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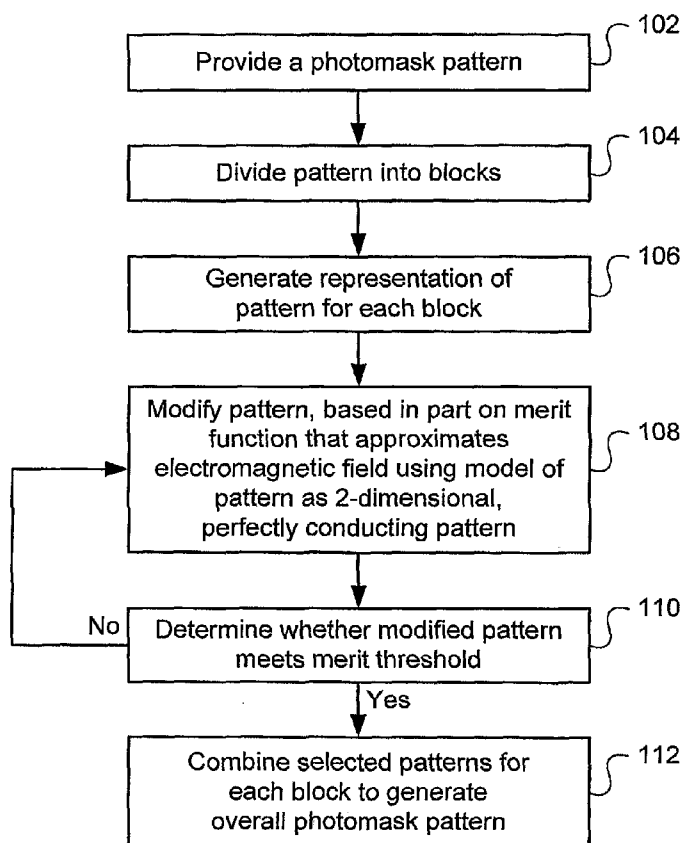
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[Continued on next page]

(54) Title: FAST SYSTEMS AND METHODS FOR CALCULATING ELECTROMAGNETIC FIELDS NEAR PHOTOMASKS



(57) Abstract: Photomask patterns are represented using contours defined by mask functions. Given target pattern, contours are optimized such that defined photomask, when used in photolithographic process, prints wafer pattern faithful to target pattern. Optimization utilizes "merit function" for encoding aspects of photolithographic process, preferences relating to resulting pattern (e.g. restriction to rectilinear patterns), robustness against process variations, as well as restrictions imposed relating to practical and economic manufacturability of photomasks. Merit function may approximate electromagnetic field using model of mask pattern as infinitely thin, perfectly conducting pattern. Model may also be used for other lithographic methods, including simulation and verification.

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USPC: 716/19,21;430/5,30;345/426

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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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 practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2005/0191566 (Liu et al.) 01 September 2005 (01.09.2005), Whole document	1-3,7-9,13-16,20-23,27-31
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Y	US 6,756,980 B (Hayashi) 29 June 2004 (29.06.2004), Whole document.	4-6,10-12,17-19,24-26



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