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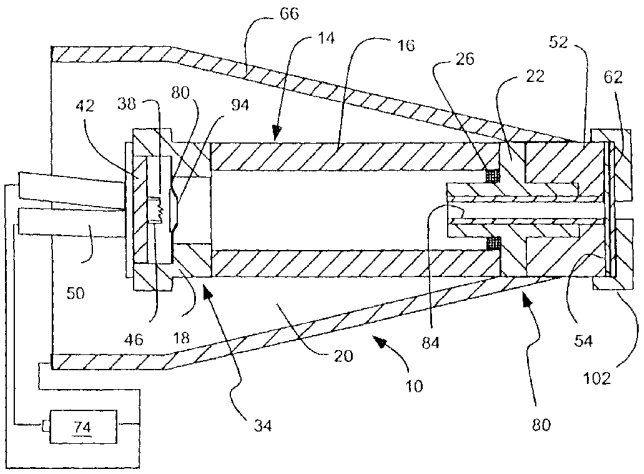
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(54) Title: MOBILE MINIATURE X-RAY SOURCE



(57) Abstract: A mobile, miniature x-ray source (10) includes a low-power consumption cathode element (38) for mobility, and an anode optic (80) creating a field free region to prolong the life of the cathode element. AN electric field is applied to an anode (30) and a cathode (34) that are disposed on opposite sides of an evacuated tube (14). The anode includes a target material (54) to produce x-rays in response to impact of electrons. The cathode includes a cathode element (38) to produce electrons that are accelerated towards the anode in response to the electric field between the anode and the cathode. The tube can have a length less than approximately 3 inches, and a diameter or width less than approximately 1 inch. The cathode element can include a low-power consumption cathode element with a low power consumption less than approximately 1 watt. The power source can include a battery power source (74). A field-free region can be positioned at the anode to resist positive ion acceleration back towards the cathode element. An anode tube (84) can be disposed at the anode between the anode and the cathode, and electrically coupled to the anode so that the anode and the anode tube have the same electrical potential, to form the field-free region.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/24124

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H01J 35/00

US CL : 378/119, 123, 143; 313/553

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. : 378/119, 123, 143; 313/553

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: miniature, x-ray, source

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US Re.35,383 A (MILLER et al.) 26 November 1996, (26.11.1996), all.	1-13
Y	US 5,428,658 A (OETTINGER et al.) 27 June 1995 (27.06.1995), all.	1-13
Y	US 5,621,780 A (SMITH et al.) 15 April 1997 (15.04.1997), all.	1-13

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703)305-3230	Authorized officer Drew A. Dunn Telephone No. 703-308-0956

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