

[54] **METHODS AND APPARATUS FOR MASS SPECTROMETRIC ANALYSIS OF CONSTITUENTS IN LIQUIDS**

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[58] Field of Search **250/281, 288**

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[57] **ABSTRACT**

Methods and apparatus for mass analysis of molecular constituents of liquids, including minor constituents, in which an electrospray technique produces electrically charged droplets which divide and evaporate to form gaseous ions of the molecular constituents. The ions are then drawn through suitable differential pumping and focusing arrangements into a mass-to-charge analyzer. A charged capillary tube extending into a small chamber couples a liquid chromatograph or other source of liquid with a mass spectrometer, the electrospray technique being applied in the small chamber as a result of a charged liquid discharged from the capillary tube.

42 Claims, 9 Drawing Figures

