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[Continued on next page]

(54) Title: METHODS OF IDENTIFYING ORIGINAL AND COUNTERFEIT ARTICLES USING MICRO X-RAY DIFFRACTION MAPPING

FIG. 1A

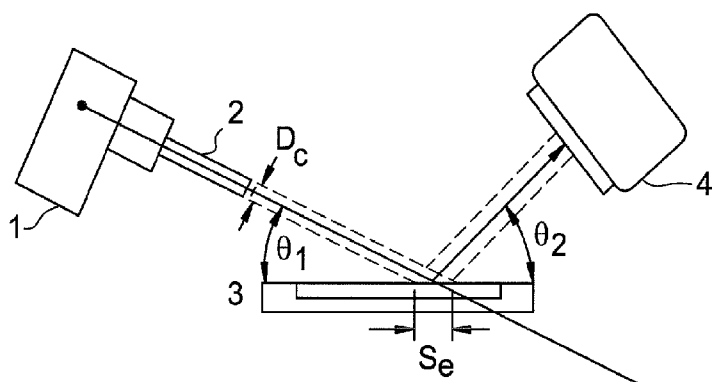
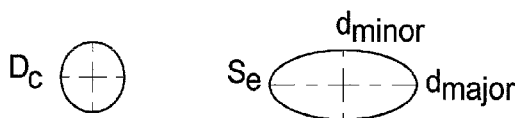


FIG. 1B





(57) Abstract: The present invention provides relatively fast, automated and non-destructive methods to screen and identify articles. The methods may be used to identify counterfeit articles, such as, for example, medications including those in the form of tablets, pills or capsules. The methods may use a micro-X ray diffraction method to scan marks as small as, for instance, 300 μm made of X- ray visible compounds. The methods may provide 2-D or 3-D maps of these marks using selected peaks from the collected X-ray diffraction patterns and may be used to certify the authenticity of drug tablets, for instance by mapping hidden marks printed under tablet coatings and on packages.



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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) G01N 23/20; G21K 1/02; G01N 23/207		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Korean utility models and applications for utility models Japanese utility models and applications for utility models		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) eKOMPASS(KIPO internal) & Keywords: micro XRD,X-ray diffraction, label, tag, mark, authentication, counterfeit		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 7623624 B2 (JOHN A. MOON et al.) 24 November 2009 See abstract; column 1, lines 46-48; column 4, line 24 - column 8, line 35; and figures 1 and 6.	1-19
Y	US 2008/0043923 A1 (DIMITRIOS PAPAIOANNOU et al.) 21 February 2008 See abstract, paragraph 0006, and figure 1.	1-19
A	EP 2090883 B1 (KOGAN, VLADMIR et al.) 11 August 2010 See paragraphs 0030, 0033, 0068, 0072 and figure 1.	1-19
A	US 5,003,570 A (BRUCE R. WHITING) 26 March 1991 See abstract and figure 2.	1-19
A	"Anticounterfeit Protection of Pharmaceutical Products With Spatial Mapping of X-ray-Detectable Barcodes and Logos" (DANIELE MUSUMECI et al.) Analytical chemistry, 2011, 83, 7444-7450. See the whole documents	1-19
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
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