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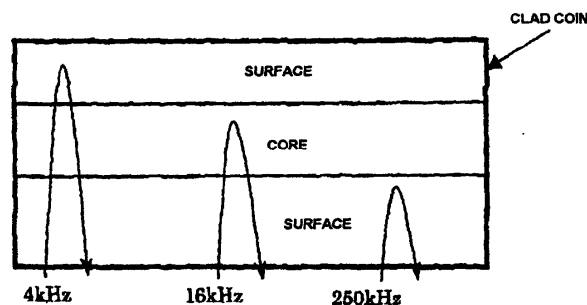
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(54) **Coin discriminator for coin made of plural materials**

(57) To present a discriminating apparatus for metal piece formed of plural materials of very high reliability capable of discriminating securely a metal piece formed of plural materials such as clad coin or bicolor coin with very high reliability. A metal piece detection sensor comprising a reflection type detection sensor disposed at one sliding surface side of a passage of a metal piece formed of plural materials, a first transmission type detection sensor disposed so as to hold one lateral end of the passage and a second transmission type detection sensor disposed so as to hold other lateral end of the passage, with the passage being made of a conductive material, in which discriminating means for discriminat-

ing the metal piece on the basis of an output of the metal piece detection sensor is further provided, and excitation signals of plural frequencies are supplied to a primary coil of the reflection type detection sensor, a primary coil of the first transmission type detection sensor, and a primary coil of the second transmission type detection sensor, and the discriminating means discriminates the metal piece passing the passage on the basis of an output of a secondary coil of the reflection type detection sensor, an output of a secondary coil of the first transmission type detection sensor, and an output of a secondary coil of the second transmission type detection sensor.

FIG. 9



EP 1 241 636 A3



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EUROPEAN SEARCH REPORT

Application Number
EP 02 07 6007

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A	WO 99/39311 A (HOWELLS GEOFFREY ; SCAN COIN AB (SE)) 5 August 1999 (1999-08-05) * abstract * * page 4, line 32 - page 5, line 12 * * figure 1 *	1-10	TECHNICAL FIELDS SEARCHED (Int.Cl.7) G07D G07F G01R
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 26 April 2004	Examiner Espuela, V
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EUROPEAN SEARCH REPORT

Application Number
EP 02 07 6007

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The present search report has been drawn up for all claims				
Place of search THE HAGUE		Date of completion of the search 26 April 2004	Examiner Espuela, V	
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document				

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Application Number

EP 02 07 6007

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



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**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
EP 02 07 6007

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1-10

Coin discriminator for coins (metal pieces) made of a plurality of materials.
The discriminator comprises two different kinds of detectors, reflection and transmission type. The first one is used to check the material in the different surfaces and the other is used to get information about the shape, thickness and diameter.

2. Claims: 11-15

Abrasion resistant member for the coin conveyance path. It is adhered to the path surface to avoid electrostatic effects and frictions.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 02 07 6007

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26-04-2004

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