FIG. 11C

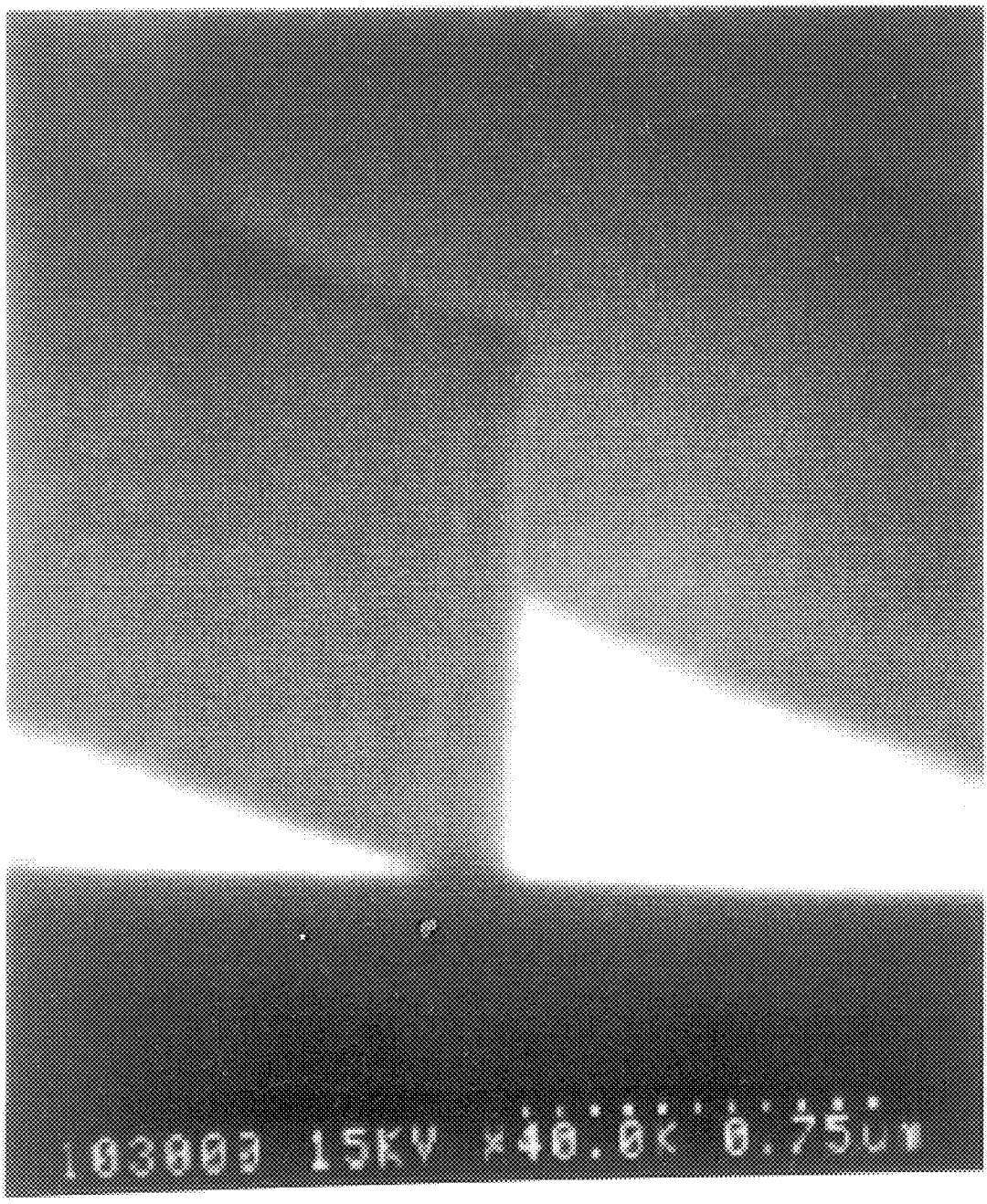

FIG. 12

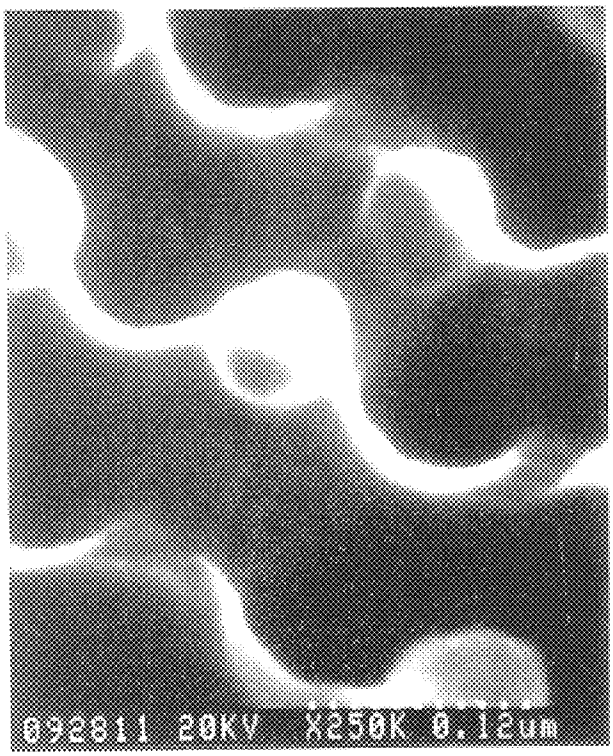

FIG. 13A

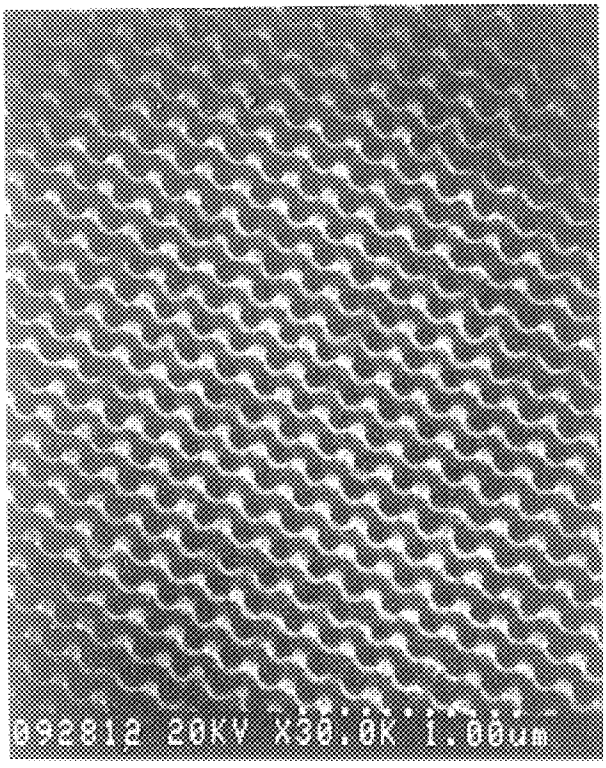

FIG. 13B

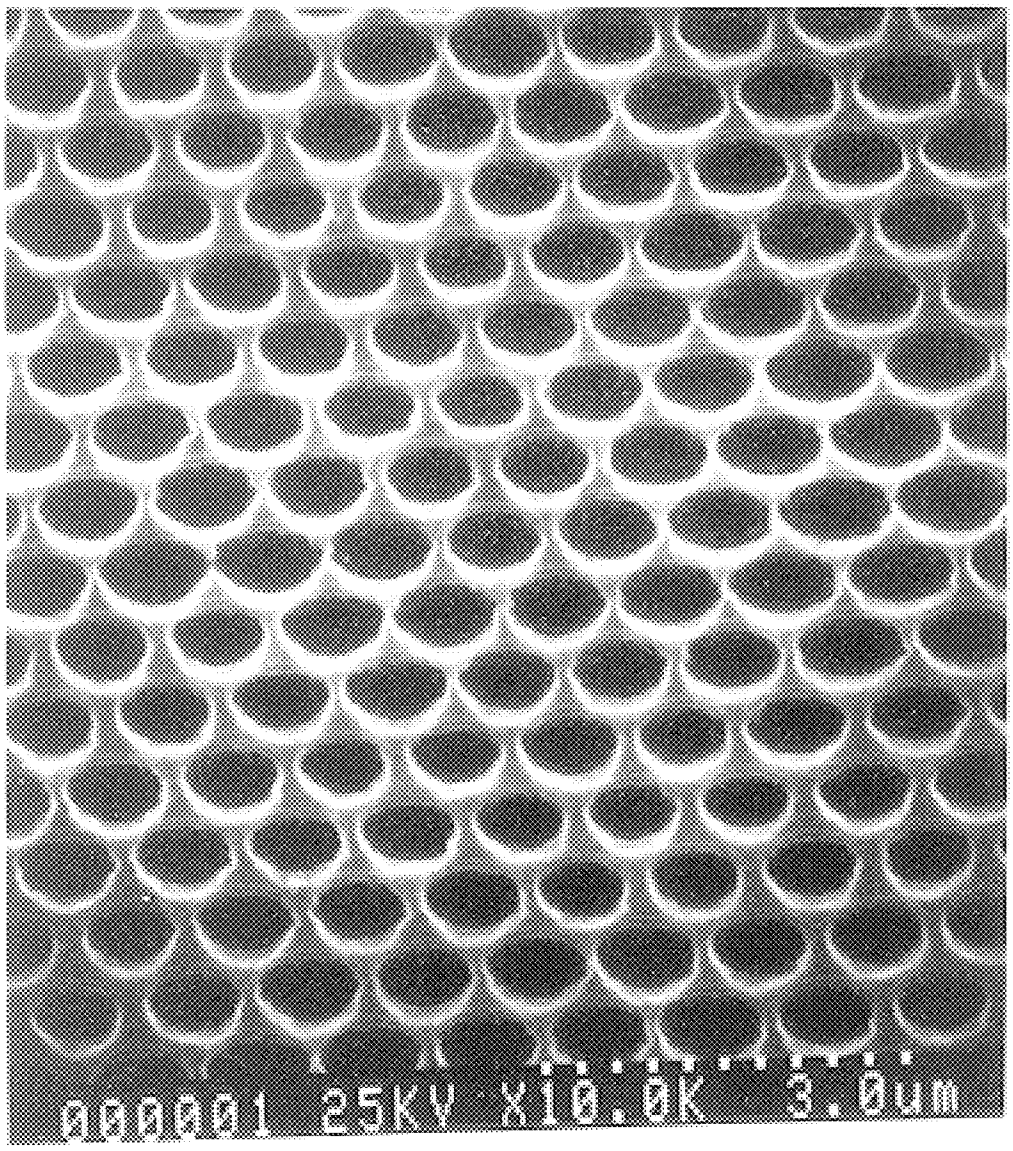

FIG. 14

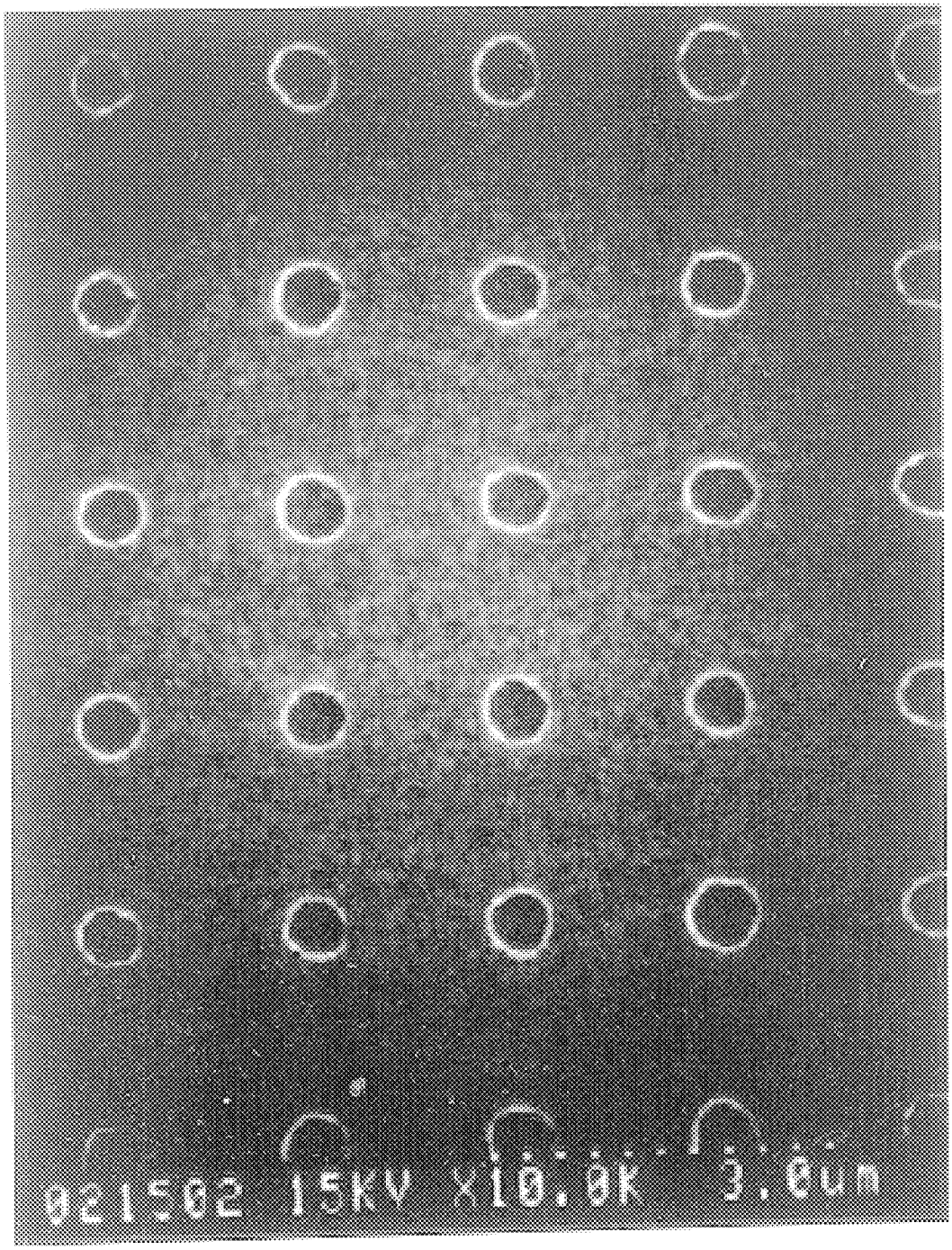

FIG. 15

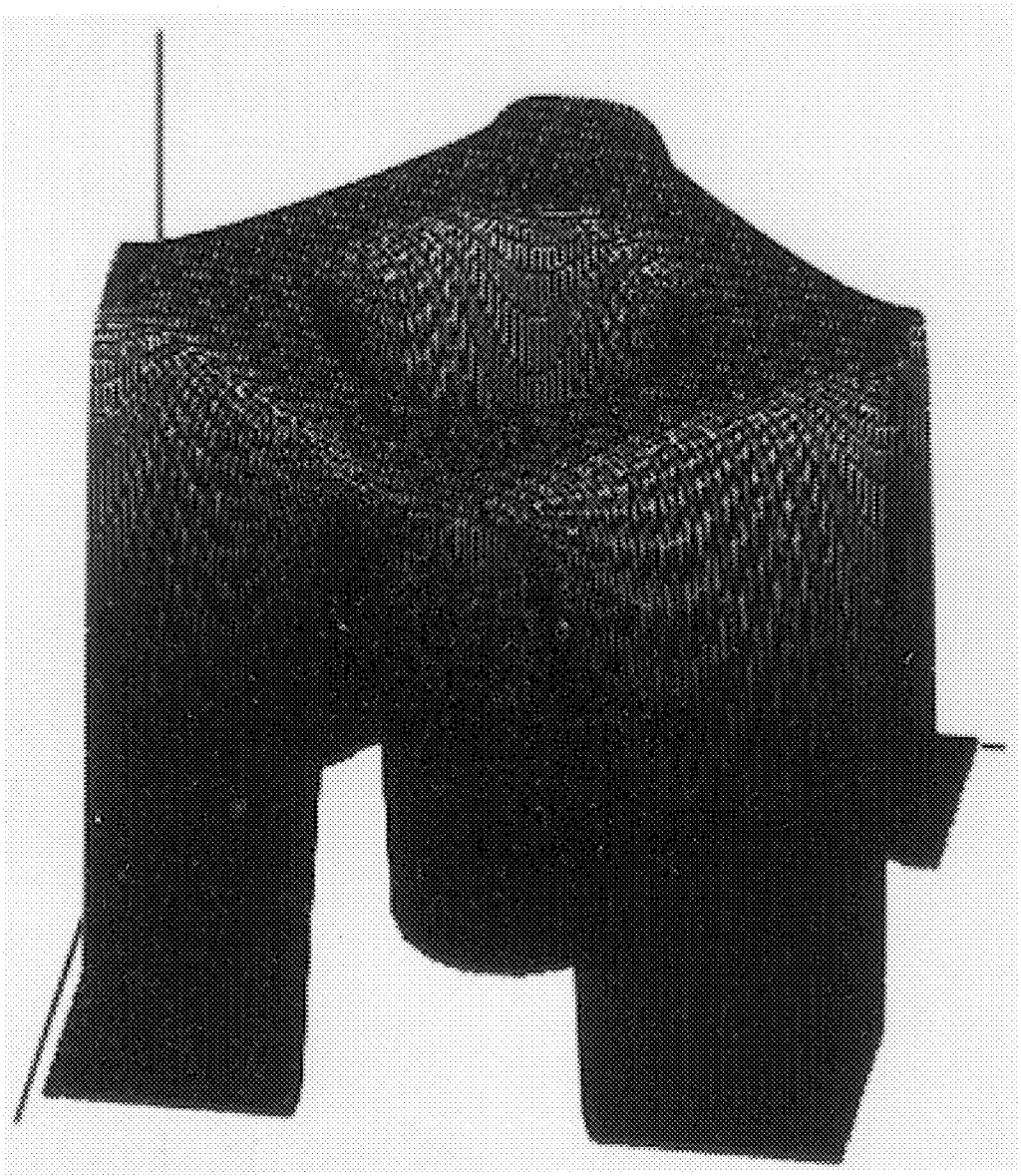

FIG. 16

METHOD AND APPARATUS FOR EXTENDING SPATIAL FREQUENCIES IN PHOTOLITHOGRAPHY IMAGES

RELATED APPLICATIONS

The following patents and patent applications are herein incorporated by reference: U.S. Pat. No. 5,216,257—S. R. J. Brueck and Saleem H. Zaidi, Method and Apparatus for Alignment and Overlay of Submicron Lithographic Features (issued Jun. 1, 1993); U.S. Pat. No. 5,343,292—S. R. J. Brueck and Saleem H. Zaidi, Method and Apparatus for Alignment of Submicron Lithographic Structures (issued Aug. 30, 1994); U.S. Pat. No. 5,415,835—S. R. J. Brueck and Saleem Zaidi, Method and Apparatus for Fine-Line Interferometric Lithography (issued May 16, 1995); U.S. Pat. No. 5,759,744—S. R. J. Brueck, Xiaolan Chen, Daniel J. Devine and Saleem H. Zaidi, Methods and Apparatuses for Lithography of sparse Arrays of sub-micrometer Features (issued Jun. 2, 1998); U.S. patent application Ser. No. 08/614,991—S. R. J. Brueck, Xiaolan Chen, Daniel J. Devine and Saleem H. Zaidi, Methods and Apparatuses for Lithography of sparse Arrays of Sub-micrometer Features (a continuing, applicator was filed on Jul. 15, 1998 now U.S. Pat. No. 5,674,652); U.S. patent application Ser. No. 07/662,676—K. P. Bishop, S. R. J. Brueck, S. M. Gaspar, K. C. Hickman, J. R. McNeil, S. S. Naqvi, B. L. Stallard and G. D. Tipton, Use of Diffracted Light From Latent Images in Photoresist for Exposure Control (filed Feb. 26, 1991); U.S. Pat. No. 5,705,321—S. R. J. Brueck, An-Shiang Chu, Saleem Zaidi, and Bruce L. Draper, Method for Manufacture of Quantum Sized Periodic Structures in Si Materials (issued Jan. 6, 1998); U.S. patent application Ser. No. 08/786,066, now abandoned,—S. R. J. Brueck, Xiaolan Chen, Andrew Frauenglass and Saleem Hussain Zaidi, Method and Apparatus for Integrating Optical and Interferometric Lithography to Produce Complex Patterns (filed Jan. 21, 1997); Semiconductor Industry Association, National Technology Roadmap for Semiconductors (1994); J. W. Goodman, *Introduction to Fourier Optics*, 2nd Ed., (McGraw Hill, New York, 1996); J. W. Goodman, *Statistical Optics*, (John Wiley, New York, 1985); Xiaolan Chen, S. H. Zaidi, S. R. J. Brueck and D. J. Devine, "Interferometric Lithography of Sub-micrometer Sparse Hole Arrays for Field-emission Display Applications," Jour. Vac. Sci. Tech. B14, 3339–3349 (1996); S. H. Zaidi and S. R. J. Brueck, "Multiple-exposure interferometric lithography," Jour. Vac. Sci. Tech. B11, 658 (1992); R. Ziger and C. A. Mack "Generalized Approach toward Modeling Resist Performance," AIChE Jour. 37, 1863–1874 (1991); *Introduction to Microlithography, Second Edition*, L. F. Thompson, C. Grant Willson and M. J. Bowden, eds. (American Chemical Society, Washington D.C., 1994) and, W. D. Hinsberg, S. A. McDonald, L. A. Pederson and C. G. Willson, "A Lithographic Analog of Color Photography: Self-Aligning Photolithography using a Resist with Wavelength-Dependent Tone," Jour. Imaging Sci. 33, 129–133 (1989).

FEDERALLY-SPONSORED RESEARCH OR DEVELOPMENT

The United States Government has a paid-up license in this invention and the right in limited circumstances to require the patent owner to license others on reasonable terms as provided by the terms of Grant No. N66001-96-C-8617 awarded by the United States Department of the Navy.

FIELD OF THE INVENTION

The present invention is related, generally, to a method and apparatus for extending the available spatial frequency

Support for "high spatial frequencies"