit both red light and near infrared light during treatment the indication light labeled red may be illuminated and the indication light labeled infrared may also be illuminated. In some embodiments, the indication lights 120 include an indication light for pulse mode. When the pulse indication light is illuminated, it indicates that a pulse mode (P1 or P2) has been enabled. When the pulse indication light is not illuminated, no pulse mode (or pulse OFF) has been enabled.

In some embodiments, the light therapy system 10 is configured to be mounted on a door and/or wall. The light therapy system 10 may also be configured to couple to a moveable stand. Furthermore, the light therapy system 10 may also be configured to hang (as shown in Figure 1), for example from a hook on a door. A mounting system may include a mounting rail system coupled to a door or wall, and a friction lock hinge coupled to a light therapy device 12. In some embodiments, the friction lock hinge couples to the mounting rail system to therefore couple the light therapy device 12 to a door or wall. The mounting rail system may be adjustable to fit multiple light therapy devices 12. The moveable stand may include a mounting bracket coupled to the back of a light therapy device(s) 12, and cross braces coupled to the mounting bracket and the stand to thereby couple the light therapy device(s) 12 to the stand.

INTERPRETATION

None of the steps described herein is essential or indispensable. Any of the steps can be

adjusted or modified. Other or additional steps can be used. Any portion of any of the steps, processes, structures, and/or devices disclosed or illustrated in one embodiment, flowchart, or example in this specification can be combined or used with or instead of any other portion of any of the steps, processes, structures, and/or devices disclosed or illustrated in a different embodiment, flowchart, or example. The embodiments and examples provided herein are not intended to be discrete and separate from each other.

The section headings and subheadings provided herein are nonlimiting. The section headings and subheadings do not represent or limit the full scope of the embodiments described in the sections to which the headings and subheadings pertain. For example, a section titled "Topic 1" may include embodiments that do not pertain to Topic 1 and embodiments described in other sections may apply to and be combined with embodiments described within the "Topic 1" section.

Some of the devices, systems, embodiments, and processes use computers. Each of the routines, processes, methods, and algorithms described in the preceding sections may be embodied in, and fully or partially automated by, code modules executed by one or more computers, computer processors, or machines configured to execute computer instructions. The code modules may be stored on any type of non-transitory computer-readable storage medium or tangible computer storage device, such as hard drives, solid state memory, flash memory, optical disc, and/or the like. The processes and algorithms may be implemented partially or wholly in application-specific circuitry. The results of the disclosed processes and process steps may be stored, persistently or otherwise, in any type of non-transitory computer storage such as, e.g., volatile or non-volatile storage.

The various features and processes described above may be used independently of one another, or may be combined in various ways. All possible combinations and subcombinations are intended to fall within the scope of this disclosure. In addition, certain method, event, state, or process blocks may be omitted in some implementations. The methods, steps, and processes described herein are also not limited to any particular sequence, and the blocks, steps, or states relating thereto can be performed in other sequences that are appropriate. For example, described tasks or events may be performed in an order other than the order specifically disclosed. Multiple steps may be combined in a single block or state. The example tasks or events may be performed in serial, in parallel, or in some other manner. Tasks or events may be added to or removed from the disclosed example embodiments. The example systems and components described herein may

be configured differently than described. For example, elements may be added to, removed from, or rearranged compared to the disclosed example embodiments.

Conditional language used herein, such as, among others, "can," "could," "might," "may," "e.g.," and the like, unless specifically stated otherwise, or otherwise understood within the context as used, is generally intended to convey that certain embodiments include, while other embodiments do not include, certain features, elements and/or steps. Thus, such conditional language is not generally intended to imply that features, elements and/or steps are in any way required for one or more embodiments or that one or more embodiments necessarily include logic for deciding, with or without author input or prompting, whether these features, elements and/or steps are included or are to be performed in any particular embodiment. The terms "comprising," "including," "having," and the like are synonymous and are used inclusively, in an open-ended fashion, and do not exclude additional elements, features, acts, operations and so forth. Also, the term "or" is used in its inclusive sense (and not in its exclusive sense) so that when used, for example, to connect a list of elements, the term "or" means one, some, or all of the elements in the list. Conjunctive language such as the phrase "at least one of X, Y, and Z," unless specifically stated otherwise, is otherwise understood with the context as used in general to convey that an item, term, etc. may be either X, Y, or Z. Thus, such conjunctive language is not generally intended to imply that certain embodiments require at least one of X, at least one of Y, and at least one of Z to each be present.

The term "and/or" means that "and" applies to some embodiments and "or" applies to some embodiments. Thus, A, B, and/or C can be replaced with A, B, and C written in one sentence and A, B, or C written in another sentence. A, B, and/or C means that some embodiments can include A and B, some embodiments can include A and C, some embodiments can include B and C, some embodiments can only include A, some embodiments can include only B, some embodiments can include only C, and some embodiments can include A, B, and C. The term "and/or" is used to avoid unnecessary redundancy.

While certain example embodiments have been described, these embodiments have been presented by way of example only, and are not intended to limit the scope of the inventions disclosed herein. Thus, nothing in the foregoing description is intended to imply that any particular feature, characteristic, step, module, or block is necessary or indispensable. Indeed, the novel methods and systems described herein may be embodied in a variety of other forms; furthermore,

various omissions, substitutions, and changes in the form of the methods and systems described herein may be made without departing from the spirit of the inventions disclosed herein.

WHAT IS CLAIMED IS:

1. A light therapy system, comprising:

a first light therapy device comprising a first housing, a first plurality of lights coupled to the first housing and configured to emit at least one of red light and near infrared light, and a first control panel comprising a first input button and a first pair of indication lights communicatively coupled to the first input button, the first pair of indication lights configured to indicate whether the first plurality of lights is set to emit red light, infrared light, or both; and

a second light therapy device configured to communicate with the first light therapy device, the second light therapy device comprising a second housing, a second plurality of lights coupled to the second housing and configured to emit at least one of red light and near infrared light, and a second control panel comprising a second input button and a second pair of indication lights communicatively coupled to the second input button, the second pair of indication lights configured to indicate whether the second plurality of lights is set to emit red light, infrared light, or both.

2. The light therapy system of claim 1, wherein the first control panel is coupled to a side surface of the first housing, and the second control panel is coupled to a side surface of the second housing.

3. The light therapy system of claim 1, wherein the first light therapy device and the second light therapy device are configured to communicate directly via a wireless connection.

4. The light therapy system of claim 1, wherein the first light therapy device and the second light therapy device are configured to communicate directly via a wired connection.

5. The light therapy system of claim 1, wherein the first light therapy device comprises a first plurality of communication ports and the second light therapy device comprises a second plurality of communication ports, the light therapy system further comprising a communication cable having a first end coupled to a first port of the first plurality of communication ports, and a second end coupled to a second port of the second plurality of communication ports.

6. The light therapy system of claim 1, wherein each of the first light therapy device and the second light therapy device is configured to operate in at least one of a lead mode and a follow mode, and wherein when the first light therapy device operates in the lead mode and the second light therapy device operates in the follow mode the second light therapy device performs operations as instructed by the first light therapy device, and when the second light therapy device operates in the lead mode and the first light therapy device operates in the follow mode the first light therapy device performs operations as instructed by the second light therapy device.

7. The light therapy system of claim 6, wherein each of the first light therapy device and the second light therapy device is configured to operate in each of the lead mode and the follow mode.

8. The light therapy system of claim 6, wherein the first light therapy device comprises a first switch configured to select at least one of the lead mode and the follow mode, and the second light therapy device comprises a second switch configured to select at least one of the lead mode and the follow mode.

9. The light therapy system of claim 1, wherein a first portion of the first plurality of lights is configured to emit red light and a first portion of the second plurality of lights is configured to emit red light.

10. The light therapy system of claim 1, wherein a second portion of the first plurality of lights is configured to emit near infrared light and a second portion of the second plurality of lights is configured to emit near infrared light.

11. The light therapy system of claim 1, wherein the first control panel comprises a first display configured to indicate a treatment time, and the second control panel comprsises a second display configured to indicate the treatment time.

12. A light therapy device, comprising:

a housing;

a first plurality of lights coupled to the housing and configured to emit red light;

a second plurality of lights coupled to the housing and configured to emit near infrared light; and

a control panel coupled to a surface of the housing, wherein the control panel comprises an input button, a first indication light, and a second indication light, wherein the first indication light and the second indication light are communicatively coupled to the input button, and wherein the first indication light is configured to indicate whether the light therapy device is set to emit light from at least a portion of the first plurality of lights and the second indication light is configured to indicate whether the light therapy device is set to emit light from at least a portion of the second plurality of lights.

13. The light therapy device of claim 12, wherein the light therapy device is configured to communicate directly with a second light therapy device comprising a second housing, a third plurality of lights coupled to the second housing and configured to emit red light, a fourth plurality of lights coupled to the second housing and configured to emit near infrared light, and a second control panel coupled to a surface of the second housing, wherein the second control panel comprises a second input button, a third indication light, and a fourth indication light, wherein the third indication light and the fourth indication light are communicatively coupled to the second input button, and wherein the third indication light is configured to indicate whether the second light therapy device is set to emit light from at least a portion of the third plurality of lights and the fourth indication light is configured to indicate whether the second light therapy device is set to emit light from at least a portion of the fourth plurality of lights.

14. The light therapy device of claim 13, wherein the light therapy device is configured to communicate directly with the second light therapy device via a wired connection.

15. The light therapy device of claim 13, wherein the light therapy device is configured to communicate directly with the second light therapy device via a wireless connection.

16. The light therapy device of claim 12, further comprising a plurality of communication ports configured to receive at least one of a first end of a communication cable and a second end of the

communication cable to enable direct communication with a second light therapy device comprising a second housing, a third plurality of lights coupled to the second housing and configured to emit red light, a fourth plurality of lights coupled to the second housing and configured to emit near infrared light, and a second control panel coupled to a surface of the second housing.

17. The light therapy device of claim 12, wherein the light therapy device is configured to operate in each of a lead mode and a follow mode, wherein the light therapy device is configured to communicate directly with a second light therapy device also configured to operate in each of the lead mode and the follow mode, and

wherein when the light therapy device operates in the lead mode and the second light therapy device operates in the follow mode the second light therapy device performs operations as instructed by the light therapy device, and when the second light therapy device operates in the lead mode and the light therapy device operates in the follow mode the light therapy device performs operations as instructed by the second light therapy device.

18. The light therapy device of claim 17, further comprising a first switch configured to select each of the lead mode and the follow mode.

19. The light therapy device of claim 12, wherein the control panel comprises a display configured to indicate a treatment time.

20. The light therapy device of claim 12, wherein the control panel is coupled to a side surface of the housing.

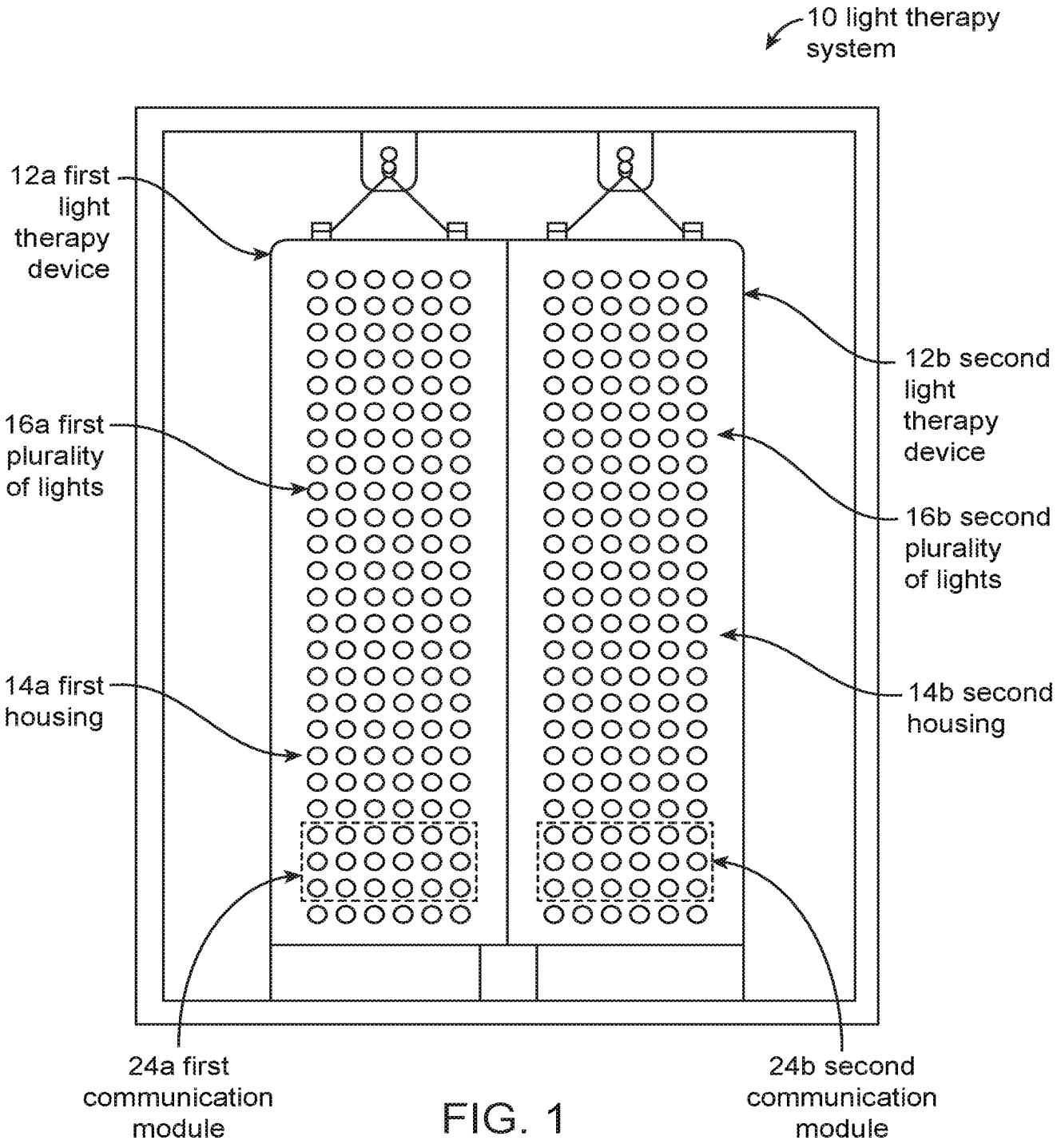

10 light therapy system
12a first light therapy device
16a first plurality of lights
14a first housing
24a first communication module
12b second light therapy device
16b second plurality of lights
14b second housing
24b second communication module

FIG. 1

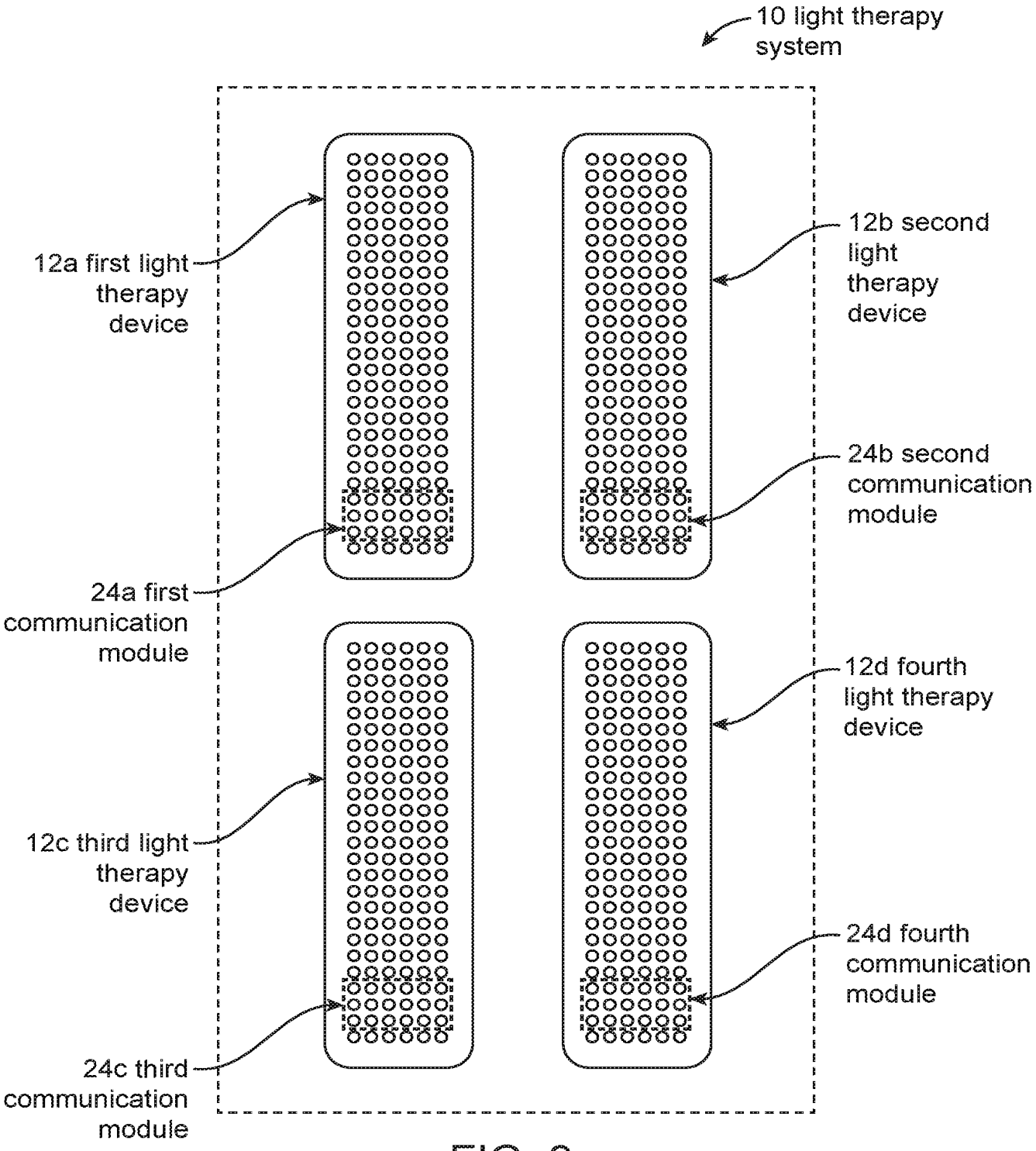

10 light therapy system
12a first light therapy device
12b second light therapy device
24b second communication module
24a first communication module
12d fourth light therapy device
12c third light therapy device
24d fourth communication module
24c third communication module

FIG. 2

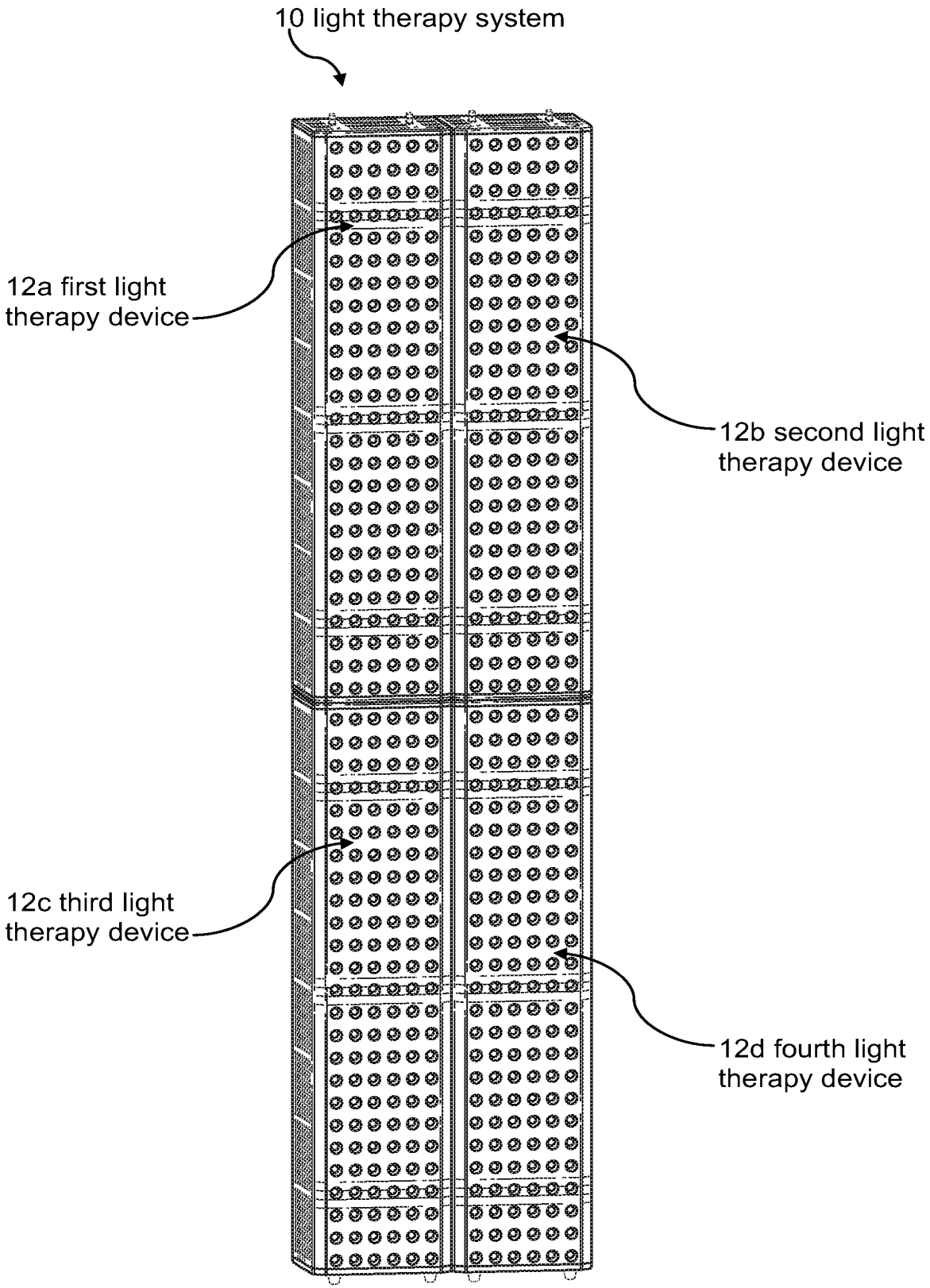

10 light therapy system
12a first light therapy device
12b second light therapy device
12c third light therapy device
12d fourth light therapy device

FIG. 3

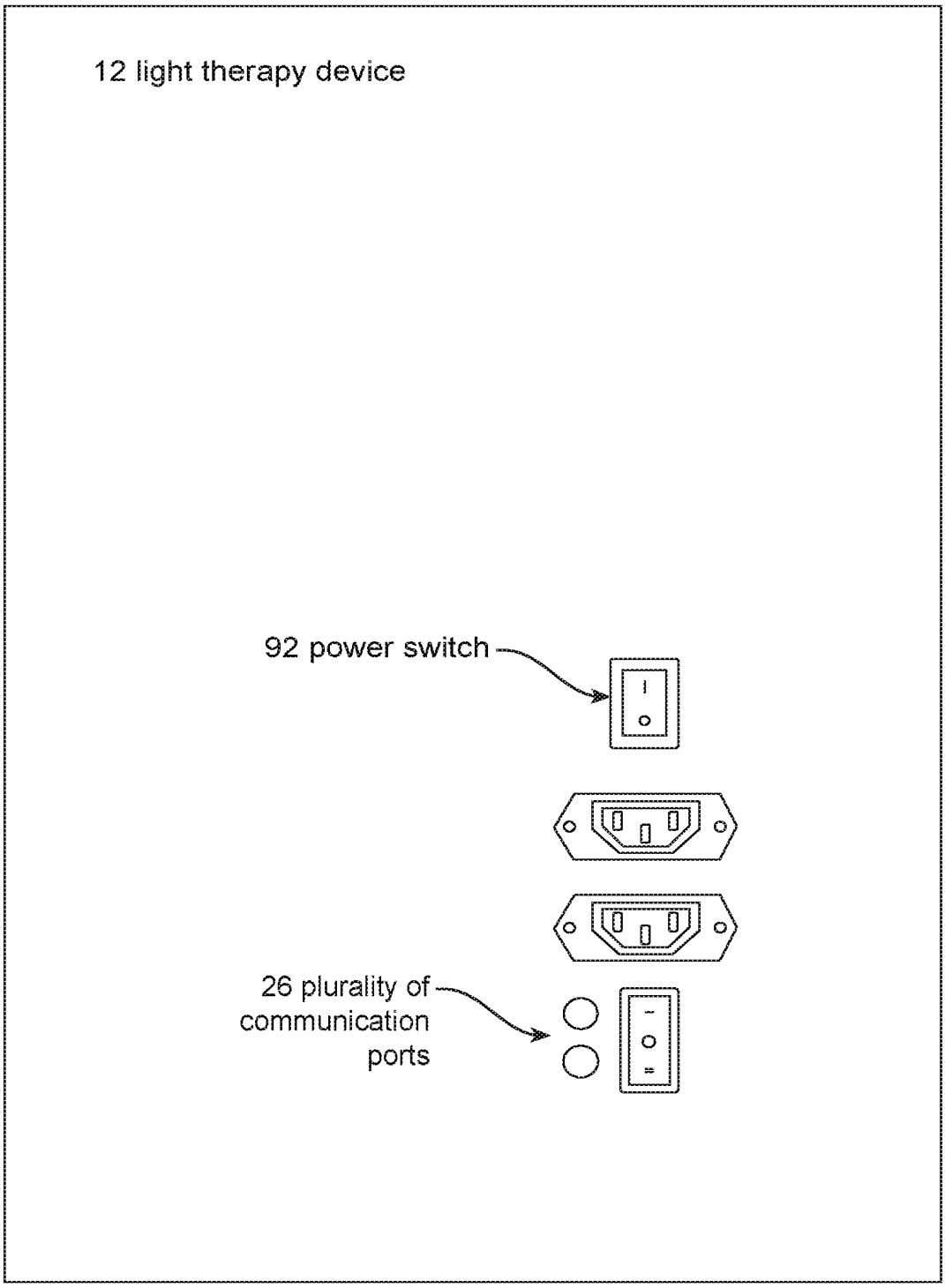

12 light therapy device
92 power switch
26 plurality of communication ports

FIG. 4A

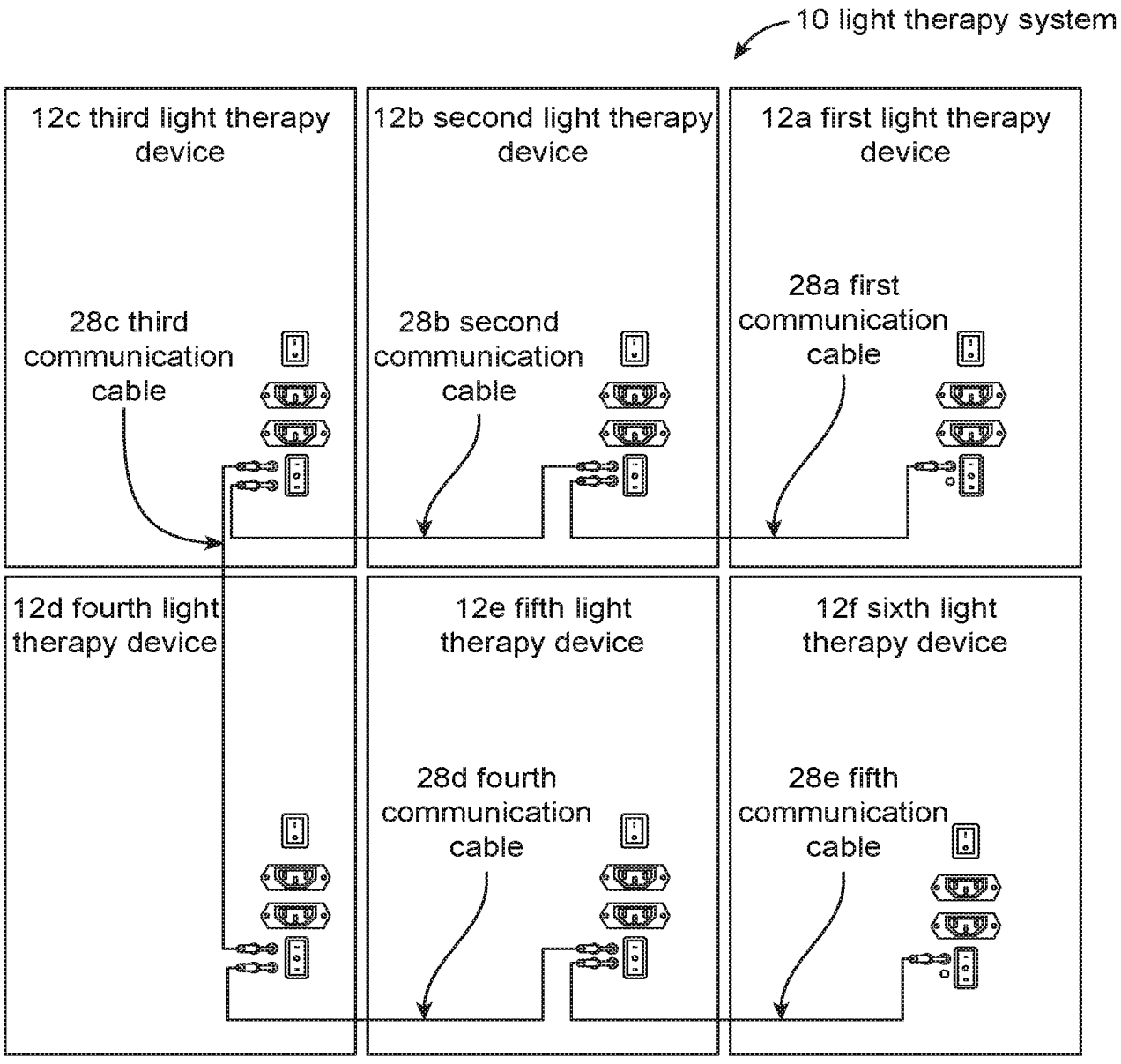

10 light therapy system
12c third light therapy device
12b second light therapy device
12a first light therapy device
28c third communication cable
28b second communication cable
28a first communication cable
12d fourth light therapy device
12e fifth light therapy device
12f sixth light therapy device
28d fourth communication cable
28e fifth communication cable

FIG. 4B

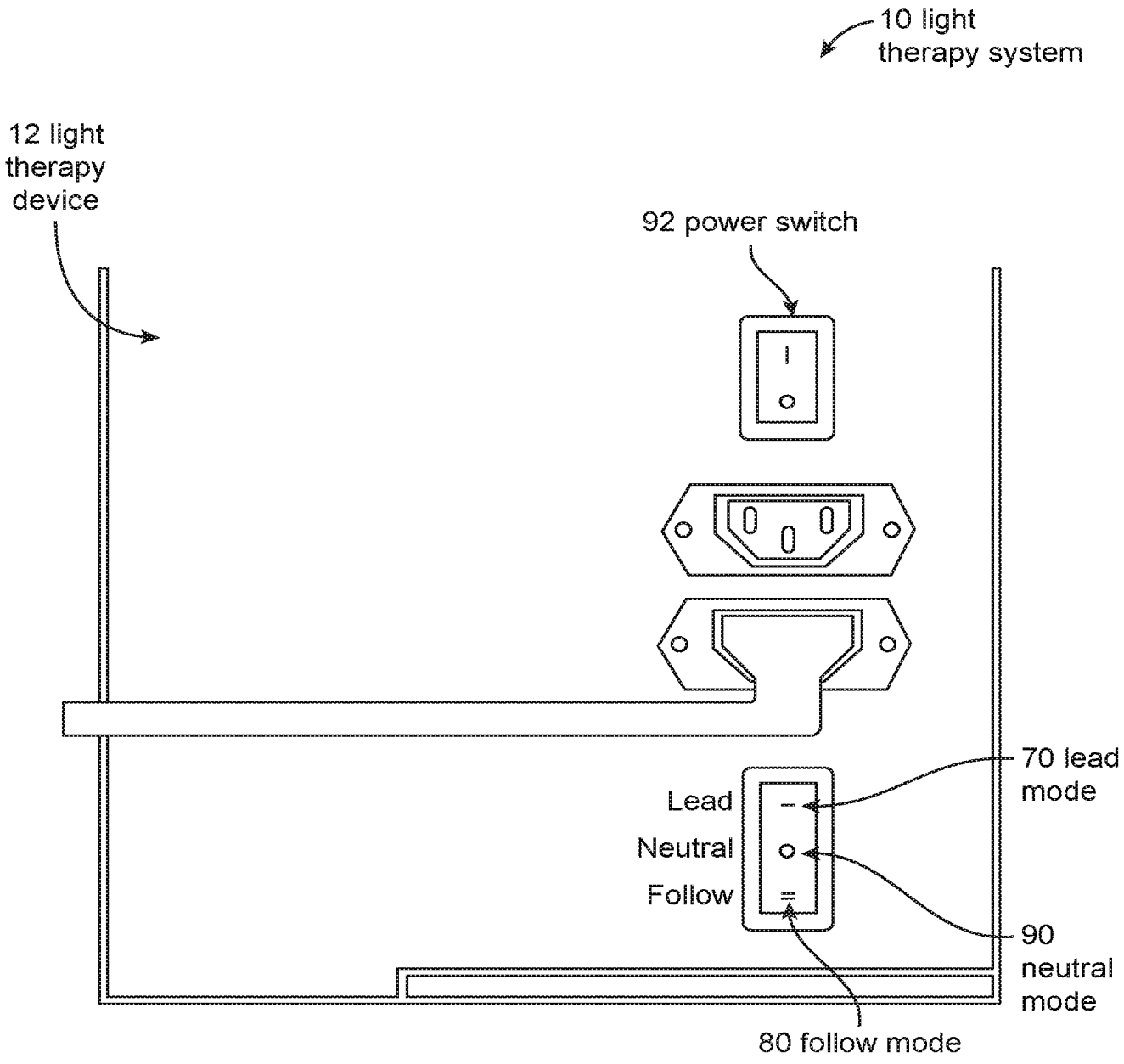

10 light therapy system
12 light therapy device
92 power switch
Lead
Neutral
Follow
70 lead mode
90 neutral mode
80 follow mode

FIG. 5

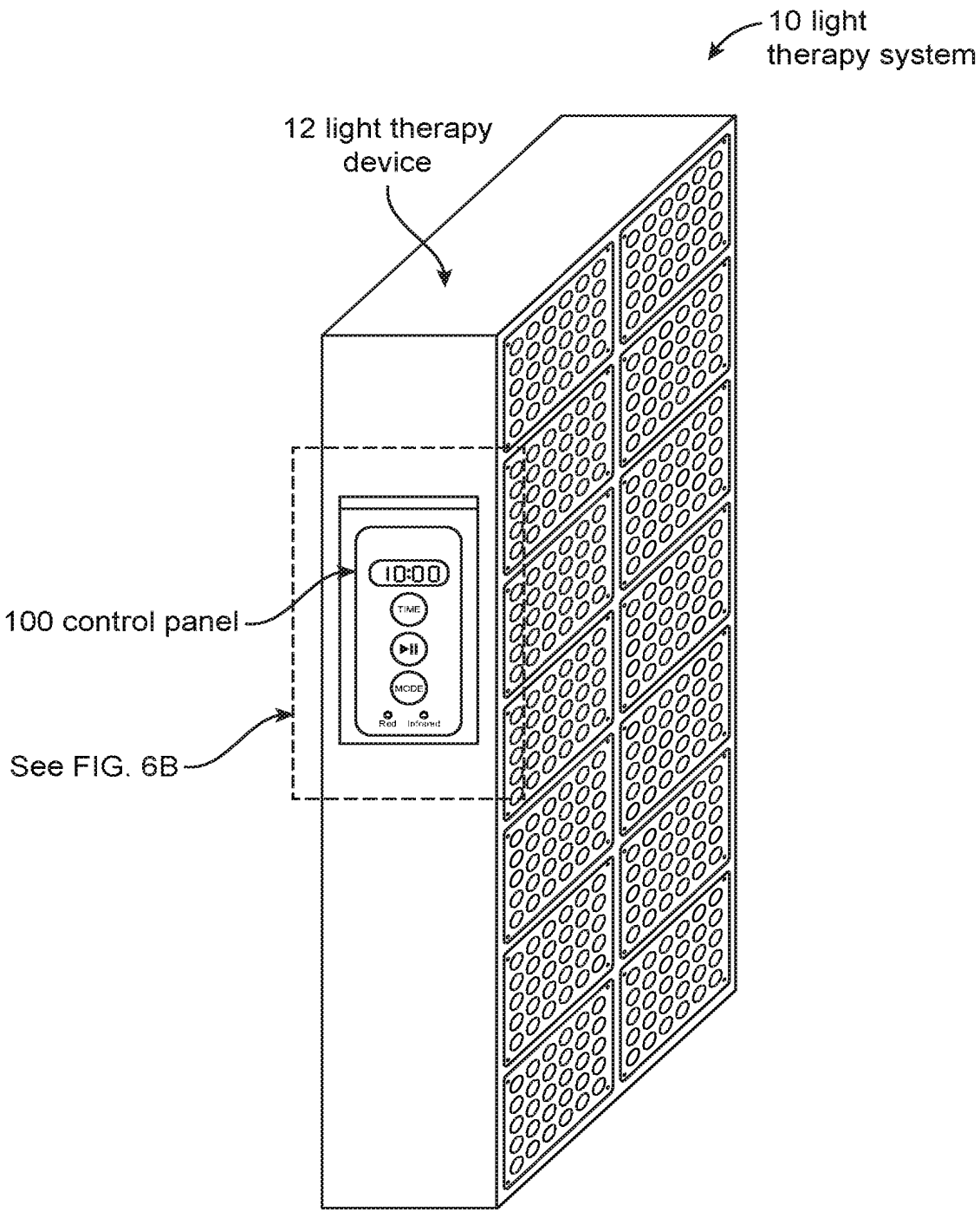

10 light therapy system
12 light therapy device
100 control panel
See FIG. 6B
10:00
TIME
MODE
Red
Infrared

FIG. 6A

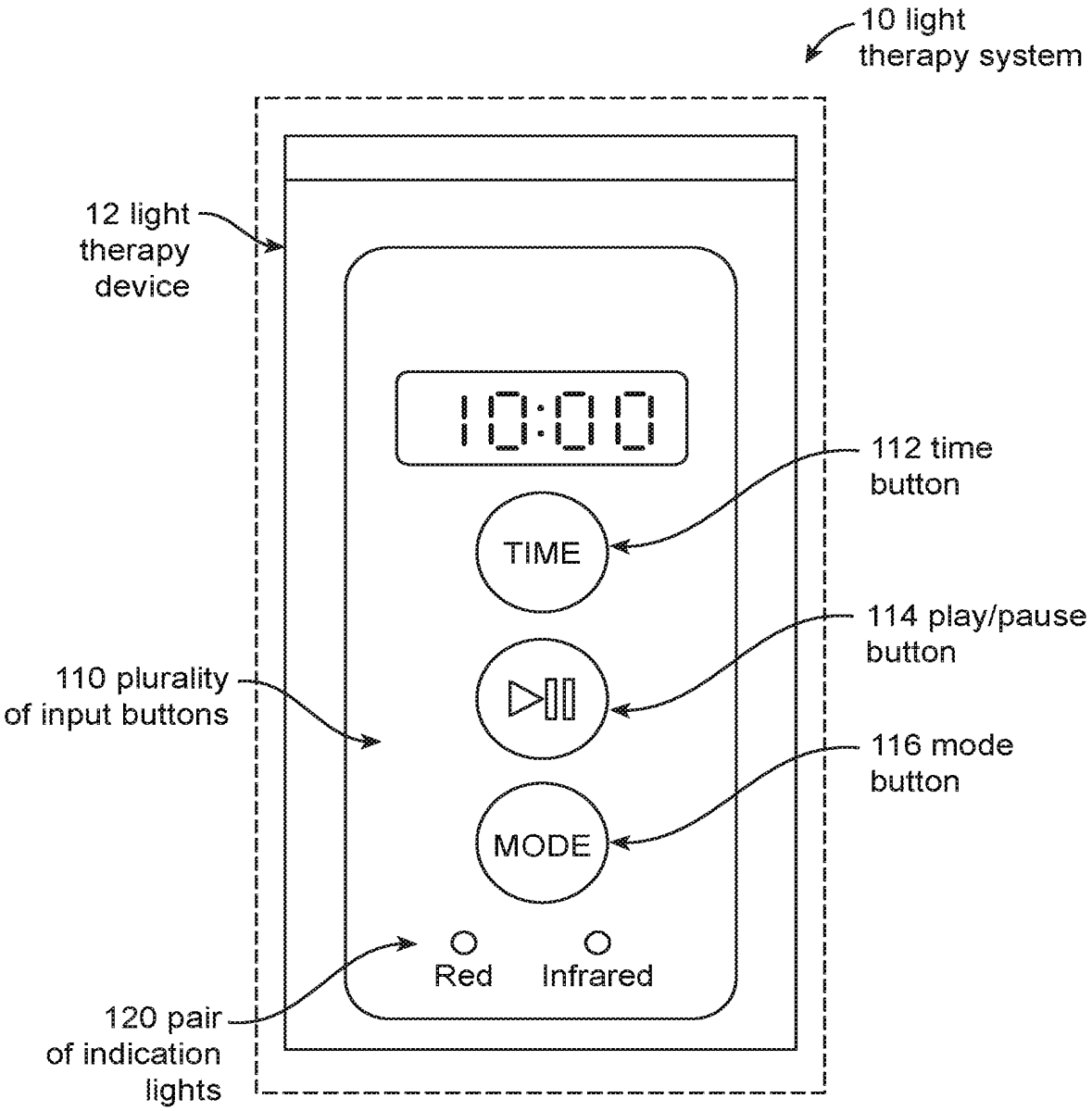

10 light therapy system
12 light therapy device
10:00
112 time button
TIME
114 play/pause button
110 plurality of input buttons
116 mode button
MODE
Red
Infrared
120 pair of indication lights

FIG. 6B

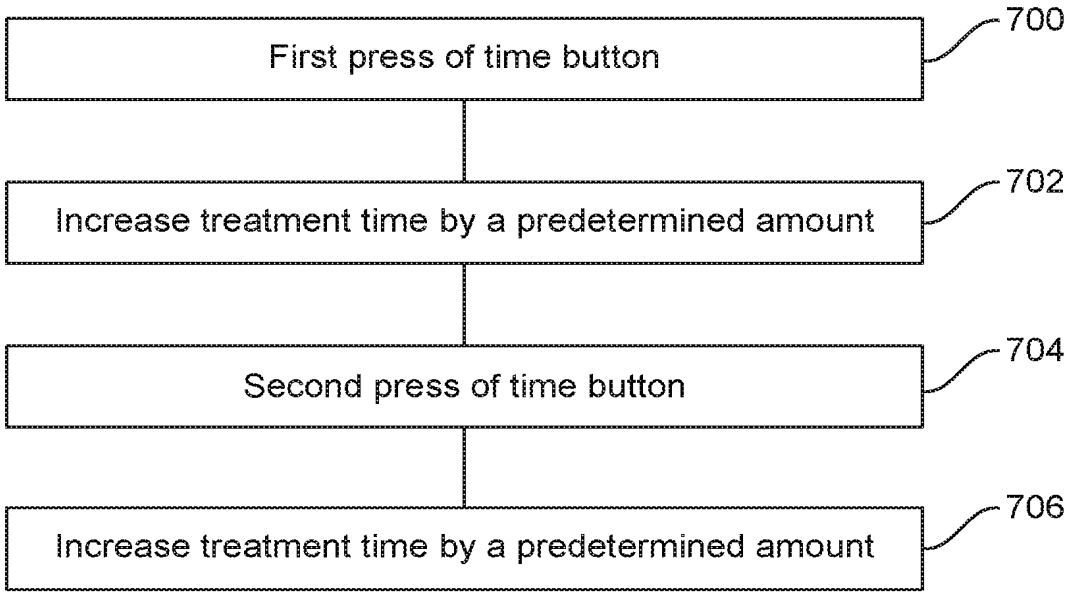

First press of time button
700
Increase treatment time by a predetermined amount
702
Second press of time button
704
Increase treatment time by a predetermined amount
706

FIG. 7

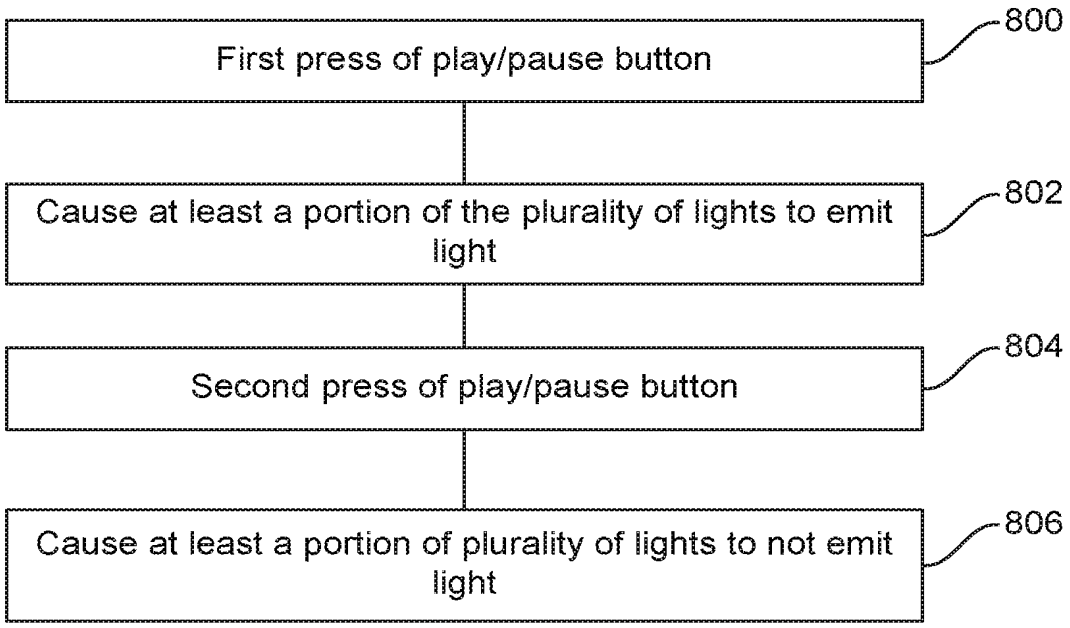

First press of play/pause button
800
Cause at least a portion of the plurality of lights to emit light
802
Second press of play/pause button
804
Cause at least a portion of plurality of lights to not emit light
806

FIG. 8

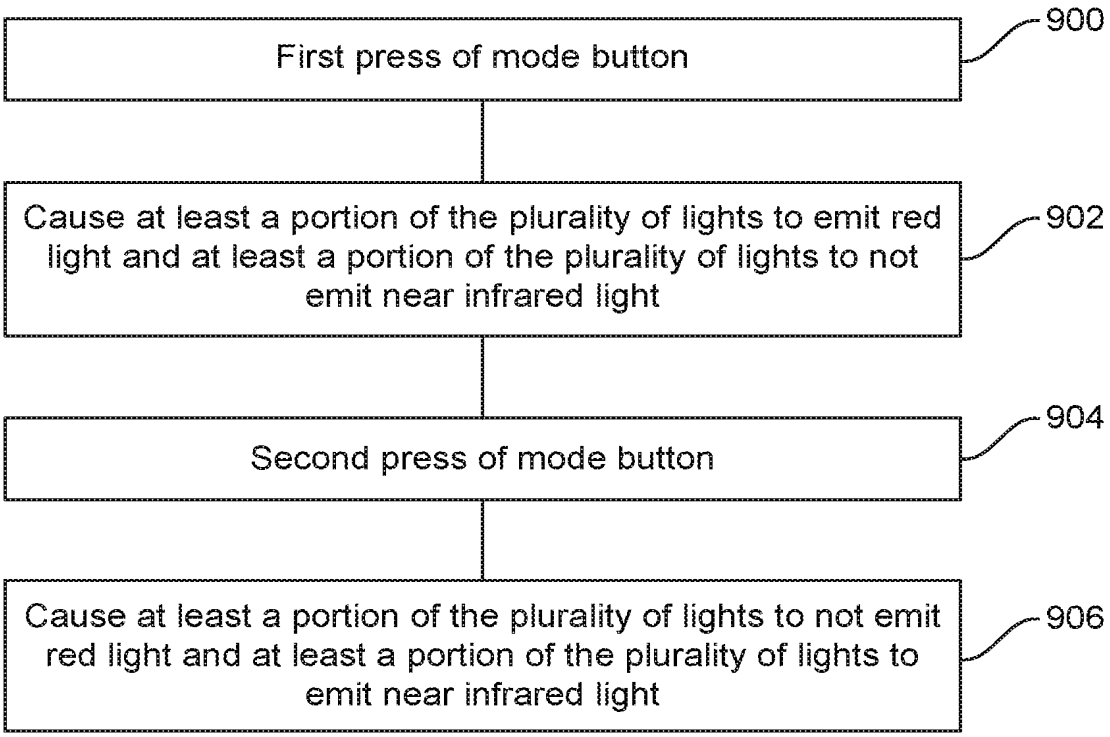

First press of mode button
900
Cause at least a portion of the plurality of lights to emit red light and at least a portion of the plurality of lights to not emit near infrared light
902
Second press of mode button
904
Cause at least a portion of the plurality of lights to not emit red light and at least a portion of the plurality of lights to emit near infrared light
906

FIG. 9

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2019/059845

A. CLASSIFICATION OF SUBJECT MATTER

IPC: A61N 5/06
CPC: A61N 5/062, 2005/0652, 5/0601, 5/0616, 2005/0644

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

CPC: CPC: A61N 5/062, 2005/0652, 5/0601, 5/0616, 2005/0644/A61N 5/06

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

US-PGPUB, USPAT, USOCR, EPO, JPO, DERWENT: light, and, Justin, Scott, NELSON, STRAHAN, therapy, near, INV, same, red, infrared, following, Bluetooth, followed, lead, follow, leading, indicate, control, housing, microcontrols, button, communicate, button, microprocess, process

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	US 2007/0217199 A1 (ADAM ET AL.) 20 September 2007 (20.09.2007),	
X	See entire documents,	12-20
Y	See entire documents.	1-7 and 9-11
	US 2011/0054573 A1 (MITCHELL) 03 March 2011 (03.03.2011),	
Y	See entire documents.	1-7, 10, and 11

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
08 December 2019 (08.12.2019)	17 DEC 2019
Name and mailing address of the ISA/US **COMMISSIONER FOR PATENTS MAIL STOP PCT, ATTN: ISA/US P.O. BOX 1450 ALEXANDRIA, VA 22313-1450, UNITED STATES OF AMERICA** Facsimile No. **(571)273-8300**	Authorized officer **HARRY C. KIM** Telephone No. **571-272-4300**

Form PCT/ISA/210 (second sheet) (July 2019)

Electronic Acknowledgement Receipt

EFS ID:	40567459
Application Number:	16598033
International Application Number:	
Confirmation Number:	3718
Title of Invention:	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS
First Named Inventor/Applicant Name:	Justin Strahan
Customer Number:	124179
Filer:	Wesley E. Schwie/Talia Childs
Filer Authorized By:	Wesley E. Schwie
Attorney Docket Number:	JOOVV.004A.C2
Receipt Date:	15-SEP-2020
Filing Date:	10-OCT-2019
Time Stamp:	18:50:06
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	2020-09-15-ids-transmittal-JOOVV-004A-C2.pdf	81635 e7f4d5a5cdbc93af2ab1194ecb6a5de8bd489c78	no	1

Warnings:

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	2020-09-15-ids-JOOVV-004A-C2.pdf	1035122 8293fdeeb615c722618b45f4772761cc72f0fe13	no	6
Warnings:					
Information:					
3	Non Patent Literature	1-ISR-PCT-US19-059845.pdf	2976945 6d8771f68e09a79a9a43105500 4d775a2a1eb9ad	no	7
Warnings:					
Information:					
4	Non Patent Literature	2-ISR-PCT-US19-57292.pdf	4445999 b0934c2b505ad2e81f05b455e9dad393f57704dc	no	8
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Information:					
5	Non Patent Literature	3-ISR-PCT-US20-38187.pdf	2472909 2826e89f46a8b3c367ee2b5694da1b624e4c01e5	no	8
Warnings:					
Information:					
6	Foreign Reference	WO2018152278.pdf	1366392 38e1a243a273a6fb5120c1603e4ac35fb6513a3d	no	29
Warnings:					
Information:					
7	Foreign Reference	WO2020086494.pdf	3526981 b2fd91c463d3e6f57d87967bbd778efd3754bb02	no	64
Warnings:					
Information:					
8	Foreign Reference	WO2020131235.pdf	1785233 69eb7475ad0fae34f7968b57b80cd2b6f8daa8f4	no	34
Warnings:					
Information:					
		Total Files Size (in bytes):	17491206		

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Inventor: Justin Strahan

Examiner: Niketa I. Patel

Group Art Unit: 3792

Application No.: 16/598,033

Filed: October 10, 2019

Docket No.: JOOVV.004A.C2

Title: PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

INFORMATION DISCLOSURE STATEMENT

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

Dear Examiner:

Please see the Information Disclosure Statement submitted with this letter. The Information Disclosure Statement is being filed prior to the first action on the merits. Thus, no fee is required.

Respectfully submitted,

/Wesley E. Schwie/

Wesley E. Schwie
Reg. No. 64,950
651-428-9828
Date: September 15, 2020

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
16/598,033	10/10/2019	Justin Strahan	JOOVV.004A.C2

CONFIRMATION NO. 3718

124179
Schwie Law, LLC
445 Minnesota St
Suite 1500
St. Paul, MN 55101

PUBLICATION NOTICE

OC000000118010916

Title:PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

Publication No.US-2020-0197718-A1
Publication Date:06/25/2020

NOTICE OF PUBLICATION OF APPLICATION

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

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.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

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

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16598033
Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Niketa I. Patel
Attorney Docket Number	JOOVV.004A.C2

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6955684		2005-10-18	SAVAGE	
	2	8066403		2011-11-29	SANFILIPPO	

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

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20040068305		2004-04-08	BANSAL	
	2	20030009205		2003-01-09	BIEL	
	3	20050085875		2005-04-21	VAN ZUYLEN	
	4	20080046044		2008-02-21	JAHNIGEN	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16598033
	Filing Date	2019-10-10
	First Named Inventor	Justin Strahan
	Art Unit	3792
	Examiner Name	Niketa I. Patel
	Attorney Docket Number	JOOVV.004A.C2

	5	20080091250		2008-04-17	POWELL	
	6	20080114418		2008-05-15	MYEONG	
	7	20090318908		2009-12-24	VAN PIETERSON	
	8	20100045175		2010-02-25	MATHAI	
	9	20100045189		2010-02-25	STORCH	
	10	20100076529		2010-03-25	TUCKER	
	11	20130190842		2013-07-25	HACCO	
	12	20130229802		2013-09-05	FUKUSHIMA	
	13	20130301264		2013-11-14	EMERICUS	
	14	20150267907		2015-09-24	THOMPSON	
	15	20150297914		2015-10-22	HAMID	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16598033
	Filing Date	2019-10-10
	First Named Inventor	Justin Strahan
	Art Unit	3792
	Examiner Name	Niketa I. Patel
	Attorney Docket Number	JOOVV.004A.C2

	16	20160158574		2016-06-09	ECKHOUSE	
	17	20160367833		2016-12-22	SALINAS	
	18	20070217199		2007-09-20	ADAM	

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FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16598033
	Filing Date	2019-10-10
	First Named Inventor	Justin Strahan
	Art Unit	3792
	Examiner Name	Niketa I. Patel
	Attorney Docket Number	JOOVV.004A.C2

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16598033
Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	Niketa I. Patel
Attorney Docket Number	JOOVV.004A.C2

CERTIFICATION STATEMENT

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

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

OR

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

See attached certification statement.

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

☒ A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Wesley Schwie/	Date (YYYY-MM-DD)	2020-02-14
Name/Print	Wesley Schwie	Registration Number	64,950

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

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

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

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

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

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

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

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

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

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

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

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

Electronic Acknowledgement Receipt

EFS ID:	38599418
Application Number:	16598033
International Application Number:	
Confirmation Number:	3718
Title of Invention:	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS
First Named Inventor/Applicant Name:	Justin Strahan
Customer Number:	124179
Filer:	Wesley E. Schwie/Talia Childs
Filer Authorized By:	Wesley E. Schwie
Attorney Docket Number:	JOOVV.004A.C2
Receipt Date:	14-FEB-2020
Filing Date:	10-OCT-2019
Time Stamp:	21:19:50
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	2020-02-14-ids-transmittal-joovv-004a-c2.pdf	73898 bec17b534da4583012683223949927e40ba24413	no	1

Warnings:

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	2020-02-14-ids-joovv-004a-c2.pdf	1035073 8ff498fb4bf75c58c0c0b048605fa548fb88f991	no	6
Warnings:					
Information:					
			Total Files Size (in bytes):	1108971	

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New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Inventor: Justin Strahan

Examiner: Niketa I. Patel

Group Art Unit: 3792

Application No.: 16/598,033

Filed: October 10, 2019

Docket No.: JOOVV.004A.C2

Title: PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

INFORMATION DISCLOSURE STATEMENT

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

Dear Examiner:

Please see the Information Disclosure Statement submitted with this letter. The Information Disclosure Statement is being filed prior to the first action on the merits. Thus, no fee is required.

Respectfully submitted,

/Wesley E. Schwie/

Wesley E. Schwie
Reg. No. 64,950
651-428-9828
Date: February 14, 2020

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
16/598,033	10/10/2019	Justin Strahan	JOOVV.004A.C2

CONFIRMATION NO. 3718

124179
Schwie Law, LLC
445 Minnesota St
Suite 1500
St. Paul, MN 55101

POA ACCEPTANCE LETTER

OC000000113495434

Date Mailed: 12/23/2019

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 12/18/2019.

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**.

/sleutchit/

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

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

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

Application Number	16/598,033
Filing Date	October 10, 2019
First Named Inventor	Justin Strahan
Title	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS
Art Unit	3792
Examiner Name	
Attorney Docket Number	JOOVV.004A.C2

SIGNATURE of Applicant or Patent Practitioner

Signature	/Wesley Schwie/	Date (Optional)	
Name	Wesley Schwie	Registration Number	64,950
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

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

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 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.

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

PTO/AIA/82B (07-13)
Approved for use through 03/31/2021. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

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
16/598,033	October 10, 2019

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 124179

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) 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 (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

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

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

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):

Joovv, Inc.

☐ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

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

Signature	Justin Strahan	Date (Optional)	
Name	Justin Strahan		
Title	Secretary		

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

☐ Total of forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 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 optio

Electronic Acknowledgement Receipt

EFS ID:	38070918
Application Number:	16598033
International Application Number:	
Confirmation Number:	3718
Title of Invention:	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS
First Named Inventor/Applicant Name:	Justin Strahan
Customer Number:	124179
Filer:	Wesley E. Schwie/Talia Childs
Filer Authorized By:	Wesley E. Schwie
Attorney Docket Number:	JOOVV.004A.C2
Receipt Date:	18-DEC-2019
Filing Date:	10-OCT-2019
Time Stamp:	13:54:19
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	2019-12-18-poa-joovv-004a-c2.pdf	185222 f3928721dffb32406d2476ffb9a3718ffaf78f01	no	2

Warnings:

Information:	
Total Files Size (in bytes):	185222

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

New International Application Filed with the USPTO as a Receiving Office

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

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16598033
Filing Date	2019-10-10
First Named Inventor	Justin Strahan
Art Unit	3792
Examiner Name	
Attorney Docket Number	JOOVV.004A.C2

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	8481982		2013-07-09	JOHNSON	
	2	6626932		2003-09-30	WHITEHURST	
	3	9227082		2016-01-05	MCDANIEL	
	4	9311847		2016-04-12	HALL	
	5	9353924		2016-05-31	SCARLATA	
	6	9416551		2016-08-16	HALL	
	7	9852666		2017-12-26	WARD	
	8	9943042		2018-04-17	THOSTESON	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16598033
	Filing Date	2019-10-10
	First Named Inventor	Justin Strahan
	Art Unit	3792
	Examiner Name	
	Attorney Docket Number	JOOVV.004A.C2

	9	4844069		1989-07-04	MORI	
	10	5733032		1998-03-31	BOLTA	

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

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20090288340		2009-11-26	HESS	
	2	20100309659		2010-12-09	JENNY	
	3	20120104977		2012-05-03	MCKENZIE	
	4	20040008523		2004-01-15	BUTLER	
	5	20150307332		2015-10-29	HUANG	
	6	20100309659		2010-11-04	MORTON	
	7	20110054573		2011-03-03	MITCHELL	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16598033
	Filing Date	2019-10-10
	First Named Inventor	Justin Strahan
	Art Unit	3792
	Examiner Name	
	Attorney Docket Number	JOOVV.004A.C2

	8	20180056087		2018-03-01	RIBEIRO	
	9	20060020308		2006-01-26	MULDNER	
	10	20060007059		2006-01-12	BELL	
	11	20070068055		2007-03-29	SEGAN	
	12	20070276455		2007-11-29	FISET	
	13	20080119831		2008-05-22	MYEONG	
	14	20080141572		2008-06-19	TOMICH	
	15	20080269849		2008-10-30	LEWIS	
	16	20120019490		2012-01-26	HUANG	
	17	20120243227		2012-09-27	SHIMIZU	
	18	20140081357		2014-03-20	LEGERTON	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16598033
	Filing Date	2019-10-10
	First Named Inventor	Justin Strahan
	Art Unit	3792
	Examiner Name	
	Attorney Docket Number	JOOVV.004A.C2

	19	20140226329		2014-08-14	ORAW	
	20	20150202455		2015-07-23	WILLIAMS	
	21	20160076708		2016-03-17	SHIRILLA	
	22	20170118838		2017-04-27	WILLIAMS	
	23	20180043178		2018-02-15	IGUCHI	
	24	20180111001		2018-04-26	SEGEL	
	25	20060229689		2006-10-12	FERGUSON	
	26	20070129777		2007-06-07	BOLTA	

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

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	101244434B1	KR		2013-03-18	KIM		

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16598033
	Filing Date	2019-10-10
	First Named Inventor	Justin Strahan
	Art Unit	3792
	Examiner Name	
	Attorney Docket Number	JOOVV.004A.C2

NON-PATENT LITERATURE DOCUMENTS			Remove
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	KIND LED GROW LIGHTS, "Kind LED Grow Lights K5 Series Instructions" - Downloaded on October 1, 2018 from https://www.kindledgrowlights.com/pages/k5-setup	
	2	MOUSER ELECTRONICS, "Enclosures and Racks" - Downloaded on October 4, 2018 from http://www.mouser.com/catalog/catalogusd/648/dload/pdf/ENCLOSECTION.pdf; prior art publication at least as of 2015	
	3	KIND LED GROW LIGHTS, "Kind LED Grow Lights - Voted Best LED Grow Lights of 2014!" - Downloaded on October 2, 2018 from https://www.youtube.com/watch?v=NQDWBXIMxrk; prior part publication at least as of May 26, 2017	
	4	WRETHAOFFGRID, "Ohuhu Pair of 1/8" Grow Light Rope Hanger Review" - Downloaded on October 5, 2018 from https://www.youtube.com/watch?v=gYCsNQ9LELM; prior art publication at least as of September 29, 2016	
	5	OXO, "OXO Over The Door Hooks & Racks" - Downloaded on October 5, 2018 from https://www.youtube.com/watch?v=1WziS-a7LMI; prior part publication at least as of February 11, 2014	
	6	WOODWORKERS STORE, "Swivel Mirror Screw" - Downloaded on October 4, 2018 from http://go.rockler.com/tech/Swivel-Mirror-Screws-Instructions.pdf; prior art publication at least as of 1990	
	7	KIND LED GROW LIGHTS, "K5 Series XL1000 Indoor LED Grow Light" - Downloaded on October 4, 2018 form https://www.kindledgrowlights.com/products/k5-xl1000	
	8	SWEDISH LED GROW LIGHTS, "300W Full Spectrum Led Grow Lights 85-265V 5730SMD USA/DE/AU/CA Stock Hanging Kit For Plants Veg Hydroponics Grow Led" - Downloaded on June 5, 2017 from http://swedishledgrowlights.com/product/300w-full-spectrum-led-grow-lights-85-265v-5730smd-usa-de-au-ca-stock-hanging-kit-for-plants-veg-hydroponics-grow-led/	
	9	WARP LIGHT, "About the Quantum Light WARP 10®" - Downloaded on September 19, 2019 from https://www.warp-light.com/Quantum_light_warp_10.html; prior art publication at least as of November 30, 2012	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16598033
	Filing Date	2019-10-10
	First Named Inventor	Justin Strahan
	Art Unit	3792
	Examiner Name	
	Attorney Docket Number	JOOVV.004A.C2

	10	PCT International Search Report and Written Opinion in International Application No. PCT/US2018/018288, dated October 29, 2018, 11 pages
	11	PCT International Preliminary Report on Patentability in International Application No. PCT/US2018/018288, dated August 20, 2019, 9 pages

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

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

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

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16598033
	Filing Date	2019-10-10
	First Named Inventor	Justin Strahan
	Art Unit	3792
	Examiner Name	
	Attorney Docket Number	JOOVV.004A.C2

CERTIFICATION STATEMENT

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

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

OR

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

See attached certification statement.

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

☒ A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Wesley Schwie/	Date (YYYY-MM-DD)	2019-12-04
Name/Print	Wesley Schwie	Registration Number	64,950

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

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

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

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

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

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

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

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

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

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

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

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

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference SCNE18_PCT_001	**FOR FURTHER ACTION**	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. **PCT/US2018/018288**	International filing date *(day/month/year)* **01 March 2018 (01.03.2018)**	(Earliest) Priority Date *(day/month/year)* 17 February 2017 (17.02.2017)
Applicant **NELSON, Scott et al.**		

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of **3** sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**
   a. With regard to the **language**, the international search was carried out on the basis of :
      ☒ the international application in the language in which it was filed
      ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))
   b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).
   c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.
2. ☐ **Certain claims were found unsearchable** (See Box No. II)
3. ☐ **Unity of invention is lacking** (See Box No. III)
4. With regard to the **title,**
   ☒ the text is approved as submitted by the applicant.
   ☐ the text has been established by this Authority to read as follows:
5. With regard to the **abstract,**
   ☒ the text is approved as submitted by the applicant.
   ☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.
6. With regard to the drawings,
   a. the figure of the **drawings** to be published with the abstract is Figure No. **1**
      ☐ as suggested by the applicant.
      ☒ as selected by this Authority, because the applicant failed to suggest a figure.
      ☐ as selected by this Authority, because this figure better characterizes the invention.
   b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2018/018288

A. CLASSIFICATION OF SUBJECT MATTER

A61N 5/06(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A61N 5/06; A61N 5/067; G02B 6/00; G09F 13/00; G09F 13/04

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean utility models and applications for utility models
Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKOMPASS(KIPO internal) & Keywords: light therapy assembly, housing, light emitting diode, attachment member, pulley, mount, fan, control panel

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2006-0229689 A1 (FERGUSON, R. L. et al.) 12 October 2006 See paragraphs [0037]-[0069]; figures 1-8.	18
Y		1-17,19,20
Y	US 4844069 A (MORI, K.) 04 July 1989 See column 2, line 4 - column 4, line 40; figures 1-3.	1-16
Y	US 2007-0129777 A1 (BOLTA, C.) 07 June 2007 See paragraphs [0029]-[0048]; figures 1-8.	14,15,17
Y	US 5733032 A (BOLTA, C. J. et al.) 31 March 1998 See column 7, line 16 - column 8, line 4; figures 1-5.	19,20
Y	US 2004-0008523 A1 (BUTLER, G.) 15 January 2004 See paragraphs [0021], [0025]; figure 1.	1-16
Y	KR 10-1244434 B1 (KIM, J. W.) 18 March 2013 See paragraphs [0026], [0033]; figures 1-3b.	1-16

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents,such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
29 October 2018 (29.10.2018)	**29 October 2018 (29.10.2018)**

Name and mailing address of the ISA/KR
International Application Division
Korean Intellectual Property Office
189 Cheongsa-ro, Seo-gu, Daejeon, 35208, Republic of Korea
Facsimile No. +82-42-481-8578

Authorized officer
HAN, Inho
Telephone No. +82-42-481-3362

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2006-0229689 A1	12/10/2006	None	
US 4844069 A	04/07/1989	EP 0208309 A2	14/01/1987
		EP 0208309 A3	18/01/1989
		JP 62-015357 U	29/01/1987
		JP 62-015358 U	29/01/1987
		JP 62-018152 U	03/02/1987
		KR 10-1989-0000526 B1	20/03/1989
US 2007-0129777 A1	07/06/2007	WO 2007-062106 A2	31/05/2007
		WO 2007-062106 A3	08/11/2007
US 5733032 A	31/03/1998	None	
US 2004-0008523 A1	15/01/2004	US 2004-0193234 A1	30/09/2004
		US 2006-0111761 A1	25/05/2006
		US 2007-0073365 A1	29/03/2007
		US 7001413 B2	21/02/2006
		US 7201766 B2	10/04/2007
		US 7815668 B2	19/10/2010
KR 10-1244434 B1	18/03/2013	KR 10-2011-0138003 A	26/12/2011

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
MORABITO, Andrew

PO Box 187 East Rochester, NY 14445 USA

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing *(day/month/year)* **29 October 2018 (29.10.2018)**

Applicant's or agent's file reference
SCNE18_PCT_001

FOR FURTHER ACTION
See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2018/018288	**01 March 2018 (01.03.2018)**	17 February 2017 (17.02.2017)

International Patent Classification (IPC) or both national classification and IPC
A61N 5/06(2006.01)i

Applicant
NELSON, Scott et al.

1. This opinion contains indications relating to the following items:

- [x] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [x] Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [x] Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.
For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/KR	Date of completion of this opinion	Authorized officer
International Application Division Korean Intellectual Property Office 189 Cheongsa-ro, Seo-gu, Daejeon, 35208, Republic of Korea Facsimile No. +82-42-481-8578	29 October 2018 (29.10.2018)	HAN, Inho Telephone No. +82-42-481-3362

Form PCT/ISA/237 (cover sheet) (January 2015)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2018/018288

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of :

   ☒ the international application in the language in which it was filed

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:

   a. ☐ forming part of the international application as filed:
      ☐ in the form of an Annex C/ST.25 text file.
      ☐ on paper or in the form of an image file.

   b. ☐ furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.

   c. ☐ furnished subsequent to the international filing date for the purposes of international search only:
      ☐ in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).
      ☐ on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2018/018288

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-20	YES
	Claims	NONE	NO
Inventive step (IS)	Claims	NONE	YES
	Claims	1-20	NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims	NONE	NO

2. Citations and explanations :

2.1 Reference is made to the following documents:

D1: US 2006-0229689 A1 (FERGUSON, R. L. et al.) 12 October 2006
D2: US 4844069 A (MORI, K.) 04 July 1989
D3: US 2007-0129777 A1 (BOLTA, C.) 07 June 2007
D4: US 5733032 A (BOLTA, C. J. et al.) 31 March 1998

※NOTE: Claims 15 and 16 are unclear as shown in Box No.Ⅷ, but this international search has been carried out on the presumption that claim 15 refers to claim 14 instead of claim 1, and that claim 16 refers to claim 8 or 11 instead of claim 1.

※NOTE: The phrases “a positioning system comprising;” of claim 1, “wherein the each of the plurality LEDs” of claims 6, 7, 9 and 10, “the plurality LEDs” of claims 8, 11 and 12, “a hollow housing comprising;” and “a hollow extruded core having a having a first surface” of claim 17 and “the LT assembly” of claim 19 are considered to be writing errors for ‘a positioning system comprising:’, ‘wherein each of the plurality of LEDs’, ‘the plurality of LEDs’, ‘a hollow housing comprising:’, ‘a hollow extruded core having a first surface’ and ‘the light therapy assembly’, respectively.

2.2 Novelty and Inventive Step

D1 discloses a LED therapy device (10) comprising: a LED panel (14) comprising a front surface (22), a back surface (24) and one or more side surfaces (26), wherein the LED panel contains circuit boards (94) comprised of a plurality of infra-red LEDs (100) and non infra-red LEDs (102) mounted on a front side (96) of the circuit boards; flanges (80) located on the back surface of the LED panel; a pedestal (12) including a panel attachment section (20)

Continued on Supplemental Box

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

The phrase "the first end plate" of claim 15 has not been previously defined. Therefore, claim 15 is unclear, contrary to the requirement of PCT Article 6.

The phrases "the first portion" and "the second portion" of claim 16 have not been previously defined. Therefore, claim 16 is unclear, contrary to the requirement of PCT Article 6.

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of : Box No. V

having slots (74) detachably mated with the flanges, a stem section (18) detachably coupled to the panel attachment section, and a base section (16) coupled to the stem section; a controller (104) mounted on one of the circuit boards, wherein the controller allows power to be sent to the LED panel; and a power output (88) configured to supply power to a power supply input mechanism (92) of the LED panel (see paragraphs [0037], [0046]-[0049], [0057], [0058], [0060]-[0064]; figures 1-6 in D1).

The subject-matter of claim 1 relates to a light therapy assembly comprising a hollow housing, a plurality of light emitting diodes, a plurality of attachment means and a positioning system.

Claim 1 differs from D1 in the following features:
1) the hollow housing having a plurality of slots;
2) the plurality of attachment means secured to a first end of the housing; and
3) the positioning system comprising a winching system and a mounting system.

However, firstly, concerning the difference 1), the slot for ventilating heat is commonly used in the art. Secondly, the difference 2) is merely a design option practiced within general knowledge in the relevant field of the art. Finally, the difference 3) can be easily derived from D2 disclosing a light rays radiation device comprising a holder member (3) for holding a light rays emitting end (1a), an operation arm (4) extending from the holder member, a vertically-suspended guide bar (5) configured to guide the operation arm so as to move up and down, a bolt (7) for fixing the operation arm to the guide bar, and a suspension rail (6) configured to move the guide bar (see column 2, lines 4-34; figure 1 in D2). As D1 and D2 both relate to a light therapy device, a person skilled in the art can easily arrive at the subject-matter of claim 1 by applying the feature of D2 to the LED therapy device of D1. Therefore, the subject-matter of claim 1 is novel under PCT Article 33(2) but does not involve an inventive step under PCT Article 33(3) through the combination of D1 and D2.

Concerning the additional feature of claim 2, the winching system being electronically activated can be easily selected by a person skilled in the art without technical difficulties.

Concerning the additional feature of claim 3, a fan for providing air flow is commonly used in the art.

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Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of : Previous Page

Concerning the additional features of claims 4 and 5, D1 discloses that the LED therapy device comprises a controller (104) mounted on one of the circuit boards, wherein the controller allows power to be sent to the LED panel (see paragraphs [0060], [0064]; figures 4-6 in D1). Additionally, a control panel controling the fan and winching system can be easily selected by a person skilled in the art without technical difficulties.

Concerning the additional features of claims 6-12, a wavelength of the plurality of LEDs can be easily selected from D1 disclosing that the LED panel contains circuit boards (94) comprised of the plurality of infra-red LEDs (100) and non infra-red LEDs (102), wherein the non infra-red LEDs produce light at a wavelength of approximately 660 nm, and wherein the infra-red LEDs produce light at a wavelength of approximately 880 nm (see paragraphs [0058], [0059]; figure 4 in D1).

Concerning the additional feature of claim 13, D1 discloses that the LED panel is comprised of the front surface (22) and the back surface (24) (see paragraph [0037]; figure 3 in D1).

Concerning the additional feature of claim 16, the plurality of LEDs activated independently of one another can be easily selected by a person skilled in the art without technical difficulties.

Therefore, claims 2-13 and 16 are novel under PCT Article 33(2) but do not involve an inventive step under PCT Article 33(3) through the combination of D1 and D2.

Concerning the additional features of claims 14 and 15, the structure of the housing can be easily derived from D3 disclosing a light therapy device (10) comprising a housing (12) having a pair of first side walls (20), a pair of second side walls (22), a pair of end walls (24), and a bottom wall (26), wherein the end walls have heat releasing vent holes (18) allowing heat to convect through the end walls, and wherein the end walls are removable (see paragraphs [0030], [0032], [0034]; figures 1, 4, 7 in D3). Additionally, at least two openings designed to receive a plurality of attachment members are merely design options practiced within general knowledge in the relevant field of the art. Thus, considering that D1-D3 all relate to a light therapy device, a person skilled in the art can easily arrive at claims 14 and 15 by applying the feature of D3 to combination of D1 and D2. Therefore, claims 14 and 15 are novel under PCT Article 33(2) but do not involve an inventive step under PCT Article 33(3) through the combination of D1-D3.

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Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of : Previous Page

The subject-matter of claim 17 relates to a light therapy assembly comprising a hollow housing, a plurality of light emitting diodes and a control panel.

Claim 17 differs from D1 in the following features:
1) the structure of the housing; and
2) the light therapy assembly comprising a lens.

However, the difference 1) is merely a design option practiced within general knowledge in the relevant field of the art considering D3 disclosing a light therapy device (10) comprising a housing (12) having a pair of first side walls (20), a pair of second side walls (22), a pair of end walls (24), and a bottom wall (26), wherein the end walls have heat releasing vent holes (18) allowing heat to convect through the ends walls, and wherein the end walls are removable (see paragraphs [0030], [0032], [0034]; figures 1, 4, 7 in D3). In addition, concerning the difference 2), D3 discloses that the light therapy device comprises a lens (14) secured to the housing (12), wherein light is reflected from behind bulbs (28) and out through the lens (see paragraphs [0031], [0037]; figures 1, 7 in D3). Thus, considering that D1 and D3 both relate to a light therapy device, a person skilled in the art can easily arrive at the subject-matter of claim 17 by applying the feature of D3 to the LED therapy device of D1. Therefore, the subject-matter of claim 17 is novel under PCT Article 33(2) but does not involve an inventive step under PCT Article 33(3) through the combination of D1 and D3.

The subject-matter of claim 18 relates to a light therapy assembly comprising a hollow housing, a plurality of light emitting diodes and a plurality of attachment means.

Claim 18 differs from D1 in the following features:
1) the hollow housing having a plurality of slots; and
2) the plurality of attachment means secured to a first end of the housing.

However, concerning the difference 1), the slot for ventilating heat is commonly used in the art. In addition, the difference 2) is merely a design option practiced within general knowledge in the relevant field of the art. Accordingly, the subject-matter of claim 18 would have been obvious to a person skilled in the art over D1. Therefore, the subject-matter of claim 18 is novel under PCT Article 33(2) but does not involve an inventive step under PCT Article 33(3) over D1.

Continued on The Next Page

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of : Previous Page

Concerning the additional features of claims 19 and 20, a mounting system can be easily derived from D4 disclosing a mobile light panel stand comprising a light panel (1) configured to emit light rays (2) to a patient (3), a stand (4) having parallel legs (5, 6) which are held in a rigid H-assembly by a front brace (11), and rear parallel legs (7, 8) which are held in a rigid H-assembly by a rear brace (12), wherein the light panel is easily removed by a light panel support assembly (15) comprising a brace (20) mounted on the light panel, and caster assemblies (19) configured to provide a mobile stand (see column 7, lines 16-45; figures 1-3 in D4). Thus, considering that D1 and D4 both relate to a light therapy device, a person skilled in the art can easily arrive at claims 19 and 20 by applying the feature of D4 to the LED therapy device of D1. Therefore, claims 19 and 20 are novel under PCT Article 33(2) but do not involve an inventive step under PCT Article 33(3) through the combination of D1 and D4.

2.3 Industrial Applicability

Claims 1-20 are industrially applicable under PCT Article 33(4).

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

Applicant's or agent's file reference JOOVV.002A.PCT	**FOR FURTHER ACTION**	See item 4 below
International application No. PCT/US2018/018288	International filing date *(day/month/year)* 01 March 2018 (01.03.2018)	Priority date *(day/month/year)* 17 February 2017 (17.02.2017)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant NELSON, Scott		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 9 sheets, including this cover sheet.

   In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☒	Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44*bis*.3(c) and 93*bis*.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44*bis* .2).

	Date of issuance of this report 20 August 2019 (20.08.2019)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70	Authorized officer Athina Nickitas-Etienne e-mail: pct.team4@wipo.int

Form PCT/IB/373 (January 2004)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
MORABITO, Andrew

PO Box 187 East Rochester, NY 14445 USA

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing *(day/month/year)* **29 October 2018 (29.10.2018)**

Applicant's or agent's file reference
SCNE18_PCT_001

FOR FURTHER ACTION
See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2018/018288	**01 March 2018 (01.03.2018)**	17 February 2017 (17.02.2017)

International Patent Classification (IPC) or both national classification and IPC
A61N 5/06(2006.01)i

Applicant
NELSON, Scott et al.

1. This opinion contains indications relating to the following items:

- [x] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [x] Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [x] Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.
For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/KR	Date of completion of this opinion	Authorized officer
International Application Division Korean Intellectual Property Office 189 Cheongsa-ro, Seo-gu, Daejeon, 35208, Republic of Korea Facsimile No. +82-42-481-8578	29 October 2018 (29.10.2018)	HAN, Inho Telephone No. +82-42-481-3362

Form PCT/ISA/237 (cover sheet) (January 2015)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2018/018288

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of :

   ☒ the international application in the language in which it was filed

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:

   a. ☐ forming part of the international application as filed:
      ☐ in the form of an Annex C/ST.25 text file.
      ☐ on paper or in the form of an image file.

   b. ☐ furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.

   c. ☐ furnished subsequent to the international filing date for the purposes of international search only:
      ☐ in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).
      ☐ on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2018/018288

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-20	YES
	Claims	NONE	NO
Inventive step (IS)	Claims	NONE	YES
	Claims	1-20	NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims	NONE	NO

2. Citations and explanations :

2.1 Reference is made to the following documents:

D1: US 2006-0229689 A1 (FERGUSON, R. L. et al.) 12 October 2006
D2: US 4844069 A (MORI, K.) 04 July 1989
D3: US 2007-0129777 A1 (BOLTA, C.) 07 June 2007
D4: US 5733032 A (BOLTA, C. J. et al.) 31 March 1998

※NOTE: Claims 15 and 16 are unclear as shown in Box No.Ⅷ, but this international search has been carried out on the presumption that claim 15 refers to claim 14 instead of claim 1, and that claim 16 refers to claim 8 or 11 instead of claim 1.

※NOTE: The phrases “a positioning system comprising;” of claim 1, “wherein the each of the plurality LEDs” of claims 6, 7, 9 and 10, “the plurality LEDs” of claims 8, 11 and 12, “a hollow housing comprising;” and “a hollow extruded core having a having a first surface” of claim 17 and “the LT assembly” of claim 19 are considered to be writing errors for ‘a positioning system comprising:’, ‘wherein each of the plurality of LEDs’, ‘the plurality of LEDs’, ‘a hollow housing comprising:’, ‘a hollow extruded core having a first surface’ and ‘the light therapy assembly’, respectively.

2.2 Novelty and Inventive Step

D1 discloses a LED therapy device (10) comprising: a LED panel (14) comprising a front surface (22), a back surface (24) and one or more side surfaces (26), wherein the LED panel contains circuit boards (94) comprised of a plurality of infra-red LEDs (100) and non infra-red LEDs (102) mounted on a front side (96) of the circuit boards; flanges (80) located on the back surface of the LED panel; a pedestal (12) including a panel attachment section (20)

Continued on Supplemental Box

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

The phrase "the first end plate" of claim 15 has not been previously defined. Therefore, claim 15 is unclear, contrary to the requirement of PCT Article 6.

The phrases "the first portion" and "the second portion" of claim 16 have not been previously defined. Therefore, claim 16 is unclear, contrary to the requirement of PCT Article 6.

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of : Box No. V

having slots (74) detachably mated with the flanges, a stem section (18) detachably coupled to the panel attachment section, and a base section (16) coupled to the stem section; a controller (104) mounted on one of the circuit boards, wherein the controller allows power to be sent to the LED panel; and a power output (88) configured to supply power to a power supply input mechanism (92) of the LED panel (see paragraphs [0037], [0046]-[0049], [0057], [0058], [0060]-[0064]; figures 1-6 in D1).

The subject-matter of claim 1 relates to a light therapy assembly comprising a hollow housing, a plurality of light emitting diodes, a plurality of attachment means and a positioning system.

Claim 1 differs from D1 in the following features:
1) the hollow housing having a plurality of slots;
2) the plurality of attachment means secured to a first end of the housing; and
3) the positioning system comprising a winching system and a mounting system.

However, firstly, concerning the difference 1), the slot for ventilating heat is commonly used in the art. Secondly, the difference 2) is merely a design option practiced within general knowledge in the relevant field of the art. Finally, the difference 3) can be easily derived from D2 disclosing a light rays radiation device comprising a holder member (3) for holding a light rays emitting end (1a), an operation arm (4) extending from the holder member, a vertically-suspended guide bar (5) configured to guide the operation arm so as to move up and down, a bolt (7) for fixing the operation arm to the guide bar, and a suspension rail (6) configured to move the guide bar (see column 2, lines 4-34; figure 1 in D2). As D1 and D2 both relate to a light therapy device, a person skilled in the art can easily arrive at the subject-matter of claim 1 by applying the feature of D2 to the LED therapy device of D1. Therefore, the subject-matter of claim 1 is novel under PCT Article 33(2) but does not involve an inventive step under PCT Article 33(3) through the combination of D1 and D2.

Concerning the additional feature of claim 2, the winching system being electronically activated can be easily selected by a person skilled in the art without technical difficulties.

Concerning the additional feature of claim 3, a fan for providing air flow is commonly used in the art.

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Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
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Concerning the additional features of claims 4 and 5, D1 discloses that the LED therapy device comprises a controller (104) mounted on one of the circuit boards, wherein the controller allows power to be sent to the LED panel (see paragraphs [0060], [0064]; figures 4-6 in D1). Additionally, a control panel controling the fan and winching system can be easily selected by a person skilled in the art without technical difficulties.

Concerning the additional features of claims 6-12, a wavelength of the plurality of LEDs can be easily selected from D1 disclosing that the LED panel contains circuit boards (94) comprised of the plurality of infra-red LEDs (100) and non infra-red LEDs (102), wherein the non infra-red LEDs produce light at a wavelength of approximately 660 nm, and wherein the infra-red LEDs produce light at a wavelength of approximately 880 nm (see paragraphs [0058], [0059]; figure 4 in D1).

Concerning the additional feature of claim 13, D1 discloses that the LED panel is comprised of the front surface (22) and the back surface (24) (see paragraph [0037]; figure 3 in D1).

Concerning the additional feature of claim 16, the plurality of LEDs activated independently of one another can be easily selected by a person skilled in the art without technical difficulties.

Therefore, claims 2-13 and 16 are novel under PCT Article 33(2) but do not involve an inventive step under PCT Article 33(3) through the combination of D1 and D2.

Concerning the additional features of claims 14 and 15, the structure of the housing can be easily derived from D3 disclosing a light therapy device (10) comprising a housing (12) having a pair of first side walls (20), a pair of second side walls (22), a pair of end walls (24), and a bottom wall (26), wherein the end walls have heat releasing vent holes (18) allowing heat to convect through the end walls, and wherein the end walls are removable (see paragraphs [0030], [0032], [0034]; figures 1, 4, 7 in D3). Additionally, at least two openings designed to receive a plurality of attachment members are merely design options practiced within general knowledge in the relevant field of the art. Thus, considering that D1-D3 all relate to a light therapy device, a person skilled in the art can easily arrive at claims 14 and 15 by applying the feature of D3 to combination of D1 and D2. Therefore, claims 14 and 15 are novel under PCT Article 33(2) but do not involve an inventive step under PCT Article 33(3) through the combination of D1-D3.

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Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
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The subject-matter of claim 17 relates to a light therapy assembly comprising a hollow housing, a plurality of light emitting diodes and a control panel.

Claim 17 differs from D1 in the following features:
1) the structure of the housing; and
2) the light therapy assembly comprising a lens.

However, the difference 1) is merely a design option practiced within general knowledge in the relevant field of the art considering D3 disclosing a light therapy device (10) comprising a housing (12) having a pair of first side walls (20), a pair of second side walls (22), a pair of end walls (24), and a bottom wall (26), wherein the end walls have heat releasing vent holes (18) allowing heat to convect through the ends walls, and wherein the end walls are removable (see paragraphs [0030], [0032], [0034]; figures 1, 4, 7 in D3). In addition, concerning the difference 2), D3 discloses that the light therapy device comprises a lens (14) secured to the housing (12), wherein light is reflected from behind bulbs (28) and out through the lens (see paragraphs [0031], [0037]; figures 1, 7 in D3). Thus, considering that D1 and D3 both relate to a light therapy device, a person skilled in the art can easily arrive at the subject-matter of claim 17 by applying the feature of D3 to the LED therapy device of D1. Therefore, the subject-matter of claim 17 is novel under PCT Article 33(2) but does not involve an inventive step under PCT Article 33(3) through the combination of D1 and D3.

The subject-matter of claim 18 relates to a light therapy assembly comprising a hollow housing, a plurality of light emitting diodes and a plurality of attachment means.

Claim 18 differs from D1 in the following features:
1) the hollow housing having a plurality of slots; and
2) the plurality of attachment means secured to a first end of the housing.

However, concerning the difference 1), the slot for ventilating heat is commonly used in the art. In addition, the difference 2) is merely a design option practiced within general knowledge in the relevant field of the art. Accordingly, the subject-matter of claim 18 would have been obvious to a person skilled in the art over D1. Therefore, the subject-matter of claim 18 is novel under PCT Article 33(2) but does not involve an inventive step under PCT Article 33(3) over D1.

Continued on The Next Page

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of : Previous Page

Concerning the additional features of claims 19 and 20, a mounting system can be easily derived from D4 disclosing a mobile light panel stand comprising a light panel (1) configured to emit light rays (2) to a patient (3), a stand (4) having parallel legs (5, 6) which are held in a rigid H-assembly by a front brace (11), and rear parallel legs (7, 8) which are held in a rigid H-assembly by a rear brace (12), wherein the light panel is easily removed by a light panel support assembly (15) comprising a brace (20) mounted on the light panel, and caster assemblies (19) configured to provide a mobile stand (see column 7, lines 16-45; figures 1-3 in D4). Thus, considering that D1 and D4 both relate to a light therapy device, a person skilled in the art can easily arrive at claims 19 and 20 by applying the feature of D4 to the LED therapy device of D1. Therefore, claims 19 and 20 are novel under PCT Article 33(2) but do not involve an inventive step under PCT Article 33(3) through the combination of D1 and D4.

2.3 Industrial Applicability

Claims 1-20 are industrially applicable under PCT Article 33(4).

Electronic Acknowledgement Receipt

EFS ID:	37932340
Application Number:	16598033
International Application Number:	
Confirmation Number:	3718
Title of Invention:	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS
First Named Inventor/Applicant Name:	Justin Strahan
Customer Number:	124179
Filer:	Wesley E. Schwie/Talia Childs
Filer Authorized By:	Wesley E. Schwie
Attorney Docket Number:	JOOVV.004A.C2
Receipt Date:	04-DEC-2019
Filing Date:	10-OCT-2019
Time Stamp:	18:25:02
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	2019-12-04-ids-transmittal-joovv-004a-c2.pdf	74124 07dd727de2a972ea0da47429cdd31acde6d21629	no	1

Warnings:

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	2019-12-04-IDS-JOOVV.pdf	614423 b1371f2e82393b40f742b33fc1de1ffb9cd6f43f	no	8
Warnings:					
Information:					
3	Non Patent Literature	1-Kind_LED.pdf	6685813 71f114bc123ae2aa308f1e1026b74aa10c17cbf8	no	10
Warnings:					
Information:					
4	Non Patent Literature	2-Mouser_Electronics.pdf	5630604 5cf9f873dc69c6058be98b3ad28e6e21030c3a4d	no	33
Warnings:					
Information:					
5	Non Patent Literature	3-Kind_LED.pdf	621569 746fa15112903c0818ab18b16fafd7705b46e9ee	no	1
Warnings:					
Information:					
6	Non Patent Literature	4-WrethaOffGrid.pdf	778952 3d1943fbfac1c747c4d2213beb7ddf295b695560	no	1
Warnings:					
Information:					
7	Non Patent Literature	5-OXO.pdf	80660 5bae738e07f2da7454e1edceb1d8a2e3aefa434c	no	1
Warnings:					
Information:					
8	Non Patent Literature	6-Woodworkers.pdf	53077 2ade20348af6c378b72b6d86629a7dc7f5557987	no	1
Warnings:					
Information:					

9	Non Patent Literature	7-Kind_LED.pdf	1354137 3bb705720e0d724ba8c8c6a44c7dbe7f62d43553	no	6
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Information:					
10	Non Patent Literature	8-Swedish_LED.pdf	5289678 4a7388e8631f836ff6dbfe1d934daae82415445f	no	22
Warnings:					
Information:					
11	Non Patent Literature	9-Warp.pdf	308043 a4588efdf4a371b3ff40944e250ae51aa5f67633	no	2
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Information:					
12	Non Patent Literature	10-ISR-PCT-US18-18288.pdf	924141 f09c2ddd46a14a8328e3f052cad0f0d095b63d4d	no	11
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Information:					
13	Non Patent Literature	11-IPRP-PCT-US18-18288.pdf	378339 8dbb4a7f7c20b3408c25630b6784355933ac521a	no	9
Warnings:					
Information:					
14	Foreign Reference	KR101244434B1.pdf	757258 164219c586be81f0b46806b8969a279c745955fe	no	12
Warnings:					
Information:					
15	Foreign Reference	KR101244434B1-English.pdf	92251 9fdb34d2de89b7f76dc9208b6dc5fb0fe8c03187	no	10
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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Inventor: Justin Strahan

Group Art Unit: 3792

Application No.: 16/598,033

Filed: October 10, 2019

Docket No.: JOOVV.004A.C2

Title: PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

INFORMATION DISCLOSURE STATEMENT

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

Dear Examiner:

Please see the Information Disclosure Statement submitted with this letter. The Information Disclosure Statement is being filed prior to the first action on the merits. Thus, no fee is required.

Respectfully submitted,

/Wesley E. Schwie/

Wesley E. Schwie
Reg. No. 64,950
651-428-9828
Date: December 4, 2019

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DESCRIPTION KR101244434

Skin lesions, skin neoplasms and skin cancer, skin vessels, pain relief, hirsutism relief, scalp hair regeneration, skin regeneration, skin whitening, skin rejuvenation, anti- aging, local fat cell reduction, fat tissue reduction, stem cell combination therapy, facial and In the treatment of whole body simple or complex light therapy, pneumatic massage therapy, pneumatic photodynamic therapy, radio frequency, ultrasound device complex therapy, plastic surgery, dermatology, spa treatment, LED, OAL, laser, laser diode, light beam, light beam Mechanics and photodynamic therapy devices (Laser, laser diode, LED, flexible OLED, with photodynamic, pneumodynamic, sonodynamic, RF alone or synergistic combination therapy for face and body, skin rejuvenation, skin whitening, photobleaching, control of scar, acne, vascular lesions, precancerous skin lesions, local skin lesions, cellulite, fat reduction, stem cell therapy, hair removal, hair restoration, anti- aging, pain, wound healing in field of spa therapy, dermatology and plastic surgery}

[0001]

Skin lesions, skin neoplasms and skin cancer, skin vessels, pain relief, hirsutism relief, scalp hair regeneration, skin regeneration, skin whitening, skin rejuvenation, anti- aging, local fat cell reduction, fat tissue reduction, stem cell combination therapy, facial and The present invention relates to providing a photodynamic therapy device and photodynamic therapy method used for simple therapy or phototherapy, pneumatic photodynamic therapy, high frequency, ultrasound device complex therapy, plastic surgery, dermatology, and spa treatment.

[0002]

In view of the background that can be treated with photodynamic therapy that treats skin and obesity at the same time, obesity, which acts as a cause of diabetes, heart disease, cancer, etc., generally results in an increase in fat cell volume and an increase in fat cell.

[0003]
Such obesity can be treated or ameliorated by reducing the transdermal fat layer, usually by diet, exercise, plastic surgery, liposuction, ultrasound and laser treatment.

[0004]
When applying the treatment method such as plastic surgery, liposuction of the above treatment methods, a considerable period of time is required for recovery, and the risk of anesthesia, infection risk, bleeding, and other complications are accompanied.

[0005]
In order to improve the problems of obesity or plastic surgery caused by surgery as described above

[0006]
International Publication No. WO2005 / 037372 discloses a treatment method for removing local fat cells using a photosensitizer and a laser photodynamic therapy device.

[0007]
The conventional topical fat cell removal treatment method comprises administering a therapeutically effective amount of a photosensitizer to selectively localize adipose tissue or fat cells, irradiating light using a photodynamic therapy device to the skin adipose tissue absorbed by the photosensitizer Treatment is carried out through such a process.

[0008]
Since the conventional photodynamic therapy device requires a photosensitizer to be administered to a patient before light irradiation, the remaining photosensitive agent remaining in the patient's body after the treatment process must be removed. There are disadvantages to avoid.

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[0009]
In addition, there is a disadvantage in that the efficiency of the photodynamic therapy device is not obtained to obtain a satisfactory therapeutic effect.

The present invention has been made to solve the above problems, by pulverizing the fat of the photosensitizer contained in the body fat by the skin adsorption suction method to induce the concentration of the photosensitizer toward the fat side of the skin LED (light emitting Diodes) skin lesions, skin neoplasms and skin cancer, skin vessels, pain relief, hirsutism relief, scalp hair regeneration, skin regeneration, skin whitening, skin rejuvenation, anti- aging, local fat cell reduction, fat Tissue reduction, stem cell combination therapy, simple treatment for facial and whole body), complex light therapy, aerodynamic photodynamic therapy (Pneumatic PDT), radiofrequency, ultrasound device combination therapy, plastic surgery, dermatology, spa treatment A method of providing photodynamic therapy.

Another object of the present invention is to improve the function of skin lesions, skin neoplasms and skin cancer, skin vessels, pain relief, hirsutism relief, scalp hair regeneration, skin regeneration, skin whitening, skin rejuvenation, anti- aging, local fat cell reduction, fat Tissue reduction, stem cell combination therapy, simple and complex light therapy for facial and whole body, aerodynamic massage, aerodynamic photodynamic therapy (Pneumatic PDT), radiofrequency, ultrasound device combination therapy, plastic surgery, dermatology, spa treatment To provide a photodynamic therapy device that can maximize.

Another object of the present invention is to provide a photodynamic therapy device that can enhance the therapeutic effect without resorting to separate administration of a photosensitizer.

In order to achieve the above object, the photodynamic therapy method of the present invention is to induce a concentration of the photosensitizer toward the fat side of the skin by pulverizing fat of the photosensitizer included in the adipose tissue or fat cell of the mammal by skin adsorption suction method. Step, using a photodynamic therapy device at a wavelength absorbed by the photosensitizer or a prodrug product thereof induced toward the fat of the skin using a photodynamic therapy device to irradiate a light source to the fatty region from the skin and subcutaneous tissue Or removing the

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adipocytes.

The light source may include at least one light source selected from a laser diode, a light emitting diode, an infrared light source, an incandescent light source, a cold cathode fluorescent light source, an organic polymer light source, and an inorganic polymer light source.

In addition, since photodynamic procedures require a photosensitizer, the photosensitizer may be a food allah (ALA), a topical ALA derivative, a spray type ALA (Laserphyrin NPe6), Ophthalmic Fluorescent Reagents (Visudyne), (Delta-Aminolevulinic Acid, Protoporphyrin, Bacteriochlorine, Phthalocyanine, Porphyrin, Texapyrine, Merocyanine, Soralene, Pirofeophoride, Chlorine, Furfurin, Photogem, A photo- acid, ladchlorine, photodiazine, photoron, photopyrine, other photosensitive polymers (conjugated photosensitizer and dimer photosensitizer), alcohol, steroids, etc. It is characterized by.

In the case of topical skin treatment, irradiating only the light without the use of photosensitizer is called Cool PDT. When 7.5% of allah derivative is used, Mild PDT 20% of allah is used. Original PDT therapy may be subdivided into treatments, and the desired therapeutic effect may also change depending on whether one wavelength is irradiated or simultaneously irradiated with ultrasound, high frequency, or air pressure.

In addition, the photodynamic therapy device of the present invention comprises a lamp unit consisting of a plurality of lamp panels arranged in a plurality of lamps arranged in a grid and a lamp panel support configured to adjust the angle and position of each lamp panel, and the arm And a suction unit installed in the driving unit of the lamp unit connected to the lamp unit through the driving unit of the lamp unit.

In addition, at least one panel of the plurality of lamp panels is characterized in that the infrared lamp and the LED lamp is arranged to be arranged in a matrix.

The plurality of lamp panels may be fixed to the lamp panel support via a shape memory metal.

The present invention uses a suction unit to pulverize the fat of the photosensitizer contained in the body fat by skin adsorption suction method to induce the concentration of the photosensitizer toward the fat side of the skin and then carry out photodynamic therapy to perform the local adipose tissue or It can improve the therapeutic effect on the removal of fat cells.

Moreover, by providing the lamp panel which can adjust an angle and a position, the effect which improves the operation and treatment function of a photodynamic therapy device can be acquired. Moreover, the effect of providing the photodynamic therapy device which does not depend on separate administration of a photosensitizer can be acquired.

[0024] 1 is a three- dimensional view showing an example of the photodynamic therapy device of the present invention, Figure 2 is a plan view showing the back structure of the unfolded state of the lamp unit of the present invention, Figure 3a is a side view of the lamp unit of the present invention, Figure 3B is a side view showing a state in which the lamp unit of the present invention is curved in an arc shape, FIG. 4A is a plan view of the LED substrate incorporated in the lamp panel of the present invention, and FIG. 4B is a three- dimensional view of the LED substrate embedded in the lamp panel of the present invention. 5 is a view showing an operation unit of the photodynamic therapy device of the present invention, Figure 6 is a three- dimensional view showing another structural example of the photodynamic therapy device of the present invention, Figure 7 is an operation process of the photodynamic therapy device of the present invention 8 is a view for explaining a process of removing fat cells.

[0025] Hereinafter, the technical configuration and operation of the photodynamic therapy device and the photodynamic therapy method of the present invention will be described in detail with reference to FIGS. 1 to 8.

[0026] The photodynamic therapy apparatus 100 of the present invention includes a lamp unit 30 including a lamp panel 15 and a lamp panel support 25 and a lamp unit driving device 40 as shown in FIG. 1. An arm 50 having a plurality of joint beams 51, 52, and 53 is formed between the lamp driving device 40 and the lamp unit 30.

[0027] In particular, the lamp unit driving device 40 is provided with a suction unit 60 having a plurality of transparent suction holes 61 and 62. In the present invention, a

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structure in which only two transparent adsorption holes of the suction unit is illustrated is illustrated, but two or more transparent adsorption holes may be detachably combined and used.

[0028] Each transparent suction port is controlled by an operation of an exhaust device (not shown).

[0029] In addition, as shown in FIGS. 2 to 5, the lamp unit 30 connects the plurality of lamp panels 15 and their respective lamp panels to each other to freely change the position of the lamp panel to a flat or arc shape. It consists of a lamp panel support 25 to enable placement.

[0030] Each of the lamp panels 15 includes a substrate 18 in which a plurality of LEDs are arranged in a lattice form as shown in FIGS. 4A and 4B, and each of the protective cases 15a includes a transparent glass 16. Covered with.

[0031] Each of the lamp panels may be configured by combining the infrared lamp 28 or the LED lamps 29 alone or in one example, and may be applied to other lamps as necessary in addition to the LED lamp. The light source of the lamp may be an electroluminescent light source, a cold cathode fluorescent light source, an organic polymer light source, an inorganic light source, or the like.

[0032] On the other hand, the panel support 25 is hinged to the protective case (15a) by using a plurality of grid pieces 26 and the coupling pins 27 is configured to be fastened, so as to adjust the position and angle of each lamp panel. It is composed. The panel support 25 may be configured in such a manner that the respective lamp panels are connected by using a metal piece made of a known shape memory alloy, not shown, instead of the lattice piece 26 and the coupling pin 27.

[0033] Further, the lamp panels may be connected and fixed by using a metal piece made of the lattice piece 26, the coupling pin 27 and the shape memory alloy together. The lamp panels 15 are configured to be detachably fastened to the arm 50 by the connecting connector 33 and are electrically connected to the lamp unit driving device 40.

[0034] The photodynamic therapy apparatus 100 of the present invention configured as described above may, for example, arrange a light source in a lamp panel and configure an input / output capacity and a size of the lamp panel as shown in Table 1 below.

[0035] NO lamp REDBLUEIR GREENYEllOW Mixed input voltage 110- 240V Frequency 50 / 60Hz Power 1.0KW Number of output lamps 2400 1500 1500 800 1000 1040 RED 700 IR500 _ Total output 80W ± 8W46W ± 4W46W ± 8W8W ± 2W8W ± 2W19.5W ± 2W15.5W ± 2W Density (Maximum) 110mW / ㎠60mW / ㎠60mW / ㎠10mW / ㎠ 10mW / ㎠25mW20mW Wavelength (nm) 635 ± 6nm420 ± 5nm830 ± 5nm530 ± 5nm585 ± 5nm635 ± 6nm830 ± 5nm Wavelength Width (nm) 20 ± 3nm20 ± 3nm30 ± 5nm20 ± 5nm20 ± 5nm20 ± 3nm30 ± 5nm Standard dose (J / ㎠) 132J / ㎠72J / ㎠ 72J / ㎠12J / ㎠12J / ㎠30J / ㎠24J / ㎠ Application time 20 20 minutes 20 minutes 20 minutes 20 minutes DOS area 1- 264J / ㎠ 1- 44J / ㎠ 1- 144J / ㎠ 1- 24J / ㎠ 1- 24J / ㎠ 1- 60J / ㎠ 1- 48J / ㎠ lamp panel Overall (L x W) 320- 410 mm Effective (L x W) 190- 410 mm 1 area 190- 82 nm

[0036] Driving of the photodynamic therapy device 100 of the present invention configured as described above is made by the switch control of the operation unit 70 is configured in the lamp unit driving device as shown in FIG.

[0037] For example, 1, 2, 3, 4, and 5 in A denote five lamp panels 15, and the lamp panel at the corresponding position is driven by the switch push at the corresponding position. The symbol R denotes a red LED, and when this switch is pushed, the red lamp light of the lamp panel is irradiated, IR is the infrared lamp light, and R + IR is the red lamp light and the infrared lamp light. Investigate together.

[0038] Reference numeral C denotes a suction unit, which selectively pushes the selected transparent suction port drive switch to drive the transparent suction port.

[0039] Subsequently, using the photodynamic therapy device 100 of the present invention configured as described above, skin lesions, skin neoplasms and skin cancer, skin vessels, pain relief, hirsutism relief, scalp hair regeneration, skin regeneration, skin whitening, skin rejuvenation, Anti- aging, local fat cell reduction, adipose tissue reduction, stem cell combination therapy, simple and complex light therapy for facial and whole body, aerodynamic massage, aerodynamic photodynamic therapy (Pneumatic

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PDT), radiofrequency, ultrasound therapy Explain the process of plastic surgery, dermatology and spa treatment.

[0040] Referring to the lipolysis mechanism using the photodynamic therapy device of the present invention, ALA prodrug porphobilinogen (PBG: porphobilinogen) acting as a natural photosensitizing agent inside and outside mammalian cells 88 as shown in FIGS. 7 and 8.), And mitochondria are distributed in the cells, but porphobilinogen and mitochondria are irradiated with a predetermined frequency of light to break down fat cells (cancer cells) that actively react with the active oxygen and rapidly proliferate. To destroy.

[0041] In general, it is known that the activating reaction occurs at a wavelength of 633 nm to 633 nm in the cell membrane region of 830 nm and in the intracellular reaction mitochondria. In view of the above, the wavelength of light is preferably set to 830 ± 5nm from 530 ± 5nm as illustrated in Table 1, but is not limited to this wavelength and can be set within the range of 500nm- 1000nm as needed. have.

[0042] In order to maximize the activation of porphobilinogen and mitochondria in the process of adsorbing light by the adipocytes in which the porphobilinogen and mitochondria are distributed to cause damage or destruction of the target fat cells, the skin irradiated with a lamp (As shown in FIG. 7, when the skin located inside the transparent adsorption port is swollen by driving the transparent adsorption port 62, the mitochondria of the porobilinogen, which is an alla (ALA) prodrug in fat cells, in the fat cell The higher the distribution density, the more active the destruction of fat cells (cancer cells).

[0043] Therefore, the transparent suction hole 62 should be made of a material that can transmit light emitted from the light source of the lamp panel.

[0044] As described above, the present invention can effectively remove fat cells without administering a photosensitizer, but in order to further maximize the therapeutic effect, the photosensitizer is indocyanine green, methylene blue, toluidine blue, and an applied alla derivative (ALA). derivative), ALA spray, laserphyrin NPe6 for injection, (delta- aminolevulinic acid, protoporphyrin, bacteriochlorin, phthalocyanine, porphyrin, texaphyrin, merocyanine, soralene, pyropheo Forbidden, chlorine, furfurin, photogem, photoacid, ladchlorine, photodiazine, photorone, photopyrine, steroid, alco,

phosphatidylcholine (PPC), other photosensitive polymers (Conjugated photosensitizer and dimer photosensitizer) benzoporphyrin derivatives (BPD) and porpimer sodium and prodrugs such as δ - aminolevulinic acid, which can produce drugs such as protoporphyrin A photosensitizer agent can be administered in addition.

[0045] In addition, chlorine compounds, furfurin, alcohols, steroids, phosphatidylcholine (PPC) and any other agent that absorbs light in the range of 500- 1100 nm may be administered.

[0046] After adsorbing the patient's skin by driving the suction unit 60 as described above, by selecting the lamp panel and the light source type shown in Table 1 according to the diagnosis result, the patient's skin is irradiated continuously or singly for a predetermined time. The treatment process breaks down fat cells.

[0047] A feature of the present invention is to effectively remove fat cells without administering a photosensitizer by using the photodynamic therapy device 100 configured with the suction unit 60.

[0048] When applying the treatment method of the present invention it was confirmed that long- term hospitalization of the patient is unnecessary, there is no pain or pain of the patient at the time of treatment, repeated treatment is possible, and the therapeutic effect is very good.

[0049] In particular, the treatment method using the photodynamic therapy device of the present invention is functional preservation because it is a loss of function during surgical operations such as laryngeal cancer, uterine cancer, breast cancer when the early cancer or terminal cancer patients are difficult to receive surgical surgery, chemical treatment or radiation therapy. In case of selective treatment, pain relief and improvement of quality of life of patients who are hard to cure, biliary cancer, skin cancer, psoriasis, etc., in which surgery is impossible, recurrence after surgery or palliative treatment If the patient's condition is inoperable, it is useful for reducing the recurrence of cancer after surgery and for converting patients who are not subject to surgery (for example, to preserve anal muscles in rectal cancer). can do.

[0050] The present invention is not limited to the above- described drawings and

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descriptions, and various modifications can be made within the scope of the claims and objects of the present invention. As an example, the suction unit 60 installed to promote lipolysis is not limited to this structure, and may use an electric field, an ultrasonic wave generator, or the like.

[0051] 15 - Lamp panel 15a- Protective case 16- Transparent glass 18- Board 25- Lamp panel support 26- Grid piece 27- Coupling pin 28- Infrared lamp 29- LED lamp 30- Lamp unit 33- Connector 40- Lamp unit drive unit 50 - Arm 51,52,53- Joint beam 60- Suction unit 61,62- Transparent suction port 70- Control panel 88- Cell 90- Skin 100- Photodynamic therapy device

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전체 청구항 수 : 총 6 항 심사관 : 노영철

(54) 발명의 명칭 **피부 병변, 피부 신생물 및 피부암, 피부혈관, 통증완화, 다모증완화, 두피모발재생, 피부재생, 피부미백, 피부회춘, 노화방지, 국소지방세포감소, 지방조직감소, 줄기세포 병행치료, 안면 및 전신에 관한 단순치료 혹은 복합광선치료, 공기압 맛사지치료, 공기압 광선역학치료, 고주파, 초음파기기 복합치료, 성형외과, 피부과, 스파병행 시술등에 있어 앨이디, 오앨이디, 레이저 ,레이저 다이오드, 광선, 광선역학 치료방법 및 광선역학 치료기**

(57) 요 약

본 발명은 신체 지방에 포함된 광감작화제를 피부 흡착 흡인 방식으로 지방을 분쇄하여 광감작화제의 농도를 피부 쪽의 지방 쪽으로 유도한 후 LED(발광다이오드) 광선이나, 레이저 광선을 조사하여 피부 병변, 국소지방세포 감소 등의 치료를 할 수 있는 광선역학 치료기를 제공한다.

본 발명의 광선역학 치료기(100)는 다수의 램프가 격자상으로 배열되게 배치되는 복수의 램프 패널(15) 및 상기 각 램프 패널의 각도 및 위치를 조정할 수 있도록 구성되는 램프 패널 지지체(25)로 이루어진 램프 유닛(30)과,

아암을 개재하여 상기 램프 유닛과 연결되는 램프 유닛의 구동장치(40)와, 상기 램프 유닛의 구동장치에 설치되는 석션 유닛(60)을 구비한다.

대 표 도 - 도1

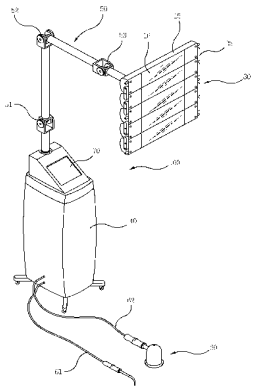


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특허청구의 범위

청구항 1

램프가 격자상으로 배열되게 배치된 기판을 보호케이스에 내장하고, 그 보호케이스의 전면은 투명 글라스로 덮이게 구성되는 동일 형상의 5개의 램프 패널과, 격자편과 결합핀을 이용하여 상기 각 램프 패널의 이웃하는 보호케이스의 양 측면을 힌지 결합하는 패널 지지체와, 상기 5개의 램프 패널 중 중앙에 위치하는 램프 패널의 보호케이스 후면에 구성되는 접속 커넥터를 포함하여 이루어지는 램프 유닛과;

아암을 개재하여 상기 램프 유닛의 접속 커넥터와 연결되는 램프 유닛의 구동장치와;

상기 램프 유닛의 구동장치에 설치되는 크기 및 형태가 다른 투명 흡착구를 구비한 복수의 석션 유닛으로 이루어지되,

상기 5개의 램프 패널 중 어느 하나의 패널에는 830±5nm 파장의 적외선 램프와 635±6nm파장의 적색 LED 램프가 설치되고, 상기 5개의 램프 패널 중 다른 패널에는 각각 420±5nm파장의 청색 LED 램프, 530±5nm파장의 녹색 LED 램프, 585±5nm파장의 노란색 LED 램프가 설치되고,

상기 램프의 광원은 레이저 다이오드, 발광다이오드, 적외선 광원, 백열 광원, 냉음극형광 광원, 유기 중합체 광원, 무기 중합체 광원 중 선택되는 어느 하나 이상의 광원으로 이루어지는 것을 특징으로 하는 광선역학 치료기.

청구항 2

제1항에 있어서,

상기 아암과 접속 커넥터는 착탈식으로 체결가능하도록 구성되고, 상기 아암과 접속 커넥터의 체결에 의하여 상기 램프 유닛은 상기 램프 유닛 구동장치와 전기 회로적으로 접속되도록 구성되는 것을 특징으로 하는 광선역학 치료기.

청구항 3

제1항에 있어서,

상기 아암은 적어도 3개의 관절보가 구성되는 것을 특징으로 하는 광선역학 치료기.

청구항 4

제1항에 있어서,

상기 5개의 램프 패널은 중앙에 위치하는 램프 패널을 중심으로 대칭되게 배치되는 것을 특징으로 하는 광선역학 치료기.

청구항 5

제4항에 있어서,

상기 5개의 램프 패널은 중앙에 위치하는 램프 패널을 기준으로 평탄형 또는 호형으로 위치 변경할 수 있도록 구성되는 것을 특징으로 하는 광선역학 치료기.

청구항 6

제1항에 있어서,

상기 복수의 석션 유닛은 "ㄱ"자형, 컵형을 포함하고, 상기 램프 유닛의 구동장치에 착탈할 수 있도록 구성되는 것을 특징으로 하는 광선역학 치료기.

명 세 서

기 술 분 야

[0001] 피부병변, 피부신생물 및 피부암, 피부혈관, 통증완화, 다모증완화, 두피모발재생, 피부재생, 피부미백, 피부회춘, 노화방지, 국소지방세포감소, 지방조직감소, 줄기세포 병행치료, 안면 및 전신에 관한 단순치료 혹은 광선치료, 공기압 광선역학치료, 고주파, 초음파기기 복합치료, 성형외과, 피부과, 스파병행 시술등에 이용되는 광선 역학치료기 및 광선역학 치료방법을 제공하는 것에 관한 것이다.

배 경 기 술

[0002] 피부와 비만을 동시에 치료하는 광선역학 치료기로 치료가 가능한 배경을 보면 일반적으로 당뇨 질환, 심장 질환, 암 질환 등의 한 원인으로 작용하는 비만은 지방세포 용적의 증가 및 지방세포 증가를 초래한다.

[0003] 이와 같은 비만은 통상 식이요법, 운동, 성형수술, 지방흡입, 초음파 및 레이저 치료에 의하여 경피 지방층을 감소시킴으로써 치료되거나 개선될 수 있다.

[0004] 상기 치료방법 중 성형수술, 지방 흡입등의 치료방법을 적용하는 경우 회복에 상당한 기간이 필요하고, 마취로 인한 위험, 감염 위험, 출혈, 기타 합병증 유발 등의 위험이 수반된다.

[0005] 상기와 같이 수술에 의한 비만 또는 성형 수술의 문제점을 개선하기 위하여

[0006] 국제공개번호 WO2005/037372호에는 광감작화제와 레이저 광선역학 치료기를 이용하여 국소지방세포를 제거하는 치료방법이 개시되어 있다.

[0007] 상기 종래 국소지방세포제거 치료방법은 지방조직 또는 지방세포를 선택적으로 편재시키는 광감작화제를 치료학적 유효량으로 투여하는 단계, 광감작화제가 흡수된 피부 지방조직에 광선역학 치료기를 이용하여 광을 조사하는 단계 등의 과정을 거쳐 치료가 이루어진다.

[0008] 상기 종래 광선역학 치료기를 이용한 치료방법은 광 조사 전에 광감작화제를 환자에게 투여해야 하므로 치료 과정을 거친 후 환자의 신체에 남아있는 잔량의 광감작화제를 제거하는 과정을 거쳐야 되고, 일정 시간 빛을 피해야 하는 단점이 있다.

[0009] 또, 광선역학 치료기의 효율이 떨어져 만족하는 치료 효과를 얻을 수 없는 단점이 있다.

발명의 내용

해결하려는 과제

[0010] 본 발명은 상기와 같은 문제점을 해결하기 위하여 안출된 것으로서, 신체 지방에 포함된 광감작화제를 피부 흡착 흡인 방식으로 지방을 분쇄하여 광감작화제의 농도를 피부 쪽의 지방 쪽으로 유도한 후 LED(발광다이오드) 광선이나, 레이저 광선을 조사하여 피부병변, 피부신생물 및 피부암, 피부혈관, 통증완화, 다모증완화, 두피모발재생, 피부재생, 피부미백, 피부회춘, 노화방지, 국소지방세포감소, 지방조직감소, 줄기세포 병행치료, 안면 및 전신에 관한 단순치료),복합광선치료, 공기역학 광역동치료(Pneumatic PDT), 고주파, 초음파기기 복합치료, 성형외과, 피부과, 스파병행 시술등을 제공하는 광선역학 치료방법을 제공하는 것에 관한 것이다.

[0011] 본 발명의 다른 목적은 기능을 개선하여 피부병변, 피부신생물 및 피부암, 피부혈관, 통증완화, 다모증완화, 두피모발재생, 피부재생, 피부미백, 피부회춘, 노화방지, 국소지방세포감소, 지방조직감소, 줄기세포병행치료, 안면 및 전신에 관한 단순치료 혹은 복합광선치료, 공기역학 마사지, 공기역학 광역동치료(Pneumatic PDT), 고주파, 초음파기기 복합치료, 성형외과, 피부과, 스파병행 시술 효과를 극대화 할 수 있는 광선역학 치료기를 제공하는데 있다.

[0012] 본 발명의 다른 목적은 광감작화제의 별도 투여에 의존하지 않고도 치료 효과를 향상시킬 수 있는 광선역학 치료기를 제공하는데 있다.

과제의 해결 수단

[0013] 상기 목적 달성을 위하여 본 발명의 광선역학 치료방법은 포유동물체의 지방 조직 또는 지방세포에 포함된 광감작화제를 피부 흡착 흡인 방식으로 지방을 분쇄하여 광감작화제의 농도를 피부 쪽의 지방 쪽으로 유도시키는 단계,

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[0014] 상기 피부의 지방 쪽으로 유도된 광감작화제 또는 이의 프로드럭 생성물에 의해 흡수된 파장에서 광선역학 치료기를 이용하여 상기 광감작화제가 유도된 지방 부위에 광원을 조사하여 피부 및 피하조직으로부터 지방조직 또는 지방세포를 제거하는 단계를 포함하는 것을 특징으로 한다.

[0015] 또, 상기 광원은 레이저 다이오드, 발광다이오드, 적외선 광원, 백열 광원, 냉음극형광 광원, 유기 중합체 광원, 무기 중합체 광원 중 선택되는 어느 하나 이상의 광원으로 이루어지는 것을 특징으로 한다.

[0016] 또, 광역학시술은 광감작제를 필요로 하기 때문에 상기 광감작화제는 먹는 알라(ALA), 바르는 알라유도체(ALA derivative), 분무형 알라 (ALA spray), 주사용 레이저피린(Laserphyrin NPe6), 안과용 형광감작시약(Visudyne), (델타-아미노레불린산, 프로토포르피린, 박테리오클로린, 프탈로시아닌, 포르피린, 텍사피린, 메로시아닌, 소랄렌, 피로페오포르비드, 클로린, 푸르푸린, 포토겜, 포토산, 라다클로린, 포토디아진, 포토론, 포토피린, 기타 광감작 중합체 (Conjugated photosensitizer and dimer photosensitizer),알콜, 스테로이등 500-1000nm의 광을 흡수하는 제제 중 어느 하나의 제제가 투여되는 것을 특징으로 한다. 국소피부치료에서 광감작제를 사용하지 않고 광선만 조사하는것을 쿨 광선역학치료 (Cool PDT) 라한다면 7.5% 의 알라유도체를 사용할 경우 마일드 광선 역학치료 (Mild PDT) 20% 의 알라를 사용할 경우에는 오리지널 광선역학 치료(Original PDT) 치료로 세분화 되기도하고 초음파나, 고주파 그리고 공기압의 가감에 따라서도 한가지 파장을 조사하는가 혹은 두가지파장을 동시에 조사하는가에 따라서도 원하는 치료효과에 변화가 나타나기도 한다.

[0017] 또, 본 발명의 광선역학 치료기는 다수의 램프가 격자상으로 배열되게 배치되는 복수의 램프 패널 및 상기 각 램프 패널의 각도 및 위치를 조정할 수 있도록 구성되는 램프 패널 지지체로 이루어진 램프 유닛과,

[0018] 아암을 개재하여 상기 램프 유닛과 연결되는 램프 유닛의 구동장치와, 상기 램프 유닛의 구동장치에 설치되는 석션 유닛으로 이루어지는 것을 특징으로 한다.

[0019] 또, 상기 복수의 램프 패널 중 적어도 어느 하나의 패널에는 적외선 램프와 LED 램프가 매트릭스 상으로 배치되게 설치되는 것을 특징으로 한다.

[0020] 또, 상기 복수의 램프 패널은 형상기억 금속을 개재하여 상기 램프 패널 지지체에 고정되는 것을 특징으로 한다.

발명의 효과

[0021] 본 발명은 석션 유닛을 이용하여 신체 지방에 포함된 광감작화제를 피부 흡착 흡인 방식으로 지방을 분쇄하여 광감작화제의 농도를 피부 쪽의 지방 쪽으로 유도한 후 광선역학 치료를 실시함으로써 국소지방조직 또는 국소지방세포의 제거에 대한 치료효과를 개선할 수 있다.

[0022] 또, 각도 및 위치 조절이 가능한 램프 패널을 구비함으로써, 광선역학 치료기의 조작 및 치료 기능을 개선하는 효과를 얻을 수 있다.

[0023] 또, 광감작화제의 별도 투여에 의존하지 않는 광선역학 치료기를 제공하는 효과를 얻을 수 있다.

도면의 간단한 설명

[0024] 도 1은 본 발명의 광선역학 치료기의 한 예를 나타내는 입체도이고,

도 2는 본 발명의 램프 유닛의 펼쳐진 상태의 배면 구조를 나타내는 평면도이고,

도 3a는 본 발명의 램프 유닛의 측면도이고,

도 3b는 본 발명의 램프 유닛이 호형으로 굴곡된 상태를 나타내는 측면도이고,

도 4a는 본 발명의 램프 패널에 내장되는 LED 기판의 평면도 이고,

도 4b는 본 발명의 램프 패널에 내장되는 LED 기판의 입체도 이고,

도 5는 본 발명의 광선역학 치료기의 조작부를 나타내는 도면 이고,

도 6은 본 발명의 광선역학 치료기의 다른 구조 예를 나타내는 입체도이고,

도 7은 본 발명의 광선역학 치료기의 동작 과정을 설명하기 위한 도면이고,

도 8은 지방세포가 제거되는 과정을 설명하기 위한 도면이다.

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발명을 실시하기 위한 구체적인 내용

[0025] 이하, 도 1내지 도 8을 참고하여 본 발명의 광선역학 치료기 및 광선역학 치료방법의 기술구성 및 작용에 대하여 구체적으로 설명한다.

[0026] 본 발명의 광선역학 치료기(100)는 도 1과 같이 램프 패널(15)과 램프 패널 지지체(25)로 이루어진 램프 유닛(30)과, 램프 유닛 구동장치(40)를 구비한다. 상기 램프 구동장치(40)와 램프 유닛(30) 사이에는 복수의 관절보(51,52,53)를 갖는 아암(50)이 구성된다.

[0027] 특히, 상기 램프 유닛 구동장치(40)에는 복수의 투명 흡착구(61,62)를 구비한 석션 유닛(60)이 설치된다. 본 발명에서는 석션 유닛의 투명 흡착구를 2개만 구성한 구조를 예시하여 도시하였으나 다양한 종류의 투명 흡착구를 착탈 결합하여 사용할 수 있도록 2개 이상 구성하여도 된다.

[0028] 상기 각 투명 흡착구는 배기장치(도시 생략)의 동작에 의하여 제어된다.

[0029] 또, 상기 램프 유닛(30)은 도 2내지 도 5에서 알 수 있는 바와 같이 복수의 램프 패널(15)과 그 각각의 램프 패널을 서로 연결하여 램프 패널 등을 평탄형, 호형으로 자유로이 위치 변경하거나 배치할 수 있도록 하는 램프 패널 지지체(25)로 이루어진다.

[0030] 상기 각각의 램프 패널(15)은 도 4a, 도 4b와 같이 복수의 LED가 격자상으로 배치된 기판(18)을 각각의 보호케이스(15a) 내장하고, 보호케이스의 전면은 투명 글라스(16)로 덮여 있다.

[0031] 상기 각각의 램프 패널은 한 예로 적외선 램프(28) 또는 LED 램프(29)들을 단독 또는 혼합하여 구성할 수 있고, LED 램프 외에 필요에 따라 다른 램프를 적용 설치할 수도 있다. 상기 램프의 광원은 전기발광 광원, 냉음극 형광 광원, 유기 중합체 광원, 무기 광원 등을 이용하여도 된다.

[0032] 한편, 상기 패널 지지체(25)는 다수의 격자편(26)과 결합핀(27)을 이용하여 보호케이스(15a)와 힌지 결합되어 체결되도록 구성함으로써, 각 램프 패널의 위치 및 각도를 조정할 수 있도록 구성된다. 상기 패널 지지체(25)는 격자편(26)과 결합핀(27) 대신에 도시되지 않은 공지의 형상기억 함금으로 이루어진 금속편을 이용하여 각각의 램프 패널들이 연결되는 형태로 구성하여도 된다.

[0033] 또, 격자편(26)과 결합핀(27) 및 형상기억 함금으로 이루어진 금속편을 함께 이용하여 램프 패널들을 연결 고정하여도 된다. 램프 패널(15)들은 접속 커넥터(33)에 의하여 아암(50)에 착탈식으로 체결 가능하도록 구성되고, 램프 유닛 구동장치(40)와 전기 회로적으로 연결된다.

[0034] 상기와 같이 구성되는 본 발명의 광선역학 치료기(100)는 한 예로 아래 표1과 같이 램프 패널에 광원을 배치하고 램프 패널의 입출력 용량 및 사이즈를 구성할 수 있다.

표 1

[0035]

NO	램프	RED	BLUE	IR (적외선)	GREEN	YE11OW	혼용
입력	전압	110-240V					
	주파수	50/60Hz					
	전력	1.0KW					

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출력	램프 수	2400개	1500개	800개	1000개	1040개	RED 700개 IR 500개
	전체 출력	80W±8W	46W±4W	46W±8W	8W±2W	8W±2W	19.5W±2W 15.5W±2W
	밀도(최대)	110mW/㎠	60mW/㎠	60mW/㎠	10mW/㎠	10mW/㎠	25mW 20mW
	파장길이 (nm)	635±6nm	420±5nm	830±5nm	530±5nm	585±5nm	635±6nm 830±5nm
	파장폭 (nm)	20±3nm	20±3nm	30±5nm	20±5nm	20±5nm	20±3nm 30±5nm
	표준도스 (J/㎠)	132J/㎠	72J/㎠	72J/㎠	12J/㎠	12J/㎠	30J/㎠ 24J/㎠
	적용시간	20분	20분	20분	20분	20분	20분
	도스 영역	1-264J/㎠	1-144J/㎠	1-144J/㎠	1-24J/㎠	1-24J/㎠	1-60J/㎠ 1-48J/㎠
램프 패널	전체 (L x W)	320-410mm					
	유효 (L x W)	190-410mm					
	1개 영역	190-82nm					

[0036] 상기와 같이 구성되는 본 발명의 광선역학 치료기(100)의 구동은 도 5와 같이 램프 유닛 구동장치에 구성되는 조작부(70)의 스위치 컨트롤에 의하여 이루어진다.

[0037] 예를 들어 도면 부호 A의 1,2,3,4,5는 5개의 각각 램프 패널(15)을 나타내는 것으로써, 해당 위치의 스위치 푸시에 의하여 그 해당하는 위치의 램프 패널이 구동된다. 도면 부호 B의 R은 적색(Red) LED를 표시하는 것으로써, 이 스위치를 푸시하면 램프 패널의 적색 램프 광이 조사되고, IR은 적외선 램프 광, R+IR은 적색 램프 광 및 적외선 램프 광이 함께 조사된다.

[0038] 부호 C는 석션 유닛을 표시하는 것으로써, 선택되는 투명 흡착구 구동 스위치를 선택 푸시하여 투명 흡착구를 구동한다.

[0039] 이어서, 상기와 같이 구성되는 본 발명의 광선역학 치료기(100)를 이용하여 피부병변, 피부신생물 및 피부암, 피부혈관, 통증완화, 다모증완화, 두피모발재생, 피부재생, 피부미백, 피부회춘, 노화방지, 국소지방세포감소, 지방조직감소, 줄기세포병행치료, 안면 및 전신에 관한 단순치료 혹은 복합광선치료, 공기역학 맛사지 , 공기역학 광역동치료(Pneumatic PDT), 고주파, 초음파기기 복합치료, 성형외과, 피부과, 스파병행 시술하는 과정을 설명한다.

[0040] 본 발명의 광선역학 치료기를 이용한 지방 분해 메카니즘을 설명하면 도 7 및 도 8과 같이 포유동물의 세포(88) 내, 외부에는 천연 광감작화제로 작용하는 ALA 프로드럭 포르포빌리노겐(PBG: porphobilinogen)이 분포되어 있고, 세포 내에는 미토콘드리아(mitochondria)분포 되어 있는데 포르포빌리노겐와 미토콘드리아는 소정 주파수의 광선을 조사해 줌으로써 활성산소의 반응 대사가 활발하게 일어나 증식이 빨리 일어나는 지방세포(암세포)를 분해하여 파괴하도록 작용한다.

[0041] 일반적으로 세포막부위에서의 포르포빌리노겐은 830nm, 세포내 반응 미토콘드리아에서는 633nm~635nm의 파장에서 효과적으로 활성화 반응이 일어나는 것으로 알려져 있다. 상기와 같은 내용을 감안하면 광의 파장 길이는 표 1에 예시된 바와 같이 530±5nm에서 830±5nm으로 설정되는 것이 바람직하나 이 파장 길이에 한정되지 않고 필요에 따라 500nm-1000nm의 범위 내에서 설정할 수 있다.

[0042] 상기 포르포빌리노겐, 미토콘드리아가 분포된 지방 세포가 광선을 흡수하여 그 표적 지방 세포의 손상 또는 파괴를 일으키는 과정에서 포르포빌리노겐, 미토콘드리아의 활성화를 극대화하기 위하여 본 발명은 램프가 조사되는 피부(90)에 도 7과 같이 투명 흡착구(62)를 구동하여 투명 흡착구 내부에 위치하는 피부가 부풀어 오르면 혈액의 집중으로 지방 세포 내의 알라(ALA) 프로드럭인 포르포빌리노겐의 미토콘드리아와 세포외의 분포 밀도가 높아지므로 지방 세포(암세포)의 파괴가 더 활발하게 일어난다.

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[0043] 따라서, 투명 흡착구(62)는 램프 패널의 광원으로부터 발산되는 광이 투과할 수 있는 재질로 구성되어야 한다.

[0044] 상기와 같이 본 발명은 광감작화제를 투여하지 않고도 지방 세포를 효과적으로 제거할 수 있으나, 치료 효과를 더 극대화하기 위하여 상기 광감작화제는 인도시아닌 그린, 메틸렌블루, 톨루이딘 블루, 바르는 알라유도체(ALA derivative), 분무형 알라 (ALA spray), 주사용 레이저피린(Laserphyrin NPe6), (델타-아미노레불린산, 프로토포르피린, 박테리오클로린, 프탈로시아닌, 포르피린, 텍사피린, 메로시아닌, 소랄렌, 피로페오포르비드, 클로린, 푸르푸린, 포토겜, 포토산, 라다클로린, 포토디아진, 포토론, 포토피린, 스테로이드, 알코, 포스파티딜콜린(PPC),기타 광감작 중합체 (Conjugated photosensitizer and dimer photosensitizer) 벤조포르피린 유도체(BPD) 및 포르피머 나트륨 및 프로드럭, 예를 들면, δ-아미노레불린산(이는 프로토포르피린 등의 약물을 생성할 수 있음) 등의 광감작화제를 추가로 투여할 수 있다.

[0045] 또한, 클로린 화합물, 푸르푸린, 알콜, 스테로이드,포스파티딜콜린 (PPC) 및 500 내지 1100nm범위의 광을 흡수하는 임의의 기타 제제를 투여하여도 된다.

[0046] 상기와 같이 석션 유닛(60)을 구동하여 환자의 피부를 흡착한 후, 진단 결과에 따라 표1에 기재된 램프 패널 및 광원 종류를 선택하여 환자의 피부에 소정 시간 동안 지속적 혹은 단발적으로 광원을 조사하여 지방 세포를 분해하는 치료과정을 거친다.

[0047] 본 발명의 특징은 석션 유닛(60)이 구성된 광선역학 치료기(100)를 이용함으로써 광감작화제를 투여하지 않고도 지방 세포를 효과적으로 제거할 수 있다.

[0048] 본 발명의 치료 방법을 적용하는 경우 환자의 장기 입원이 불필요하고, 치료시 환자의 고통이나 통증이 없고 반복 시술이 가능하며, 치료 효과가 매우 양호 한 것을 확인하였다.

[0049] 특히, 본 발명의 광선역학 치료기를 이용한 치료 방법은 초기암이나 말기암환자로서 외과적 수술이나 화학적 치료 또는 방사선 치료를 받기 어려운 경우, 후두암, 자궁암, 유방암 등 외과적 수술시 기능 상실이 되므로 기능 보전을 위해서 선택적으로 시술하는 경우, 완치가 어려운 환자의 통증 완화와 삶의 질을 개선하고자 하는 경우, 수술이 불가능한 담도암 피부암 건선등의 경우, 수술 혹은 고식적 치료를 하여 재발이 된 경우, 노약자 임산부 어린이 등 환자의 상태가 수술이 불가능한 경우, 수술 후의 암의 재발을 줄이고, 수술 대상이 되지 않는 환자를 수술할 수 있는 상태로 전환하기 위한 경우(예: 직장암의 경우 항문 근육 보존 위해) 등에 유용하게 적용할 수 있다.

[0050] 본 발명은 상기 예시된 도면 및 설명 내용에 한정되는 것은 아니고 본 발명의 청구범위 및 목적의 범주 내에서 다양하게 변형 실시할 수 있다. 한 예로 지방 분해의 촉진을 위하여 설치되는 석션 유닛(60)은 이 구조에 한정되지 않고 전기장, 초음파 발생 장치등을 설치하여 이용할 수 있다.

부호의 설명

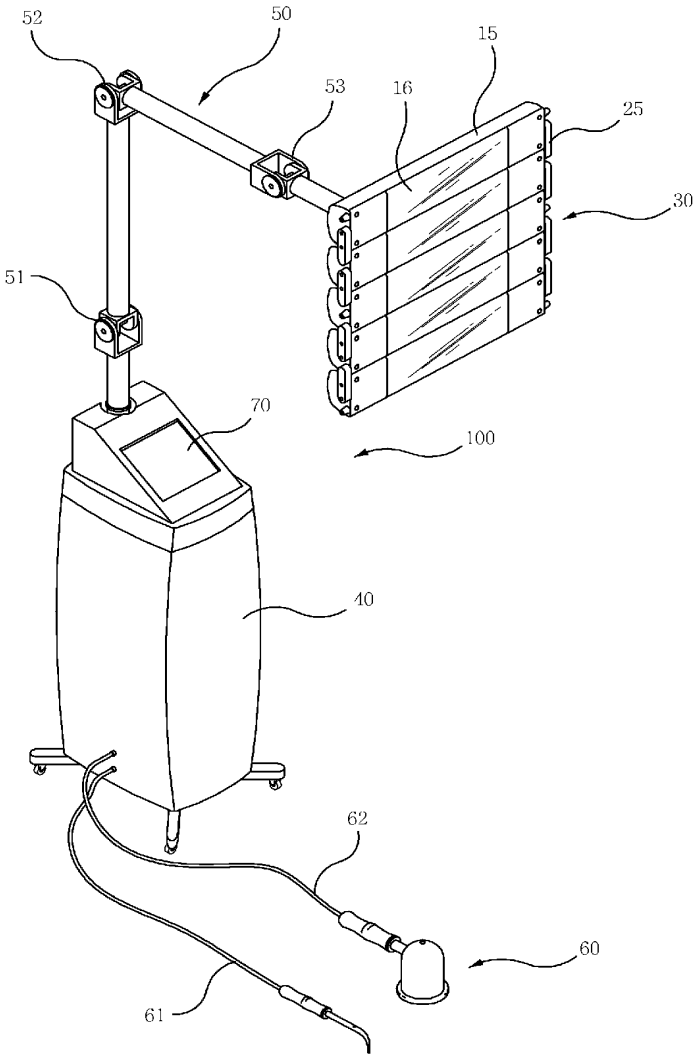
[0051]

15 - 램프 패널	15a - 보호케이스
16 - 투명 글라스	18 - 기판
25 - 램프 패널 지지체	26 - 격자편
27 - 결합핀	28 - 적외선 램프
29 - LED 램프	30 - 램프 유닛
33 - 접속 커넥터	40 - 램프 유닛 구동장치
50 - 아암	51,52,53 - 관절보
60 - 석션 유닛	61,62 - 투명 흡착구
70 - 조작부	88 - 세포
90 - 피부	100 - 광선역학 치료기

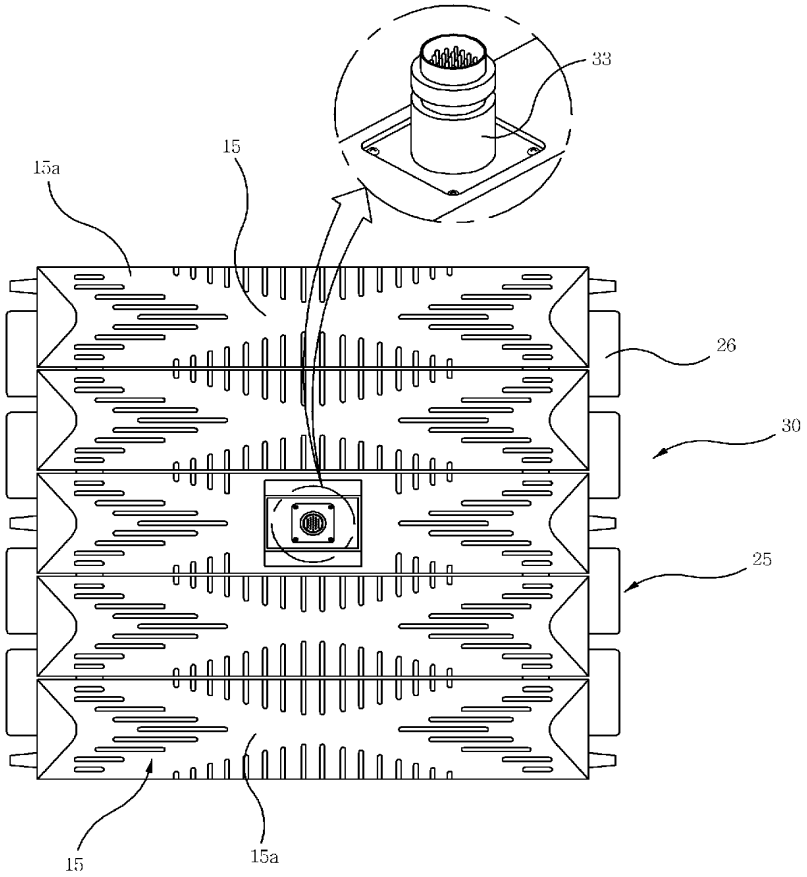
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도면

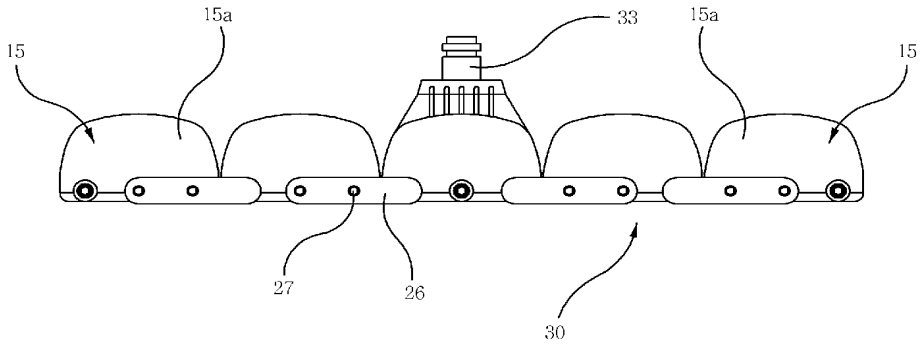
도면1



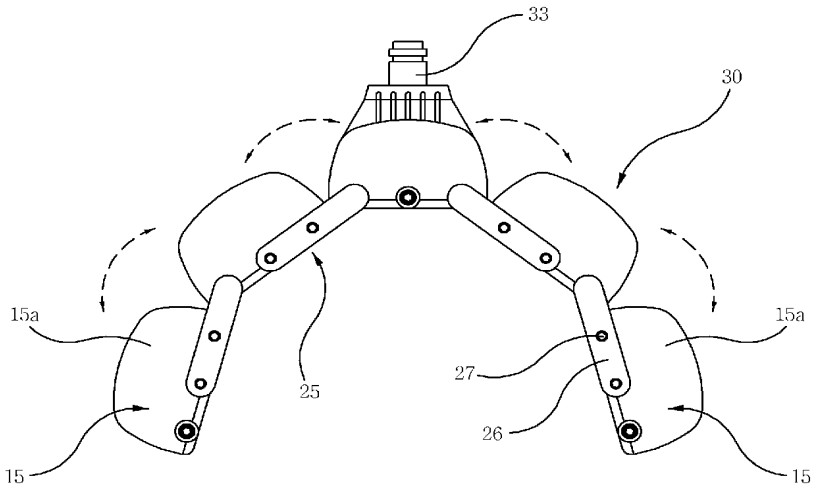
도면2



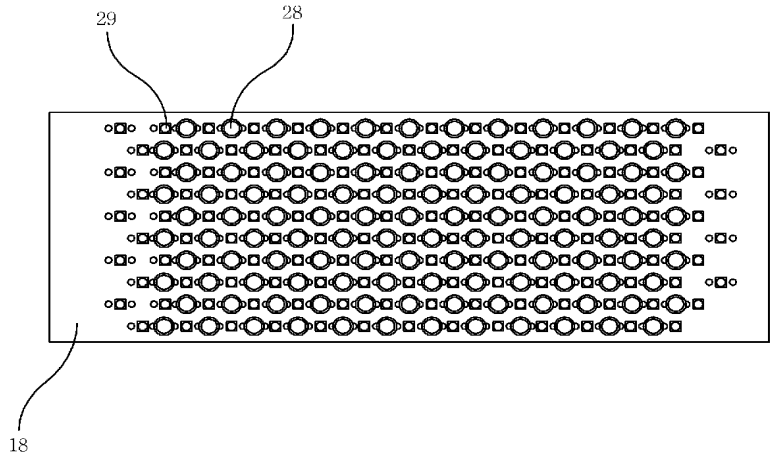
도면3a



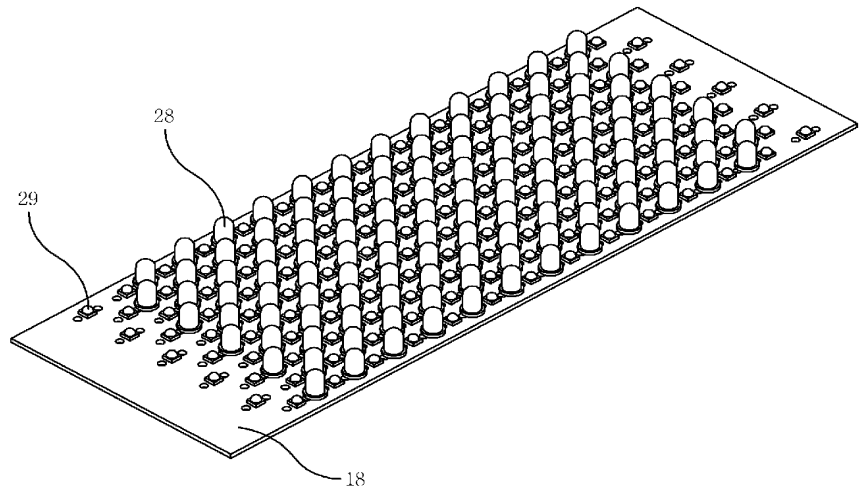
도면3b



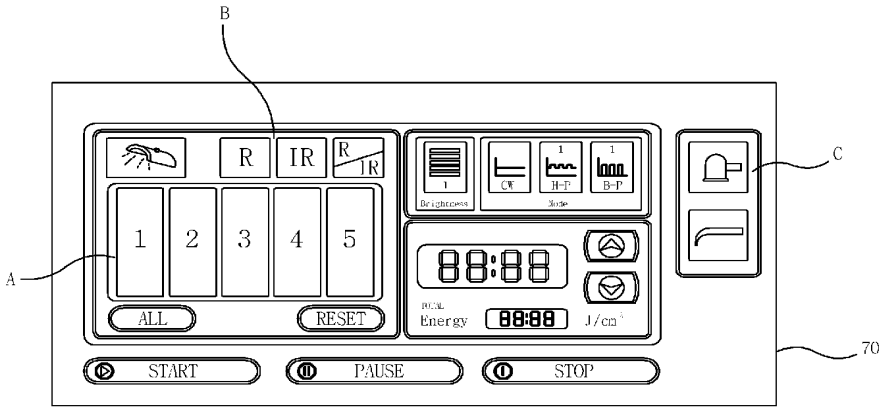
도면4a



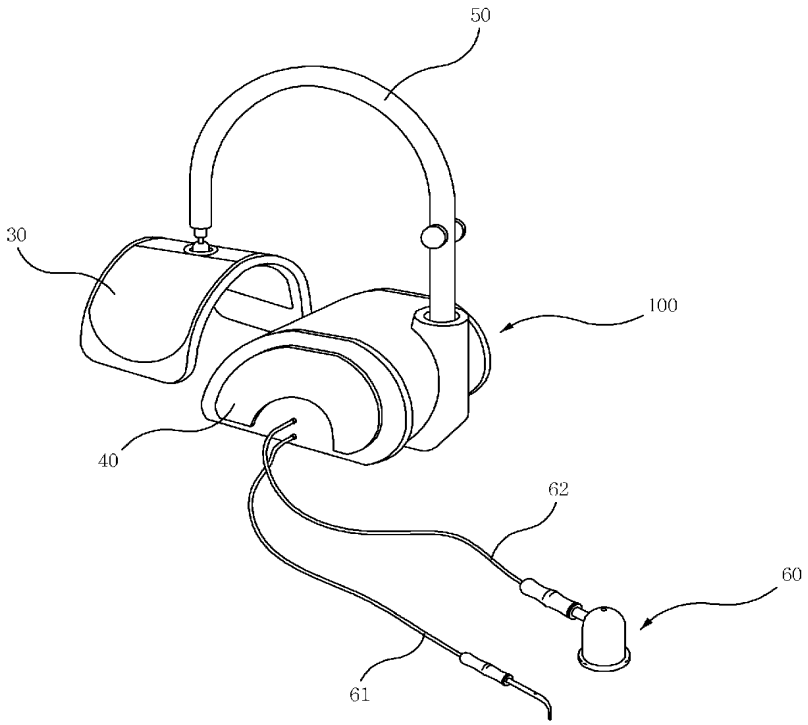
도면4b



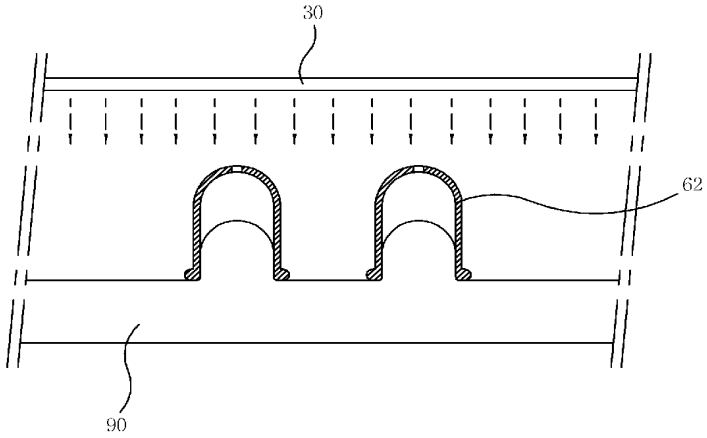
도면5


B
R
IR
R
IR
1
2
3
4
5
ALL
RESET
Brightness
Mode
CW
H-P
B-P
Energy
J/cm²
START
PAUSE
STOP
A
C
70

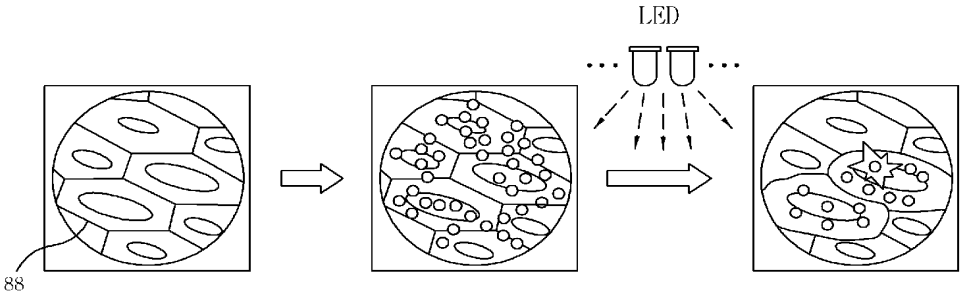
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 16/598,033

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	75		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	330		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	380		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 50 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1 minus 3 =	*	x 230 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	785		TOTAL	

APPLICATION AS AMENDED - PART II

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

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

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
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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
16/598,033	10/10/2019	3792	785	JOOVV.004A.C2	20	1

CONFIRMATION NO. 3718

FILING RECEIPT

124179
Schwie Law, LLC
445 Minnesota St
Suite 1500
St. Paul, MN 55101

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Date Mailed: 10/30/2019

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)

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Scott Nelson, San Clemente, CA;

Applicant(s)

Joovv, Inc., San Clemente, CA;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 16/227,289 12/20/2018
and is a CON of 16/584,784 09/26/2019

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

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

If Required, Foreign Filing License Granted: 10/28/2019

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/598,033**

Projected Publication Date: 06/25/2020

Non-Publication Request: No

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

PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

Preliminary Class

606

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

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PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

CROSS-REFERENCE TO RELATED APPLICATIONS

The entire contents of the following application are incorporated by reference herein: U.S. Patent Application No. 15/616,028; filed June 7, 2017; and entitled THERAPEUTIC LIGHT SOURCE AND HANGING APPARATUS.

The entire contents of the following application are incorporated by reference herein: PCT Patent Application No. PCT/US18/18288; filed March 1, 2018; and entitled THERAPEUTIC LIGHT SOURCE AND MOUNTING APPARATUS.

The entire contents of the following application are incorporated by reference herein: U.S. Patent Application No. 16/167,385; filed October 22, 2018; and entitled PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS.

The entire contents of the following application are incorporated by reference herein: U.S. Patent Application No. 16/227,289; filed December 20, 2018; and entitled PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS.

The entire contents of the following application are incorporated by reference herein: U.S. Patent Application No. 16/584,784; filed September 26, 2019; and entitled PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS.

BACKGROUND

Field

Various embodiments disclosed herein relate to photobiomodulation therapy systems and methods.

Description of Related Art

Photobiomodulation therapy (or light therapy) is a therapeutic technique that uses low-level wavelengths of light to improve health and treat a variety of health conditions, including skin issues, such as wrinkles, scars, and persistent wounds, among many other conditions. Similar to how plants use sunlight to heal and grow, humans and animals are able to harness these

wavelengths of light and turn them into cellular energy. This treatment stimulates the body's natural healing processes.

Currently, there are a number of photobiomodulation therapy devices available on the market. However, many of these devices are too small and require multiple sessions to treat large areas. As a result, there is a need for a photobiomodulation therapy system that can treat several areas in fewer treatments.

SUMMARY

This disclosure includes a variety of communicatively coupled light therapy systems. In some embodiments, the light therapy system includes a first light therapy device comprising a first housing, a first plurality of lights arranged and configured to emit at least one of red light and near infrared light, and a first communication module communicatively coupled to the first plurality of lights. Some embodiments may also include a second light therapy device configured to be communicatively coupled to the first light therapy device. The second light therapy device may have a second housing, a second plurality of light arranged and configured to emit at least one of red light and near infrared light, and a second communication module communicatively coupled to the second plurality of lights.

The first communication module and the second communication module may be communicatively coupled via a wireless connection such as a Bluetooth connection. Alternatively, some embodiments may be communicatively coupled via a wired connection. In some embodiments, the first light therapy device further comprises a first plurality of communication ports coupled to the first housing and communicatively coupled to the first communication module. Similarly, the second light therapy device may also further comprise a second plurality of communication ports coupled to the second housing and communicatively coupled to the second communication module. The first light therapy device and the second light therapy device may me communicatively coupled via a wired connection from the first plurality of communication ports to the second plurality of communication ports.

The first light therapy device and the second light therapy device may each be configured to operate in one of a lead mode and a follow mode. When the first light therapy device operates in the lead mode and the second light therapy device operates in the follow mode, the second light device may perform operations as instructed by the first light therapy device.

In some embodiments, the first light therapy device and the second light therapy device may each be configured to operate in a neutral mode. For example, when the second light therapy device operates in the neutral mode the second light therapy device may operate independently of the first light therapy device.

To control the light therapy device, some embodiments may further comprise a first plurality of input buttons coupled to the first housing and communicatively coupled to the first communication module. Accordingly, the system may further include a second plurality of input buttons coupled to the second housing and communicatively coupled to the second communication module. The first plurality of input buttons may be arranged and configured to control a treatment time of the first light therapy device, cause light to be emitted from at least a portion of the first plurality of lights, and cause light not to be emitted from at least a portion of the first plurality of lights. Likewise, the second plurality of input buttons may be arranged and configured to control a treatment time of the second light therapy device, cause light to be emitted from at least a portion of the second plurality of lights, and cause light not to be emitted from at least a portion of the second plurality of lights.

In some embodiments, the first plurality of input buttons may comprise a first time button, a first play/pause button, and a first mode button. Similarly, the second plurality of input buttons may comprise a second time button, a second play/pause button, and a second mode button.

In some embodiments, a first press of the first time button may increase the treatment time of the first light therapy device by a predetermined amount of time. Similarly, a first press of the second time button may increase the treatment time of the second light therapy device by the predetermined amount of time. A first press of the first play/pause button may cause at least a portion of the first plurality of lights to emit light and a second press of the first play/pause button may cause at least a portion of the first plurality of lights to not emit light. Likewise, a first press of the second play/pause button may cause at least a portion of the second plurality of lights to emit light and a second press of the second play/pause button may cause at least a portion of the second plurality of lights to not emit light.

Even still, in some embodiments, a first press of the first mode button may cause at least a portion of red lights of the first plurality of lights to emit red light and at least a portion of near infrared lights of the first plurality of lights to not emit near infrared light. Furthermore, a second press of the first mode button may cause at least a portion of red lights of the first plurality of lights

to not emit red light and at least a portion of near infrared lights of the first plurality of lights to emit near infrared light. Similarly, a first press of the second mode button may cause at least a portion of red lights of the second plurality of lights to emit red light and at least a portion of near infrared lights of the second plurality of lights to not emit near infrared light. Furthermore, a second press of the second mode button may cause at least a portion of red lights of the second plurality of lights to not emit red light and at least a portion of near infrared lights of the second plurality of lights to emit near infrared light.

To indicate which lights will be used during treatment, some embodiments of the system may further comprise a first pair of indication lights that may be coupled to the first housing and communicatively coupled to the first plurality of input buttons. In some embodiments, the first pair of indication lights may be arranged and configured to indicate whether a portion of red lights of the first plurality of lights is emitting red light and whether a portion of near infrared lights of the first plurality of lights is emitting near infrared light. Similarly, in some embodiments, the system further includes a second pair of indication lights coupled to the second housing and communicatively coupled to the second plurality of input buttons. The second pair of indication lights may be arranged and configured to indicate whether a portion of red lights of the second plurality of lights is emitting red light and whether a portion of near infrared lights of the second plurality of lights is emitting near infrared light.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other features, aspects, and advantages are described below with reference to the drawings, which are intended to illustrate, but not to limit, the invention. In the drawings, like reference characters denote corresponding features consistently throughout similar embodiments.

Figure 1 illustrates a front view of a light therapy system, according to some embodiments.

Figure 2 illustrates a front view of a light therapy system communicatively coupled wirelessly, according to some embodiments.

Figure 3 illustrates a top perspective view of a light therapy system, according to some embodiments.

Figure 4a illustrates a back view of a light therapy device, according to some embodiments.

Figure 4b illustrates a back view of a light therapy system communicatively coupled via a wired connection.

Figure 5 illustrates a back view of a light therapy system, according to some embodiments.

Figure 6A illustrates a top left perspective view of a light therapy system, according to some embodiments.

Figure 6B illustrates a zoomed in view of a control panel, according to some embodiments.

Figure 7 illustrates a flow chart for operating the time button, according to some embodiments.

Figure 8 illustrates a flow chart for operating the play/pause button, according to some embodiments.

Figure 9 illustrates a flow chart for operating the mode button, according to some embodiments.

DETAILED DESCRIPTION

Although certain embodiments and examples are disclosed below, inventive subject matter extends beyond the specifically disclosed embodiments to other alternative embodiments and/or uses, and to modifications and equivalents thereof. Thus, the scope of the claims appended hereto is not limited by any of the particular embodiments described below. For example, in any system or device disclosed herein, the acts or operations of the system or device may be performed in any suitable sequence and are not necessarily limited to any particular disclosed sequence. Various operations may be described as multiple discrete operations in turn, in a manner that may be helpful in understanding certain embodiments; however, the order of description should not be construed to imply that these operations are order dependent. Additionally, the structures, methods, and/or procedures described herein may be embodied as integrated components or as separate components.

For purposes of comparing various embodiments, certain aspects and advantages of these embodiments are described. Not necessarily all such aspects or advantages are achieved by any particular embodiment. Thus, for example, various embodiments may be carried out in a manner that achieves or optimizes one advantage or group of advantages as taught herein without necessarily achieving other aspects or advantages as may also be taught or suggested herein.

INDEX OF COMPONENTS

10 – Light therapy system

12 – Light therapy device
14 – Housing
16 – Plurality of lights
24 – Communication module
26 – Plurality of communication ports
28 – Communication Cable
70 – Lead mode
80 – Follow mode
90 – Neutral mode
92 – Power switch
100 – Control panel
110 – Plurality of buttons
112 – Time button
114 – Play/pause button
116 – Mode button
120 – Pair of indication lights

INTRODUCTION

Light therapy provides an alternative option for treating many common ailments and diseases. For example, when the human body is exposed to red light, blue light, green light, and/or near infrared light, subjects can expect to see improvement in multiple skin conditions, weight loss, muscle recovery, sexual performance, joint pain, and thyroid function. Instead of using prescription medications to solve these many problems, light therapy can be used in place of these traditional remedies to achieve safe and effective results.

Many top professionals have adopted light therapy, but oftentimes the light therapy devices and systems used are not big enough to treat an entire body at once. Accordingly, many embodiments described herein enable two or more light therapy devices to be communicatively coupled together to form a light therapy system. In doing so, the area of treatment can be expanded to reduce the time and number of treatments to achieve the desired results.

SYSTEM EMBODIMENTS

Fig. 1 illustrates an embodiment of a light therapy system 10 having a first light therapy device 12a and a second light therapy device 12b. In some embodiments, the first light therapy device 12a may have a first housing 14a, a first plurality of lights 16a, and a first communication module 24a. The first plurality of lights 16a may be mechanically coupled to the first housing 14a. In some embodiments, the first plurality of lights 16a may be red lights, near infrared lights, or some combination of red lights and near infrared lights. The first communication module 24a may be communicatively coupled to the first plurality of lights 16a such that the first plurality of lights 16a may receive instructions and thereby operate in a specific manner.

Furthermore, Fig. 1 also shows the light therapy system 10 having a second light therapy device 12b, which is communicatively coupled to the first light therapy device 12a. Similar to the first light therapy device 12a, the second light therapy device 12b may include a second housing 14b, a second plurality of lights 16b, and a second communication module 24b. The second plurality of lights 16b may be mechanically coupled to the second housing 14b. In some embodiments, the second plurality of lights 16b may be red lights, near infrared lights, or some combination of red lights and near infrared lights. The second communication module 24b may be communicatively coupled to the second plurality of lights 16b such that the second plurality of lights 16b may also receive instructions.

In many embodiments, the light therapy devices 12 are communicatively coupled to each other. In this regard, the first therapy device 12a may be communicatively coupled to the second light therapy device 12b whereby either of the devices 12 is able to control the other respective device 12. Such functionality may allow one or more light devices 12 to act as one cohesive system to more effectively provide treatment for a patient.

Because multiple light therapy devices 12 may be communicatively coupled together, this may allow for the light therapy system 10 to be located in one location or various remote locations. For example, in some embodiments, a light therapy system 10a may comprise two or more light therapy devices communicatively coupled together and physically located within close proximity of each other, such as in the same treatment room. However, in some embodiments, a light therapy system 10b may comprise two or more light therapy devices communicatively coupled together but the two or more light therapy devices are physically located remotely with respect to each other, such as in different cities. Communicatively coupling remotely located light therapy devices

12 may be effective for a variety of scenarios, such as a clinician who is remotely located with respect to a patient and thereby wants to render treatment for the patient. The clinician may communicatively couple a light therapy device 12, or a remote computing device (e.g. a smartphone), located in the clinician's office to one or more light therapy devices 12 located nearby the patient. The clinician may thereby treat the patient, even though the clinician and patient are physically located in remote locations with respect to the other.

To achieve the communicative coupling, the devices 12 may be communicatively coupled via communication modules 24. For example, Fig. 2 depicts a light therapy system 10 including a first light therapy device 12a having a first communication module 24a, a second light therapy device 12b having a second communication module 24b, a third light therapy device 12c having a third communication module 24c, and a fourth light therapy device 12d having a fourth communication module 24d. Fig. 3 illustrates another embodiment of a light therapy system 10 in which there are multiple light therapy devices 12a, 12b, 12c, and 12d that are communicatively coupled wirelessly. In this embodiment, a user is standing in the middle of the light therapy system 10 to treat the entire body with light therapy simultaneously. The light therapy devices 12 may be communicatively coupled wirelessly by any suitable communication protocol, such as Zigbee, Bluetooth, BLE, Z-Wave, near-field communication (NFC), cellular network protocols (3G, 4G, 5G), Wi-Fi, and the like. The person of ordinary skill in the art may select a protocol that suits the needs and physical locations of the light therapy devices 12 being communicatively coupled together.

While Figs. 1, 2, and 3 illustrate 2 or 4 light therapy devices in communication with each other; it should be appreciated that any number of light therapy devices may be communicatively coupled together. For example, in some embodiments, the light therapy system includes 3, 5, 6, 7, 8 or more devices communicatively coupled together. Generally, any number of devices may be communicatively coupled using any respective communication protocol.

Furthermore, the light therapy system 10 may also include other devices, such as remote computing devices (e.g. smartphone, tablet, computer, and the like), located remotely with respect to the light devices 12. In this regard, a plurality of light devices 12 may be communicatively coupled to one another, and the plurality of light devices 12 may further be communicatively coupled to a remote computing device operated by a third party. For example, a third party clinician or technician may communicatively couple their remote computing device to the light therapy

system 10 to remotely communicate with the system 10. This may assist clinicians in providing treatment to patients, technicians in troubleshooting problems with the light therapy system, and the like.

Light therapy devices 12 may also be communicatively coupled via a wired connection. To communicatively couple light therapy devices 12 via a wired connection, some embodiments feature a plurality of communication ports 26 which may be located on the housing 14. In some embodiments, at least one port of the plurality of communication ports 26 may be configured to send signal from the first light therapy device 12a to the second light therapy device 12b. Similarly, at least one port of the plurality of communication ports 26 may be configured to receive signal from another light therapy device 12. In some embodiments, a communication cable 28 may be inserted into the pluralities of communication ports 26 to communicatively couple the light therapy devices 12.

As shown in Fig. 4b, which illustrates the backside of a light therapy system 10, a plurality of light therapy devices 12 may be communicatively coupled together using communication cables 28 to thereby form the system 10. Communicatively coupling the light therapy devices 12 in this way allows the light therapy devices 12 to be controlled by one set of instructions. As shown in Fig. 4a, each light therapy device 12 may comprise a plurality of communication ports 26 used to communicatively couple more than one device 12 together via wires. As shown in Fig. 4b, a first light therapy device 12a is communicatively coupled to the second light therapy device 12b by a first communication cable 28a, which is inserted into the first plurality of communication ports 26a and the second plurality of communication ports 26b. In a similar fashion, the second light therapy device 12b may be communicatively coupled to a third light therapy device 12c by inserting a second communication cable 28b into the second plurality of communication ports 26b and the third plurality of communication ports 26c. A fourth light therapy device 12d may be communicatively coupled to the light therapy system 10 by inserting a third communication cable 28c into the third plurality of communication ports 26c and the fourth plurality of communication ports 26d. Similarly, a fifth light therapy device 12e may be communicatively coupled to the light therapy system 10 by inserting a fourth communication cable 28d into the fourth plurality of communication ports 26d and the fifth plurality of communication ports 26e. Finally, a sixth light therapy device 12f may be communicatively coupled to the light therapy system 10 by inserting a fifth communication cable 28e into the fifth plurality of communication ports 26e and a sixth

plurality of communication ports 26f. Communicatively coupling the light therapy devices 12 in this way enables the entire light therapy system 10 to be controlled one set of input commands.

The embodiment depicted in Fig. 4b has six light therapy devices 12 communicatively coupled via communication cables 28. In some embodiments, there may only be two light therapy devices 12. In other embodiments, there may be more than six light therapy devices 12 communicatively coupled via a wired or a wireless connection. Additionally, the light therapy devices 12 may be communicatively coupled in series or in parallel. The light therapy system 10 of Fig. 4b is communicatively coupled in series. Alternatively, the first light therapy device 12a may communicatively couple to the second light therapy device 12b and the third light therapy device 12c directly. For example, the first communication cable 28a may be inserted into the first plurality of communication ports 26a and the second plurality of communications ports 26b. Similarly, the second communication cable 28b may also be inserted into the first plurality of communication ports 26a and the third plurality of communication ports 26c. This pattern may continue for as many light therapy devices 12 as necessary, or the light therapy devices 12 may be communicatively coupled in any combination of series and parallel wired connections.

To ensure that the light therapy devices 12 operate in the same way, some embodiments feature a lead mode 70 and a follow mode 80. A light therapy device 12 that is configured to be in the lead mode 70 may send operation instructions to all other light therapy devices 12 in the system 10. A light therapy device 12 that is configured to be in the follow mode 80 may receive operation instructions from a light therapy device 12 that is in the lead mode 70.

Fig. 5 illustrates a light therapy system 10 with a first light therapy device 12a having a power switch 92, a lead mode 70, a follow mode 80, and a neutral mode 90. A user may thereby select the desired mode by switching a three-way toggle switch between lead mode 70, follow mode 80, and neutral mode 90. In some embodiments, a light therapy system 10 may comprise a first light therapy device 12a configured to be in the lead mode 70, while all other light therapy devices 12 are in the follow mode 80. Configuring the light therapy system 10 in this way may force the light therapy devices 12 to operate in the same way. In some embodiments, there may be more than one light therapy device 12 in the lead mode 70. For example, a light therapy system 10 may comprise six light therapy devices 12, whereby two light therapy devices 12 are in the lead mode and four light therapy devices 12 are in the follow mode. In such embodiments, either of the two light therapy devices 12 in the lead mode may control the other four light devices 12 in the

follow mode. It should be appreciated that any number of light therapy devices may be in the follow mode 80.

A light therapy device 12 configured to be in neutral mode 90 may operate on its own and may ignore instructions sent from a light therapy device 12 in the lead mode 70. In this manner, the light therapy device(s) 12 in the neutral mode may ignore incoming signals. In some embodiments, there may be none, one, or more than one light therapy device 12 in the lead mode 70, none, one, or more than one light therapy device 12 in the follow mode 80, and none, one, or more than one light therapy device 12 in neutral mode 90. Any combination of light therapy devices 12 configured in the lead mode 70, the follow mode 80, and the neutral mode 90 may be used to achieve any combination of treatment types.

As shown in Fig. 6a, in order to control the first light therapy device 12a, some embodiments feature a first control panel 100a located on the first housing 14a and communicatively coupled to the first communication module 24a. The first control panel 100a may allow a user to control a treatment time and cause at least a portion of the first plurality of lights 16a to either emit or not emit red light or near infrared light. Similarly, the second light therapy device 12b may have a second control panel 100b located on the second housing 14b and communicatively coupled to the second communication module 24b. The second control panel 100b may implement the same controls as the first control panel 100a.

Fig. 6a shows one embodiment of a light therapy system 10 with a first light therapy device 12a featuring a control panel 100. Fig. 6b shows a similar embodiment zoomed in to the control panel 100 having a plurality of input buttons 110, a time button 112, a play/pause button 114, a mode button 116, and a pair of indication lights 120. Figs. 7, 8, and 9 show a flow chart of what each button may do when pressed.

In some embodiments, the plurality of input buttons 110 may have a time button 112 which, when pressed a first time 700, may be configured to increase the treatment time by a predetermined amount of time 702. In some embodiments, the predetermined amount of time may be one minute, five minutes, or any amount of time including negative amounts of time. Each additional press 704 of the time button 112 may increase the treatment time by the same predetermined amount of time 706. In some embodiments, the control panel 100 may be configured to have a predetermined maximum treatment time, for example twenty minutes. In embodiments such as these, if the treatment time is set to the predetermined maximum treatment time and the time button 112 is

pressed once more the treatment time may change to a predetermined minimum treatment time instead of adding another predetermined amount of time. If the light therapy device 12 is in the lead mode 70, the treatment time may be sent to other light therapy devices 12 in the system 10 that are configured to be in the follow mode 80. If the light therapy device 12 is in the neutral mode 90, the treatment time may not be sent to any other light therapy devices 12 in the system 10 and the light therapy device 12 may ignore other incoming instructions.

The plurality of input buttons 110 may also have a play/pause button 114 which, when pressed a first time 800, may be configured to cause at least a portion of the plurality of lights 16 to emit red light and/or near infrared light 802. In some embodiments, the play/pause button 114, when pressed a second time 804, may be configured to cause at least a portion of the plurality of lights 16 to not emit red light and/or near infrared light 806. The play/pause button 114 may start, pause, or continue the treatment time as set by the time button 112. This allows the user to pause the treatment session without having to restart from the beginning. Pressing the play/pause button 114 on light therapy devices 12 configured to be in the lead mode 70 may start the treatment for other light therapy devices 12 in the system 10 including those in follow mode 80. Generally, light therapy devices 12 in the lead mode 70 may send instructions to other light therapy devices 12 in the follow mode 80 to operate in the same way.

Furthermore, the plurality of input buttons 110 may also have a mode button 116. When the mode button 116 is pressed this may change the type of light emitted from at least a portion of the plurality of lights 16 during treatment. For instance, in some embodiments, at least a portion of the plurality of lights 16 may be configured to automatically emit both red light and near infrared light when the treatment starts, but when the mode button 116 is pressed a first time 900 at least a portion of the plurality of lights 16 may be configured to emit red light and not emit near infrared light 902 when treatment starts. In some embodiments, when the mode button 116 is pressed a second time 904 at least a portion of the plurality of lights 16 may be configured to emit near infrared light and not emit red light 906 when treatment starts. Similarly, in other embodiments, a third press of the mode button 116 may configure at least a portion of the plurality of lights 16 to emit both red light and near infrared light. Although only one set of press button commands is specifically mentioned herein, it should be appreciated that any order or combination of button presses may be used. For example, in some embodiments, when the mode button 116 is pressed a first time 900 at least a portion of the plurality of lights 16 may be configured to emit both red light

and near infrared light 902 when treatment starts. However, it should be appreciated that any light wavelength or combination of light wavelengths from 100 to 1,000 nanometers (nm), such as UV, blue, green, red, and near-infrared, may be implemented in the system 10 and thereby emitted or not emitted from the plurality of lights 16. Accordingly, any of the input buttons 110 may be arranged and configured to control the plurality of lights 16 to emit and/or not emit light included in any combination of light wavelengths from 100 to 1,000 nm.

With continued reference to Fig. 6b, when the light therapy system 10 has not yet started treatment or is paused it may be difficult to determine if the treatment will consist of red light, near infrared light, or both. To make it easier to determine which lights are active, some embodiments feature a pair of indication lights 120 located on the control panel 100. One light of the pair of indication lights 120 may be labeled red and the other may be labeled near infrared or simply infrared. The pair of indication lights 120 may indicate to a user the typed of light that will be emitted when the treatment starts or continues by illuminating one or both indication lights 120. For example, in some embodiments, when the plurality of lights 16 is configured to emit only red light during treatment the indication light labeled red may be illuminated and the indication light labeled infrared may not be illuminated. Similarly, when the plurality of lights 16 is configured to emit only near infrared light during treatment the indication light labeled infrared may be illuminated and the indication light labeled red may not be illuminated. Moreover, when the plurality of lights 16 is configured to emit both red light and near infrared light during treatment the indication light labeled red may be illuminated and the indication light labeled infrared may also be illuminated.

INTERPRETATION

None of the steps described herein is essential or indispensable. Any of the steps can be adjusted or modified. Other or additional steps can be used. Any portion of any of the steps, processes, structures, and/or devices disclosed or illustrated in one embodiment, flowchart, or example in this specification can be combined or used with or instead of any other portion of any of the steps, processes, structures, and/or devices disclosed or illustrated in a different embodiment, flowchart, or example. The embodiments and examples provided herein are not intended to be discrete and separate from each other.

The section headings and subheadings provided herein are nonlimiting. The section

headings and subheadings do not represent or limit the full scope of the embodiments described in the sections to which the headings and subheadings pertain. For example, a section titled "Topic 1" may include embodiments that do not pertain to Topic 1 and embodiments described in other sections may apply to and be combined with embodiments described within the "Topic 1" section.

Some of the devices, systems, embodiments, and processes use computers. Each of the routines, processes, methods, and algorithms described in the preceding sections may be embodied in, and fully or partially automated by, code modules executed by one or more computers, computer processors, or machines configured to execute computer instructions. The code modules may be stored on any type of non-transitory computer-readable storage medium or tangible computer storage device, such as hard drives, solid state memory, flash memory, optical disc, and/or the like. The processes and algorithms may be implemented partially or wholly in application-specific circuitry. The results of the disclosed processes and process steps may be stored, persistently or otherwise, in any type of non-transitory computer storage such as, e.g., volatile or non-volatile storage.

The various features and processes described above may be used independently of one another, or may be combined in various ways. All possible combinations and subcombinations are intended to fall within the scope of this disclosure. In addition, certain method, event, state, or process blocks may be omitted in some implementations. The methods, steps, and processes described herein are also not limited to any particular sequence, and the blocks, steps, or states relating thereto can be performed in other sequences that are appropriate. For example, described tasks or events may be performed in an order other than the order specifically disclosed. Multiple steps may be combined in a single block or state. The example tasks or events may be performed in serial, in parallel, or in some other manner. Tasks or events may be added to or removed from the disclosed example embodiments. The example systems and components described herein may be configured differently than described. For example, elements may be added to, removed from, or rearranged compared to the disclosed example embodiments.

Conditional language used herein, such as, among others, "can," "could," "might," "may," "e.g.," and the like, unless specifically stated otherwise, or otherwise understood within the context as used, is generally intended to convey that certain embodiments include, while other embodiments do not include, certain features, elements and/or steps. Thus, such conditional language is not generally intended to imply that features, elements and/or steps are in any way

required for one or more embodiments or that one or more embodiments necessarily include logic for deciding, with or without author input or prompting, whether these features, elements and/or steps are included or are to be performed in any particular embodiment. The terms "comprising," "including," "having," and the like are synonymous and are used inclusively, in an open-ended fashion, and do not exclude additional elements, features, acts, operations and so forth. Also, the term "or" is used in its inclusive sense (and not in its exclusive sense) so that when used, for example, to connect a list of elements, the term "or" means one, some, or all of the elements in the list. Conjunctive language such as the phrase "at least one of X, Y, and Z," unless specifically stated otherwise, is otherwise understood with the context as used in general to convey that an item, term, etc. may be either X, Y, or Z. Thus, such conjunctive language is not generally intended to imply that certain embodiments require at least one of X, at least one of Y, and at least one of Z to each be present.

The term "and/or" means that "and" applies to some embodiments and "or" applies to some embodiments. Thus, A, B, and/or C can be replaced with A, B, and C written in one sentence and A, B, or C written in another sentence. A, B, and/or C means that some embodiments can include A and B, some embodiments can include A and C, some embodiments can include B and C, some embodiments can only include A, some embodiments can include only B, some embodiments can include only C, and some embodiments can include A, B, and C. The term "and/or" is used to avoid unnecessary redundancy.

While certain example embodiments have been described, these embodiments have been presented by way of example only, and are not intended to limit the scope of the inventions disclosed herein. Thus, nothing in the foregoing description is intended to imply that any particular feature, characteristic, step, module, or block is necessary or indispensable. Indeed, the novel methods and systems described herein may be embodied in a variety of other forms; furthermore, various omissions, substitutions, and changes in the form of the methods and systems described herein may be made without departing from the spirit of the inventions disclosed herein.

WHAT IS CLAIMED IS:

1. A method for providing a light therapy treatment, comprising:

providing a first light therapy device comprising a first housing and a first plurality of lights configured to emit at least one of red light and near infrared light;

providing a second light therapy device comprising a second housing and a second plurality of lights configured to emit at least one of red light and near infrared light;

communicatively coupling the first light therapy device directly to the second light therapy device; and

emitting at least one of red light and near infrared light from at least a portion of the first plurality of lights and at least a portion of the second plurality of lights.

2. The method of claim 1, further comprising using a control panel coupled to the first housing of the first light therapy device to emit at least one of red light and near infrared light from at least the portion of the first plurality of lights and at least the portion of the second plurality of lights.

3. The method of claim 2, further comprising pressing a first input button on the control panel of the first light therapy device, wherein the emitting occurs in response to the pressing.

4. The method of claim 2, further comprising pausing the emitting in response to pressing a first input button on the control panel of the first light therapy device.

5. The method of claim 2, further comprising setting a treatment time by pressing a second input button on the control panel of the first light therapy device, wherein the treatment time comprises a duration of time that the first light therapy device and the second light therapy device emit at least one of red light and near infrared light.

6. The method of claim 5, further comprising displaying an indication of the treatment time on a first display located on the control panel of the first light therapy device.

7. The method of claim 6, wherein the treatment time is 20 minutes.

8. The method of claim 5, further comprising increasing the treatment time by pressing the second input button a second time.

9. The method of claim 1, further comprising:

placing the first light therapy device in a lead mode; and

placing the second light therapy device in a follow mode whereby the second light therapy device performs operations as instructed by the first light therapy device.

10. The method of claim 9, further comprising:

selecting the lead mode via a first switch coupled to the first light therapy device, wherein the first light therapy device is placed in the lead mode via the first switch; and

selecting the follow mode via a second switch coupled to the second light therapy device, wherein the second light therapy device is placed in the follow mode via the second switch.

11. The method of claim 1, further comprising indicating, via a first pair of indication lights on the first light therapy device, whether at least one of red light and near infrared light is being emitted from at least the portion of the first plurality of lights.

12. The method of claim 1, further comprising indicating, via a second pair of indication lights on the second light therapy device, whether at least one of red light and near infrared light is being emitted from at least the portion of the second plurality of lights.

13. The method of claim 1, wherein emitting at least one of red light and near infrared light from at least the portion of the first plurality of lights and at least the portion of the second plurality of lights comprises:

emitting red light from at least the portion of the first plurality of lights; and

emitting red light from at least the portion of the second plurality of lights.

14. The method of claim 1, wherein emitting at least one of red light and near infrared light from at least the portion of the first plurality of lights and at least the portion of the second plurality

of lights comprises:

emitting near infrared light from at least the portion of the first plurality of lights; and

emitting near infrared light from at least the portion of the second plurality of lights.

15. The method of claim 1, wherein emitting at least one of red light and near infrared light from at least a portion of the first plurality of lights and at least a portion of the second plurality of lights comprises:

emitting red light from at least the portion of the first plurality of lights; and

emitting near infrared light from the portion of the second plurality of lights.

16. The method of claim 1, wherein communicatively coupling the first light therapy device directly to the second light therapy device comprises coupling the first light therapy device and the second light therapy device via a wired connection.

17. The method of claim 16, wherein coupling the first light therapy device and the second light therapy device via the wired connection comprises:

inserting a first end of a communication cable into a first communication port on the first light therapy device; and

inserting a second end of the communication cable into a second communication port on the second light therapy device.

18. The method of claim 1, wherein communicatively coupling the first light therapy device directly to the second light therapy device comprises coupling the first light therapy device and the second light therapy device via a wireless connection.

19. The method of claim 1, further comprising:

providing a third light therapy device comprising a third housing and a third plurality of lights configured to emit at least one of red light and near infrared light;

providing a fourth light therapy device comprising a fourth housing and a fourth plurality of lights configured to emit at least one of red light and near infrared light;

communicatively coupling each of the third light therapy device and the fourth light therapy device directly to at least one of the first light therapy device and the second light therapy device; and

emitting at least one of red light and near infrared light from at least a portion of the third plurality of lights and at least a portion of the fourth plurality of lights.

20. The method of claim 19, further comprising:

providing a fifth light therapy device comprising a fifth housing and a fifth plurality of lights configured to emit at least one of red light and near infrared light;

providing a sixth light therapy device comprising a sixth housing and a sixth plurality of lights configured to emit at least one of red light and near infrared light;

communicatively coupling each of the fifth light therapy device and the sixth light therapy device directly to at least one of the first light therapy device, the second light therapy device, the third light therapy device, and the fourth light therapy device; and

emitting at least one of red light and near infrared light from at least a portion of the fifth plurality of lights and at least a portion of the sixth plurality of lights.

ABSTRACT

Photobiomodulation therapy systems provide a highly effective way to treat many common ailments to the human body. Many embodiments described herein enable two or more light therapy devices to be communicatively coupled together in various ways. In some embodiments, the light therapy system includes a first light device and a second light device arranged and configured to be communicatively coupled to the first light device. Each of the light devices may include a housing, a communication module, and a plurality of lights arranged and configured to emit at least one of red light and near infrared light.

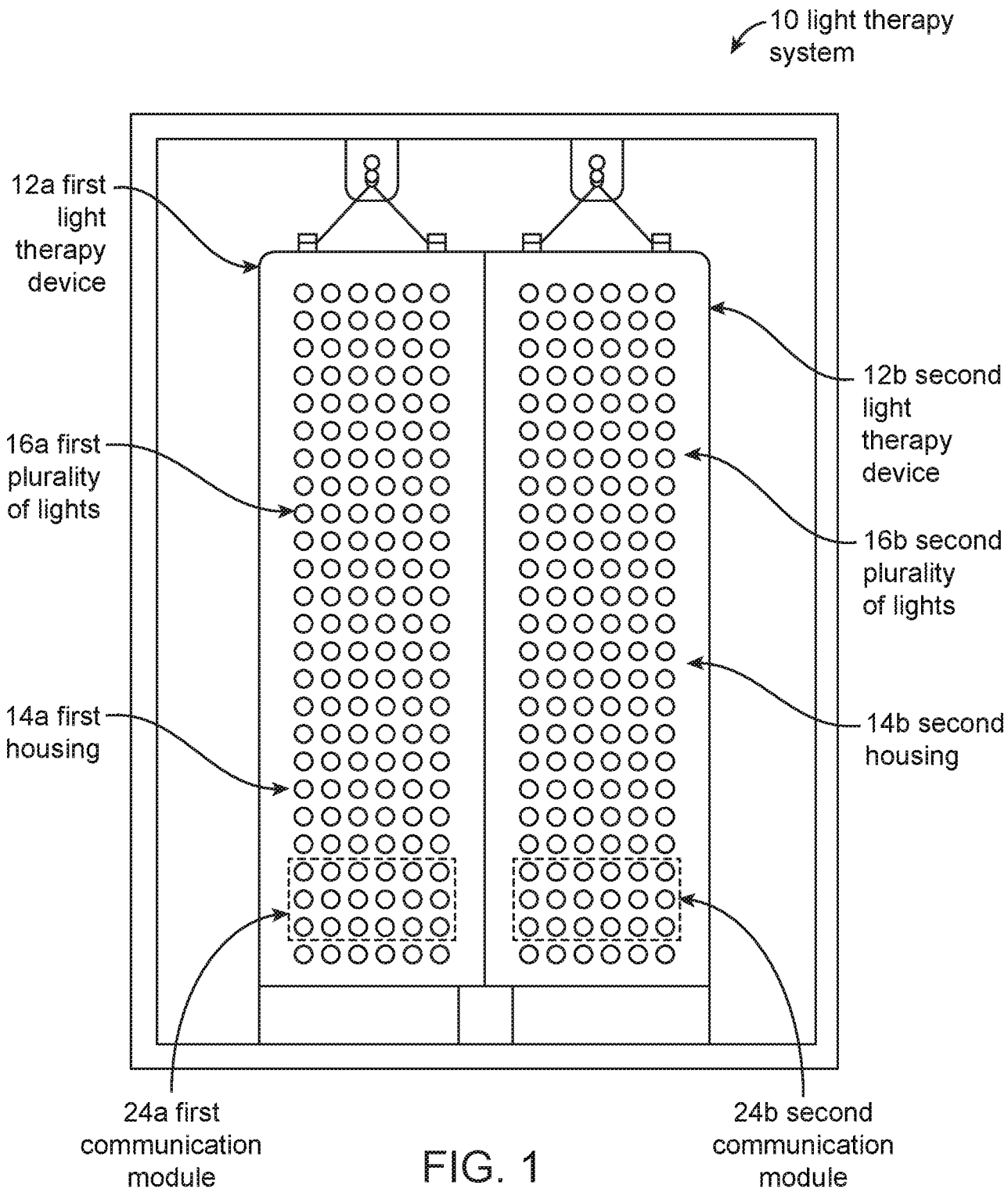

10 light therapy system
12a first light therapy device
16a first plurality of lights
14a first housing
24a first communication module
12b second light therapy device
16b second plurality of lights
14b second housing
24b second communication module

FIG. 1

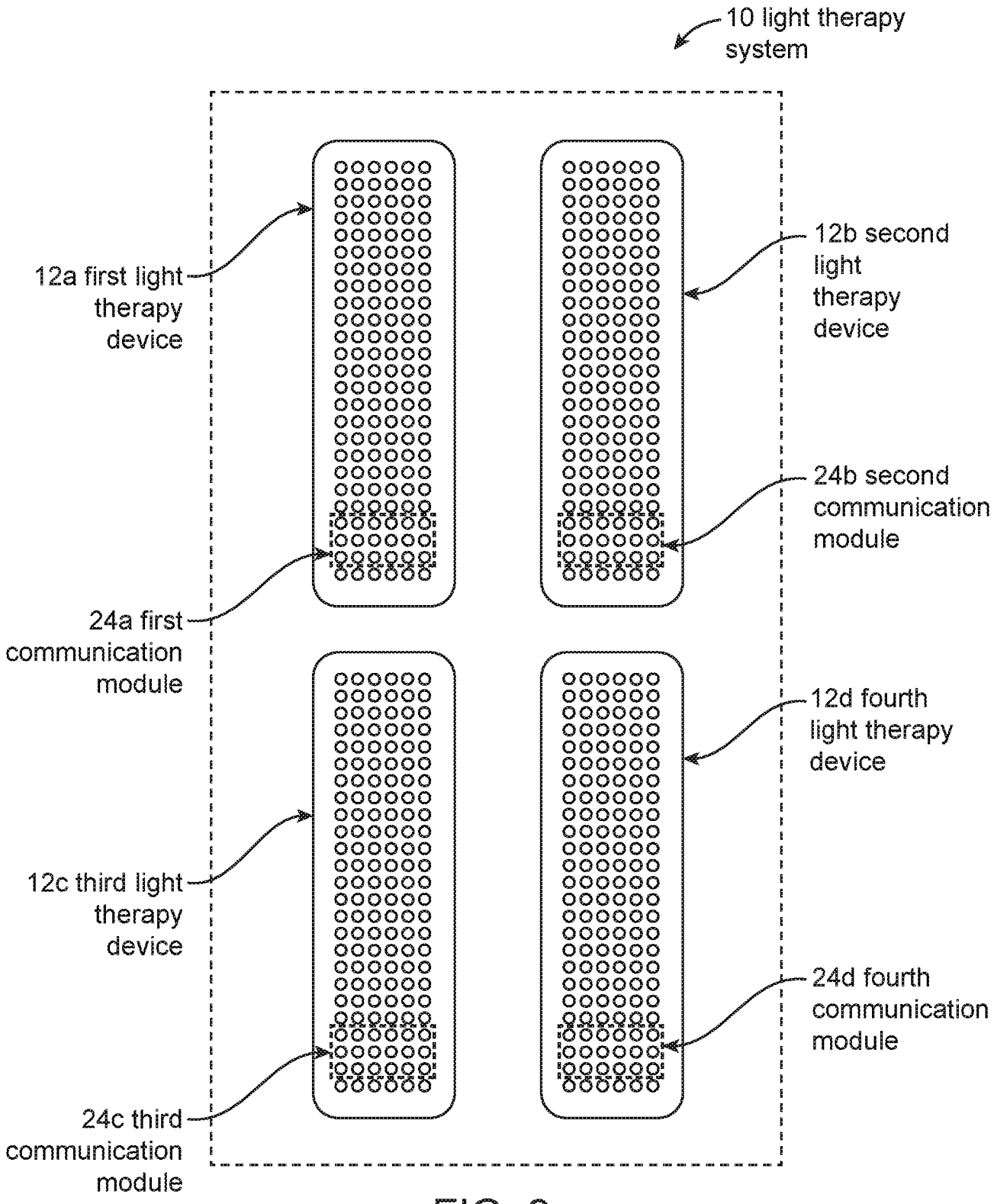

10 light therapy system
12a first light therapy device
12b second light therapy device
24b second communication module
24a first communication module
12d fourth light therapy device
12c third light therapy device
24d fourth communication module
24c third communication module

FIG. 2

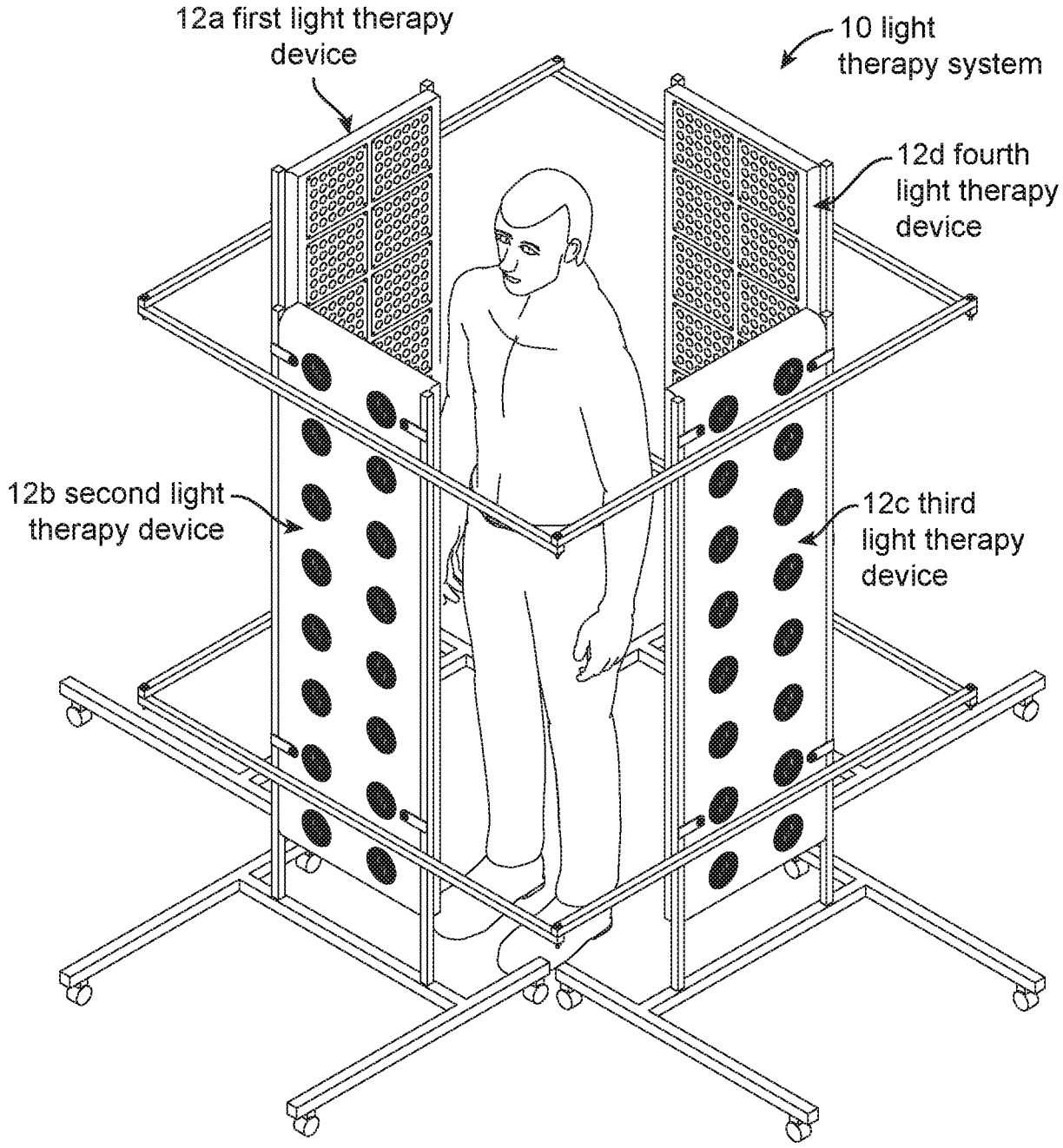

12a first light therapy device
10 light therapy system
12d fourth light therapy device
12b second light therapy device
12c third light therapy device

FIG. 3

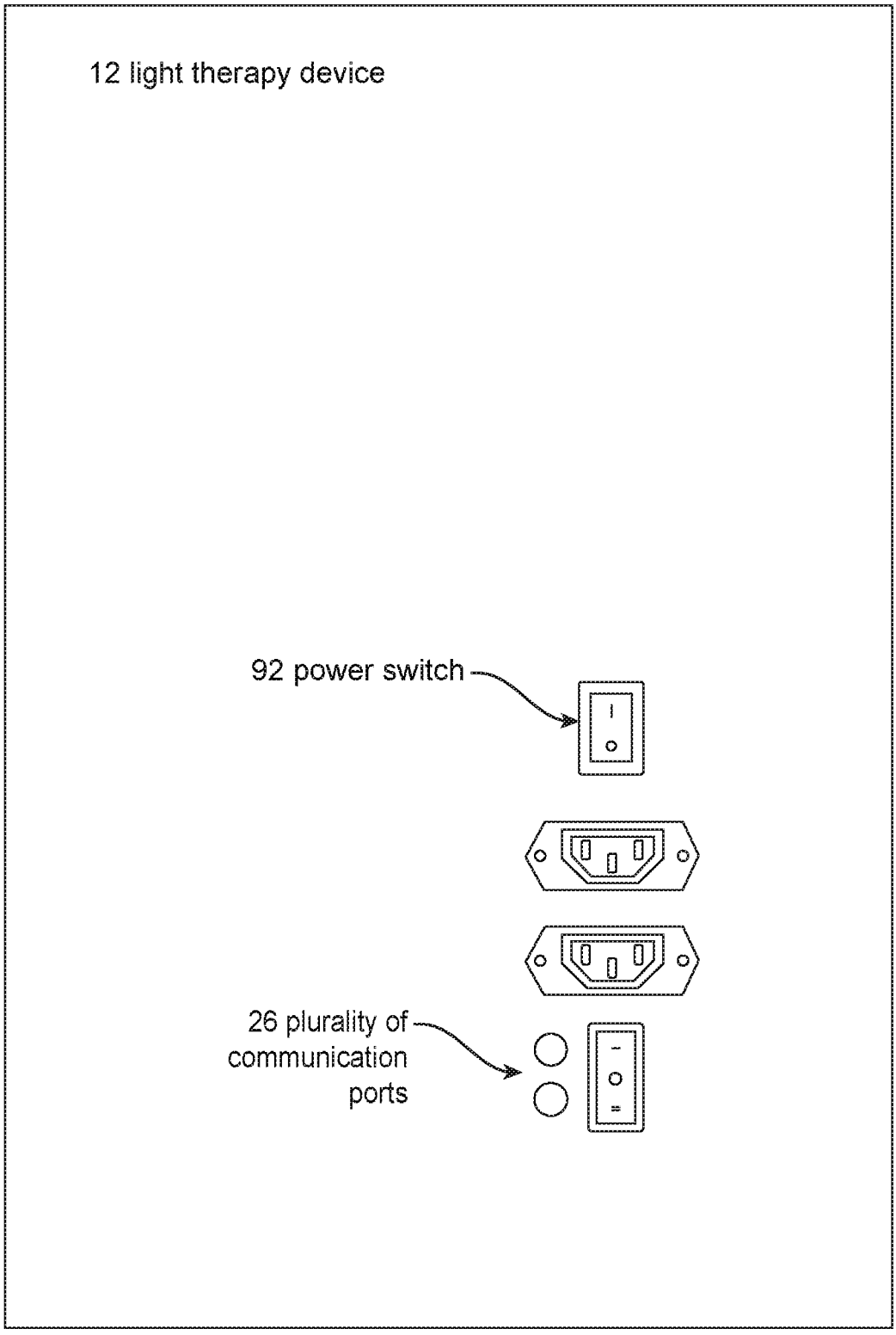

12 light therapy device
92 power switch
26 plurality of communication ports

FIG. 4A

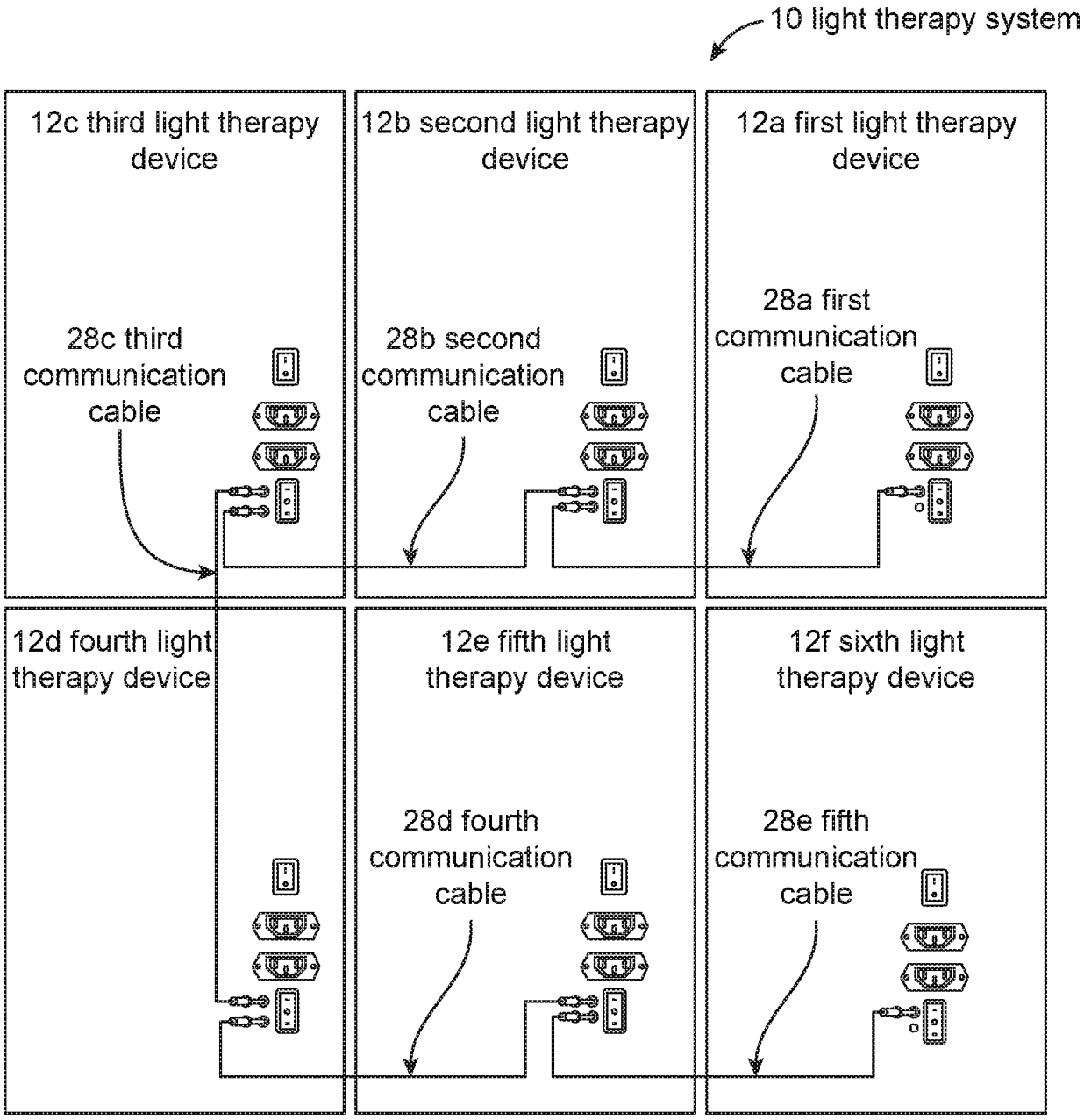

10 light therapy system
12c third light therapy device
12b second light therapy device
12a first light therapy device
28c third communication cable
28b second communication cable
28a first communication cable
12d fourth light therapy device
12e fifth light therapy device
12f sixth light therapy device
28d fourth communication cable
28e fifth communication cable

FIG. 4B

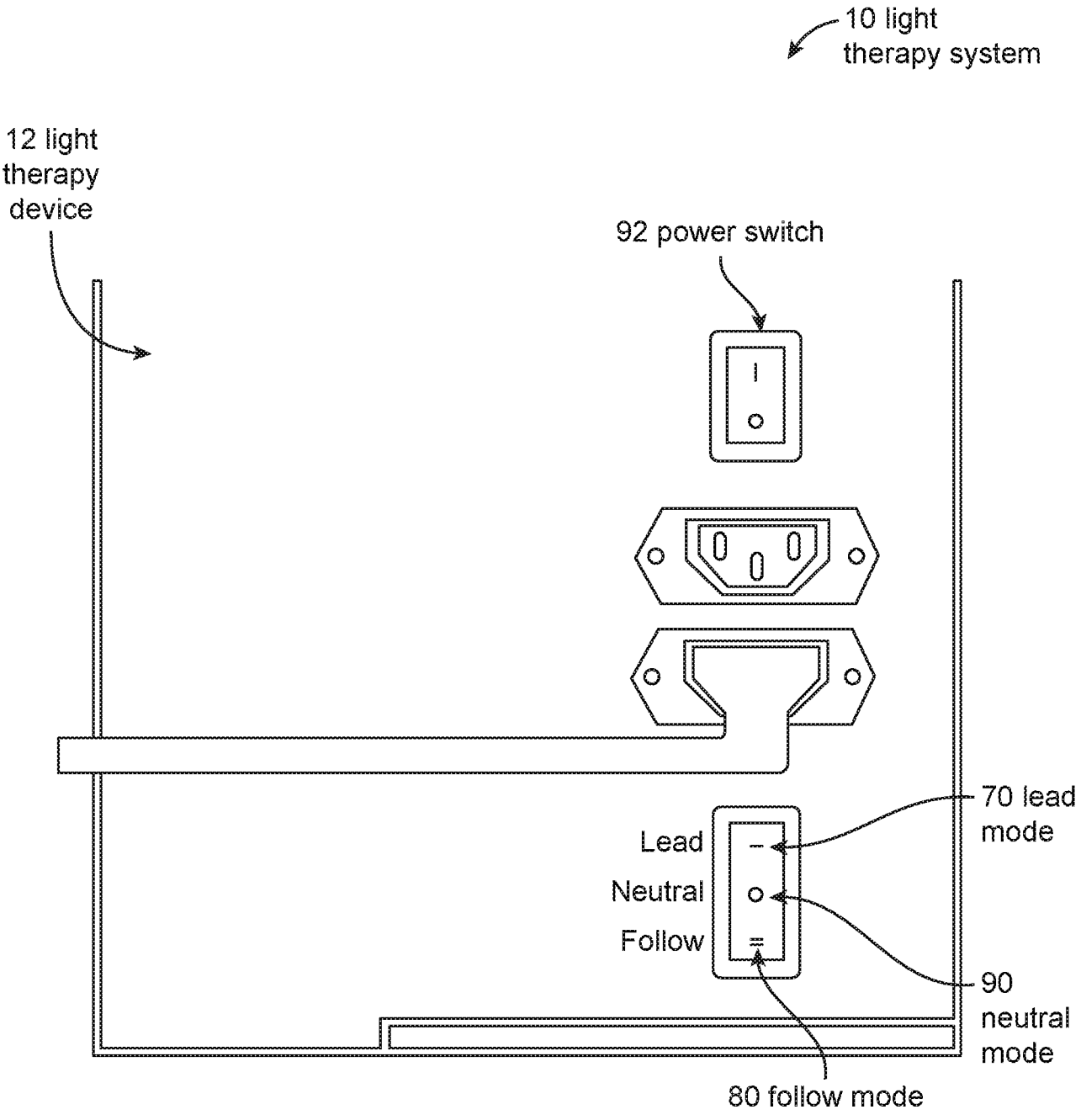

10 light therapy system
12 light therapy device
92 power switch
70 lead mode
Lead
Neutral
Follow
90 neutral mode
80 follow mode

FIG. 5

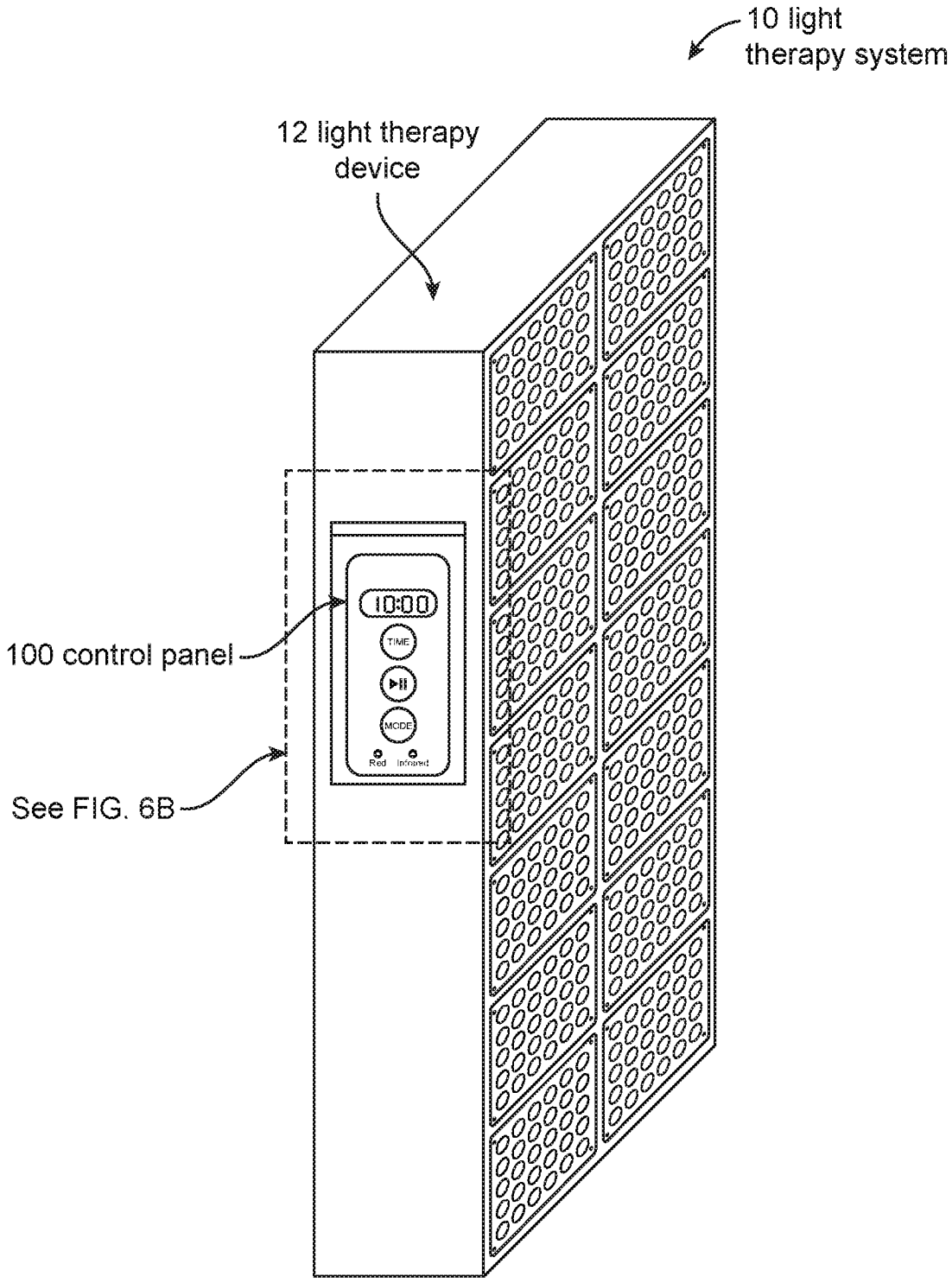

10 light therapy system
12 light therapy device
100 control panel
See FIG. 6B
10:00
TIME
MODE
Red
Infrared

FIG. 6A

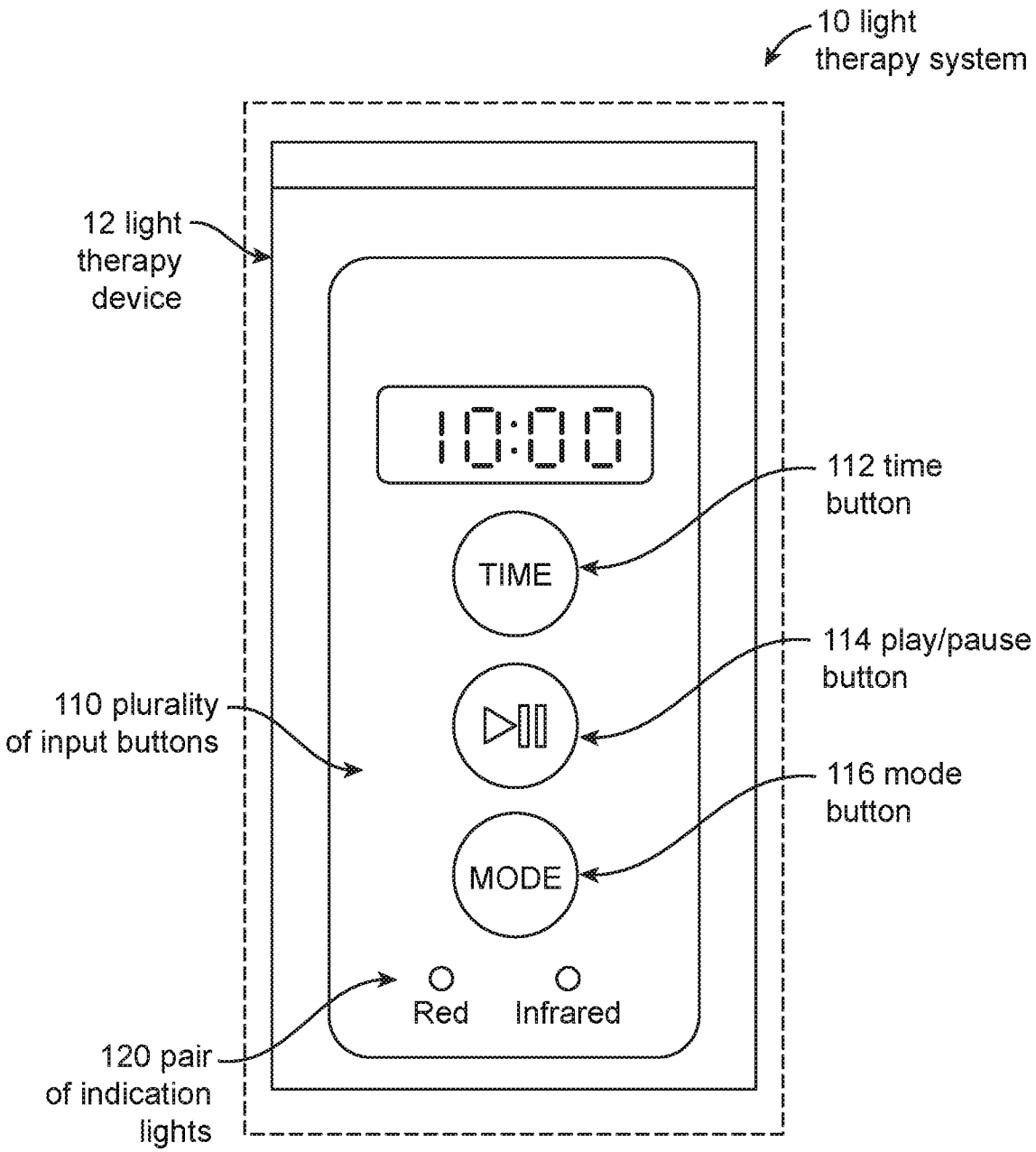

10 light therapy system
12 light therapy device
10:00
112 time button
TIME
114 play/pause button
110 plurality of input buttons
116 mode button
MODE
Red
Infrared
120 pair of indication lights

FIG. 6B

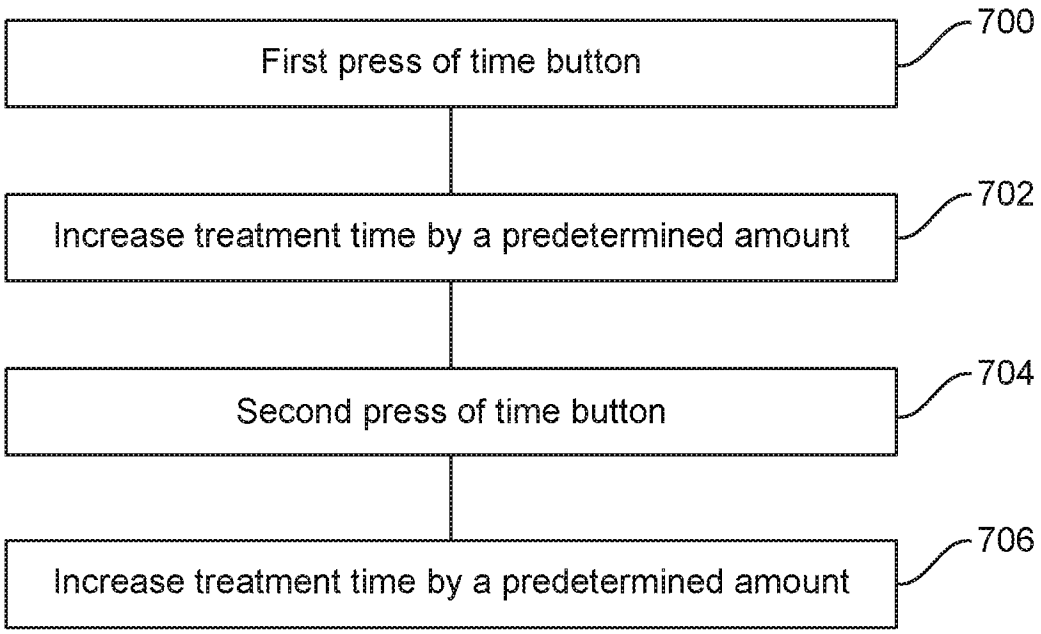

First press of time button
700
Increase treatment time by a predetermined amount
702
Second press of time button
704
Increase treatment time by a predetermined amount
706

FIG. 7

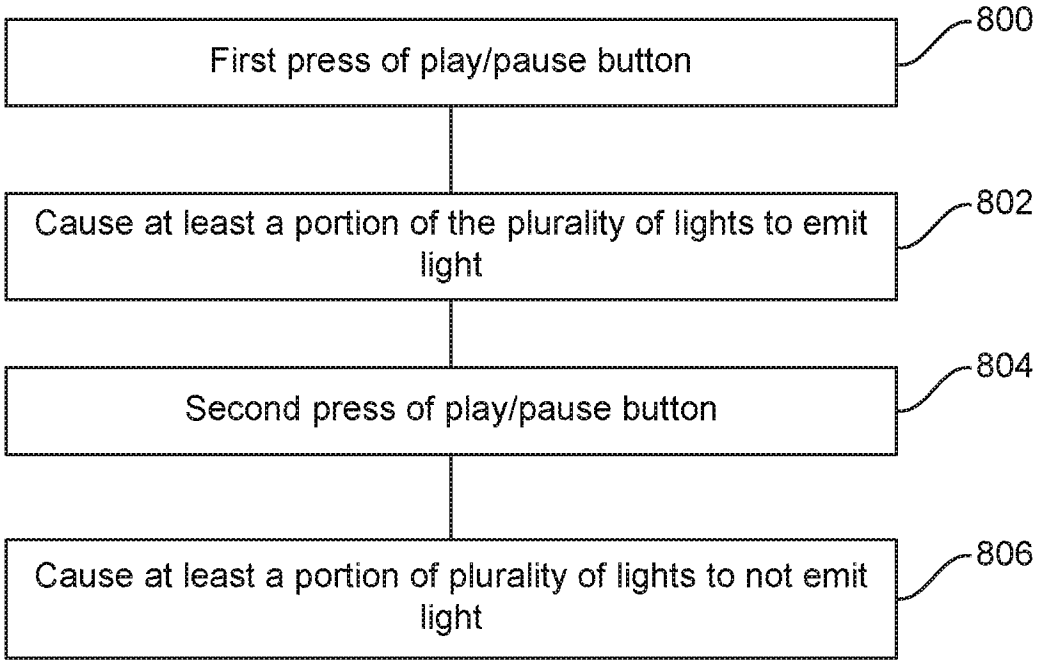

First press of play/pause button
800
Cause at least a portion of the plurality of lights to emit light
802
Second press of play/pause button
804
Cause at least a portion of plurality of lights to not emit light
806

FIG. 8

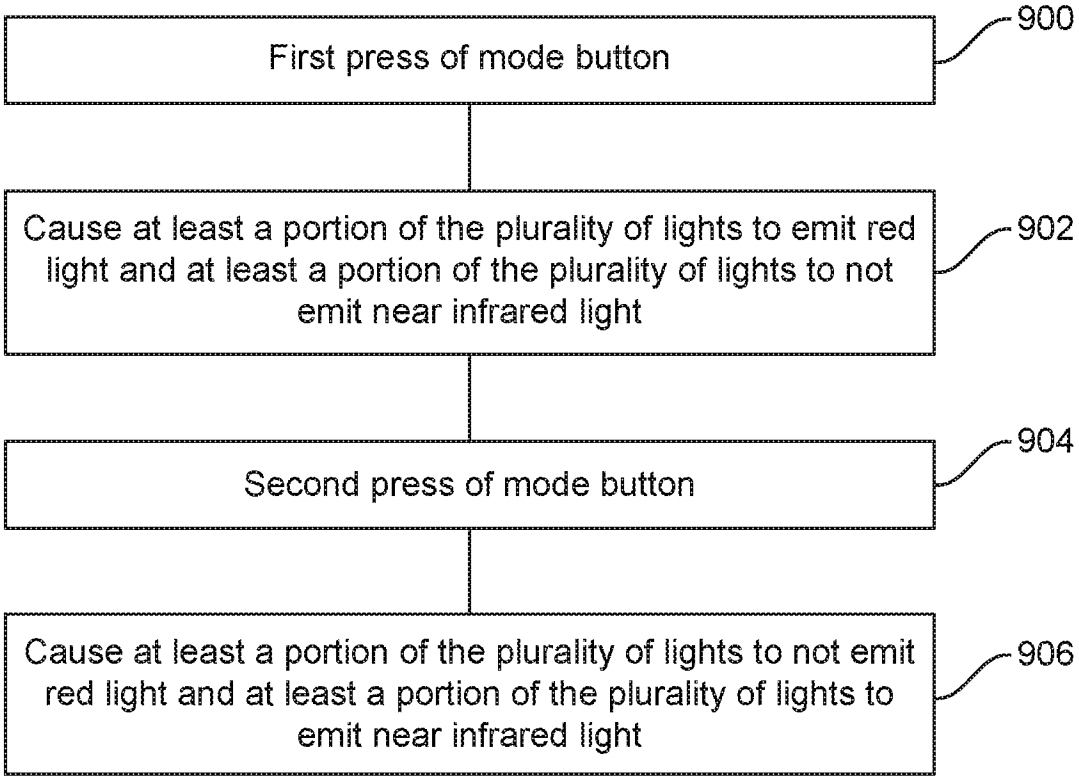

First press of mode button
900
Cause at least a portion of the plurality of lights to emit red light and at least a portion of the plurality of lights to not emit near infrared light
902
Second press of mode button
904
Cause at least a portion of the plurality of lights to not emit red light and at least a portion of the plurality of lights to emit near infrared light
906

FIG. 9

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	JOOVV.004A.C2
	Application Number	
Title of Invention	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

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

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☐ **An Address is being provided for the correspondence Information of this application.**

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Application Information:

Title of the Invention	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS		
Attorney Docket Number	JOOVV.004A.C2	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	10	**Suggested Figure for Publication (if any)**	1

Filing By Reference:

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

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

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

Publication Information:

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

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	JOOVV.004A.C2
	Application Number	
Title of Invention	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS	

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	16227289	2018-12-20
Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	16584784	2019-09-26

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

Foreign Priority Information:

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

Remove

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

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

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

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

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
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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	JOOVV.004A.C2
	Application Number	
Title of Invention	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS	

Authorization or Opt-Out of Authorization to Permit Access:

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

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

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

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

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

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

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

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

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

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

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

PTO/AIA/14 (02-18)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	JOOVV.004A.C2
	Application Number	
Title of Invention	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS	

Applicant Information:

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

Applicant 1 — Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

● Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Joovv, Inc.		
Mailing Address Information For Applicant:			
Address 1	940 Calle Amanecer		
Address 2	Unit D		
City	San Clemente	**State/Province**	CA
Country	US	Postal Code	92673
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.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	JOOVV.004A.C2
	Application Number	
Title of Invention	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

Signature:

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	/Wesley Schwie/			Date (YYYY-MM-DD)	2019-10-10
First Name	Wesley	Last Name	Schwie	Registration Number	64,950

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

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	JOOVV.004A.C2
	Application Number	
Title of Invention	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

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

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

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

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

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

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

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

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

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

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

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

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

Title of Invention	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

As the below named inventor, I hereby declare that:

This declaration is directed to:

- [■] The attached application, or
- [ ] United States application or PCT international application number _____

filed on _____.

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

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

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

WARNING:

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

LEGAL NAME OF INVENTOR

Inventor: Justin Strahan Date (Optional) :_____

Signature: 

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

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

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

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

Title of Invention	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS

As the below named inventor, I hereby declare that:

This declaration is directed to:

- [■] The attached application, or
- [ ] United States application or PCT international application number _____

filed on _____.

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

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

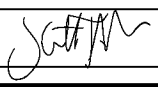
I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

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LEGAL NAME OF INVENTOR

Inventor: Scott Nelson Date (Optional): 10/10/19

Signature: 

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

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

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

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS
First Named Inventor/Applicant Name:	Justin Strahan
Filer:	Wesley E. Schwie/Talia Childs
Attorney Docket Number:	JOOVV.004A.C2

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	75	75
UTILITY SEARCH FEE	2111	1	330	330
UTILITY EXAMINATION FEE	2311	1	380	380
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**785**

Electronic Acknowledgement Receipt

EFS ID:	37418598
Application Number:	16598033
International Application Number:	
Confirmation Number:	3718
Title of Invention:	PHOTOBIOMODULATION THERAPY SYSTEMS AND METHODS
First Named Inventor/Applicant Name:	Justin Strahan
Customer Number:	124179
Filer:	Wesley E. Schwie/Talia Childs
Filer Authorized By:	Wesley E. Schwie
Attorney Docket Number:	JOOVV.004A.C2
Receipt Date:	10-OCT-2019
Filing Date:	
Time Stamp:	11:38:24
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$785
RAM confirmation Number	E201900B39150219
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		2019-10-10-Specification-JOOVV-004A-C2.pdf	192761 9be3cedea391e4d6f9e501e750372aeef36e9c7c	yes	20
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Specification		1	15	
	Claims		16	19	
	Abstract		20	20	
Warnings:					
Information:					
2	Drawings-only black and white line drawings	2019-10-10-Figures-JOOVV-004A-C2.pdf	336189 bccdc6d112878eae875e91de9606650eb9602902	no	10
Warnings:					
Information:					
3	Application Data Sheet	ADS-JOOVV-004A-C2.pdf	1256142 bbb8ad55c5b56d9280d108453b6bd05909db2cd3	no	8
Warnings:					
Information:					
4	Oath or Declaration filed	Declaration-Justin.pdf	132852 0b36be03b98fed16a9afd942c00618d60699d4d4	no	1
Warnings:					
Information:					
5	Oath or Declaration filed	Declaration-Scott-.pdf	154325 1fd42347153729dcf03d549343806d8f4ff0a2dd	no	1

Warnings:					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	35098 fd042814bb00bbc2d5a1b697a248975029ad236a	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	2107367	

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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