UK Patent Application (19) GB (11) 2 406 011

(43) Date of Printing by UK Office

16.03.2005

(21) Application No: 0425848.9

(22) Date of Filing: 04.06.2003

(30) Priority Data:

(31) 10162838 (32) 05.06.2002 (33) US

(86) International Application Data: PCT/US2003/017575 En 04.06.2003

(87) International Publication Data: WO2003/105068 En 18.12.2003

(71) Applicant(s):

Sony Electronics Inc (Incorporated in USA - Delaware) 1 Sony Drive, Park Ridge, New Jersey 07656, **United States of America**

(72) Inventor(s): Peter D Wendt

(continued on next page)

(51) INT CL⁷: G06K 9/00

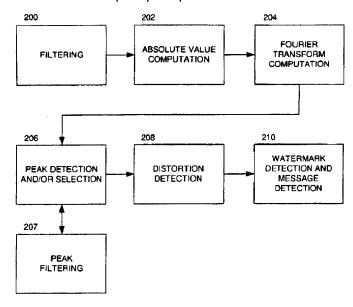
(52) UK CL (Edition X): **H4F** FBBW

(56) Documents Cited by ISA: US 6563937 B1 US 6424725 B1 US 6282300 B1

(58) Field of Search by ISA: INT CL7 G06K Other: Online: EAST, JPO, EPO, IEEE XPL US: 382/100, 232, 291-295; 380/54, 210, 287

(54) Abstract Title: Method and apparatus to detect watermark that are resistant to resizing rotation and translation

(57) A method and/or apparatus for detecting a watermark (100) in a two-dimensional frame of data (170). The method comprises the steps of: computing a filtered frame of data (200) from the frame of data having at least some harmonic frequency components corresponding to the watermark; computing a two-dimensional Fourier transform (204) of the filtered frame; selecting (206) a set of frequency components of the two-dimensional frequency spectrum; and computing (208) at least one of a rotation value, a resizing value, and a translation value associated with the watermark as compared to a reference watermark using one or more of the frequency components of the selected set.



GB 2406011 A continuation

(74) Agent and/or Address for Service:
D Young & Co
120 Holborn, LONDON, EC1N 2DY,
United Kingdom