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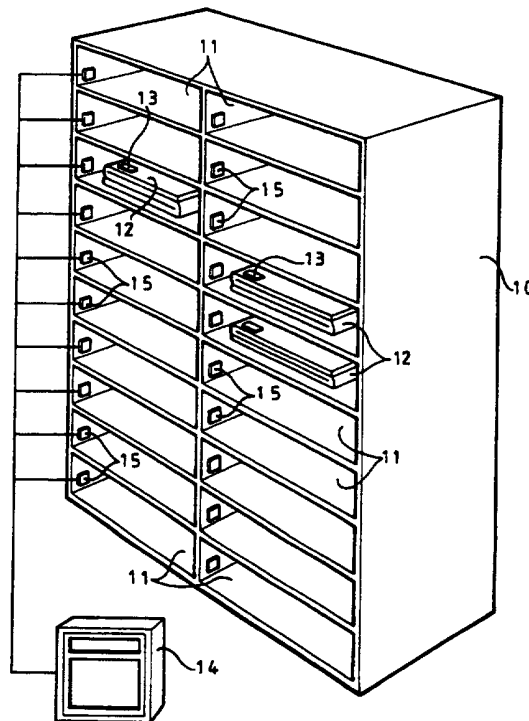
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GB 2141006 A EP 0467036 A2 WO 92/09054 A1

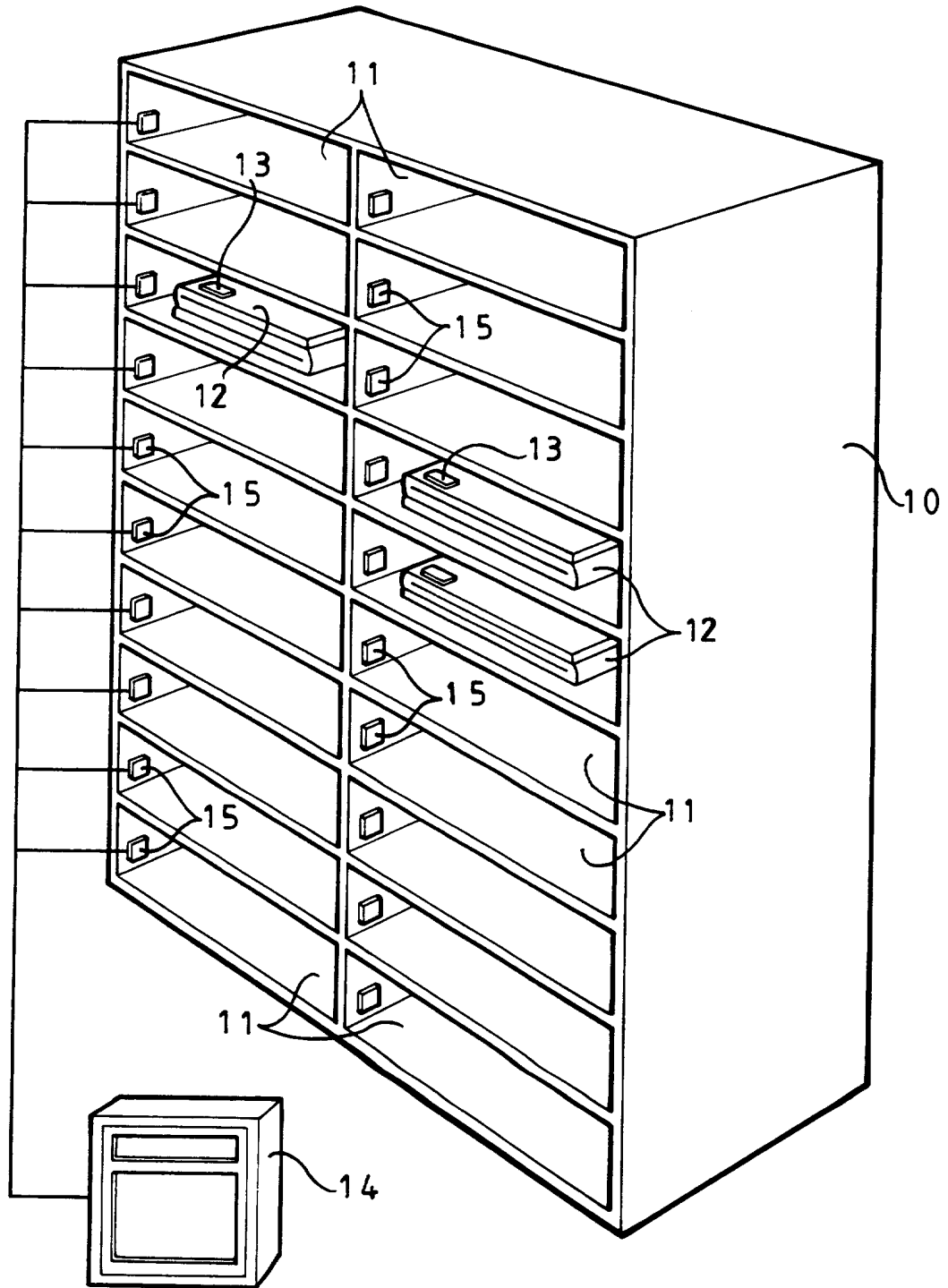
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(54) Abstract Title
Radio frequency tagging of stock items

(57) A radio frequency identification system for identifying electronically tagged items 12 such as laundry at each of a plurality of storage locations 11 in a storage cabinet 10 comprises a radio frequency transmitting/receiving device 15 at each of the storage locations and a multiplexing unit 14 for addressing each location in turn. The multiplexing unit causes a signal to be transmitted by each transmitting/receiving device 15 to cause an electronic tag 13 of an item stored at that location to transmit a signal identifying the item stored at that location. The multiplexing unit reads this signal and stores the information carried by the signal. The multiplexing unit continuously scans the devices 15 to provide live up-to-date information on the stock items stored in the storage cabinet 10.



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RADIO FREQUENCY IDENTIFICATION SYSTEMS

This invention relates to radio frequency identification systems and, more particularly but not exclusively, to such systems for stock tracking.

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Some commercial laundries are using radio frequency identification systems instead of bar codes for stock tracking. Stock items are identified by an individually coded electronic tag which emits a radio frequency signal when "woken up" by a reader. The location of each stock item can also be identified by an electronic tag and
10 read by the reader or the location of the item can be punched into the reader by an operator. Present radio frequency identification systems require an operator to go to each stock location to gather the information necessary to keep a track of the stock items. This is time consuming and can be prone to error. Also, as stock moves in and out of storage locations, the information soon becomes out-of-date.

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According to the present invention there is provided a radio frequency identification system for identifying electronically tagged items at each of a plurality of storage locations, said system comprising a radio frequency transmitting/receiving device at each of the storage locations and multiplexing means for addressing each of
20 said storage locations in turn, said multiplexing means causing a signal to be transmitted by each transmitting/receiving device to cause the electronic tag of an item stored at that location to transmit a signal identifying the item stored at that location and said multiplexing means reading said signal and storing information carried by said signal.

The multiplexing means may contain information indicative of each location which it addresses or this information may be supplied to the multiplexing means together with information identifying the item stored at that location each time a location is addressed by the multiplexing means.

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The multiplexing means may be at a remote location and live up-to-date information will always be available.

The invention will now be more particularly described, by way of example,
10 with reference to the accompanying drawing which is a schematic view of one embodiment of a radio frequency identification system according to the invention.

Referring to the drawing, there is shown therein a floor mounted storage cabinet 10 having a plurality of compartments 11 for storing stock items 12 which
15 may, for example, be laundered items at a commercial laundry. Each item 12 has an electronic tag 13 connected to it in some way. For example, the tag 13 could be sewn into the item.

Each tag 13 is in the form of a logic element having its own unique identity
20 which may be pre-programmed into the logic element or which may be programmed into the logic element by a user. The tag 13 also includes an antenna for receiving a "wake-up" signal and for transmitting a signal representative of its unique identity.

A radio frequency identification system is also shown. This system

comprises a radio frequency multiplexing unit 14, which may be at a location remote from the storage cabinet 10 and a plurality of transmitting/receiving devices 15, one to each compartment 11 of the storage cabinet 10.

5 Each transmitting/receiving device 15 includes an antenna and an electronic switch. The location of each device may be pre-programmed in the multiplexing unit 14. Alternatively, each device may include a logic element having its own unique identity.

10 The multiplexing unit 14 continuously scans the transmitting/receiving devices 15 to provide live up-to-date information on the stock items 12 stored in the cabinet 10. As each device 15 is addressed by the multiplexing unit 14, the device 15 emits a signal to "wake-up" the electronic tag 13 of any item 12 in the compartment 11 with which the device 15 is associated. The tag 13 then emits a
15 signal indicative of the identity of that item and this signal is received by the device 15 and stored in the multiplexing unit 15 together with information indicative of the location of that item.

CLAIMS

1. A radio frequency identification system for identifying electronically tagged items at each of a plurality of storage locations, said system comprising a radio
5 frequency transmitting/receiving device at each of the storage locations and multiplexing means for addressing each of said storage locations in turn, said multiplexing means causing a signal to be transmitted by each transmitting/receiving device to cause the electronic tag of an item stored at that location to transmit a signal identifying the item stored at that location and said multiplexing means reading said
10 signal and storing information carried by said signal.

2. A radio frequency identification system as claimed in claim 1, wherein the multiplexing means contains information indicative of each location which it addresses.

- 15 3. A radio frequency identification system as claimed in claim 1, wherein transmitting/receiving device also includes a logic element having its own unique identity.

4. A radio frequency identification system as claimed in any one of the
20 preceding claims, wherein the multiplexing means is remote from the storage locations.

5. A radio frequency identification system for identifying electronically tagged items at each of a plurality of storage locations, substantially as hereinbefore described

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with reference to the accompanying drawing.



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Claims searched: All

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Date of search: 7 May 1997

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
UK Cl (Ed.O): H4L (LACA, LACB, LACD, LACX, LADA, LADX, LAX)
Int Cl (Ed.6): G01S 13/02, 13/74, 13/76, 13/82, G01V 15/00, G08B 13/24
Other: Online Database: WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB2141006 A (INTELLI-TECH) col.2 lines 5 - 29 & col.10 lines 90 - 124	1 at least
X	EP0467036 A2 (SAVI) col.3 line 56 - col.4 line 21	1 at least
X	WO92/09054 A1 (NITSCHKE) see abstract & p.4 lines 29 - 37	1 at least

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.