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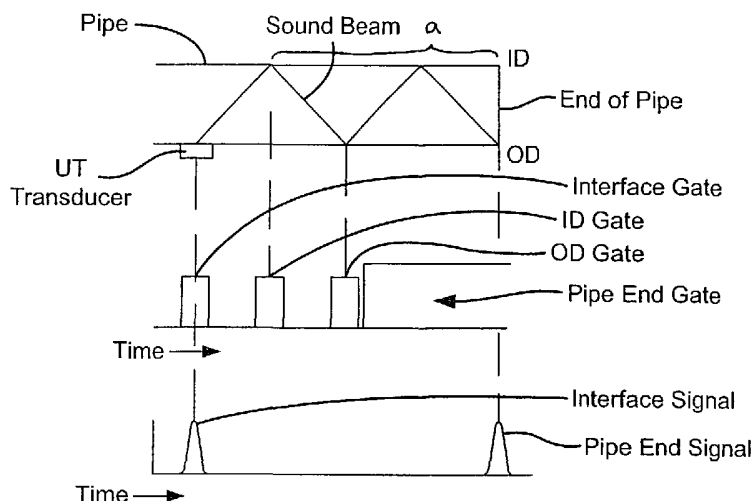
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Declaration under Rule 4.17:

— *of inventorship (Rule 4.17(iv)) for US only*

[Continued on next page]

(54) Title: A METHOD AND APPARATUS FOR INSPECTING A PRODUCT WITH ULTRASOUND



(57) Abstract: A method of inspecting a product with ultrasound, which method comprises the steps of: (a) transmitting ultrasonic waves into the product with a transducer means such that they are internally reflected from a first surface, a second surface, and from an end of the product; (b) receiving ultrasonic waves reflected from the end of the product and from any defects in the first and second surfaces; (c) generating a position signal representative of the position of the transducer means with respect to said end; (d) using said position signal to enable inspection of substantially the entire first surface of the product, while continuing to inspect the second surface of the product; and (e) thereafter disregarding any indication of a defect in said first surface while using said position signal to enable inspection of substantially the entire second surface of the product.



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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

/GB 02/03769

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G01N29/04 G01N29/26

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)

IPC 7 G01N

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 practical, search terms used)

EPO-Internal, PAJ, BIOSIS, COMPENDEX, EMBASE, INSPEC, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 063 780 A (LANDRY JAMES D ET AL) 12 November 1991 (1991-11-12) abstract; figures 1-7 column 1, line 11 -column 8, line 39 ---	1-41
Y	US 3 986 389 A (MESINA JOHN MICHAEL ET AL) 19 October 1976 (1976-10-19) abstract; figure 1 column 1, line 4 -column 5, line 60 ---	1-41
Y A	US 5 777 891 A (MACKAY BRIAN ET AL) 7 July 1998 (1998-07-07) abstract; figures 1-8 column 1, line 13 -column 12, line 61 --- -/--	1-4, 23-26 5-22, 27-41

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"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

"T" 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

"X" 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

"Y" 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

Date of the actual completion of the international search

28 March 2003

Date of mailing of the international search report

22.08.03

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

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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 5 007 291 A (WALTERS WILLIAM T ET AL) 16 April 1991 (1991-04-16) cited in the application abstract; figures 2,3 column 1, line 7 -column 2, line 44 ---	1-41
A	US 5 585 565 A (GLASCOCK JAMES D ET AL) 17 December 1996 (1996-12-17) cited in the application abstract; figures 1-5 column 1, line 12 -column 4, line 5 ---	1-41
A	KRAUTKRAEMER J ET AL: "Werkstoffpruefung mit Ultraschall" WERKSTOFFPRUEFUNG MIT ULTRASCHALL, SPRINGER VERLAG, BERLIN, DE, 1980, XP002236542 figures 15.1-15.5,22.2,24.1-24.2 page 326, paragraph 1 -page 332, paragraph 1 page 404, paragraph 3 page 442 -page 461 -----	1-41

INTERNATIONAL SEARCH REPORT

PCT/GB 02/03769

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-41

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-41

Method and apparatus for inspecting a product comprising

- transmitting us waves into the product
- receiving us waves reflected from a first, a second surface and from an end of the product
- generating a position signal representative of the position of the transducer with respect to the end of the product

2. Claim : 43

Body for mounting a plurality of ultrasonic transducers and waveguide means for guiding transmitted and reflected waves through a single opening in the body to a product under investigation.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box 3.

Claims Nos.: 42

Claim 42 is unclear, because it tries to define a product in terms of a method or an apparatus for inspecting that product. The product as such has to fulfill the requirements for patentability, i.e. inter alia that it is new and inventive. A product is not rendered novel merely by the fact that it is inspected by means of a novel method or apparatus.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

INTERNATIONAL SEARCH REPORT

/GB 02/03769

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