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(54) Title: A COIN MANAGING DEVICE

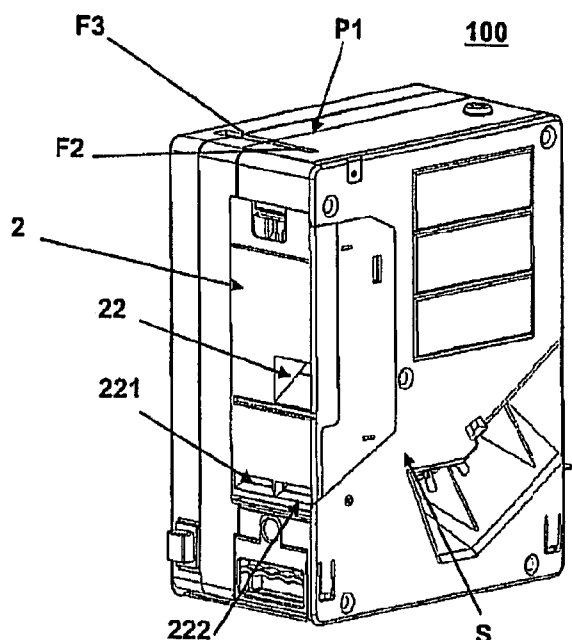


FIGURE 9

(57) Abstract: The coin managing device (100) comprises a structure (S) and a modular element (1, 10, 2, 3) associable to the structure (S). The structure S is internally provided with a magazine (M) designed for containing a mass of coins, and means (P) for collecting and conveying coins. The structure (S) further comprises a housing (A) accessible from outside and being provided with a first slot (F1) for coin passage which faces the housing (A). The means for collecting and conveying (P) convey the coins collected from the magazine to the first coin-passage slot (F1). The modular element (1, 10, 2, 3) is provided with a first coin inlet (11, 21, 31), at least a first coin outlet (12, 120, 22, 32) and at least a first internal path (13, 23, 33) for conveying coins between the first coin inlet (11, 21, 31) and the at least a first coin outlet (12, 120, 22, 32). The modular element (1, 10, 2, 3) exhibits dimensions such as to be insertable and installable completely in the housing (A) of the structure (S) such that the relative first coin inlet (11, 21, 31) faces and abuts the first coin-passage slot (F1) of the structure (S) and such that said at least first coin outlet (12, 120, 22, 32) is located at a front surface (S1, S2) of the structure (S).



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A COIN MANAGING DEVICE

FIELD OF THE INVENTION

5 The present invention relates to the technical sector concerning devices for managing and dispensing coins which are used and installed in various types of apparatus exhibiting different functionalities.

DESCRIPTION OF THE PRIOR ART

10 According to the type of apparatus, and the specific functioning modes thereof, at present a suitable device for managing coins is predisposed and installed internally thereof.

In apparatus to be used for giving change, for example following introduction of banknotes, devices for managing coins are internally predisposed and installed which are known in the sector as hoppers.

15 These hoppers internally comprise a coin accumulation magazine for a given coin denomination, and means for guiding the coins in the magazine towards a coin-dispensing chute realised in a wall of the structure, for dispensing coins to the user.

20 For each coin denomination (for example 1€, 2€ etc.) a corresponding hopper is used; thus, internally of the apparatus of the change machine several different hoppers have to be housed and installed one by a side of another.

There are also apparatus used for receiving money as payment (for example coins, banknotes, or other) in exchange for dispensing products and/or services, for example in traditional automatic dispensers, which also have to
25 be able to dispense coins as change.

In this case, the hoppers can be predisposed flanked to one another internally

of the apparatus, each containing a corresponding coin denomination, or, alternatively, suitable devices able to accumulate and contain internally thereof coins of various denomination, for example two different denominations, and then provide for combined dispensing thereof, thanks to
5 the presence of corresponding and appropriate detector and recognition sensors of the type of coin which is dispensed, and consequently their corresponding value.

There are also apparatus which are used to manage a disordered pile of coins, of various denominations and values, and to perform a division and
10 counting-out thereof to reach a total value; for example these apparatus can be used in casinos to manage the winnings for various games.

These apparatus have therefore to have, internally thereof, special devices for performing division between the coins of the various denominations and their telling; these are known as coin counters and dispensers.

15 Each of the various devices for managing coins as described above and used in the various types of apparatus is provided with an individual structure.

SUMMARY OF THE INVENTION

The aim of the present invention is to provide a device for managing coins
20 which can be configured, and thus are usable, for various uses.

In particular, the aim of the present invention is to provide a device for coin management, provided with a base structure, internally of which a coin magazine is present, and a modular element, the modular element being installable in the base structure such as to be able to receive the coins from
25 the magazine, carry them internally thereof and dispense them to the outside via at least a first coin outlet.

The above aim is obtained by means of a device for managing coins in accordance with what is set out in claim 1:

The aim of the present invention is also to provide a device for coin management provided with a base structure and which comprises the use of various modular elements which are singly installable in the base structure, in such a way as to configure and predispose the device for various uses, for example as a coin dispenser device (money changer), a device for dispensing change in the form of coins (change giver), or a device for division and counting of coins (money counter and divider).

This further aim of the present invention is obtained by means of a device for managing coins according to what is indicated respectively in claims 5-9, 10-15, 16-21.

Lastly, a further aim of the present invention is to provide a base structure according to claims 22-25 and modular elements according respectively to claims 26-28, 29-31 and 32-34, singly installable in the base structure, for realising and configuring a device for coin management usable for one of the above-cited uses.

BRIEF DESCRIPTION OF THE DRAWINGS

There follows a description of a preferred though not exclusive embodiment of the device for managing coins, and the relative various modular elements, object of the present invention, made with reference to the accompanying tables of the drawings, in which:

figure 1 illustrates, in a schematic perspective view, the base structure of the device for managing coins of the present invention;

figure 2 is a perspective view of the inside of the structure of figure 1, with a part removed;

figure 3 is a schematic perspective view of a modular element of the present invention, installable in the base structure of the device for managing coins;

figure 4 is a schematic illustration and a perspective view of a significant component of the modular element of figure 3;

figure 5 is a perspective view of the device for managing coins configured following the installation and predisposition in the base structure of the modular element of figure 3, and the predisposing of a coin recogniser and validator;

figure 6 is a perspective view of the device for managing coins, in which a further modular element has been predisposed and installed, and therefore configured for a different use and function with respect to the configuration of figure 5;

figure 7 is a schematic perspective view of a further other modular element which is installable in the base structure of the device for coin management;

figure 8 is a schematic perspective view from a different angle of the modular element of figure 7, with some parts removed in order better to illustrate the internal components of the modular element;

figure 9 is a perspective view of the device for managing coins configured following the installation and predisposing of the modular element of figure 7 in the base structure;

figures 10 and 11 are further perspective views, from different angles, of the modular element of figure 7, with some parts removed better to evidence significant components of the modular element;

figure 12 is a schematic representation of the functioning possibilities of the modular element of figure 7;

figure 13 is a perspective view of a further modular element installable in the base structure of the device for coin management;

figure 13A is a schematic perspective view, from a different angle, of the modular element of figure 13, with some parts removed in order better to

evidence the internal components of the modular element;

figures 14 and 15 are further perspective views, from different angles, of the modular element of figure 13, with some parts removed in order better to evidence significant components of the modular element;

- 5 figure 15A is a schematic representation of the functioning possibilities of the modular element of figure 13;

- figure 16 is a perspective view of the coin management device configured following the installation and predisposing of the base structure of the modular element of figure 13, and with the further predisposing of a coin recogniser and validator;
- 10

figure 17 is a perspective view of the inside of the base structure of the coin management device of the present invention, configured such as to perform the functions of the modular element of figure 13 once installed and predisposed in the base structure, as in figure 16.

15

DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference to the accompanying tables of the drawings, for example figures 1, 5, 6, 9 and 17, the number 100 denotes the coin managing device of the present invention.

- 20 The device 100 comprises, for assembly thereof, the use of a structure S and a modular element 1, 10, 2, 3, which is associable to the structure S.

- The structure S is provided internally with a magazine M which is provided such as to contain a mass of coins, and means P for collecting and conveying coins, for collecting single coins from the mass of coins present in the magazine M (visible for example in figure 2 and figure 17).
- 25

The structure S further comprises a housing A accessible from outside and being provided with a first slot F1 for coin passage which faces the housing A

and opens therein, the means for collecting and conveying P conveying the coins collected from the magazine to the first coin-passage slot F1 (see figure 1).

5 The modular element 1, 10, 2, 3 comprises a first coin inlet 11, 21, 31, at least a first coin outlet 12, 120, 22, 32 and at least a first internal path 13, 23, 33 for conveying coins between the first coin inlet 11, 21, 31 and the at least a first coin outlet 12, 120, 22, 32.

10 The modular element 1, 10, 2, 3 exhibits the peculiarity of having dimensions that are such as to be insertable and installable completely internally of the housing A of the structure S in such a way that the relative first coin inlet 11, 21, 31 is facing and abutting the first slot F1 for passage of coins of the structure S and such that the above-mentioned relative at least a first coin outlet 12, 120, 22, 32 is situated at a surface S1, S2 of the structure S.

15 In this way, the modular element 1, 10, 2, 3, once predisposed in the housing A, is able to receive, through the first slot F1 present in the structure S, the coins conveyed by the collecting and conveying means P at the first slot F1, to manage them internally thereof and to convey them and make them available to outside via at least the first coin outlet 12, 120, 22, 32 at a front surface S1, S2 of the structure.

20 The coin magazine M, present internally of the structure S, can contain coins of a same coin denomination (for example 1 euro coins), or. it can contain internally thereof coins of different denominations, for example up to four or more coin denominations (for example 10 Eurocents, 20 Eurocents, 1 Euro, 2 Euro or other combinations) according to the type of use the device 100 is to
25 be used for on the basis of the specific structure and characteristics of the modular element 1, 10, 2, 3 installable in the housing A of the structure S, as will be more fully described herein below.

The structure S, according to other characteristics, also comprises the presence of a position P1 for anchoring a coin validator P1 (see for example
30 figures 5 and 16).

In combination with the presence of the position P1 for anchoring a coin validator G, the structure S is further provided, at the position P1, with both a second slot F2 for passage of coins, which communicates with the magazine M internally thereof, and a third slot F3 for coin passage, which is in communication with a coin sliding channel 90 internal of the same structure S.

The coin sliding channel 90 opens via a relative coin outlet slot 91 at the housing A (see for example figures 1, 2 and 17).

The coin validator G is anchorable to the structure S in the anchoring position P1 in such a way that a first coin outlet, from which the coins validated thereby exit, is positioned facing and abutting the second slot F2, and such that a relative second coin outlet, from which the non-validated coins exit, is facing and abutting the third coin passage slot F3.

In this way, by installing a coin validator in the position P1 provided in the structure S, it is certain that coins will be accepted internally of the magazine M of the structure S valid, i.e. coins that have been validly recognised and identified by the coin validator G.

On the contrary, coins which have not been validated by the coin validator G, for example counterfeit coins, or coins that do not correspond to a given denomination usable by the device 100, or not recognised, will not remain internal of the magazine M as they will be directed via the third slot F3 into the coin sliding channel 90 and via this channel 90 up to the coin outlet slot 91 facing the housing A.

In this regard, the modular element 1, 10, 2, 3 which is predisposed and housed in the housing A comprises a second coin inlet 15, 25, 35 which communicates with the first coin outlet 12, 120, 22, 32 of the modular element 1, 10, 2, 3.

In particular, the second coin inlet 15, 25, 35, once the modular element 1, 10, 2, 3 has been inserted and installed in the housing A, it faces and abuts the outlet slot 91 of the coins which have not been validated and which arrive from

the validator G via the coin sliding channel 90.

In this way the coins which have not been validated by the validator G, as mentioned above, are returned to the outside via the first coin outlet 12, 120, 22, 32 of the modular element 1, 10, 2, 3.

- 5 The modular element 1, 10, 2, 31 further comprises sensor means 14, 24, 34 for detecting passage of coins and for identifying a denomination of the coins, which are predisposed at the first coin inlet 11, 21, 31 for detecting passage of coins coming from the magazine M through the first slot F1 and identifying a denomination thereof
- 10 A first type of modular element 1, 10 which can be housed and installed in the housing A of the structure S is illustrated in figures 3, 4, 5 and 6.

- The use and installation of the modular element 1, 10 of figures 3, 4, 5 and 6 in the housing A, and the predisposing, for example via the use of a coin validator G as mentioned herein above, of coins of a certain denomination (for
- 15 example 1 Euro) in the magazine M of the structure S, enables configuring a device 100 for coin management which is usable as a classic hopper, i.e. as a coin-changing device.

- The modular element 1 comprises a first internal coin-conveying path 13 such that the first coin outlet 12 is arranged at a front wall thereof and the coins
- 20 therefore exit from a front surface S1 of the structure S.

- Alternatively, in a variant illustrated in figure 6, the modular element 10 installable in the housing A of the structure S comprises the first internal coin-conveying path 13 such that the first coin outlet 120 is arranged at a lateral wall thereof such that the coins exit from a lateral surface S2 of the structure
- 25 S.

The modular element 1, 10 comprises a support element 18 and a covering element 19, 190, which covering element 19, 190 is couplable with the support element 18.

The support element 18 (visible for example in figure 4) bears the first coin inlet 11, at which the sensor means 14 for coin recognition are predisposed, and comprises the first internal path 13, while the covering element 19, 190 comprises a relative opening for defining the first coin outlet 12, 120 and
5 further, in a lateral wall thereof, a recess such as to define, once coupled with the support element 18, the second coin inlet 15 for non-validated coins arriving from the coin validator G via the coin sliding channel 190 internal of the structure S.

Further, the covering element 19 exhibits a shape such that once coupled to
10 the support element 18 the relative first coin outlet 12 is arranged at the front surface S1 of the structure S (see figure 5).

In the above-cited variant, the covering element 19 exhibits a shape such that once coupled to the support element 18, the relative first coin outlet 120 is arranged at the lateral surface S2 of the structure S (see figure 6).

15 A second type of modular element 2 which can be housed and installed in the housing A of the structure S is illustrated in figures 7, 8, 9, 10, 11, while figure 12 schematically reports the possible functioning of the modular element 2.

The use and installation of the modular element 2 of figures 7, 8, 9, 10 and 11 in the housing A, and the predisposing, for example by use of a coin validator
20 G as mentioned herein above, of coins of various denominations, for example of at least three different denominations (for example 10 Eurocents, 20 Eurocents, 1 Euro) in the magazine M of the structure S, enables configuring a device 100 for coin management which is usable as a change-giving device.

The modular element 2 comprises the first internal path 23 for conveying coins
25 such that the first coin outlet 22 is arranged at a front surface S1 of the structure S and comprises, further, a second internal path 260 for conveying coins and a first mobile organ 26, situated along the first internal path 23, the first mobile organ 26 being activatable in order to deviate the coins from the first path 23 towards the second internal path 260 for conveying coins.

The modular element 2 further comprises a third internal path 270 for conveying coins and a second mobile organ 27, situated along the second internal path for conveying coins 260.

5 The second mobile organ 27 is activatable for deviating the coins from the second internal path 260 towards the third internal path for conveying coins 270.

10 Lastly, the modular element 2 further comprises a fourth internal path 280 for conveying coins and a third mobile organ 28, situated along the second internal path for conveying coins 260; the third mobile organ 28 is activatable for deviating the coins from the second internal path 260 towards the fourth internal path for conveying coins 280.

Figure 12 schematically illustrates the internal structure of the modular element 2 with the four different internal coin-conveying paths, and the various mobile organs for deviating the coins.

15 The structure S, for receiving in the housing A thereof the second type of modular element 2, further exhibits a fourth slot F4 for coin passage, facing the housing A and communicating with the magazine M (visible in figure 1, for example).

20 In this regard, in the second type of modular element 2 the second internal path 260 for conveying coins of the modular element 2 is further provided with a terminal section 250 for coin outlet, the terminal section 250 being positioned facing and abutting with the above-cited fourth slot F4 once the modular element 2 has been housed and installed in the housing A.

25 In this way, the coins which have been directed from the first mobile organ 26, once activated, along the second internal path 260, and which have not been deviated by the second mobile organ 27 towards the third internal conveying path 270, and which have not been deviated by the thirf mobile organ 28 towards the fourth internal conveying path 280, can be directed and newly conveyed into the magazine M internally of the structure S.

This can occur when the coin that has been conveyed by the collecting and conveying means P present internally of the structure S at the first coin passage slot F1 of the structure S, and received from the first coin inlet 21 of the modular element 2, is recognised by the sensor means 14 as not suitable
5 to be dispensed as change.

For example, should the coin entering the modular element 2 be recognised as having a greater value than the value of the change which is yet to be dispensed to the user, the coin is directed, following activation of the first mobile organ 26 towards the second internal path 260 and from there, as
10 described above, newly conveyed via the fourth slot F4 internally of the structure S into the relative magazine M.

The above-cited third internal path 270 for conveying exhibits a terminal section 271 for exit of money which constitutes a second coin outlet 221 for the modular element 2 and the fourth internal path 280 for conveying exhibits,
15 in turn, a terminal section 281 for coin outlet constituting a third coin outlet 222 for the modular element 2, with the second coin outlet 221 and the third coin outlet 222 being at the front surface S1 of the structure S once the modular element 2 has been housed and installed in the housing. A.

Further, the third internal conveying path 270 is provided, upstream of the
20 relative terminal section 271 for coin outlet, with a first mobile stop element 272 which is activatable to block and temporarily retain a coin of a first denomination M1 deviated by the second mobile organ 27, when activated, from the second internal path 260 into the third internal path 270.

Accordingly, the fourth internal conveyor path 280 is provided, upstream of the
25 relative terminal section 281 for coin outlet, with a second mobile stop element 282 which is activatable to block and temporarily retain a coin of a second denomination M2 deviated by the third mobile organ 28, when activated, from the second internal path 260 into the fourth internal path 280.

In this way, internally of the third internal path 270, at the relative mobile stop
30 element 272, and internally of the fourth internal path 280, at the relative

mobile stop element 282, a sort of “cash checkout” of storage of two single coins of two distinct denominations is created (for example two coin denominations having the lowest values present internally of the magazine M – e.g. 10 Eurocents and 20 Eurocents).

- 5 In this way, should, in order to make up the total amount to be dispensed to the user, an amount corresponding to one or the other of the two coins present in the third path 270 or internally of the fourth path 280 be required, one or the other of the two coins can be directly dispensed to outside.

10 In this regard, when required, the first mobile stop element 272 is commandable such as to release the coin of the first denomination M1 such that it can exit from the second coin outlet 221, while, accordingly, the second mobile stop element 282 is commandable such as to release the coin of the second denomination M2 in order for it to be able to exit from the third coin outlet 222.

- 15 With these specifications, following installation of the second type of modular element 2 in the structure S, a device is configured for coin management of a change-giving type which is particularly efficient and rapid.

20 Indeed, when the coins received by the modular element 2, via the first coin inlet 21 thereof, are recognised by the sensor means 14 as having a value which is suitable for being dispensed as change, on the basis of the amount remaining of the change to be dispensed, the first mobile organ 26 remains deactivated such that the coins can continue over the whole internal path 23 up to the first coin outlet 22 and can be made available for the client.

25 When, on the other hand, the coin received by the first coin inlet 21 is recognised as having a too-high amount for the amount of residual change to be dispensed, the first mobile organ 26 is activated such as to deviate the coin from the first internal path 23 to the second internal path 260 such that via the second internal path 260 it is guided, via the terminal section for coin outlet 250 newly internally of the structure S, through the fourth slot F4 present
30 therein.

In a case in which, on the other hand, as evidenced above, the residual amount of the change still to be dispensed to the user corresponds to the amount of one of the two coins retained internally of either the third path 270 or of the fourth path 28', the modular element 2 will comprise activation of
5 respectively the first mobile stop element 272 (present along the third path 270) or the second mobile stop element 282 (present along the fourth path 280), such as to free the relative coin, retained up to then, in order for that coin to be made available to outside via respectively either the second coin outlet 271 or the third coin outlet 282.

10 Once one or the other of the two coins temporarily retained in the third path 270 or the fourth path 280 has been dispensed externally, and the change has therefore been completely dispensed to the user, the modular element 2 comprises performing operations finalised at resetting the temporary "cash checkout", i.e. coins present internally of the magazine M are conveyed to the
15 first inlet 21 of the modular element 2.

While the coins in inlet are different from the coin denomination (for example 10 Eurocents or 20 Eurocents) which is to be conveyed towards the third path 270 or towards the fourth path 280, to be retained there, the first mobile organ 26 is activated such as to deviate the coins from the first path 26 towards the
20 second path 260.

Further, the second mobile organ 27 and the third mobile organ 28 are maintained in position such as not to deviate the coins either towards the third path 270 or towards the fourth path 280, such that the coins are conveyed along the whole second path 260 up to the relative terminal section 250 for
25 coin outlet, and then made to re-enter through the fourth slot F4 newly into the structure S, into the relative magazine M.

When, on the other hand, the coin which enters the modular element 2 corresponds to the coin denomination (for example 10 Eurocents or 20 Eurocents) which is to be sent, then to be retained either in the third path 270
30 or the fourth path 280, the first mobile organ 26 is activated such as to deviate

the coin from the first path 23 to the second path 260; thereafter, respectively either the second mobile organ 27 or the third mobile organ 28 is activated such as to deviate the coin towards the relative corresponding third path 270 or fourth path 280.

- 5 Once the coin is deviated from the second path 260 into the third path 270, or into the fourth path 280, it is retained there by the first stop element 272 or by the second stop element 282.

This second type of modular element 2, illustrated as mentioned above in figures 7, 8, 9, 10, 11 and 12, is constituted by a support element 210 and by
10 a covering element 211 that is couplable with the support element 210.

The support element (210) comprises the first coin inlet (21), with the coin-detecting sensor means (24), and on which are respectively predisposed: the first internal path (23), the second internal path (260) with the relative terminal section (250) for coin outlet, the first mobile organ 26, the second mobile
15 organ 27 and the third mobile organ 28, the third internal path (270) and the first mobile stop element (272), the fourth internal path (280) with the second mobile stop element (282).

The covering element 211, in turn, frontally comprises relative openings for respectively defining the first coin outlet (22), the second coin outlet (221) and
20 the third coin outlet (222) and further comprises, laterally, a recess such as to define, once coupled with the support element (210), the second coin inlet (25) for receiving the non-validated coins in arrival from the coin validator (G) via the coin sliding channel (90) internal of the structure (S).

A third further type of modular element 3 which can be housed and installed in
25 the housing A of the structure S is illustrated in figures 13, 13A, 14, 15, 16 and 17, while figure 15A schematically illustrates a possible functioning of the modular element 3.

The use and installation of the modular element 3 of figures 13, 13A, 14, 15, 16 and 17 in the housing A, and the predisposing, for example by means of

the use of a validator G as mentioned above, of coins of at least four different denominations (e.g. 10 Eurocents, 20 Eurocents, 2 Euro, 2 Euro, or another combination) in the magazine M of the structure S, enables configuration of a device 100 for coin management, usable as a device for counting and separating coins.

The modular element 3 comprises the first internal path 33 for conveying coins such that the first coin outlet 32 is arranged at a front surface S1 of the structure S.

The first internal path 33 is destined to convey coins of a first denomination towards the first outlet 32, which are carried by the means for collecting and conveying P to the first coin passage slot F1 of the structure S, and are received thereby in the first coin inlet 31 of the modular element 3.

The modular element 3 further comprises a second internal path 360 for conveying coins and a first mobile organ 36 situated along the first internal path 33; the first mobile organ 36 is activatable for deviating coins that enter the modular element 3 from the first coin inlet 31 (in arrival from the magazine M internal of the structure), and which are different from the first coin denomination, from the first path 33 towards the second internal path 360.

The modular element 3 is further provided with a third internal path 370, for receiving and conveying coins of a second denomination, and a second mobile organ 37, which is situated along the second internal path 360 for conveying coins.

The second mobile organ 37 is activatable to deviate the coins of the second denomination of coins from the second internal path 360 towards the third internal path 370 for conveying coins.

Finally, the modular element 3 further comprises a fourth internal path 380 for receiving and conveying coins of a third coin denomination, and a third mobile organ 38, situated along the second internal path for conveying coins 360.

The third mobile organ 38 is activatable to deviate the coins of the third

denomination of coins from the second internal path 360 towards the fourth internal path 380 for conveying coins.

The above-cited third internal path 370 for conveying exhibits a terminal section 371 for exit of coins which constitutes a second coin outlet 321 for the
5 second denomination of coins for the modular element 2.

Accordingly, the fourth internal path 380 for conveying also exhibits a terminal section 381 for coin outlet which constitutes a third coin outlet 322 for the third denomination of coins for the modular element 3.

The second coin outlet 321 and the third coin outlet 322 are located at the
10 front surface S1 of the structure S once the modular element 3 has been housed and installed in the housing A.

Thus, when a coin enters the modular element 3 via the first coin inlet 31, and is recognised and identified by the sensor means 14 as a coin of a first denomination, the first mobile organ 36 is maintained in a position such that
15 the coin can pass through the entire first internal path 33, and reach up to the first coin outlet 32 , then to be made available to the outside from a first surface S1 of the structure S.

Each time coins entering the modular element 3 from the relative first inlet 31 are recognised by the sensor means 14 as coins of a different denomination to
20 the first denomination, the first mobile organ 36 is activated to deviate these coins from the first path 36 to the second internal path 360.

If the coin deviated into the second internal path 360 has been recognised by the sensor means 14 as a coin of a second denomination, the second mobile organ 37 is activated such as to deviate the coin from the second path 360
25 into the third internal path 370 such that the coin is taken up to the second coin outlet 321 in order to be made available externally from a first surface S1 of the structure S.

If, on the other hand, the coin deviated into the second internal path 360 has been recognised by the sensor means 14 as a coin of a third denomination,

the third mobile organ 37 is activated such as to deviate the coin from the second path 360 into the fourth internal path 370 such that this coin is taken up to the third coin outlet 321 in order to be made available externally from a first surface S1 of the structure S.

- 5 Lastly, if the coin deviated by the first mobile organ 36 towards the second internal path 360 (being a coin of a different denomination from the first denomination) has been recognised as a coin of a fourth denomination (or a still further denomination not corresponding to the first three denominations), both the second mobile organ 37 and the third mobile organ 38 are maintained
10 in a position such that the third path 370 and the fourth path 380 remain closed, and the said other coin is forced to follow the second internal path 360.

In this regard, also with the use of the third type of modular element 3, as in the case of use of the second type of modular element 2 described above, the structure S exhibits a fourth slot F4 for coin passage which is also facing the
15 housing A in communication with the magazine M.

Further, the second internal path 360 for conveying coins of the modular element 3 exhibits a terminal section 350 for outlet of coins, through which the coins which correspond to neither the first, second nor third denomination can be made to exit, as illustrated herein above.

- 20 The terminal section 350, once the modular element 3 has been housed and installed in the housing A, is positioned facing and abutting the fourth slot F4 such that the coins directed by the first mobile organ 36 along the second internal path 360, and which have not been deviated by the second mobile organ 37 towards the third internal conveying path 370 and have neither been
25 deviated by the third mobile organ 38 towards the fourth internal path 380, can be directed and conveyed, via the fourth slot F4, newly internally of the structure S.

In order to make coins of a fourth or still another denomination available externally of the structure S, i.e. coins not corresponding to the three coin
30 denominations which can be dispensed through the three different coin outlets

32, 321, 322 present in the modular element 3, the structure lastly provides a fifth slot F5 for coin passage (see for example figure 16 and figure 17).

The fifth slot F5 is realizable at a lateral surface of the structure S, for example following removal of a relative closing element; the structure S also exhibits a
5 coin conveyor channel 80 which is installable inside such as to connect and place in communication the fourth slot F4 (to which the coins different to the three coin denominations are conveyed by means of the second internal path 360) with the fifth slot F5.

In this way, the coins of a fourth denomination, or a further coin denomination
10 (different from the three denominations which are dispensed from the three outlets of the modular element 3), which, as mentioned above, are maintained along the whole second internal path 360 up to the relative terminal section for coin outlet 350, then pass through the fourth slot F4 into the channel 80 and via the channel 80 up to the fifth slot F5 and then externally of the structure S
15 from the lateral surface.

Consequently, by installing and predisposing the third type of modular element 3 in the housing A of the structure S it is possible to configure a device 100 for managing coins which is able to perform the division of coins of up to four or more coin denominations, i.e. to obtain a device of the counting and
20 separating type.

For three coin denominations three relative coin outlets 31, 321, 322 are provided by the modular element 3, while the coins of a fourth denomination, or a still further denomination, are conveyed through the modular element 3 and the channel 80 to the outside of the structure S via the fifth slot F5 for coin
25 passage, from which they can, for example, be received/conveyed into a further device.

The modular element 3 described above and illustrated in figures 13, 13A, 14, 15, 16 and 17 comprises a support element 310 and a covering element 311, the covering element 311 being couplable with the support element 310.

The support element 310 comprises the first coin inlet 31, with the relative coin detecting sensor means 34 , and on which are respectively predisposed: the first internal path 33, the second internal path 360, with the relative terminal section 350 for exit of coins, the third internal path 370, the fourth internal path 380 and the first mobile organ 36, second mobile organ 37 and third mobile organ 38.

The covering element 311, in turn, frontally comprises three openings which define, respectively the first coin outlet 32, the second coin outlet 321 and the third coin outlet 322 and further comprises, laterally, a recess such as to define, once coupled with the support element 310, the second coin inlet 35 for receiving the coins which have not been validated coming from the validator G through the internal coin sliding channel of the structure S.

The advantages of the present invention emerge from the above description.

With a same base structure S and the use of a modular element 1, 10, 2, 3 installable in the housing A of the structure S, it is possible to obtain and configure a device 100 for coin management which can be usable for various purposes and used, for example, as a dispenser of coins of the hopper type, as a device for giving change, of a change-giving type, or as a device for performing a separation and a counting of coins of various denominations, of the count and separate type.

This avoids the need to have to use, for one or more of the stated uses, various devices each exhibiting a distinct structure and functionality, as usually happens.

The above has been described by way of non-limiting example, and any constructional variants that might arise are understood to fall within the ambit of protection of the present technical solution, as it is claimed herein below.

CLAIMS

1) A coin managing device, characterised in that it comprises:

- a structure (S) and a modular element (1, 10, 2, 3) associable to the structure (S),

5 - the structure (S) being internally provided with a magazine (M) designed for containing a mass of coins, and means (P) for collecting and conveying coins, for collecting single coins from the mass of coins present in the magazine (M), the structure (S) comprising a housing (A) accessible from outside and being provided with a first slot (F1) for coin passage which faces the housing (A) and
10 opens therein, the means for collecting and conveying (P) conveying the coins collected from the magazine to the first coin-passage slot (F1);

- the modular element (1, 10, 2, 3) being provided with a first coin inlet (11, 21, 31), at least a first coin outlet (12, 120, 22, 32) and at least a first internal path (13, 23, 33) for conveying coins between the first coin inlet (11, 21, 31) and
15 the at least a first coin outlet (12, 120, 22, 32), the modular element (1, 10, 2, 3) exhibiting dimensions such as to be insertable and installable completely in the housing (A) of the structure (S) such that the relative first coin inlet (11, 21, 31) faces and abuts the first coin-passage slot (F1) of the structure (S) and such that said at least first coin outlet (12, 120, 22, 32) is located at a front
20 surface (S1, S2) of the structure (S), in order to be able to receive, through the first coin inlet (11, 21, 31) the coins conveyed by the collecting and conveying means (P) to the first slot (F1), to process the coins internally thereof and, finally, to convey the coins and make them available externally through the at least first coin outlet (12, 120, 22, 32) at a front surface (S1, S2) of the
25 structure (S).

2) The device of claim 1, characterised in that the structure (S) comprises a position (P1) for anchoring a coin validator (G) and is provided, at the anchoring position (P1) with a second slot (F2) for passage of coins, communicating with the magazine (M) for storing coins internally thereof, and
30 a third coin-passage slot (F3), communicating with a coin sliding channel (90),

internal of the structure (S), which opens via a relative coin outlet slot (91) in correspondence of said housing (A), the coin validator (G) being anchorable to the structure (S) in the anchoring position (P1) such that a relative first coin outlet, from which the validated coins exit, is positioned facing and abutting
5 said second slot (F2) and a relative second coin outlet, from which the non-validated coins exit, faces and abuts said third coin passage slot (F3).

3) The device of claim 2, characterised in that the modular element (1, 10, 2, 3) comprises a second coin inlet (15, 25, 35), the second coin inlet (15, 25, 35) being in communication with the first coin outlet (12, 120, 22, 35) of the
10 modular element (1, 10, 2, 3), said second coin inlet (15, 25, 35), once the modular element (1, 10, 2, 3) has been inserted and installed in the housing (A), facing and abutting the outlet slot (91) of the non-validated coins coming via said channel (90) from the coin validator (G), such that the non-validated coins from the coin validator (G) are returned to the outside via the first coin
15 outlet (12, 120, 22, 32) of the modular element (1, 10, 2, 3).

4) The device of claim 3, characterised in that the modular element (1, 10, 2, 31) comprises sensor means (14, 24, 34) for detecting passage of coins and for identifying a denomination of the coins, which are predisposed at the first coin inlet (11, 21, 31) for detecting passage of coins coming from the
20 magazine (M) through the first slot (F1) and identifying a denomination thereof.

5) The coin managing device of claims 1, 2, 3 and 4 which comprises use of a modular element (1) installable in the housing (A) of the structure (S), wherein the first coin-conveying internal path (13) of the modular element (1) is such
25 that the first coin outlet (12) is arranged at a front wall of the modular element (1), such that the coins exit from a front surface (S1) of the structure (S).

6) The coin managing device of claims 1, 2, 3 and 4, which comprises use of a modular element (10) installable in the housing (A) of the structure (S), wherein the first coin-conveying path (13) of the modular element (1) is
30 arranged such that the first coin outlet (120) is arranged at a lateral wall of the

modular element (1), such that the coins exit from a lateral surface (S2) of the structure (S).

7) The device of claim 5 or 6, characterised in that the modular element (1, 10) comprises a support element (18) and a covering element (19, 190), the covering element (19, 190) being couplable with the support element (18), the support element (18) bearing the first coin inlet (11), at which said coin sensor means (14) are predisposed, and comprising the first internal path (13), the covering element (19, 190) comprising a relative opening for defining said first coin outlet (12, 120) and further, in a lateral wall, a recess such as to define, once coupled with the support element (18), said second coin inlet (15) for the non-validated coins coming from the coin validator (G) via the coin sliding channel (90) internal of the structure (S).

8) The device of claim 7, characterised in that the covering element (19) exhibits a shape such that once coupled to the support element (18) the relative first coin outlet (12) is arranged at the front surface (S1) of the structure (S).

9) The device of claim 7, characterised in that the covering element (19) exhibits a shape such that once coupled to the support element (18), the relative first coin outlet (120) is arranged at the lateral surface (S2) of the structure (S).

10) The coin managing device of claims 1, 2, 3 and 4, which comprises use of a modular element (2) installable in the housing (A) of the structure (S), wherein the modular element (2) comprises the first internal path (23) for conveying coins such that the first coin outlet (22) is arranged at a front surface (S1) of the structure (S) and comprises a second internal path (260) for conveying coins and a first mobile organ (26) situated along the first internal path (23), the first mobile organ (26) being activatable in order to deviate coins from the first path (23) towards the second internal path (260) for conveying coins.

11) The device of claim 10, characterised in that the modular element (2)

comprises a third internal path (270) for conveying coins and a second mobile organ (27), situated along the second internal path for conveying coins (260), the second mobile organ (27) being activatable for deviating the coins from the second internal path (260) towards the third internal path for conveying coins (270), the modular element (2) further comprising a fourth internal path (280) for conveying coins and a third mobile organ (28), situated along the second internal path for conveying coins (260), the third mobile organ (28) being activatable for deviating the coins from the second internal path (260) towards the fourth internal path for conveying coins (280).

12) The device of claim 11, characterised in that the structure exhibits a fourth slot (F4) for passage of coins, facing the housing (A) and communicating with the magazine (M), the second internal path (260) for conveying coins of the modular element (2) exhibiting a terminal section (250) for coin outlet, said terminal section (250) being positioned facing and abutting said fourth slot (F4) once the modular element (2) has been housed and installed in the housing (A), such that the coins directed from the first mobile organ (26) along the second internal path (260), which have not been deviated by the second mobile organ (27) towards the third internal conveying path (270) and which have not been deviated by the third mobile organ (28) towards the fourth internal conveying path (280), can be directed and conveyed newly into the magazine (M) internally of the structure (S) through the fourth slot (F4).

13) The device of claim 11, characterised in that the third internal conveying path (270) exhibits a relative terminal section (271) for outlet of coins constituting a second coin outlet (221) for the modular element (2) and in that the fourth internal conveying path (280) exhibits a relative terminal section (281) for outlet of coins constituting a third coin outlet (222) for the modular element (2), said second coin outlet (221) and said third coin outlet (222) being at the front surface (S1) of the structure (S) once the modular element (2) has been housed and installed in the housing (A), the third internal conveying path (270) being provided, upstream of the relative terminal section (271) for coin outlet, with a first mobile stop element (272) which is activatable to block and temporarily retain a coin of a first denomination (M1) deviated by

the second mobile organ (27), when activated, from the second internal path (260) into the third internal path (270), and the fourth internal conveyor path (280) being provided, upstream of the relative terminal section (281) for coin outlet, with a second mobile stop element (282) which is activatable to block
5 and temporarily retain a coin of a second denomination (M2) deviated by the third mobile organ (28), when activated, from the second internal path (260) into the fourth internal path (280).

14) The device of claim 13, characterised in that the first mobile stop element (272) is commandable such as to release the coin of the first denomination
10 (M1) such that it can exit from the second coin outlet (221) and the second mobile stop element (282) is commandable such as to release the coin of the second denomination (M2) such that it can exit from the third coin outlet (222).

15) The device of claims 10-14, characterised in that the modular element (2) comprises a support element (210) and a covering element (211), the covering
15 element (211) being couplable with the support element (210), the support element (210) comprising the first coin inlet (21), with the coin-detecting sensor means (24), and on which are respectively predisposed the first internal path (23), the second internal path (260) with the relative terminal section (250) for coin outlet, the third internal path (270) and the first mobile
20 stop element (272), the fourth internal path (280) and the second mobile stop element (282), and the first mobile organ (26), the second mobile organ (27) and the third mobile organ (28), the covering element (211) frontally comprising relative openings for respectively defining the first coin outlet (22), the second coin outlet (221) and the third coin outlet (222) and further
25 comprises, laterally, a recess such as to define, once coupled with the support element (210), the second coin inlet (25) for receiving the non-validated coins in arrival from the coin validator (G) via the coin sliding channel (90) internal of the structure (S).

16) The coin managing device of claims 1, 2, 3 and 4, comprising use of a
30 modular element (3) installable in the housing (A) of the structure (S), wherein the modular element (3) comprises the first internal path (33) for conveying

coins such that the first coin outlet (32) is arranged at a front surface (S1) of the structure (S), the first internal path (33) being destined to convey, towards the first coin outlet (32), coins of a first coin denomination, and comprises a second internal path (360) for conveying coins and a first mobile organ (36) situated along the first internal path (33), the first mobile organ (36) being activatable for deviating coins that are different from the first coin denomination from the first path (33) towards the second internal path (360) for conveying coins.

17) The device of claim 16, characterised in that the modular element (3) comprises a third internal path (370) for receiving and conveying coins of a second coin denomination, and a second mobile organ (37), situated along the second internal path for conveying coins (360), the second mobile organ (37) being activatable to deviate the coins of the second coin denomination from the second internal path (360) towards the third internal path for conveying coins (370), the modular element (3) further comprising a fourth internal path (380) for receiving and conveying coins of a third coin denomination, and a third mobile organ (38), situated along the second internal path for conveying coins (360), the third mobile organ (38) being activatable for deviating the coins of the third coin denomination from the second internal path (360) towards the fourth internal path for conveying coins (380).

18) The device of claim 17, characterised in that the structure (S) exhibits a fourth slot (F4) for coin passage facing the housing (A) and communicating with the magazine (M), the second internal path (360) for conveying coins of the modular element (3) exhibiting a terminal section (350) for coin outlet, the terminal section (350) being positioned facing and abutting said fourth slot (F4) once the modular element (3) has been housed and installed in the housing (A), such that the coins directed by the first mobile organ (36) along the second internal path (360), and which have not been deviated by the second mobile organ (37) towards the third internal conveying path (370) nor have been deviated by the third mobile organ (38) towards the fourth internal conveying path (380) can be guided and conveyed through the fourth slot (F4) newly internally of the structure (S).

- 19) The device of claim 17, characterised in that the third internal conveying path (370) exhibits a relative terminal section (371) for outlet of coins which constitutes a second coin outlet (321) for the second coin denomination for the modular element (2), the fourth internal conveying path (380) exhibiting a
5 relative terminal section (381) for coin outlet which constitutes a third coin outlet (322) for the third coin denomination for the modular element (3), the second coin outlet (321) and the third coin outlet (322) being at the front surface (S1) of the structure (S) once the modular element (3) has been housed and installed in the housing (A).
- 10 20) The device of claim 18, characterised in that the structure (S) comprises a fifth slot (F5) for coin passage, realisable at a lateral surface thereof following removal of a relative closing element, and in that it comprises a coin conveying channel (80) installable internally of the structure (S) such as to be able to connect and place the fourth slot (F4) in communication with the fifth
15 slot (F5), such that coins of a fourth coin denomination or another denomination directed by the first mobile organ (36) along the second internal path (360), and which have not been deviated by the second mobile organ (37) towards the third internal conveying path (370) nor have been deviated by the third mobile organ (38) towards the fourth internal conveying path (380)
20 can be directed and conveyed through the fourth slot (F4) into said channel (80) and via this channel to the fifth slot (F5) and then to outside the structure (S) via the lateral surface.
- 21) The device of claims 16-20, characterised in that the modular element (3) comprises a support element (310) and a covering element (311), the covering
25 element (311) being couplable with the support element (310), the support element (310) comprising the first coin inlet (31) with the relative coin detecting sensor means (34), and on which support element (310) are predisposed the first internal path (33), the second internal path (360) with the relative terminal section (350) of coin outlet, the third internal path (370), the
30 fourth internal path (380) and the first mobile organ (36), the second mobile organ (37) and the third mobile organ (38), and the covering element (311) frontally comprising relative openings for defining, respectively, the first coin

outlet (32), the second coin outlet (321) and the third coin outlet (322), and further comprising, laterally, a recess which is such as to define, once coupled with the support element (310), the second coin inlet (35) for receiving the non-validated coins in arrival from the coin validator (G) via the coin sliding
5 channel (90) internally of the structure (S).

22) A coin containing structure (S), usable for realising a device for coin management, characterised in that it internally comprises a magazine (M) designed for containing a mass of coins, and means (P) for collecting and conveying coins, for collecting single coins from the mass of coins present in
10 the magazine (M), the structure (S) comprising a housing (A) accessible from outside and being provided with a first slot (F1) for coin passage which faces the housing (A) and opens therein, the means for collecting and conveying (P) conveying the coins collected from the magazine to the first coin-passage slot (F1), the housing (A) exhibiting dimensions which are such as to be able to
15 house and receive a modular element (1, 10, 2, 3) able to receive, at a relative first coin inlet (11, 21, 31) the coins from the first slot (F1), manage the coins internally thereof and convey the coins towards at least a relative first coin outlet (12, 120, 22, 32).

23) The structure of claim 22, characterised in that it comprises a position (P1)
20 for anchoring a coin validator (G), and in that it is provided, at the anchoring position (P1), with a second slot (F2) for passage of coins, communicating with the magazine (M) for storing coins internally thereof, and a third slot (F3) for passage of coins, communicating with a coin sliding channel (90) internal of the structure (S), which opens via a relative slot for coin outlet (91) in
25 correspondence of the housing (A), the coin validator (G) being anchorable to the structure in the anchoring position (P1) such that a relative first coin outlet, from which the validated coins exit, is positioned facing and abutting the second slot (F2), and a relative second coin outlet, from which the non-validated coins exit, faces and abuts the third coin passage slot (F3), such that
30 the non-validated coins in arrival from the coin validator (G) are conveyed, via the sliding channel (90) up to the coin outlet slot (91), externally of the structure (S), and are received by a second coin inlet (15, 25, 35) comprised in

the modular element (1, 10, 2, 3) installed in the housing (A).

24) The structure of claim 22, characterised in that it comprises a fourth coin passage slot (F4) facing the housing (A) and communicating with the magazine (M) for receiving coins in arrival from the modular element (2, 3) installed in the housing (A) and which have not been conveyed by the modular element (2, 3) towards relative coin outlets to the outside.

25) The structure of claim 24, characterised in that it comprises a fifth coin passage slot (F5), realisable at a lateral side of the structure following removal of a relative closing element, and in that it comprises a coin conveying channel (80) installable internally of the structure (S) such as to be able to connect and place in communication the fourth slot (F4) with the fifth slot (F5), such that coins in arrival from the modular element (2, 3) installed in the housing (A) can be directed and conveyed, through the fourth slot (F4), into the channel (80) and via the channel (80) to the fifth slot (F5) and then to outside the structure (S) from said lateral wall.

26) A modular element (1, 10), installable in a structure (S) as in claims 22-25 for realising a device for coin management, characterised in that it comprises at least a first coin inlet (11), a first coin outlet (12, 120), and an internal path (13) for conveying coins between the coin inlet (11) and the first coin outlet (12, 120), the modular element (1, 10) exhibiting dimensions such as to insertable and installable completely in the housing (A) of the structure (S) in such a way that the relative first coin inlet (11) faces and abuts the first coin passage slot (F1) of the structure (S), in order to be able to receive, through the first passage slot (F1), the coins conveyed by the means (P) for collecting and conveying money to the first slot (F1), and such that the relative coin outlet (12, 120) is situated at a surface (S1,S2) of the structure (S).

27) The modular element (1, 10) of claim 26, characterised in that it comprises a second coin inlet (15), the second coin inlet (15) being in communication with the coin outlet (12, 120) of the modular element (1, 10), the second coin inlet (15), once the modular element (1, 10) has been inserted and installed in

the housing (A) of the structure (S), facing and abutting the outlet slot (91) present in the structure (S) for the non-validated coins in arrival from the coin validator (G) such that the coins which are not validated by the coin validator (G) are returned via the coin outlet (12, 120) of the modular element (1, 10).

5 28) The modular element (1, 10) of claim 27, characterised in that it comprises a support element (18) and a covering element (19, 190), the covering element (19, 190) being couplable with the support element (18), the support element (18) comprising the coin inlet (11), the internal path (13) for conveying coins, and being provided with coin-detecting sensor means (14) predisposed
10 in the coin inlet (11), the covering element (19, 190) comprising an opening for defining the first coin outlet (12, 120) and further, in a lateral wall, a recess such as to define, once coupled with the support element (18), the second coin inlet (15) for non-validated coins in arrival from the coin validator (G) through the coin-sliding channel (90) present internally of the structure (S).

15 29) A modular element (2), installable in a structure (S) as in claims 22-25, for realising a device for coin management, characterised in that it comprises at least a first coin inlet (21) provided with relative coin-detecting sensor means (24), at least a first coin outlet (22) and at least a first internal path (23) for conveying coins between the at least a first coin inlet (21) and the at least a
20 first coin outlet (22), the modular element (2) exhibiting dimensions such as to be completely insertable and installable in the housing (A) of the structure (S) such that the at least first coin inlet (21) faces and abuts the first coin passage slot (F1) of the structure (S), in order to be able to receive, through the first coin passage slot (F1), the coins conveyed by the means (P) for collecting and
25 conveying at the first slot (F1), and such that the at least first coin outlet (22) is located at a surface (S1, S2) of the structure (S).

30 30) The modular element (2) of claim 29, characterised in that it comprises: a second coin inlet (25), the second coin inlet (25) being in communication with the first coin outlet (22) of the modular element (2), the second coin inlet (25), once the modular element (2) has been inserted and installed in the housing (A) of the structure (S), facing and abutting the outlet slot (91), present in the

structure (S), of the non-validated coins coming from the coin validator (G); a second internal path (260) for conveying coins and a first mobile organ (26), situated along the first internal path (23), the first mobile organ (26) being activatable for deviating the coins from the first path (23) towards the second internal path (260) for conveying coins, a third internal path (270) for conveying coins and a second mobile organ (27), situated along the second internal coin-conveying path (260), the second mobile organ (27) being activatable for deviating the coins from the second internal path (260) towards the third internal coin-conveying path (270), the modular element (2) further comprising a fourth internal path (280) for conveying coins and a third mobile organ (28), situated along the second internal path for conveying coins (260), the third mobile organ (28) being activatable for deviating the coins from the second internal path (260) towards the fourth internal path for conveying coins (280), and in that the second internal path (260) for conveying coins of the modular element (2) exhibits a terminal section (250) for coin outlet, the terminal section (250) being positioned facing and abutting the fourth slot (F4) present in the structure (S), once the modular element (2) has been housed and installed in the housing (A), such that the coins directed by the first mobile organ (26) along the second internal path (260), and which have not been deviated by the second mobile organ (27) towards the third internal conveying path (270), and which have not been deviated by the third mobile organ (28) towards the fourth internal conveying path (280), can be newly directed and conveyed into the magazine (M) internally of the structure (S), and in that the third internal conveying path (270) exhibits a relative terminal section (271) for outlet of coins constituting a second coin outlet (221) for the modular element (2) and the fourth internal conveying path (280) exhibits a relative terminal section (281) for coin outlet constituting a third coin outlet (222) for the modular element (2), the third internal conveying path (270) being provided, upstream of the relative terminal section (271) for coin outlet, with a first mobile stop element (272) which is activatable in order to block and temporarily retain a coin of a first denomination (M1) deviated by the second mobile organ (27), when activated, from the second internal path (260) into the third internal path (270), and the fourth internal conveying path (280) which is

- provided, upstream of the relative terminal section (281) for coin outlet, with a second mobile stop element (282) which is activatable for blocking and temporarily retaining a coin of a second denomination (M2) deviated by the third mobile organ (28), when activated, from the second internal path (260) into the fourth internal path (280), in which the first mobile stop element (272) is commandable such as to release the coin of the first denomination (M1) such that it can exit from the second coin outlet (221) and in which the second mobile stop element (282) is commandable such as to release the coin of the second denomination (M2) such that it can exit from the third coin outlet (222).
- 31) The modular element (2) of claims 29-30, characterised in that the modular element (2) comprises a support element (210) and a covering element (211), the covering element (211) being couplable to the support element (210), the support element (210) comprising the first coin inlet (21) and on which support element (210) are predisposed the first internal path (23), the second internal path (260) with the relative terminal section (250) for coin outlet, the third internal path (270) and the first mobile stop element (272), the fourth internal path (280) and the second mobile stop element (282), and the first mobile organ (26), the second mobile organ (27) and the third mobile organ (28), and the covering element (211) frontally comprising three openings for defining, respectively, the first coin outlet (22), the second coin outlet (221) and the third coin outlet (222) and further comprising, laterally, a recess such as to define, once coupled with the support element (210), the second coin inlet (25).
- 32) A modular element (3), installable in a structure (S) as in claims 22-25, for realising a device for coin management, characterised in that it comprises at least a first coin inlet (31) provided with relative coin detecting sensor means (34), at least a first coin outlet (32) and at least a first internal path (33) for conveying coins of a first coin denomination between the at least first coin inlet (31) and the at least first coin outlet (32), the modular element (3) exhibiting dimensions such as to be completely insertable and installable in the housing (A) of the structure (S) such that the at least first coin inlet (31) faces and abuts the first slot (F1) for coin passage of the first structure (S), in order to

receive, via the first slot (F1) for coin passage, the coins conveyed by the collecting and conveying means (P) to the first slot (F1), and such that the at least first coin outlet (32) is situated at a surface (S1, S2) of the structure (S).

33) The modular element (3) of claim 32, characterised in that it comprises: a
5 second coin inlet (35), the second coin inlet (35) being in communication with the first coin outlet (32) of the modular element (3), the second coin outlet (35), once the modular element (3) has been inserted and installed in the housing (A) of the structure (S), facing and abutting the outlet slot (91) present in the structure (S) of the non-validated coins in arrival from the coin validator
10 (G); a second internal path (360) for conveying coins and a first mobile organ (36), situated along the first internal path (33), the first mobile organ (36) being activatable for deviating different coins from the first coin denomination from the first path (33) towards the second internal path (360) for conveying coins; a third internal path (370), for receiving and conveying coins of a second coin
15 denomination, and a second mobile organ (37), situated along the second internal path for conveying coins (360), the second mobile organ (37) being activatable for deviating the coins of the second coin denomination from the second internal path (360) towards the third internal path for conveying coins (370); a fourth internal path (380) for receiving and conveying coins of a third
20 coin denomination, and a third mobile organ (38), situated along the second internal path for conveying coins (360), the third mobile organ (38) being activatable for deviating the coins of the third coin denomination from the second internal path (360) towards the fourth internal path for conveying coins (380), and in that the second internal path (360) for conveying coins of the
25 modular element (3) exhibits a terminal section (350) for coin outlet, the terminal section (350) being positioned facing and abutting the fourth slot (F4) present in the structure (S), once the modular element (32) has been housed and installed in the housing (A), such that the coins directed by the first mobile organ (36) along the second internal path (360), and which have not been
30 deviated by the second mobile organ (37) towards the third internal conveying path (370) and which have not been deviated by the third mobile organ (38) towards the fourth internal conveying path (380) can be directed and

conveyed, via the fourth slot (F4), internally of the structure (S), and in that the third internal path (370) exhibits a relative terminal section (371) for coin outlet constituting a second coin outlet (321) of the second coin denomination for the modular element (2) and the fourth internal path (380) exhibits a relative
5 terminal section (381) for coin outlet constituting a third coin outlet (322) of the third coin denomination for the modular element (3).

34) The modular element (3) of claims 32-33, characterised in that the modular element (3) comprises a support element (310) and a covering element (311), the covering element (311) being couplable with the support
10 element (310), the support element (310) comprising the first coin inlet (31) and on which support element (310) are respectively predisposed the first internal path (33), the second internal path (360) with the terminal section (350) for coin outlet, the third internal path (370), the fourth internal path (380) and the first mobile organ (36), the second mobile organ (37) and the third
15 mobile organ (38), the covering element (311) frontally comprising relative openings for respectively defining the first coin outlet (32), the second coin outlet (321) and the third coin outlet (322), and further comprising, laterally, a recess such as to define, once coupled with the support element (310) the second coin inlet (35).

20

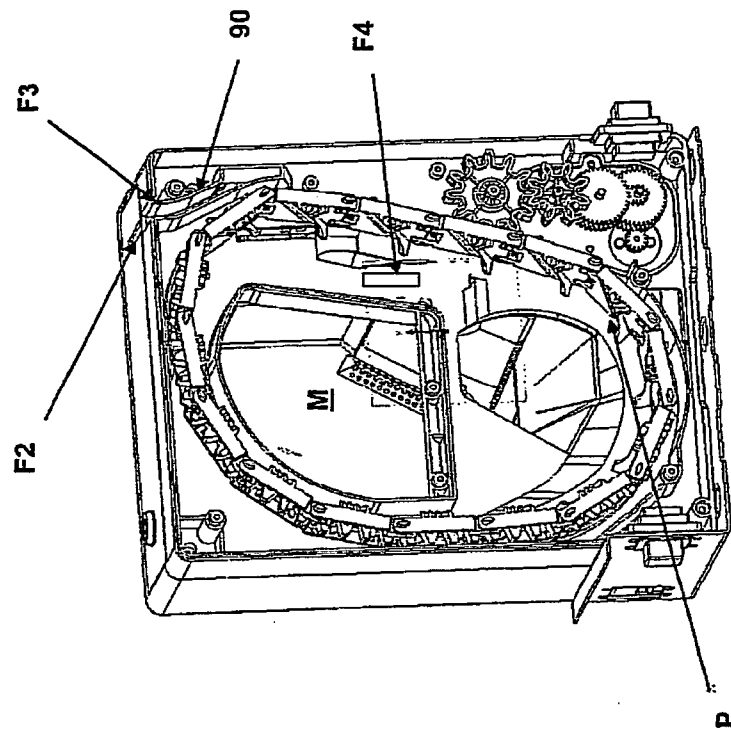


FIGURE 2

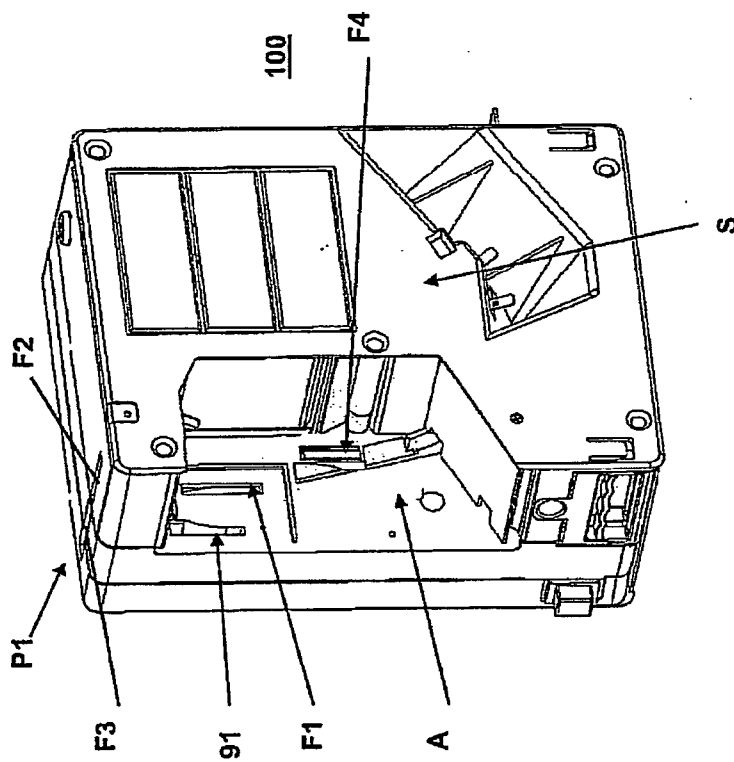
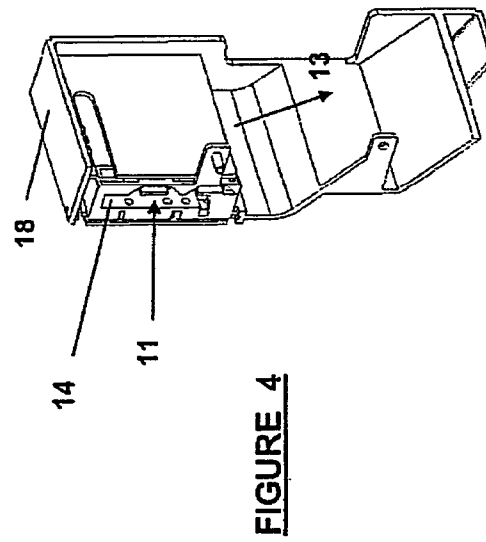
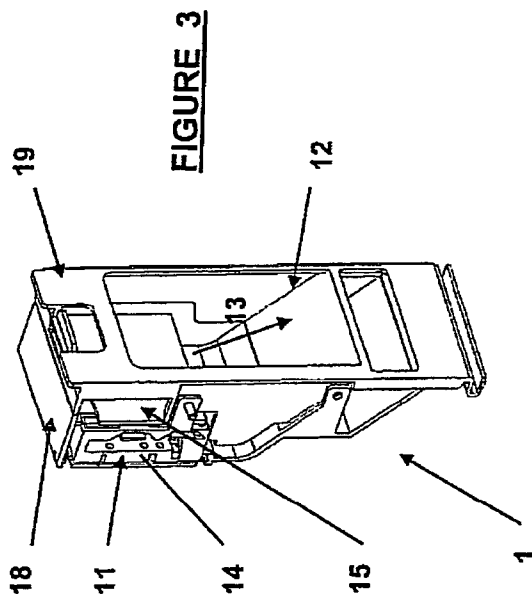
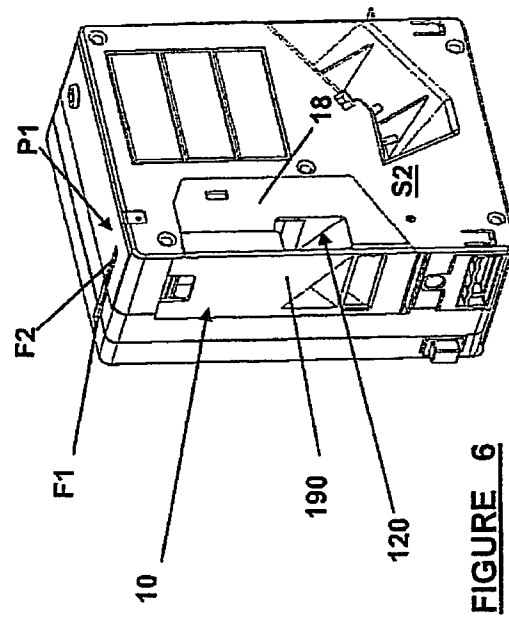
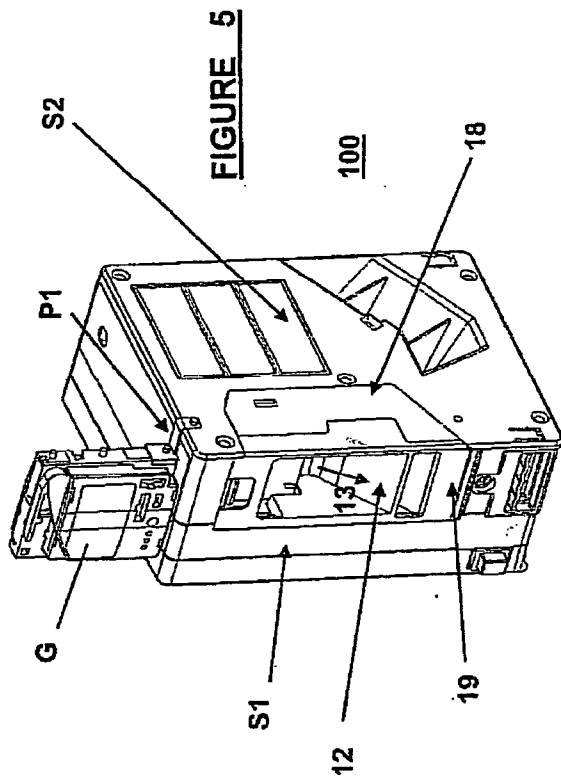


FIGURE 1



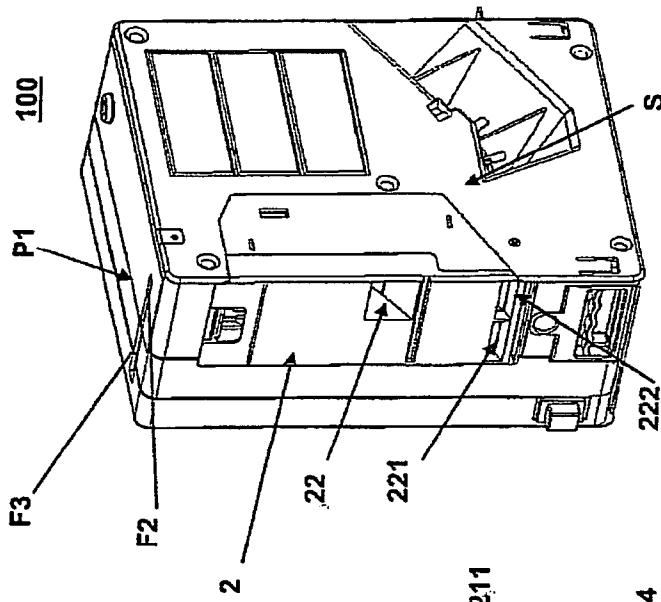


FIGURE 9

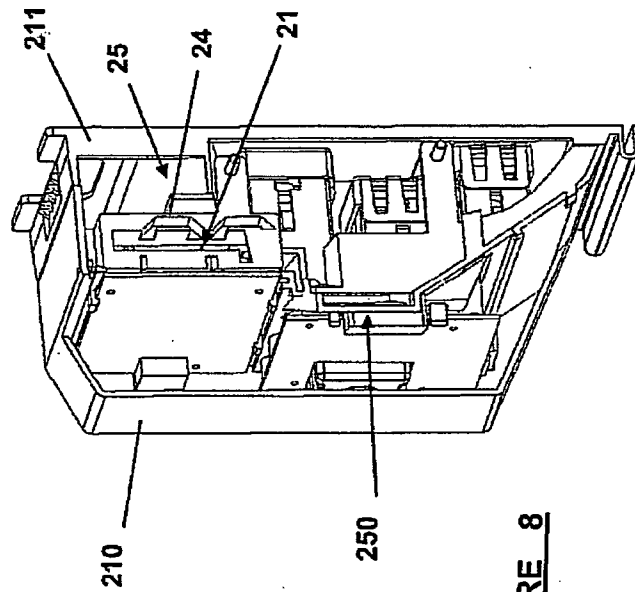


FIGURE 8

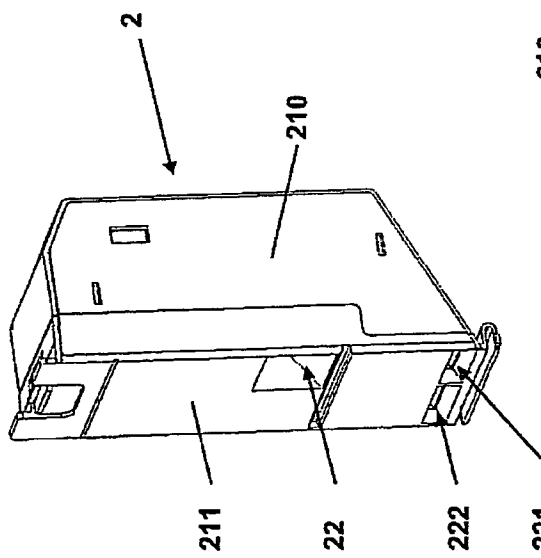


FIGURE 7

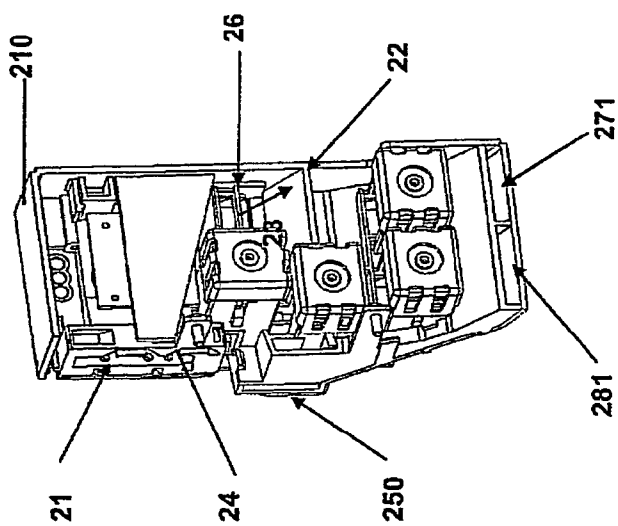


FIGURE 10

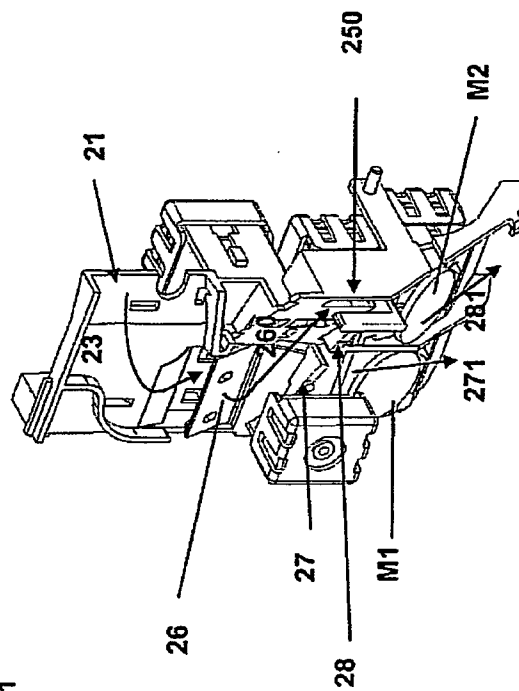


FIGURE 11

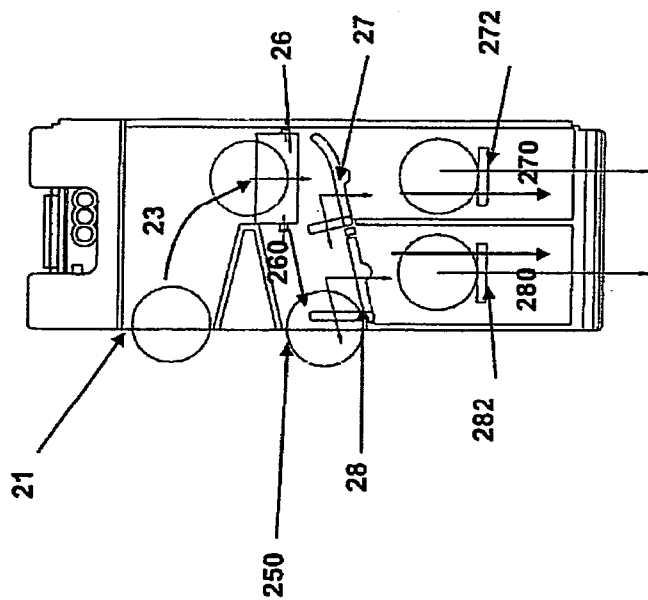
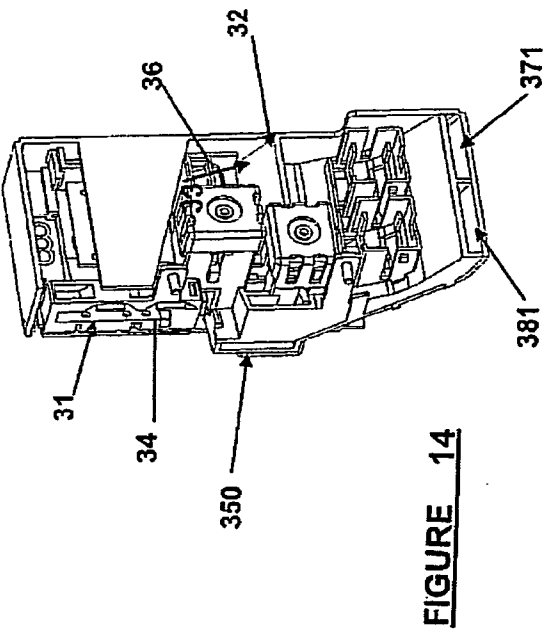
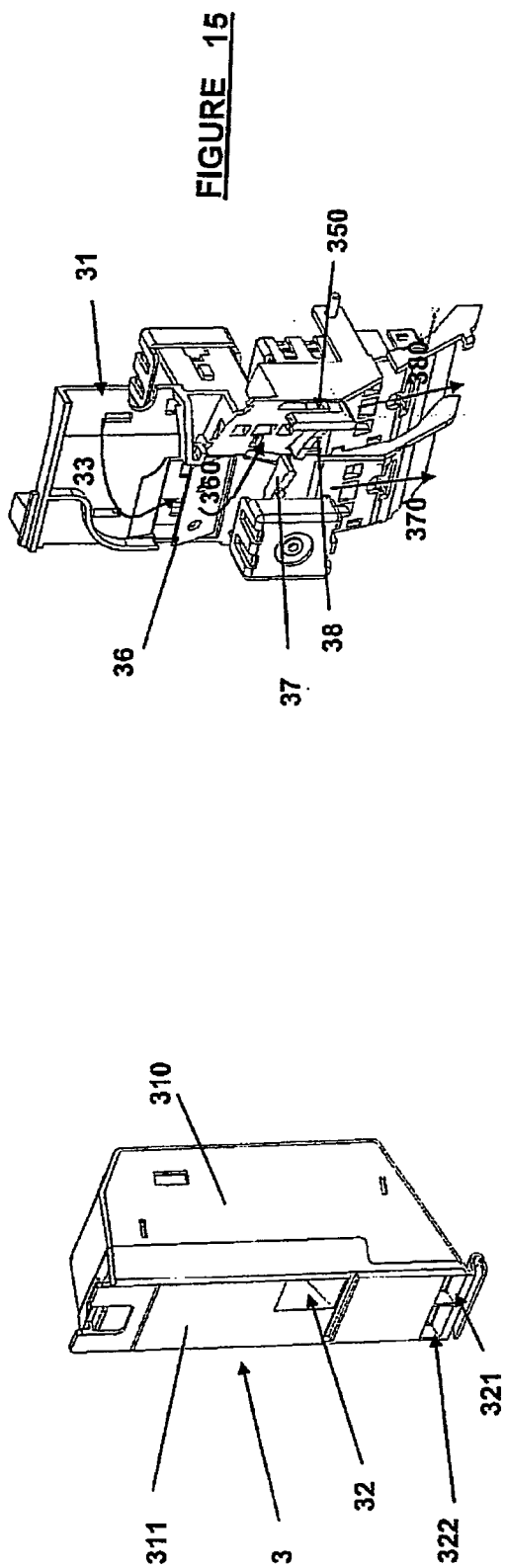


FIGURE 12



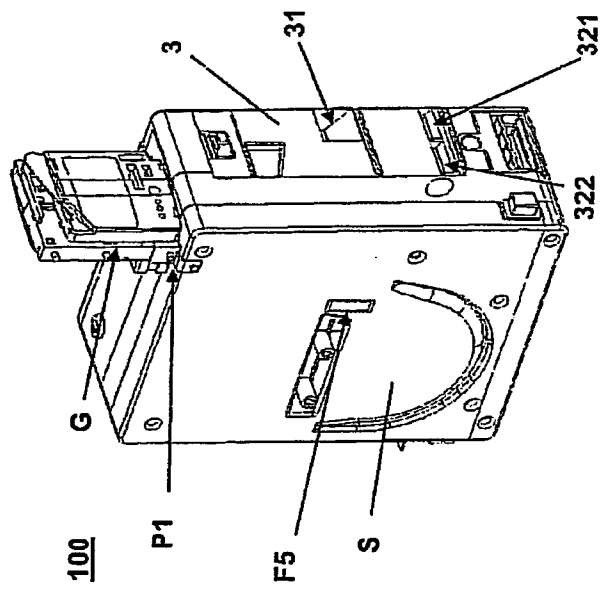


FIGURE 16

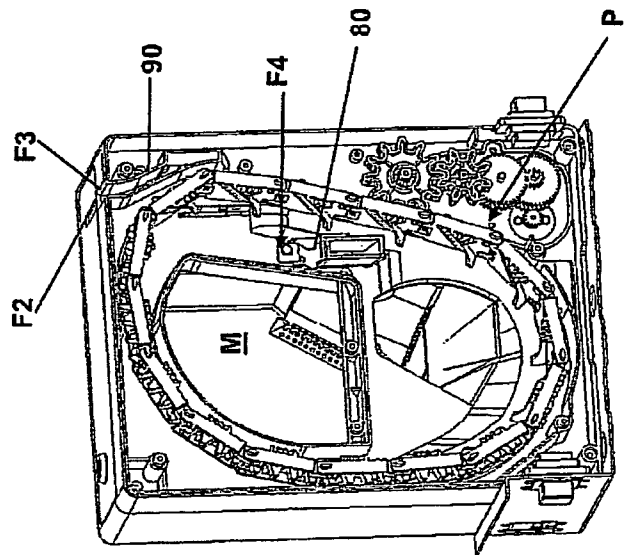


FIGURE 17

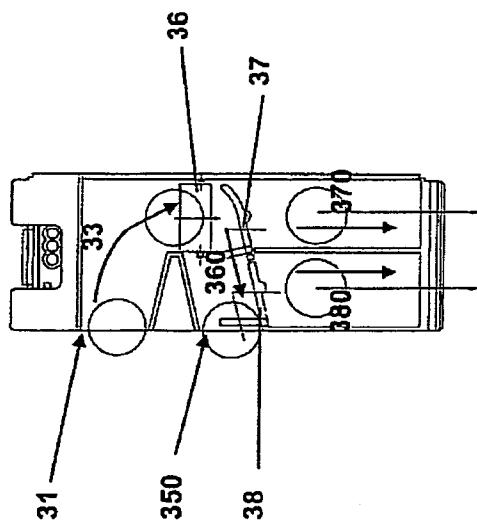


FIGURE 15A

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2011/052626

A. CLASSIFICATION OF SUBJECT MATTER
INV. G07D3/14 G07D9/00
ADD.

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)
G07D

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, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2009/104034 A2 (OTR TECH S R L A SOCIO UNICO [IT]; RIGO FABRIZIO [IT] PAYTEC S P A [IT] 27 August 2009 (2009-08-27)	1,5,7,8, 10-14, 16-19, 22,24, 26,29, 31,32,34
Y	abstract page 3, line 24 - page 4, line 10 page 6, line 26 - line 28 page 8, line 2 - page 9, line 17 page 13, line 6 - page 14, line 3 figures 1-6 ----- -/--	2-4,6,9, 15,20, 21,23, 25,27, 28,30,33



Further documents are listed in the continuation of Box C.



See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search

15 August 2011

Date of mailing of the international search report

23/08/2011

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Fax: (+31-70) 340-3016

Authorized officer

Mandato, Davide

INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2011/052626

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 2 141 665 A1 (MONEY CONTROLS LTD [GB]) 6 January 2010 (2010-01-06)	2-4,23, 27,28, 30,33
A	abstract paragraph [0035] figures 1-3, 7-11, 18a-18c, 19, 22, 23	1,5-22, 24-26, 29,31, 32,34
Y	----- EP 1 607 914 A1 (HOPPER S R L [IT]) 21 December 2005 (2005-12-21)	6,9,15, 20,21,25
A	abstract figures 1-8	1,22
A	----- EP 1 376 483 A2 (ASAHI SEIKO CO LTD [JP]) 2 January 2004 (2004-01-02)	2-4,23, 27,28, 30,33
	abstract figure 4 -----	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2011/052626

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2009104034	A2	27-08-2009	AT 482441 T 15-10-2010
		EP 2147416 A2 27-01-2010	
		ES 2354010 T3 09-03-2011	
		US 2010203817 A1 12-08-2010	

EP 2141665	A1	06-01-2010	AU 2005259166 A1 12-01-2006
		CN 1981308 A 13-06-2007	
		EP 1805728 A2 11-07-2007	
		WO 2006003212 A2 12-01-2006	
		GB 2416061 A 11-01-2006	
		JP 2008506172 A 28-02-2008	
		US 2009008215 A1 08-01-2009	

EP 1607914	A1	21-12-2005	US 2005277379 A1 15-12-2005

EP 1376483	A2	02-01-2004	DE 60305102 T2 26-04-2007
		ES 2263878 T3 16-12-2006	
		JP 4134339 B2 20-08-2008	
		JP 2004030324 A 29-01-2004	
