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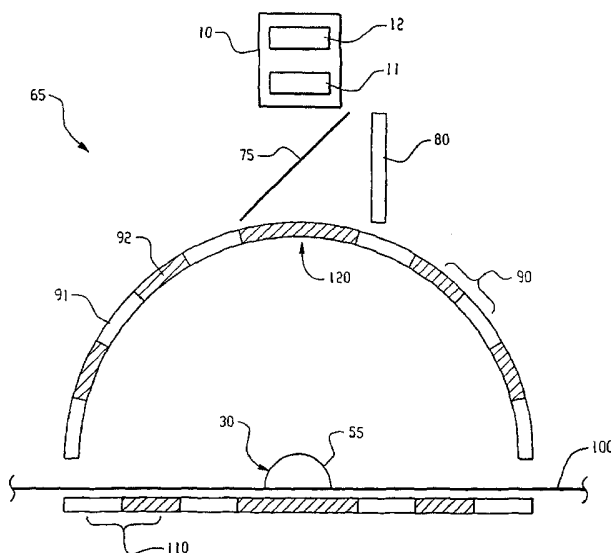
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(54) Title: PATTERNED ILLUMINATION METHOD AND APPARATUS FOR MACHINE VISION SYSTEMS



(57) Abstract: This application relates to an apparatus (Fig. 3) and method for providing patterned illumination fields for use within process control and article inspection applications. More specifically, it pertains to the use of patterned illuminators (90, 110) to enable visual surface inspection of polished objects (30) such as ball bearings. The use of patterned illuminators properly disposed in relation to a polished part under inspection allows small surface imperfections such as scratches and pits to become visible against the normal surface background. The use of carefully engineered illuminators facilitates advantageous defect-site scattering from generally dark field sources. The patterned nature of the illuminators defined by this invention allows the complete surface (55) of three-dimensional parts to be effectively highlighted using dark field illumination fields.

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B. FIELDS SEARCHED

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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	US 6,207,946 B1 (Jusoh et al) 27 March 2001 (27.03.2001), column 4, line 5 to column 5, line 20.	1, 2, 5, 10-14
A	US 6,359,694 B1 (Stredele et al) 19 March 2002 (19.03.2002), see entire document.	3, 4, 6-9, 15
X	US 6,256,091 B1 (Kobayashi) 03 July 2001 (03.07.2001), Figs. 4a-4b, column 14, lines 20-43.	1, 12-14
X	US 5,943,125 A (King et al) 24 August 1999 (24.08.1999), Figs. 1 and 4 and column 4, line 55 to column 5, line 28.	1, 12, 13
A	US 6,118,524 A (King et al) 12 September 2000 (12.09.2000), see entire document.	1-15
A	US 5,909,285 A (Beaty et al) 01 June 1999 (01.06.1999), see entire document	1-15
X	US 4,893,223 A (Arnold) 09 January 1990 (09.01.1990), Figs. 2 and 3 and column 3, line 5 to column 4, line 14.	1, 2, 5, 10-14

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See patent family annex.

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