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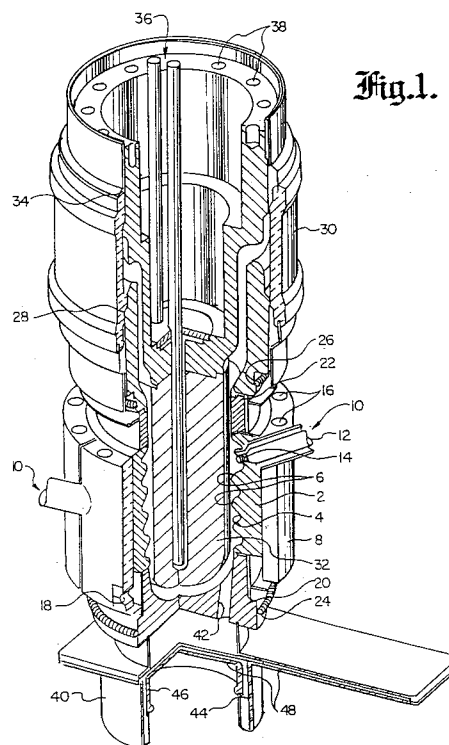
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02.06.93 Bulletin 93/22(71) Applicant: **Hughes Aircraft Company**
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(54) **Orientation independent ignitron with grooved cathode.**

(57) An orientation independent ignitron (OII) has an anode (32), a cathode (2) with a plurality of spaced grooves (4) facing the anode, and a cooling mechanism (8) which causes liquid metal vapor to condense as a film which is retained on the grooved cathode surface by surface tension and forms reservoirs within the grooves. The cathode and anode are preferably cylindrical and coaxial, with the inner surface of the cathode having parallel annular grooves facing the outer anode surface. Igniters are preferably introduced into convex areas between adjacent grooves along radial lines, with individual igniters (10) providing ignition for a pair of adjacent grooves. The igniters can be operated simultaneously or in sequence, depending upon the desired repetition rate and current capacity. A liquid metal film is initially formed by placing the OII on its side, introducing liquid metal into the lower ends of the grooves, and causing arcing between the anode and liquid metal to flow the liquid metal and wet the adjacent groove surface. Some of the liquid metal also evaporates and re-condenses on other portions of the cathode, establishing a continuous film.

**Fig.1.****EP 0 534 507 A3**



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EUROPEAN SEARCH REPORT

Application Number

EP 92 12 1014

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	GB-A-M22246 (HEWITT) & GB-A-22246 A.D. 1912 * page 1, line 27 - line 31 * * page 3, line 21 - line 32 * * figures 1,4 * ---	1	H01J13/06 H01J13/34
A	GB-A-1 191 394 (CENTRAL ELECTRICITY GENERATING BOARD) * claim 5; figure 1 * ---	1	
A	GB-A-694 539 (PHILIPS ELECTRICAL INDUSTRIES LIMITED) * page 1, line 39 - line 41 * * claim 1; figure * ---	4,9	
A	US-A-2 907 905 (HUMPHREY) * column 1, line 70 - column 2, line 6 * * column 2, line 20 - line 30 * * column 2, line 33 - line 44 * * column 2, line 68 - line 71 * * column 3, line 59 - line 64 * * column 4, line 15 - line 40 * * column 4, line 58 - line 69 * * figure 1 * -----	5	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			H01J
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 06 APRIL 1993	Examiner COLVIN G.G.
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			