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(54) **Cash till and system for handling a cash till**

(57) The invention relates to methods and equipment for storing cash at a point of sales as well as transporting cash between a point of sales and a central cash handling apparatus. In particular, the invention provides a cash till adapted for being used as a cash till at a point of sales and at a central cash handling apparatus as well as

adapted for being used in transporting cash there between. The invention also provides a method for handling such a cash till as well as a system for handling cash comprising a cash till and a cash dispensing apparatus capable of dispensing a specific amount of sorted coins and/or notes.

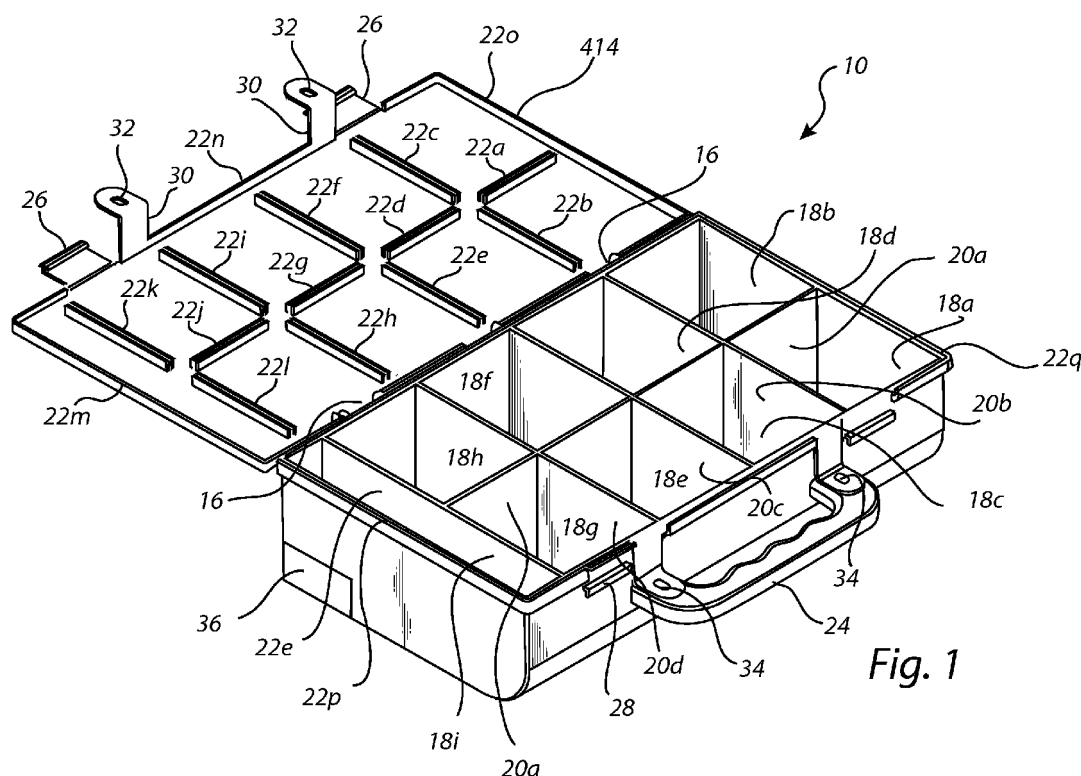


Fig. 1

Description

Field of the Invention

[0001] The present invention relates to the field of cash handling in commercial establishments. More specifically, the invention relates to methods and equipment for storing cash at a point of sales as well as transporting cash between a point of sales and a central cash handling apparatus. In particular, the invention provides a cash till adapted for being used as a cash till at a point of sales and at a central cash handling apparatus as well as adapted for being used in transporting cash therebetween. The invention also provides a method for handling such a cash till as well as a system for handling cash comprising a cash till and a cash dispensing apparatus capable of dispensing a specific amount of sorted coins and/or notes.

Background Art

[0002] Cash tills or cash till drawers are used in a wide range of commercial establishments. Nearly every shop throughout the world utilizes some kind of box or drawer in order to handle, store and transport cash. A common cash till is typically a box having several compartments for keeping coins and notes of different denominations separated from each other.

[0003] In more sophisticated business establishments such as larger shops and stores, it is common to use some kind of machine or cash dispenser in order to fill a cash till with a specific composition of coins and notes. Various solutions and machines capable of filling a cash till is available on the market today. The commercially available machines are more or less automated and hence more or less prone to user induced failures.

[0004] WO 2008/024043 discloses a cash dispensing apparatus capable of filling a cash till with a specific composition of coins.

[0005] Shop establishments such as supermarkets and shopping malls use a multitude of cash tills in order to handle their business in an efficient way. Typically, each employee utilizes his/her own cash till. The use of several cash tills is time consuming and mixing up of tills might occur.

[0006] Further, there are several types of tills used on the market today, as different suppliers of cash registers tend to have their own types of cash tills. The fact that several different tills are present on the market implies that automated refill using cash dispensing machines is complicated and time consuming, since the cash dispenser in question needs to be adapted to the cash till to be filled. As automated refilling is complicated a lot of time is spent on manually refilling cash tills.

[0007] Shops typically purchase sorted coins and notes from banks and cash in transit CIT (cash in transit) companies in order to at any given time have access to the cash necessary for filling their cash tills with small-

change cash. The handling of purchased cash includes handling of temporary packages in form of paper rolls and envelopes or bags.

[0008] Handling of temporary packed coins and notes constitute a tiresome element of the daily work in a typical store. In order to be able to fill a till with small-change cash the cashier must conventionally open several envelopes with notes and several paper rolls with coins, as one envelope typically only holds one type of note and one paper roll typically only holds one coin denomination.

[0009] For natural reasons also the packaging of coins and notes in temporary packages accounts for additional work.

[0010] Further, a filled cash till accounts for a considerable weight despite the fact that a standard cash till does not have any special transport adaptation and is thus difficult to handle for the personnel concerned. The fact that cash tills are handled by the personnel in various stores constitute a safety risk not only for the personnel but also for the customers in case of a robbery or theft attempt.

[0011] Accordingly, there is a need for improvement of present cash tills, how they are used, and cash handling systems comprising cash tills.

Summary of the invention

[0012] The present invention aims at solving the above stated problems. Accordingly, in a first aspect, the invention provides a cash till comprising;

a first part,
a second part,
said first part and said second part being releasably attachable to each other by means of a divisible hinge connection,
said first part comprises at least two compartments for holding coins and notes, said compartments being separated by integrally formed compartment walls,
said second part being movable with respect to said first part between, a first operating position, where said second part can be separated from said first part by dividing said divisible hinge connection, and a second operating position, where said divisible hinge connection cannot be divided, wherein said first and/or second part comprises, tightening means for preventing migration of coins and notes out of said at least two compartments, when said second part being in said second operating position,
a handle being integrally formed,
a securing means for securing said first part in said second operating position, said securing means being integrally formed, and
a recognizing means for recognizing said cash till, said recognizing means being detectable by means of a separate detection means, said first and second

part being formed by a thermo plastic material.

[0013] In a second aspect, the invention provides a method for handling cash, comprising;
 providing a cash till comprising of,
 a first part, and
 a second part,
 said first part and said second part being releasably attachable to each other by means of a divisible hinge connection,
 said first part comprising at least two compartments for holding coins and notes,
 said second part being movable with respect to said first part between a first operating position, where said second part can be separated from said first part by dividing said divisible hinge connection, and a second operating position, where said divisible hinge connection cannot be divided,
 providing a cash dispensing apparatus capable of dispensing a specific composition of sorted coins and/or notes,
 separating said first part of said cash till from said second part of said cash till, by moving said second part from said second operating position to said first operating position and dividing said divisible hinge connection,
 providing said first part in a dispensing location of said cash dispensing apparatus,
 dispensing a specific amount of sorted coins and/or notes into said first part of said cash till using said cash dispensing apparatus,
 removing said first part of said cash till from said dispensing location,
 attaching said second part of said cash till to said first part of said cash till, by assembling said divisible hinge connection, and
 moving said second part of said cash till from said first operating position to said second operating position.

[0014] In a third aspect, the invention provides a system for handling cash, comprising;

a cash till according to the first aspect, and

a cash dispensing apparatus capable of dispensing a specific amount of sorted cash in form of coins and/or notes.

[0015] These and other objects as well as advantages that will be apparent from the following description of the present invention are achieved by a cash till, a method for handling cash and a system for handling cash according to the respective independent claims. Preferred embodiments are defined in the dependent claims.

Brief Description of the Drawings

[0016] Embodiments of the present invention will now be described, by way of example, with reference to the accompanying schematic drawings, in which

Fig. 1 discloses a cash till according to one embodiment of the present invention. The cash till is in a first operating position, where said second part can be separated from said first part by dividing said divisible hinge connection;

Fig. 2 shows the cash till of Fig. 1 in second operating position, where said divisible hinge connection cannot be divided;

Fig. 3 discloses a view from above of the first part of the cash till; and

Fig. 4 shows a view from below of the second part of the cash till.

Detailed Description

[0017] As disclosed herein, the term "divisible hinge connection" relates to a flexible structure connecting two parts which in one position connects the two parts and in another position allows the two parts to be release from each other. Typically, such a structure is comprised of two "hook-like" means, or a combination of a hook-like means and a loop-like means. The skilled person knows how to select a suitable divisible hinge connection.

[0018] As disclosed herein, the term "tightening means" relates to means for preventing notes and/or coins in one compartment from leaking out into a neighbouring compartment when said cash till is in the second operating position. Suitable tightening means could be arranged on the first part as well as the second part and are further exemplified below. The skilled person is aware of different ways of tightening such compartments.

[0019] As disclosed herein, the term "securing means" relates to means of securing the second part of the cash till to the first part when the second part is in the second operating position. Suitable securing means are releasable so that the second part of the cash till can be removed from the first part, but are also able to resecure the second part to the first part. Examples are given below. The skilled person is able to select suitable securing means.

[0020] As disclosed herein, the term "identification means" relates to any means that could be used for automatically identifying a specific object. Examples of suitable identification means are given below. The skilled person is able to select identification means that could be used for automatically identifying a particular cash till.

[0021] Regarding the present invention, the term "thermoplastic material" relates to polymer materials that could be shaped after being exposed to an increased temperature and which materials have sufficient strength to carry heavy charges of coins. Any such material could be used in connection with the present invention.

[0022] As disclosed herein, the term "cash dispensing apparatus" relates to an apparatus capable of dispensing specific amounts of coins and/or notes of different values sorted in different compartments of a cash till. Examples of such a cash dispensing apparatus can be found in WO 2008/024043.

[0023] In a first aspect, the invention provides a cash till (10, 210) comprising;

a first part (12, 212, 312);
 a second part (14, 214, 414);
 said first part (12, 212, 312) and said second part (14, 214, 414) being releasably attachable to each other by means of a divisible hinge connection (16, 216, 316, 416);
 said first part (12, 212, 312) comprising at least two compartments (18a-i, 318a-i) for holding coins and notes, said compartments (18a-i, 318a-i) being separated by integrally formed compartment walls (20a-e, 320a-e), said second part (14, 214, 414) being movable with respect to said first part (12, 212, 312) between a first operating position, where said second part (14, 214, 414) can be separated from said first part by dividing said divisible hinge connection (16, 216, 316, 416), and a second operating position, where said divisible hinge connection (16, 216, 316, 416) cannot be divided;

wherein said first (12, 212, 312) and/or second (14, 214, 414) part comprises tightening means (22a-q, 222q, 322p-q, 422a-o) for preventing migration of coins and notes out of said at least two compartments (18a-i, 318a-i) when said second part (14, 214, 414) is in said second operating position;

a handle (24, 224, 324) being integrally formed;
 at least one securing means (26, 28, 30, 226, 230, 328, 426, 430) for securing said second part (14, 214, 414) in said second operating position, said securing means (26, 28, 30, 226, 230, 328, 426, 430) being integrally formed; and

an identification means (36) for identifying said cash till (10), said identification means (10) being detectable by means of a separate detection means; where said first (12, 212, 312) and second part (14, 214, 414) being formed of a thermoplastic material.

[0024] In a preferred embodiment, the second part (14, 214, 414) forms a lid sealing said compartments (18a-i, 318a-i) of said first part (12, 212, 312) when said second part (14, 214, 414) is in said second operating position.

[0025] In a preferred embodiment, said tightening means (22a-q, 222q, 322p-q, 422a-o) includes ridges integrally formed on said first (12, 212, 312) and/or second part (14, 214, 414) and corresponding to said compartment walls (20a-e, 320a-e) of said first part (12, 212, 312), when said second part (14, 214, 414) is in said second operating position.

[0026] In a preferred embodiment, said tightening means (22a-q, 222q, 322p-q, 422a-o) comprises a flexible element formed on said first (12, 212, 312) and/or second part (14, 214, 414) and corresponding to said compartment walls (20a-e) of said first part (12, 212, 312), when said second part (14, 214, 414) is in said second operating position.

[0027] In a preferred embodiment, said securing

means (26, 28) comprises a quick lock securing said second part (14, 214, 414) in said second operating position.

[0028] In a preferred embodiment, said securing means (30) comprises a hole (34) in said first part and a hole (32) in said second part, said holes (32, 34) corresponding to each other when said second part (14, 214, 414) is in said second operating position.

[0029] In a preferred embodiment, said recognizing means (36) includes at least one means chosen from the group of a RFID tag, a bar code, a OCR readable label, a written label, a mechanical means, a magnetic actuator and a colour coded label.

[0030] In a preferred embodiment, said thermoplastic material includes at least one material chosen from the group of polyethylene, polypropylene, polystyrene, polycarbonate, and acrylonitril-butadiene-styren.

[0031] In a second aspect, the invention provides a method for handling cash, comprising;
 providing a cash till (10, 210) comprising

a first part (12, 212, 312); and
 a second part (14, 214, 414);
 said first part (12, 212, 312) and said second part (14, 214, 414) being releasably attachable to each other by means of a divisible hinge connection (16, 216, 316, 416);

said first part (12, 212, 312) comprising at least two compartments (18a-i, 318a-i) for holding coins and notes; said second part (14, 214, 414) being movable with respect to said first part (12, 212, 312) between a first operating position, where said second part (14, 214, 414) can be separated from said first part (12, 212, 312) by dividing said divisible hinge connection (16, 216, 316, 416), and a second operating position, where said divisible hinge connection (16, 216, 316, 416) cannot be divided;

providing a cash dispensing apparatus capable of dispensing a specific composition of sorted coins and/or notes;

separating said first part (12, 212, 312) of said cash till (10, 210) from said second part of said cash till (10, 210), by moving said second part (14, 214, 414) from said second operating position to said first operating position and dividing said divisible hinge connection, placing said first part (12, 212, 312) in a dispensing location of said cash dispensing apparatus,

dispensing a specific amount of sorted coins and/or notes into said first part (12, 212, 312) of said cash till (10, 210) using said cash dispensing apparatus, removing said first part (12, 212, 312) of said cash till (10, 210) from said dispensing location,

attaching said second part (14, 214, 414) of said cash till (10, 210) to said first part (12, 212, 312) of said cash till (10, 210), by assembling said divisible hinge connection (16, 216, 316, 416), and

moving said second part (14, 214, 414) of said cash till (10, 210) from said first operating position to said second operating position.

[0032] In a preferred embodiment, the step of placing a particular first part (12, 212, 312) at a dispensing loca-

tion of said cash dispensing apparatus includes specifically recognizing said particular first part (12, 212, 312) utilizing a recognizing means (36) detectable by a separate detection means comprised in said cash dispensing apparatus.

[0033] In a preferred embodiment, recognizing said particular first part (12, 212, 312) includes rejecting said particular first part (12, 212, 312) and preventing said cash dispensing apparatus from dispensing coins and/or notes if said particular first part (12, 212, 312) cannot be recognized.

[0034] In a preferred embodiment, dispensing a specific amount of sorted coins and/or notes includes dispensing different denominations of coins and/or notes into different compartments (18a-i, 318a-i) of said compartments of said first part (12, 212, 312).

[0035] In a preferred embodiment, dispensing a specific sorted amount of coins and/or notes includes determining a total amount and a composition of coins and/or notes to be dispensed.

[0036] In a third aspect, the invention provides a system for handling cash comprising;
a cash till (10, 210) according to claim 1, and
a cash dispensing apparatus capable of dispensing a specific amount of sorted cash in form of coins and/or notes.

[0037] In a preferred embodiment, said cash dispensing apparatus comprises a separate detection means capable of detecting said recognizing means (36) of said first part (12, 212, 312) of said cash till (10, 210).

[0038] Fig. 1 discloses a cash till 10 according to one embodiment of the invention. The cash till 10 is comprised of a first part 12 and a second part 14. On both the first part 12 and the second part 14 of the cash till 10, there are parts forming a divisible hinge connection 16. These parts will be further described below in relation to Figs. 3 and 4. The first part 12 of the cash till 10 comprises at least two compartments 18. The embodiment shown in Figs. 1-4 comprises nine separate compartments 18a-i. The compartments 18a-i are separated from each other by integrally formed compartment walls 20a-e. In order to prevent coins or notes in a certain compartment from reaching other compartments of said first part 12 of the cash till 10 when the second part 14 of said cash till is in the second operating position, tightening means 22a-q have been arranged on both said first 12 and second 14 parts. The tightening means 22a-q, 222q, 322p-q, 422a-o shown in Figs. 1 - 4 are all ridges that have been integrally formed on said first 12, and second 14 parts in positions corresponding to the compartment walls 20a-e. The first part 12 of the cash till 10 is equipped with an integrally formed handle 24 which also has two through-going holes 34 as a further securing means. The second part 14 has two corresponding securing means which are protrusions 30 having through-going holes 32 which are positioned on top of holes 34 when the second part 14 is in the second operating position. Two padlocks (not shown), for example, may further secure the second part

using these through-going holes 32, 34. The first part 12 and second part 14 furthermore comprise quick lock parts 26, 28 in order to further secure the second part 14 to the first part 12 of the cash till 10. Finally, The cash till 10 also has an identification means 36 such as an RFID tag or a bar code for quick identification.

[0039] Turning now to Fig. 2, the cash till 210 is shown in said second operating position. The second part 214 is arranged on top of the first part 212. The divisible hinge connections 216 fix the second part 214 to the first part 212 and cannot be divided in this configuration. Securing means 222q ensure that coins and notes are securely maintained within the cash till 210. Handle 224 and corresponding securing protrusions 230 and through-going holes 232 as well as quick locks 226 also ensures that the second part 214 remains in the second operating position.

[0040] Turning now to Fig. 3, the first part 312 of the cash till is shown in a view from above. The parts of the divisible hinge connection 316 that are arranged on the first part 312 are loop-like in the embodiment shown. As already mentioned the compartments 318a-i are separated by integrally made compartment walls 320a-e. The first part 312 also comprises ridges along the edges of the part that function as tightening means 322p-q. As already mentioned, the first part 312 also comprises an integrally made handle 324 comprising through-going holes 334 that can be used as securing means. Furthermore, said first part 312 also has quick lock parts 328 as further securing means.

[0041] Finally, turning to Fig. 4, the second part 414 of the cash till is shown. The parts of the divisible hinge connection 416 that are shown in the figure are hook-like structures adapted for hooking into the loop-like structure 316 shown in Fig. 3. The second part 414 of the cash till comprises a multitude of ridges functioning as tightening means 422a-o. Furthermore, the second part 414 also has quick lock parts 426 and protrusions 430 comprising through-going holes 432 as further securing means.

[0042] The embodiment of the cash till of Figs. 1 — 4 has been included for the purposes of illustration only. The scope of the invention is only limited by what is defined in the claims.

Claims

1. A cash till (10, 210) comprising;
a first part (12, 212, 312);
a second part (14, 214, 414);
said first part (12, 212, 312) and said second part (14, 214, 414) being releasably attachable to each other by means of a divisible hinge connection (16, 216, 316, 416);
said first part (12, 212, 312) comprising at least two compartments (18a-i, 318a-i) for holding coins and notes, said compartments (18a-i, 318a-i) being separated by integrally formed compartment walls (20a-

- e, 320a-e), said second part (14, 214, 414) being movable with respect to said first part (12, 212, 312) between a first operating position, where said second part (14, 214, 414) can be separated from said first part by dividing said divisible hinge connection (16, 216, 316, 416), and a second operating position, where said divisible hinge connection (16, 216, 316, 416) cannot be divided;
 wherein said first (12, 212, 312) and/or second (14, 214, 414) part comprises tightening means (22a-q, 222q, 322p-q, 422a-o) for preventing migration of coins and notes out of said at least two compartments (18a-i, 318a-i) when said second part (14, 214, 414) is in said second operating position;
 a handle (24, 224, 324) being integrally formed;
 at least one securing means (26, 28, 30, 226, 230, 328, 426, 430) for securing said second part (14, 214, 414) in said second operating position, said securing means (26, 28, 30, 226, 230, 328, 426, 430) being integrally formed; and
 an identification means (36) for identifying said cash till (10), said identification means (10) being detectable by means of a separate detection means; where said first (12, 212, 312) and second part (14, 214, 414) being formed of a thermoplastic material.
2. A cash till (10, 210) according to claim 1, **characterized in that** the second part (14, 214, 414) forms a lid sealing said compartments (18a-i, 318a-i) of said first part (12, 212, 312) when said second part (14, 214, 414) is in said second operating position.
 3. A cash till (10, 210) according to claim 1, **characterized in that** said tightening means (22a-q, 222q, 322p-q, 422a-o) includes ridges integrally formed on said first (12, 212, 312) and/or second part (14, 214, 414) and corresponding to said compartment walls (20a-e, 320a-e) of said first part (12, 212, 312), when said second part (14, 214, 414) is in said second operating position.
 4. A cash till (10, 210) according to claim 1, **characterized in that** said tightening means (22a-q, 222q, 322p-q, 422a-o) comprises a flexible element formed on said first (12, 212, 312) and/or second part (14, 214, 414) and corresponding to said compartment walls (20a-e) of said first part (12, 212, 312), when said second part (14, 214, 414) is in said second operating position.
 5. A cash till (10, 210) according to any one of claims 1 - 4, **characterized in that** said securing means (26, 28) comprises a quick lock securing said second part (14, 214, 414) in said second operating position.
 6. A cash till (10, 210) according to any one of claims 1 - 5, **characterized in that** said securing means (30) comprise a hole (34) in said first part and a hole (32) in said second part, said holes (32, 34) corresponding to each other when said second part (14, 214, 414) is in said second operating position.
 7. A cash till (10, 210) according to any one of claims 1 - 6, **characterized in that** said recognizing means (36) includes at least one means chosen from the group of a RFID tag, a bar code, a OCR readable label, a written label, a mechanical means, a magnetic actuator and a colour coded label.
 8. A cash till (10, 210) according to any one of claims 1 — 7, **characterized in that** said thermoplastic material includes at least one material chosen from the group of polyethylene, polypropylene, polystyrene, polycarbonate, and acrylonitril-butadiene-styren.
 9. A method for handling cash, comprising;
 providing a cash till (10, 210) comprising a first part (12, 212, 312); and
 a second part (14, 214, 414);
 said first part (12, 212, 312) and said second part (14, 214, 414) being releasably attachable to each other by means of a divisible hinge connection (16, 216, 316, 416);
 said first part (12, 212, 312) comprising at least two compartments (18a-i, 318a-i) for holding coins and notes;
 said second part (14, 214, 414) being movable with respect to said first part (12, 212, 312) between a first operating position, where said second part (14, 214, 414) can be separated from said first part (12, 212, 312) by dividing said divisible hinge connection (16, 216, 316, 416), and a second operating position, where said divisible hinge connection (16, 216, 316, 416) cannot be divided;
 providing a cash dispensing apparatus capable of dispensing a specific composition of sorted coins and/or notes;
 separating said first part (12, 212, 312) of said cash till (10, 210) from said second part of said cash till (10, 210), by moving said second part (14, 214, 414) from said second operating position to said first operating position and dividing said divisible hinge connection,
 placing said first part (12, 212, 312) in a dispensing location of said cash dispensing apparatus,
 dispensing a specific amount of sorted coins and/or notes into said first part (12, 212, 312) of said cash till (10, 210) using said cash dispensing apparatus,
 removing said first part (12, 212, 312) of said cash till (10, 210) from said dispensing location,
 attaching said second part (14, 214, 414) of said cash till (10, 210) to said first part (12, 212, 312) of said cash till (10, 210), by assembling said divisible hinge connection (16, 216, 316, 416), and
 moving said second part (14, 214, 414) of said cash till (10, 210) from said first operating position to said

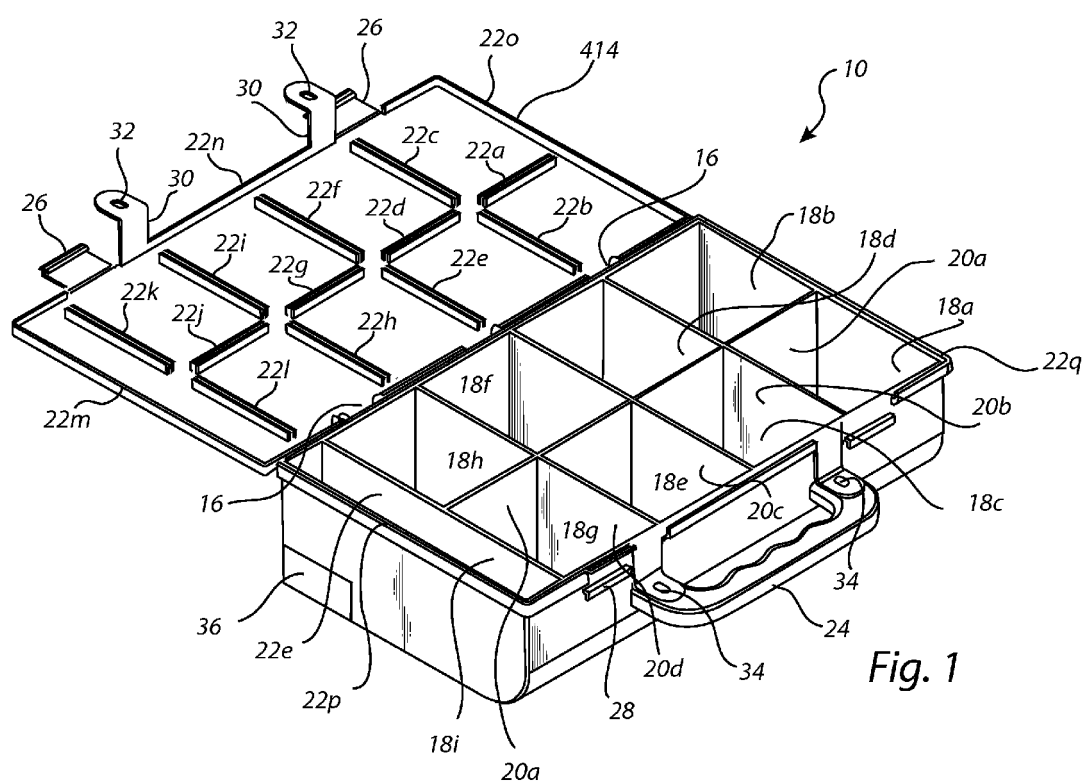
second operating position.

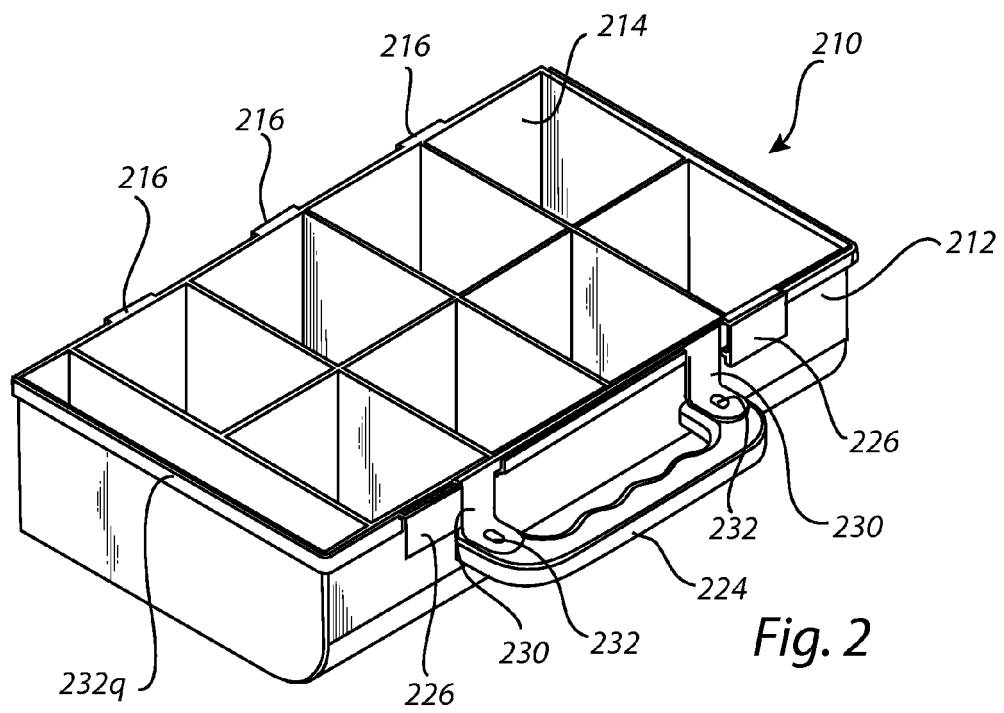
10. A method according to claim 9, **characterized in that** the step of placing a particular first part (12, 212, 312) at a dispensing location of said cash dispensing apparatus includes specifically recognizing said particular first part (12, 212, 312) utilizing a recognizing means (36) detectable by a separate detection means comprised in said cash dispensing apparatus. 5 10
11. A method according to claim 10, **characterized in that** recognizing said particular first part (12, 212, 312) includes rejecting said particular first part (12, 212, 312) and preventing said cash dispensing apparatus from dispensing coins and/or notes if said particular first part (12, 212, 312) cannot be recognized. 15
12. A method according to any one of claims 9 - 11, **characterized in that** dispensing a specific amount of sorted coins and/or notes includes dispensing different denominations of coins and/or notes into different compartments (18a-i, 318a-i) of said compartments of said first part (12, 212, 312). 20 25
13. A method according to claim 12, **characterized in that** dispensing a specific sorted amount of coins and/or notes includes determining a total amount and a composition of coins and/or notes to be dispensed. 30
14. A system for handling cash comprising;
a cash till (10, 210) according to claim 1, and
a cash dispensing apparatus capable of dispensing a specific amount of sorted cash in form of coins and/or notes. 35
15. A system according to claim 14, **characterized in that** said cash dispensing apparatus comprises a separate detection means capable of detecting said recognizing means (36) of said first part (12, 212, 312) of said cash till (10, 210). 40

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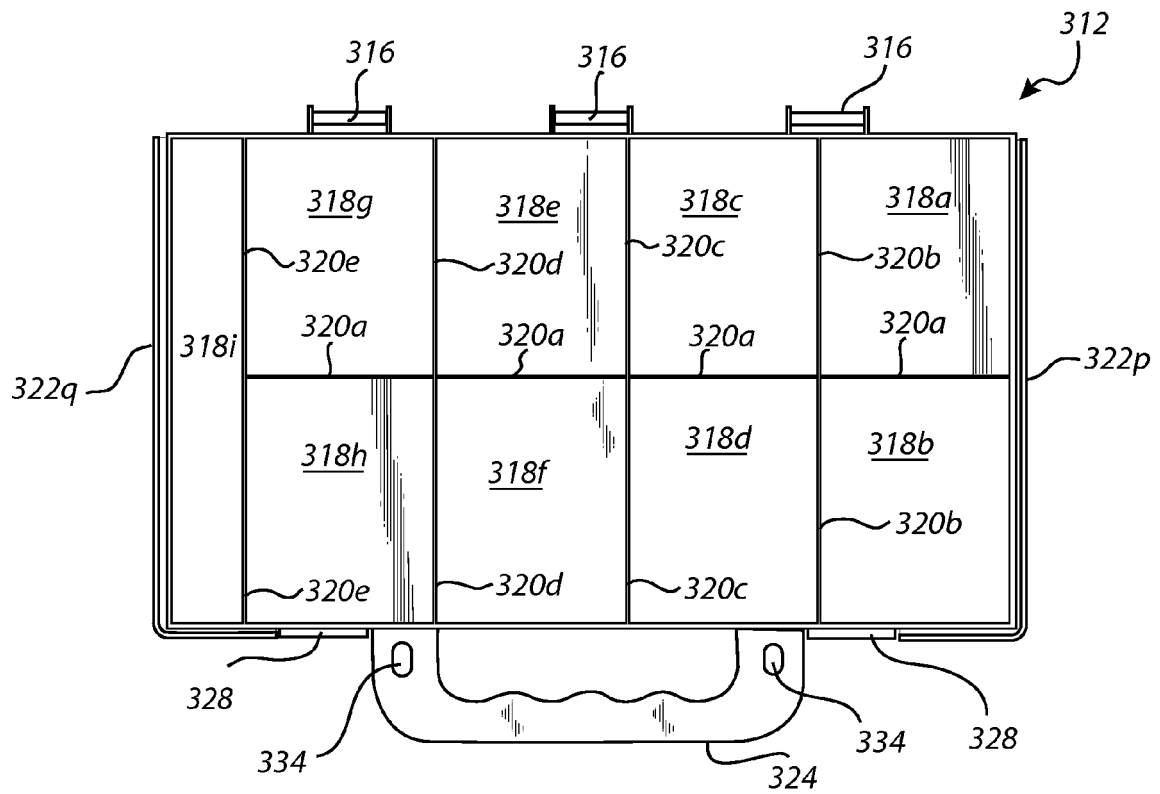


Fig. 3

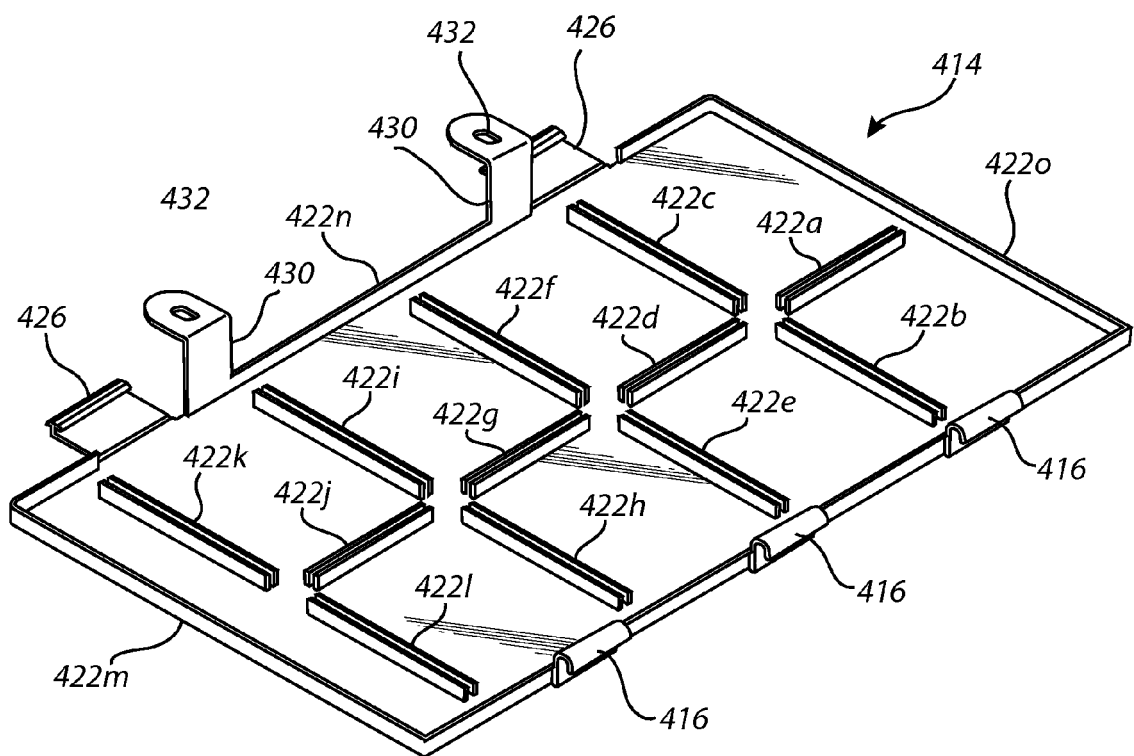


Fig. 4



EUROPEAN SEARCH REPORT

Application Number
EP 11 15 5137

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 4 761 008 A (HUGGINS PETER D [US]) 2 August 1988 (1988-08-02) * abstract; figures * * column 1, lines 45-62 * * column 2, lines 25-66 * * column 4, line 29 - column 5, line 37 * -----	1-15	INV. G07F9/06 G07G1/00 B25H3/02 B65D43/02 G07D9/00
X	FR 2 685 615 A1 (SANEF [FR]) 2 July 1993 (1993-07-02) * abstract; figures * * page 1, line 1 - page 2, line 23 * * page 3, line 19 - page 6, line 15 * -----	1-15	
A	EP 1 256 915 A1 (TRAIDIS [FR]) 13 November 2002 (2002-11-13) * abstract; figures * * paragraphs [0001] - [0003], [0010] - [0019], [0027] - [0036] * -----	1-15	
A	US 5 129 538 A (BENNETT GEORGE [US]) 14 July 1992 (1992-07-14) * abstract; figures * * column 2, line 49 - column 3, line 20 * * column 4, lines 23-38 * -----	1-15	TECHNICAL FIELDS SEARCHED (IPC)
A	"DUAL-PURPOSE TILL COVER", IBM TECHNICAL DISCLOSURE BULLETIN, INTERNATIONAL BUSINESS MACHINES CORP. (THORNWOOD), US, vol. 37, no. 8, 1 August 1994 (1994-08-01) , page 647, XP000456555, ISSN: 0018-8689 * the whole document * ----- -/--	1-15	G07F G07G B25H B65D G07D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 9 June 2011	Examiner Breugelmans, Jan
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EPO FORM 1503 03.92 (P04C01)



EUROPEAN SEARCH REPORT

Application Number
EP 11 15 5137

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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A	US 7 625 272 B1 (MORELAND FLYNT M [US] ET AL) 1 December 2009 (2009-12-01) * abstract; figures * -----	1-15	
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Place of search The Hague		Date of completion of the search 9 June 2011	Examiner Breugelmans, Jan
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