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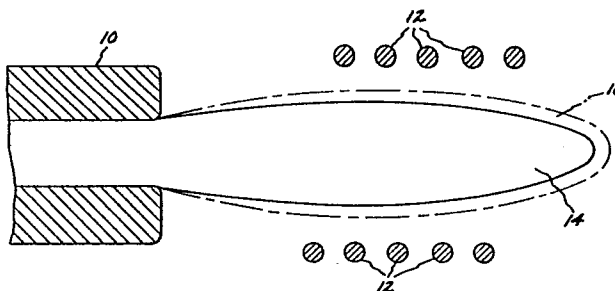
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(54) **Method and apparatus for producing a plasma flow having a heated and broadened plasma jet.**

(57) A method for heating and broadening the plasma jet (14) exhausting from a plasma gun (10) includes directing the jet (14) along the central axis of a downstream induction coil (12) and passing a high frequency alternating current through the coil, so that the outer layers (16) of the plasma jet (14) are heated more than the center thereof, and the average temperature of the jet is increased. A preferred method for producing the plasma jet includes establishing a plasma discharge in a gas flowing along the central axis of a separate, upstream induction coil, by passing a high frequency alternating current through the coil, and directing the gas flow and at least a portion of the plasma discharge through a throated passage to form a plasma jet. In accordance with a preferred embodiment, an apparatus for carrying out the invention includes a housing (40) having a flow channel (42) with an inlet opening (44) and an outlet opening (48), a throat region (46) between the inlet and outlet openings, first (50) and second (52) induction coils disposed around the inlet and outlet ends, respectively, of the channel, means for introducing a high velocity flow of gas into the channel, and means for passing high frequency alternating currents through each of the induction coils.





European Patent
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EUROPEAN SEARCH REPORT

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EP 85 10 3923

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.4)
A	US-A-3 401 302 (THORPE et al.) * Abstract; column 2, line 69 - column 3, line 10; column 5, line 64 - column 6, line 10; figures 1,10,14,15 *	1-4,8, -11,13 -22	H 05 H 1/34 H 05 H 1/46
A	DE-A-3 130 908 (WILHELMI et al.) * Page 1, lines 1-4; page 7, lines 24-29; page 8, line 19 - page 9, line 6; page 15, lines 1-4; figures 1-5 *	1,3,4, 7,9-11 ,13	
A	US-A-3 332 870 (ORBACH et al.) * Column 1, lines 11-14; column 2, lines 50-68; figure *	1,4,8, 9,12, 14-16, 18-22	TECHNICAL FIELDS SEARCHED (Int. Cl.4) H 05 H
A	FR-A-1 338 946 (SOCIETE DE TRAITEMENTS ELECTROLYTIQUES ET ELECTROTHERMIQUES) * Page 1, left-hand column, lines 1-7; page 2, right-hand column, lines 3-19; figure *	1-4,6, 7,9-13 ,19-22	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 14-08-1986	Examiner WINKELMAN, A. M. E.
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	



DOCUMENTS CONSIDERED TO BE RELEVANT			Page 2
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
A	GB-A-1 260 021 (BRITISH TITAN LTD.) * Figures 1,3 * -----	1,12, 14-22	
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
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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			