

"IMPROVED ELECTRONIC ORDERING DEVICE
AND ELECTRONIC RETAILING AND VENDING SYSTEMS"

The present invention relates generally to a retailing system and in particular to an electronic retailing system, particularly for facilitating the remote electronic ordering of goods/services and provision of goods/services (products).

From a more specific aspect, the invention relates to improved electronic ordering and vending systems and particularly, but not exclusively, to electronic ordering of goods and/or services which may be vended locally by a local device and/or ordered from a remote location by operation of a local device.

The disclosure of the applicant's earlier filed international patent applications, PCT/AU93/00416 and PCT/AU95/00154 (publication numbers WO 94/04446 and WO 95/26004, respectively) are considered incorporated herein. PCT/AU93/00416 relates to a vending machine which facilitates recycling of complex articles, such as printer and toner cartridges. PCT/AU95/00154 discloses an electronic catalogue device and system for enabling remote ordering of goods/services.

Remote electronic ordering of goods/services is known. Systems are available where a user having access to a personal computer (PC) may order a limited number of goods or services from a remote location. The extent of available systems is, however, limited and there are a number of disadvantages.

In the prior art, a catalogue "database" is usually provided to the PC user on data storage media such as diskette, CD-ROM, or the like. The user accesses the information on the catalogue via his PC and selects the goods he requires. The PC will then print out an order form, which is then usually sent to the service provider by transmission media such as facsimile, post or the like. Such systems are merely a logical extension of known paper catalogue marketing techniques. The PC is merely a convenient interface for reading the catalogue

and generating printed orders.

Further, a separate accounting system is necessary to process the users order.

Known electronic catalogue systems are generally an extension of an existing computerised ordering and administration system and may be quite difficult to use for people unfamiliar with computers. Further, present systems have no means of storing high priority goods on site and delivering them to the user instantly. It is necessary to transmit order information to a remote warehouse or delivery centre. Known systems are merely concerned with the delivery of new or replacement articles and have no means for processing the administrative requirements for collection and storage of used articles, such as recyclable materials.

Further, they do not provide untrained users sufficient assistance to replace the need to make phone inquiries upon the supplier to find out what products they should order for the particular application requirements. For example, there are no electronic catalogues for laser printer, ink-jet printer, dot matrix printers, photocopiers, facsimile machines and multi-functional office machines, that guide the user through compatibility lists allowing selection by brand, model, type or any other meaningful access method.

Known vending systems are generally acknowledged as stand alone devices with limited intelligence that generally require highly labour intensive support systems to ensure that they are stocked and maintained. Payment methods are mostly cashed based as goods dispensed are usually of relatively low value. Some limited remote monitoring capabilities exist to monitor stock levels and operational status.

Known vending systems have no means of acting intelligently when communicating with consumers to perform the function of a trained salesperson in a retail outlet. Known vending systems are generally operated by independent operators and not integrated to a

manufacturers or distributors retailing network. Known vending systems cannot capture and distribute information for manufacturers and distributors.

5 A manufacturer or distributor cannot use a known vending machine as an integral part of an electronic retailing network that can present and collect information.

10 From a first aspect, the present invention provides a remote ordering device for enabling a user to order goods and/or services, including a user interface means which includes user input means for enabling a user to select available goods and/or services (products) from a goods/service database and display means for displaying information on products/services from the database, 15 identification means for identifying users of the device and communication means for communicating with a remote host device for automatically placing orders to obtain goods and/or services from a remote location, and/or means for vending goods/services on site.

20 The device may be an electronic ordering device by way of which a customer (user) is able to order goods from a remote location via the host. Device and host comprise a system which is preferably associated with a service infrastructure which enables the provision of the goods/services. The host device may communicate directly 25 with goods/service providers. In an alternative embodiment, the host device may act as a coordinator of transactions and the ordering device may have a communications link to the goods/service providers. The communications link to the host and/or goods/service 30 providers may be a network link, such as the Internet.

In a preferred embodiment, the device, as well as providing a remote ordering facility, also provides a local vending ability. Storage means are provided for 35 storing product on-site. The user interface means enables the user to select a "take now" option if the product is stored on-site. The product is vended and information on the transaction may be downloaded to the

host device for co-ordination of transactions and to enable monitoring of vendible stock levels.

Identification means for identifying users of the device, may comprise a card-swipe device, a smart card connector, a PIN number facility (which could be used in conjunction with card swipe, smart card, or used on its own to identify a customer), or other means which enables the identity of the customer to be determined. The device is also preferably arranged to gather information from a customer. For example, the user interface may be caused to prompt the user to input his name and address to enable delivery of an order. Further, information on products usually ordered by a particular user may be recorded.

Information gathered from a user may be used to update a user database, which can be accessed by the electronic ordering device and/or the host device. Information stored in the user database may include information on the frequency of visits to the device, as well as information on number and types of products that the particular customer generally orders. In a preferred embodiment, this customer information is utilised to affect the operation of the device. For example, the operation may become more "personalised" towards the particular customer and his requirements. If the customer has used the device before, the device, by way of the user interface, may "greet" the customer personally and prompt him with offers of product/services which, from the customer database, the device "knows" the customer usually orders. The device may also "fast track" ordering for this particular customer.

The device preferably has access to credit information of a customer, either by way of a customer database containing information on credit worthiness of the user and/or by connection to a system such as the EFT system, 101 a payment processor either directly from the device or by way of connection via the host device. If the connection is by way of the EFT then the operator of

the remote ordering system may be paid directly by way of the banking system and the customer's account can be debited directly by way of the banking or payment processing system. Alternatively, if the credit is
5 directly with the remote ordering system operator (on the customer database) a separate bill trail may be implemented.

The device is preferably adapted so that it can be maintained unattended for substantial periods of time.
10 Routine technical maintenance services are preferably provided as is a re-stocking service (where a vending facility is available), with the logistics for such services being controlled by the host system to optimise efficiency and reliability.

15 The products which may be ordered may be any products, and may include information. Where the product is information, the information may be obtained from a memory means within the device, may be downloaded as a file from the host, or even obtained real time from other
20 network facilities, such as the Internet by way of an Internet connection.

All transaction information is preferably downloaded to the host device to enable transactions to be accounted.

25 A problem with previously available methods of ordering goods, including previously available PC based electronic ordering systems, but encompassing any method of ordering goods, eg telephone, order letter, etc. is that the person making the order is often not totally
30 sure of the product or type of product he needs. For example, with complex office consumables, such as toner cartridges, the person making the order may not be sure what type of toner cartridge is required or may even be confused as to whether he is to order a toner cartridge
35 or another complex office consumable, such as a printer cartridge. He may thus order the incorrect toner cartridge for the machine or even order the wrong office consumable totally. When the error is discovered the

order will need to be cancelled and a replacement order made.

The cost of such errors in time and money is an immense burden on all industry.

5 The device preferably comprises a product identifying means which is arranged to facilitate identification of a product which may be desired by a customer. The product identifying means may comprise a bar code scanner. The customer would be provided with a
10 bar code identifying the particular product he requires and merely pass it in front of the scanner. The device would then know exactly which particular product the customer requires and either order or vend it, or if the product is not in stock, may offer compatible
15 alternatives. The device may also include means to identify a used or old version of the required product, a printed image which allows identification of the required product, or any other "identifier" which could be carried by a customer or recorded on a used article and detected
20 by the device to identify the desired product.

 The use of an identifying means in this way advantageously reduces or eliminates ordering of the incorrect product. The identifying article may comprise an object or card associated with an office machine, or
25 consumer product, such as a printer, for example. When a new ink-jet cartridge is required, the user merely takes the object or card to the identifying means to ensure the ordering of the correct ink-jet cartridge. This may occur automatically.

30 A control means of the device may include means for prompting the user with a choice of products other than a product desired by a user, where the product may be associated with the other product in some way, i.e. they may be similarly compatible with the same printer, in the
35 case of a printer cartridge.

 For example, where the user orders an ink-jet cartridge, the device may "ask" the user whether he would also like paper/film to match the ink-jet cartridge type.

The device may also prompt alternative brands of ink-jet cartridge. Generally the device may be arranged to offer any related or compatible products to the product initially ordered.

5 Another example is with pharmaceutical preparations. The device may be utilised to order/vend prescription pharmaceuticals. Where a particular brand is not available, alternatives may be offered, or the device may recommend a selection of products based on the diagnosis
10 of responses given by the user.

The device may also prompt sale of products which are associated with the particular user, once the device has identified the user (via ID means).

For example, from previous orders the device may
15 "know" (by way of a user database - see above) that the user usually orders a particular product and may therefore prompt him with this product.

A problem with previously available vending/dispensing systems is that no means are provided
20 for keeping track of the shelf-life of a product stocked in a vending/dispensing machine. This may result in the consumer receiving a product whose shelf-life has expired. Again, this is a time and money waster for both the supplier and the consumer.

25 The device is preferably arranged to monitor the shelf life of products stocked, where a vending facility is provided. The monitoring may be carried out by the host or may be carried out locally by the device. The vending system (comprising remote vending device and
30 host) is arranged to "track" vendible products. From information from re-stocking procedures, shelf-life of any particular product in the vending storage means is known. This shelf-life can be tracked either by processing means in the device itself or remotely by the
35 host device.

This preferably enables the time any particular product has been stocked in any particular vending machine to be calculated. Where any product is found to

be on or past its "used by" date it can be replaced by the stockist before being purchased by a consumer, preventing time and trouble which would normally be required for the consumer to exchange out of date products.

A further problem with previously available methods of getting goods to a consumer, such as general retail, vending, etc., is that the supplier of a particular product cannot keep a "real time" track of how his products are being received in the market place. There can be a delay of 6 months or even longer on the sales information the supplier receives from a retailer, for example, from what is actually happening in the market place "today". The suppliers market response information is therefore always out of date.

The ability to monitor transaction information at a central host controller facilitates compilation of sales information in a short period of time. Goods/services suppliers are therefore provided with highly "up-to-date" information to facilitate goods/service design and marketing operations. Further, where user information gathering capability exists, information can be gathered to further facilitate product/service design and marketing operations. This information can be gathered quickly.

The transaction information can preferably be downloaded at convenient intervals and may be downloaded in real time, to enable monitoring of sales relatively quickly compared to presently available results.

The system preferably further includes means for analysing sales patterns of the device(s) based on the transaction information.

An alternative embodiment comprises a stand-a-lone device which stores transaction information and which may include means for analysing sales patterns in that device alone.

The device is preferably arranged to establish location of a product where the product is not available

on-site at a particular device, where an inquiry for the product is being made. This enables the provision of a system which can not only provide products on site, at a particular device, but can also provide a user with a location of the nearest device providing the product on site. Preferably, each device in the system has a unique address and the host device is arranged to maintain a record of products available at each device, which record will be updated by user information. If a user wishes to know the location of a particular product unavailable at the device he is inquiring on, the device merely inquires from the host as to the location of the nearest device where the product is available.

A preferred embodiment of a system in accordance with the present invention provides the ability for an operator at the host or operator authorised by the host system to change the information that is presented to consumers who use remote ordering devices. Where, for example, it is required to change the price of a product or the prices for a range of products, the operator can prepare a master file containing the products and their respective price information and download the updated information to all remote ordering devices, or perhaps only to a selected group of devices, on an address by address basis.

Further, the system preferably allows the operator to download advertising information and promotional office for display and presentation to consumers. Preferably, the information downloaded can be specific to the needs of consumers and can be based on user information and other information such as selection criteria which may include geographic location or customers language.

The system therefore facilitates organised marketing campaigns. Different users may be offered different discount prices, advertising information may be updated from a central host, different manufacturers products may be advertised, etc., all on the automated system.

As an alternative to storing the user information on the system (either the device and/or the host) user information may be stored on a magnetic card or a smart card which the user carries. The device is arranged to
5 access the user information from the magnetic card or smart card.

An alternative to an EFT connection or other billing method, a smart card may also store a users credit, and can be downloaded or uploaded, as the case may be, by the
10 remote ordering device.

Presently available vending machines are generally pre-designed to stock a particular range of products and the storage space is pre-designed accordingly, e.g., pre-designed to store a range of products of certain size(s).
15 If it is desired to stock a different range of products at a location then a different vending machine, designed to accommodate the new range of products, will be required.

Preferably, where the device includes a vending
20 facility, the storage means can be adjusted to retain stock of different types and sizes. This is preferably done by including a number of storage compartments which are modular and may incorporate partitions for changing their size.

Where, for example, it is required to change
25 products vended from a particular location then, rather than replace the vending machine with one designed to accommodate the new product, a vending machine in accordance with an embodiment of this aspect of the
30 present invention may be adjusted to accommodate the new product.

Adjustment is preferably by way of panels which can be inserted/removed to adjust the storage space. Further, the storage space may be modular, so that more
35 can be added on or so that it can be removed.

The dispensing means is also preferably adjustable and may comprise a plurality of doors and control mechanism for selectively opening the doors, adjustable

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by operating the control mechanism to operate a predetermined number of doors per product, for example.

As discussed above, user information may include information for determining frequency of use of a device by a user (or where the device is part of a system comprising a number of devices and a host, use of the system by any user). Where a user uses the system frequently they may be rewarded, e.g. by reduced prices for future stock, etc. The system preferably includes means for calculating and controlling rewards, and may include means for dispensing rewards to a consumer.

A preferred embodiment of the present invention comprises a device and system incorporating features of the present invention so that a user may obtain desired products from the device either by having the product vended immediately or ordered from a host controller for later delivery; may obtain information from the device, which may either be stored on board or obtained over a connection to network, such as the Internet; without cash payment being required, as credit may be monitored by a host controller or by direct connection to a banking network such as EFT; may identify the location of products where they are not available at the device or available for immediate delivery; may provide detailed information to the device to assist with future transactions and/or modify future operation to assist the user; provide a machine which will securely store product and provides intelligent marketing and transaction information with a time period convenient for the operator and for the user and which is versatile in its ability to store different types/sales of products.

Such a device and system enables a secure "one stop shop" or service system, which is automated and convenient for the user and operator.

Any product may be vended/supplied, including office consumables, such as printer cartridges, tone cartridges, paper, film, batteries, digital recording media, etc. or any other type or product. One preferred embodiment of

the present invention comprises a device which is particularly adapted to vend office consumables, such as paper, printer cartridges, toner cartridges, film, etc.

For many years retailing of products and services has been carried out in a very traditional manner. A customer is required to attend an outlet where products/services are vended with the assistance of a sales person. This traditional arrangement has a number of disadvantages.

Sales persons are required to be present generally at all times in order to assist the customer and facilitate the transaction. Persons must also be present to maintain stock and for security purposes.

Further, the only product/services available to a customer are usually those that are on-site. If the product/service is not available in a particular store, for example, then the customer must find a store where the product is available.

Paper catalogues and PC catalogue systems are available. As discussed above, however, they also have a number of disadvantages and do not store product on-site.

From yet a further aspect, the present invention provides a retailing system, comprising a host device arranged to co-ordinate the provision of goods/services (products), and a plurality of remote ordering devices for placing orders for goods/services and arranged to communicate information in relation to such orders to said host device, via a communications link, to enable the host device to carry out the co-ordination of the orders for goods/services.

The remote ordering devices may include devices such as described above in relation to the previous aspect of the invention, which may include a combined vending and remote ordering facility, by way of which a user can identify himself by means of a card or the like and carry out a transaction without a cash transfer being required. Remote ordering devices may include further different types of devices, however.

For example, the remote ordering devices may include a plurality of vending machines which are able to provide goods/services locally on site. The machines may provide a vending function only. The vending machines are preferably arranged to provide information on vending transactions to the host, via the communications means. The host may therefore also co-ordinate the vending machine transactions and, in particular, is able to determine when a vending machine needs further stock. The host is also preferably arranged to be able to communicate with re-stockist via the communication means to prompt the re-stockist to add further stock to the vending machine.

The vending machines may comprise vending/recycling machines as disclosed in applicants patent application number PCT/AU93/00416. In such a case the vending machine is preferably arranged to provide information on goods returned for recycling so that the host can co-ordinate transactions involving recycling.

The system may also include remote ordering devices of the following different types

1. An electronic ordering device comprising a personal computer based device, and an ordering means which runs on the PC and enables communication with the host and provides information on goods/services to be ordered.
2. An electronic ordering device may comprise a PC which has access to the Internet, and an ordering means is provided on the Internet in the form of a web page provided by a web server. The web page provides information on goods/services to be ordered and also enables communication with the host for the goods/services orders to be filled.
3. An electronic ordering device may comprise a dedicated ordering kiosk, including an

ordering means for communicating with the host or means for communicating with an appropriate web page on the Internet. Such ordering kiosks may be adapted to be placed in public places.

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The kiosks may include any or all of the aspects of the device described above or in the applicant's earlier application PCT/AU95/00154.

The ordering kiosks may also include means allowing return of articles to be recycled.

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As discussed above, the system is preferably arranged to allow for remote payment for goods/services. For example, an ordering kiosk or combined ordering kiosk/vending machine may include card reader means or the like enabling a user to swipe a credit card, bank card, etc. The ordering kiosk or host may have access to the users account to either debit it or at least confirm that the user has the ability to pay, before filling the order. Where a PC based electronic ordering device is used, the user may have a code or other means of identifying himself to be entered to the PC and the host may debit an account relating to the code, accordingly.

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The ordering means preferably includes a database which provides information on goods/services and may include any or all of the features of database provided on the electronic ordering systems of PCT/AU95/00154 and the device discussed above in the first aspect of the present invention.

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The ordering means preferably includes a number of features, including the following:

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A. The ability to identify a person or account entering an order, by means of an identification code or the like.

B. The ability to offer a person identified goods/services which either the ordering means or the host knows, from previous ordering events, that person or account usually orders.

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- 5 C. The ability to offer items/services which are compatible with the goods/services being ordered by the person/account. For example, where office consumables are being retailed, such as office printer cartridges, for example, the ordering arrangement may offer goods which are compatible with particular printer cartridge for possible purchase by the user/account.
- 10 D. The ordering means may be arranged to provide a reward for the recycling of articles.
- 15 E. The ability to determine and identify to the orderer/account the location of the nearest outlet or vending outlet stocking the goods/services. This enables the orderer to be able to go to the nearest vending machine and obtain the goods/services immediately.
- 20 F. The ordering means preferably provides a "virtual" supermarket which enables a user to move around in the virtual space and view and select goods/services available in the virtual space.
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The host software is preferably common for on-line ordering from the PC, ordering from kiosks, or ordering from an LAN, or ordering from vending machines.

30 The ordering means preferably provides a user interface which has the same "look and feel" for each of a plurality of the remote ordering devices in the system. The user interface preferably provides a "virtual" shopping environment, preferably including interactive means including interactive pictures of different product categories on the shelf, sales person for sales inquiries/information, virtual counter if a product returns/credits, virtual recycling bin, virtual service counter for help, cashier to pay, etc. Not all of these

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features would be provided for every remote ordering device. For example, where the remote ordering device comprises a PC accessing a web page, a recycling bin may not be provided, as there is no availability for the PC owner to deposit a product for recycling. It is possible that the virtual recycling bin may still operate, however, and a service provider would be arranged to go and pick up products for recycling from the customer location, as a separate action, in response to the user informing the software that he has products to recycle.

In a preferred embodiment, the ordering means is a software entity which includes objects and data. It can be run on any device with the appropriate processing power. For example, many of the features of the device in accordance with the first aspect of the invention may be provided by way of such an ordering means. Further, as discussed above the ordering means has the advantage that it can be run as a web page on the Internet, can be loaded to PC's in a LAN can be run on a home PC with a network connection, etc. As well as the features discussed above, the ordering means includes an ordering engine which facilitates placing of the remote order with the host.

The system of this aspect of the invention, therefore, preferably provides a total interactive retail selection and delivering system, which does not require permanent sales persons to be in attendance at the customer location. Further, any goods/services which are available on the system can be ordered from a single location.

The system in accordance with this aspect of the present invention can be area wide, country wide or even world wide, with transaction information being provided to one or more host devices in the network. This has the further advantage of the world wide network being able to obtain a great deal of information on transactions and customer preferences and collate that information at a single location.

The system also enables network wide marketing campaigns to be conducted, with advertising information, price information, etc., being or to be controlled from the host by the operator and downloaded to desired remote ordering/vending devices on an address by address basis.

Communication means between the host and the remote ordering devices and vending machines (where provided) may be any communication means. The communication may be by direct line, public telephone network (PSTN), cellular or other radio frequency network, high speed network connection, or a combination of these.

A preferred communication means is via the Internet. In this case an Internet service provider may serve as a communications hub between the host and the remote ordering devices, and also preferably between the host and any service/goods providers and re-stockist. Use of the Internet also enables the order means to be placed on the Internet via a web server and constantly updated by the host and accessed by the remote ordering means.

The host may be connected to the Internet service provider by the Internet or by ISDN or other higher speed network (which some service providers offer to enable down loading of large amounts of data).

The retailing system of the present invention can advantageously be provided over a worldwide network, utilising the Internet and like communication means. A single host, depending upon processing power, can control many remote ordering devices and vending machines and control many thousands of transactions over the system.

The host network is preferably arranged in a branching manner, with one master host and a number of regional hosts. For example there may be a master host in a capital city and a number of regional hosts in various states or if, worldwide, a master host in one country and regional hosts worldwide, with a drill down data capability. The master host would therefore have the ability to access all data. The system has the advantage that the master host will be able to access

user information for all users of the system. No matter which particular device a user orders from, therefore, the devices operation may be tailored to that particular user. Further, a host will be aware of all transactions which that particular user carries out.

Features and advantages of the present invention will become apparent from the following description of embodiments thereof, by way of example only, with reference to the accompanying drawings, in which:

10 Figure 1 is a schematic block diagram of a device and system in accordance with an embodiment of the present invention;

15 Figure 2 is a front elevation of a device in accordance with an embodiment of the present invention schematically indicating major hardware components;

 Figure 3 is a front view of a vending/electronic ordering device in accordance with an embodiment of the present invention;

 Figure 4 is a side view of the device of Figure 3;

20 Figure 5 is a flow chart illustrating example operation of a device in accordance with the present invention;

25 Figure 6 is a diagram illustrating one example of an arrangement for a product/service catalogue accessible by a device in accordance with the present invention;

 Figure 7 is a schematic block diagram illustrating functions of communication tasks of a device and host in accordance with an embodiment of the present invention;

30 Figure 8 is a schematic block diagram illustrating further operation of the system, comprising a remote ordering device and host;

 Figure 9 is a schematic block diagram illustrating content of a typical communication exchange between a remote ordering device and a host device;

35 Figures 10a to 10i are illustrations of examples screen representations of a display for various user interface events for a device in accordance with an embodiment of a present invention;

Figures 11a through 11g are illustrations of screen representations of the user interface for an example operation of the device in accordance with an embodiment of the present invention by a customer;

5 Figures ~~12a~~^{12a} through ~~12p~~^{12p} are a series of illustrations of screen representations for operation of a device in accordance with an embodiment of the present invention, for an example re-stocking operation;

10 Figures ~~13a~~^{13a} through ~~13m~~^{13p} are a series of illustrations of example screen representations for an embodiment of a device in accordance with the present invention, for illustration of a technician operation;

15 Figure ~~15~~¹⁶ is a schematic block diagram illustrating a automated retail system in accordance with an embodiment of the present invention; and

 Figure ~~16~~¹⁵ is a schematic block diagram of an ordering means in accordance with an embodiment of the present invention.

Referring to Figure 1, a "one stop shop" remote
20 ordering device 100 is illustrated schematically in block form. The device is arranged to enable a user to purchase a product which may be vended on site or which may be ordered from a host 101 to which the device 101 is connectable by a communications 102 (which may be a
25 telephone connection, for example, a dedicated line, or other type of network connection, such as the Internet), for later delivery. The device also enables the user to enter and purchase information (eg from a connection 105 to the Internet 106) and is operable without cash.
30 Instead the users credit may be checked by connection 104 to a bank network 103 (eg EFT). In figure 1 the device shown connected directly by a link 103 to the bank network 104. Alternatively, the bank network 104 may be accessed via the host 101.

35 Host 101 remote ordering device 100 together comprise a remote ordering/vending system.

The device may be positioned at any convenient location, in a store, an office, an office foyer, a

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factory, a shopping centre, on a street corner, for example, to enable multiple users access to the automated "one stop shop" facility offered by the device and system.

5 The remote ordering device 100 includes a control means 110, which comprises a computer for controlling local operation of the device. The computer includes appropriate software for controlling the device. The device 100 further comprises a card reader 111 for
10 identifying a user by means of magnetic card swipe; a data entry means 112, which may comprise any means for entering data, such as a keypad, audio interface for digitising voice, a printer 113; a video display 114 (which in this embodiment is a touch-screen and therefore
15 also operates as a data entry means 112); a database 115, which may contain product means, information, information on users etc., (in this embodiment the database 115 is in memory in the device 100, and will in fact be stored in the computers memory where the control means 110
20 comprises a computer, but the database 115 or part of the database, such as user information, for example, may be stored off-site, at the host device 101, for example, and the device 100 may have access for the database, with only an amount of the database that is required for
25 immediate use of the device 100 being maintained on site); a storage and dispensing means 116 for storing and dispensing product locally on site; a product identification means 117 arranged to identify an article so that a product associated with the article can be
30 determined. The article may be a bar code, magnetic card, an object, a returned product etc.; and a communications means 118 for interfacing with communications connection to the host 101, bank network 104, Internet 106 and any other required connection.

35 Other devices 200, 300, 400 may be connected in the system to the host 101. These devices may be the same and offer the same functions as the device 100 or may offer varying functions. For example they may offer

different types of products. One or more devices may not offer a vending facility, but will offer an electronic ordering facility. One or more may just offer a remote facility, without it being possible to order goods or other services.

Figure 2 is a front view of a device in accordance with figure 1, illustrating the hardware configuration. Preferably, the hardware comprises the following components, reference numerals included brackets indicate how the components relate to functional blocks of figure 1.

A magnetic card reader 210a (card reader 111) is provided for user identification. Note that a smart card reader or the like may be provided in the alternative or in addition to the card reader 210A. A VDU (visual display unit) 210 (display 114), is provided to provide information to the user relating to operation of the device. In the preferred embodiment, the colour monitor 210 has a touch-screen facility so that the data entry means 112 also comprises a touch-screen input. This facilitates interaction with the customer. A customised pin pad 208 and interface buttons 208a are also provided in the illustrated embodiment, but all the functionality of the pin pad 208 and button 208A may be replaced by the touch-screen 210 in other embodiments and the pin pad 208 and buttons 208a may be dispersed with.

Storage means are provided in the form of compartments 201 (116), each having a separately lockable door (116). It will be appreciated that the storage means could have many other configurations (see applicants earlier PCT application PCT/AU93/00416). In this embodiment each compartment 201 door includes a latch which is controllable by the control means 110 to release the door so that it can be opened so that a user can take a product stored therein or replace a returned product in the compartment and then shut the door. An appropriate mechanism for retaining and opening the doors is described in PCT/AU93/00416, and will not be described

any further here. Further, other types of storage means may be provided in compartments with doors, although these are the preferred storage means. For example, a product may be delivered by way of a chute (see earlier PCT application PCT/AU93/00416) from a stack of products.

5 The device also mounts a computer module 220 (control means 110). The computer module 220 is inside the cabinet and inaccessible to the user except via the user input means. Components of the computer module 220 are schematically illustrated. A person skilled in the art will be able to realise an appropriate configuration of the computer module 220 components from this description. Computer module 220 comprises an INTEL based "pentium" processor 221; a 33,300 baud external modem 222
15 (communication means 118) for communication with the host device 300; 420 to 2200 MB hard disc drive 223, 3.5 inch floppy diskette drive and CDROM 224 and 4 to 64 megabyte of RAM 225, constituting a memory for the computer 220. A sound card 226 for the reproduction of audio files is provided. A suitable audio means is provided to
20 reproduce sound including a speaker (not shown in the drawing). A video capability such as MPEG or quicktime for video images is also provided. An input and output controller card 227 is provided for receiving signals indicative of products being removed from and placed in
25 the compartments 201 (disclosure of detectors for detecting the opening of a compartment door and the placing of a product therein or removal of a product therefrom are disclosed in the above-mentioned PCT application, which is published and incorporated herein
30 by reference and no further description will be given herein). The input and output controller card 227 detects whether a product is returned or removed from a compartment and provides appropriate signals to the processor 221. A receipt printer 228 (221) is also
35 provided for printing user receipts.

The keypad 208, 208A, may be any convenient type of keypad which will enable a user to carry out operation

of the device in accordance with the following description. Generally, it will comprise numeric keys 0 to 9, scroll keys, to enable scrolling of a display appearing on the screen 210 and selection keys 208A to make a selection of a particular item appearing on the screen next to the particular key 208A. As discussed above, where a touch-screen interface is provided, as it is in the preferred embodiment, some keys may not be necessary or the keyboard may even be dispensed with entirely.

A bar code scanner 229 is also provided for scanning bar codes to identify products, (product identification means 117).

Figures 3 and 4 illustrate a further embodiment of a device in accordance with the present invention. The device of figures 3 and 4 is similar in many respects to the device of figure 2 and the same reference numerals are used for similar components. No further description will be made of those components. Note that the internal hardware of the device of figures 3 and 4 is not illustrated, as it is in figure 2 (e.g., computer module 220). Such internal hardware is the same as in figure 2. Storage compartments 201 (storage means 116) of the embodiment of figures 3 and 4 are modular in construction and the internal storage space provided by the device of figures 3 and 4 can be modified by appropriate arrangement of a modular construction. In particular, the storage spaces can be divided up by partitions 152 to vary their size. For example, compartment 150a is half the size of compartment 150b because of the existence of partition 152. The control means 110 is arranged to control the opening of the doors to 201 depending upon the size of the associated storage space. For example, to obtain the product in 150a only one door need to be opened, but two doors need to be opened for space 150b. The storage space is therefore adjustable by means of the removal and addition of partitions 152 and reconfiguring of the control means 110 so that it knows which doors to

open for which storage spaces. It will be appreciated by a skilled person that the configuration of the control means 110 to operate the door mechanisms can be by appropriate software.

5 The embodiment of figures 3 and 4 also comprises an alternative means for storage to compartments 201. The storage means 155 in the form of a storage chute 155a and dispensing slot 155b may store products in the form of a stack. CD ROMS or other stackable products may be
10 provided. A dispensing means, slot 155b is controlled by the control means 110 to dispense products a unit at a time.

 With the modular construction of this arrangement, more storage space may be added to the device. For
15 example, a further storage unit including a plurality of storage spaces 201 may be attached to the device of figures 3 and 4, with appropriate electrical connections for controlling the door mechanisms of the additional unit and appropriate software configuration of the
20 control means 110. It will be appreciated that many alternative configurations of the device may therefore be provided, some with many storage compartments, some with few.

 It will be appreciated that much of the control of
25 the device will be implemented in software, for control of operation of the hardware of the device in accordance with this embodiment. A detailed description of the software configuration is not necessary. The functionality of this device may be software implemented
30 in any number of ways, using standard software tools available to the skilled software engineer. This description describes functional requirements for the device, presents some examples of operation as may be seen by users of the device. This description is
35 sufficient to enable a skilled person to implement appropriate software.

 A user interface software module controls the various hardware interface devices, such as display 114

(including touch-screen) to enable interaction with a user of the device. In a preferred embodiment, the user interface provides a graphical user interface, which is preferably arranged to allow the display of text, graphics (animated and static), audio and video. Examples of the type of displays which will be seen by the user are given later on in this description, with reference to others of the figures. Any variations are, of course, possible, within the functional requirements of the device.

Examples will also be given of the types of graphical user interface which may be provided to a technician and re-stockist.

Referring again to Figure 1, a brief overview of operation of the device will now be given. Under control of the software, the control means 110 monitors the data entry means 112 and operates the display 114, to offer products to a user and receive input orders from the user. The control means accesses the network 103 to obtain credit information (although, as discussed above, credit information may be obtained from the host or stored on board the device) and if the credit of the user is good, control means 110 will control the ordering of the product from the host 101 (if the product is not available on-site), will control a storage and dispensing means 116 to dispense the product (if the product is stored on-site), or will control the connection to the Internet 106 (if the product is information available on the Internet).

As discussed above, the need to remotely check the credit of a user may be negated by the user carrying a smart card or the like which contains credit account on the card itself. In this case the device is arranged to download credit from the account on the card or, if, for example, a credit is being provided to the user, to upload credit to the card.

The device 100, is arranged to provide the operations discussed in the preamble of the

specification.

All transaction information may be downloaded to the host 101 so that the service provider can keep track of all transactions, virtually, if not absolutely, in real time, and use this information for marketing/sales/accounting.

Information obtained from user operation of the device 100 is processed by the host 101 and is used to deliver goods to the user (users address), or on next operation of the device, present him with a menu of products relating to the products he usually purchases (product info). The information can be used to make the device "intelligently reactive". A user database may be stored locally in the device 100 in the database 115 or, or may be provided at the host 101 and the device 100 has access to the user database via the communication means 118. The control means 110 is arranged to control operation of the device in accordance with information from the user database. For example, the operation may become more "personalised" towards a particular customer and his requirements. It may "greet" the customer by a message on the display 114, and prompt him with office of product/services which, from the customer database, the device "knows" as the customer usually order. The device may also "fast track" ordering for the particular customer.

The device 100 may also be arranged to provide a "reward" to predetermined customers. For example, where a customer has used the device (or other devices in the system) for a predetermined number of times, they may receive a reward, such as a price reduction from a purchase or an additional product.

A product identification means 117 enables identification of a product where the user is not sure exactly which product he requires. For example, with complex office consumables, such as toner cartridges, the person making the order may be an employee who is not sure exactly what type of toner cartridge is required.

In such a case, he is provided with an object which enables the device 100 to identify the product. The object may be a bar code, which could be mounted on the old used product, mounted separately on a card; it could
5 be a magnetic card storing information on the product in the magnetic strip; it could be a picture of the product. Where the object is a bar code, the product identification means 117 is a bar code reader. The user scans the bar code in front of the bar code reader and
10 the device automatically identifies the product required and either orders it remotely via the host 101 or (if the product is available on site, dispenses it from the storage and dispensing means 116). As another feature, the device is also arranged during operation to prompt
15 the user to purchase products which are related to products which the user has already requested. For example, where the user orders an ink-jet cartridge, the device may prompt an order of associated paper/film. That is, the display would say something like "would you
20 like the compatible paper/film to go with this ink-jet cartridge". Further, alternative brands of products which the user has order but which are not available on the system, may be offered.

The system comprising the device 100 and host 101 is
25 also arranged to keep track of shelf-life of products stored in the device 100. The time any particular product has been stored in the device 100 may be calculated. Where any product is found to be on or past its "used by" date it can be replaced by a stockist
30 before being purchased by a consumer. A stocked product database is maintained, preferably at the host device 101. Alternatively, a stock product database for local product may be stored on the database 115. The database retains information on the shelf-life of each particular
35 product which is stocked. It is updated as the device 100 is re-stocked. The host 101 is arranged to maintain a database which includes information on products stocked at all devices 100, 200, 300, 400 in the retailing

system. Each device, 100, 200, 300, 400 is identified to the host by a unique address. The host 101 is therefore able to, with access to the product database, to identify the location of a particular product. Where a user requires a product and the product is not available at the device 100, but may be available at other devices in the vicinity of the device 100, then the device 100 is arranged to make an inquiry of the host 101 for the location of the desired product. Once the location has been established and the host 101 has informed the device 100 of the location, the device 100 informs the user.

An example of operation of the device will now be described generally with reference to figure 5. More detailed operation will be described subsequently.

The control means 110 is adapted to control the display means 114 to produce a number of screens, depending upon user operation of the device 100. As an initial step, an "introduction screen" 801 is displayed by display means 114. The introduction screen may give information to the user as to how to access the device, e.g., where to place his identification means in order to proceed with a transaction.

After reviewing the introduction screen 801, the user proceeds to step 802 and inserts his magnetic card into card reader 210A, to enable the device to identify him.

After the user has been identified 803, the control means 110 controls the display to display a "main menu" 804. This may comprise a single screen or, alternatively, a number of screens through which the user may scroll, providing the user with a number of choices of goods/services available for order, and may indicate whether goods are "on-site" in storage locations 201 or only available from remote site. Alternatively, this indication may not be given until later on in operation of the device. The display means may provide high definition graphical images of catalogue products (depending on software).

In the next step 805, the user selects the product he requires (either goods/services or both) by actuation of the input means 112 (which is a touch-screen in the preferred embodiment). Control means makes a
5 determination as to whether the product is available locally or remotely, step 806.

If the product is available locally, in the next step 807 the product is dispensed from one of the storage locations 201, the control unit operating a latch
10 mechanism to the particular storage location 201 to enable the user to open the specified door. The user then takes the product. A suitable latch mechanism and configuration of the storage location is described in the earlier PCT application referred to above
15 (PCT/AU93/00416).

The preferred embodiment incorporates a recycling function as well as a vending function (see earlier PCT application). It enables the user to recycle complex items, such as toner cartridges for laser printers, etc.
20 Step 808 enables a user to return a used product to an appropriate storage location 201 for recycling. Damaged and unwanted goods may also be returned. This option need not be included, but is preferred. At step 809, a receipt is printed and provided through slot 228 to the
25 user. The receipt gives details of the user transaction for his information.

If the result of the decision at step 806 is that a product is not available locally, at step 810 the display requires the user to indicate whether his order is
30 confirmed. If the order is confirmed the control unit requests the order from the host device by way of communications link 102, at step 811.

At step 812 receipt is printed for the user through slot 211, giving details of the delivery.

35 Details of user account transactions are periodically up-loaded to the host device 101 via the communications link 102 (step 813) to assist in administration of the system (814).

Control means 110 is also arranged to determine whether a product which is usually locally vended is in stock, by determining contents of the storage means 201 and/or using details from previous transactions.

5 In a preferred embodiment, computer diskettes may be vended from storage means 201. Storage means 201 may be in chute form, i.e., a stack of diskettes being stacked in the chute and individually dispensed (see embodiment of Figures 3 and 4). Any other arrangement may be used.

10 Figure 6 illustrates a portion of an example catalogue database stored in the memory of the remote ordering device. Note that the database need not be stored on board the device in memory, but could be accessed on line. The database may be accessed via the
15 Internet and be available as a web page on the Internet, for example. The database may be part of an ordering means (see later) which includes an ordering engine to place orders and the database so that the user can select orders. Such an ordering means may be available over a
20 network, such as the Internet or may be available on the device. Where the database is available as a web page, the host 101 controls the web server and maintains the database. As another alternative, the database may be available at the host 101 and be available on line 102 of
25 the device 100. In this embodiment, however, the database is stored on the device. This database is organised in a hierarchical branching structure. The representation shown in Figure 6 gives an idea of how the database information will appear on the display 114 when
30 accessed by a user. The information in the left hand columns is more generic and more detailed information is provided as one passes to the right in the diagram. Following login 900, the user will be invited to select from a menu of generic items with the heads indicated in
35 the left hand column of Figure 6. The user may, for example, select the "electronic product catalogue" 901 by appropriate actuation of the user interface buttons 208A (or touch-screen, where provided). A display of the next.

limb in the "tree" will then appear, giving a list of items which fall within the electronic product catalogue 901. The examples given in Figure 7 are "laser printer and fax supplies" 902, "ink-jet printer supplies" 903, 5 "other office supplies" 904 and "lunch orders" 905. Any number of items may be included in the electronic product catalogue 901. If there is not room to display the menu showing all the items on the screen 210, scroll keys 208 may be actuated by the user to scroll the screen up or 10 down to view other menu items.

A particular user may "know" a particular product he requires in a number of ways. For example he may know of the product by type (i.e. what type of laser printer it fits) or he may know it by brand name. The 15 database enables the user to select a particular product using his knowledge. For example, he may select by type 906 or by brand 907. If he selects by brand 907, for example, a display showing a series of brands of laser printers 902, ink-jet printer supplies 903, etc, will 20 appear. From this menu 907 he can then select a particular brand. The products available by brand will then appear on the screen 908 through 913. He can then select a particular product and proceed to the purchase transaction screen 914 into which he will enter details 25 such as the number of products he requires. The information, together with the identity of the user (and any other information which may be required by the service provider) will then be loaded into a transaction file "see later" for communication to the host device 30 101.

Where a user is uncertain of the product he requires, he may utilise the product identification means 117, as discussed above.

The catalogue database may include information 35 on any number of products/services which are available for purchase.

For example, an electronic information catalogue 915 is also provided, for the provision of services at

the device 150. Services may include educational services, "lessons" 916, weather reports, "weather" 917 and "news," 918. Selection of one of these items may then prompt the appearance on the display of a menu giving many sub-items. For example, "weather" 917 selection may allow options of "Sydney weather" 918 or "national weather" 919. Selection of "news" 920 may give options of "Sydney news" 921, "National news" 922 and "International news" 923.

10 The memory of the device stores various service files corresponding to the service menu items available. Each service file includes data for driving the device to provide the particular service. The data may be in the form of information to be produced on the display, giving a rundown of the Sydney weather, for example, may be in the form of an audio file to be reproduced audibly (e.g. verbal information giving a rundown of the Sydney weather) or may be in the form of a video file to provide visual service information. As discussed later, service files can be updated from the host device 300.

15 As an alternative, or in addition, services may be obtained on-line from a separate service provider, such as the Internet (105, 106), so that various web pages can be accessed from the device. In this case it would not be necessary to provide files in a database in the device, but merely to have the facility to download from the Internet.

25 In accordance with the invention discussed in PCT application No. PCT/AU93/00416, a "machine cartridge store/exchange" 924 function is also provided and this is also prompted by the same menu. Menu sub-items for this generic head include, for example, types of toner cartridge to be exchanged or purchased, 925 through 927. Following selection of a particular cartridge, information for a return and/or a purchase transaction is prompted 928 on the display.

35 Once a transaction has occurred at the device, the host must be informed of details of the transaction so

that the product can be provided (if it has not already been provided locally) and so that the user account information can be updated. The system must also enable a series of "house keeping" operations. For example, service files must be updated to ensure that the services are up-to-date. For example, "Sydney weather" 918 will need to be updated at regular intervals. Further, account information on the user database 115 must also be updated at regular intervals depending upon purchase information and provision of monies by the user to the service provider. Note that where the user database is maintained at a different location, e.g., at the host 101, an appropriate update of the user database 115 at the host will take place, rather than at the device. The update will be on the basis of transaction information and input user information. It will also be necessary at times for the catalogue database to be updated to reflect availability of product/addition of new products/price changes for products. User information may also be updated, as to what products a user buys, what his personal details are (if they had changed or if it is a new user) etc.

As discussed above, the behaviour of the device may be modified depending upon a particular user. Modified operation parameters and instructions can be downloaded from the host to the local device.

These requirements are satisfied by data communication between each electronic device and the host device 101.

This ability to control the operation of the device 100 on the remote host location 101, and the fact that each device 100, 200, 300, 400 in a system is identified by a unique address, facilitates a number of advanced operational features of the system:

A. The ability to change the information that is presented to consumers who use the device. In a preferred embodiment, pricing information for pricing of products is controlled from the host

device 101. An operator of the host 101 can prepare a master file containing product and price information and download the updated information to all devices or to a selected group of devices, identifying the devices by address. Further, the prices may vary from user to user, based on updated user information controlled from the host 101. The user who frequently buys a particular product, therefore, may be offered a different, discounted price, from a user who only infrequently buys that particular product or only infrequently uses the system. Different pricing information would be presented to the different users.

15 B. Advertising and Promotion. A host 101 enables an authorised operator to download advertising information and promotional offers display and presentation to users of the devices in the system. Again, different advertising information and promotional information can be downloaded to different geographical areas, by device address. Advertising and promotional communications can be by way of multi-media, including audio, video, etc. The pricing, advertising and promotional information can be specific to the needs of consumers of the device based on selection criteria which may include their geographic location or their language, as well as purchasing habits.

25 C. Operation of devices in a system can be varied depending upon selection criteria for the particular devices, which includes the selection of criteria discussed above. Other selection criteria include sales performance of a particular device. For example, devices in particular geographic locations may sell more of one particular product than another. This information can be used to vary the products

being sold at the device or offered for sale of the device or offered for sale on the electronic catalogue.

5 Each device in the system can therefore be controlled independently by the host 101 and different information for control of the device can be downloaded.

10 D. The advertising information downloaded to devices may include "branding messages" for the products sold by the device. Because of the nature of the user interface and the fact that different communications can be presented at different times to users, then different brand owners can have their brands promoted at
15 different times, by way of the same device. Brands of products which are stocked on-site can be promoted by way of the user interface and/or brands of products which are available by way of the electronic catalogue.

20 E. Arrangement of the system enables different retailers to be able to use the same device. This is something that is not facilitated and does not occur in the prior art. The vending devices in the prior art are normally controlled
25 by a single retailer. Because of the ability to update control information from the host 101, however, and to separately log transaction information, more than one retailer can use the same device.

30 The above arrangements enable the conduct of organised marketing campaigns by way of the system. Because of the ability to address the devices separately, the marketing campaigns can be based on selection criteria as discussed above, such as geographical
35 location, sales information, use of preferences, etc. Advertising and promotional campaigns can be conducted at the same time as a major television marketing campaign, for example, and can be targeted by geographical

location, country, language, etc.

Figure 7 is a schematic block diagram illustrating the operation of the system from the point of view of the host.

5 As transactions occur, each device stores transaction information (identity of the user, number and type of products required, and any other information that the system deems necessary, as may be determined by the operator) in a transaction file. The transaction file
10 will include details of all transactions occurring at the electronic catalogue device during a predetermined time period. At predetermined time intervals (for example 0600 hours, 1100 hours, 1500 hours, 2200 hours) the device dials up the host device via the modem and uploads
15 the transaction file including information on all transactions. Note that, where there are a plurality of remote ordering devices serviced by a single host device, the dialling times for each respective device need to be staggered so that only one device is communicating with
20 the host at any one time.

At 101, therefore, the electronic catalogue device dials the host. At 102, the host answers and then directs various communication tasks. These communication tasks include the following:

25 1. The host may ask the electronic catalogue device to upload transaction files. It may also ask for upload of an inventory file, which gives details of any stock remaining at the location of the electronic catalogue device (e.g. printer cartridges in compartments - see
30 above-referenced PCT application). Any other file may also be requested. For example if the host wishes to check user details, it may request a particular user file (where the user database is maintained at the host, the host will update the user database on the basis of
35 information received from the device regarding identity of use, user information input to the device and transaction information). Such requests may be done at the prompting of the operator.

2. It may direct downloading of any file. For example, if the operator wishes to update a particular service file it may download a new service file to replace the service file at the electronic catalogue device. Similarly, it may download files for updating the catalogue database 4 with regard to products, prices, etc.

3. It may cause the electronic catalogue device to empty a file. For example, it is preferred that the transaction file be cleared at the end of each day (note that the transaction file is not cleared during every communication. For security reasons, it is considered advantageous to have the transaction file remain in the memory of the catalogue device to at least the end of the day).

4. It will terminate the communication.

All data that is to be transferred is compressed and encrypted (see later).

The host prepares files for downloading 104. As discussed above, services files, user files, catalogue database, and any other files which may be provided on the electronic catalogue device 101 require updating from time to time. This is done at the host end. A host may prepare files from any number of sources of information 105. The information may be input by operation of a user interface (e.g. keyboard, mouse, etc) by an operator. For example, a service file may be updated by entering data by way of a keyboard. Alternatively, an audio file may be entered, a visual file, etc. Entering of data may be done at any convenient time. The host may also update data automatically.

The host also examines the contents of any unloaded files (e.g. transaction files) 106. On receipt of a transaction file, the host identifies the user and the type of transaction required and prompts the service infrastructure to deliver the product and issue an appropriate debit note (where EFT or the like connection is available, a debit note may not be necessary). The

host will also examine the contents of any other files, will print relevant reports (monthly, stock low at location of electronic catalogue device, etc.) 107. Any operation of the host device which is appropriate for the services provided can be implemented, as will be realised by a skilled person.

Automatic accounting is a possibility 108 and the host may notify the accountant on his computer screen of the remote ordering device status and what action is required. At night the host prints daily transactions and directs the remote ordering device to clear the transaction file 109.

Figure 8 is a schematic block diagram which illustrates further operation of the system, in particular in relation to the servicing and provision of items which are available locally at the remote ordering device location.

The remote ordering device is arranged to communicate with the host automatically when stock of a particular item on site is low. How low the stock has to be before communication with the host 101 occurs is a matter of choice of the operator. As described previously, the host will answer and direct the device to perform various communication tasks 152. For this particular operation, the host will request an inventory and may also request uploading of the transaction file, in order to determine what stock is low and requires replacing and/or what recyclable items have been deposited and require collection. All data that is to be transferred is compressed and encrypted 153. The host examines the contents of the uploaded files 154 and prints a low stock alert report 155. A number of operations may then occur.

An automatic link is made to the accounting system to perform a stock transfer 156 (alternatively, the link may be manual, in the sense that the host alerts the accountant to the fact that a stock transfer is required).

A re-stockist technician is notified to go and re-stock the device 157. Again this may occur automatically or "manually", depending upon the service infrastructure.

5 A re-stockists weekly service schedule is updated 158. Where there are many remote ordering devices being serviced, it is advantageous that a technician who is to be re-stock the device and collect articles for recycling is provided with an appropriate schedule for servicing
10 the various devices. Provision may be made for the host to automatically plan the schedule.

The host notifies the accountant on his computer screen of the device LOW STOCK status 159. The accountant then takes appropriate action.

15 Stock "use-by" dates are also monitored in this way and where stock is nearing the end of its use-by date a re-stocking technician is advised to replace it.

Figure 9 shows a preferred format for messages containing data being transferred between the host device
20 101 and the remote ordering device. All messages are prepared by PKZIP protocol and are compressed and encrypted for security.

The transferred information comprises a "message" 180 followed by data 181. The message includes a header
25 182, which identifies 183 the particular host device (note that a large system may have more than one host device at more than one service centre), an electronic catalogue device identification name 182, gives an indication of the length of message 183 and identifies
30 the particular communication task 184 (i.e. upload files, download files, etc.). That is then followed by a file name 185 which indicates the name of the file to be transferred 186. The header 182 is then followed by data 187 in compressed and encrypted form 188 to be
35 transferred.

The following two examples are examples of transactions which might be made via the electronic catalogue device. The first transaction is a remote

transaction and the second transaction occurs locally.

Main Milestones of a transaction (eg to purchase a chair)

1. User logs in.

5 The customer swipes their card, enters their secret pin code and gains access to the system.

2. User selects the electronic product catalogue option.

3. User selects the correct category (e.g. Office furniture)

10 4. User select the chairs sub-category

5. User selects the chair with a high back.

6. User adjusts the quantity required and confirms the purchase is to proceed.

15 7. The computer registers this order on the hard disk and also on the floppy diskette, and prints a receipt.

Later on the device will send these transactions to the host control system by modem.

20 The host will automatically link to the company's accounting system which will automatically generate an invoice (which may not be required where there is an EFT system) and packing slip on the Warehouse Manager's printer.

25 The Warehouse Manager will then know what materials are to be transferred to the re-stockist technician for re-stocking (an SX cartridge from our example below), and what materials are to be dispatched by courier (a chair from our example above).

30 Main milestones of a transaction (eg to purchase and return an SX cartridge)

1. User logs in.

The customer swipes their card, enters their secret pin code and gains access to the system.

35 2. User selects the option to purchase a cartridge and return a used cartridge.

3. User selects the SX cartridge option.

4. User selects to purchase/return a cartridge.

5. The door opens and the user places the used

cartridge in the compartment.

6. The user closes the door.

7. The door opens and the user removes a new cartridge from the compartment.

5 8. The user closes the door and the device prints a receipt.

 The device may be provided with an EFTPOS facility. Where a K71 interface to the banking system is provided. A user will input his credit details and this will be
10 processed by the banking system via the K71. The K71 will then signal the electronic catalogue device that the consumer has or has not got credit. The K71 signals may actuate storage locations, i.e. to open a door if locally available product is required.

15 The banking system debits the user's account, as for standard EFTPOS transactions, and the service provider provided with appropriate monies by the banking system.

 In a local transaction, when the electronic catalogue device dispenses an article, the time at which
20 the article is dispensed is preferably recorded and the identity of the user receiving the article is recorded. Similarly, when an article is returned or deposited, the user and time is also recorded.

 Figures 10 through 13 give examples of displays
25 which may be provided by the display means 114 during operation of the device 100. These displays are examples only. A skilled person will realise that many variations on the displays are available. The display means 114 of these examples offers a graphical user interface by way
30 of a touch-screen. The user actuates separation of the device by touching areas of the machine designated by the display appearing at any particular time.

 Figure 10 gives some examples of display screens of the display means 114 for customer operation. The
35 displays are generally self explanatory and will be only briefly described in the following.

 If the machine is not being used, an animated attract loop (figure 10a) will appear which will invite

passers by to touch the screen. This animated attract loop may include advertising and promotional information of particular product providers.

When the screen is touched by a user, the basic operation screen (figure 10b) is generated. This provides a manual list which provides "touch buttons" which are used to commence operation of the machine. As illustrated, the touch buttons include a "HOW TO USE" button, which when touched initiates the device 100 to play a introductory video, for example, having instructions on how to use the machine. It also includes a "WHAT'S IN THE MACHINE?" button which, when touched, causes the display to provide a screen giving information on products which are available to be vended at the machine (figure 10d). The "WHAT'S IN THE CATALOGUE" button leads to a similar screen for catalogue items which are available for remote ordering (figure 10e).

Other buttons may be included. A "TURN VOICE ON/OFF" button and "TOP SELLING LIST" button are illustrated and their operation is self explanatory. In addition, a "faster way to order" block is included which informs a user that to order a product quickly he may swipe a bar code which is provided on an old product. If explanation of how to do this is required, the customer presses the "PLEASE EXPLAIN" button.

The screens illustrated in figure 10 are as follows:

Figure 10c. This follows a "PLEASE EXPLAIN" button operation for explaining a fast way to order a product. It also includes buttons which may provide other screens.

Figure 10d. As explained above, this displays a list of items which are available for vending from the device 100. The buttons are also provided to move through the system. Electing an item causes the display to move screen figure 10f, which allows quantity of product to be input, via the virtual keyboard illustrated on 10f.

Screen 10e is similar to screen 12d but instead of displaying items in the machine, it displays items

available in the catalogue (catalogue database) which are available for remote ordering. The screen is operated in a similar way to screen 12d. As discussed above, the electronic catalogue may be in the form of a benching structure. Earlier screens may include generic names of items, i.e., "printer cartridge" and later screens may include more specific selection criteria, such as type of printer cartridge. When a generic name for an item is touched a further screen with more specific names will be displayed.

Figure 10g shows a screen which allows products to be chosen by a user (in this case printer cartridges) depending upon the device they are compatible with, i.e., in this case a printer.

Figure 10i shows a screen which appears once the printer has been selected and includes a list of cartridges which are compatible with a particular printer.

Figure 10h indicates a screen for inputting the years to continue buying product.

Figure 11 illustrates example displays for example operation of the system by a customer.

The customer is attempting to finish an assignment and their printer runs out of ink. The customer knows that there is a remote ordering device at a particular location. It is late at night and all conventional stores are closed.

After pressing the initial introductory screen, the screen of figure 11a appears. This customer has used the machine before and therefore does not need to hit the "HOW TO USE" button. This customer requires the product immediately, and therefore actuates the "WHAT'S IN THE MACHINE" button, and the screen of figure 10b appears. Figure 13c is a detailed illustration of the hot line, or title row of the display of figure 10b.

The customer requires a particular printer cartridge which is listed under the "take now" when (so that it is available at the machine). The customer hits the item

name (or alternatively their may be a picture of the item in the column which the customer will touch). Screen 10d appears and the customer is requested to type in the quantity of this particular printer cartridge which is required.

The customer orders one cartridge of this type. Screen 10e then appears which shows a picture of the cartridge the customer has selected and a list of the printers the cartridge will fit. The customer realises that their printer is not on this list and therefore realises they have chosen the wrong cartridge. The customer then actuates the button "MY PRINTER IS NOT ON LIST". The machine then offers the choice to "re-select" or "review a list of printers".

The customer selects the "REVIEW A LIST OF PRINTERS" option and is presented with a list of printers (figure 10f). The customer identifies their printer and figure 10g appears, which a list of compatible products for that printer. The customer then selects the particular product which will run on their printer.

It will be appreciated that many other scenario's are available and the software can be arranged to deal with all scenario's.

Figure 11¹² illustrates a series of screens for a re-stockist scenario, where a technician is re-stocking the machine. The screens are self explanatory and no further description will be given. Further, this is an example of operation only, and other screens may be included depending upon what requirements are for re-stocking. Figure 13 is a similar series of screens for a technician service operation, for servicing a device.

Figure 14 illustrates a novel retailing system which can incorporate devices as described above, as well as other devices, such as PC's, in an area, nationwide or country wide retailing network.

The system illustrated in figure 14 comprises a host computer 1 and a plurality of remote ordering devices 2,



3 and 4. By using the remote ordering devices 2, 3 and 4, a user is able order goods/services from goods/services providers 6, 7.

5 Goods/services providers 6 may be any supplier of any goods/services e.g., office consumables, food, drink, and generally anything that may be purchased or provided.

The host 1 is arranged to co-ordinate the processing and delivery of orders, and is also arranged to process transactions, e.g., records of payment for orders, etc.

10 In the preferred embodiment, all communications and orders from the remote ordering devices 2, 3, 4 are routed via the communications medium 10, 7 via the host 1 to the goods/service providers 6. In other embodiments, however, orders from the devices 2, 3, 4 may be routed

15 via communications 10, 7 directly through to the providers 6, but information on the transaction will still be sent to the host 1 so that the host 1 can co-ordinate transactions, deal with payments to the service providers and other users, etc. The host 1 may

20 include all features described above in relation to the previous embodiments. The remote ordering devices 2 may include remote ordering devices 100 as described above, having any or all of the features as described above.

The system also includes vending machines 11 able to

25 communicate to the host by communications means 10, 7. The vending machines stock goods/services on site locally. A user can obtain the goods from the vending machine. The host will be advised of stock in the goods and can communicate with re-stockist 12 who can attend

30 the vending machines 11 and re-stock. The vending machines may not include a remote ordering facility, but only a vending facility.

Note that service provider 6, 7 may also include independent Internet service providers who can provide

35 access to the Internet for obtaining information services from the Internet, by devices 2, 3, 4.

The vending machines may comprise vending/recycling machines as disclosed in applicant patent application

number PCT/AU93/00416. In such a case the machine is arranged to provide information on goods returned for recycling so that the host can coordinate transactions involving recycling. The system may also include remote
5 ordering devices of the following different types.

1. An electronic ordering device comprising a personal computer based device, and an ordering means which runs on the PC and enables communication with the host and provides
10 information on goods/services to be ordered.
2. An electronic ordering device may comprise a PC which has access to the Internet, and an ordering means as provided on the Internet in the form of a web page provided by a web server.
15 The web page provides information on goods/services to be ordered and also enables communication with the host for the goods/service orders to be filled.
3. An electronic ordering device may comprise a
20 dedicated ordering kiosk (such as described above in relation to the previous embodiments) including an ordering means for communicating with the host or means for communicating with an appropriate web page on the Internet. Such
25 ordering kiosks may be adapted to be placed in public places.

In one embodiment, as described above, the ordering means comprises a combination of software and hardware which includes a product database and communication means
30 for communicating orders from the remote ordering device to the host device. Parts of the ordering means may be provided on the remote ordering device and other elements at the host device. It is common, for example, in some cases the product database may be provided actually in
35 memory at the remote ordering device and in other cases it may be provided by on line access to the host, the product database being stored in the host memory. Alternatively, the entire product database may be made up

by a mixture of the database at the device and the database at the host.

Alternatively, the ordering means may be a separate entity which is available for access on the network. For example, it may be provided at the host by on-line communications, or it may be provided as a web page on the Internet to enable access by standard PC's, local area networks, devices such as described above which do not include an on-board ordering means, etc.

It will be appreciated that much of a ordering means can be implemented by appropriate software controlling the hardware involved. An appropriate architecture is illustrated in figure 15. The ordering means comprises a user interface, which enables a user to review the product database 51 and also enter product orders. The user interface may be similar to the user interface described in the above-example in relation to the proceeding embodiment of this invention. An ordering engine 52 operates to remotely order desired products from the host (or where information from the Internet is provided, by the Internet). A user database 53 is also provided which includes user information and which can be accessed to vary operation of a user interface 50, as discussed above in relation to the proceeding embodiment.

The ordering means allows placement of orders and also allows the user to move through the database 53 and identify goods/services required.

In a preferred embodiment, the user interface may present a "virtual supermarket" to reactive interface to the user. This virtual shopping environment preferably includes interactive means including interactive pictures of different product categories on a "virtual shelf" a "virtual salesperson" for sales inquiries/information, a "virtual counter", etc. The user may move through the virtual supermarket, to identify and order products from the database.

Many or all of the remote ordering devices 2, 3, 4 in the retail system may have access to the same type of

ordering means. In particular, many of the devices may have access to the same user interface or the same user interface may be provided on the devices, so that the same "look and feel" is provided to users of the system, whether they are accessing via a conventional PC 3, via a kiosk 2 or a kiosk/vending machine/recycling machine 4.

The user may identify himself to the retailing system by way of a card-swipe the smart card or the like, as discussed in relation to the previous embodiment or by code number or the like password (which would be most convenient where the user is accessing via a standard PC 3). The users database is maintained, as discussed above.

The ordering means also provides a facility which identifies the nearest location of a product/service required by a user. For example, the user may require the product/service immediately and if it is available from a vending machine he may be directed to the nearest vending machine where it is in stock.

The ordering means is updated from the host 1 from time to time in response to transactions, availability of products/services, etc, marketing information.

The communications 10 between the components of the system may be any type and combination of available communications. In fact, it is envisaged that any system would usually utilise different communications pathways.

One method of communications is connection via independent Internet service providers 7. A single host may be connected to more than one independent service provider and through them to the ordering devices 2, 3, 4, vending machines, 11, re-stockists 12 and goods/services providers 6. The Internet provides an extremely convenient method of communication. Note that where the host is connected to the Internet a fire wall 20 is provided. Note also that a backup host 1a (in case the host 1 falls over) also has a fire wall 20. Note that the host may also be connected to the service provider 7 via ISDN, as is provided by some Internet

service providers.

There also exists the possibility of direct connection of remote ordering devices 2, 3, 4 and vending machine 11 to the host 1. Similarly, re-stockist 12, goods/services providers 6 may also be directly connected. Direct connection may include ISDN, PSTN or cellular or other radio frequency connection. Direct connection may be particularly desirable where a secure connection is required.

Local area network 21 including PC's having access to an ordering engine may also be in communication with the host. Again the communication may be direct or may be via the Internet via a fire wall 20. Such a connection to the host may be important where secure networks wish to connect in to order goods/services. The remote ordering devices take a number of forms:

Stand-alone remote ordering kiosks. These are in the nature of kiosks adapted to stand in a public place, an office foyer, or the like from which remote ordering can take place. Examples of such kiosks are given in the applicant's earlier applications.

An alternative remote ordering device includes a conventional PC 3 which may have access to the ordering engine to order goods/services via the host.

Yet a further device is combined vending machine/ordering kiosk which may, for example, be mounted in a public place. Such a device is described above.

A number of the devices in the system are also connected to the EFT 30 to enable automatic payment of transaction, for example, by user card. These include the order kiosks 2 and the vending machines 11. The host 1 is also connected to the EFT and may be used for automatic payment from the PC based ordering devices 3.

The arrangement thus provides a network retailed system which can be accessed by convenient remote ordering devices, such as even a PC at home, and which provides for the provision of goods/services without it being necessary for a user to attend a conventional

retail shop. The system can be used in an organised marketing campaign, as described above in relation to the previous embodiments. Where an ordering means as described above is applied, the user interface can be
5 updated and used for promotional and advertising information which can be designed specifically in response to sales information, geographical location, etc.

For security, the majority of communications will be
10 encrypted. Delivery from a goods/services provider will preferably be as soon as possible, and desirably with at least within 24 hours.

A bill paying capability may also exist for the remote ordering devices, whereby the user may be able to
15 pay his bills, e.g. Telstra bills, directly by swiping his card on an ordering kiosk or vending machine/ordering kiosk, e.g. entering bill details and having his account debited accordingly. Similarly, credit card bills could be paid in that manner. Further, bills for products
20 purchased via the system may be paid on the system.

Variations and/or modifications may be made to the invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are,
25 therefore, to be considered in all respects as illustrated and not restrictive.



CLAIMS:

1. A remote ordering device for enabling a user to order goods and/or services, including a user interface means which includes user input means for enabling a user to select available goods and/or services (products) from a goods/service database and display means for displaying information on products/services from the database, identification means for identifying users of the device and communication means for communicating with a remote host device for automatically placing orders to obtain goods and/or services from a remote location, and/or means for vending goods/services on site.

2. A device in accordance with claim 1, which is adapted so that it can be maintained substantially unattended in a predetermined locality, apart from routine technical maintenance and, where a vending facility is available, for re-stocking procedures.

3. A device in accordance with claim 1 or claim 2, comprising a product identifying means, which is arranged to assist a user in identifying desired goods/services, to facilitate ordering/vending of the goods/services.

4. A device in accordance with claim 3, wherein the product identification means includes a means for obtaining product information from a user and identification means for identifying the desired goods/services from the product information.

5. A device in accordance with claim 4, wherein the means for obtaining product information is a bar code scanner for scanning a bar code provided by the user.

6. A device in accordance with any preceding claim, the device being arranged to provide or prompt a user, by way of the user interface, with a choice of other products to select after the user has considered or selected a particular product.

7. A device in accordance with claim 6,



wherein the other products are products which are related to the particular product in a manner such as being compatible products, alternative products of different brands.

5 8. A device in accordance with any preceding claims, wherein the device is arranged to vend products on site, the device further being arranged to monitor the shelf life of products stored on site.

10 9. A device in accordance with any preceding claim, the device being arranged to record user information for users of the device, the user information including information on products previously ordered by a particular user and/or personal information, such as name, address.

15 10. A device in accordance with claim 9, being arranged to obtain user information from user information stored on a portable means carried by the user, such as a smart card, magnetic card, disk, etc.

20 11. A device in accordance with claim 10, being arranged to update user information stored on the user portable means.

25 12. A device in accordance with any one of claims 9, 10 or 11, the device being arranged to request, by way of the user interface, the user to input user information by way of the user input means, such as product preferences, name, address.

30 13. A device in accordance with any one of claims 9 to 12, the device being arranged to adapt its operation to a particular user in accordance with user information obtained for that user.

35 14. A device in accordance with claim 12, being arranged to adapt its operation to a particular user by offering, by way of the user interface, products which the user information indicates the user has previously purchased and/or communicating, by way of the user interface, with the user by personal information, such as users name.

15. A device in accordance with claim 13 or



14, being arranged to adjust the price of products in response to user information.

16. A device in accordance with any preceding claim, the device being arranged to provide information to a user on the location of other remote ordering devices, storing goods or providing a service not available at the device.

17. A device in accordance with any preceding claim, wherein the device is arranged so that its operation can be modified in accordance with instructions from the remote host device.

18. A device in accordance with any preceding claim, wherein the communication means is arranged to communicate with information providing networks and devices, such as the Internet, to provide information services as a product to a user.

19. A device in accordance with any preceding claim, including a vending facility for vending product locally, the vending facility including storage spaces for storing products to be dispensed, the storage spaces being arranged to be adjustable to accommodate products of different sizes.

20. A device in accordance with any preceding claim, further including means enabling the return and storage of used or damaged articles, for recycling or replacement.

21. A device in accordance with claim 20, being arranged to enable a user to register a request to return or replace a faulty or unwanted product.

22. A host device for a remote ordering system, the host device including communication means for communicating with a plurality of remote ordering devices in accordance with any one of claims 1 to 21, and means for receiving and processing product orders placed at the remote ordering devices.

23. A host device in accordance with claim 22, the host device being arranged to download control instructions to the remote ordering devices in order to



control and alter the operation of the remote ordering devices.

24. A remote ordering system for enabling a user to order goods and/or services, comprising a host device in accordance with claim 22 or 23 and a plurality of remote ordering devices in accordance with any one of claims 1 to 21.

25. A remote ordering system in accordance with claim 24, which of the plurality of remote ordering devices being individually addressable by a host device, whereby each device may be individually controlled by the host device and product, control, advertising and marketing information may be directed to devices on an address by address basis.

26. A device which is adapted so that it can be maintained unattended in a predetermined locality and which includes data entry means to enable a user to enter an order for a product, control means for processing the order, communication means for communicating the order to a remote ordering device, whereby the order may be serviced, and means for checking the users credit, without requiring cash payment.

27. A device in accordance with claim 26, wherein payment is effected from a portable memory carried by the user, storing credit information, such as the smart card.

28. An ordering and/or vending device which comprises a product identifying means which is arranged to detect an article and identify a product associated with the article, to facilitate ordering/vending/delivery of the associated product.

29. A device arranged to enable ordering of products from a remote location and/or vending of goods locally and which includes means arranged to provide or prompt a user with a choice of other product(s) for ordering/vending, which may be products which are compatible alternatives or otherwise associated with a product previously ordered by a user.



30. An automated vending/dispensing system comprising means for monitoring shelf life of products stocked in the vending/dispensing system.

5 31. An automated vending/dispensing system including means for obtaining information from a user of the system, such as information on products preferred by the user, personal information of the user.

10 32. An automated vending/dispensing system in accordance with claim 31, including a means arranged to affect operation of the vending/dispensing system in accordance with user information for any particular user.

15 33. A vending/dispensing and/or electronic ordering system comprising a vending/dispensing and/or electronic ordering device arranged to be connected to a host controller and including means for downloading transaction information to the host controller.

20 34. A remote ordering system including a remote ordering device including means for enabling a user to enquire after the location of a product in the system if the product is not available at that particular device.

35. An automated vending/dispensing and/or electronic ordering system which includes means for determining frequency of use of the system by a user.

25 36. A vending/dispensing device and/or electronic ordering device including a communications means for communicating with an information providing network such as the Internet, means enabling a user to request information, means for obtaining the information and means for presenting the information to the user.

30 37. A vending/dispensing system and/or electronic ordering system which includes a control means which is arranged to modify the operation of the system depending upon the identity of the user who is accessing the system at the time.

35 38. A vending/dispensing system and/or electronic ordering system in accordance with claim 37, wherein modification of operation of a system includes



modifying prices of products available on the system in accordance with the identity of the user accessing the system at the time.

39. A vending/dispensing device including
5 storage spaces for storing products to be dispensed, and a dispensing means to dispense the products, the storage spaces being arranged to be adjustable to accommodate products of different sizes.

40. A vending/dispensing device in accordance
10 with claim 39, the storage spaces being of modular construction whereby further storage spaces may be added to a particular device.

41. A retailing system, comprising a host
15 device arranged to co-ordinate the provision of goods/services (products), and a plurality of remote ordering devices for placing orders for goods/services and arranged to communicate information in relation to such orders to said host device, via a communications link, to enable the host device to carry out the co-
20 ordination of the orders for goods/services.

42. A retailing system in accordance with
claim 41, further comprising a vending device arranged to vend product/services on site and also connectable to the host device via a communications link, to provide
25 information on vending transactions.

43. A retailing system in accordance with
claim 41 or claim 42, further comprising a recycling device arranged to receive returned goods and also connectable to the host device via a communications link,
30 to provide information on goods returned.

44. A retailing system in accordance with
claim 41, 42 or 43, devices connectable to the host having means able to identify users of the devices, whereby a transaction may be allocated to an identified
35 user.

45. A retailing system in accordance with any one of claims 41 to 43, the devices and/or host being connected to the EFT network, credit card processing



network, or other type of account/banking network, to enable remote access to a users account.

46. A retailing system in accordance with any one of claims 41 to 45, the remote ordering device comprising any, some or all of the following types of devices:

- (a) a PC;
- (b) a web server providing a web page on the Internet for access by users having access to the Internet which therefore become remote ordering devices;
- (c) a dedicated ordering kiosk; and
- (d) a combined ordering kiosk/vending machine/recycling machine.

47. A retailing system in accordance with anyone of claims 41 to 46, wherein the communications link is the Internet.

48. A retailing system in accordance with any one of claims 41 through 47, wherein each remote ordering device includes or has access to an ordering means which provides a data base giving information on goods/services to be ordered and enables the goods/services to be ordered.

49. A retailing system in accordance with claim 48, wherein the ordering means includes means allowing a user to identify a location of a nearest outlet for goods/services.

50. A retailing system in accordance with claims 48 or 49, wherein the ordering means includes an interactive user interface that simulates a retail situation including, for example, interactive pictures of different products on a virtual "shelf", a virtual "sales person" for sales inquiries/information, etc.

51. A retailing system in accordance with claim 48, 49 or 50, wherein the ordering means is arranged to provide the same "look and feel" for each device in the system.

52. A retailing system in accordance with any



one of claims 41 to 51, wherein a remote ordering device has means enabling a user to pay bills.

53. A retailing system in accordance with any one of claims 41 to 52, the host device being arranged to provide multi-media services, using the remote ordering devices as outlets.

54. A retailing system in accordance with any one of claims 41 to 53, wherein at least one of the remote ordering devices is a device in accordance with any one of claims 1 to 21.

55. A method of providing for remote ordering and supply of goods/services (products), comprising the steps of providing, at a first location, a host device arranged to co-ordinate the provision of goods/services, and, providing at a plurality of other locations, remote ordering devices for placing orders for goods/services and arranged to communicate information in relation to such orders to said host device, via a communications link, the host device carrying out the co-ordination of the orders for goods/services.

56. A method in accordance with claim 55, comprising the step of the host device controlling a remote ordering device to alter its operation.

57. A method in accordance with claim 55 or 56, comprising the step of obtaining and recording user information, the user information including information on products previously ordered by particular users and/or personal information, such as name, address, and the step of modifying operation of the remote ordering devices in accordance with user information for the particular user accessing the device at the time.

58. A method in accordance with any one of claims 55 to 57, comprising the step of operating a remote ordering device to inform a user of the location of a desired product, if that product is not available at that particular ordering device.

59. An ordering means for ordering goods/services (products) from a remote location over a



communications link from a remote ordering device to a host device, whereby the host device is arranged to coordinate ordering and provision of products, the ordering means comprising a product database storing information on products available for order, a user interface for communicating with a user and an ordering engine for placing orders with the host device.

60. An ordering means in accordance with claim 59, wherein the user interface is arranged to provide the same "look and feel" to a user irrespective of the particular type of remote ordering device being accessed by the user.

61. An ordering means in accordance with claim 60, wherein the user interface is arranged to simulate a retail situation including, for example, interactive pictures of different products, "virtual" sales persons for sales inquiries/information, etc.

62. A retailing system in accordance with any one of claims 41 to 54, remote ordering devices which having individual addresses, whereby the host device may control the remote ordering devices individually and provide information to them and on an address by address basis, by enabling an operator to select one or more devices by address, update control and data.

63. A retail system in accordance with claim 62, the host device being arranged to download control data to change operation of the devices, whereby to change, for example, advertising material, pricing products, graphic images, voice and video information, database catalogue information.

64. A system in accordance with claim 62 or 63, a host device being arranged to control the remote ordering devices to provide graphic information which includes brand messages of product owners, service providers, retailers, for providing and advertising message, which may be relating to products stored on-site in remote ordering device and/or available by way of remote ordering.



65. A method of operating a retail system in accordance with any one of claims 41 to 54, 62 to 64, comprising the steps of controlling the remote ordering devices to display advertising material in operation
5 and/or vary prices of products in operation and/or vary the operation of the electronic ordering devices in relation to user information of users of the system, whereby to conduct an organised marketing campaign which may be varied depending upon geographical location of the
10 devices, language of the users of the devices in the geographical location, etc.

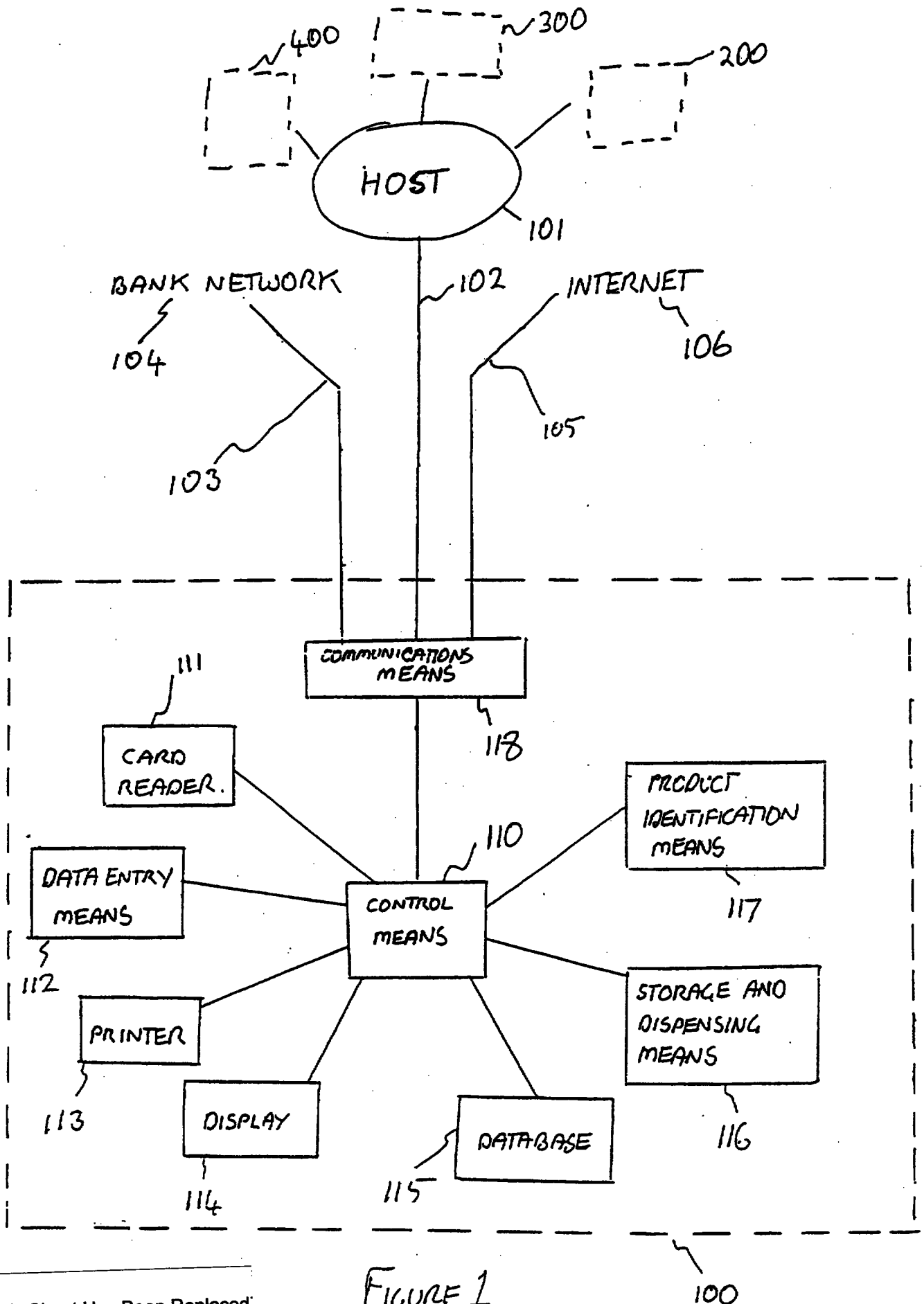


FIGURE 1

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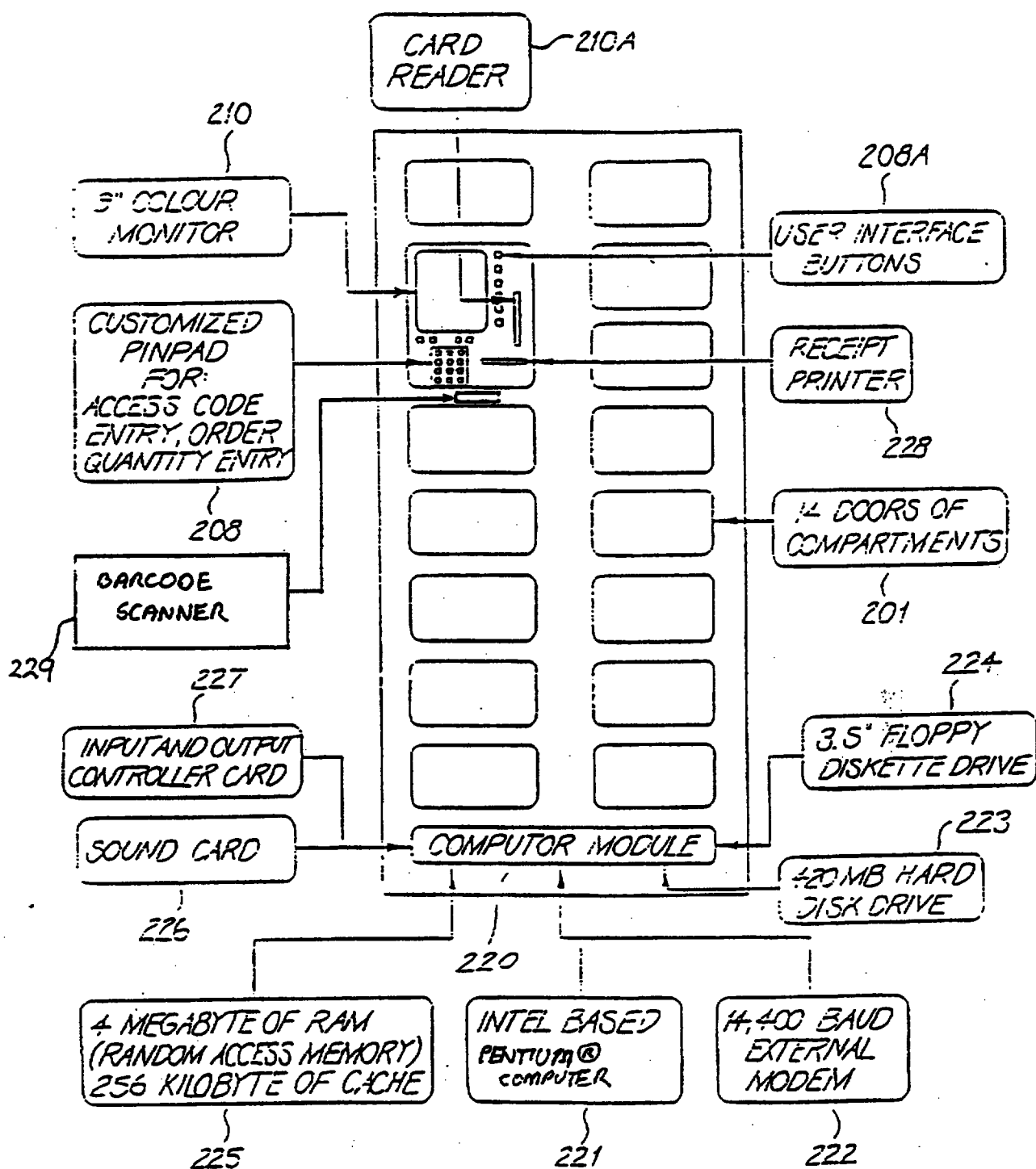


FIG. 2

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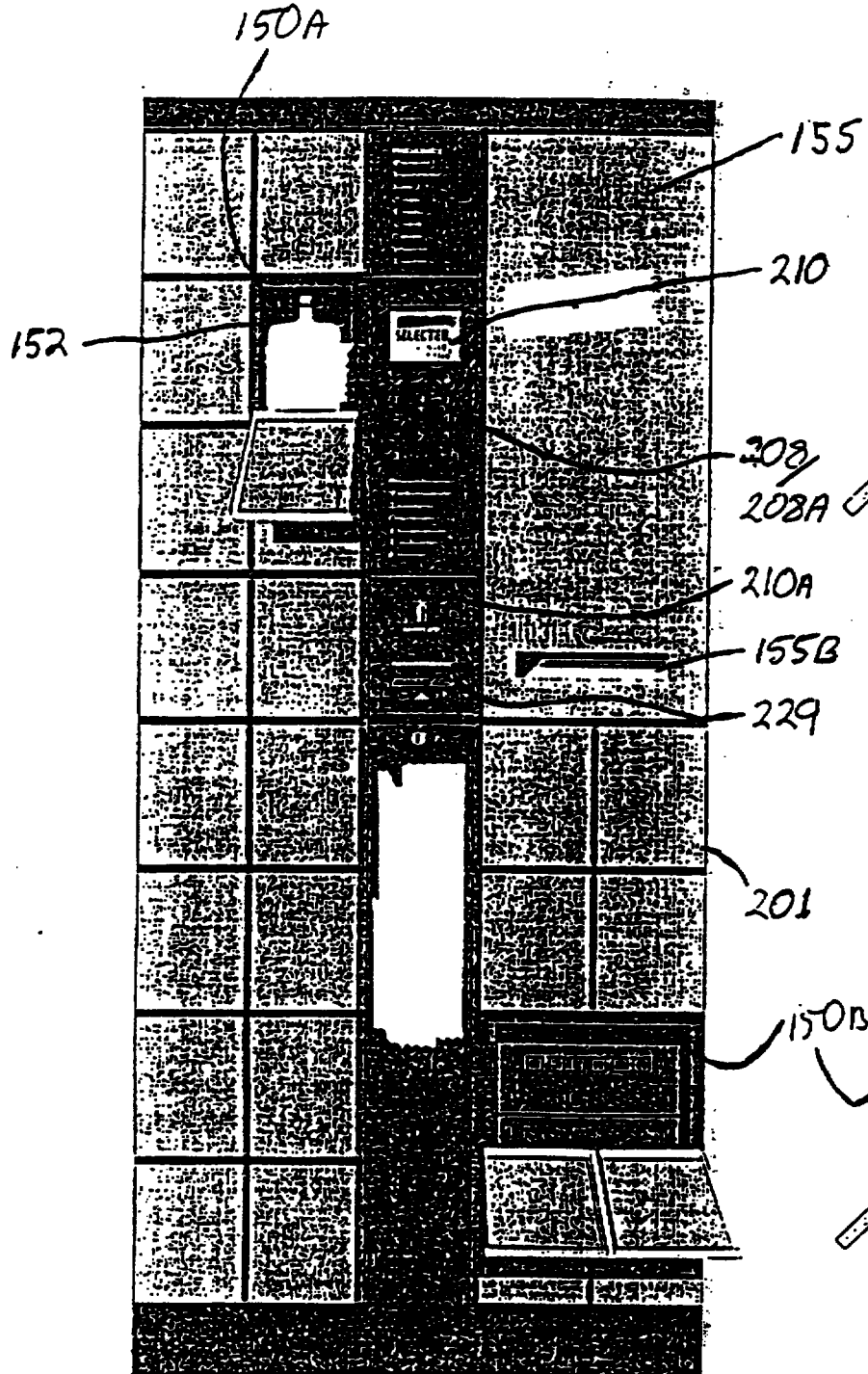


FIGURE 3

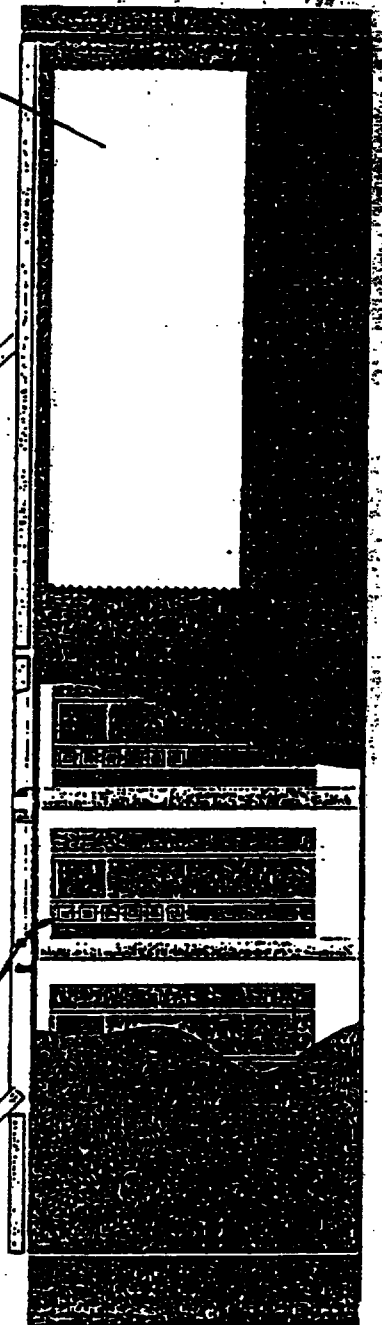


FIGURE 4

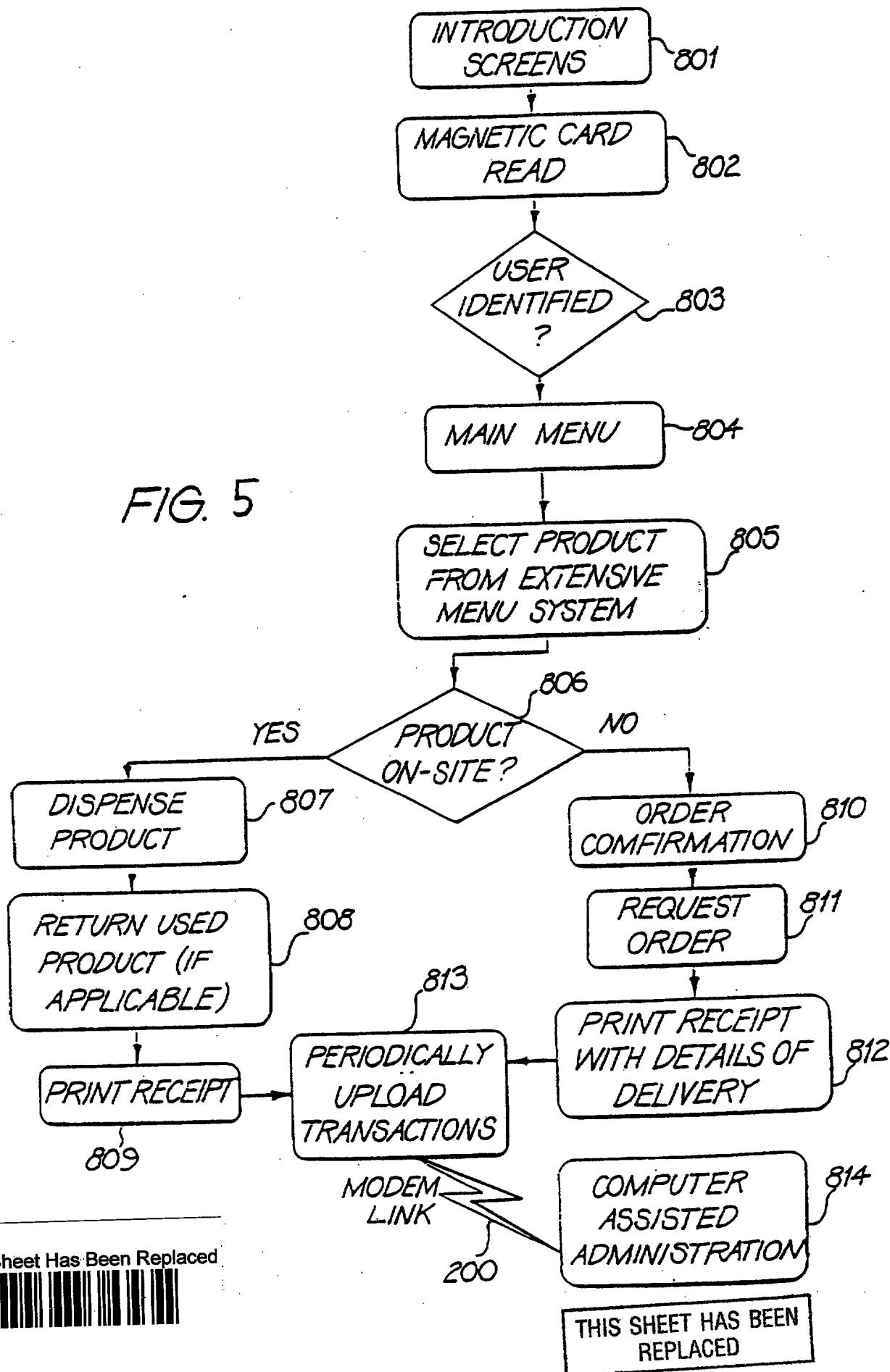
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FIG. 5



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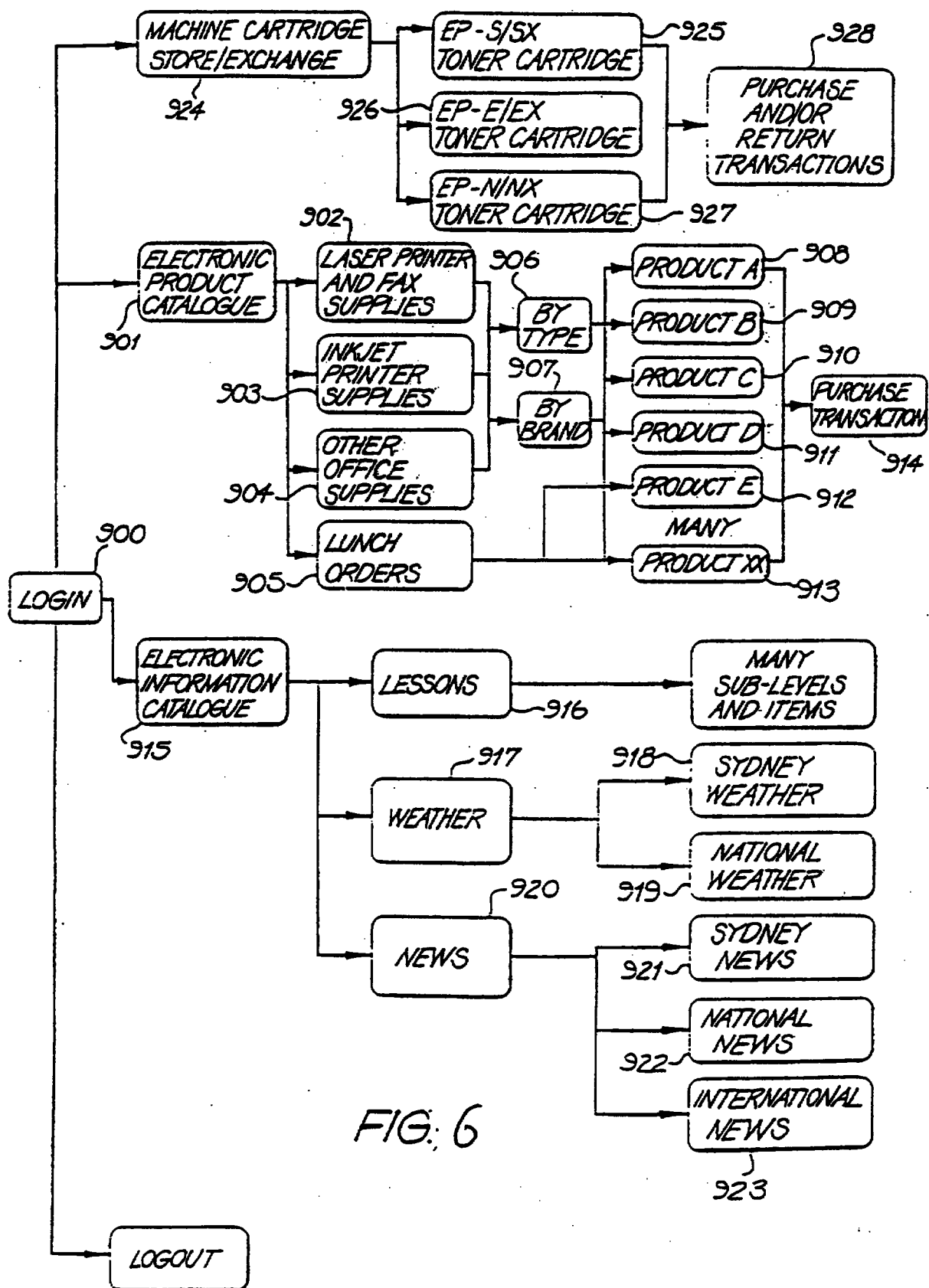
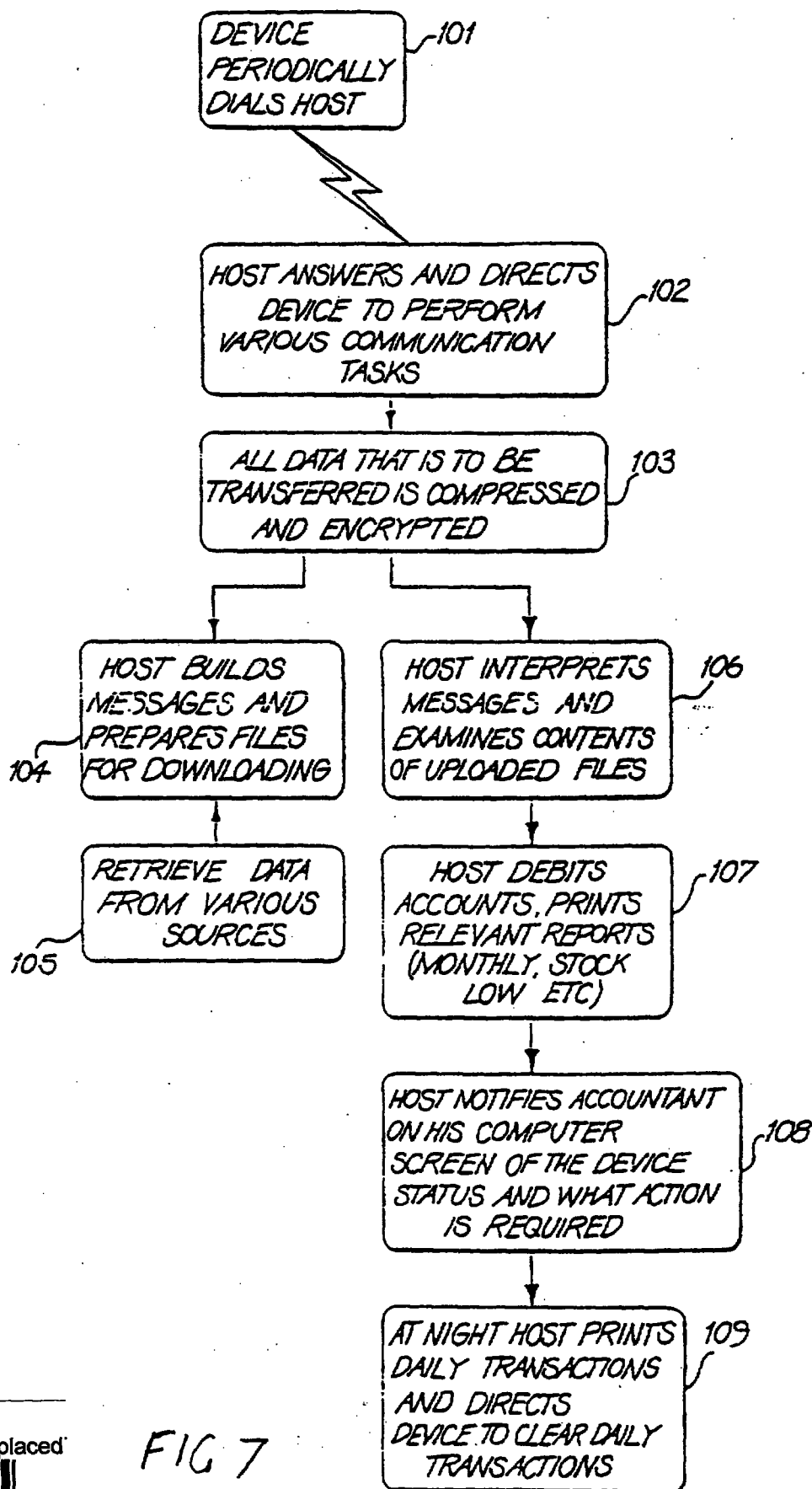


FIG. 6

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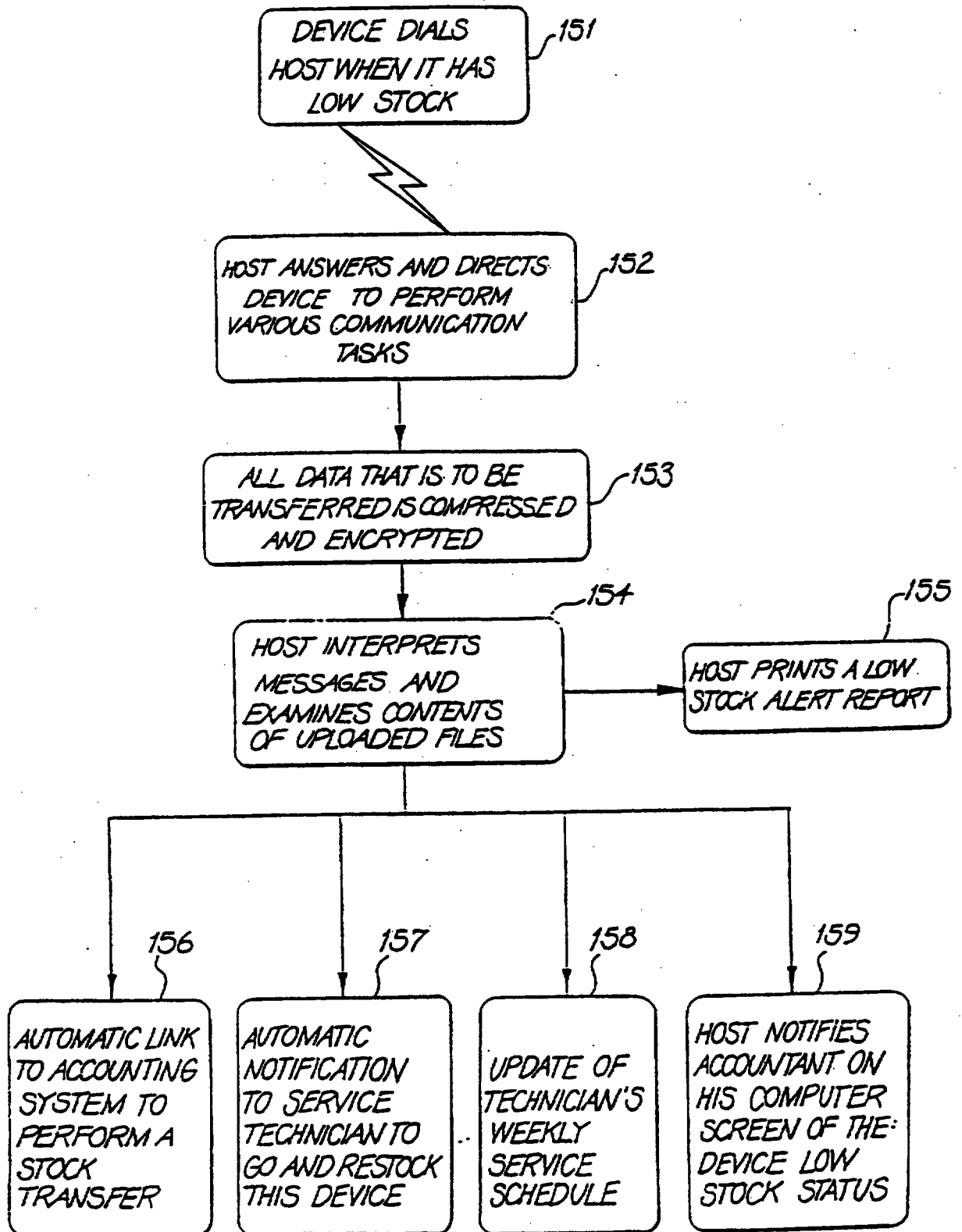


FIG. 8

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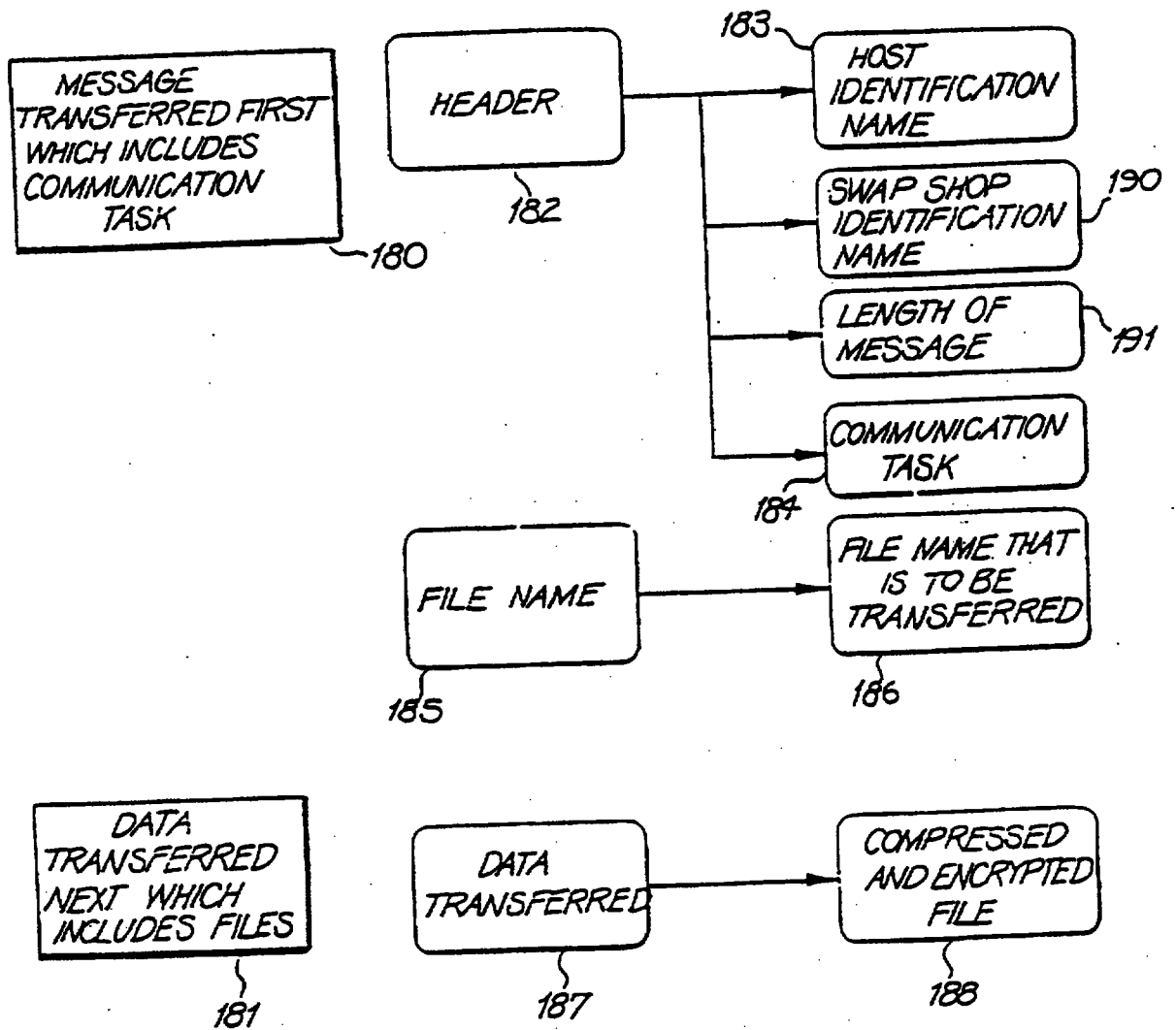


FIG. 9

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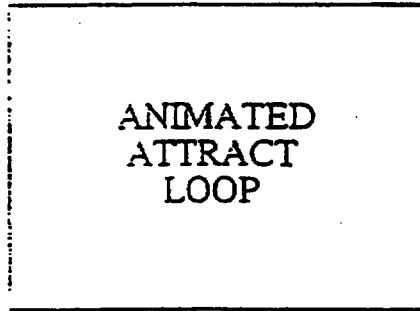


Fig 10a.

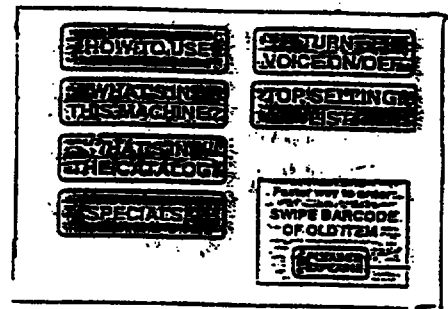


Fig 10b.

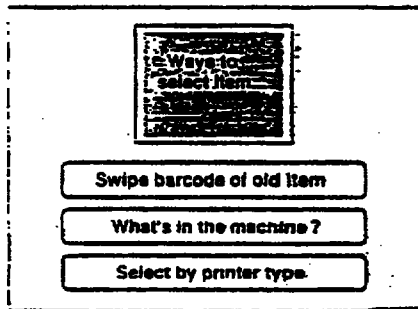


Fig 10c

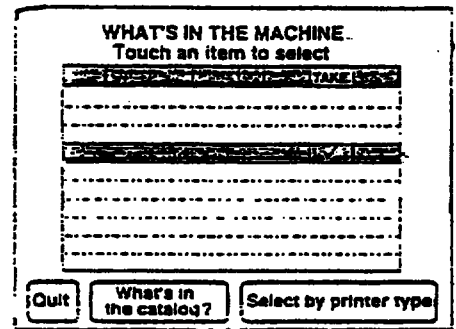


Fig 10d

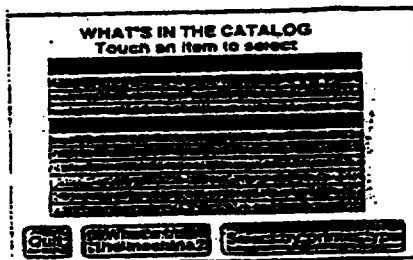


Fig 10e

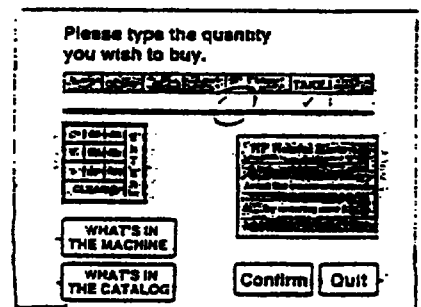


Fig 10f

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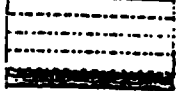
Select your cartridge
by printer type

- Deskjet
- Thinkjet
- Deskwriter
- Designjet
- Paintjet

Fig 10g

SELECTED PRINTER
● 

COMPATIBLE
PRODUCTS



Touch item to select

GO BACK
CONFIRM
ORDER

Fig 10h

I WOULD LIKE FURTHER INFORMATION
ON COMPATIBLE PRODUCTS
TICK BOX ☒ Yes ☐ No

Do you want to buy
anything else?

YES NO

Fig 10i

This Sheet Has Been Replaced



THIS SHEET HAS BEEN
REPLACED

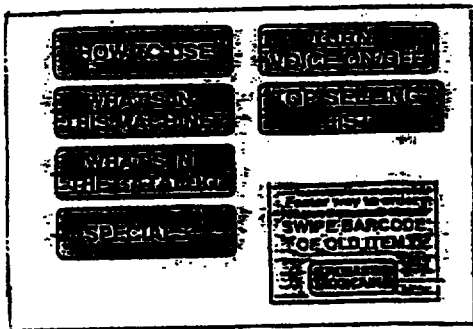


Fig 11a

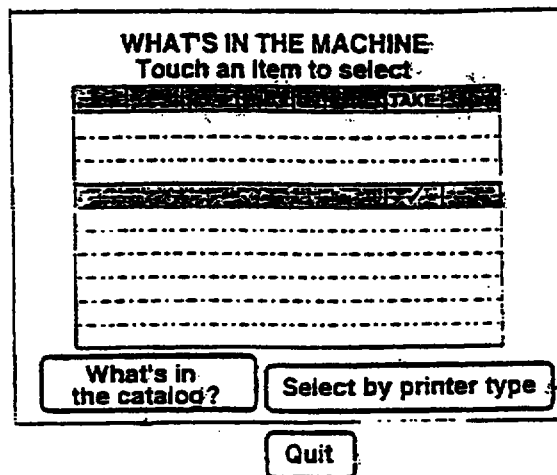


Fig 11b

Item Name	Product Code	Price	List Price	Quantity	Take Now	Mail order
-----------	--------------	-------	------------	----------	----------	------------

Fig 11c

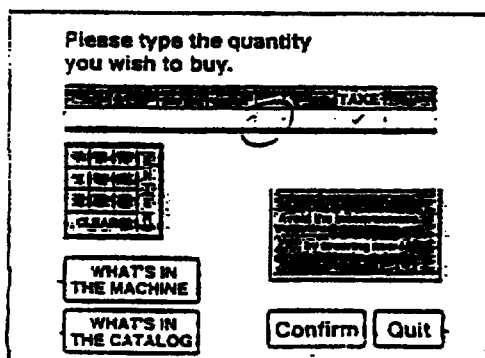


Fig 11d

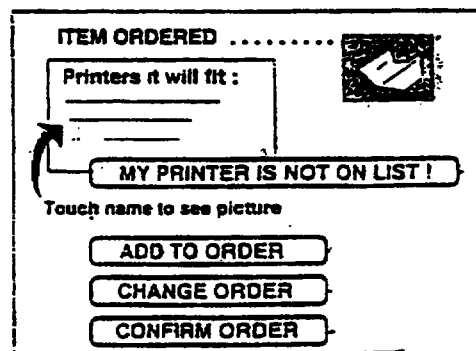
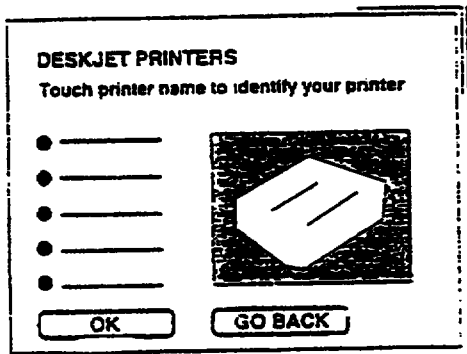
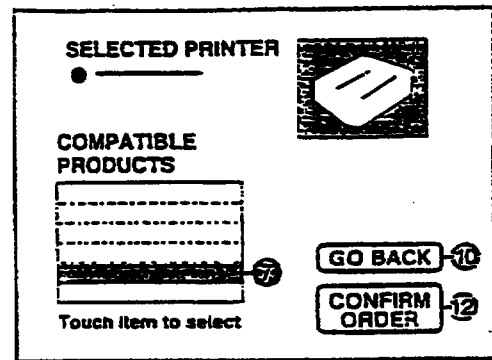
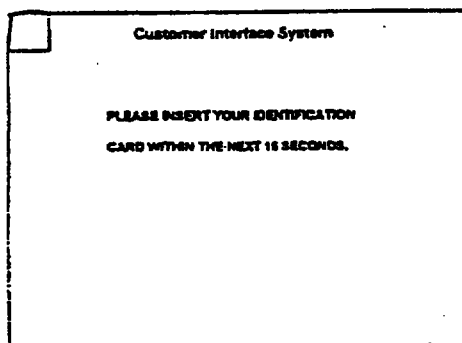


Fig 11e

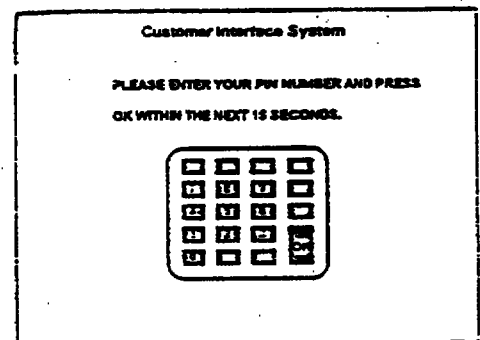
This Sheet Has Been Replaced



THIS SHEET HAS BEEN REPLACED

Fig 11fFig 11g

STOCKIST, ON INSERTING
KEYS INTO MACHINE, WILL
SEE THE ABOVE MESSAGE

Fig 12a

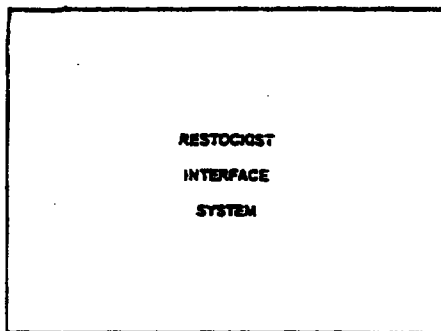
VIRTUAL PINPAD APPEARS
AFTER STOCKIST HAS SWIPEO
CARD AND STOCKIST IS REQUESTED
TO ENTER PIN.

Fig 12b

This Sheet Has Been Replaced

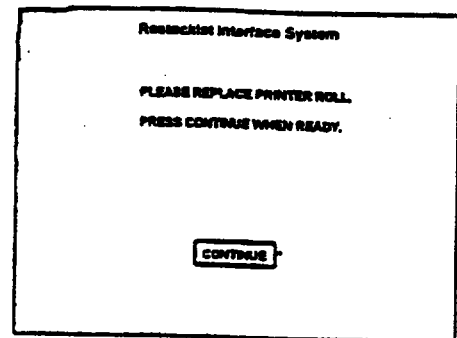


THIS SHEET HAS BEEN
REPLACED



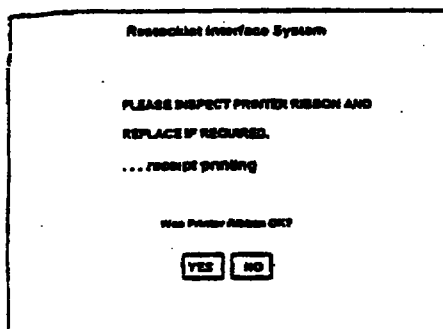
RESTOCKIST INTERFACE
SYSTEM IS ACTIVATED ON
INPUT OF CORRECT PIN

Fig 12c



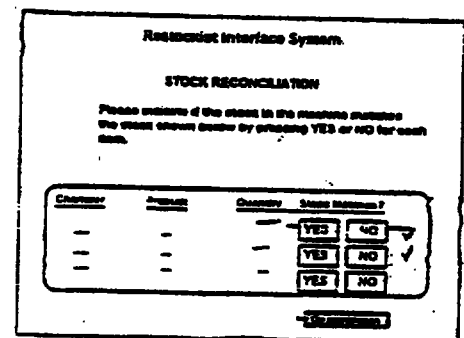
The device detects that
the printer roll needs
replacing. The stockist
replaces the printer
roll and presses CONTINUE.

Fig 12d



As STOCKIST INSPECTS
PRINTER RIBBON the device
generates a stocktake
transaction and receipt
for stockists audit trail.

Fig 12e



With this screen, the Fig 12f
device instructs the stockist
to reconcile the machines
logical view of the stock
with the stock held in
the machine. If the product
code and quantity does not
match the stockist presses
the "no" button.

This Sheet Has Been Replaced



THIS SHEET HAS BEEN
REPLACED

Restockist Interface System

IS THE PRODUCT CODE CORRECT?

YES NO

To this next screen the stockist presses "NO" as in this example the product code and quantity do not match.

Fig 12g

Restockist Interface System

PLEASE SWIPE THE PRODUCT BY THE
BARCODE READER.

GO BACK

The stockist removes the product from the storage chamber and swipes the bar code on the product past the bar code reader. A stock adjustment transaction is created to reflect the discrepancy and the machines inventory is updated.

Fig 12h

Restockist Interface System

IS THE PRODUCT QUANTITY CORRECT?

YES NO

If the product quantity is incorrect, the stockist presses "NO".

Fig 12i

This Sheet Has Been Replaced



THIS SHEET HAS BEEN
REPLACED

Restock Interface System

PLEASE ENTER THE CORRECT QUANTITY AND THEN PRESS OK.

1	2	3	4
5	6	7	8
9	0	DEL	OK

GO BACK

The correct stock quantity is entered by the stockist. Adjustment transactions are created and the machines inventory is updated.

Fig 12j

Restock Interface System

PLEASE RESTOCK THE MACHINE NOW ...
PRESS CONTINUE WHEN FINISHED.

CONTINUE

Once all stock items have been checked the above screen is displayed and the stockists then restocks the machine in accordance with a host generated schedule. "CONTINUE" is then pressed.

Fig 12k

Restock Interface System

STOCK REPLENISHMENT

Please adjust the list below to show what's in the machine now. Press Yes or No for each item to indicate if a change is required.

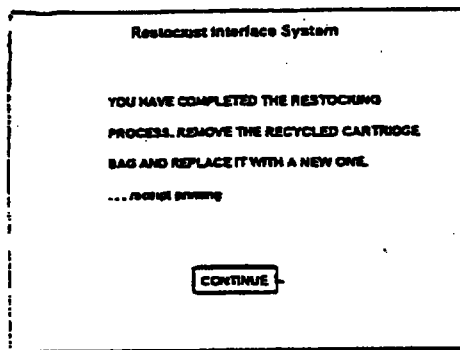
Product	Quantity	Change Required?
-	-	YES NO ✓
-	-	YES NO ✓
-	-	YES NO

GO BACK

The stockist is now required to update the machines inventory to reflect whats in the machine after restocking has been completed. A "tick" denotes that a storage location ("chamber") has been checked. If product and quantity of any chamber is incorrect (as it may be after restocking) then "YES" is pressed to indicate that a stock change is required. Product codes and quantities are changed via operation of screens similar to 12h through 12j above.

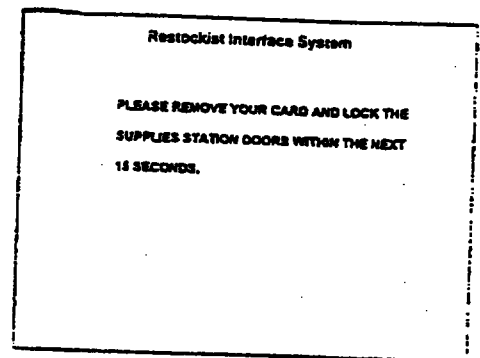
Fig 12l





This screen instructs
the stockists to remove
product which has been
deposited in the device for
recycling & also generates
a receipt.

Fig 12m



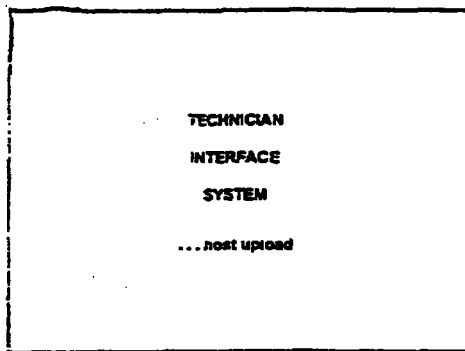
Final screen, after
which the restockist
interface system is
shut down.

Fig 12n

This Sheet Has Been Replaced

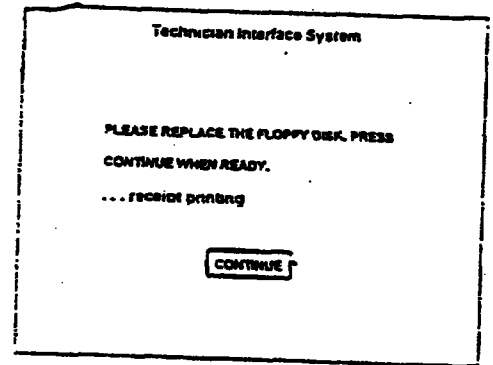


THIS SHEET HAS BEEN
REPLACED



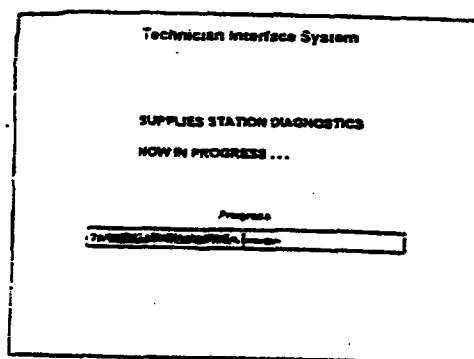
The Technician accesses the system via cardswipe and PIN number, as for the stockist above, and the Technician Interface system is activated

Fig 13a



This screen is generated if devices floppy disc requires replacing.
Similar screens may be generated for printer roll, ribbon, etc.

Fig 136.



A device diagnostics run is commenced and the technician waits for this to complete

Fig 13c

This Sheet Has Been Replaced



THIS SHEET HAS BEEN
REPLACED

Technician Interface System

SUPPLIES STATION DIAGNOSTIC STATUS.

...

PLEASE PRESS CONTINUE.

CONTINUE

The status is observed by the technician for each diagnostic run. If any diagnostic run (for any diagnosed component of the device) indicates malfunction then repairs will be required.

Fig 13d.

Technician Interface System

SUPPLIES STATION DIAGNOSTICS
NOW COMPLETED.

... receipt printing

CONTINUE

When diagnostics is completed a receipt is printed. The technician locks doors and control is returned to the customer interface.

Fig 13e.

This Sheet Has Been Replaced



THIS SHEET HAS BEEN
REPLACED

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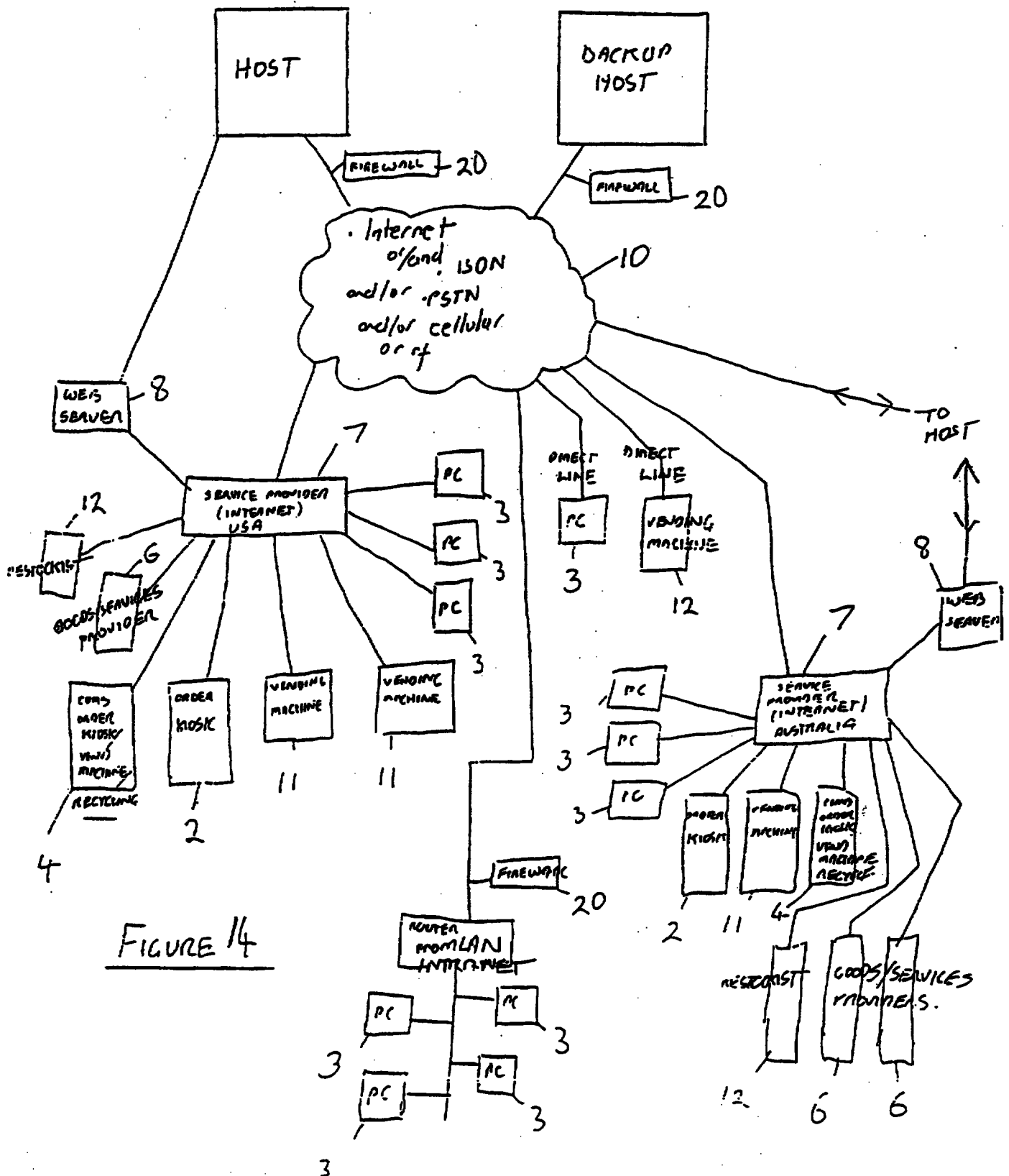
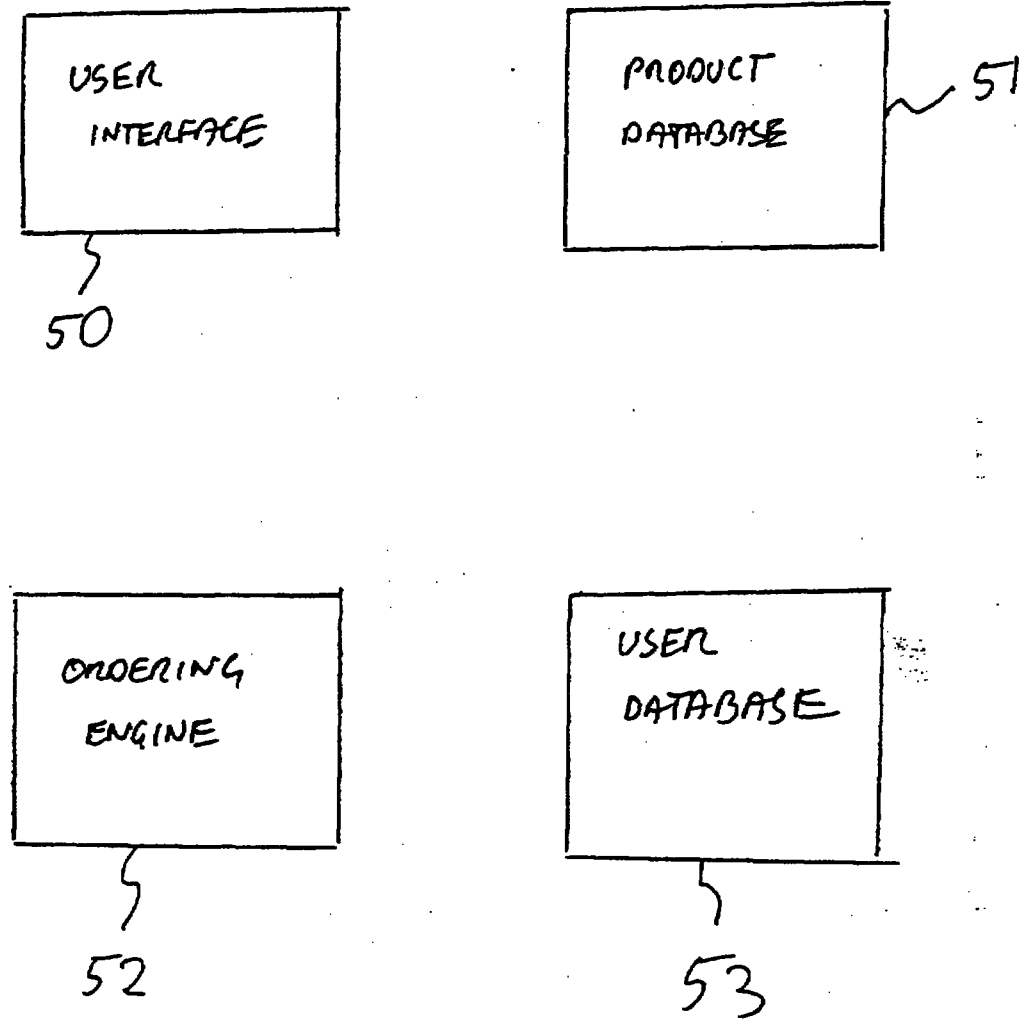


FIGURE 14

This Sheet Has Been Replaced



THIS SHEET HAS BEEN REPLACED

Fig 15

This Sheet Has Been Replaced

THIS SHEET HAS BEEN
REPLACED

Figures 11a through 11g are illustrations of screen representations of the user interface for an example operation of the device in accordance with an embodiment of the present invention by a customer;

5 Figures ~~12a~~^{12a} through ~~12p~~^{12p} are a series of illustrations of screen representations for operation of a device in accordance with an embodiment of the present invention, for an example re-stocking operation;

10 Figures ~~13a~~^{13a} through ~~13m~~^{13p} are a series of illustrations of example screen representations for an embodiment of a device in accordance with the present invention, for illustration of a technician operation;

15 Figure ~~15~~¹⁶ is a schematic block diagram illustrating a automated retail system in accordance with an embodiment of the present invention; and

 Figure ~~15~~¹⁶ is a schematic block diagram of an ordering means in accordance with an embodiment of the present invention.

Referring to Figure 1, a "one stop shop" remote
20 ordering device 100 is illustrated schematically in block form. The device is arranged to enable a user to purchase a product which may be vended on site or which may be ordered from a host 101 to which the device 101 is connectable by a communications 102 (which may be a
25 telephone connection, for example, a dedicated line, or other type of network connection, such as the Internet), for later delivery. The device also enables the user to enter and purchase information (eg from a connection 105 to the Internet 106) and is operable without cash.
30 Instead the users credit may be checked by connection 104 to a bank network 103 (eg EFT). In figure 1 the device shown connected directly by a link 103 to the bank network 104. Alternatively, the bank network 104 may be accessed via the host 101.

35 Host 101 remote ordering device 100 together comprise a remote ordering/vending system.

The device may be positioned at any convenient location, in a store, an office, an office foyer, a

name (or alternatively their may be a picture of the item in the column which the customer will touch). Screen 10d appears and the customer is requested to type in the quantity of this particular printer cartridge which is required.

The customer orders one cartridge of this type. Screen 10e then appears which shows a picture of the cartridge the customer has selected and a list of the printers the cartridge will fit. The customer realises that their printer is not on this list and therefore realises they have chosen the wrong cartridge. The customer then actuates the button "MY PRINTER IS NOT ON LIST". The machine then offers the choice to "re-select" or "review a list of printers".

The customer selects the "REVIEW A LIST OF PRINTERS" option and is presented with a list of printers (figure 10f). The customer identifies their printer and figure 10g appears, which a list of compatible products for that printer. The customer then selects the particular product which will run on their printer.

It will be appreciated that many other scenario's are available and the software can be arranged to deal with all scenario's.

Figure 11¹² illustrates a series of screens for a re-stockist scenario, where a technician is re-stocking the machine. The screens are self explanatory and no further description will be given. Further, this is an example of operation only, and other screens may be included depending upon what requirements are for re-stocking. Figure 13 is a similar series of screens for a technician service operation, for servicing a device.

Figure 14 illustrates a novel retailing system which can incorporate devices as described above, as well as other devices, such as PC's, in an area, nationwide or country wide retailing network.

The system illustrated in figure 14 comprises a host computer 1 and a plurality of remote ordering devices 2,

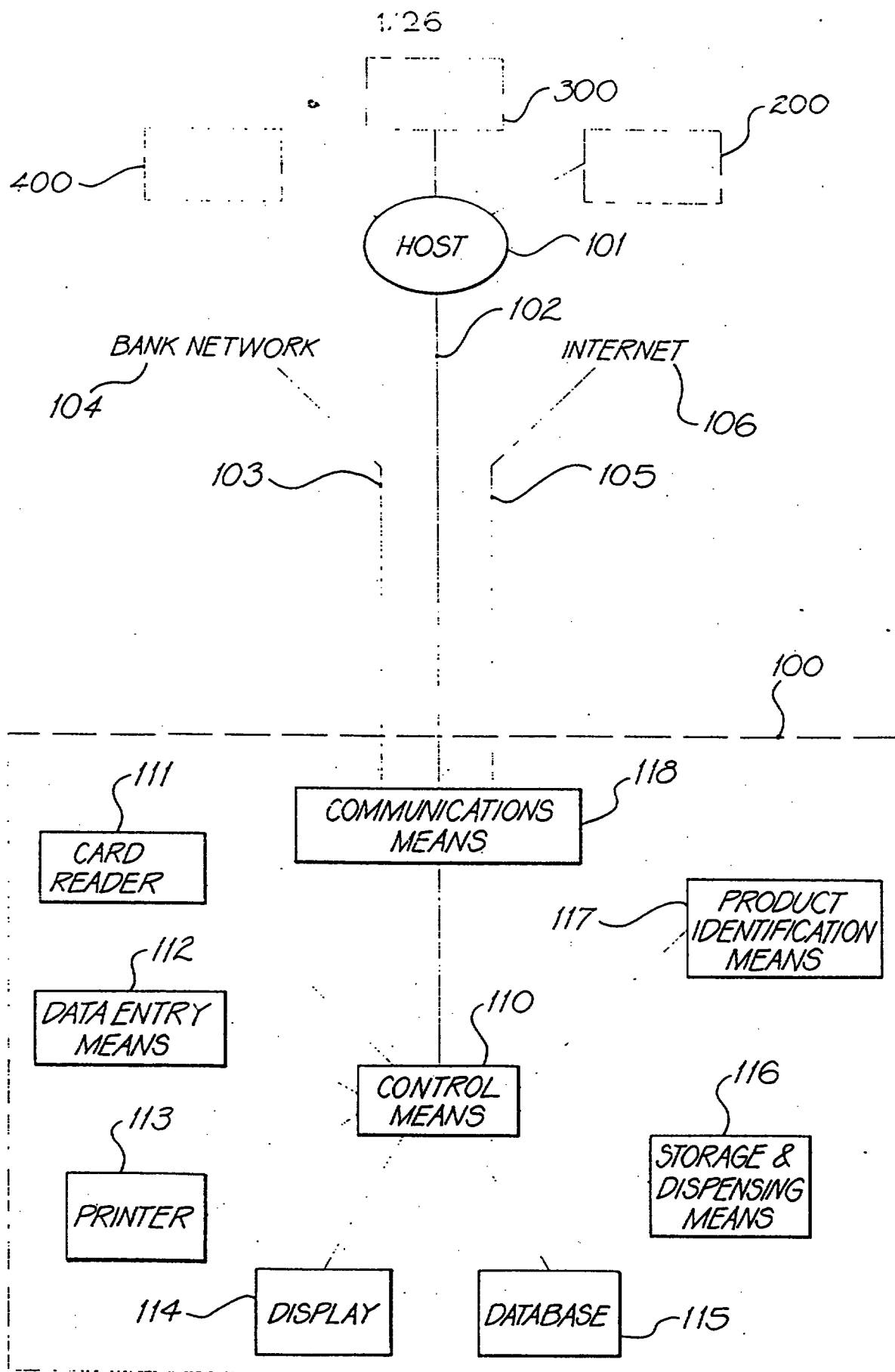


FIG. 1

2126

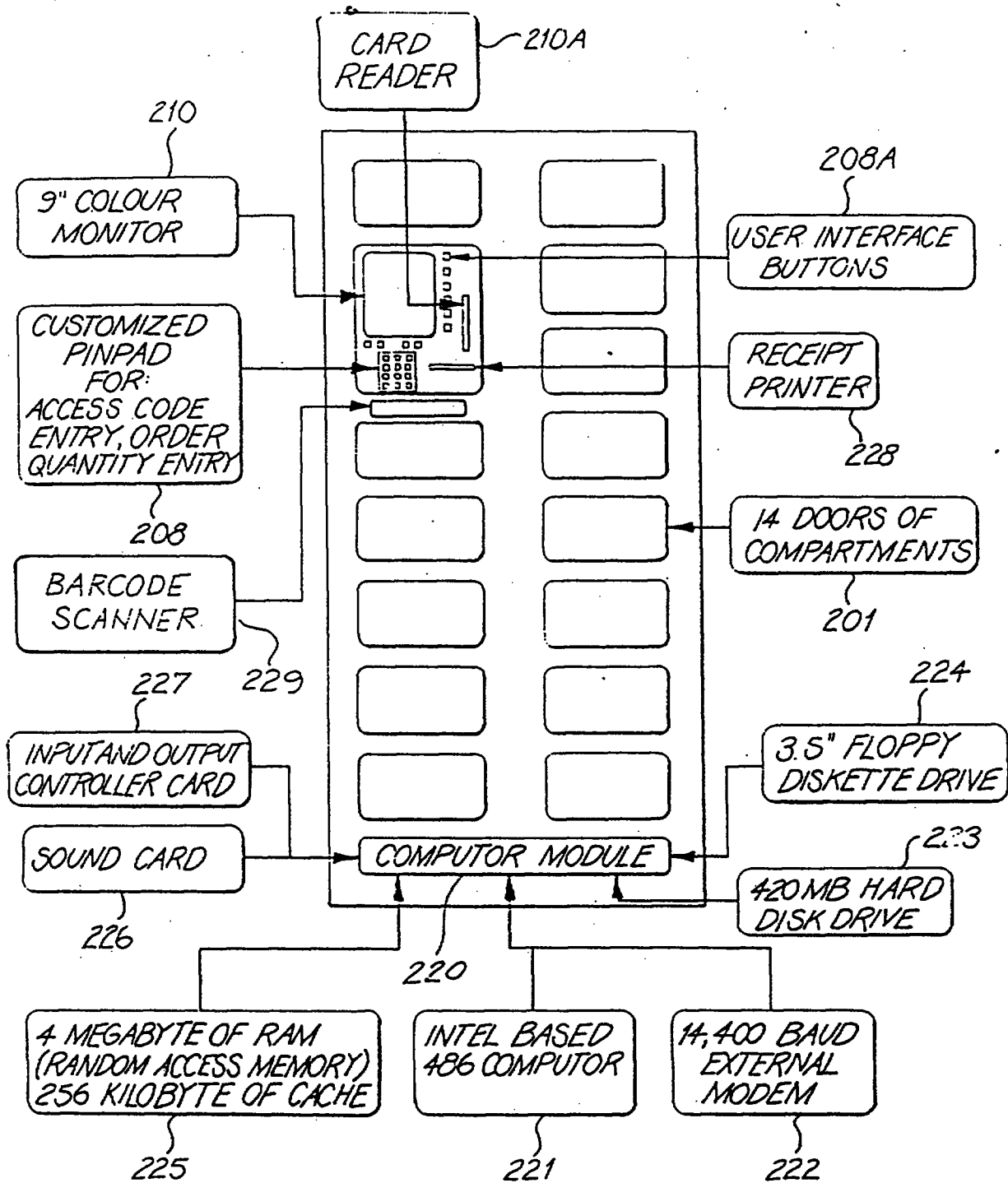


FIG. 2

3/2E

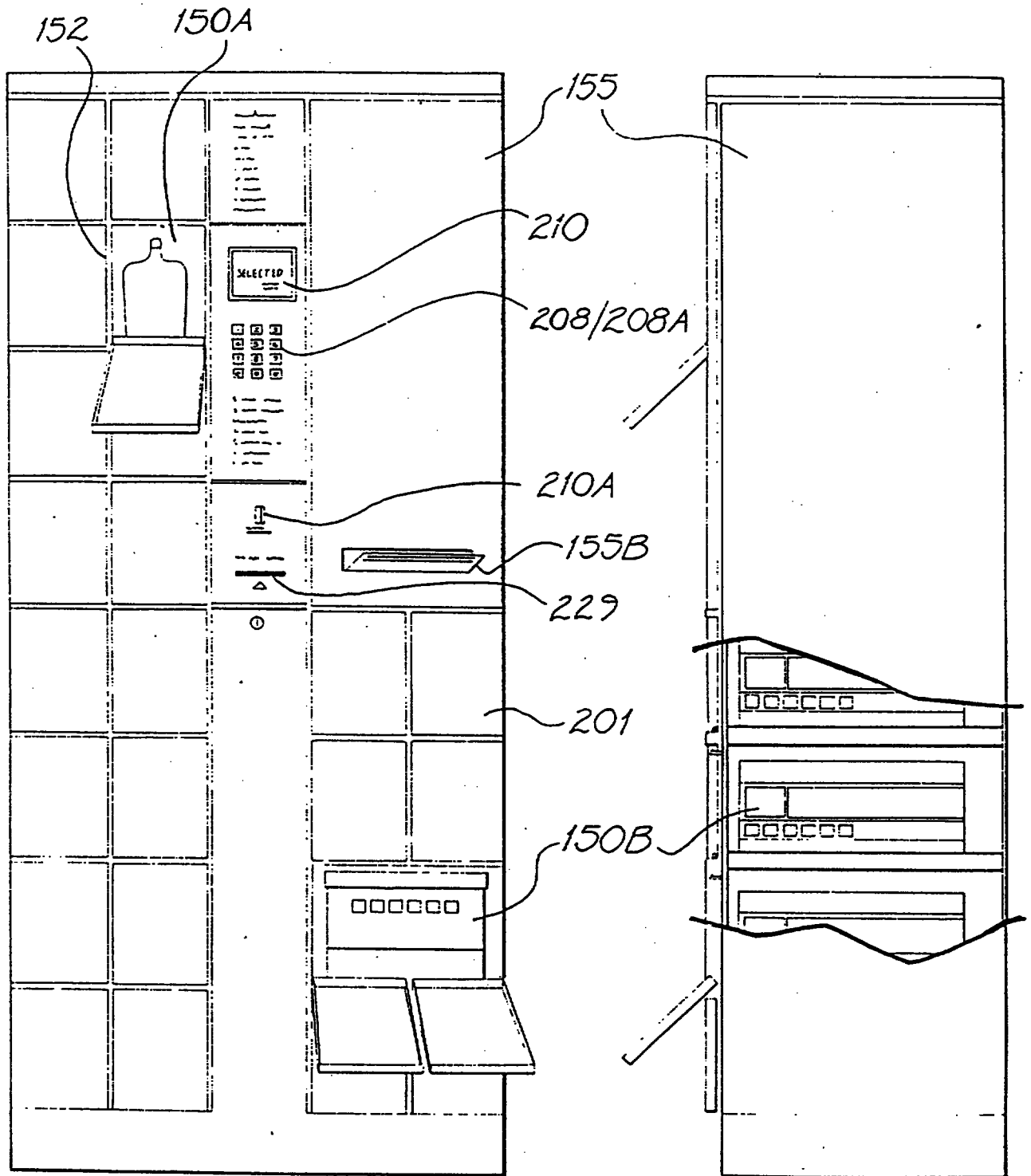
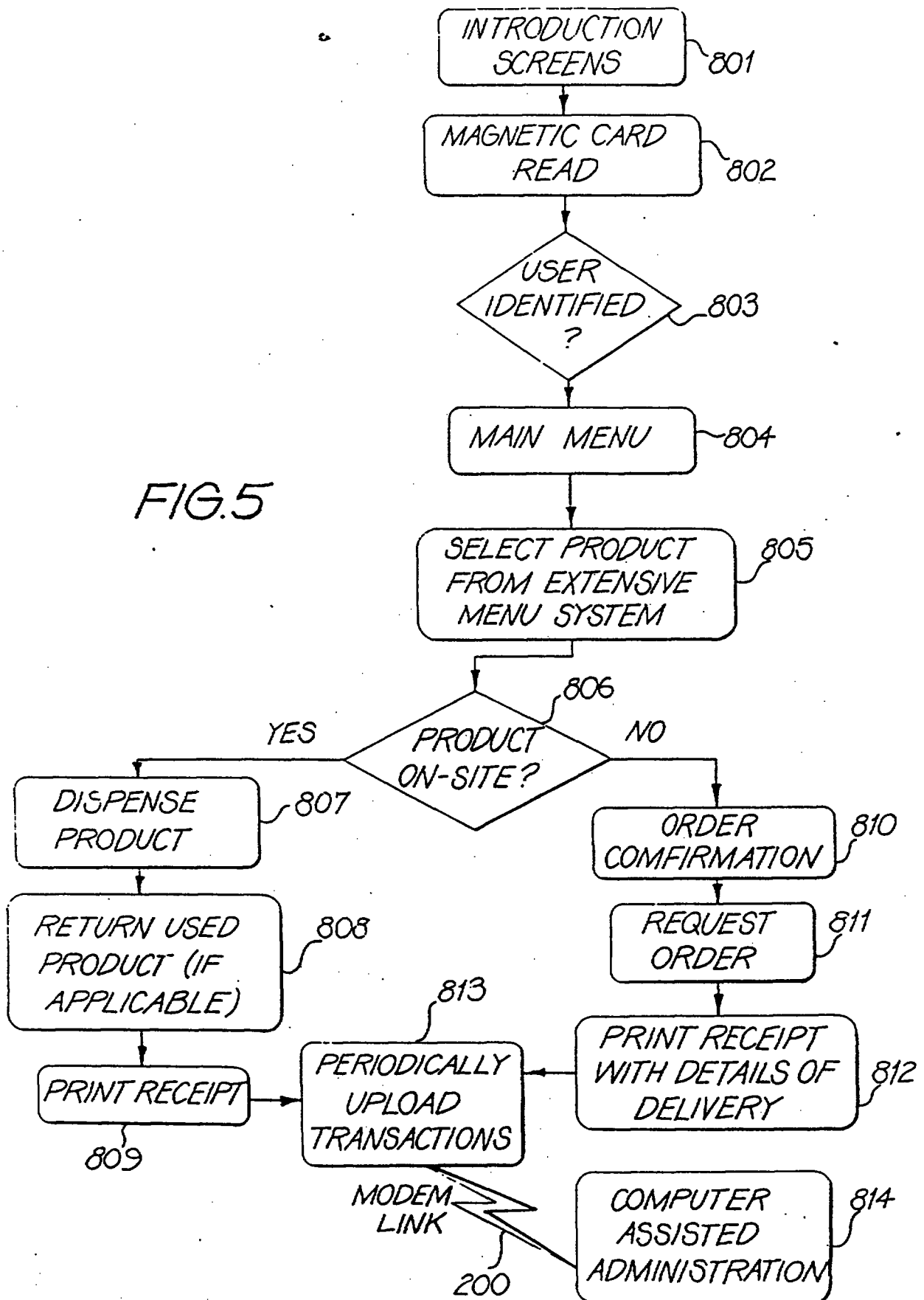


FIG. 3

FIG. 4

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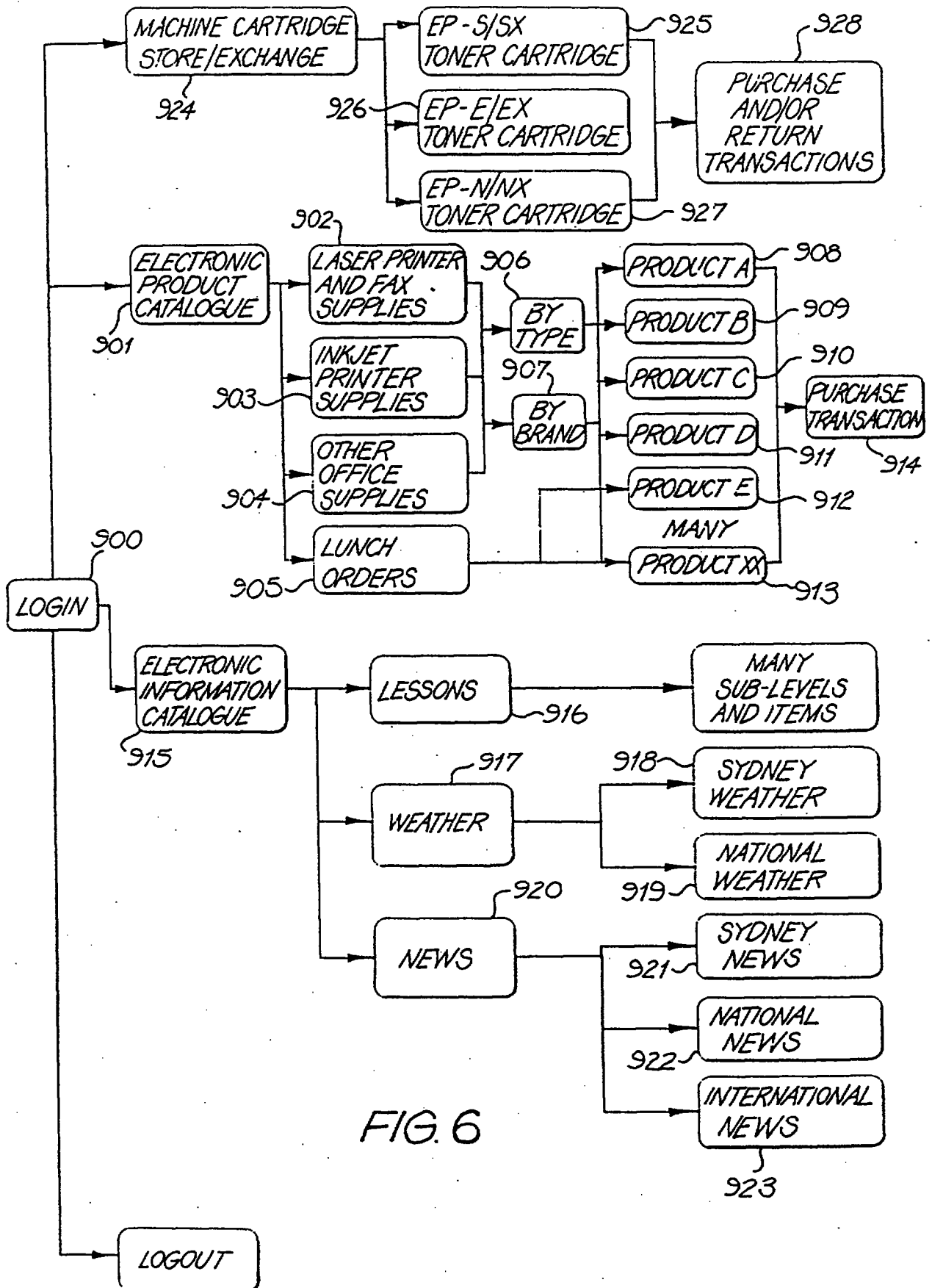


FIG. 6

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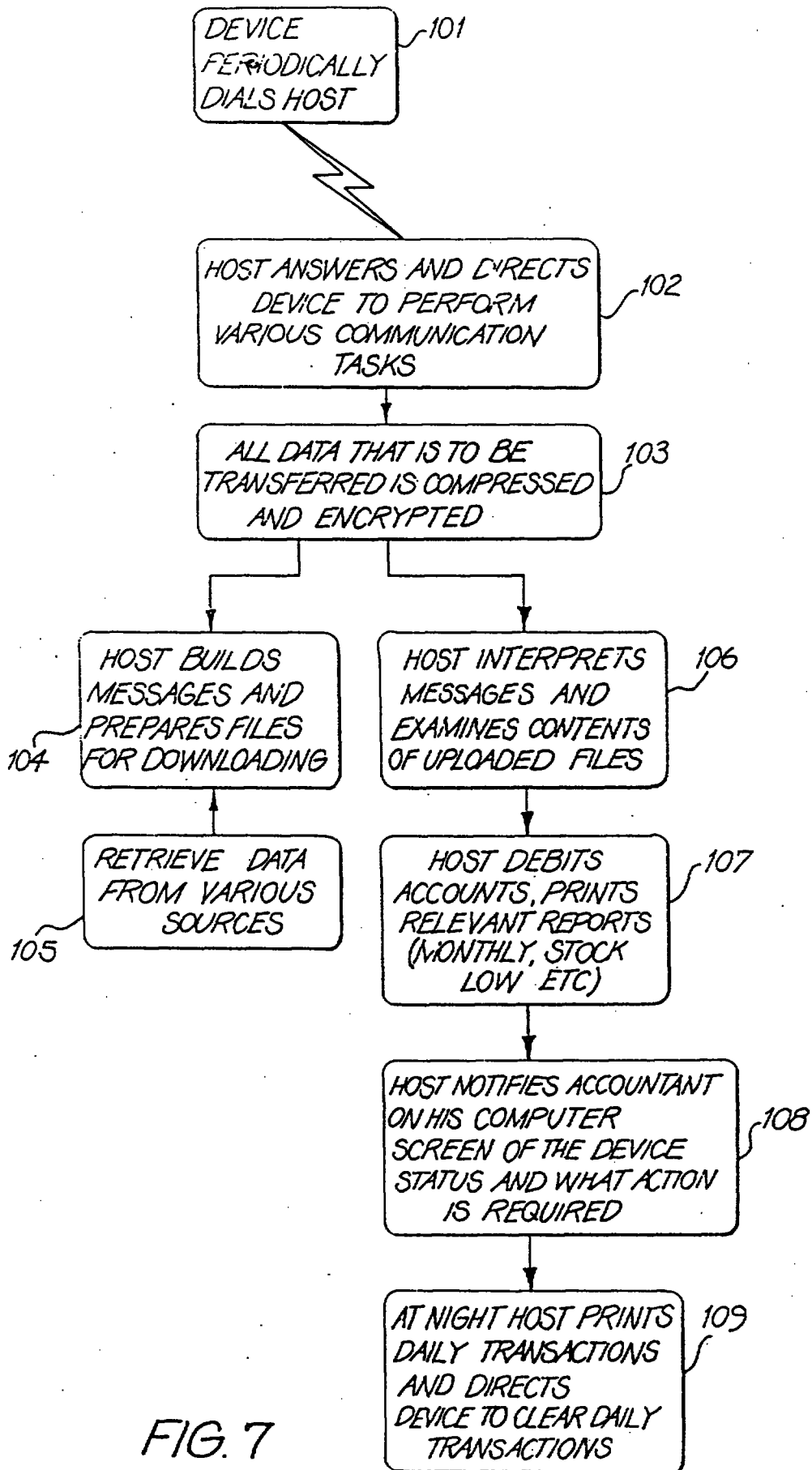


FIG. 7

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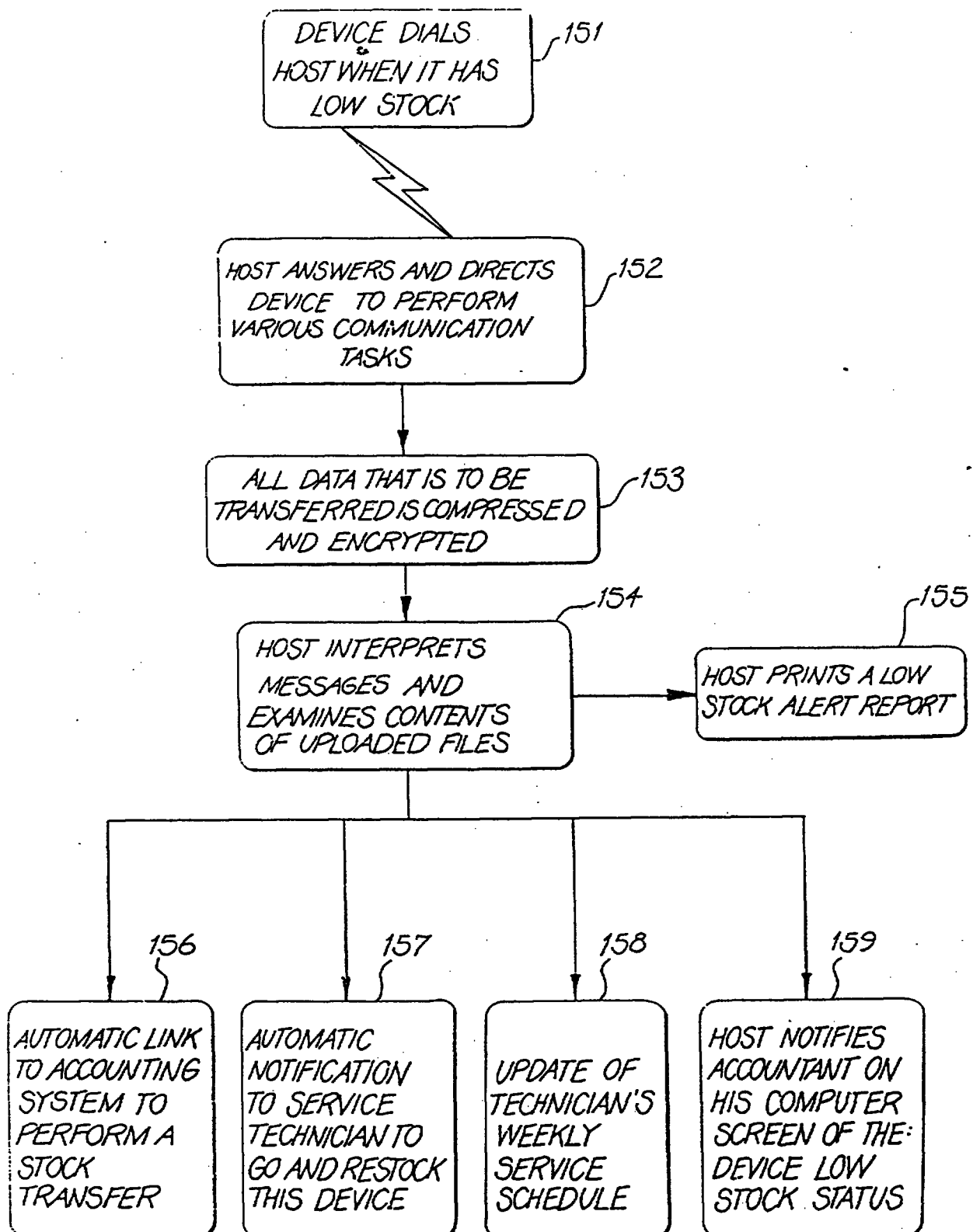


FIG. 8

8126

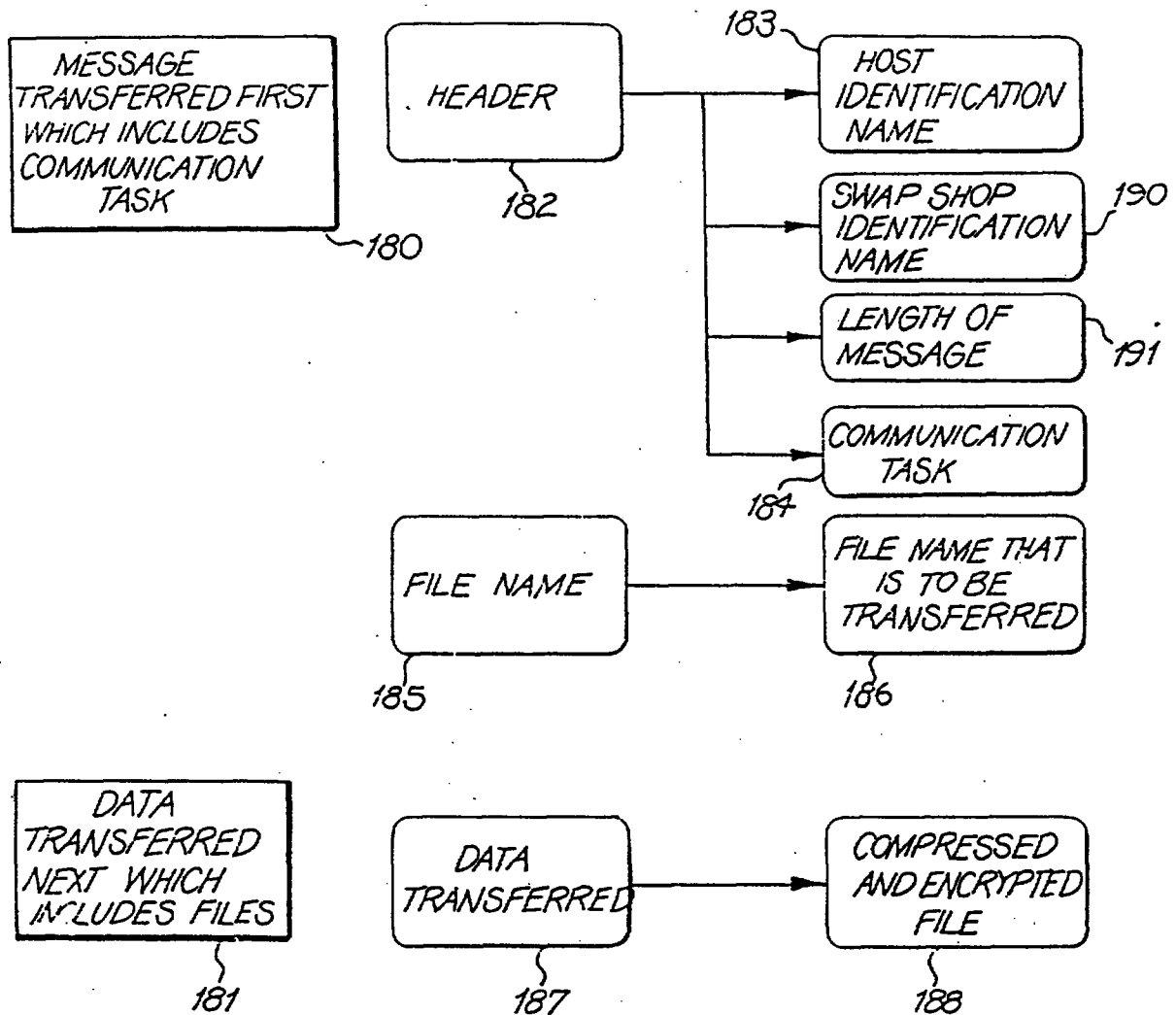


FIG. 9

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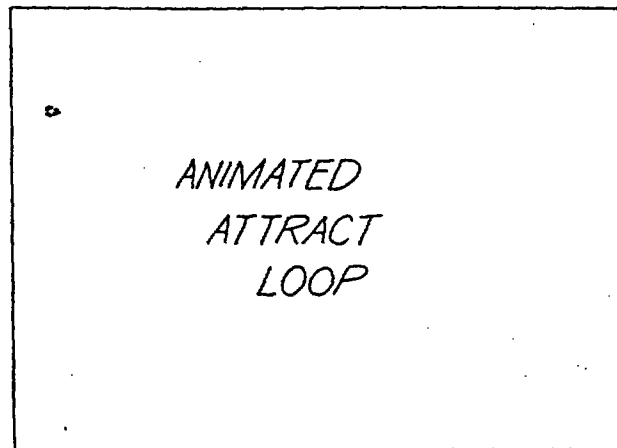


FIG. 10a

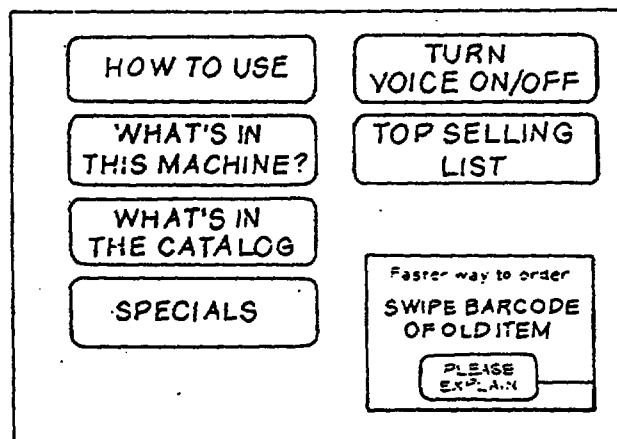


FIG. 10b

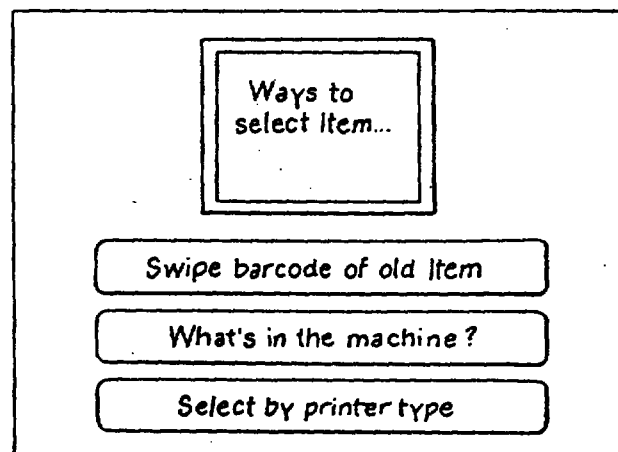


FIG. 10c

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WHAT'S IN THE MACHINE
 Touch an item to select

						TAKE
						✓

Quit What's in the catalog? Select by printer type

FIG. 10d

WHAT'S IN THE CATALOG
 Touch an item to select

Quit What's in the machine? Select by printer type

FIG. 10e

Please type the quantity
 you wish to buy.

						TAKE
						✓

			ENTER
CLEAR			

WHAT'S IN THE MACHINE

WHAT'S IN THE CATALOG

HP Helpful Hints

Confirm Quit

FIG. 10f

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Select your cartridge
by printer type

- Deskjet
- Thinkjet
- Deskwriter
- Designjet
- Paintjet

FIG. 10g

SELECTED PRINTER
● _____

COMPATIBLE
PRODUCTS

Touch item to select

GO BACK

CONFIRM
ORDER

FIG. 10h

I WOULD LIKE FURTHER INFORMATION
ON COMPATIBLE PRODUCTS

TICK BOX ☒ Yes ☐ No

Do you want to buy
anything else?

YES NO

FIG. 10i

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Diagram illustrating the layout of a kiosk interface with touchable buttons:

- HOW TO USE
- WHAT'S IN THIS MACHINE
- WHAT'S IN THE CATALOG
- SPECIALS
- TURN VOICE ON/OFF
- TOP SELLING LIST
- Faster way to order
SWIPE BARCODE OF OLD ITEM
PLEASE EXPLAIN

FIG. 11a

WHAT'S IN THE MACHINE

Touch an item to select

									TAKE

What's in the catalog?

Select by printer type

Quit

FIG. 11b

13:26

ITEMNAME	PRODUCT CODE	PRICE	LIST PRICE	QUANTITY	TAKE NOW	MAIL ORDER
----------	-----------------	-------	------------	----------	----------	------------

FIG. 11c

Please type the quantity
you wish to buy.

						TAKE	
						✓	

ENTER

CLEAR

WHAT'S IN
THE MACHINE

WHAT'S IN
THE CATALOG

How the new language looks
big and easy now!

Confirm

Quit

FIG. 11d

ITEM ORDERED

Printers it will fit :

MY PRINTER IS NOT ON LIST !

Touch name to see picture

ADD TO ORDER

CHANGE ORDER

CONFIRM ORDER

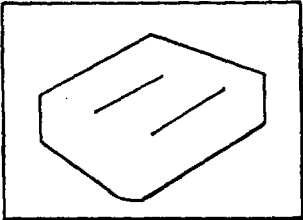
FIG. 11e

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DESKJET PRINTERS

Touch printer name to identify your printer

- _____
- _____
- _____
- _____
- _____

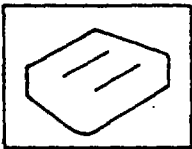


OK GO BACK

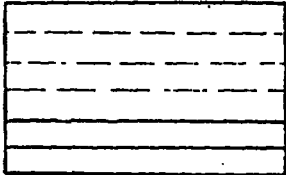
FIG. 11f

SELECTED PRINTER

- _____



COMPATIBLE PRODUCTS



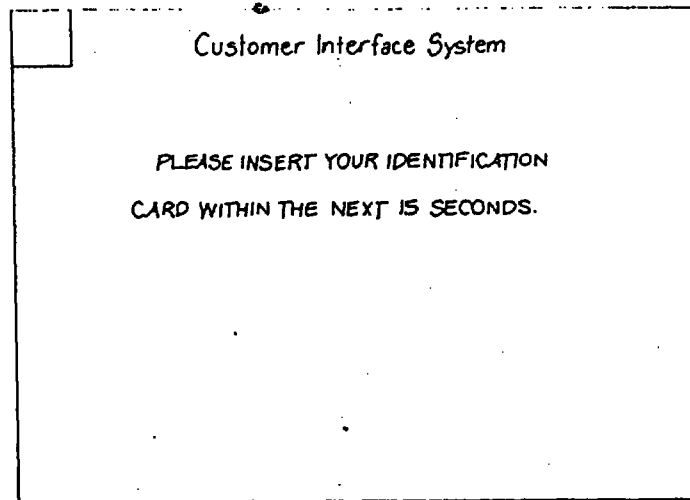
Touch item to select

GO BACK CONFIRM ORDER

7 10 12

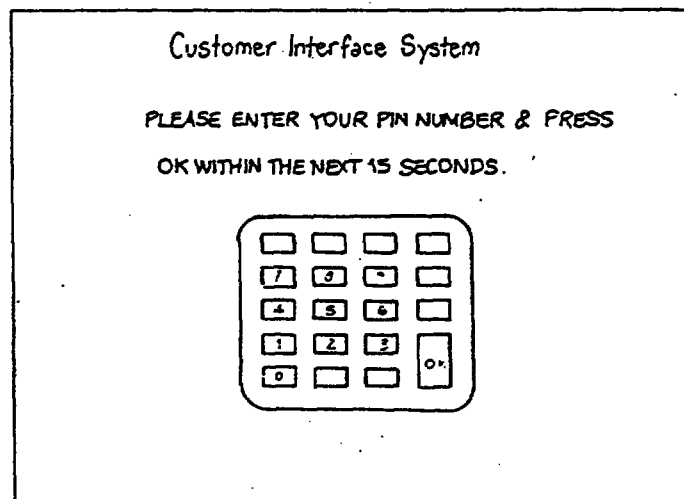
FIG. 11g

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*STOCKIST, ON INSERTING KEYS INTO
MACHINE, WILL SEE THE ABOVE MESSAGE*

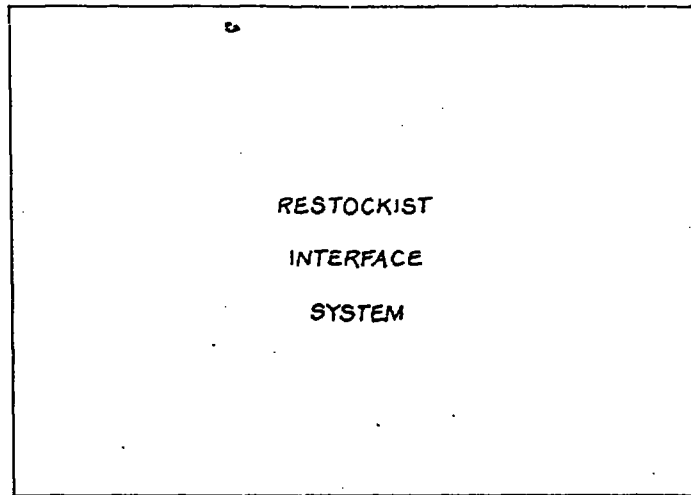
FIG. 12a



*VIRTUAL PINPAD APPEARS AFTER STOCKIST
HAS SWIPED CARD & STOCKIST IS
REQUESTED TO ENTER PIN.*

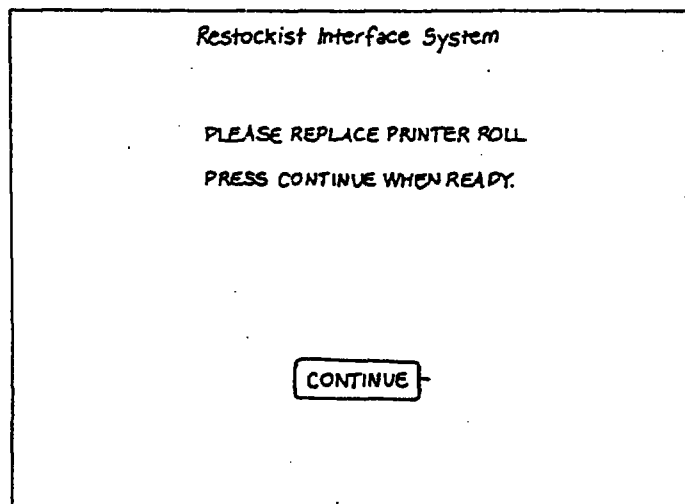
FIG. 12b

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*RESTOCKIST INTERFACE SYSTEM IS
ACTIVATED ON INPUT OF CORRECT PIN*

FIG. 12c



*THE DEVICE DETECTS THAT THE PRINTER
ROLL NEEDS REPLACING. THE STOCKIST
REPLACES THE PRINTER ROLL AND
PRESSES "CONTINUE".*

FIG. 12d

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Restockist Interface System

PLEASE INSPECT PRINTER RIBBON AND
REPLACE IF REQUIRED

... receipt printing

Was Printer Ribbon OK ?

AS STOCKIST INSPECTS PRINTER RIBBON
THE DEVICE GENERATES A STOCKTAKE
TRANSACTION & RECEIPT FOR STOCKISTS
AUDIT TRAIL.

FIG. 12e

Restockist Interface System

STOCK RECONCILIATION

Please indicate if the stock in the machine matches
the stock shown below by pressing YES or NO for each
item.

Chamber	Product	Quantity	Stock Matches?	
—	—	—	YES	NO ✓
—	—	—	YES	NO ✓
—	—	—	YES	NO

WITH THIS SCREEN, THE DEVICE INSTRUCTS
THE STOCKIST TO RECONCILE THE MACHINES
LOGICAL VIEW OF THE STOCK WITH THE
STOCK HELD IN THE MACHINE. IF THE PRODUCT
CODE & QUANTITY DOES NOT MATCH THE
STOCKIST PRESSES THE "no" BUTTON.

FIG. 12f

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Restockist Interface System

IS THE PRODUCT CODE CORRECT?

YES NO

TO THIS NEXT SCREEN THE STOCKIST PRESSES "NO" AS IN THIS EXAMPLE THE PRODUCT CODE AND QUANTITY DO NOT MATCH.

FIG. 12g

Restockist Interface System

PLEASE SWIPE THE PRODUCT BY THE
BARCODE READER.

GO BACK

THE STOCKIST REMOVES THE PRODUCT FROM THE STORAGE CHAMBER & SWIPES THE BAR CODE ON THE PRODUCT PAST THE BAR CODE READER. A STOCK ADJUSTMENT TRANSACTION IS CREATED TO REFLECT THE DISCREPANCY & THE MACHINE'S INVENTORY IS UPDATED.

FIG. 12h

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Restockist Interface System

IS THE PRODUCT QUANTITY CORRECT?

YES NO

IF THE PRODUCT QUANTITY IS INCORRECT,
THE STOCKIST PRESSES "NO".

FIG. 12i

Restockist Interface System

PLEASE ENTER THE CORRECT QUANTITY AND
THEN PRESS OK.

7	8	9	
4	5	6	
1	2	3	OK
0			

GO BACK

THE CORRECT STOCK QUANTITY IS ENTERED
BY THE STOCKIST. ADJUSTMENT TRANSACTIONS
ARE CREATED & THE MACHINES
INVENTORY IS UPDATED.

FIG. 12j

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Restockist Interface System

PLEASE RESTOCK THE MACHINE NOW ...

PRESS CONTINUE WHEN FINISHED

CONTINUE

ONCE ALL STOCK ITEMS HAVE BEEN CHECKED THE ABOVE SCREEN IS DISPLAYED & THE STOCKISTS THEN RESTOCK THE MACHINE IN ACCORDANCE WITH A HOST GENERATED SCHEDULE. "CONTINUE" IS THEN PRESSED.

FIG. 12k

Restockist Interface System

STOCK REPLENISHMENT

Please adjust the list below to show what's in the machine now Press Yes or No for each item to indicate if a change is required.

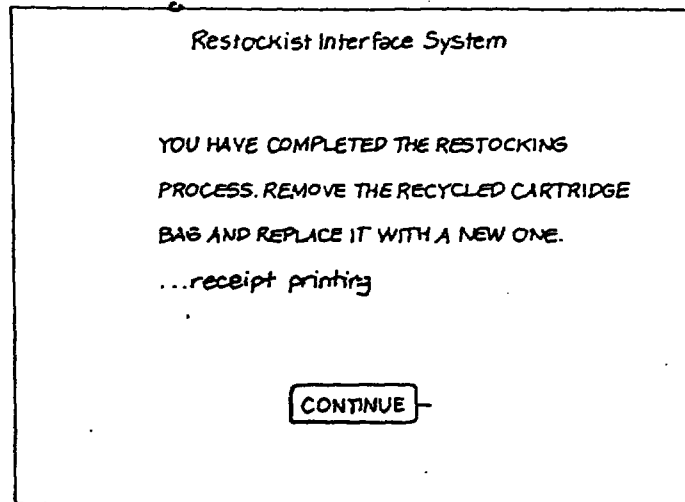
Chamber	Product	Quantity	Change Required?		
—	—	—	YES	NO	✓
—	—	—	YES	NO	✓
—	—	—	YES	NO	

— [] —

THE STOCKIST IS NOW REQUIRED TO UPDATE THE MACHINE'S INVENTORY TO REFLECT WHAT'S IN THE MACHINE AFTER RESTOCKING HAS BEEN COMPLETED. A "TICK" DENOTES THAT A STORAGE LOCATION ("CHAMBER") HAS BEEN CHECKED. IF PRODUCT & QUANTITY OF ANY CHAMBER IS INCORRECT (AS IT MAY BE AFTER RESTOCKING) THEN "YES" IS PRESSED TO INDICATE THAT A STOCK CHANGE IS REQUIRED. PRODUCT CODES & QUANTITIES ARE CHANGED VIA OPERATION OF SCREENS SIMILAR TO 12h THROUGH 12j ABOVE.

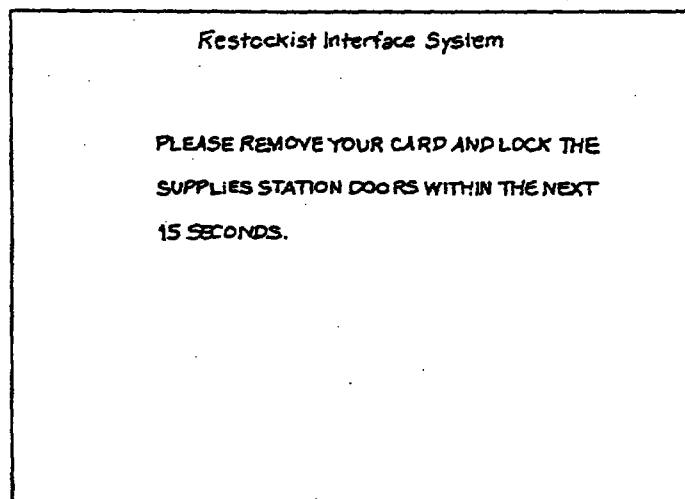
FIG. 12l

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*THIS SCREEN INSTRUCTS THE STOCKISTS TO
REMOVE PRODUCT WHICH HAS BEEN
DEPOSITED IN THE DEVICE FOR RECYCLING
& ALSO GENERATES A RECEIPT.*

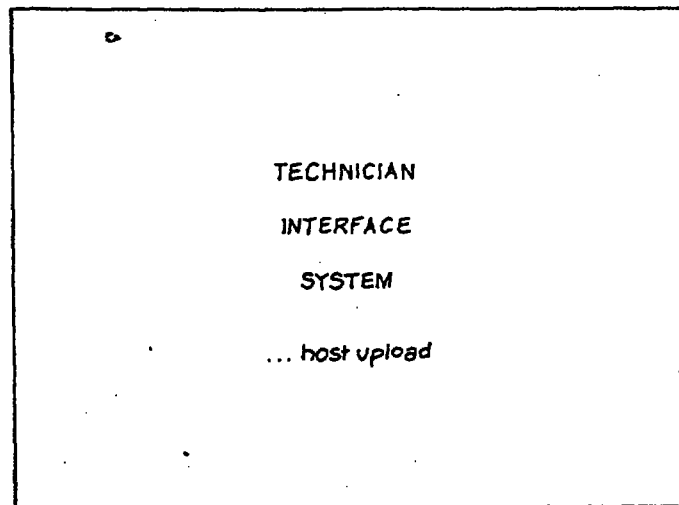
FIG. 12m



*FINAL SCREEN, AFTER WHICH THE
RESTOCKIST INTERFACE SYSTEM IS
SHUT DOWN.*

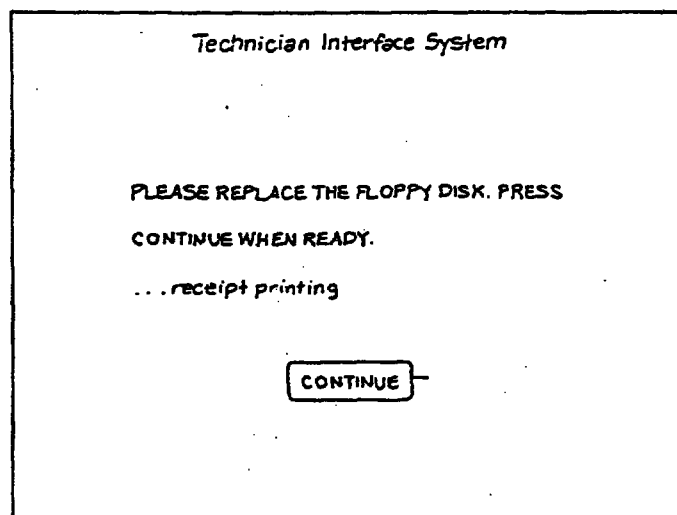
FIG. 12n

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THE TECHNICIAN ACCESSES THE SYSTEM VIA CARDSWIPE & PIN NUMBER, AS FOR THE STOCKIST ABOVE, & THE TECHNICIAN INTERFACE SYSTEM IS ACTIVATED.

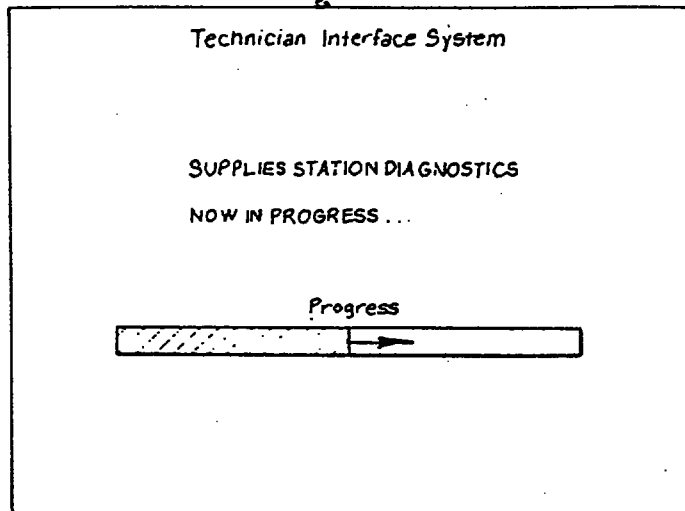
FIG. 13a



THIS SCREEN IS GENERATED IF DEVICES FLOPPY DISC REQUIRES REPLACING. SIMILAR SCREENS MAY BE GENERATED FOR PRINTER ROLL, RIBBON, ETC.

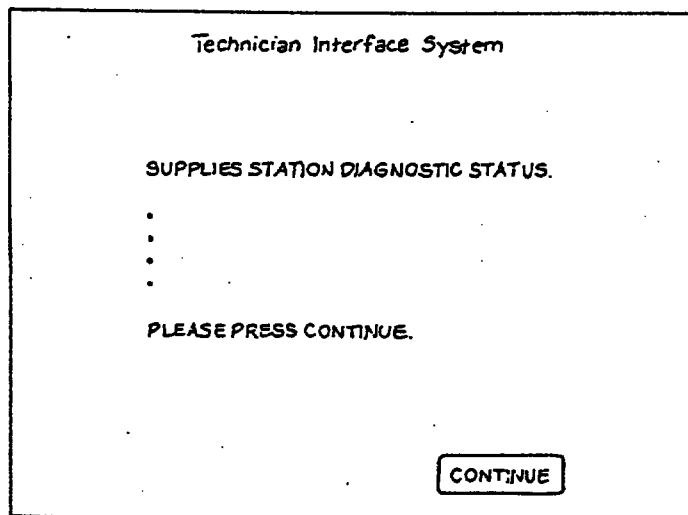
FIG. 13b

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*A DEVICE DIAGNOSTICS RUN IS COMMENCED
& THE TECHNICIAN WAITS FOR THIS TO
COMPLETE*

FIG. 13c



*THE STATUS IS OBSERVED BY THE TECHNICIAN
FOR EACH DIAGNOSTIC RUN. IF ANY DIAGNOSTIC RUN (FOR ANY
DIAGNOSED COMPENT OF THE DEVICE)
INDICATES MALFUNCTION THEN REPAIRS WILL
BE REQUIRED.*

FIG. 13d

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Technician Interface System

SUPPLIES STATION DIAGNOSTICS

NOW COMPLETED.

... receipt printing

CONTINUE

*WHEN DIAGNOSTICS IS COMPLETED A RECEIPT
IS PRINTED. THE TECHNICIAN LOCKS DOORS
& CONTROL IS RETURNED TO THE CUSTOMER
INTERFACE.*

FIG. 13 e

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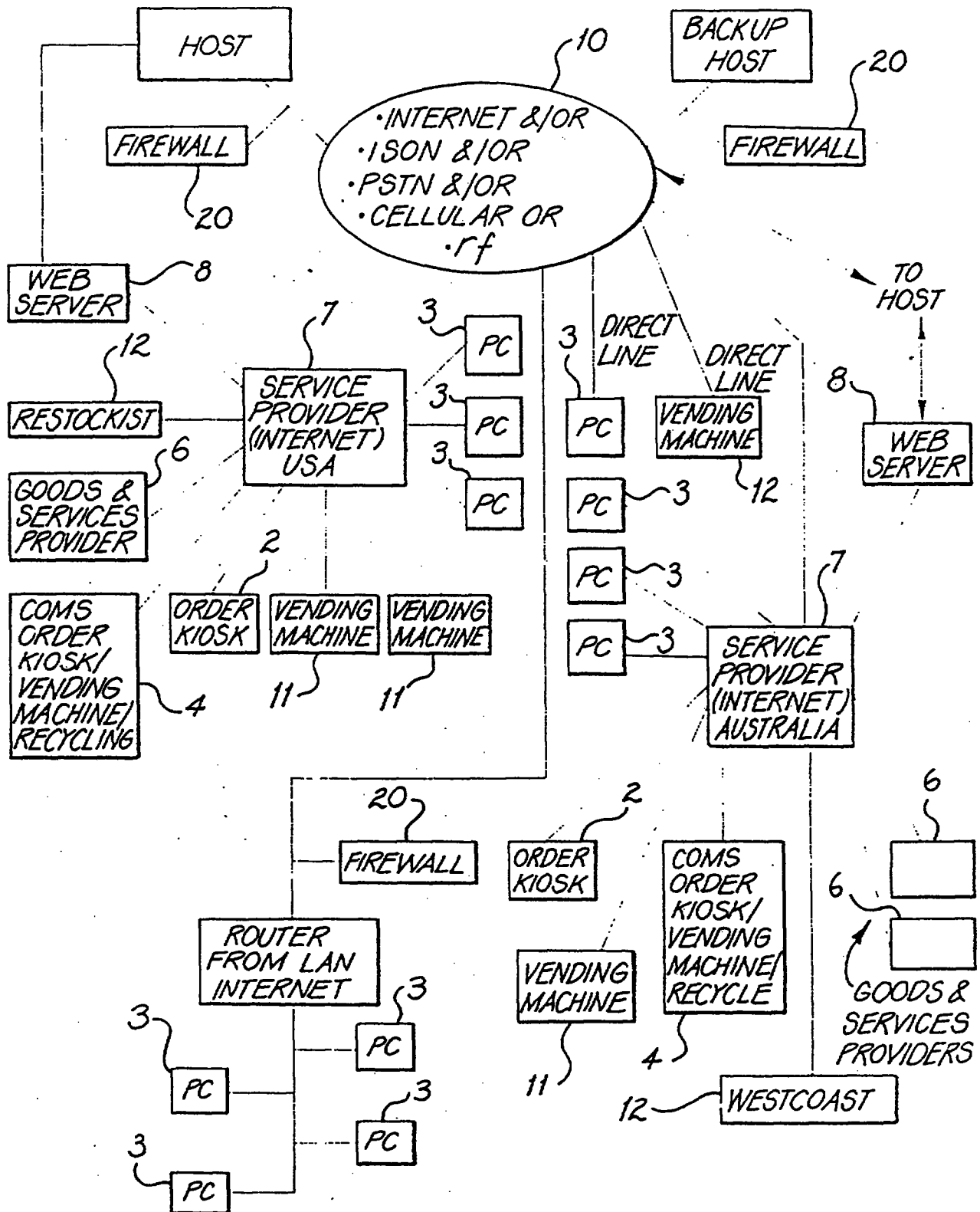


FIG. 14

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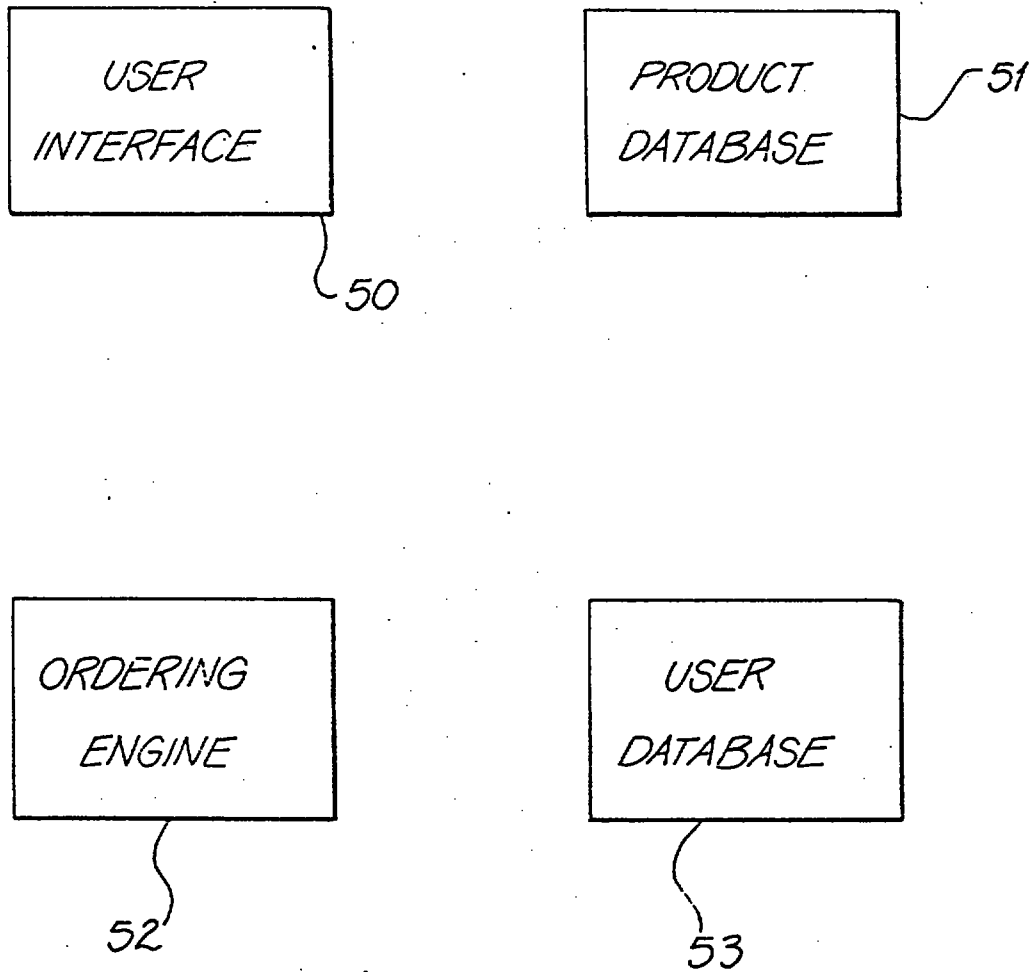


FIG. 15

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(57) Abstract

The present invention relates to an automated retailing system and to a remote ordering device which may be used in the retailing system. The automated retailing system comprises a plurality of remote ordering devices by which a user may identify himself and order product from remote location or have a product vended locally, where the product is available at the device. A networked capability of the system facilitates the conduct of organised marketing campaigns.

