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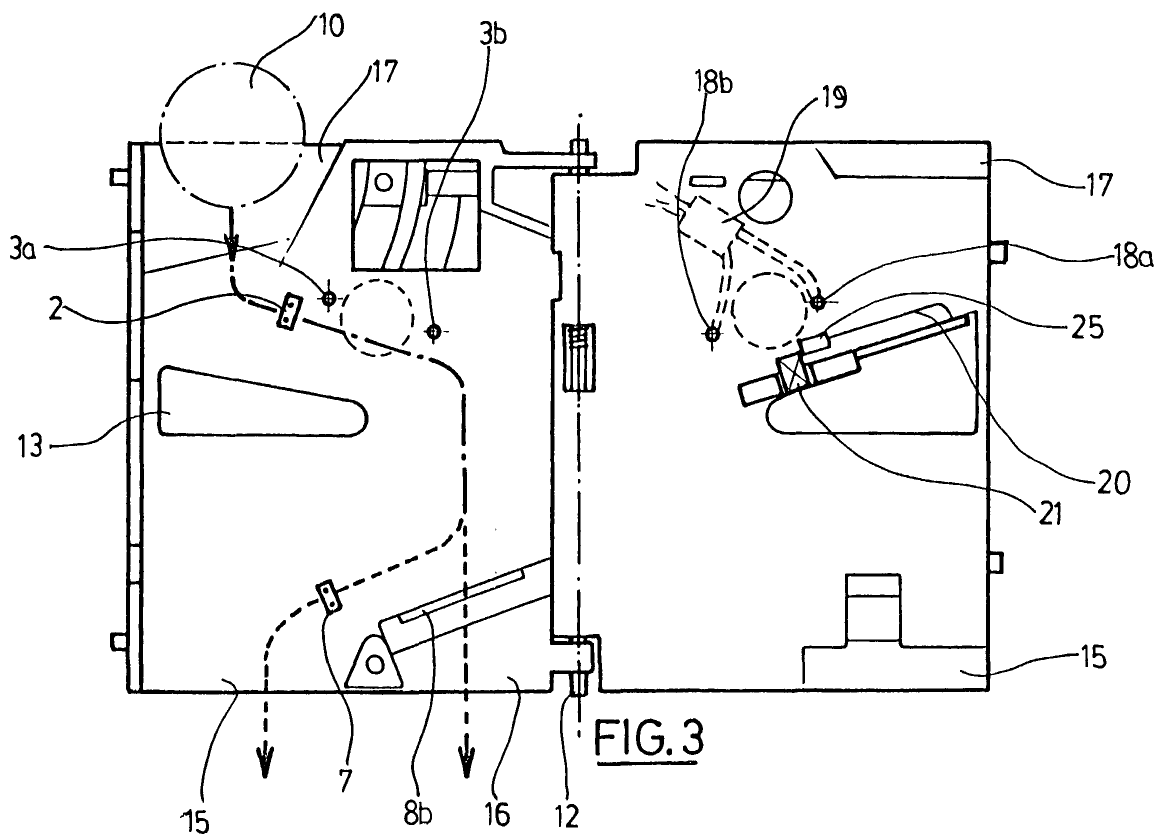
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(54) **Coin or chip selector device**

(57) Device for selecting coins or tokens comprising an inlet (17) for coins or tokens, a microprocessor or a CPU, a discriminator for coins or tokens, all of it through a given run, to which are associated means for determining the glow of the coin or token which generate a

signal which will be released to a microprocessor or a CPU, informing on the level of glow of said coin or token (10) and on the ground of preestablished parameters the coin or token will be acknowledged as of legal tender or authentic or as false.



Description

[0001] This invention relates to a device for selecting coins or tokens comprising a coin or token inlet, a microprocessor or a CPU, a discriminator for coins or tokens, all of it through a given run.

BACKGROUND OF THE SECTOR

[0002] Different systems are known for acknowledging whether a coin is of legal tender or not, in many cases they are systems which add to other already existing systems other processes for acknowledging false coins or tokens so that it is sufficient that a single of those systems acknowledge a money or token as false to have it immediately expelled from the machine.

[0003] Traditionally systems have been used which incorporated an electromagnet in the mechanism, so that the coin or token was accelerated, the acceleration being calculated and said parameter serving for ascertaining whether it was or not a coin of legal tender.

[0004] Spanish patent n^o 9002145 provides a device which includes an element elastically deformable through the effect of the coins or tokens weigh during the passage thereof on said element, bearing in mind that the deformation of said element will depend on the weigh of the coins or tokens. Therefore, only the coins or tokens having the stated weigh will be accepted. This patent has the serious drawback of the little reliability of this system after 10-12000 checks.

[0005] Thus, the Patent n^o 9101789 is known, which protects a process for identifying coins or tokens by obtaining given mechanical characteristics thereof. From the impact produced by the fall of a coin or token on an elastically deformable element. Through frequency analysis and by measuring the harmonics the parameter representative of the mechanical elasticity of the coin or token is determined. This system, same as the preceding patent, becomes little reliable after a certain amount of falls.

[0006] Also following above stated criterion for identifying coins or tokens by obtaining given mechanical characteristics thereof, patent n^o 9002145 develops a system such that the deformation will depend on the coin or token weigh and the position thereof along the elastically deformable element. Same as the preceding patents, it becomes little reliable with the use, which, depending on the places where it is exhibited, such as casinos or amusement machines premises, would make that after a short period of time, the machine would return every coin or token of legal tender because the elastically deformable element would be deformed.

[0007] In patent n^o 9501875 a system has also been provided which identifies the coins or tokens through the sound radiation produced by the impact of the coin or token on a hard surface.

[0008] The applicant, is presently transacting the transfer to his profit of the Utility Model n^o 9501563, con-

sisting in a device which has a single light emitting unit, with two branches, which has two diodes facing two photodiodes, so that the time of interruption of the beams allows to calculate the coin or token diameter.

SHORT DESCRIPTION OF THIS INVENTION

[0009] This invention consists in a mechanism for selecting coins or tokens incorporating a series of improvements in the field for detecting false coins or tokens, as well as in the energy saving of these mechanisms when they operate with self-governing batteries.

[0010] Thus it incorporates an ignition mechanism of the system when the coin or token and said coin or token is introduced and reaches a steel strip which operates the device, so that this system is very profitable for the machines which are not connected to the mains and operate with self-governed batteries, such as candies, gifts, prophylactics, etc. vending machines, so that the machine involved has a very low consumption until the moment when the coin or token enters in the device.

[0011] In addition, it introduces a new system for detecting false coins or tokens through the glow thereof. When the coin or token passes before a self-coupler by reflection depending on the glow said coin or token has, it is identified whether a coin or token is false (for instance of lead) or of legal tender.

[0012] If the coin or token is accepted by every control, the coil will lock the discriminator and the coin or token will fall on the overhanging portion of said discriminator, which acting as a ramp will makes it slides up to the outlet of accepted coins or tokens. In the event that only one of the detecting systems understands that it is a false coin or token, the coil will not lock the discriminator and by its own weigh the coin or token will displace the discriminator out of the coin selecting device and will fall through the outlet for not accepted coins or tokens, returning it to the user.

SHORT DESCRIPTION OF THE DRAWINGS

[0013] In order to make the explanation easy two sheets of drawings are attached to this description in which a practical case of embodiment has been illustrated, which is only for example purpose not limiting the scope of the invention.

[0014] In said sheets of drawings:

[0015] Fig. 1 shows a side elevation view of the device.

[0016] Fig. 2 shows a cross section of the axis II of Fig. 1.

[0017] Fig. 3 illustrates a side elevation view of the device open at the hinge.

CONCRETE EMBODIMENT OF THE INVENTION APPLIED FOR

[0018] This device is the result of the requirement to

find new improvements in the sector of the production of systems for preventing that false coins or tokens are introduced in the vending or amusement machines together with the requirement to design a system which prevent the unnecessary expense of energy for the machines which require that portable batteries are mounted.

[0019] Fig. 1 shows a device involved which is composed of a lever (1) for opening the device, a self-coupler by reflection (2), two photodiodes (3a, 3b), a discriminator (5) with coins or tokens, a locking coil (4), a second self-coupler by reflection (7), a microprocessor (9), a self-governed terminal (6) all of them on a wall (22) hinged to an axis or hinge (24).

[0020] The self-governed terminal (6) allows programming or reprogramming the device involved without needing a technician assistance, because the manufacturing company itself can supply the software for programming or reprogramming and this operation can be carried out from a simple PC, with a great amount of time and money saving, over all with the imminent implementation of the euro, which will oblige to reprogram every machine existing on the market in a short period of time, adapting all their mechanisms to the new coins.

[0021] Fig. 2 shows the device involved, with a cross section by the axis II of Fig. 1 in which the hinged walls (22, 23), the lever (1) for opening said device, the locking coil (4), the discriminator (5) with an overhanging portion which, as when located outside the device (8a) would not accept the coin or token and when located inside said device (8b) would accept the coin or token.

[0022] Thus in the event that the CPU (not shown in the drawings) would accept the coin or token, the locking coil (4) would lock the discriminator (5) and the overhanging portion would remain located inside the coin selecting device (8b), and acting as a passage, would lead the coin or token up to the accepted coins or tokens outlet.

[0023] If, on the contrary, said CPU would not accept the coin or token, it would release no signal to the locking coil (4) and the coin or token by its own weigh when it falls would move the discriminator (5) and the overhanging portion would be displaced outside the device (8a) allowing that the coin or token falls by the not accepted money or token outlet.

[0024] Fig. 3 shows the interior of the mechanism, where the whole device appears on some of the two hinged walls (22, 23), which in turn are joined to each other by means of the axis or hinge (12).

[0025] The coin or token (10) is introduced in the coin or token (17) inlet and when arriving to the ramp (13) it presses down a steel strip (20) which because of the coin or token mass bends triggering on one side all the mechanisms of the device and on the other side it achieves that when the magnet (25) comes close to a Hall-effect transistor (21) a more or less intense current is produced, this mechanism being one of those which acknowledge whether a coin is of legal tender or not.

[0026] Then when it goes on falling on said ramp (13) it will pass before the self-coupler by reflection (2) which will determine glow magnitudes of the coin or token (10), which are transmitted to the CPU or microprocessor, which according to pre-established parameters will accept it for being of legal tender or valid or will reject it for being false.

[0027] At same time, said self-coupler (2) by reflection will release a signal to the CPU (not shown in the drawings) in order to inform it of the existence of a money or coin, because if the machine cannot expend products or does not operate it will expel the coin or token in a further step.

[0028] The coin or token goes on said ramp (13) and is positioned before the third mechanism for detecting false coins or tokens, consisting in a single light emitting unit (19) which is divided into two diodes (18a, 18b), facing the photodiodes (3a, 3b), so that the calculation of the diameter of the coin or token introduced is carried out on the ground of the interval of time the light emission is interrupted between the diode (18a) and the photodiode (3a) and the time spent for interrupting the diode (18b) and the photodiode (3b) when the coin or token (10) is passing.

[0029] Every signal of acceptance or not of the coin or token is released to the microprocessor which in turn releases it back to the CPU.

[0030] If the coin or token (10) is eventually accepted, the microprocessor releases a signal to the locking coil which magnetizes the discriminator and locks it the overhanging portion remaining inside the money selecting device (8b) so that it acts as a ramp for the coins or tokens fall in the outlet of the accepted coins or tokens (15).

[0031] Before falling at the exit of the accepted coins or tokens (15), the coin or token passes facing a second self-coupler by reflection (7) which informs the CPU that the coin or token has been accepted and is going to fall down by the outlet (15), because the coin or token could have been accepted and being blocked in an intermediate length of above mentioned run.

[0032] If, on the contrary, the coin or token is not accepted, either because it did not successfully pass some of the preceding controls, or because the machine has no material available for expending it or for some other reason, the locking coil will not magnetize the discriminator so that when the coin or token (10) reaches the discriminator overhanging portion, because of the coin or token (10) own weigh, it will move said discriminator overhanging portion outside the coin or token selecting device and said coin or token will fall inside the not accepted coins or tokens (14) outlet.

[0033] After a period of time without operating, the device will go back to the condition of minimum consumption and it can be newly started in the moment when a new coin or token in entering.

[0034] The invention, within its essence, can be carried out in other embodiments which differ only in details

of the mentioned only for example purpose, to which the protection sought will include. This device for selecting coins and tokens can be produced in any shape and size, with the most suitable means and materials and with the most convenient fittings as all of them are comprised in the spirit of following claims.

Claims

1. Device for selecting coins or tokens comprising an inlet (17) for coins or tokens, a microprocessor (9) or a CPU, a discriminator (5) for coins or tokens, all of it through a given run characterized in that it has available means for determining the glow of the coin or token which generate a signal which will be released to a microprocessor (9) or a CPU, informing on the level of glow of said coin or token (10) and on the ground of preestablished parameters, the coin or token will be acknowledged as of legal tender or authentic or as false. 5
2. Device for selecting coins or tokens according to claim 1 characterized in that the mechanism informing on the level of glow of the coin or token (10) is a self-coupler by reflection (2). 25
3. Device for selecting coins or tokens according to claim 2 characterized in that the discriminator (5) of the coins or tokens has associated an overhanging portion which allows that when the coin or the token (10) is in contact with the overhanging portion of the discriminator (5) by the own weigh of the money or token (10) the discriminator (5) overhanging portion moves out of the device selecting the coins (8a) and the coin or token (10) falls in the outlet of not accepted coins or tokens (16). 30 35
4. Device for selecting coins or tokens according to claim 2 characterized in that it has a mechanism which locks the discriminator (5) overhanging portion at a given position, so that the discriminator (5) overhanging portion is located inside the device for selecting coins (8b) and the coin or token (10) when passing through this length is lead by the discriminator overhanging portion (5) up to the accepted coins or tokens (15) outlet. 40 45
5. Device for selecting coins or tokens according to claim 4 characterized in that the mechanism which locks the discriminator (5) at a given position is a coil (4). 50
6. Device for selecting coins or tokens according to claim 2 characterized in that it includes at least a second self-coupler by reflection (7) which releases a signal of checking the passage of the coin or token (10) to the microprocessor (9) or the CPU. 55
7. Device for selecting coins or tokens according to claim 2 characterized in that it includes a system for the ignition of the device, which comprises a steel strip (20) which when elastically bending because of the coin or token (10) weigh starts the whole mechanism. 5
8. Device for selecting coins or tokens according to claim 2 characterized in that it has a self-governed terminal (6). 10
9. Device for selecting coins or tokens according to claim 7 characterized in that said steel strip (20) incorporates a magnet (25) so that when said strip (20) bends because of the coin or token weigh it goes close to a Hall-effect transistor (21) which will release in turn a signal to the microprocessor (9) or the CPU, which will assess the magnitude contribution of more or less current conduction, on the ground of preestablished parameters, accepting or rejecting, as applicable, said coin or token (20). 15 20

