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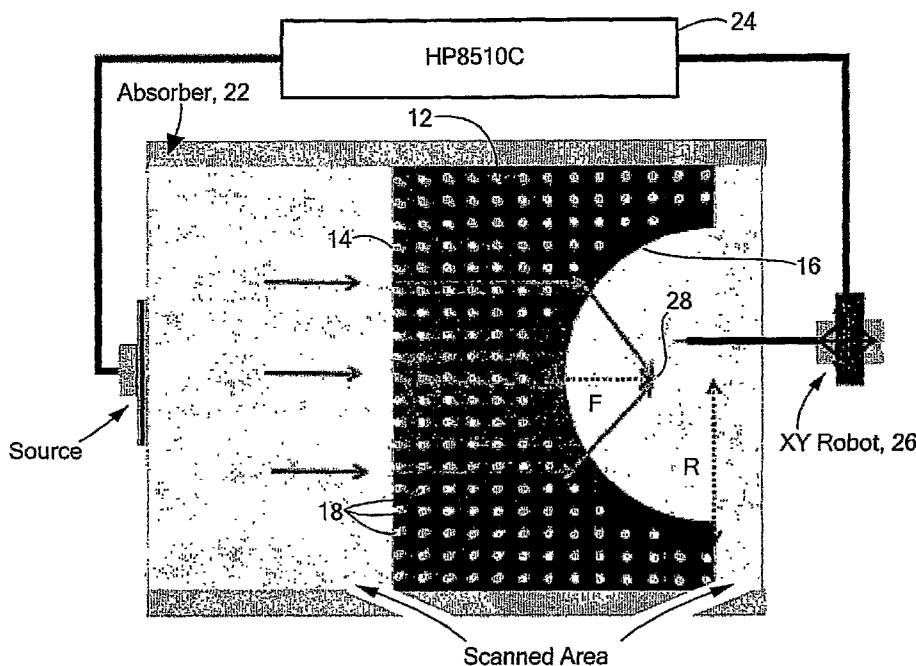
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[Continued on next page]

(54) Title: PHOTONIC CRYSTAL DEVICES USING NEGATIVE REFRACTION



(57) Abstract: Negative refraction in photonic crystals and diffraction grating is used to design plano-concave lenses to focus plane waves. Microwave experiments are carried out to demonstrate negative refraction and the performance of these lenses. Demonstration of negative refraction of visible light is also performed for the grism. These lenses can be used in optical circuits, astronomical applications, etc.

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Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*
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 IPC: **G02B 3/00(2007.01)**

 USPC: **359/642**
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B. FIELDS SEARCHED
 Minimum documentation searched (classification system followed by classification symbols)
 U.S. : 359/642, 718, 796, 800, 322, 342

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)
 East Search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- A	US 2001/0012149 A1 (LIN et al) 09 August 2001 (09.08.2001), Figures 5 and 8b, paragraphs 0004, 0069-0095.	1-2, 7, 11-13 ----- 3-6, 8-10, 14-15
A	US 6,618,209 A (NISHIOKA et al) 09 September 2003 (09.09.2003), Figures 31 and 33, column 5, line 60 to column 6, line 12, column 33, lines 7-14.	1-15

Further documents are listed in the continuation of Box C. See patent family annex.

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