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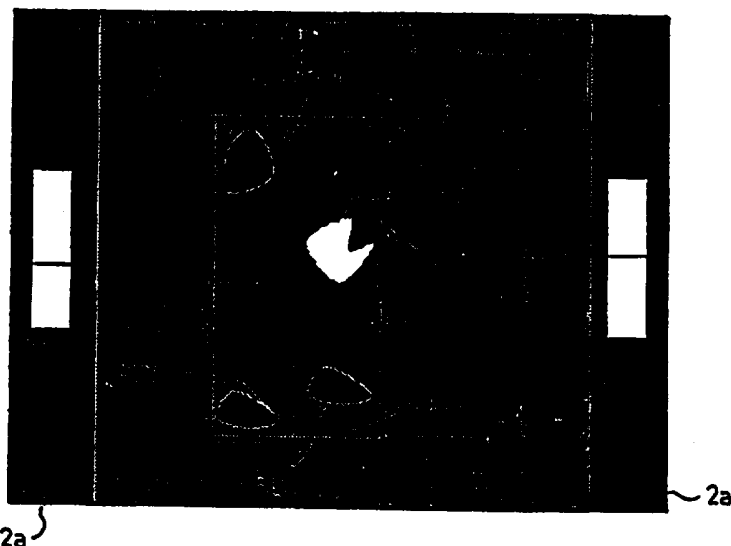
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(54) Title: METHOD FOR DETECTING IMPERFECTIONS ON A SURFACE INSPECTED



## (57) Abstract

The invention relates to a method for detecting imperfections on a surface inspected. The method comprises the steps of providing and segmenting image information to form blobs (BL1-BL4); feature extraction for the blobs; clustering of the blobs, in which the image blobs are grouped into several clusters (A, B), each of which contains one or more blobs (BL1-BL4). The clustering is continued by further grouping the clusters (A, B) to form one or more higher-level clusters (AB) comprising lower-level clusters (A, B); and the method also comprises classification in which clusters are compared with imperfection prototypes and one or more clusters are defined that achieve sufficient classification certainty in relation to an imperfection prototype. In the invention, the clusters formed (A, B) are subjected to feature extraction, and the classification is conducted such that in addition to lower-level clusters (A, B), a higher-level cluster (AB) comprising these lower-level clusters (A, B) is compared with the imperfection prototypes.

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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 95/00469

## A. CLASSIFICATION OF SUBJECT MATTER

IPC6: G06K 9/62 // G01N 21/89

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)

IPC6: G06K, G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

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

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0048568 A2 (TRW INCORPORATED), 31 March 1982 (31.03.82), page 10, line 15 - line 28, figure 1 --	1
Y	EP 0093422 A2 (HONEYWELL INC.), 9 November 1983 (09.11.83), page 4, line 13 - line 23, figure 1 --	1
A	GB 2270227 A (SURFACE INSEPCTION LIMITED), 2 March 1994 (02.03.94), figure 1, abstract --	1-12
A	US 5274713 A (H.-C. CHANG ET AL), 28 December 1993 (28.12.93), column 5, line 6 - line 12, figure 2 --	1-12

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

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Date of the actual completion of the international search

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International application No.

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## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5329596 A (H. SAKOU ET AL), 12 July 1994 (12.07.94), figure 1, abstract  -----	1-12

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

05/02/96

International application No.

PCT/FI 95/00469

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP-A2- 0048568	31/03/82	AU-A- 7517681 CA-A- 1175555 JP-A- 57118145 US-A- 4484081	25/03/82 02/10/84 22/07/82 20/11/84
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GB-A- 2270227	02/03/94	NONE	
US-A- 5274713	28/12/93	NONE	
US-A- 5329596	12/07/94	GB-A- 2259599 JP-A- 5073687	17/03/93 26/03/93