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(54) Title: COMPUTER-CONTROLLED, UNATTENDED, AUTOMATED CHECKOUT STORE OUTLET AND RELATED METHOD

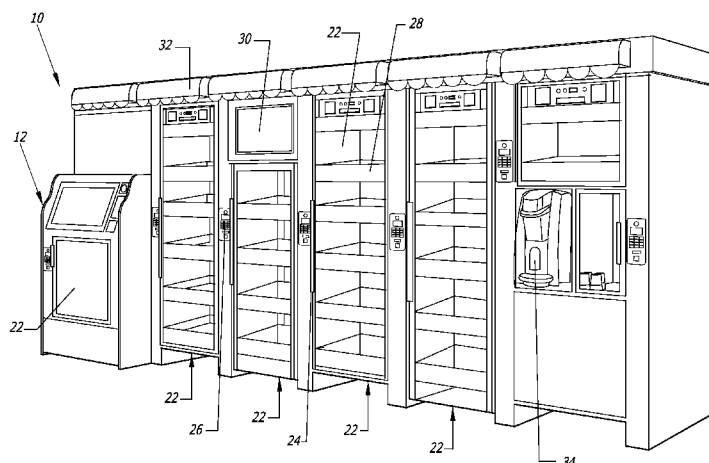


FIG. 3

(57) Abstract: A computer-controlled, automated checkout store outlet comprises at least one bay. A normally locked door is associated with each bay, and provides access to items within the bay by customers approved by a computer of the automated store outlet. At least one tray is disposed within at least one bay, and adapted to hold items to be stocked by the bay. A sensor system is configured to detect the removal of an item from the bay and identify the removed item, such as when a customer is removing the item for purchase.



INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2015/038877

A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - G06Q 20/20 (2015.01) CPC - G06Q 20/20 (2015.10) 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) IPC(8) - G06Q 20/18, 20/20, 30/06; G07F 9/10, 11/62; G07G 1/12 (2015.01) CPC - G06Q 20/18, 20/20, 30/06; G07F 11/62; G07G 1/0036 (2015.10) Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC - 186/39; 221/2; 235/383; 705/14.51, 16, 17, 22, 23, 24 (keyword delimited) Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PatBase, Google Patents, Google Scholar, Google. Search terms used: controller, microprocessor, computer, processor, identify, customer, consumer, buyer, purchaser, patron, unmanned, unattended, self-serve, door, shelf, shelves, sensor, detector, temperature, lock, latch, closed, habit, behavior, health, nutrition		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2013/0332271 A1 (HAY) 12 December 2013 (12.12.2013) entire document	1-16, 20-21, 23-24, 29-30, 34, 36-37, 39-42, 44-58, 64-67, 76-79

Y		17-19, 22, 25-28, 31-33, 35, 38, 43, 59-63
Y	US 2006/0164247 A1 (OVERHULTZ et al) 27 July 2006 (27.07.2006) entire document	17
Y	US 4,317,604 A (KRAKAUER) 02 March 1982 (02.03.1982) entire document	18-19, 59-63
Y	US 6,131,399 A (HALL) 17 October 2000 (17.10.2000) entire document	22
Y	US 2002/0186133 A1 (LOOF) 12 December 2002 (12.12.2002) entire document	25
Y	US 2014/0025391 A1 (FIRST DATA CORPORATION) 23 January 2014 (23.01.2014) entire document	26
Y	US 2010/0138037 A1 (ADELBERG et al) 03 June 2010 (03.06.2010) entire document	27-28, 33, 38, 43
Y	US 5,478,989 A (SHEPLEY) 26 December 1995 (26.12.1995) entire document	31-32
Y	US 2005/0067426 A1 (HOLDWAY et al) 31 March 2005 (31.03.2005) entire document	35
A	US 2009/0306820 A1 (SIMMONS et al) 10 December 2009 (10.12.2009) entire document	1-79
☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 23 October 2015		Date of mailing of the international search report 11 JAN 2016
Name and mailing address of the ISA/ Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-8300		Authorized officer Blaine Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

INTERNATIONAL SEARCH REPORT

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
See extra sheet.

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☒ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

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CONTINUED FROM BOX NO. III:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees need to be paid.

Group I, claims 1-43 are drawn to a method comprising an electronic shopping cart.

Group II, claims 44-79 are drawn to an automated store outlet comprising at least one tray.

The inventions listed in Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1, because under PCT Rule 13.2 they lack the same or corresponding special technical features for the following reasons:

The special technical features of Group I, a method comprising adding removed items to an electronic shopping cart for a customer displayed on a computer-controlled display unit of an automated store outlet, and closing the purchase transaction of the customer by charging the customer for the items in the customer's electronic shopping cart when the customer closes the transaction or after a predetermined period of inactivity by the customer, are not present in Group II; and, the special technical features of Group II, an automated store outlet comprising at least one tray disposed within at least one bay, and having a plurality of compartments adapted to hold items, are not present in Group I.

Groups I and II share the technical features of a method for granting access to and tracking purchases from a computer-controlled, automated store outlet, comprising the steps of: providing a computer-controlled, automated store outlet having a plurality of bays, each bay containing items removable from the bay for purchase and a normally locked door, a customer inputting customer identification into a door access unit associated with a bay of the automated store outlet, unlocking the door of the bay associated with the door access unit after verifying the customer identification so as to provide access to the bay by the customer, detecting the identity of each item removed from the bay by the customer, and automatically locking each bay door once the bay door is closed. However, these shared technical features do not represent a contribution over the prior art. Specifically, US 2013/0332271 A1 to Hay teaches of a method for granting access to and tracking purchases from a computer-controlled, automated store outlet (automated checkout store outlet (ASO) 10, Fig. 1; Para. [0047] regarding to gain access; Para. [0056] regarding detect removal...the LCS creates, saves and maintains activity reports), comprising the steps of: providing a computer-controlled, automated store outlet (automated checkout store outlet (ASO) 10, Fig. 1) having a plurality of bays (bays 22, Fig. 2), each bay containing items removable from the bay for purchase (Para. [0046] regarding bays 22 which contain items which are removable from the bay 22 for purchase) and a normally locked door (Para. [0046] regarding normally locked door 24), a customer inputting customer identification into a door access unit associated with a bay of the automated store outlet (Para. [0047] regarding scanner or data input device 26...used by the customer in order to unlock the door 24), unlocking the door of the bay associated with the door access unit after verifying the customer identification so as to provide access to the bay by the customer (Para. [0047] regarding the customer may enter a code, provide a fingerprint at the scanner 26...to gain access to each bay 22 through the locked door 24), detecting the identity of each item removed from the bay by the customer (Para. [0049] regarding the ASO is able to detect the removal of every item from each bay 22), and automatically locking each bay door once the bay door is closed (Para. [0046] regarding each bay 22 includes a normally locked door 24...all doors 24 are self-closing...which close automatically; see also claim 1).

Since none of the special technical features of the Groups I-II inventions are found in more than one of the inventions, unity is lacking.