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(71) Applicant: **TECLENS, LLC** [US/US]; 175 Harbor Road, St. James, NY 11780 (US).

(72) Inventors: **COOPER, Frank George**; 467 Vanderbilt Parkway, Dix Hills, New York 11746 (US). **LOPATH, Patrick David**; 83 Ledge Lane, Stamford, Connecticut 06905 (US). **ACKER, David E.**; 175 Harbor Road, St. James, New York 11780 (US). **GERSHAW, David L.**; 428 medford St., Unit 4, Charlestown, Massachusetts 02129 (US).

(74) Agents: **MILLET, Marcus** et al.; Lerner, David, Littenberg, Krumholz & Mentlik, LLP, 600 South Avenue West, Westfield, New Jersey 07090 (US).

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AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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2 April 2015

(54) Title: APPARATUS FOR PHOTOTHERAPY OF THE EYE

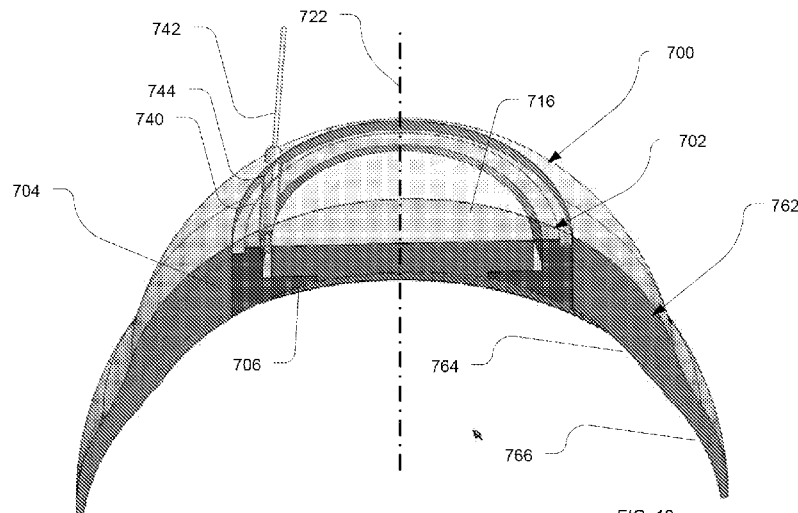


FIG. 19

(57) Abstract: A device and method for applying light to the cornea of the eye as, for example, to promote crosslinking of collagen in the cornea for vision correction. The device may include a structure having form and size similar to a conventional contact lens. The structure may include an optically dispersive element such as a mass (726) of an optically dispersive material that may be contained in a cavity (724) of a reflective element (702). Light applied to the dispersive mass as, for example, by an optical fiber connected (742) to the structure is dispersed in the structure and passes into the cornea. The patient may blink or close the eye during the procedure, which increases patient comfort and aids in maintaining hydration of the cornea.



**INTERNATIONAL SEARCH REPORT**

International application No  
PCT/US2014/044091

**A. CLASSIFICATION OF SUBJECT MATTER**  
 INV. A61F9/008 A61F9/009  
 ADD. G02C7/04 A61N5/06

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)  
 A61F G02C A61N

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)  
 EPO-Internal, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 221 028 B1 (LIEBERMAN ROBERT A [US] ET AL) 24 April 2001 (2001-04-24)	13-17, 20,22, 25,27, 33,36-39
Y	column 1, line 35 - column 2, line 55 figures 1-4	32
X	US 2012/199995 A1 (PUGH RANDALL B [US] ET AL) 9 August 2012 (2012-08-09)	13,18, 19,21, 23,24, 26,31
Y	paragraphs [0150], [0158] - [0160] figure 10	32
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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  27 January 2015	Date of mailing of the international search report  13/02/2015
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer  Grochol, Jana
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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2014/044091

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.: 1-12, 28-30, 45  
because they relate to subject matter not required to be searched by this Authority, namely:  
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:  
13-27, 31-40
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2014/044091

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2008/208177 A1 (MROCHEN MICHAEL [CH] ET AL) 28 August 2008 (2008-08-28) cited in the application paragraphs [0023] - [0027] figure 1	13,18, 19,26, 33-35,40
X	----- WO 2011/094758 A2 (MONTEFIORE MEDICAL CT [US]; CHUCK ROY S [US]) 4 August 2011 (2011-08-04) cited in the application paragraphs [0032], [0034] figure 2A	13,31
X	----- DE 10 2010 016629 A1 (FLUORON GMBH GES FUER HOCHREINE BIOMATERIALIEN [DE]; MRC SYSTEMS GMBH) 27 October 2011 (2011-10-27) abstract paragraphs [0010], [0015], [0017], [0021], [0032], [0060] - [0064] figures 14-16 -----	13, 33-35,40

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2014/044091
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6221028	B1	24-04-2001	NONE
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US 2012199995	A1	09-08-2012	AR 085137 A1 11-09-2013
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			EP 2560571 A1 27-02-2013
			WO 2011131180 A1 27-10-2011
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**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 13-27, 31, 32

a device for applying light to the eye comprising a structure having an inner surface generally corresponding to shape of the eye and including an optically dispersive element

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2. claims: 33-40

a device for applying light to the eye of a subject comprising a structure adapted to overlie the outer surface of the eye, including a reflective element defining a cavity and an optically dispersive element

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3. claims: 41-44

a device for applying light to the eye comprising a structure adapted to overlie the outer surface of the eye including an optically dispersive element and further comprising a transmission optical fiber

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4. claim: 46

a housing having an inner surface having a shape generally corresponding to the shape of a surface of an eye, further having a wall and a socket adapted to releasably engage an optical structure

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