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(54) **Dispatch and delivery cabinet for deliveries in the logistic system of laundry services**

(57) A cabinet having a control unit (A) and deposit box units (B), the deposit boxes (1, 2) of which are blocked by solenoid locks controlled by a computer upon authorisation with an access code. The control unit (A) contains a pre-programmed computer hardware unit which is linked to the Internet web, a touchscreen display panel, a printer and a cash machine, a cash acceptor or a payment terminal. The cabinet is equipped with lighting, visual monitoring and alarm signalling sets. The deposit box units (B) comprise two groups of deposit boxes which vary in the proportions of the dimensions of the face open-

ing: low-wide deposit boxes (1) and high-narrow deposit boxes (2). Most low-wide deposit boxes (1) are situated in the lower zone of the cabinet and bags for "dirty laundry" with a pocket for the order and the Client personal identifier are put into these deposit boxes (1). There are rods for coat hangers built into the high-narrow deposit boxes (2): fixed rods in the deposit boxes in the lower zone of the cabinet and moving rods in the deposit boxes of the upper zone. The moving rods are dropped down to the level of the fixed rod of the lower zone and outside in front of the cabinet by means of the tilting spring device with a motion speed suppressor.

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Description

[0001] The subject of the invention is a dispatch and delivery cabinet for deliveries in the logistic system of laundry services. The cabinet constitutes an interactive point of sale of a laundry service, equipped with a set of dispatch and delivery deposit boxes for deliveries of clothes commissioned to be laundered and devices which serve the purpose of exchange of electronic information concerning the order and the execution of payment for the service which has been provided. The system participants are: Client, Network Administrator and Laundry Service Contractor.

[0002] The method of carrying out laundry services, known from the international patent application WO 2012075310, consists in the operation, organised by the network administrator, of accepting a laundry service as defined in the Client's order and delivery of the service by an authorised laundry shop of the Contractor - involving the use of a network of cabinets which are linked to the Internet and installed in publicly accessible, resident-friendly locations. The cabinet which is used in this system and presented in the description has a control unit and deposit box units in which the deposit boxes are blocked by solenoid locks, controlled by a computer after being authorised by a Client with an access code, for example, a digital code from a keyboard, a biometric scanner or a barcode reader. The central control unit contains a pre-programmed computer hardware unit which is linked to the Internet, a touchscreen display panel, a printer and a cash machine, a cash acceptor or a payment terminal. Considering the most frequently used type of the external casing, the cabinet is equipped with lighting sets, visual monitoring sets and an alarm signalling system. The cabinet with the height enabling access to the highest deposit boxes from the ground level has two sets of deposit boxes which have varying dimensions and volumes corresponding to the sizes of large washing machines available in the American market, with drums having the capacity of about 2.5 and 3.5 m³. While having equal depths, the deposits vary in the width of their face opening, which is illustrated by Fig.2 of the drawing in this description. The limited height of the cabinet, in case of the operationally required number of deposit boxes, imposes surface expansion of the cabinet and, furthermore, the height of the deposit boxes does not allow hanging laundered and ironed long clothes of such kind as coat and dress without folding them.

[0003] The dispatch and delivery cabinet according to the present invention, similarly to the solution described above, consists of a control unit and deposit box units, with the deposit boxes being blocked by solenoid locks controlled by the computer. The control unit contains a pre-programmed computer hardware unit which is linked to the Internet, a touchscreen display panel, a printer and a cash machine, a cash acceptor or a payment terminal; furthermore, the cabinet is equipped with lighting, visual monitoring and alarm signalling sets. The essence of the

invention consists in that the deposit box units of the cabinet comprise two groups of deposit boxes which vary in the proportions of the dimensions of the face opening: low-wide deposit boxes and high-narrow deposit boxes.

Most low-wide deposit boxes are situated in the lower zone of the cabinet and bags for the "dirty laundry" with a pocket for the order and the Client personal identifier are put into these deposit boxes. There are rods for coat hangers built into the high-narrow deposit boxes: fixed rods in the lower zone of the cabinet and moving rods in the upper deposit boxes, the latter rods being dropped down to the level of the fixed rod in the lower zone and to the outside in front of the cabinet by means of a tilting spring device with a motion speed suppressor.

[0004] It is preferable if the moving rod is a bearing-mounted rocker arm fixed on an axle situated at the bottom of a high-narrow deposit box and the tilting spring device pulls the moving rod to two extreme positions: the upper one inside the deposit box and the lower one to the outside of the cabinet.

[0005] It is also preferable if bags in the low-wide deposit boxes are put into drawer containers which are slid out on guide rails to the outside, in front of the cabinet.

[0006] The cabinet according to the invention significantly improves the quality of the laundry service as a result of storing laundered long clothes: coat, dress, suite and other of the kind in stretched, ironed condition on hangers, on high-narrow deposit boxes. The installation of high-narrow deposit boxes also in the upper zone, situated above the level of direct accessibility for the Client and operated by tilting of the moving rods which is manually activated and powered with the spring device allows increasing the number of deposit boxes in the cabinet over the assigned area, with an effect on the system efficiency.

[0007] The solution of the laundry service dispatch and delivery cabinet is a description of an exemplary embodiment presented on the drawing, the individual figures of which present: Fig.1 - A perspective view of the cabinet, Fig.2 - A view of a fragment with an open lower high-narrow deposit box, Fig.3 - A view of an open low-wide deposit box with a bag put inside, Fig.4 - A view of an open low-wide deposit box with a drawer container pulled open, Fig.5 - A view of a fragment with an open upper high-narrow deposit box and the moving rod dropped, Fig.6 - A cross vertical section of a fragment of the cabinet with high-narrow deposit boxes, with the characteristic positions of the moving rod marked, and on Fig.7 - A perspective view of the cabinet with an upper narrow-wide box open and the moving rod dropped.

[0008] The laundry service system delivery cabinet is installed as a standalone object, for example on an area adjacent to a petrol station nearby a large residential district. The cabinet structure is protected against the impact of weather conditions and equipped with lighting, visual monitoring and alarm signalling sets. The cabinet consists of a control unit A which is adjoined by deposit box units B. The control unit A contains a pre-programmed

computer hardware unit which is linked to the Internet, a touchscreen display panel, a printer and a cash machine, a cash acceptor or a payment terminal. In the deposit box units B, the deposit box doors 1, 2 are blocked by solenoid locks 3, controlled by a signal from the control unit A. In the deposit box units B, there are two groups of deposit boxes which vary in the proportions of the dimensions of the face opening: low-wide deposit boxes 1 and high-narrow deposit boxes 2. Most low-wide deposit boxes 1 are situated in the lower zone of the cabinet and bags 4 for "dirty laundry" with a pocket for the order and the Client personal identifier are put into these deposit boxes 1. There are rods for coat hangers 5 built into the high-narrow deposit boxes 2: fixed rods 6 in the lower zone of the cabinet and moving rods 7 in the upper deposit boxes, the latter rods being dropped down to the level of the fixed rod 6 in the lower zone and outside in front of the cabinet by means of the tilting spring device 10 with a motion speed suppressor. The moving rod 7 is a bearing-mounted rocker arm 8 fixed on an axle 9 situated at the bottom of a high-narrow deposit box 2. The tilting spring device 10 pulls the moving rod 7 to two extreme positions: the upper one "a" inside the deposit box 2 and the lower one "b" outside the cabinet. The "dirty laundry" bags 4, in low-wide deposit boxes 1, can be put directly into the deposit box or placed in the drawer containers 11 which are slid out on guide rails 12 to the outside of the cabinet. Moreover, the cabinet is equipped with a ladder-type platform, not visualised on the drawing, suspended by rollers on a rail fixed along the top edge of the cabinet, providing access to the low-wide deposit boxes 1 situated in the upper zone of the cabinet.

[0009] The operation of the dispatch and delivery cabinet as an interactive point of sale of laundry services will be presented on the background of a summarised description of the Client's order completion by a system which is electronically supervised by the Administrator. The Client logs in the system through the manager or a mobile application, giving his(her) telephone number and e-mail address, simultaneously accepting the laundry service delivery regulations. Then, following the displayed list of product groups and subgroups, he (she) defines the type and quantity of items commissioned to be laundered and receives, as a direct response, information about the service costs. Having completed such "registration", he (she) selects a preferable location of the dispatch and delivery cabinet from the system list. Receiving the access code to a proper deposit box is conditioned by making payment beforehand. The client goes with the "dirty laundry" to a selected cabinet where he (she) enters the received digital code, opens a low-wide deposit box 1 and receives two dispatch confirmations, puts laundry into the bag 4, puts one of the confirmations which identifies the order and the Client into the pocket and closes the deposit box. The information about the order, the deposit box and the access code is automatically delivered to the Contractor whose courier collects the bag 4 with the commissioned laundry while going

round the cabinets and takes it to the Contractor. The Contractor's employee verifies the laundry against the information declared in the application: the number of pieces, soiling, stains and damages; furthermore, he (she) determines the deposit boxes for the laundry delivery. The Client receives a message about accepting the laundry and the service delivery time. The laundering and ironing process is performed, and then the Contractor's employee packs clothes into parcels or puts them on hangers, foils them and passes them to the courier. While going round the cabinets, the courier puts the laundry into the indicated deposit boxes. After closing the deposit boxes, the Client receives automatically generated information about the delivery of the service and the possibility to collect. This information in the mobile application is sent as an SMS message or by e-mail in case when the application manager is used while simultaneously sending a reminder of the opening code and the requirement to collect the laundry within the next 72 hours.

List of markings on the drawing

[0010]

- A. Control unit
- B. Deposit box unit
- 1. Low-wide deposit box
- 2. High-narrow deposit box
- 3. Solenoid lock
- 4. Bag
- 5. Coat hanger
- 6. Fixed rod
- 7. Moving rod
- 8. Rocker
- 9. Rocker axle
- 10. Tilting mechanism
- 11. Drawer container
- 12. Guide
- a. Upper position of the moving rod
- b. Lower position of the moving rod

Claims

1. A dispatch and delivery cabinet for shipments in the logistic system of laundry services, having a central control unit (A) and deposit box units (B), the deposit boxes (1, 2) of which are blocked by solenoid locks (3), controlled by the computer after being authorised by the Client with the access code, and in which the control unit (A) contains a pre-programmed computer hardware unit linked to the Internet web, a touchscreen display panel, a printer and a cash machine, a cash acceptor or a payment terminal, furthermore, cabinet is equipped with lighting, visual monitoring

and alarm signalling sets, **characterised in that** in the deposit box units (B) there are two groups of deposit boxes which vary in the proportions of the dimensions of the face opening: low-wide deposit boxes (1) and high-narrow deposit boxes (2), most of the low-wide deposit boxes (1) being situated in the lower zone of the cabinet and bags (4) for the "dirty laundry" with a pocket for the order and the Client personal identifier are put into these deposit boxes (1) whereas there are rods for coat hangers (5) built into the high-narrow deposit boxes (2): fixed rods (6) in the deposit boxes in the lower zone of the cabinet and moving rods (7) in the deposit boxes in the upper zone, the latter rods being dropped down to the level of the fixed rod (6) of the lower zone outside in front of the cabinet by means of the tilting spring device (10) with a motion speed suppressor.

2. A dispatch and delivery cabinet according to claim 1, **characterised in that** the moving rod (7) is a bearing-mounted rocker arm (8) fixed on an axle (9) situated at the bottom of a high-narrow deposit box (2) and the tilting spring device (10) pulls the moving rod (7) to two extreme positions: the upper one (a) inside the deposit box (2) and the lower one (b) to the outside of the cabinet.
3. A dispatch and delivery cabinet according to claim 1, **characterised in that** the bags (4) in the low-wide deposit boxes (1) are put into the drawer containers (11) which are slid out on guide rails (12) outside, in front of the cabinet.

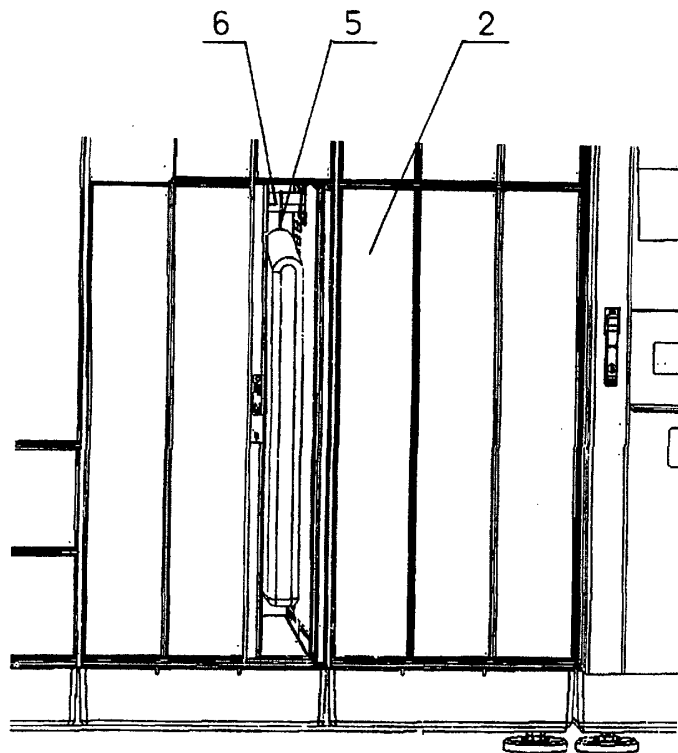
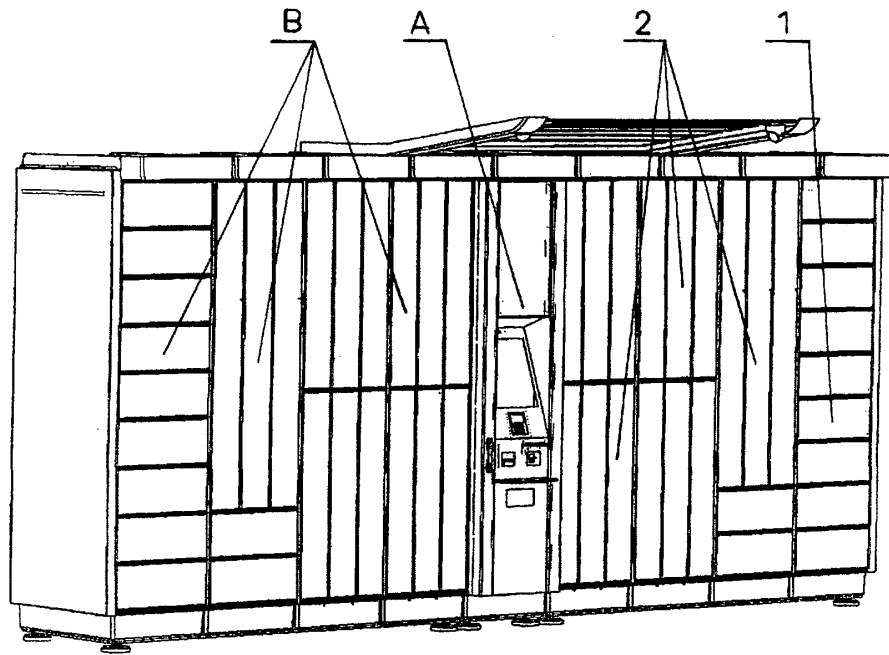
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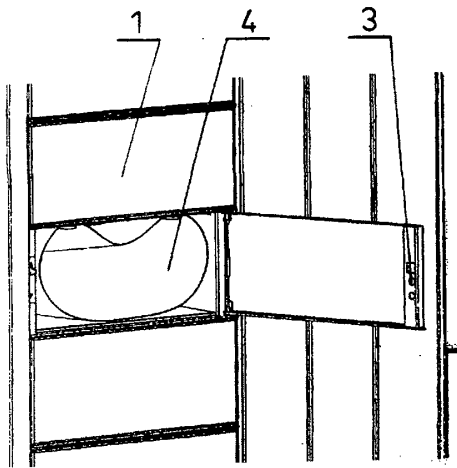


FIG. 3

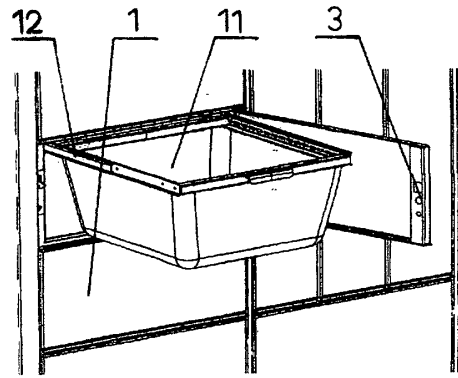


FIG. 4

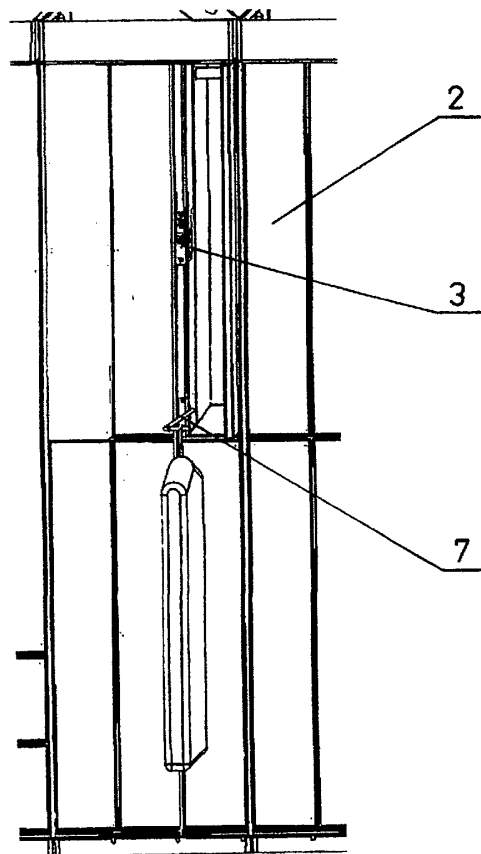


FIG. 5

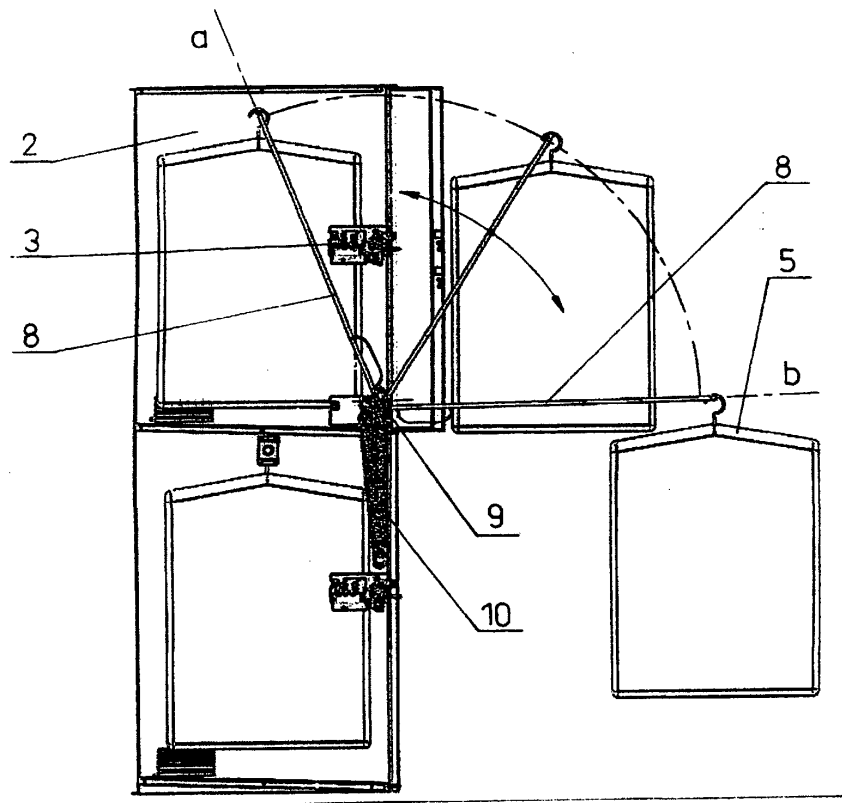


FIG. 6

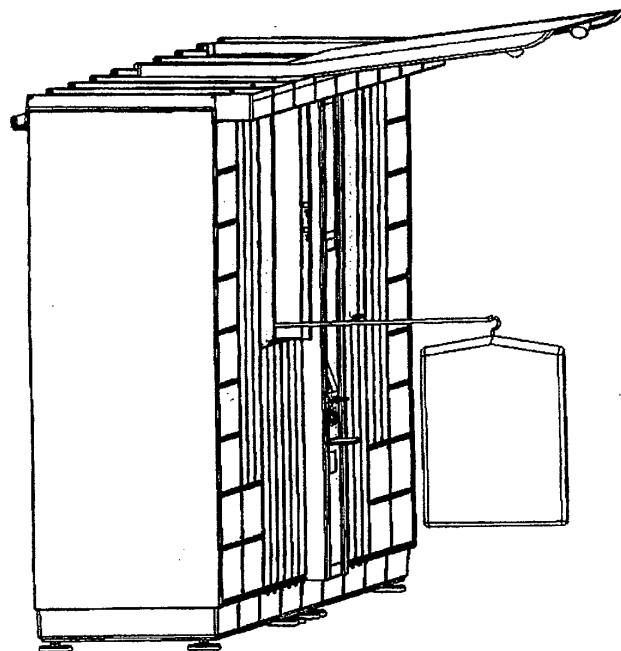


FIG. 7



EUROPEAN SEARCH REPORT

 Application Number
 EP 13 00 1940

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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			TECHNICAL FIELDS SEARCHED (IPC)
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The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		10 December 2013	Guivol, Ouri
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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REFERENCES CITED IN THE DESCRIPTION

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