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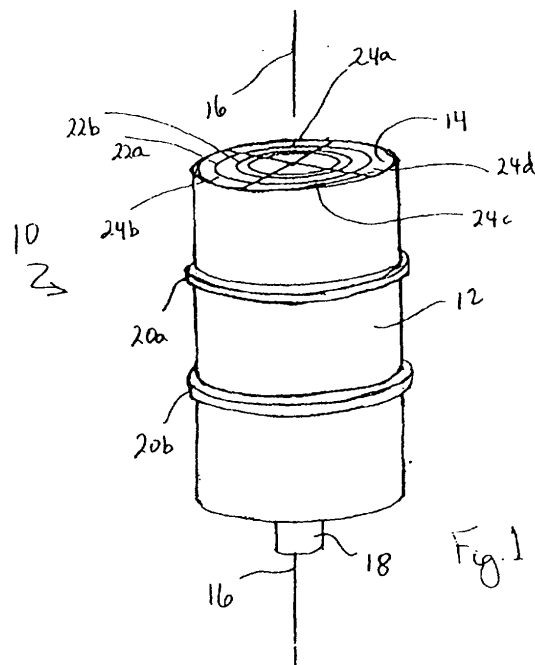
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(54) **Plasma mass selector**

(57) A plasma mass selector for processing a partially ionized multi-species plasma includes magnetic coils that are mounted on a cylindrical chamber to establish an axially oriented uniform magnetic field in the chamber. A segmented quadrupole electrode creates a non-uniform cyclotron electric field in the chamber that is oriented perpendicular to the chamber axis to cross with the magnetic field. With the plasma in the chamber, a controller is activated to operate the non-uniform cyclotron electric field at a predetermined cyclotron frequency ( $\omega$ ). The electric field thus resonates with selected charged particles having the predetermined cyclotron frequency ( $\omega$ ) to restrain the selected particles in orbits around the central axis during their transit through the chamber. On the other hand, non-selected particles are allowed to drift radially outward from the central axis for collision with the wall and subsequent removal therefrom.





European Patent  
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# EUROPEAN SEARCH REPORT

Application Number  
EP 01 20 2936

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CI.7)
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			H01J B01D
The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>20 March 2003</b>	Examiner <b>Hulne, S</b>
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
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EP 01 20 2936

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82