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For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: APPARATUS AND METHOD FOR IMPLANTING INTRAOCULAR LENS THROUGH A SMALL INCISION

(57) Abstract: Apparatus and method for implantation of intraocular lenses (IOLs) with various designs, particularly a full-size IOL, into the eye through small incisions are disclosed. A full-size intraocular lens mimics the natural human crystalline lens in size and volume. The SMARTTM IOL, a full-size design, utilizes the thermodynamic properties of a crystalline polymeric material composition. The insertion apparatus and method of the present invention allow the full-size SMARTTM IOL to be inserted through a small incision (about 4 mm or less) by deforming it with a crimping device into a solid rod and delivering the rod into the eye with a temperature-controlled injector equipped with a temperature control device. Once the solid rod is located in the desired position inside the eye, human body temperature softens the rod and allows it to reform back into the original lens geometry with defined optical properties.



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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2005/019918

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61F2/16

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 G02B

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 practical, 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.
Y	US 5 316 704 A (WANG ET AL) 31 May 1994 (1994-05-31) column 4, line 16 - line 22 column 10, line 45 - line 62; figures 2a,3a -----	13,14
Y	EP 0 269 288 A (KINGSTON TECHNOLOGIES, INC) 1 June 1988 (1988-06-01) column 8, line 12 - line 18 column 15, line 33 - column 16, line 4; figures 9,10 -----	13
A		14
Y	US 2002/161437 A1 (ZHOU STEPHEN Q ET AL) 31 October 2002 (2002-10-31) cited in the application paragraph [0013] - paragraph [0015] paragraph [0035] - paragraph [0037] ----- -/--	14



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 document 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

8 February 2006

Date of mailing of the international search report

05.07.06

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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2005/019918

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US R E36 150 E (GUPTA ET AL) 16 March 1999 (1999-03-16) column 4, line 66 - column 7, line 39; figures 5,6 ---	14

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2005/019918

Box 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
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
The subject-matter of claims 1-12 is a method for insertion of an IOL in an eye, which comprises the invasive step of inserting the lens into the eye through an incision
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 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 fee, this Authority did not invite payment of any additional fee.
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.:
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.:

13,14

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 13,14

A segmental radial compression device holding a thermodynamic shape memory IOL

2. claims: 15-17

A device for inserting an IOL through an incision in an eye, the device comprising a central channel, a surrounding cooled sleeve as well as a plunger

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2005/019918

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US RE36150	E	16-03-1999	NONE	