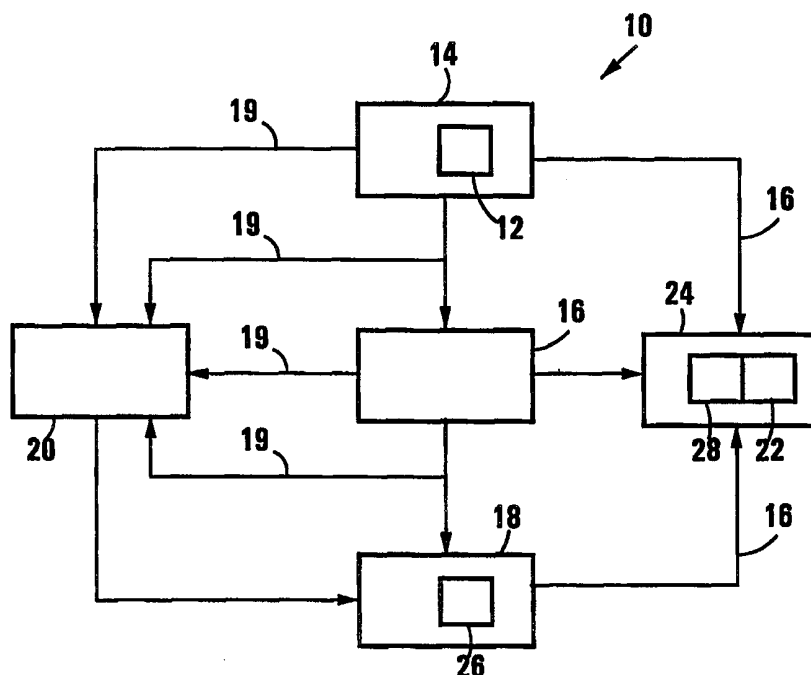




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁶ : G06F 17/60</p>	<p>A1</p>	<p>(11) International Publication Number: WO 99/05627 (43) International Publication Date: 4 February 1999 (04.02.99)</p>
<p>(21) International Application Number: PCT/US98/15058 (22) International Filing Date: 22 July 1998 (22.07.98) (30) Priority Data: 97/6663 25 July 1997 (25.07.97) ZA (71) Applicant (for all designated States except SD US): PERSEUS ADMINISTRATION (PROPRIETARY) LIMITED [ZA/ZA]; Building 74, Gerber Boulevard, Gant Centre, Strand, Western Cape 7140 (ZA). (71) Applicant (for SD only): HANDELMAN, Joseph, H. [US/US]; 26 West 61st Street, New York, NY 10023 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): DAVIS, Roelof, Daniel, Jacobus [ZA/ZA]; 14 Adam Tas, Witpoortjie, Roodepoort, Gauteng 1724 (ZA). RABE, Frederick, Jacobus [ZA/ZA]; 16 9th Street, Newlands, Gauteng 2092 (ZA). (74) Agents: HANDELMAN, Joseph, H.; Ladas & Parry, 26 West 61st Street, New York, NY 10023 (US) et al.</p>		<p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p>Published With international search report.</p>

(54) Title: THE TRACKING OF PRODUCTS



(57) Abstract

A method of detecting designated products from a number of sources includes the step of applying (12) a unique code to each one of a plurality of products at a first location (14). The method also includes determining which of the plurality of products become designated. The method further includes the steps of recording the codes of the designated products, reading (26) the codes of products distributed at a second location (16) and comparing (28) the read codes with the recorded codes to determine if any of the distributed products are designated products. The invention also includes a system for detecting designated products.

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THE TRACKING OF PRODUCTS

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THIS INVENTION relates to the tracking of products. More particularly, this invention relates to a method of detecting designated products and to a system for detecting designated products.

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According to a first aspect of the invention, there is provided a method of detecting designated products from a number of sources, the method including the steps of

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applying an unique code to each one of a plurality of products at a first location;

determining which of the plurality of products become designated;

recording the codes of the designated products;

reading the codes of products distributed at a second location;

and

comparing the read codes with the recorded codes to determine if any of the distributed products are designated products.

25

It will be appreciated that the term "designated products" includes products that are stolen, products that are lost by undetermined means and picked up as lost through stock taking or other methods of

reconciling numbers of products, products not intended for re-sale to consumers, sample batches of products, defective products, products sold to a Government sector, export products, imported products, or the like. "Products" is also meant to include three-dimensional articles and other articles such as cheques, tickets or the like. Designated products which are detected may then be recovered. It will be appreciated that the method and system may also be used as an audit system for keeping track of designated products, in particular, for products not intended for re-sale.

The codes of the designated products may be determined by retaining a first list of the unique codes which are applied to the products at the first location, and comparing it to a second list of codes of products which are decoded at another authorised location, with the codes which appear on the first list and not the second list comprising the codes of the designated products.

The codes of the designated products may be recorded at a central loss control station. The method may include transmitting the read codes to the central loss control station, for comparing the read codes with the recorded codes.

The method may also include transmitting data on the identity of the second location and data on the time at which the read

codes are transmitted to the central loss control station.

The method may include triggering an alarm at the central loss control station if designated products are detected to alert a person on duty. The data may also be visually displayed at the central loss control station in such a way that it alerts a person on duty.

A record of the data and the read codes may be retained at the central loss control station if the products are designated products.

According to a second aspect of the invention, there is provided a system for detecting designated products from a number of sources, the system including

an encoding means for applying an unique code to each one of a plurality of products at a first location;

a designated products determining means for determining which of the plurality of products become designated;

a recording means for recording the codes of the designated products;

a reading means for reading the codes of products distributed at a second location; and

a comparator for comparing the read codes with the recorded codes to determine if any of the distributed products are designated products.

The comparator may be located at a central loss control station. The codes of the designated products may be retained in a database of the comparator at the central loss control station.

5 The system may include a transmitting means for transmitting the read codes to the comparator at the central loss control station. The transmitting means may also transmit data on the second location to a central loss control station.

10 The first location may be a manufacturing plant, with the codes being applied to manufactured products on an assembly line. Alternatively, the first location may be a warehouse for imported products or for export products.

15 The second location may be a retail outlet, with the reading means forming part of a bar code scanning system. Alternatively, the second location may be a retail outlet, with the reading means being in the form of a free-standing or hand held scanner suitable for use by a till operator or an independent user of the system.

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It is to be appreciated that the system is not limited to use with retail products or products earmarked for re-sale.

The invention is now described, by way of example, with

reference to the accompanying drawing which shows a schematic flow chart representing a system, in accordance with the invention, for recovering designated products.

5 In the drawing, reference numeral 10 generally indicates a flow chart representing a system, in accordance with the invention, for recovering designated products.

10 The system includes an encoding means 12 for applying an unique forgery resistant code to each one of a plurality of manufactured products. The encoding means 12 is located in a manufacturing plant 14, with a code being applied to each product on an assembly line. The code may be in the form of a forge-resistant mark such as a hologram.

15 The manufactured products are transported from the plant 14 to the premises 16 of a distributor, who, in turn, supplies the products to an end retail outlet 18 where they are sold to the public.

20 It will be appreciated that the manufactured products can reach the end retail outlet 18 though different routes. Some of the manufactured products may be stolen or otherwise designated from the plant 14, from the premises 16 of the distributor, or at any stage when being transported from the plant 14 to the premises 16 or the retail outlet 18. The stolen or designated products land up with an unauthorised

distributor at a venue 20 through any one of routes 19. The unauthorised distributor sells the products and they may also be distributed through the retail outlet 18.

5 The quantity of manufactured products is checked by the distributor when the products are received at the premises 16. If the quantity received does not tally with the quantity of manufactured products dispatched by the manufacturer, the distributor knows that some of the products have become designated products. The distributor
10 receives a list of codes applied to the manufactured products and a decoding device from the manufacturer to determine the codes of the designated products. The quantity of manufactured products may also be checked at the retail outlet 18 in the same way or at any other stage, if theft is suspected.

15 A recording means 22 for recording the codes of designated products is located at a central loss control station 24. The codes of the designated products are supplied to the central loss control station 24 where they are entered into the recording means 22 which is in the form
20 of a database.

 A reading means in the form of a scanner 26 for reading the codes of distributed products is located at the retail outlet 18. The control station 24 includes a comparator 28 for comparing the read codes

with the recorded codes to determine if the products are designated products. The read codes are transmitted to the station 24 on a daily or more regular basis.

5 In use, all of the distributed products located at the retail outlet 18 are scanned at point of sale or on the shelves. The comparator 28 at the station 24 compares the read codes with the recorded codes to determine if any of the distributed products are designated products which have been received by an unauthorised route or dealer. If it is
10 determined that the distributed products are designated products, data is retained at the central loss control station 24. The data includes the codes of the detected designated products, the identity of the second location and the time of the reading. The data are visually displayed at the central loss control station in such a way that it alerts a person on
15 duty. The person on duty will act on the information in an appropriate way, for example, by alerting the police. A record of the data is maintained at the central loss control station 24 for evidence purposes.

20 The inventors believe that the invention has several advantages. Firstly, a central database of designated products is established. Also, designated products are accurately marked by each having an individual code which can be identified in a simple operation. Further, accurate records of the process are available for possible criminal prosecution.

CLAIMS:

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1. A method of detecting designated products from a number of sources, the method including the steps of

applying an unique code to each one of a plurality of products at a first location;

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determining which of the plurality of products become designated;

recording the codes of the designated products;

reading the codes of products distributed at a second location;

and

comparing the read codes with the recorded codes to determine if any of the distributed products are designated products.

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2. The method as claimed in Claim 1, in which the codes of the designated products are determined by retaining a first list of the unique codes which are applied to the products at the first location, and comparing it to a second list of codes of products which are decoded at another authorised location, with the codes which appear on the first list and not the second list comprising the codes of the designated products.

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3. The method as claimed in Claim 1 or Claim 2, in which the codes of the designated products are recorded at a central loss control station.

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4. The method as claimed in Claim 3, which includes transmitting the read codes to the central loss control station, for comparing the read codes with the recorded codes.

5 5. The method as claimed in Claim 3 or Claim 4 inclusive, which includes transmitting data on the identity of the second location to the central loss control station.

10 6. The method as claimed in any one of Claims 3 to 5 inclusive, which includes transmitting data on the time at which the read codes are transmitted to the central loss control station.

15 7. The method as claimed in any one of Claims 3 to 6 inclusive, which includes triggering an alarm at the central loss control station if designated products are detected to alert a person on duty.

20 8. The method as claimed in any one of Claims 3 to 7 inclusive, which includes retaining a record of the data and the read codes at the central loss control station if the products are designated products.

9. A system for detecting designated products from a number of sources, the system including
an encoding means for applying an unique code to each one of a

plurality of manufactured products at a first location;

a designated products determining means for determining which of the plurality of products become designated;

5 a recording means for recording the codes of the designated products;

a reading means for reading the codes of products distributed at a second location; and

10 a comparator for comparing the read codes with the recorded codes to determine if any of the distributed products are designated products.

10. The system as claimed in Claim 9, in which the comparator is located at a central loss control station.

15 11. The system as claimed in Claim 10, in which the codes of designated products are retained in a database of the comparator at the central loss control station.

20 12. The system as claimed in Claim 10 or Claim 11, which includes a transmitting means for transmitting the read codes to the comparator at the central loss control station.

13. The system as claimed in Claim 12, in which the transmitting means transmits data on the second location to a central

loss control station.

14. The system as claimed in any one of Claims 9 to 13 inclusive, in which the first location is a manufacturing plant, with the codes being applied to manufactured products on an assembly line.

15. The system as claimed in any one of Claims 9 to 13 inclusive, in which the first location is a warehouse for imported products.

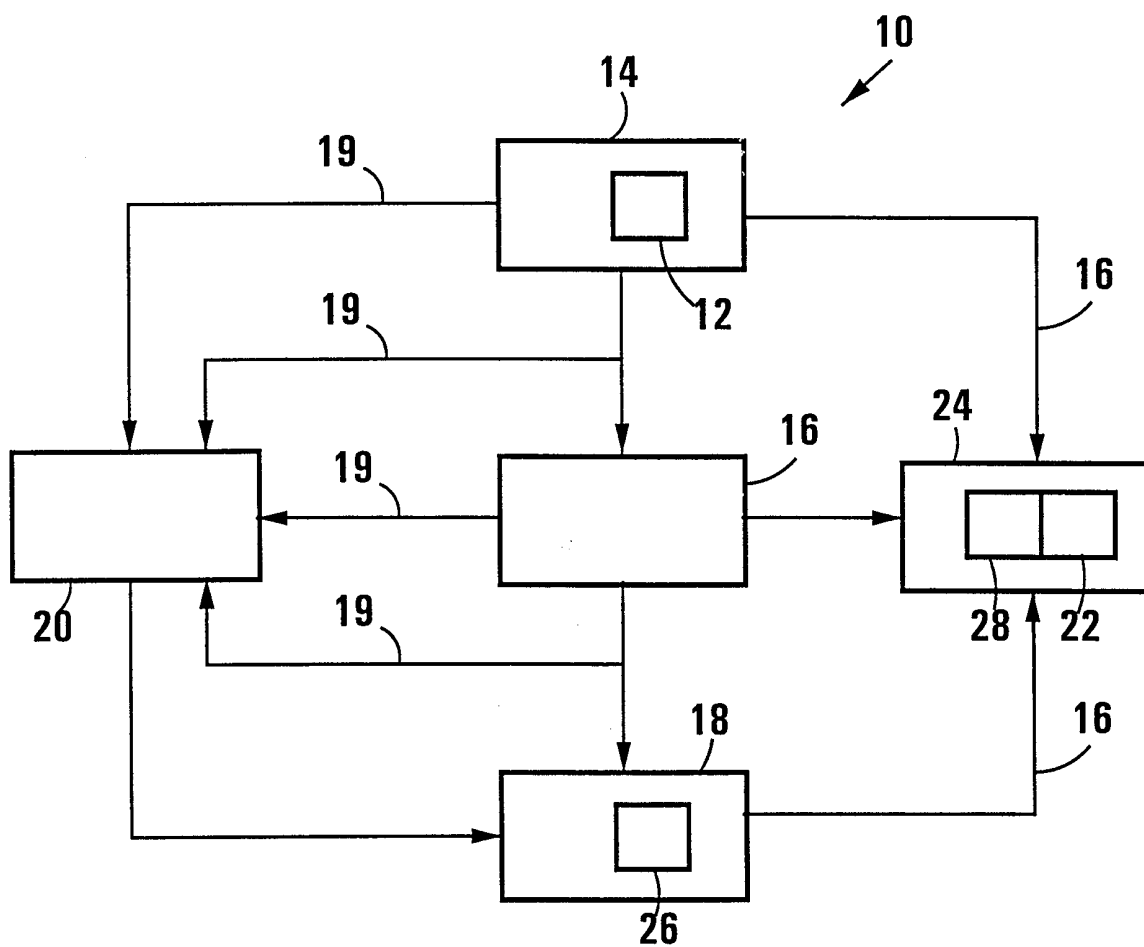
16. The system as claimed in any one of Claims 9 to 13 inclusive, in which the first location is a warehouse for export products.

17. The system as claimed in any one of Claims 9 to 16 inclusive, in which the second location is a retail outlet, with the reading means forming part of a bar code scanning system.

18. The system as claimed in any one of Claims 9 to 16 inclusive, in which the second location is a retail outlet, with the reading means being in the form of a free-standing scanner.

19. A method of recovering designated products, substantially as herein described with reference to the accompanying diagrammatic drawing.

20. A system for recovering designated products, substantially as herein described with reference to the accompanying diagrammatic drawing.



INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/15058

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(6) :G06F 17/60
 US CL :235/385, 375, 378, 381, 383, 462, 454, 470, 472
 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)
 U.S. : 235/385, 375, 378, 381, 383, 462, 454, 470, 472

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 n/a

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 Please See Extra Sheet.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4,340,810 A (GLASS) 20 July 1982 (20/07/82), see entire document	1-18
Y	US 5,478,990 A (MONTANARI ET AL) 26 December 1995 (26/12/95), see entire document	1-18
Y	US 5,434,394 A (ROACH ET AL) 18 July 1995 (18/07/95), see entire document	1-18
Y	US 5,401,944 A (BRAVMAN ET AL) 28 March 1995 (28/03/95), see entire document	1-18

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
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"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)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
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Date of the actual completion of the international search 05 OCTOBER 1998	Date of mailing of the international search report 29 OCT 1998
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/15058

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international 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.: 19 and 20
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:

Please See Extra Sheet.

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 II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

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 an additional fee, this Authority did not invite payment of any additional fee.
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.
 No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/15058

B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

APS

search terms: distribution(p)(product# or item#)(p)(barcode or bar code)(p)(remote or host)(2w)(database or system or computer), tracking(p)(barcode or bar code)(p)(product# or item#)(p)database, retail? and warehouse, (bar code or barcode)(p)warehouse, luggage(p)(barcode or bar code)(p)database, (scann? or read?)

BOX I. OBSERVATIONS WHERE CLAIMS WERE FOUND UNSEARCHABLE

2. Where no meaningful search could be carried out, specifically:

In regards to "A method of recovering designated products, substantially as herein described with reference to the accompanying diagrammatic drawing", and "A system for recovering designated products, substantially as herein described with reference to the accompanying diagrammatic drawing" as recited in claims 19 and 20, the claims are very broad in itself that encompasses a multiple of different classes/subs. Therefore, the subject matter contained in these part of claims have not been searched.