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(54) Spherical microgrid.

(57) Spherically convex microgrids may be prepared from a flat microgrid structure by using a process depending on the differential thermal expansion between the material of the flat structure and a layer of other material applied thereto. A flat process blank 2 is etched with grid apertures in a microgrid area to which a curvature is to be added during fabrication. The blank is then subject to the deposition of a thin layer 4 of aluminium nitride (or other differential thermal expansion material having a positive thermal expansion mismatch with the material of the microgrid substrate) over at least the microgrid area (Step A). The differential thermal expansion layer is coextensively with the grid area, so as to confine the warping substantially to the grid area where curvature is desired. Curvature (Step B) is accomplished by a controlled heat warping step in an inert atmosphere (for a silicon microgrid structure of 250 micrometers thickness, heating at 1200C to soften the silicon). Permanent deformation, occurring as a result of the differential thermal expansion, is controlled by selection of temperature and time of heat treatment to achieve the desired curvature. The aluminium nitride layer (Step C) is removed prior to cooling.

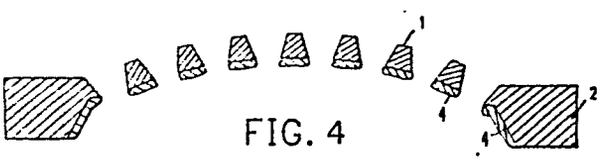

FIG. 4

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EUROPEAN SEARCH REPORT

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EP 84 11 4663

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl 4)
A	US-A-3 914 969 (BANKS) * Column 2, lines 24-31; figures 1,2 *	1	H 01 J 9/14
A	GB-A- 869 239 (MULLARD LTD) * Page 2, lines 25-42; figure 4 *	1	
D,A	GB-A-2 020 482 (G. VALENTINE MIRAM) * Abstract *	1	
D,A	IBM TECHNICAL DISCLOSURE BULLETIN, vol. 25, no. 10, March 1983, pages 5041-5042, New York, US; J.L. SPEIDELL: "Silicon ion-beam extraction grids"	1	

TECHNICAL FIELDS SEARCHED (Int. Cl.4)

H 01 J 9/00
H 01 J 27/00

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	21-04-1987	JANSSON P.E.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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