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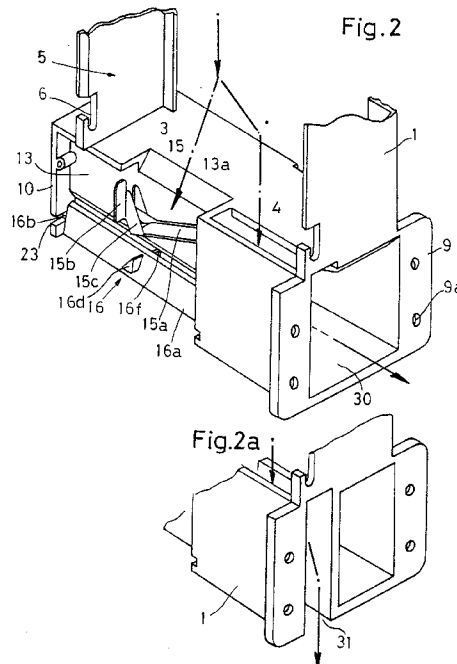
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(54) **Frame-holder for coin or token validation devices with built-in classifier.**

(57) It includes a one piece body(1) comprising a first passage (2) for receiving coins or tokens, a second passage (3) for receiving therethrough coins or tokens accepted by a validation device and a third passage (4) for receiving rejected coins and tokens, including a large recess (5) communicating with said three passages, and which can house a validation device, with means (6), (7), for detachably fastening said validation device, comprising in the area corresponding to the second passage (3) a large extension (10) forming two adjacent compartments (11) and (12) separated by a wall (13) with two passage holes (21), (22), a first front compartment housing at least two diverting elements (15), (16) for the passage of the coins, of independent operation, coordinated with the validation device, and remaining located at the second compartment (12) means (17) and (18) for operating diverting elements.



The present invention relates to a holder fit for mounting coin or token validation devices with the particularity of comprising a classifier, which can selectively segregate up to four different types of coins or tokens.

As background of the invention we must mention the patent ES 90 01540, in which it is proposed a holder applied to the mentioned aim, formed by a one piece injection molded body, advantageously in plastic material, in which body are conformed a first passage for receiving coins or tokens, a second passage for receiving coins and tokens accepted by the validation device and a third passage for feeding back rejected pieces, said three passages ending at the side walls of a large prismatic rectangular recess, open by at least one of its faces, fit to house therein the body of the coin or token validation device, entered through its side open face, and provided with means for positioning and locking said validation device. Mentioned one piece body likewise includes means to mount a lever to drive the return mechanism those validation devices for coins or tokens are generally provided with and means to mount the whole assembly at the installation area.

The object of mentioned ES 90 01540 patent provides a frame-holder prepared to accept any kind of coin or token validation devices either mechanical or electromechanical, but the universality and simplification properties of the assembly mounting are still limited by the fact it requires to include a classifying device is built-in, operatively coupled to the second passage for receiving coins or tokens accepted by the validation device whenever it is wished that the apparatus incorporating the assembly performs a classification task of the coins or tokens introduced therein.

In order to provide a solution to this drawback, this invention relates to a likewise one piece holder having characteristics in principle similar to those of patent ES 90 01540, in which a classifier is built-in, modifying therefore the characteristics of the object of the mentioned prior patent and providing simple and reliable means to achieve the function wished, taking advantage of the characteristics offered as basis by the holder body.

US patent 5,048,663 relates also to the above type of frame holder but with less performances.

Other backgrounds related to classifying devices associated to validation devices, are described in GB 1417581, DE 3045734, DE 3045736, GB 2045498 and ES 8700623.

Essentially the invention is characterized in that at the area corresponding to the second passage of the coins, accepted by the validation device, the frame-holder has a large extension where two adjacent compartments are formed, facing each other, open toward the larger side faces of said frame-holder, thereafter called, respectively, side front and rear face, and separated by a wall, said front face re-

maining level at its upper edge, chamfered, with the access opening to the second passage for receiving therethrough valid coins. Said wall separating the two compartments has two passage holes at different level and of a diverse section, and the front compartment, closed by a cover determining an upright, lengthwise passageway, of rectangular cross section, includes at least two diverting elements aimed to deflect the passage of the coins, of independent operation, coordinated with the validation device, which are joined through said holes of the wall to operating means, such as electromagnets with a well known spring core return system, installed in the rear compartment, determining a movement of said diverting elements with at least two operative positions, located transversally to the upright passage defined in said front compartment.

The structural and operation characteristics of the diverting elements used are different, a first diverting element being formed by a laminar piece with two wings forming a V-shaped dihedron, but with the planes, respectively offset, topped out by an ear by means of which it is connected to an operating electromagnet core. The two V-shaped wings of this piece are arranged in operative position with their respective planes orthogonal to the front compartment rear wall, one of them engaged and with possibility of retraction through one of the holes of said wall, in such a way that mentioned wings or V-shaped planes, operate in complementary and alternate way with respect to the second diverting element, determining the one inserted in the hole, depending on its position, a free passage in upright fall of the coin or the token (retracted situation) or a deflection (outwardly protruding situation) toward a determined side thereof, for which aim it is oriented inclined, while the second of the wings cooperates with the first, jamming the passage to a side wall in the first case, or allowing the passage to said side wall, respectively.

The second diverting element is formed by an elongated profile, of substantially triangular section, with some appendages, or end pivots which remain engaged in some side guiding grooves, perpendicular to the wall separating the two compartments. This diverting element is positioned in such a way that its bottom is parallel to that of the frame-holder, with its higher sharpened angle edge oriented toward mentioned upright passage between the cover and the wall determining, depending on which relative position it has, the deviation of the coin toward one or the other flank.

Said second diverting element has on its external face central part, a triangular wedge-shaped protrusion with a ramp plane aligned in continuity with the inclined wing of the first diverting element, and on its rear part, it extends in a rigid arm which near the joining area of the triangular profile has an offset which gives a triangular section equivalent to that of the mentioned wedge-shaped protrusion, that arm being

arranged inserted and with possibility of linear movement through second hole of the rear wall of this front compartment.

Said rear wall of the front compartment has an offset lower portion, with a ramp linking to the rest of the surface of said wall, of a depth sufficient to receive housed within it, in one of its operative positions, the second diverting element, in such a way that the more external side surface of this latter remains nearly level to the more protruding higher part from said rear wall from which the first diverting element protrudes.

The cover of the front compartment has available at one of its ends pins that can be fit in offsets made on the compartment side wall, and on the other end it possesses a hole corresponding to a shaft end which starts from said wall and has a hole in that end. In addition, said cover comprises a portion outwardly protruding from the compartment which corresponds with the offset area on the wall front face, this cover allowing thus a limited movement of the second diverting element and offering a sufficient clearance for the passage of the coins toward one or the other flank of said profile depending on the more protruding position thereof.

The invention will now be described in detail with reference to the accompanying drawings wherein:

- Fig. 1 is a perspective view of the frame-holder without the front compartment cover and the diverting elements;
- Fig. 2 is a fragmentary perspective view, of the sector of the frame-holder of interest for the invention, with the front side compartment without its cover, showing the diverting elements;
- Fig. 2a is a detail of an alternative embodiment of the feeding back passage for rejected coins or tokens;
- Fig. 3 shows the first diverting element in a side elevation view and its operating electromagnet;
- Figs. 4 and 5 detail in side elevation views the two operative positions of the second diverting element.

The assembly shown in the figures consists in a one piece molded body -1-, in a material that can be used in said process, as a plastic material, which comprises a first passage (2) for receiving the coins or tokens, a second passage (2) for receiving therethrough the coins or tokens accepted by a validation device from the first passage and third passage -4- for feeding back toward a side box -30- or a hopper, through a passage -31- (figure 2a) the coins rejected by said validation device. The body -1- comprises a large prismatic rectangular side recess -5- communicating with the three mentioned passages, that can house, entered through its open front side face, a validation device, with means -6-, -7- notch-shaped and hooking elements, to position and detachably fix said validation device (not shown, but of conventional characteristics, and any format) in said recess -5- and means

-8-, -8a-, -9- and -9a- constituted by wings with passing holes, for arranging throughout elements to fasten the whole assembly at the installation area.

According to the invention, the holder is characterized in that at the area corresponding to the second passage -13- for receiving the coins accepted by the validation device, it has a large extension -10- that forms two adjacent compartments -11- and -12- (see Fig. 3) facing each other, open toward the front and rear side faces, respectively, separated by a wall -13-, whose front face remains level to its upper chamfered edge -13a-, with the access opening to said second passage -3-. The wall -13- comprises two passing holes -21-, -22-, at different level and of a diverse section, and the front compartment -11- which remains closed on the front by a cover -14- determining with regard to rear wall -13- an upright, lengthwise passage -20-, of rectangular section, for receiving the coins or tokens, houses at least two elements -15- and -16- which deviate the passage of the coins, having an independent operation, coordinates with the validation device. Said elements -15- and -16- are joined through the holes -21- and -22- of the wall -13- to operating means -17- and -18-, typically electromagnets, located in the back compartment -12- and determining a movement of said diverting elements -15-, -16-, with at least two operative positions, located transversal to the upright passage -20- defined between the wall -13- and cover -14- of said compartment -11-.

The first diverting element -15- is formed by a laminar part which comprises two wings -15a- and -15b- forming a V-shaped dihedron, but with the planes offset joined by a square -15c- and topped out in an ear -15d- by which it is fixed to the stem -17a- of an electromagnet -18- which has a spring -17a- coaxial. The plane -15a- remains inserted in the hole -21- with possibility of retraction or protruding with respect to the wall -13- front plane with which in the first case the plane -15b- jams the passage of the coin to the left side of said diverting device, according to figure 2, and in the second, the inclined plane -15a-, leads the coin or tokens just to said left side.

As for the second diverting element -16- it consists in an elongated profile -16a- of substantially triangular section, with appendages -16b- or pivots, axial to its ends which remains engaged in lateral grooves -23- of compartment -11- perpendicular to the wall -13- in functions of linear guiding, with its higher angle edge, -16c- sharpened, oriented to the passage -20- between the wall -13- and the cover -14-. The profile -16a- has at its central part and on its outwardly oriented face a triangular wedge-shaped protuberance -16d-, with a chute plane which corresponds in continuity below the end of the inclined plane -15a- of the first diverting element -15-. The element -16a- extends by its rear central part in a rigid arm -16e- which near the joining area to said profile -

16a- has an offset -16f- which gives a triangular section equivalent to the mentioned wedge-shaped protrusion -16d-, and said arm -16e- is arranged through the second hole -22- of the wall -13-.

As it is clearly shown in figures 4 and 5, according to the position of the element -16- within the compartment -11- a deflection of the coins or token will occur to one or the other of the flanks of its portion -16a-, and this combined with the deviation of the first element -15- to the right or the left of the plane -15c- will allow the classification of up to four types of different monies or tokens.

Figure 1 shows that the lower part of the wall -13- has an offset area -13b- of sufficient depth to house in one of its operative positions the second diverting element -16- in such a way that the more external side surface of the portion -16a- remains virtually level to the upper more protruding part of the wall -13-.

As it can be seen in figures 4 and 5, the cover -14- comprises likewise, in a lower portion a part -14a- outwardly protruding to allow by its internal part notch-shaped, a sufficient movement of the diverting element -16- profile -16a- as it is apparent from these two figures.

The cited operating means include in the embodiment given as example two electromagnets with spring feed back means -33- and -34- coaxial to the stems -17a- and -18a-, respectively, known by themselves.

The cover -14- is fixed by means of a screw threaded at the pierced end of a shaft -24- protruding from the wall -13-, and includes pins at its end housed in holes of the wall adjacent the passage -4-, not shown in the figures.

Claims

1.- Frame-holder for coin or token validation devices with built-in classifier constituted by a one piece molded body, comprising a first passage for receiving coins or tokens, a second passage for receiving coins and tokens accepted by the validation device and third passage for feeding back rejected pieces, comprising a large prismatic rectangular recess communicating to said three passages fit to house therein a validation device, entered through its side open face and provided with first means for releasably positioning and locking said validation device in said recess and second means to fasten the whole assembly at the installation area, **characterized in that** second passage for receiving the coins accepted by the validation device, has an extension that forms two adjacent compartments, facing each other, open toward the front and rear side faces, respectively, separated by a wall, whose front face remains level at its upper chamfered edge, to the access opening to said second passage, said wall comprising two passage

holes, at different level and this front compartment being closed in the anterior face by a cover which determines an upright, lengthwise passage, of rectangular cross section, housing at least two diverting elements for deflecting the passage of the coins, of independent operation coordinated with the validation device, which are joined through said wall holes to operating means located in the back compartment and which determines a movement of said diverting elements, with a least two operative positions, transversally to the upright passage of said front compartment.

2.- A frame-holder, according to above claim characterized in that the first diverting element is formed by a laminar piece comprising two wings forming a dihedral of planes oriented in V and respectively shifted, fastened by a square and topped out by an ear, whose planes in operative position are arranged orthogonal to the bottom wall of the front compartment, with possibility of retracting one of them by fitting it in one of the holes, and the second diverting element located at a lower level comprise an elongated profile of substantially triangular section with end appendages which remains engaged in side grooves perpendicular to the wall separating the two compartments, and positioned in such a way that its bottom is parallel to that of the holder, with a upper sharpened edge angle oriented toward the passage between the wall and the cover, therefore depending on which is its position it determines the deflection of the coins or tokens toward one or the other of its flanks, said profile having at its central part and in its face outwardly directed a triangular wedge-shaped protuberance with a ramps plane which corresponds in continuity below the end of the transversal plane, which can go in and out of the hole, of the first diverting element, extending by said back central part by means of a rigid arm which together with the joining area to the triangular section equivalent to that of the wedge-shaped protuberance above mentioned, whose arm is arranged through the wall second hole.

3.- Device, according to claim 1, characterized in that the rear wall of the front compartment has a lower band, offset, with stepped link, of a sufficient depth to receive house, in one of its operative positions, the second diverting element, in such a way that its more external side surface is level to the more protruding upper part of the bottom wall from which is protruding the first diverting element.

4.- Device, according to claim 1, characterized in that the cover closing the front compartment which houses the diverting element has a portion protruding outward the compartment which corresponds to the offset area in the rear wall of said compartment, said cover allowing a limited movement of the second diverting element, with separation of its internal face of the more protruding plane of the wall, the cover having likewise available a hole which corresponds with a shaft end starting from this wall, and the other end of

this cover including pins that can fit in recesses of the side wall of the front compartment.

5. Device, characterized in that the operating means of the diverting means are formed by electromagnets with spring core return system, well known, located in the back compartment and said core is connected to an ear of the first diverting element, and to the end of the second diverting element central arm, respectively.

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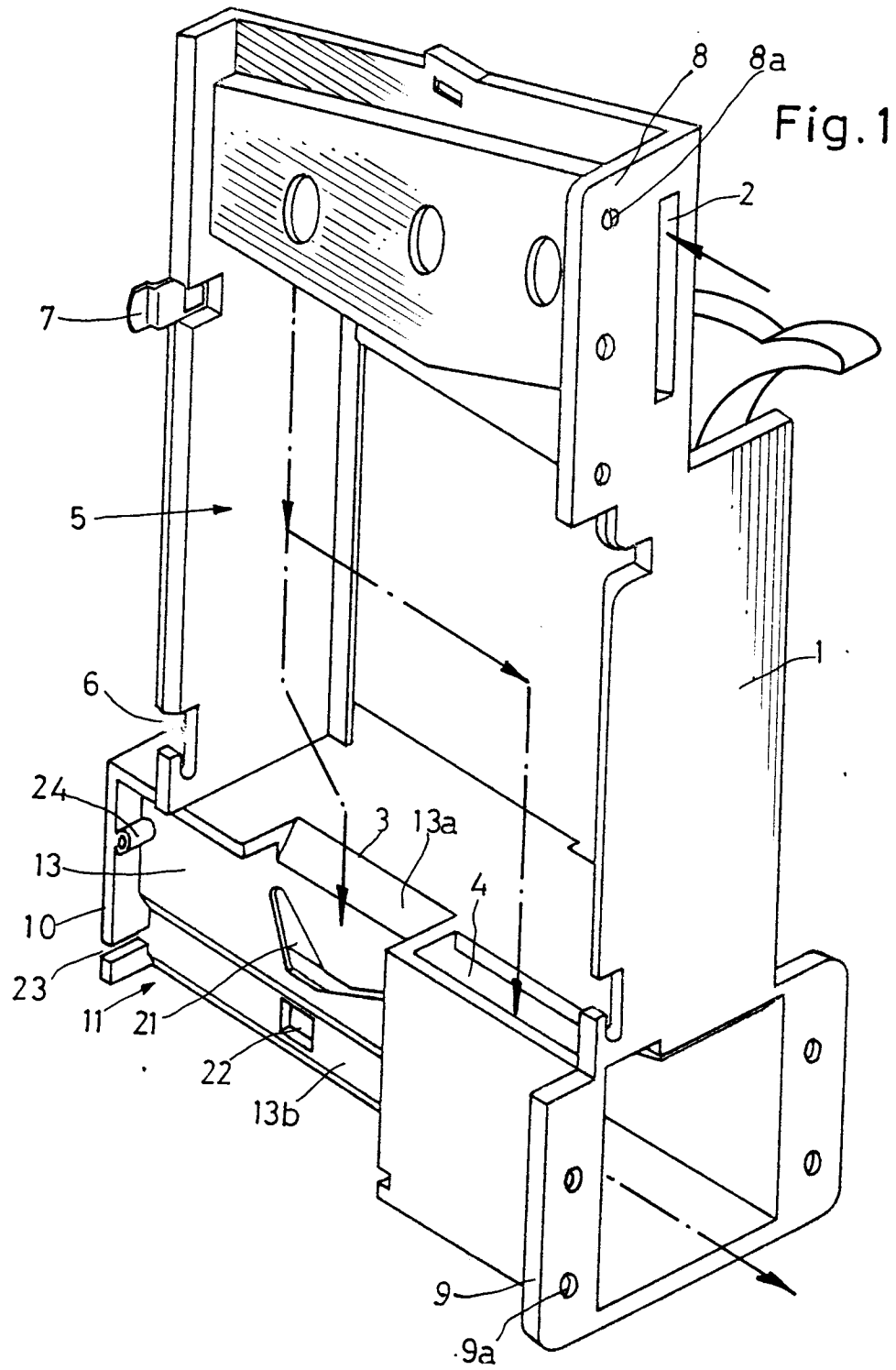
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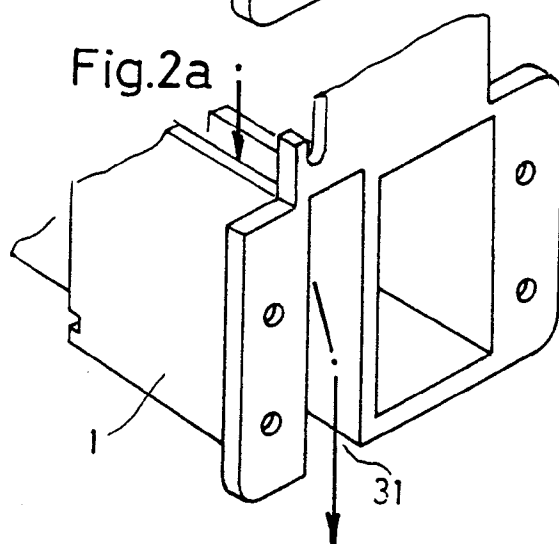
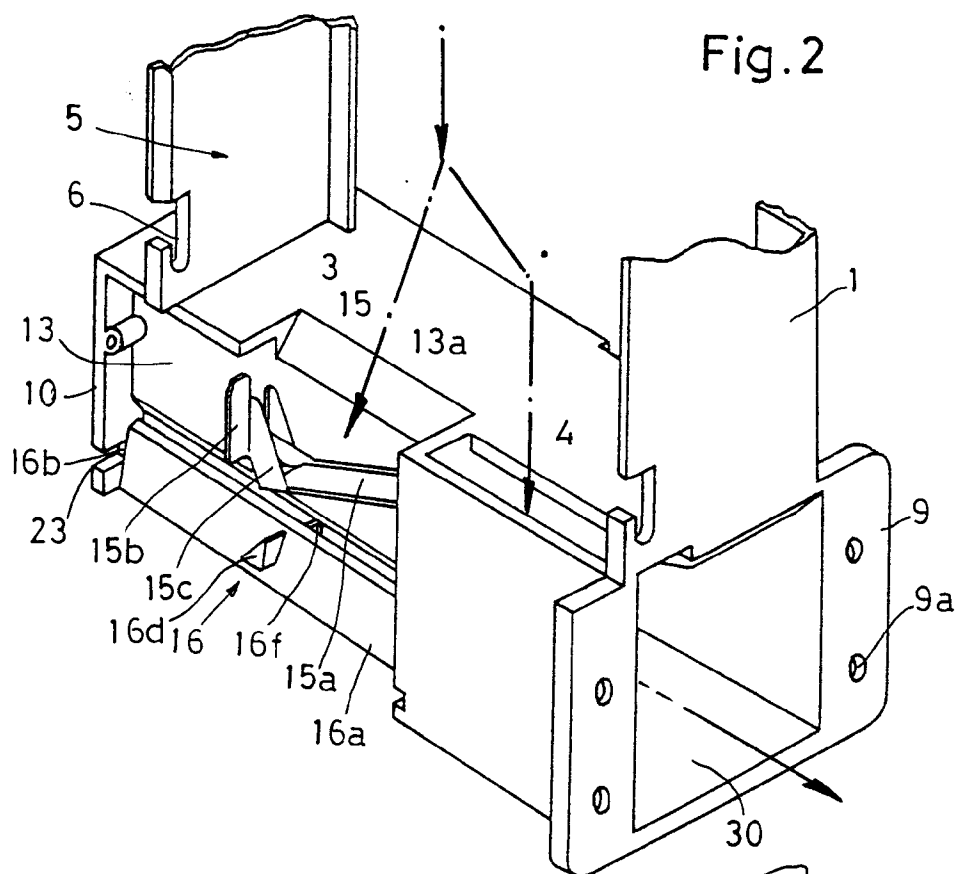


Fig. 3

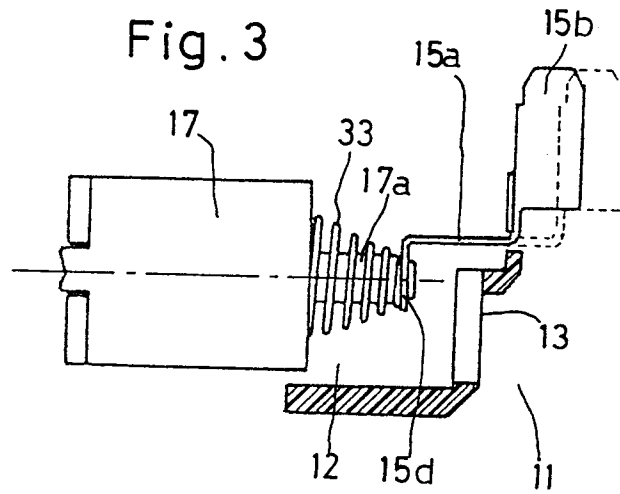


Fig. 4

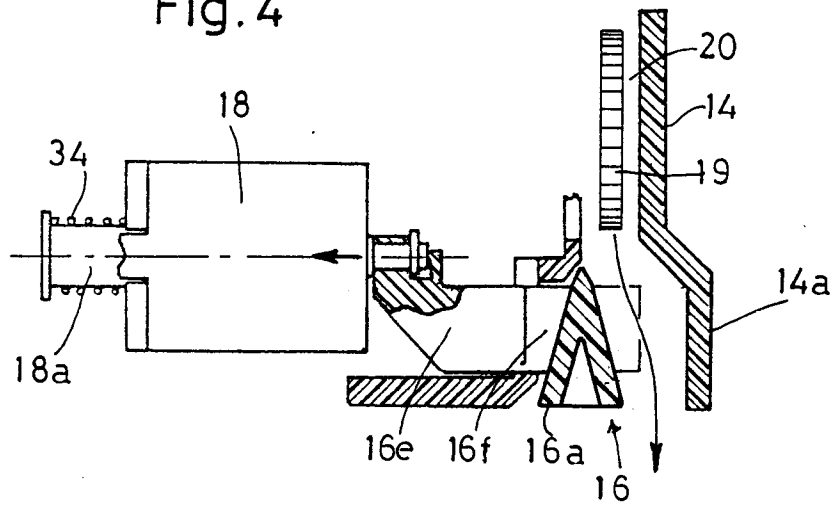


Fig. 5

