United States Patent [19]

Higashikawa et al.

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[45] Date of Patent:

Sep. 25, 1984

[54] DRY ETCHING METHOD FOR ORGANIC MATERIAL LAYERS

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[21] Appl. No.: 552,254

[22] Filed: Nov. 16, 1983

[56] References Cited U.S. PATENT DOCUMENTS

 4,374,699
 2/1983
 Sanders et al.
 156/643

 4,381,967
 5/1983
 Sanders et al.
 156/643

OTHER PUBLICATIONS

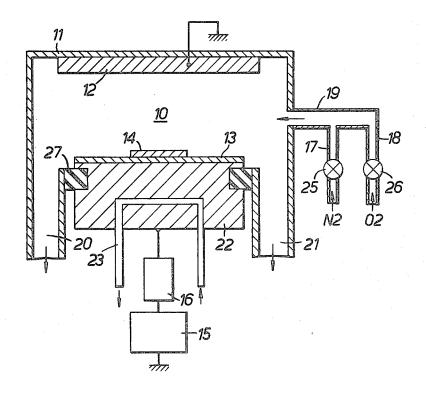
M. Hatzakis, "Multilayer Resist Systems for Lithography", Solid State Technology, Aug. 1981, pp. 74-80. J. Moran et al., "High Resolution, Steep Profile, Resist Patterns", The Bell System Technical Journal, vol. 58, No. 5, May-Jun. 1979, pp. 1026-1036.

Primary Examiner—William A. Powell Attorney, Agent, or Firm—Banner, Birch, McKie & Beckett

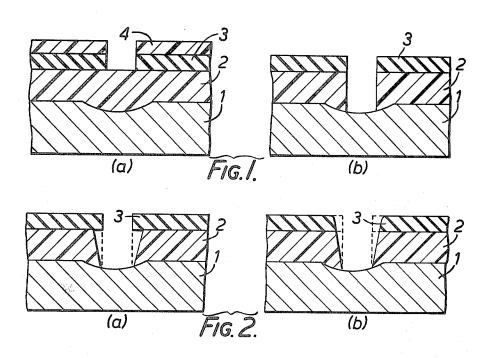
[57] ABSTRACT

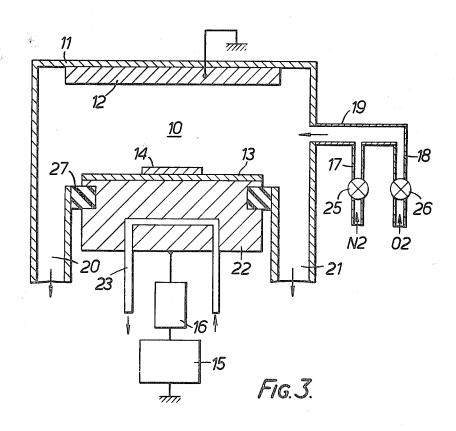
A dry etching method for organic material layers is disclosed which utilizes a parallel plate electrode type plasma etching apparatus. An etching gas containing nitrogen as its primary constituent is introduced into the apparatus, and then the organic material layers are anisotropically etched by applying a high frequency electric power to the electrodes to produce a plasma.

6 Claims, 8 Drawing Figures

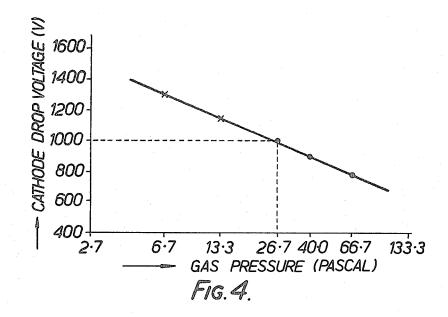


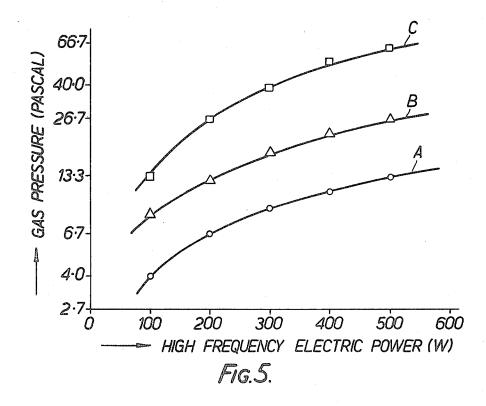


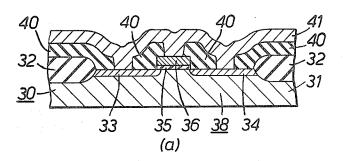


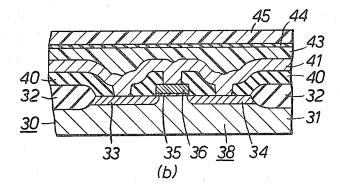


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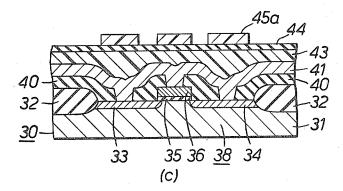
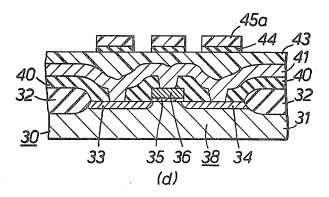
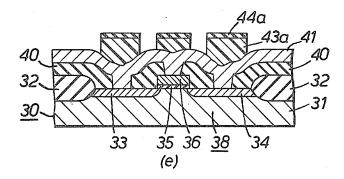
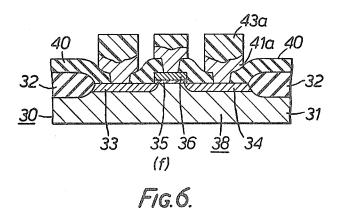


Fig. 6.







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