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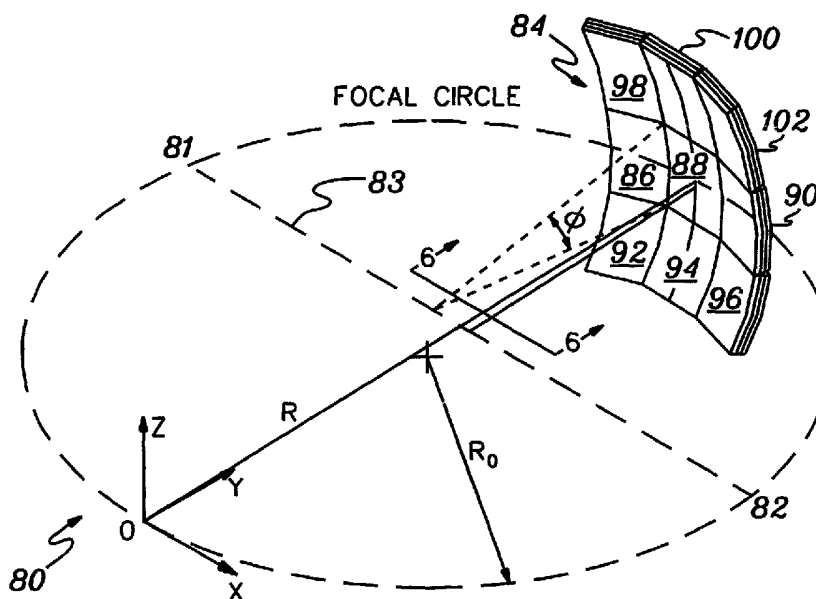
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(54) Title: AN OPTICAL DEVICE FOR DIRECTING X-RAYS HAVING A PLURALITY OF OPTICAL CRYSTALS



(57) Abstract: Devices for improving the capturing and utilization of high-energy electromagnetic radiation, for example, x-rays, gamma rays, and neutrons, for use in physical, medical, and industrial analysis and control applications are disclosed. The devices include optics having a plurality of optical crystals, for example, doubly-curved silicon or germanium crystals, arranged to optimize the capture and redirection of divergent radiation via Bragg diffraction. In one aspect, a plurality of optic crystals having varying atomic diffraction plane orientations are used to capture and focus divergent x-rays upon a target. In another aspect, a two- or three-dimensional matrix of crystals is positioned relative to an x-ray source to capture and focus divergent x-rays in three dimensions.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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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)

IPC 7 G21K

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)

INSPEC, EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HASTINGS J B ET AL: "Local-structure determination at high dilution: internal oxidation of 75-ppm Fe in Cu" PHYSICAL REVIEW LETTERS, 10 DEC. 1979, USA, vol. 43, no. 24, pages 1807-1810, XP002276867 ISSN: 0031-9007	1,6-20, 56-61, 64-67, 69-72, 74-78
Y	page 1807, column 2, paragraphs 2,3; figure 1 page 1808, column 1, line 1 page 1808, column 2, line 8-10 ----- -/--	26,27

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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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 5 787 146 A (GIEBELER ROBERT H) 28 July 1998 (1998-07-28)	1-7, 9, 21-25, 28-36, 40-58, 61, 64-67
Y	column 8, line 30 - line 44; figure 9	26, 27
X	----- JOHANSSON, TRYGGVE: "Über ein neuartiges, genau fokussierendes Röntgenspektrometer" ZEITSCHRIFT FÜR PHYSIK, vol. 82, 1933, pages 507-528, XP002280414	56, 69
A	page 507 -page 511	1-55, 57-68, 70-78
X	----- GUINIER A ET AL: "RAYONS X. - SUR LES MONOCHROMATEURS A CRISTAL COURBE" COMPTES RENDUS HEBDOMADAIRES DES SEANCES DE L'ACADEMIE DES SCIENCES, GAUTHIER-VILLARS, PARIS,, FR, vol. 223, 1946, pages 31-32, XP001181077 ISSN: 0001-4036	56, 69
A	the whole document	1-55, 57-68, 70-78

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5787146	A	NONE	