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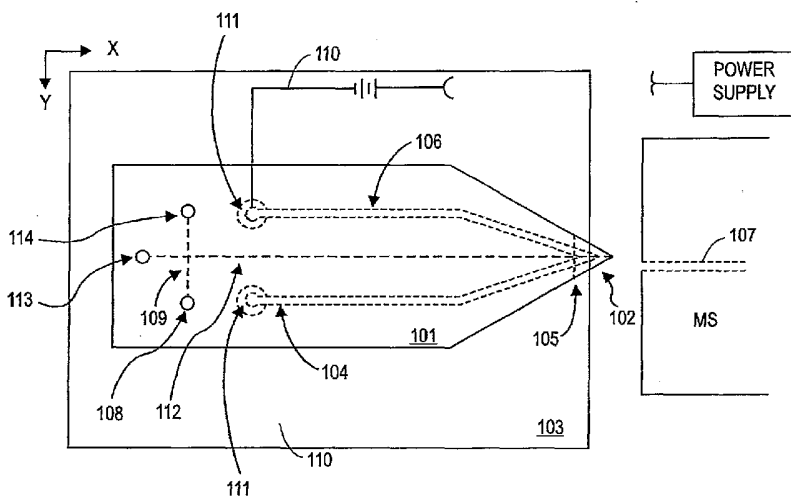
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(54) Title: ELECTROSPRAY APPARATUS WITH AN INTEGRATED ELECTRODE



(57) Abstract: The invention provides related apparatus and methods of making an integrated electro spray tip (102) by depositing ionic and/or electronic conductor materials onto a planar substrate. The invention also features methods of forming an electro spray apparatus comprising coupling a first planar substrate (104) to the surface of a second planar substrate (105), wherein a surface on at least one of the substrates includes one or more microfluidic channels (109, 112) and/or reservoirs ((108, 113, 114) which are at least partially or totally enclosed therebetween. The conductive regions of the apparatus do not intersect the microfluidic channels (109, 112) within other portions of the apparatus provided preferably. The invention further provides related apparatus and methods for manufacturing and using microfluidic devices (101) with integrated electrodes for electro spray ionization. The electro spray apparatus in some embodiments may include an electronic conductor electrode or an ionic conductor electrode formed from a microfluidic channel (109, 112) containing a conductive material selected from a variety of solutions and gels.

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**A. CLASSIFICATION OF SUBJECT MATTER**

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**B. FIELDS SEARCHED**

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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)  
East Search: BRS and IS&R

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,969,850 B2 (S.L.T. Staats) 29 November 2005 (29.11.2005), Abstract; Figs. 2-4; col. 1, lines 52-67; col. 2, lines 38-48; col. 3, lines 17-32; col. 5, lines 38-59; col. 6, lines 15-29 and 42-52.	1-28
A	US 2006/0022130 A1 (Bousse et al.) 02 February 2006 (02.02.2006), [0008, 0028, and 0039].	1-11

Further documents are listed in the continuation of Box C.

See patent family annex.

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"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed	"&"	document member of the same patent family

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