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(54) Title: METHOD AND SYSTEM FOR OPTICAL THREE-DIMENSIONAL TOPOGRAPHY MEASUREMENT

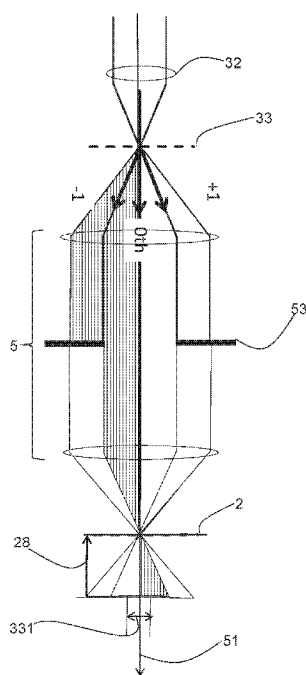


Fig. 8

(57) Abstract: For three-dimensional topography measurement of a surface of an object patterned illumination is projected on the surface through an objective. A relative movement between the object and the objective is carried out, and plural images of the surface are recorded through the objective by a detector. The direction of the relative movement includes an oblique angle with an optical axis of the objective. Height information for a given position on the surface is derived from a variation of the intensity recorded from the respective position. Also, patterned illumination and uniform illumination may be projected alternately on the surface, while images of the surface are recorded during a relative movement of the object and the objective along an optical axis of the objective. Uniform illumination is used for obtaining height information for specular structures on the surface, patterned illumination is used for obtaining height information on other parts of the surface.



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A. CLASSIFICATION OF SUBJECT MATTER**G01N 21/956(2006.01)i, G01N 21/39(2006.01)i, G02B 27/22(2006.01)i**

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)

G01N 21/956; H04N 7/18; G01B 11/30; G01B 11/24; G01B 11/02; G06K 9/00; G01N 21/39; G02B 27/22

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & keywords: 3D, topography, height, pattern, grating, oblique and specular

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2011-0001818 A1 (HUR et al.) 06 January 2011 See abstract, paragraphs [0007], [0056]–[0080] and figures 1, 2, 4.	1–8, 10, 23–29, 32
Y		9, 11, 14–22, 30, 31, 33–44
A		12, 13
Y	US 2014-0093986 A1 (THE BOARD OF TRUSTEES OF THE UNIVERSITY OF ILLINOIS) 03 April 2014 See paragraph [0041].	9, 21
Y	US 6549288 B1 (MIGDAL et al.) 15 April 2003 See claim 11 and figure 1.	11, 14–22, 33–44
Y	US 2011-0122420 A1 (JANSEN et al.) 26 May 2011 See paragraph [0024] and figure 1.	30, 31, 40–42
A	US 5471303 A (AI et al.) 28 November 1995 See figures 6, 7.	1–44



Further documents are listed in the continuation of Box C.



See patent family annex.

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"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

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"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

"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

"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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