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(71) Applicant: **JOFEMAR, S.A.**
31350 Peralta (Navarra) (ES)

(72) Inventor: **Guindulain Busto, Felix**
Peralta 31350
Navarra (ES)

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(74) Representative: **Ungria Lopez, Javier et al**
Avda. Ramon y Cajal, 78
28043 Madrid (ES)

(54) **Coin selector**

(57) Coin selector, of the type of coin selector consisting of a main body housing an electronic base plate and a hinged lid, in such a way that when the coins enter they collide against a flat metallic body and during their travel they encounter a series of sensors, housed between the main body and the lid, in order to measure different parameters with the aim of selecting those that

are valid, in such a way that the metallic body (6) for collision of the coins on their entrance into the selector (1) presents a curvo-concave collision surface (7) extended in a flat surface and which incorporates three pairs of ferrite bodies (8, 9 and 10) and three photocells (11, 12 and 13), two photocells being arranged in relation to the central part of two pairs of ferrite bodies.

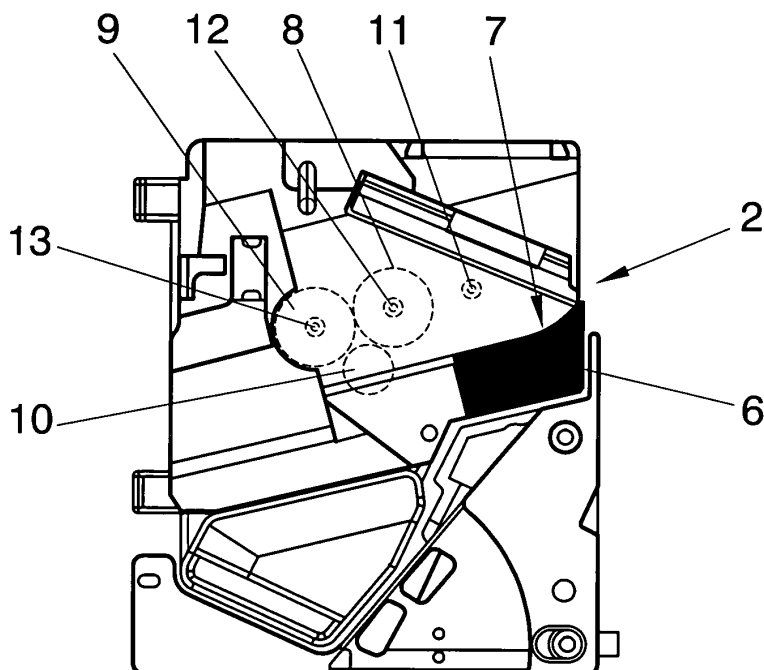


FIG. 1

Description

OBJECT OF THE INVENTION

[0001] As stated in the title of this descriptive specification, the following invention relates to a coin selector, being of the type of coin selector which is fitted to all kinds of automatic machines which function by means of the introduction of coins and whose selectors have a series of sensors for measuring different parameters of the coins with the aim of selecting those that are valid, in such a way that the first objective is to obtain a smooth rotary displacement of all the coins as they pass through the measuring sensors and a second objective is to obtain certain reliable measurements of the parameters to measure.

[0002] In short, the aim is to obtain a coin selector with great reliability which will permit the prevention of fraud, in other words, one which only validates as being good those coins which are so and which discriminates false coins.

FIELD OF APPLICATION

[0003] Described in the present invention is a coin selector having special application in all kinds of machines and automatic devices which function by means of introducing coins and which incorporate a validation mechanism for the coins to introduce.

PRIOR ART OF THE INVENTION

[0004] As is known, there exist on the market a large number of machines and automatic devices which function

by means of introducing coins, and they therefore have to incorporate means for selecting the introduced coins, accepting just those that really are good, in other words, legal tender, and rejecting all coins or elements which are sought to be introduced as coins.

[0005] In this way, the means for selection of coins is fundamentally based on some "selectors" which incorporate a series of sensors which, as the coins pass by them on their travel through the selector, measure various parameters with the aim of comparing them with the corresponding parameters already recorded, in such a way that if the measured values fall within the pre-recorded intervals the coin is accepted as valid, and if the measured parameters lie outside the pre-recorded intervals the coin is rejected.

[0006] Moreover, the "selectors" consist of a casing made up of a main body which houses the different components attached by screws, and a hinged lid, in such a way that, in their travel through the interior of the selector, the coins pass between the lid and the main body, with the aim that, in the event of any coin becoming stuck, the lid can be opened in order to release the coin and recover it.

[0007] Likewise, we can state that the hinged lid houses the sensors associated with the main body, in such a way that the electronic plate, housed in the main body, is attached to the sensors of the lid by means of a connecting arm which passes through the interior of the axis of the hinge, presenting the drawback that one can try to gain access via the inlet/outlet mouths of the coins to the selector, to the point of deteriorating or even disabling it, with the damage that this represents.

[0008] So, we can consider various different documents as are:

- Utility Model U0283634 in which a selector is described which has three sensors for measuring the section, diameter and the alloy.
- Utility Model U0285961 in which a selector is described which has three sensors in such a way that the measurement of the first sensor depends on the other two.
- Utility Model U0291035 in which a selector is described which has a sensor and a hollow coil.
- Utility Model U0291036 in which a selector is described which has a hollow coil located between two sensors.
- Utility Model U8902302 in which a selector is described which has a pair of position detectors and three magnetic sensors.

[0009] Moreover, in order to be able to obtain optimum measurements, the aim is that when the coins pass by the different sensors they do so in a way that is as smooth as possible, in other words, that they do not bounce when they roll. Therefore, a metallic body was introduced which the coins collide against when they enter the selector, which dampens their fall and causes them to roll smoothly.

[0010] So, we can consider documents ES 1028994 and ES 10300459 in which the selector, in relation to the entrance mouth for the coins, incorporates a flat metallic body in an inclined position with the aim of damping their fall so that the coins roll smoothly as they pass by the measurement sensors, with document ES 1028994 describing a series of security measures while document ES 10300459 presents a pair of sensors and a measuring gauge for the weight.

DESCRIPTION OF THE INVENTION

[0011] The present specification describes a coin selector, being of the type of coin selector consisting of a main body housing an electronic base plate and a hinged lid, these selectors being fitted in all kinds of automatic machines which function by means of introducing coins in such a way that when they enter the selector the coins collide against a flat metallic body and during their travel they encounter a series of sensors, housed between the main body and the lid, in order to measure different parameters with the aim of selecting valid coins.

[0012] In this way, the present specification describes a coin selector provided with a metallic body for collision of the coins with a curvo-concave collision surface extended in a flat surface and which incorporates three pairs of ferrite bodies and three photocells, two photocells being arranged in relation to the central part of two pairs of ferrite bodies.

[0013] So, as the coins collide against the curvo-concave surface when they enter the selector, mainly in the case of small diameter coins, this prevents them from bouncing, providing them with a smooth rotary movement, in other words, they roll without bouncing.

[0014] Moreover, the connecting arm of the electronic base plate with the sensors housed in the lid passes through the external part of the rotating axis of the lid, being externally protected by the casing of the main body, and internally access via the inlet/outlet mouths for the coins as far as the arm, which could deteriorate it, is prevented.

[0015] A first pair of ferrite bodies is housed in phase and a second pair of ferrite bodies is housed out of phase, while the third ferrite body detects the edge of the coins as they roll along the measurement channel, with these ferrite bodies measuring different parameters of the coins such as alloy, conductivity, resistivity, etc.

[0016] In order to complement the description that is going to be made forthwith, and with the aim of aiding a better understanding of the characteristics of the invention, attached to this descriptive specification is a set of drawings which, on an illustrative rather than limiting basis, the most characteristic details of the invention are represented.

BRIEF DESCRIPTION OF THE DESIGNS

[0017]

Figure 1. Shows a front view of a selector in which is represented the metallic body for damping the fall of the coins in their entrance and the sensors and photocells for measurement, without the hinged lid.

Figure 2. Shows a front view of a selector with the hinged lid in which is represented the connecting arm for joining the electronic plate with the sensors of the lid and which arm is arranged via the external part of the rotary axis of the hinged lid of the selector.

Figure 3. Shows a front view of a selector where the metallic damping body for collision of the coins in their entrance to the selector can be seen, as can the measurement sensors and the connecting arm.

Figure 4. Shows a lateral view in elevation of a selector in which it can be seen how the connecting arm is arranged via the part external to the rotating hinge for the lid.

Figure 5. Shows an exploded view of a selector where the elements making up the main body can be seen, among which are to be found the electronic plate with the connecting arm and the hinged closing

lid, along with the projections for the fastening of the elements relative to the main body by simple clipping.

DESCRIPTION OF A PREFERRED EMBODIMENT

[0018] With the commented figures in view and in accordance with the adopted numbering, we can see how the selector 1 consists of different elements which in their attachment constitute a main body 2 and a hinged lid 3 for closing, in such a way that between the different elements making up the main body 2 is an electronic plate 4 which, by means of an arm 5, is connected to the sensors housed in the lid 3 hinged with respect to the axis 14, these sensors being associated with those housed in the main body. Moreover, the metallic body 6 for collision of the coins as they enter the selector presents a curvo-concave collision surface 7 extended in a flat surface, with the aim that the coins introduced into the selector 1, mainly those of small diameter, do not bounce when they collide with the body 6, the coins being provided with a smooth rotary movement as they pass by the measuring sensors.

[0019] Likewise, the selector 1 incorporates three pairs of ferrite bodies 8, 9 and 10 and three photocells, 11, 12 and 13, two photocells being arranged in relation to the central part of two pairs of ferrite bodies.

[0020] In this way, one element of each pair of ferrite bodies is housed in the body 2 and the other element of each pair of ferrite bodies is housed in the hinged lid 3 facing each other and with the coins passing between the elements of each pair of ferrite bodies.

[0021] Moreover, a first pair of ferrite bodies 8 will be housed in phase, a second pair of ferrite bodies 9 will be housed out of phase, and the third pair of ferrite bodies 10 detect the edge of the coins. The order of housing the pairs of ferrite bodies will, of course, be able to vary.

[0022] Likewise, the photocells are housed with the emitter element in the main body 2 and the receiver element in the hinged lid 3 or vice versa, so that the connection of the sensor elements of the hinged lid 3 are connected to the electronic plate 4 by means of an arm 5.

[0023] Furthermore, with the aim of optimising the space, two photocells are housed in relation to the central part of two pairs of ferrite bodies.

[0024] In this way, by means of the stated sensors, the desired parameters of the coins will be obtained, such as might be the diameter, the alloy, the conductivity, resistivity, etc.

[0025] The flexible arm 5 for connecting the electronic plate 4 with the elements of the different sensors housed in the hinged lid 3 is arranged via the external part of the rotating axis 14 of the lid 3 and protected by the casing, so that access to it via the inlet/outlet mouths for the coins, which could cause its deterioration, is prevented.

[0026] Moreover, the component bodies of the selector 1 relative to the main body are secured by simple clipping, since the rear closing body 15 has some flanges 16 which

will fit into corresponding windows 17 of the body 18 to which the hinged lid 3 is joined by the axis 14.

Claims

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1. COIN SELECTOR, being of the type of coin selector consisting of a main body housing an electronic base plate and a hinged lid, these selectors being fitted in all kinds of automatic machines which function by means of introducing coins in such a way that when they enter the selector the coins collide against a flat metallic body and during their travel they encounter a series of sensors, housed between the main body and the lid, in order to measure different parameters with the aim of selecting those that are valid, **characterised in that** the metallic body (6) for collision of the coins on their entrance to the selector (1) presents a curvo-concave collision surface (7) extended in a flat surface and which incorporates three pairs of ferrite bodies (8, 9 and 10) and three photocells (11, 12 and 13), with two photocells being arranged in relation to the central part of two pairs of ferrite bodies.

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2. COIN SELECTOR, according to claim 1, **characterised in that** the arm (5) for connecting the electronic base plate (4) with the sensors housed in the hinged lid (3) passes through the external part of the axis (14) of rotation of the lid (3), being protected by the casing of the main body.

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3. COIN SELECTOR, according to claim 1, **characterised in that** a first pair of ferrite bodies (8) are housed in phase, a second pair of ferrite bodies (9) are housed out of phase, while the third pair of ferrite bodies (10) detect the edge of the coins as they roll along the passage and measuring channel.

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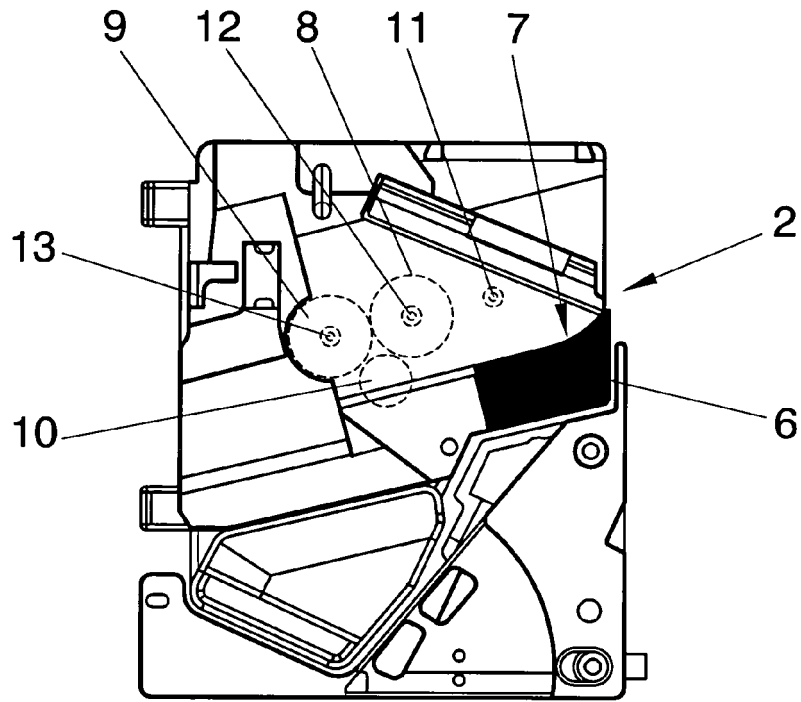


FIG. 1

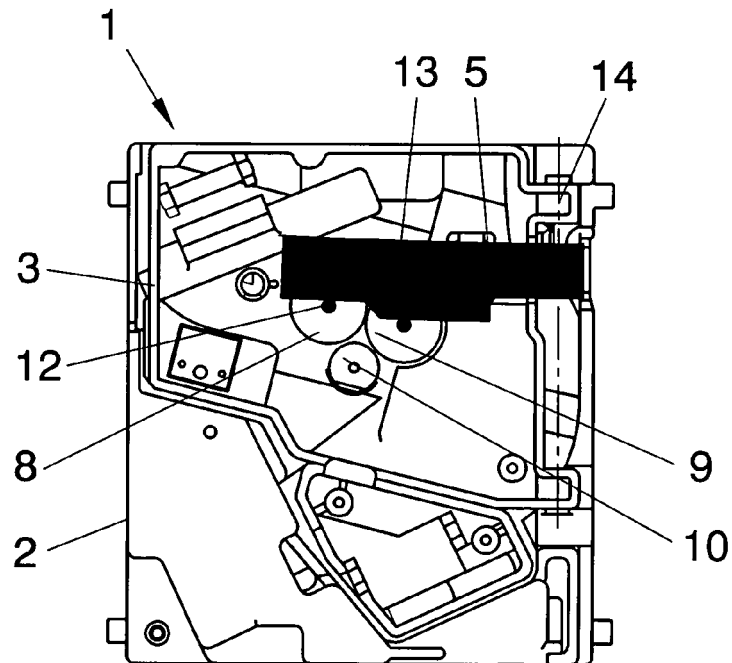


FIG. 2

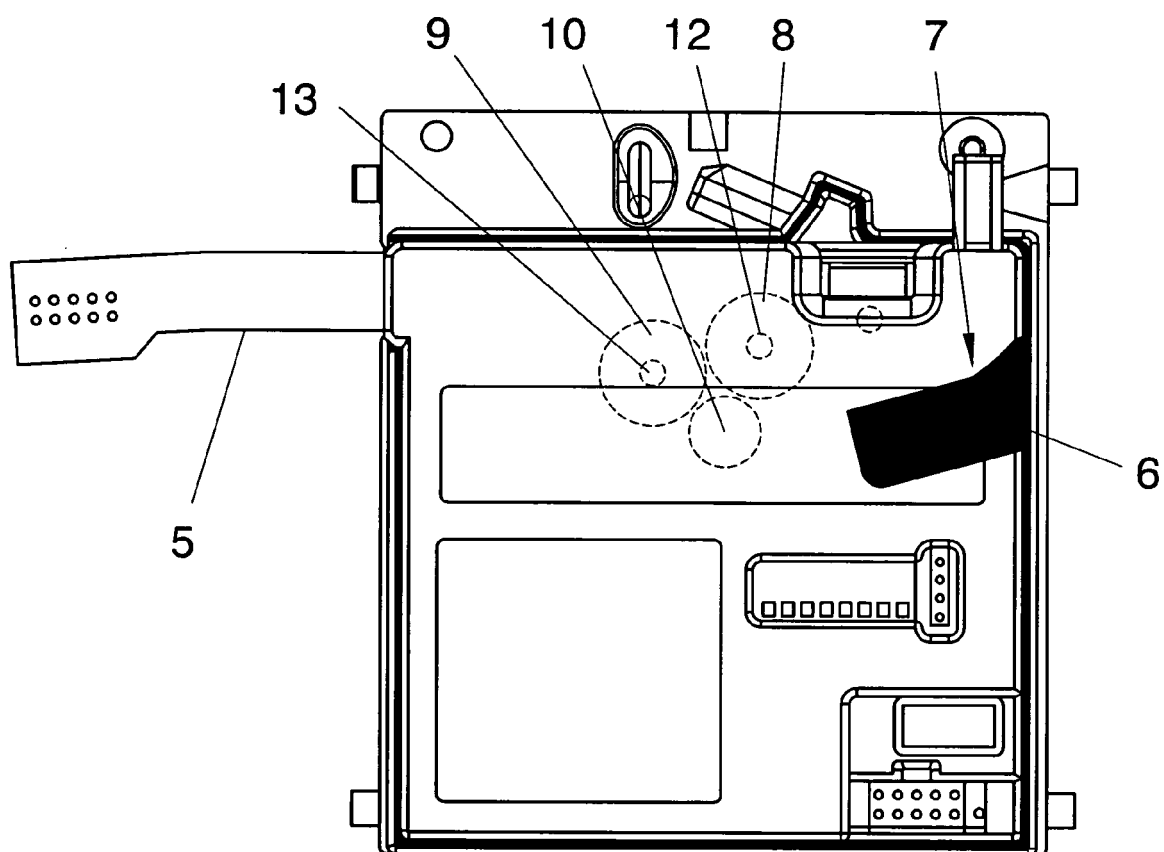


FIG. 3

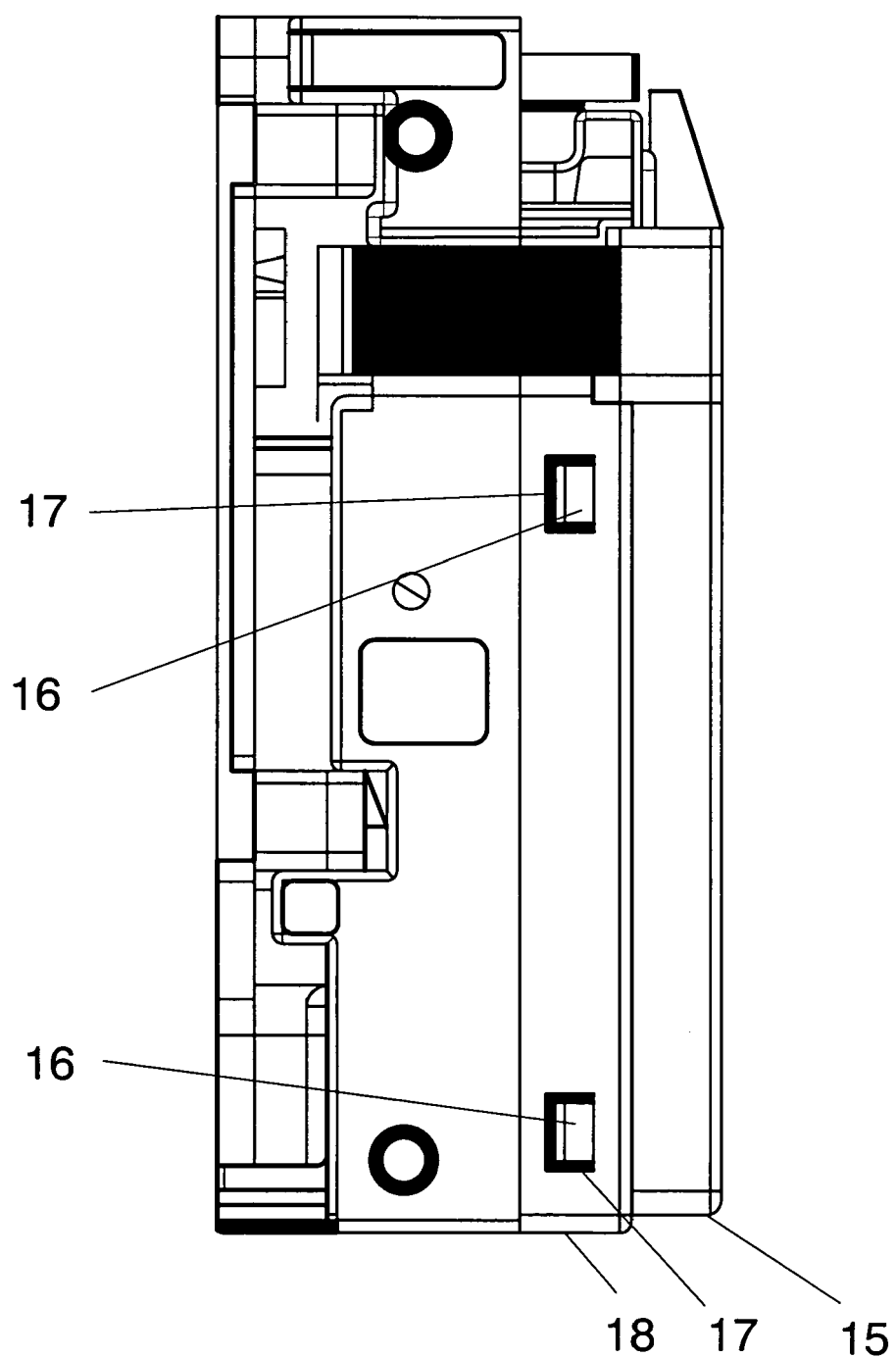


FIG. 4

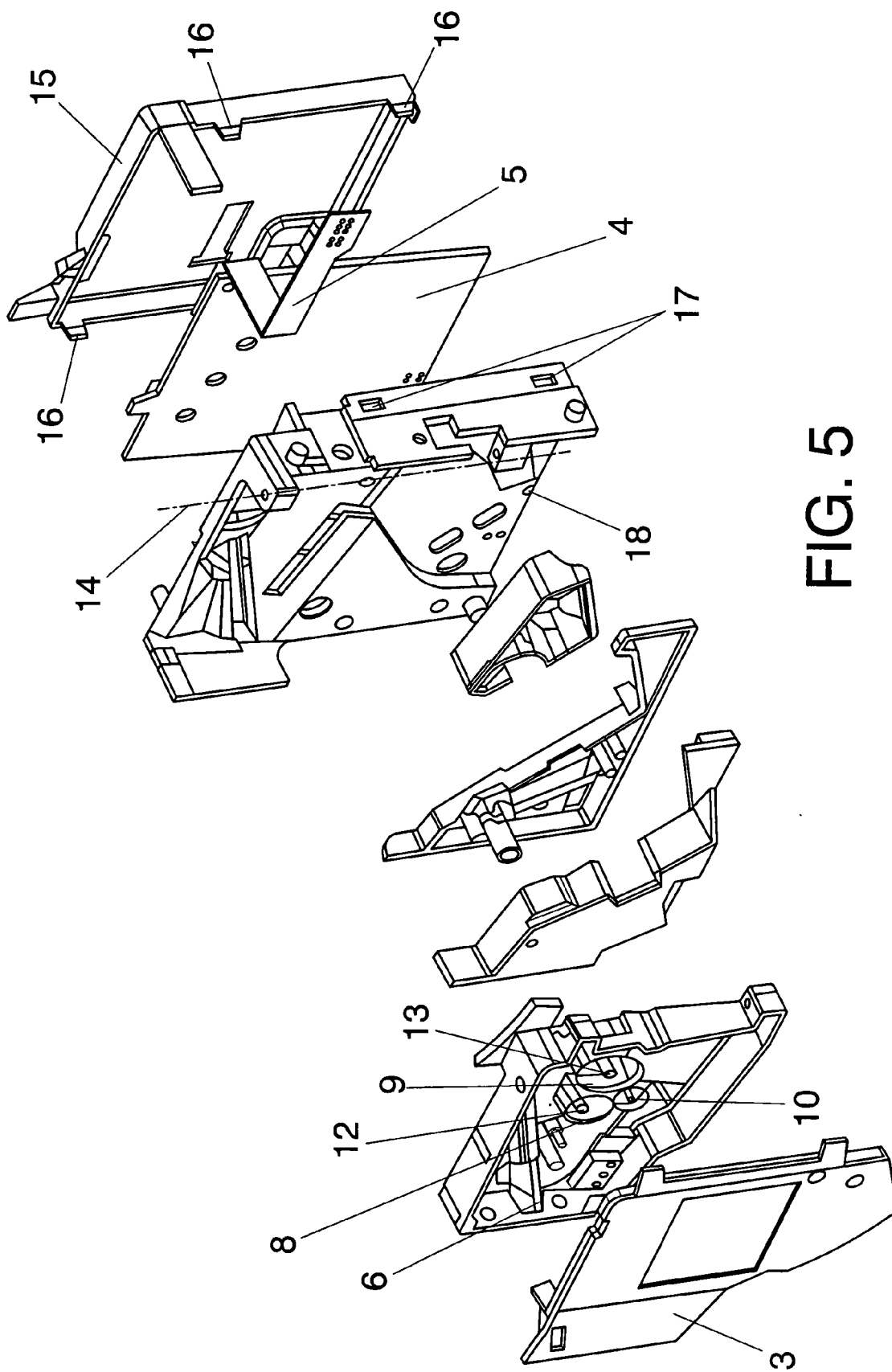


FIG. 5



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 38 0141

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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 30 August 2007	Examiner Espuela, Vicente
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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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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