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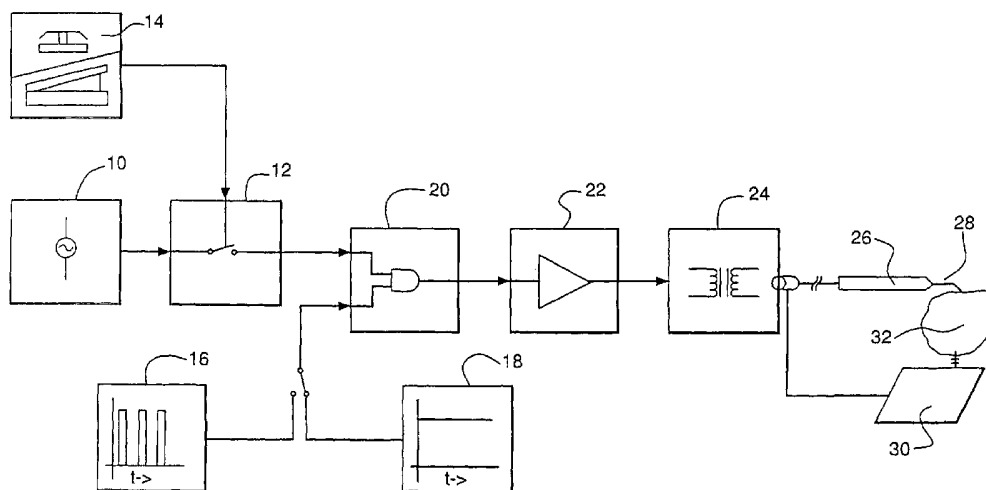
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(54) Title: DEVICE FOR PLASMA INCISION OF MATTER WITH A SPECIFICALLY TUNED RADIOFREQUENCY ELECTROMAGNETIC FIELD GENERATOR



(57) Abstract: A device to place an incision into matter with a harmonious plasma cloud. A radiofrequency generator system (10) produces pulsed or continuous electromagnetic waveform which is transmitted by an active transmitter incising electrode tip (26). This electromagnetic wave is utilized to initiate a plasma cloud (32) with processes such as thermal ionization and a photoelectric effect. This electromagnetic wave is independent matched, frequency matched, power matched and tuned to the plasma cloud in order to sustain and control a harmonious plasma cloud in order to sustain and control a harmonious plasma cloud with reduced atomic particle turbulence and chaos. This harmonious plasma cloud forms a coating over the surface of the active transmitter electrode tip as well as acts to reduce the energy needed from the power amplifier (22) of our plasma cutting device. The invention is an efficient, safe, cleand and inexpensive device which can be used to place an incision in matter.



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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/34005

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : B23K 10/00  
 US CL : 219/121.44, 121.39, 121.36, 121.59; 315/111.21

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
 U.S. : 219/121.44, 121.39, 121.36, 121.59; 315/111.21

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
 219/121.48, 121.54, 121.57 ; 313/231.31;

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
 EAST

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,599,344 A (PATERSON) 04 FEBRUARY 1997, SEE FIGURE 1.	1-50
A	US 5,346,491 A (OERTLI) 13 SEPTEMBER 1994, SEE ENTIRE DOCUMENT.	1-50
A	US 5,958,266 A (FUGO ET AL) 28 SEPTEMBER 1999, SEE ENTIRE DOCUMENT.	1-50
X	US 3,903,891 A (BRAYSHAW) 09 SEPTEMBER 1975, SEE ENTIRE DOCUMENT.	1,2,8,28-31,37-39,42

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	"T"	"X"	"Y"	"&"
"A" document defining the general state of the art which is not considered to be of particular relevance	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	document member of the same patent family
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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				

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