



[54] METHOD OF FABRICATING A CONTOURED SLIDER SURFACE FEATURE WITH A SINGLE MASK

5,626,941 5/1997 Ouano 428/141

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[57] ABSTRACT

[21] Appl. No.: 695,374

A method of fabricating a contoured surface feature to multiple depths on a surface of a hydrodynamic bearing slider with a single mask includes applying a lithographic resist layer to the slider surface and forming the single mask with a mask pattern which includes a masked area, an unmasked area and an intermediate area between the masked area and the unmasked area. The lithographic resist layer is then exposed through the single mask and removed as a function of exposure to form a patterned resist layer and to thereby uncover portions of the slider surface within the patterned resist layer. The uncovered portions of the slider surface and the patterned resist layer are etched, with the uncovered portions being etched to a first depth below the slider surface. The multiple depth surface feature is created by providing the intermediate mask area with a geometry of masked and unmasked features that is unresolvable by one of the steps of exposing an etching such that an area of the slider surface corresponding to the intermediate mask area is etched to a second depth which is less than the first depth.

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[51] Int. Cl.⁶ G03C 5/00

[52] U.S. Cl. 430/320; 430/396; 216/22; 216/41; 216/58; 29/630.2; 29/630.18; 29/630.15; 29/630.12

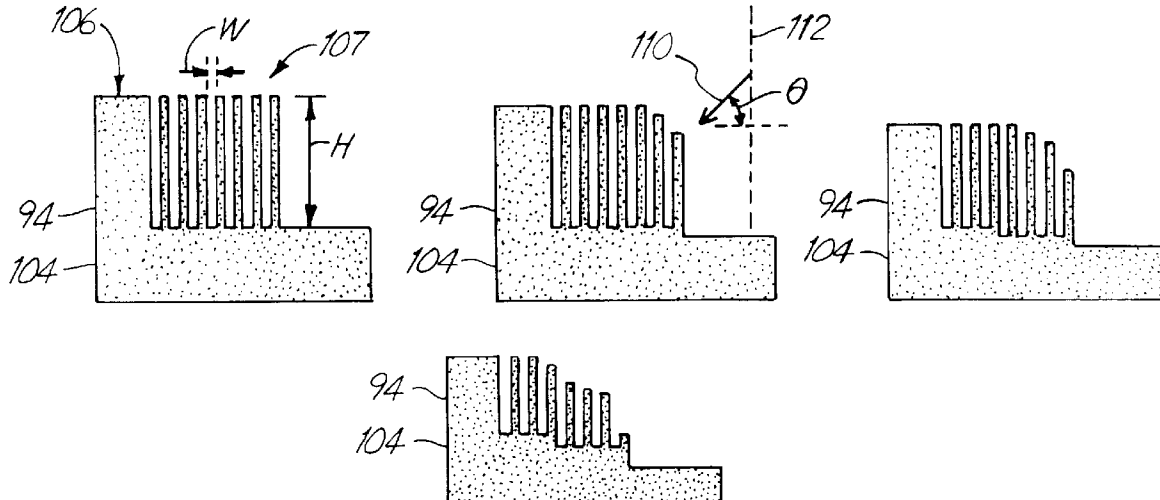
[58] Field of Search 430/320, 396, 430/929; 29/603.2, 603.18, 603.15, 603.12; 216/22, 41, 58

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26 Claims, 7 Drawing Sheets



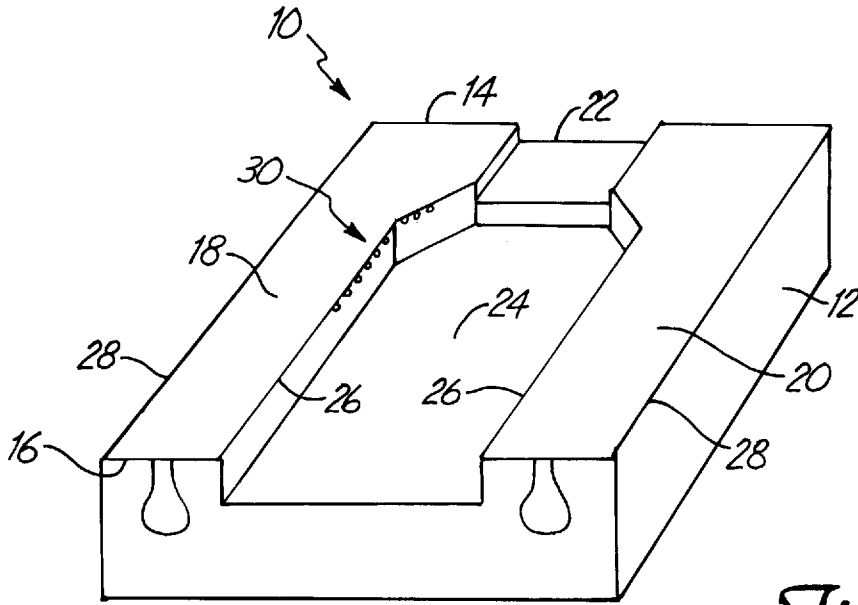


Fig. 1

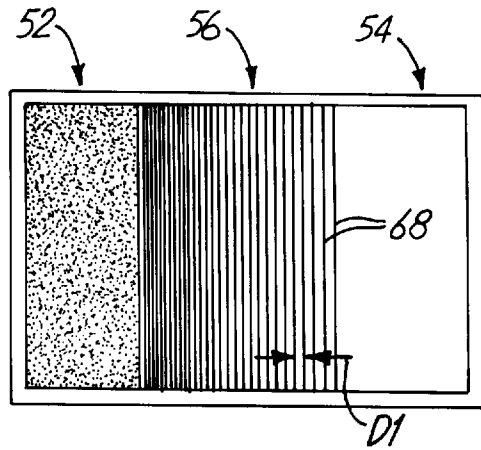
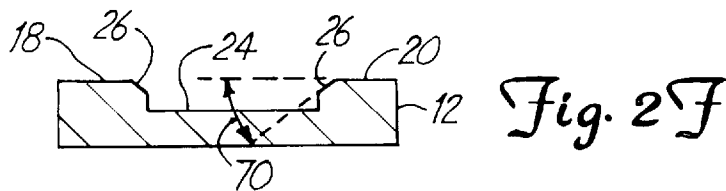
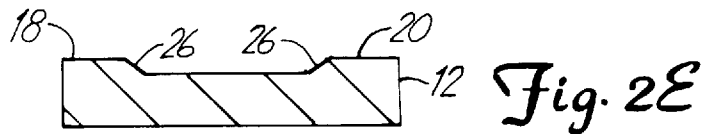
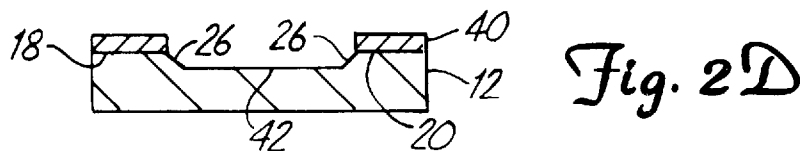
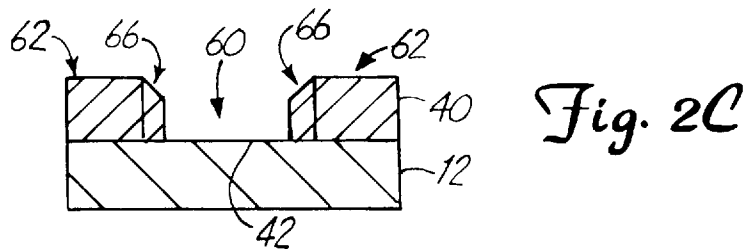
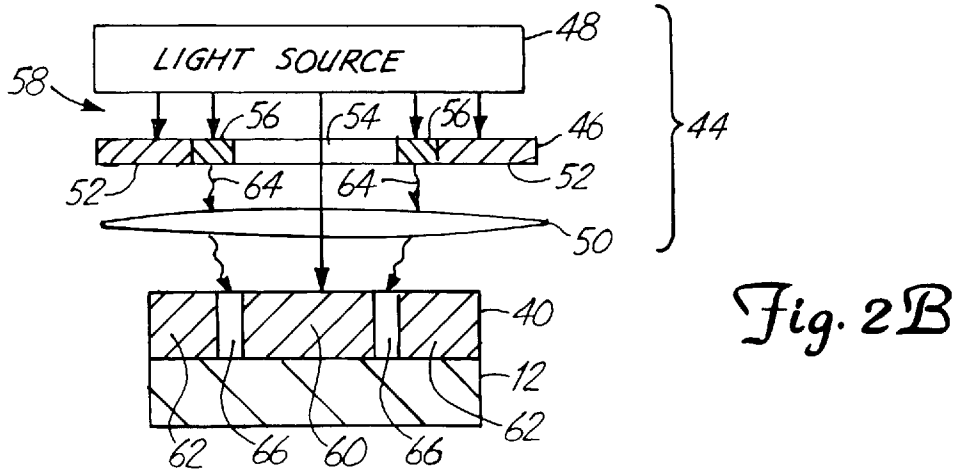
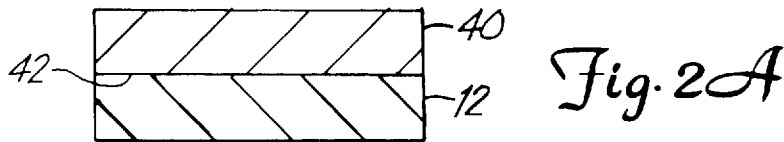


Fig. 3



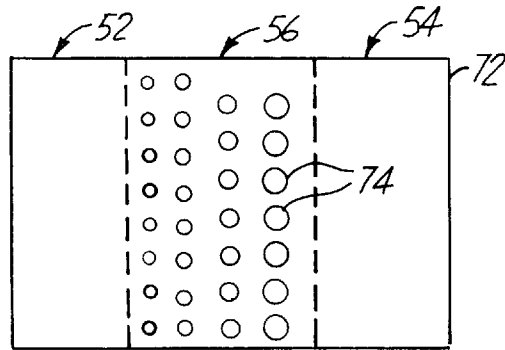


Fig. 4A

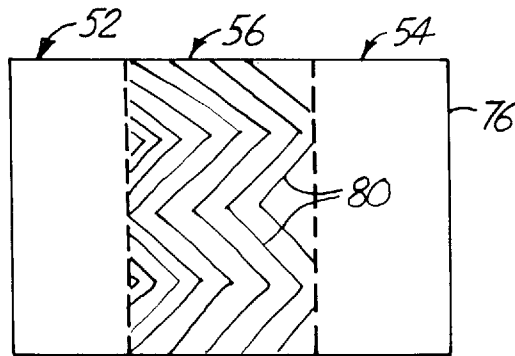


Fig. 4B

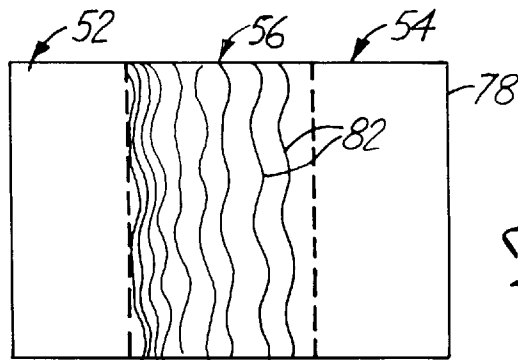


Fig. 4C

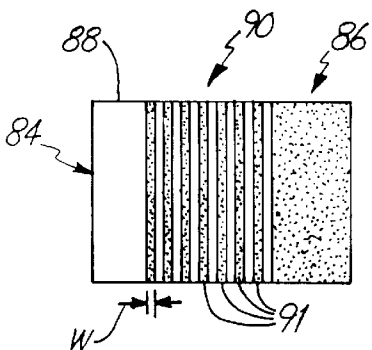


Fig. 5A

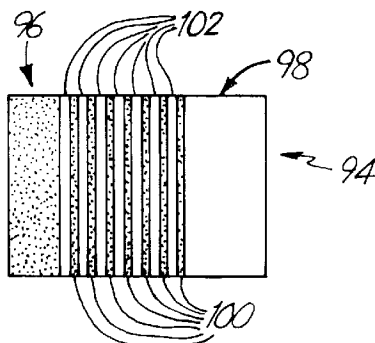


Fig. 5B

Fig. 6A

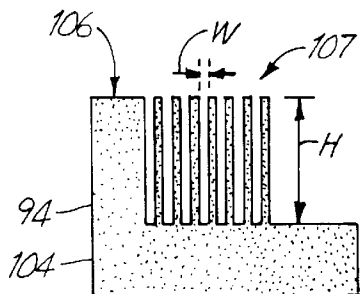


Fig. 6D

Fig. 6B

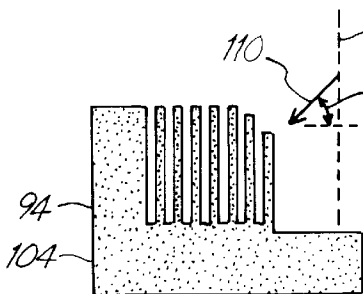


Fig. 6E

Fig. 6C

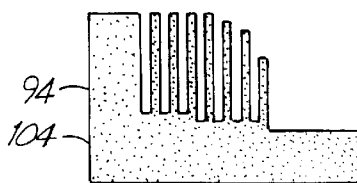
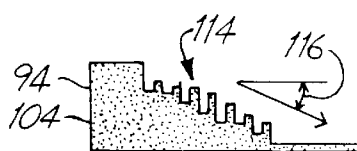
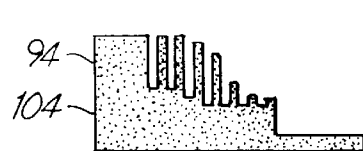
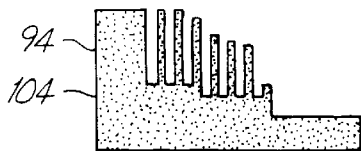


Fig. 6F



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