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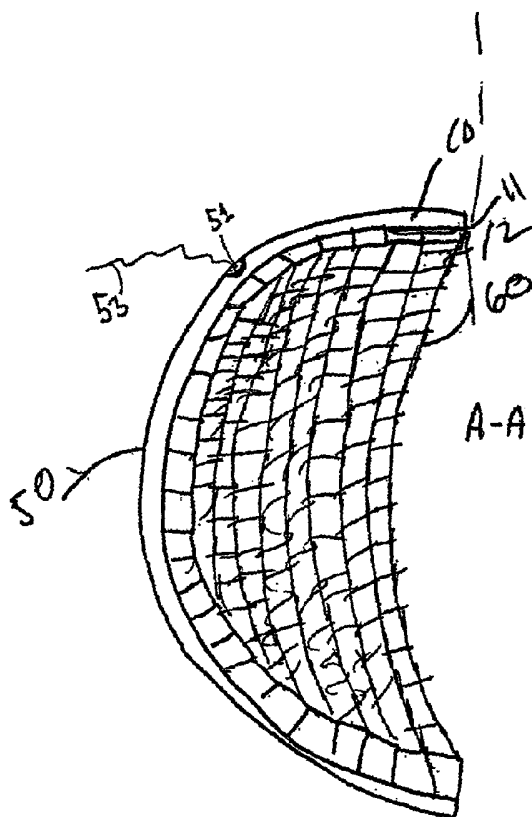
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[Continued on next page]

(54) Title: HEMISPHERICAL DETECTOR



(57) Abstract: A hemispherical detector comprising a plurality of photodetectors (12) arranged in a substantially contiguous array, the array being substantially in the shape of a half-sphere, the half-sphere defining a closed end (50) and an open end (60), the open end (60) defining a substantially circular face. Also provided is a method for constructing a hemispherical detector comprising the steps of making a press mold of the desired shape of the hemispherical detector, pouring a material into the press mold to form a cast, finishing the cast to remove any defects, coating the cast with a coating material, and attaching a plurality of photodetectors to the cast.



IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/48163

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G01J 5/28, 5/10

US CL : 250/339.02, 339.07, 339.11 339.12, 341.8, 343

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)

U.S. : 250/339.02, 332, 339.07, 339.11 339.12 341.8, 343, 332; 356/326, 331

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
NONE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 4,837,439 A (GENNA et al) 06 June 1989 (06.06.1989), col. 5, lines 39-42 and Fig. 1.	1,4,7,10,13,16,19,22, 25,36,37,42,45,48 ----- 2,3,5,6,8,9,11,12,14, 15,17,18,20,21,23,24, 26,27,38-41,43,44,46, 47,49,50,57-59
Y,E	US 6,236,050 B1 (TUMER) 22 May 2001 (22.05.2001), col. 25, lines 34-41 and Fig. 29.	2,3,5,6,8,9,11,12,14, 15,17,18,20,21,23,24, 26,27,38-41,43,44,46, 47,49,50,58,59
Y	US 4,916,309 A (KEANE) 10 April 1990 (10.04.1990), abstract.	3,6,9,12,15,18,21,24, 27,40,41,44,47,50,59
Y	US 5,072,1019 A (AGUILERA, JR. et al) 10 December 1991 (10.12.1991), col. 13, line 64 - col. 14, line 2.	57-59
A	BURNS et al, Handbook of Near-Infrared Analysis, Practical Spectroscopy Series. 1992, Vol. 13, pp. 42-43, see entire document.	1-27, 36-50, 57-59

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent published on or after the international filing date	"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
"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)	"&"	document member of the same patent family
"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		

Date of the actual completion of the international search

02 June 2002 (02.06.2002)

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/48163

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

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

1. ☐ Claim Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claim 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. ☐ Claim Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation 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.: 1-27, 36-50, 57-59

Remark on Protest

☐
☐

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/48163

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claims 1-27, 36-50, and 57-59, drawn to a photodetector array for an infrared spectrometer.

Group II, claims 28-35 and 51-56, drawn to a method of making a support structure for a detector array.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The special technical feature of Group I relates to an infrared spectrometer utilizing a specially shaped detector array, which is not an aspect of Group II. The special technical feature of Group II relates to a fabrication process for a detector support structure, which is not an aspect of Group I.