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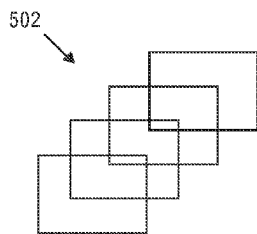


FIG. 5A

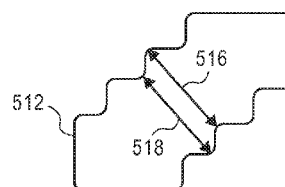


FIG. 5B

(57) Abstract: A method and system for fracturing or mask data preparation or proximity effect correction is disclosed in which a series of charged particle beam shots is determined, where the series of shots is capable of forming a continuous non-manhattan track on a surface, such that the non-manhattan track has a line width roughness (LWR) which nearly equals a target LWR. A method and system for fracturing or mask data preparation or proximity effect correction is also disclosed in which at least two series of shots are determined, where each series of shots is capable of forming a continuous non-manhattan track on a surface, and where the space between tracks has space width roughness (SWR) which nearly equals a target SWR.



INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/030487**A. CLASSIFICATION OF SUBJECT MATTER****H01L 21/027(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)

H01L 21/027; G06F 17/50; G21G 5/00; G03F 1/00; G03F 7/00; A61N 5/00

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:charged particle beam,line width roughness,space width roughness,non-manhattan track,variable shaped beam,character projection

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2011-0053056 A1 (FUJIMURA AKIRA et al.) 03 March 2011 See abstract; paragraphs [0008]-[0009], [0042]-[0048], [0052]-[0058]; and figures 1, 3A-4E	1-13,23,26-37
A		14-22,24-25,38-46
A	US 2004-0011966 A1 (SASAKI NORIAKI et al.) 22 January 2004 See abstract; paragraphs [0063]-[0072], [0092]-[0100]; and figures 1, 4A-4C	1-46
A	US 2010-0055586 A1 (FUJIMURA AKIRA et al.) 04 March 2010 See abstract; paragraphs [0032]-[0034]; and figures 3-5	1-46

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

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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

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"&" document member of the same patent family

Date of the actual completion of the international search

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