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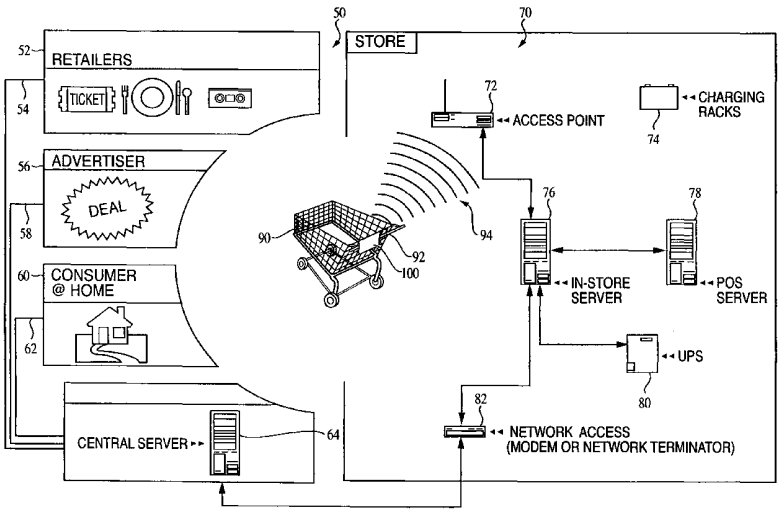
(54) Title: SELF-SERVICE SHOPPING CART




(57) Abstract: A self-service shopping cart system (50) and method for using the same whereby the retailer operating the system or the system provider (70) can generate revenues from advertisements and/or promotions, by providing the consumer with access to remote retailer (52), vendors and other organizations from the shopping cart and by allowing consumers to access the system over the Internet is disclosed. The system (50) is capable of displaying advertisements and/or promotions in various formats, modes, types and sizes and for different periods of time. Thus, the retailer or system provider can charge different prices for, and obtain various revenues from, the advertisements based on their format, length, etc. Moreover, by allowing the user to transact with remote retailers, vendors and other organizations, the retailer or system can offset some of the system costs to the remote retailers (52), vendors or organizations. In addition, since the system (50) is a self-service system, the number of store personnel can be reduced or augmented, which also saves the retailer money.

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# SELF-SERVICE SHOPPING CART

## BACKGROUND OF THE INVENTION

The invention relates to the field of shopping carts and more particularly to a self-service shopping cart.

The necessary technology for manufacturing "intelligent" shopping carts, or shopping carts that can help customers perform their shopping tasks, has been available for some time. Numerous proposals for such shopping carts have been put forth. However, none of these proposals has gained widespread acceptance. The primary reason for this lack of acceptance has been economic - intelligent shopping carts cost significantly more than traditional shopping carts. More recent proposals have included the use of advertising in connection with these carts in an attempt to reduce their cost by generating revenue from advertisers, but so far these proposals have not proven to be economical.

A further disadvantage of the existing automated shopping cart proposals relates to their configuration in a store environment. An intelligent shopping cart has to be convenient to the user and it also has to be cost effective for the store. The primary motivation, convenience and cost savings must be effected in the design of such a cart. It is therefore imperative that the cart replace or augment expensive functions that already exist in a store. One of these functions is the check-out counter. The check-out counter entails costs in terms of machinery, personnel, mistakes and theft, not to mention the inconvenience that a long line presents to the shopper, which can result in lost business. The convenience factor is also evident in terms of a way the cart can handle the transaction. It is advantageous for a consumer to perform a single transaction, preferably at the local where the goods

are, in order to quickly and efficiently purchase goods. Existing shopping cart proposals do not have these advantages.

For example, U.S. Patent 5,287,266 illustrates a shopping cart display system which is designed to provide advertisements to consumers. This system appears to be quite useful to shoppers who are interested in obtaining information about goods that they wish to purchase. However, this system does not provide a process or apparatus by which purchases can be completed at the cart or a means by which advertisements and/or promotions can be displayed in various formats, modes and sizes and for different periods of time allowing the retailer or system provider to charge different prices for, and obtain various revenues from, the advertisements and/or promotions based on their format, length, type, etc. Moreover, the system does not provide the consumer with access to remote retailers, vendors or organizations so that they can transact with them from the shopping cart.

Recent developments in the self-scanning art have included systems by NCR, Symbol Technologies, Optimal Robotics, Inter-Act Systems, Inc. and Klever Kart. NCR has developed a fixed check-out lane system. The system contains a self-scanning station, security scale, bagging station and a payment station similar to an automatic teller machine (ATM). The system is a fixed check-out lane and, among other things, is not designed for use on/with an intelligent shopping cart. The system developed by Symbol Technologies includes a hand-held scanner with a small display and a few buttons to add/delete and total a transaction. The system requires the user to check-out from a check-out lane. Optimal Robotics has developed a fixed check-out station similar to the NCR check-out station.

Inter-Act Systems, Inc. has developed a kiosk-like system, where consumers can obtain discounts based on the consumer's prior shopping history and currently available discounts. Klever Kart has developed a small device that is mounted to a handle of a shopping cart. The device displays messages that are triggered by infrared shelf transmitters mounted within the store's aisles.

With respect to developments concerning in-store advertisements, Act Media has developed an in-store advertising system that mounts plastic placards containing cardboard advertisements on the front of a shopping cart. The system also uses ceiling signs to show users where items are located through-out the store. Catalina Marketing has developed a system where store promotions, namely coupons are printed out at the check-out lane as part of the consumer's receipt. The promotions are based on the items that were scanned at the cash register.

None of the aforementioned systems, however, relate to a self-service shopping cart system in which advertisements and/or promotions can be displayed at the cart in various formats, modes, types and sizes and for different periods of time, allowing the retailer and/or system provider to charge different prices for, and obtain various revenues from, the advertisements and/or promotions based on their format, length, type, etc. Moreover, these system do not provide the consumer with access to remote retailers, vendors or organizations from the shopping cart.

## SUMMARY OF THE INVENTION

The present invention overcomes the difficulties of the prior art by providing a self-service shopping cart system and method for using the same whereby the retailer operating the system can generate revenues from: 1) at the cart advertisements and/or promotions, 2) by providing the consumer with access to

remote retailers, vendors and other organizations from the shopping cart and 3) by allowing consumers to access the system over the Internet. The system is capable of displaying advertisements and/or promotions in various formats, modes, types and sizes and for different periods of time. Thus, the retailer and/or system provider can charge different prices for, and obtain various revenues from, the advertisements and/or promotions based on their format, length, etc. Moreover, by allowing the user to transact with remote retailers, vendors, and other organizations, the retailer and/or system provider can offset some of the system costs to the remote retailers, vendors and organizations. In addition, since the system is a self-service system, the number of store personnel can be reduced or augmented, which also saves the retailer money.

In one aspect of the invention, a portable unit for use in a self scanning and check-out system is provided. The portable unit comprises a console apparatus, said console apparatus inputting identifying information associated with a user of the portable unit and product information associated with a scanned product, said console apparatus displaying pricing and other information associated with said product information; and communication means coupled to said console apparatus for transmitting said product information to, and receiving said pricing and other information from, a host computer, said communications means allowing the user of the portable unit to communicate with a remote organization while using said self scanning and check-out system.

In another aspect of the present invention, a self service shopping cart for use in a self scanning and check-out system is provided. In this aspect, the shopping cart comprises a portable unit detachably mounted to said shopping cart. The

portable unit comprises a console apparatus, said console apparatus inputting product information associated with a scanned product, said console apparatus displaying pricing and other information associated with said product information; and communication means coupled to said console apparatus for transmitting said product information to, and receiving said pricing and other information from, a host computer, said communications means allowing the user of the portable unit to communicate with a remote organization from the shopping cart.

In yet another aspect of the present invention, a self service shopping cart for use in a self scanning and check-out system is provided. The shopping cart comprises a portable unit detachably mounted to said shopping cart, said portable unit comprises a console apparatus, said console apparatus displaying advertising and/or promotional information. Said console apparatus displays said advertising and/or promotional information, based on predetermined criteria, in varying display formats, modes, types and sizes and for varying lengths of time.

In yet a further aspect of the invention, a self scanning and check-out system is provided. The system comprises a store server located within a store, said store server includes information associated with products to be sold in the store; a remote server coupled to said store server, said remote server providing the store server with access to a remote network; and a portable unit. The portable unit comprises a console apparatus, said console apparatus inputting product information associated with a scanned product, said console apparatus displaying pricing and other information associated with said product information; and communication means coupled to said console apparatus for transmitting said product information to, and receiving said pricing and other information from, said store server

computer, said communications means allowing the user of the portable unit to communicate with an organization remote from the store.

In another aspect of the present invention, a method of operating a self scanning and check-out system is provided. The method comprises the steps of providing a portable unit for inputting product information associated with a scanned product and inputting identifying information about a user of the portable unit; and displaying advertising and/or promotional information on the portable unit of the system. Said advertising and/or promotional information is displayed in varying display formats, modes, types and sizes and for varying lengths of time based on predetermined criteria.

It is an object of the present invention to provide a self-service shopping cart system.

It is an object of the invention to provide a self-service shopping cart that allows customers to pay for products without the aid of store personnel.

It is another object of the present invention to provide a portable unit for a self-service shopping cart system that allows a user to access and transact with remote retailers, vendors and other organizations from the self-service shopping cart.

It is yet another object of the present invention to provide a self-service shopping cart system that displays advertisements and/or promotions in varying display formats, modes, types and sizes and for varying lengths of time based on predetermined criteria.

It is yet a further object of the present invention to allow a consumer to access a self-service shopping cart system over the Internet to interact with the system from home.

A further object of the invention is to provide a shopping cart that can gather information pertaining to particular customers.

These and other objects of the present invention will be readily apparent from the description and drawings of preferred embodiments of the invention.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates an exemplary self-service shopping system according to an embodiment of the present invention.

FIG. 2 is a block diagram illustrating the components of the portable unit illustrated in FIG. 1.

FIG. 3 is a block diagram illustrating the various hardware and software components of the console unit illustrated in FIG. 2.

FIGS. 4a and 4b illustrate an example of a self-service shopping process performed by the present invention.

FIG. 5 illustrates a representative web page containing an availability message.

FIG. 6 illustrates an example of a page containing a personalized message.

FIG. 7 illustrates a representative page containing a ready to shop message.

FIG. 8 illustrates an exemplary session initialization process performed by the present invention.

FIGS. 9a and 9b illustrate an example of the scanned product processing performed by the present invention.

FIG. 10 illustrates a representative page having a scanned item message.

FIG. 11 illustrates another exemplary page for a scanned item.

FIG. 12 illustrates an example of a page for a scanned item in which a comparative advertisement or promotion is displayed instead of an advertisement or image of the scanned item.

FIG. 13 illustrates another exemplary page for a scanned item in which a comparative advertisement or promotion is displayed.

FIG. 14 illustrates another representative page containing a comparative advertisement or promotion.

FIG. 15 illustrates an example of a page used to display a cross-linked advertisement or promotion based on the scanned item.

FIG. 16 illustrates an exemplary shopper tools process performed according to an embodiment of the present invention.

FIG. 17 illustrates a representative shopper tools page.

FIG. 18 illustrates an example of a shopper points page.

FIG. 19 illustrates an exemplary page associated with the view shopping lists process performed by the present invention.

FIG. 20 illustrates exemplary store specials processing performed in accordance with an embodiment of the present invention.

FIG. 21 illustrates an representative page associated with the store specials process.

FIG. 22 illustrates view cart processing performed in accordance with an embodiment of the present invention.

FIG. 23 illustrates an exemplary view cart page.

FIG. 24 illustrates check-out processing performed by the present invention.

FIG. 25 illustrates an example of a check-out page.

FIG. 26 illustrates a sample rescan page.

FIG. 27 illustrates the shopper plaza function of the present invention.

FIG. 28 illustrates an example of a shopper plaza page containing a list of participating retailers.

FIG. 29 illustrates an exemplary web page for a remote organization selected during the shopper plaza process.

FIG. 30 illustrates an example of a shopper plaza network access function performed by the present invention.

## DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

FIG. 1 illustrates an exemplary self-service shopping system 50 according to an embodiment of the present invention. The system 50 contains a store system 70 comprising an in-store server (ISS) 76, a point-of-sale (POS) server 78, at least one charging rack 74, a plurality of wireless access points 72 (although only one is illustrated for convenience purposes), network access equipment 82 and an uninterruptible power supply (UPS) 80. Portable shopping units 100, that are adapted to be mounted on a handle 92 of a shopping cart 90, communicate with the ISS 76 via wireless communications, denoted generally by reference numeral 94. Although only one portable unit 100 is illustrated for convenience purposes, the system 50 may contain over two hundred such units 100. A transceiver in the portable unit 100 communicates with a transceiver in one of the access points 72, which communicates with the ISS 76 through a wired network such as e.g., a local area network (LAN) or wide area network (WAN). As will be described below, it is desirable that the portable unit 100 communicates with the ISS 76 using the

TCP/IP communications protocol. It is also desirable that the portable unit 100 operate as a TCP/IP web browser.

The ISS 76 is connected to the UPS 80 so that power to the ISS 76 is not interrupted. The ISS 76 is a key component of the store system 70 because it provides interaction with all other system components. In addition, the store data for the entire system 70 is contained in or attached to the ISS 76. The ISS 76 also contains advertisement, promotion and consumer information. As will be described below, the ISS 76 manages consumer sessions and transmits price information and loyalty program messages between the POS server 78 and activated portable units 100. The ISS 76 also logs transactions that take place during shopping sessions and performs restart and data gathering functions. The ISS 76 is designed to support numerous simultaneous sessions from individual portable units 100.

The ISS 76 is also connected to the POS server 78 through the store network. The POS server 78 maintains product information for all of the products within the store. This information can include pricing information, product name, loyalty program messages, etc. associated with a product's UPC code or equivalent thereof. The POS server 76 allows store personnel to modify product information without disrupting the operation of the system 50. The POS server 78 receives and responds to requests for data from the ISS 76.

The store system 70 contains at least one charging rack 74. The number of racks 74 contained in a store system 70 is dependent upon the number of portable units 100 the store will use. The racks 74 serve a dual purpose. First, the racks 74 are used to recharge the portable units 100. In addition, the racks 74 may be used as a security mechanism for the portable units 100. This may be

accomplished, for example, by providing a card reader for magnetic cards, "smart cards" (i.e., cards with a computer chip) or other cards, or any other apparatus (e.g., a dip reader) on the rack 74 that will not allow access to a portable unit 100 until an authorized card, identification code, physical key, etc. is input into the rack 74. If a card or code is used to identify the user, this information is communicated to the ISS 76, or other server, via any type of communications link. The rack 74 may include a video monitor or may be positioned next to a video monitor for displaying instructional or promotional information, videos or advertisements.

The ISS 76 is also connected to the network access equipment 82. The network access equipment 82, which may be a modem or network terminator, allows a central server 64 to be connected to the store system 70. The central server 82 allows remote retailers 52, advertisers 56 and consumers 60 (from their homes or offices) to access the store system 70 via their respective connections 54, 58 and 62 to the central server 64. It is desirable that the retailers 52, advertisers 56 and consumers 60 access the store system over the Internet. Similarly, the central server 64 allows users of the portable units 100 to access the Internet and remote retailers 52 while they are in the store, so that the user may order and purchase goods and services from the retailers 52 during their shopping session. This feature of the present invention will be described in more detail below with respect to FIGS. 27-29.

FIG. 2 is a block diagram illustrating the components of the portable unit 100. The unit 100 includes a card reader 102, a bar code scanner 104 and a console unit 110. A physical attachment mechanism 96 is provided on the shopping cart handle so that the unit 100 may be attached and removed from the shopping cart.

The bar code scanner 104 is designed to read the UPC (Uniform Product Code) labels commonly found on consumer product packaging. Upon scanning a UPC label, the console unit transmits the information to the ISS, which in conjunction with the POS server, retrieves and returns pricing and other related information associated with the scanned product to the portable unit.

The card reader 102 may be a conventional magnetic strip reader adapted to read magnetic strip information from store, credit, debit or other magnetic strip cards. The card reader 102 may also be a computerized reader capable of reading smart cards or equivalent cards. Use of the card reader 102 allows customer information to be collected by the self-service shopping cart system of the present invention. This information allows a shopping history for that customer to be compiled. Such information can be used by advertisers and/or promoters to produce advertisements and/or promotions targeted towards a particular customer. For example, advertisements, promotions or loyalty program messages for items normally purchased by a customer (or competing items) may be displayed at the start of the shopping session. The location of individual customers may also be monitored in order to analyze in-store traffic patterns. Moreover, the card reader 102 can be used by the customer to pay for the goods at the shopping cart when she is finished shopping.

The card reader 102 and bar code scanner 104 are coupled to and communicate with the console unit 110. Information received from the reader 102 or scanner 104 is sent to the ISS from the console 110. As will be discussed in more detail below, the console 110 will serve as a consumer input device, display panel

and communication mechanism between the consumer, ISS, remote retailers and the Internet.

FIG. 3 is a block diagram illustrating the various hardware and software components of the console unit 110. In a preferred embodiment, the console unit 110 is a portable computer having a touch panel display, such as the Fujitsu 7500SA computer, with the architecture illustrated in FIG. 3. The console unit 110 will have a microprocessor or reduced instruction set computer (RISC) processor 126, custom hardware 128 and a power system 130. The console unit 110 will include a multitasking operating system 120, wireless/radio LAN driver 118, custom drivers 122, serial drivers 124, web browser 116, browser plugins 114 and graphics support 112 software.

The operating system 120 can be any suitable multitasking operating system such as WINDOWS® CE or WINDOWS® 98 by MICROSOFT®. The web browser 116 can be any browser suitable to run with the selected operating system 120, such as the Internet Explorer by MICROSOFT®. The browser 116 will be used to provide an interactive graphical user interface (GUI) for the console unit 110 allowing the unit 110 to communicate with the ISS with hypertext mark-up language (HTML) formatted messages. The graphics support 112 and plugins 114, which are used by the browser 116, must be compatible with the browser 116 and the operating system 120.

The LAN driver 118 provides the wireless communications interface between the console unit 110, its hardware and software components and the ISS. The serials driver 124 provide an interface between the console unit 110, its hardware and software components and the bar code scanner and card reader. The

power system 130 provides power to the unit 110. The processor 126 provides the major computational and logical functions for the unit 110 and may contain memory for storing data and program instructions. The custom hardware 128 may also include volatile and non-volatile memory. The custom drivers 124 may include software necessary to operate any of the custom hardware 128.

As will become apparent from the following description, the console unit 110 will operate as a web browser. The console unit 110 will display interactive web pages having HTML links, virtual buttons or icons and will input user actions via the touch panel display, bar code scanner or card reader. The console unit 110 may generate requests based on these user inputs, and transmit the requests to the ISS. The ISS obtains and transmits response information fulfilling the request. The console unit 110 receives, processes and displays the response information from the ISS. By structuring the console unit 110 and the shopping system in this manner, the system of the present invention is easy to develop and maintain (i.e., it is flexible). Moreover, costs for system hardware and software are greatly reduced because powerful browser software already exists for today's processing environments and thus, there is no need to design or purchase complex system hardware to implement the functions of the present invention.

The self-service system of the present invention is a self scanning system. By "self scanning" it is meant that the shopper will be able to scan a product with the bar code scanner, by herself, to verify the price of the product and to check-out of the store on her own. Store personnel may be decreased, augmented or eliminated by such a system. Thus, the process of totaling the goods purchased and the actual payment may be done at the portable unit. The user can total the cost of

goods, bag the goods and then pay for the goods prior to the leaving the store and without the need of store personnel.

FIGS. 4a and 4b illustrate an example of a shopping process 200 performed by the present invention. Initially, inactive portable units are located in the charging racks. The portable units within the racks that are available for use (i.e., their power systems are charged) will display an availability message or signal (e.g., an audible message or tone or a flashing light). A representative page displayed on the portable unit containing an "availability" message 308 is illustrated in FIG. 5. Reference numeral 300 is used to illustrate an exemplary display region 300 for the portable unit's console. This example display region 300 is partitioned into a main region or frame 302, side bar region 304 and a status bar region 306. The main region 302 contains the availability message 308, which in this example alerts the consumer that the portable unit is ready for use. The main region 302 will be used throughout the shopping session to display various messages, advertisements, promotions, product and store information. The side bar region 304 will be used to display HTML links, icons or virtual buttons for use by the consumer. The status bar region 306 will be used to display status information for the current shopping session as well as static advertisements and/or promotions. It should be noted that any style or framing technique supported by the web browser may be used for the display region 300. In this example, the side bar region 304 simulates the top of a shopping bag for aesthetic purposes and is blank because user inputs are not required. The status bar region 306 does not contain any shopping session information (because a session is not in progress), but does contain a store log 310. The store logo 310 is used as an advertisement for the store the user is in,

but could be replaced by a sponsor's logo or other advertisement or promotion if additional revenue were desired.

At step 204, the consumer enters user information into the storage rack. As noted above, user information could be input by swiping an authorized card, entering an identification code or inserting a physical key into the rack. It is desirable that the user swipe a store or payment card (such as a credit or debit card) into a card reader of the storage rack. The storage rack will transmit this information to the ISS where the system performs a session initialization process (step 206).

FIG. 8 illustrates an exemplary session initialization process ( step 206). At step 600, the system validates the user data input into the rack. If it is determined that this is a first time user of the system, an instructional video is played on the rack's monitor, or on a monitor next to the rack (step 604). The system can determine a first time user by checking shopper history information stored on the ISS or other suitable storage medium. At step 606 shopping session data is initialized. This may include clearing accumulated purchase, savings and tax information and any variables or flags required by the ISS or POS server. This may also include the opening of a session log to keep track of the shopping session. The process then determines the availability of the portable units currently stored in the storage rack (step 608) and selects one unit that is ready for the shopping session (step 610).

Referring again to FIGS. 4a and 4b, after the session initialization process (step 206), a single portable unit is made available to the user (step 208) and the available portable unit displays a personalized message to the consumer (step 210).

FIG. 6 illustrates an example of a page containing a "personalized" message 312 on the main region 302 of the portable unit's display region 300. It is worth noting that the shopping session can be sponsored by a particular manufacturer, retailer or other organization. Accordingly, the sponsor's logo 314 can be displayed prominently along with the personalized message 312. Although not required, the side bar region 304 contains virtual buttons 316, 318 and 320 associated with various user options and system functions.

At step 212 the user mounts the portable unit on to the handle of the shopping cart. It is desirable that the system perform a check to determine if the portable unit is mounted correctly (step 214). If it is determined that the portable unit is not mounted correctly, the unit alerts the consumer to try again and the method 200 proceeds to step 212. The alert can be audible or visual. If it is determined at step 214 that the portable unit is mounted correctly, the mounted unit displays a ready to shop message (step 218).

FIG. 7 illustrates a representative page containing a "ready to shop" message 334 on the main region 302 of the portable unit's display region 300. The store's logo 310 can be displayed prominently along with the ready to shop message 334. To derive additional revenue, the sponsor logo or another advertisement or promotion may be displayed in the main region 302. At this point, the side bar region 304 contains a "shopper tools" virtual button 316, "store specials" virtual button 318, "shopper plaza" virtual button 320 and a "view cart" virtual button 322. As will become apparent, the shopper tools virtual button 316 will allow the consumer to access a shopper tools function of the system. Similarly, the store specials virtual button 318, shopper plaza virtual button 320 and view cart virtual

button 322 will allow the consumer to access store specials, shopper plaza and view cart functions of the system, respectively (described below in more detail).

The status bar region 306 contains a store logo 310, sponsor logo 314, a subtotal identifier 326, savings identifier 328, tax identifier 330, total identifier 332, and a "check-out" virtual button 324. The subtotal, savings, tax and total identifiers 326, 328, 330, 332, which are static identifiers, will be used to identify the session's accumulated subtotal, sales or other savings, sales tax and accumulated purchase total, respectively. The check-out virtual button 324 will allow the consumer access to a check-out function of the system. The check-out function can be used by the consumer to pay for items scanned during the shopping session at the shopping cart and without the intervention of store personnel.

Once the portable unit is ready to shop, the system will perform several parallel tasks until session termination processing (step 238) is performed. These tasks include maintaining the status bar (step 220), running and scheduling advertisements and/or promotions (step 222) and inputting and deciphering user actions (step 224).

The status bar will be maintained during the shopping session as the consumer adds or removes scanned products from the shopping cart and at other times when the status bar information changes during the shopping session. This processing can be performed during the other tasks and functions of the system (described below).

The session termination processing can be performed after a user has ended the shopping session (by checking-out, paying for the goods or canceling the session) and, if desired, returning the portable unit to the storage rack. History and

log files can be updated and stored, while temporary files may be deleted at this time.

The running and scheduling of advertisements and/or promotions can be performed periodically, or as will be described below, in conjunction with the scanning of particular products. A key feature of the present invention is its ability to allow the retailer and/or system provider to obtain various revenues by offering numerous advertisement and promotional opportunities to manufacturers and other retailers. The present invention can display advertisements and/or promotions in varying formats, sizes, types and modes and for different lengths of time. That is, the advertisements or promotions can take up a small area of the portable unit's display region, an intermediate area or a large area. Each size having an associated fee. The advertisement or promotion mode could include static or video advertisements or promotions. Similarly, the length of time the advertisement or promotion remains on the display region could also vary (e.g., from a few seconds to a permanent display). Each time period having an associated fee. The present invention implements cross-linking of items (e.g., "Potato chips would go good with your soda purchase, try brand X") and comparative advertisements or promotions (i.e., showing a Brand B soda when Brand A soda is scanned). As noted above, the present invention allows the shopping session to be sponsored by a particular manufacturer or retailer. All of these options can be easily implemented into the present invention due to its system configuration. The store can sell the advertisements and/or promotions at different prices depending upon the advertisement or promotion's format, length, type and style, which provides additional revenues to the store and a desirable opportunity to advertisers and

promoters. Moreover, the advertisers/promoters can communicate directly with the central server over the Internet. This provides the advertisers/promoters with the ability to download new information, advertisements or promotions to the system directly if needed.

The input and deciphering process (step 224) performed by the present invention will initiates several tasks dependent upon the input user action. An exemplary list of deciphered actions includes: a Scanned Product, which initiates a scanned product processing (step 226); Shopper Tools, which initiates a shopper tools process (step 228), Store Specials, which includes a store specials process (step 230); Shopper Plaza, which initiates a shopper plaza function (step 232); View Cart, which initiates a view cart function (step 234); and Check-Out, which initiates a check-out process (step 236). These functions are described in detail below.

Referring to FIGS. 9a and 9b, an example of the scanned product processing (step 226) is now described. This process runs when it is determined that the consumer has used the bar code scanner to scan a product's UPC label. At step 640, the system will provide an indication that the UPC code has been read by the scanner. This indication could be an audible indication (e.g., a beep), a visual indication (e.g., blinking a light-emitting diode (LED)) or both. The console software then compares the scanned UPC with the previously scanned UPC. If they match, a duplication flag is set (step 642). This flag will be used by the ISS to prevent duplicate advertisements and/or promotions from being displayed to the consumer. At step 644 the scanned code, duplication flag and shopping session information is formatted into a HTML message and transmitted to the ISS.

At step 646 the ISS receives and processes the information from the portable unit (sent at step 644). The ISS also passes this information to the POS server. At step 648 the ISS checks the status of the duplication flag and its database for other any advertisement or promotional information associated with the scanned UPC code. At step 650 it is determined if the duplication flag is set. If it is determined that the duplication flag has not been set, the process determines if there is an advertisement and/or promotion associated with the scanned code (step 652). If it is determined that no advertisement and/or promotion is associated with the code or if the duplication flag is set, the process continues at step 658.

If at step 652 it is determined that there is an advertisement and/or promotion associated with the scanned code, the process continues at step 654 to determine if the advertisement and/or promotion needs to be transmitted to the portable unit (or if the associated advertisement and/or promotion is already stored on the portable unit). It is desired to store some advertisements and promotions on the portable unit prior to the shopping session. The pre-storing of advertisements and promotions will speed up the transmission times between the ISS and portable units. Any advertisements or promotions could be stored on the portable unit, but in a preferred embodiment, the system could use the consumer's shopping history to place targeted advertisements and/or promotions. Alternatively, the system could pre-store the advertisements and promotions associated with the store's top 20 scanned products, cross-linked advertisements/promotions or comparative advertisements/promotions associated with the store's top scanned products. Any technique or combination of techniques can be used.

If it is determined that the associated advertisement or promotion needs to be transmitted to the portable unit, then at step 656 the ISS formats the advertisement or promotional information so that it may be transmitted to the portable unit (if it is not already in the correct format). At step 658 the ISS receives the product information associated with the scanned code from the POS server. As noted above, this information could include pricing, brand name or description of the scanned product. At step 660 the ISS formats all the product, session, advertisement and promotional information into a message destined for the portable unit. As noted earlier, the message is formatted so that it is suitable for a TCP/IP transmission and displayable on the browser running on the portable unit. The message is then transmitted to the portable unit.

At step 662 the portable unit displays a web page containing the scanned product information, including any advertisements, promotions or product descriptions in the display region of the portable unit. FIG. 10 illustrates a representative page having a "scanned item" message 336 on the display region 300 of the portable unit. The page includes an item description 338 comprising the description of the scanned product (e.g., 32 oz. ketchup) and its price (e.g., $3.29). A generic product image 342 is also displayed in the main region 302. It should be noted that the product image 342 could be a specific image of the actual scanned product, an advertisement or promotion for the scanned product, an image of a cross-linked product associated with the scanned product or a comparative advertisement or promotion that was triggered by the scanned product. The main display region 302 also includes an "add item" virtual button 352 and a "cancel item" virtual button 354 (discussed below with reference to steps 666 to 672). It

should be noted that the status bar region 306 has been updated to include a subtotal amount 344 next to the subtotal identifier 326, savings amount 346 next to the savings identifier 328, tax amount 348 next to the tax identifier 330 and a total amount 350 next to the total identifier 332 (as a result of the status bar processing performed by the present invention).

At step 664 the portable unit inputs a user action. At step 666 it is determined if the action was the selection of the add item virtual button. If it is determined that the add item virtual button was selected by the consumer, the item is added to the shopping session and the session information is updated (step 668). If necessary, the added information is transmitted to the ISS for additional processing. If it is determined that the cancel item virtual button was selected (step 670), then the item is canceled from the session (672). If necessary, the canceled information is transmitted to the ISS for additional processing. It should be noted that if the consumer selects any other active virtual button, then the process 226 would exit and control would pass to the appropriate process.

FIG. 11 illustrates another exemplary page for a scanned item. The page includes an item description 356 comprising the description of the scanned product (e.g., 24 pack of Brand A soda) and its price (e.g., $6.99). No product image is displayed. FIG. 12 illustrates an example of a page for a scanned item in which a comparative advertisement or promotion 358 is displayed instead of an advertisement or image of the scanned item. In this scenario, the user scanned Brand A soda, but a comparative advertisement 358 for Brand B soda was displayed. FIG. 13 illustrates another exemplary page for a scanned item in which a comparative advertisement 360 is displayed. In this example, the user scanned

Brand A soda, but a much larger comparative advertisement 358 for Brand B soda was displayed. FIG. 14 illustrates another representative page for a comparative advertisement 362. In this example, the entire main region 302 of the display is used for an advertisement of Brand B soda. This larger advertisement could be a full motion video advertisement that runs for a specified period before the display 300 is updated to look like one of the displays illustrated in FIGS. 10 to 13. It should be appreciated that the advertisements of FIGS. 11 to 14 could be replaced with, or combined with, promotional information. FIG. 15 illustrates an example of a page used to display a cross-linked advertisement and/or promotions 366 based on the scanned item. In this example, the main display region 302 includes an item description 364 comprising the description of the scanned product (e.g., dozen Grade A large eggs) and its price (e.g., $1.29). In this example, the user scanned Grade A eggs, but a cross-linked advertisement 366 for bacon is displayed. It should be appreciated that the preceding were just some of the examples of the advertisements that the present invention can handle.

FIG. 16 illustrates an exemplary shopper tools process (step 228) according to an embodiment of the present invention. This process 228 will run when it is determined that the consumer has selected the shopper tools virtual button from a web page displayed on the portable unit. The process begins by displaying an interactive shopper tools GUI or web page on the portable unit (step 680). FIG. 17 illustrates a representative shopper tools page. The page includes a "shopper tools" message 370, a "help" virtual button 372, "view points" virtual button 374 and a "view shopping lists" virtual button 376. To fill up space on the page, this example displays a large store logo 310 in the main display region 302. It

is conceivable that the store could also sell or lease this space to an advertiser to obtain additional revenues.

At step 682 the portable unit inputs a user action. If it is determined that the user selected the help virtual button (step 684), then the process 228 displays a page, or series of interactive pages, designed to provide help to the consumer (step 686). If it is determined that the user selected the view points virtual button (step 688), then the process 228 displays a shopper points page, or series of interactive shopper points pages (step 690). It should be appreciated that a shopper points page could also be a savings club, loyalty program or other similar program provided by the retailer or system provider and is not limited to a points program. FIG. 18 illustrates an example of a shopper points page. The page includes a "view points" message 378, a "personalized" message 380 and a total 384 of frequent shopper points, savings or other benefits accumulated by the consumer. According to the example, the main display region 302 also provides a virtual button 382 allowing the consumer to obtain details and reward information. It should be apparent that the view points page could be easily adapted to implement any store's frequent shopper programs or other promotional techniques without undue expense or deviating from the scope of the present invention.

If it is determined that the user selected the view shopping lists virtual button (step 692), then the process displays a view shopping lists page, or series of interactive view shopping lists pages (step 694). FIG. 19 illustrates an exemplary page associated with the view shopping lists process. This page illustrates an example of a home shopping list created by the consumer that has been transmitted to the ISS via the Internet from the consumer's home (described in more detail

below), generated automatically by the system from the consumer's shopping history or input into the system by another suitable means. The page includes a "my home list" message 390 identifying the origin of the shopping list, a list of items 394 and check boxes 392 indicating whether the item was scanned in by the consumer. The page also includes a "scan up" virtual button 396 and a "scan down" virtual button 398 allowing the consumer to scroll through the shopping list. Although not illustrated, there can be a page allowing the consumer to select from a list of shopping lists. Once the user selects a shopping list, a page similar to the one illustrated in FIG. 19 can be displayed. It should be noted that if the consumer selects any other active virtual button, then the process would exit and control would pass to the appropriate process.

FIG. 20 illustrates exemplary store special processing (step 230) performed in accordance with an embodiment of the present invention. This process 230 runs when it is determined that the consumer has selected the store specials virtual button from a web page displayed on the portable unit. The process 230 begins by displaying an interactive store specials GUI or web page on the portable unit (step 700). FIG. 21 illustrates an representative page associated with the store specials process. The page includes an "also on sale" message 400 and a listing 402 of virtual buttons and links to various department within the store. If the user selects one of the departments, a page associated with the user's selection would be displayed. This page associated with the user's selection would contain a list of specials and possibly advertisements or promotions associated with the specials.

Referring again to FIG. 20, at step 702 a user action is input and if it is determined that a listed department was selected, the process would display the page

associated with the department. If the consumer selected another active virtual button, then the process would exit and control would pass to the process associated with the consumer's selection.

FIG. 22 illustrates view cart processing (step 234) performed in accordance with an embodiment of the present invention. This process runs when it is determined that the consumer has selected the view cart virtual button from a displayed page on the portable unit. The process begins by displaying an interactive view cart GUI or web page on the portable unit (step 720). FIG. 23 illustrates an exemplary view cart page. The page includes a "view cart" message 420 identifying the page, a list 422 of scanned items, a scroll up virtual button 396, a "remove item" virtual button 424 and a scroll down virtual button 398. The virtual buttons 396, 398 and 424 are used by the consumer to hi-light an item, scroll through the list 422 and remove any items if desired.

Referring again to FIG. 22, a user action is input at step 724. If the action is the scroll up virtual button (step 726), then the list of items on the displayed page is upwardly scrolled (step 728). If the user action is the scroll down virtual button (step 730), then the list of items on the displayed page is downwardly scrolled (step 732). If the user action is the remove item up virtual button (step 734), then the hi-lighted item is removed from the list and most importantly, canceled from the session (step 736). It may be necessary to transmit a canceled item message to the ISS to properly update the current shopping session information and log. If the consumer selected another active virtual button, then the process would exit and control would pass to the process associated with the consumer's selection.

FIG. 24 illustrates check-out processing (step 236) performed by the present invention. This process runs when it is determined that the consumer has selected the check-out virtual button from a displayed page on the portable unit. The process begins by displaying an interactive check-out GUI or web page on the portable unit (step 750). FIG. 25 illustrates an example of a check-out page. The page includes a "check-out" message 430 used to alert the consumer that the check-out process has been selected. The page also contains a "payment selection" message 432, a "cash" virtual button 436, "check" virtual button 438 and a "credit/debit" virtual button 440. These buttons 436, 438 and 440 will be used by the shopper to complete the shopping session and possibly pay for the scanned goods at the shopping cart.

Referring again to FIG. 24, once the GUI has been displayed, the process inputs a user action (step 752). As a security measure, the system of the present invention will implement a random rescan feature. That is, every once in a while, as determined by the retailer, the system will select a consumer to have the contents of her shopping cart scanned by store personnel. This rescanning feature can be used to determine if the consumer has scanned everything in her cart. This rescan feature is designed to keep the consumer honest. If the consumer knows there's a possibility that her cart will be rescanned, she will be less likely to place items in the cart without scanning them. Although this feature is described as "random," it can be implemented in any manner. For example, the ISS can keep track of consumers who constantly add and remove items from the cart and target these consumers for the rescan.

If the consumer is selected for a rescan (step 754), then a page is displayed directing the consumer to a rescan facility or check-out lane (step 764) where store personnel scan the items in the cart and finalize the shopping session (step 766). Security measures can be taken if it is determined that the shopper was attempting to leave the store without paying for items in the cart. One security measure can include prohibiting the shopper from using the portable units in the future. FIG. 26 illustrates a sample rescan page. The page includes a polite "rescan" message 450 and instructions directing the consumer to a rescan facility 452. The page could contain the store logo 310, other advertisements and promotions or an explanation of the randomness of the rescan process.

If the user is not selected for a rescan, the process continues by determining if the user selected a cash or check payment method (step 756). If the user selected cash or check, the process finalizes the shopping session and purchase information (step 758), displays an appropriate page (step 760) that directs the user to a check-out facility (step 762). At the check-out facility, the user will pay for the goods and either return the portable unit to the store personnel or be directed to place the unit back on the storage rack. If the user selected a credit/debit payment (step 768), the process finalizes the shopping session and purchase information (step 770), authorizes the payment by checking with the bank or credit card company associated with the payment card (step 772) and displays an appropriate page on the portable unit that the shopping session is complete and that the portable unit should be returned (step 774). Thus, the user can check-out from the cart without the aid of store personnel. If there are any problems during the checkout process, the shopper will know immediately and without having to wait on a large check-out line.

FIG. 27 illustrates the shopper plaza function (step 232) of the present invention. The shopper plaza function allows the user to access multiple local retail outlets, such as a pizza parlor, restaurant, movie theatre, video store, etc. from the cart. This way, consumers can order pizza to be picked-up or delivered, purchase movie tickets, make restaurant reservations, and rent movies from the shopping cart while shopping for groceries. Thus, the consumer can shop for groceries and transact with other vendors in the community from the cart. The Shopper Plaza function is also accessible from the consumer's home over the Internet (described below with reference to FIG. 30).

The process runs when it is determined that the consumer has selected the shopper plaza virtual button from the portable unit (or over the Internet). The process begins by displaying an interactive shopper plaza GUI or web page (step 780). This shopper plaza page can contain a list of participating retailers, vendors, theaters, etc. The list can be organized by locality, vicinity to the store, category or in any other manner that would make it easy for the consumer to select a remote retailer, service, etc. from the cart. FIG. 28 illustrates an example of a shopper plaza page containing a list of participating video rental retailers. The page includes a "shopper plaza" message 460, a video rental identifier 462 and virtual buttons 464, 466 and 468 associated with three participating video stores within the local community.

Referring again to FIG. 27, a user action is input at step 782. At step 748 it is determined if the user selected a shopper plaza function. If the user did not select a shopper plaza function, the process terminates and control may pass to the selected process. If the user selected a shopper plaza function, the appropriate page

or GUI is displayed at step 786 and the consumer is connected to the remote retailer/organization through a "shopper plaza network" (described below). The user's interaction with the remote organization's page is processed in an appropriate manner (Step 788). If the user continues selecting shopper plaza functions, then the process continues at step 784.

Although it is not illustrated, it is also possible for the consumer to access the Internet directly from within the store. By allowing the consumer to access the Internet from the cart, the portable unit is capable of displaying local and global news, weather and entertainment information. Thus, keeping the consumer up to date with late breaking news, weather and entertainment developments. The portable unit would allow the consumer to access games, travel information, various search engines or any other Internet related service from the cart as well.

FIG. 29 illustrates an exemplary web page for a remote organization selected during the shopper plaza process. In this example, the user has selected "Video Store 1" located on fifth avenue. Notice how the video store's page is framed within the main display region 302. This type of framing prevents the consumer from becoming disoriented during the shopper plaza process. The displayed page contains a "Video Store 1" message header 470 to inform the consumer of her selection. The page contains the remote retailer's logo and personalized message 472, an advertisement 474 for users of the system of the present invention and a list 476 of videos available for renting. The list 476 contains numerous virtual buttons 478, 480, 482 for selecting a video and a virtual button 484 for seeing more available videos. The page can also contain instructions 486 from the remote retailer to aid the consumer in completing a transaction. It should

be appreciated that the page illustrated in FIG. 29 is an example and that any page or series of pages can be used.

Referring again to FIG. 1, the system 50 of the present invention uses a central server 64 that allows remote retailers 54, advertisers 58 and consumers 60 to access the ISS 76 of a particular store via the Internet or other suitable network connection. As part of the present invention, the system 50 will maintain a home page for each of its store systems 70. The home pages provide access into the ISS 76 and the shopper plaza function associated with the store system 70. The web pages and the connections through the Internet make up a "shopper plaza network."

FIG. 30 illustrates an example of a shopper plaza network access function 800 performed by the present invention. As will be described below, the process allows a user to log into a store's system from home (or any other computer), where the user can: (1) create and manage shopping lists, (2) find or create recipes, (3) view retailer specials, (4) redeem "loyalty" or frequent shopper points, (5) pre-shop for a subsequent grocery pick-up at the store, and (6) send shopping reminders to the server and/or a shopper in the store. These on-line features can be used to generate revenue by providing: "branded" shopping lists (e.g., the shopper adds mouthwash to her list and the system returns "Brand A"), pre-shopping assistance (convenience fees shared with the retailer) and recipes (e.g., the user enters ingredients and the system suggests a specific brand).

At step 802 the user connects to the ISS via the shopper plaza network. This can be done by accessing the store's shopper plaza home page or a central shopper plaza web page, which then directs the user to the appropriate store. At

step 804 the store's external shopper plaza web page is displayed. At step 806 the system inputs and deciphers user actions associated with the displayed pages. If the user selects Shopping Lists, then processing begins allowing the user to create, manage and store shopping lists (step 808). If the user selects Recipes, then processing begins allowing the user to find or create recipes (step 810). If the user selects View Specials, then processing begins allowing the user to view retailer specials (step 812). If the user selects Shopper Points, then processing begins allowing the user to redeem "loyalty" or frequent shopper points (step 814). If the user selects Pre-Shop, then processing begins allowing the user to pre-shop for a subsequent grocery pick-up at the store (step 816). If the user selects End Session, then the session is disconnected (step 822).

Additional disclosure relating to the invention is found in co-pending U.S. Application No. 08/639,940, filed April 16, 1996, which is hereby incorporated by reference.

While the invention has been described in detail in connection with the preferred embodiments known at the time, it should be readily understood that the invention is not limited to such disclosed embodiments. Rather, the invention can be modified to incorporate any number of variations, alterations, substitutions or equivalent arrangements not heretofore described, but which are commensurate with the spirit and scope of the invention. Accordingly, the invention is not to be seen as limited by the foregoing description, but is only limited by the scope of the appended claims.

What is claimed is:

1. A portable unit for use in a self scanning and check-out system, said portable unit comprising:

a console apparatus, said console apparatus inputting identifying information associated with a user of the portable unit and product information associated with a scanned product, said console apparatus displaying at least pricing information associated with said product information; and

communication means coupled to said console apparatus for transmitting said product information to, and receiving said pricing information from, a host computer, said communications means allowing the user of the portable unit to communicate with a remote organization while using said self scanning and check-out system.

2. The portable unit of claim 1, wherein said communication means allows the user of the portable unit to order goods or services from the remote organization while using said self scanning and check-out system.

3. The portable unit of claim 1, wherein said console apparatus displays information about the remote organization.

4. The portable unit of claim 3, wherein said information about the remote organization comprises advertising and product information.

5. The portable unit of claim 1, wherein said communications means allows the user to access the Internet while using said self scanning and check-out system.

6. The portable unit of claim 1, wherein said console apparatus displays advertising and/or promotional information.

7. The portable unit of claim 6, wherein said advertising and/or promotional information is associated with the scanned product.

8. The portable unit of claim 6, wherein said advertising and/or promotional information is associated with a competitive product of the scanned product.

9. The portable unit of claim 6, wherein said advertising and/or promotional information is associated with a cross-linked product associated with said scanned product.

10. The portable unit of claim 6, wherein said advertising and/or promotional information is received periodically from the host computer and is not associated with the scanned product.

11. The portable unit of claim 6, wherein said advertising and/or promotional information can be displayed in varying display formats, types and sizes

and said advertising and/or promotional information can be displayed for varying lengths of time.

12. The portable unit of claim 1, wherein said console apparatus comprises:

a bar code reader, said bar code reader reading bar codes associated with products to obtain said product information;

an identifying information input device, said identifying information input device inputting said identifying information associated with the user of the portable unit;

a display, said display displaying said product, pricing and identifying information; and

a processor coupled to said bar code reader, identifying information input device and display and said communications means.

13. The portable unit of claim 1, wherein said console apparatus allows the user to pay for all items purchased without the use of checkout personnel.

14. A self service shopping cart for use in a self scanning and check-out system, said shopping cart comprising:

a portable unit detachably mounted to said shopping cart, said portable unit comprising:

a console apparatus, said console apparatus inputting product information associated with a scanned product, said console apparatus displaying at least pricing information associated with said product information; and

communication means coupled to said console apparatus for transmitting said product information to, and receiving said pricing information from, a host computer, said communications means allowing the user of the portable unit to communicate with a remote organization from the shopping cart.

15. The shopping cart of claim 14, wherein said communication means allows the user of the portable unit to order goods or services from the remote organization from the shopping cart.

16. The shopping cart of claim 14, wherein said console apparatus displays advertising and product information about the remote organization.

17. The shopping cart of claim 14, wherein said communications means allows the user to access the Internet while using said self scanning and check-out system.

18. The shopping cart of claim 17, wherein said console apparatus displays news information.

19. The shopping cart of claim 17, wherein said console apparatus displays weather information.

20. The shopping cart of claim 17, wherein said console apparatus displays entertainment information.

21. The shopping cart of claim 14, wherein said console apparatus displays advertising information.

22. The shopping cart of claim 21, wherein said advertising information is associated with the scanned product.

23. The shopping cart of claim 21, wherein said advertising information is associated with a competitive product of the scanned product.

24. The shopping cart of claim 21, wherein said advertising information is associated with a cross-linked product associated with said scanned product.

25. The shopping cart of claim 21, wherein said advertising information is received periodically from the host computer and is not associated with the scanned product.

26. The shopping cart of claim 21, wherein said advertising information can be displayed in varying display formats, types and sizes and said advertising information can be displayed for varying lengths of time.

27. The shopping cart of claim 14, wherein said console apparatus allows the user to pay for all items scanned at the shopping cart without the use of checkout personnel.

28. The shopping cart of claim 14, wherein said console apparatus allows the user to pay for all items or services order from the remote organization at the shopping cart without the use of checkout personnel.

29. A self service shopping cart for use in a self scanning and check-out system, said shopping cart comprising:

a portable unit detachably mounted to said shopping cart, said portable unit comprising a console apparatus, said console apparatus displaying advertising and/or promotional information, wherein said console apparatus displays said advertising and/or promotional information, based on predetermined criteria, in varying display formats, modes, types and sizes and for varying lengths of time.

30. The self-service shopping cart of claim 29, wherein said advertising and/or promotional information are stored on said portable unit.

31. The self-service shopping cart of claim 29, wherein said advertising and/or promotional information are received by said portable unit over a communications line.

32. The self-service shopping cart of claim 31, wherein said communications line is a wireless communications link.

33. The self-service shopping cart of claim 29, wherein said predetermined criteria is an amount paid for said advertising and/or promotional information by an advertiser and/or promoter.

34. The self-service shopping cart of claim 29, wherein said portable unit also displays information relating to a sponsor of a shopping session.

35. The self-service shopping cart of claim 34, wherein said information relating to the sponsor is a logo of the sponsor.

36. The self-service shopping cart of claim 34, wherein said information relating to said sponsor is continuously displayed through a shopping session.

37. The self-service shopping cart of claim 29, wherein said advertising and/or promotional information is targeted towards a user of the shopping cart.

38. The self service shopping cart of claim 29, wherein said advertising and/or promotional modes comprises a static display or a motion video.

39. A self scanning and check-out system comprising:

a store server located within a store, said store server comprising information associated with products to be sold in the store;

a remote server coupled to said store server, said remote server providing the store server with access to a remote network; and

a portable unit, comprising:

a console apparatus, said console apparatus inputting product information associated with a scanned product, said console apparatus displaying at least pricing information associated with said product information; and

communication means coupled to said console apparatus for transmitting said product information to, and receiving said pricing information from, said store server computer, said communications means allowing the user of the portable unit to communicate with an organization remote from the store.

40. The system of claim 39, wherein said communication means allows the user of the portable unit to order goods or services from the remote organization.

41. The system of claim 39, wherein said console apparatus displays information about the remote organization.

42. The system of claim 39, wherein said communications means allows the user to access the Internet from the store.

43. The system of claim 39, wherein said console apparatus displays advertising information.

44. The system of claim 43, wherein said advertising information is associated with the scanned product.

45. The system of claim 43, wherein said advertising information is associated with a competitive product of the scanned product.

46. The system of claim 43, wherein said advertising information is associated with a cross-linked product associated with said scanned product.

47. The system of claim 43, wherein said advertising information is received periodically from the store server and is not associated with the scanned product.

48. The system of claim 43, wherein said advertising information can be displayed in varying display formats, types and sizes and said advertising information can be displayed for varying lengths of time.

49. The system of claim 43, wherein said advertising information is targeted towards a user of the shopping cart based on information stored by said store server.

50. The system of claim 43, wherein said portable unit also displays information relating to a sponsor of a shopping session.

51. The system of claim 50, wherein said information relating to said sponsor is continuously displayed through a shopping session.

52. The system of claim 39, wherein said console apparatus allows the user to pay for all items purchased without the use of checkout personnel.

53. The system of claim 39, wherein said central server allows said store server to be accessed by a consumer from a location external to the store.

54. The system of claim 53, wherein said store server is accessed from the Internet.

55. The system of claim 53, wherein said store server stores a shopping list of items within the store created by the consumer.

56. The system of claim 53, wherein said store server outputs a recipe based on an action of the consumer.

57. The system of claim 53, wherein said store server stores a branded shopping list of items within the store based on an action of the consumer.

58. The system of claim 53, wherein said store server stores a shopping list of items within the store created by the consumer.

59. The system of claim 53, wherein said store server outputs a list of store specials based on an action of the consumer.

60. The system of claim 53, wherein said store server outputs a list of frequent shopper points based on an action of the consumer.

62. The system of claim 53, wherein said store server stores a shopping order for the consumer allowing the consumer to pick up the order at a later time.

63. The system of claim 53, wherein said store server accepts an order for services offered by the store for the consumer.

64. A method of operating a self scanning and check-out system, said method comprising the steps of:

providing a portable unit for inputting product information associated with a scanned product and inputting identifying information about a user of the portable unit; and

displaying advertising and/or promotional information on the portable unit of the system, wherein based on predetermined criteria, said advertising and/or promotional information is displayed in varying display formats, modes and sizes and for varying lengths of time.

65. The method of claim 64, wherein said predetermined criteria is an amount paid for said advertising and/or promotional information by an advertiser.

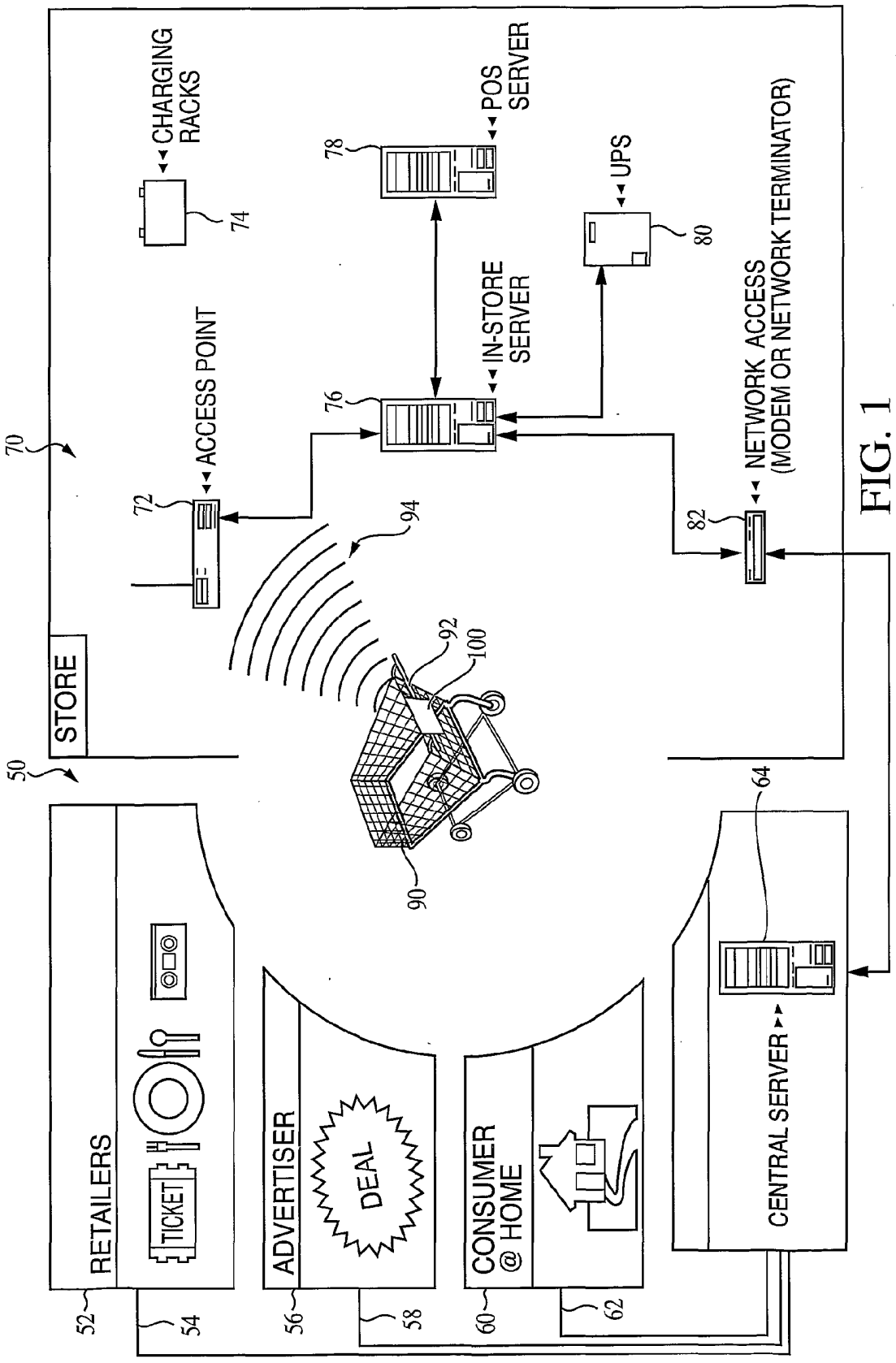

CHARGING RACKS
74
POS SERVER
78
UPS
80
IN-STORE SERVER
76
ACCESS POINT
72
NETWORK ACCESS (MODEM OR NETWORK TERMINATOR)
82
70
94
92
100
90
STORE
50
64
CENTRAL SERVER
RETAILERS
TICKET
52
54
ADVERTISER
DEAL
56
58
CONSUMER @ HOME
60
62

FIG. 1

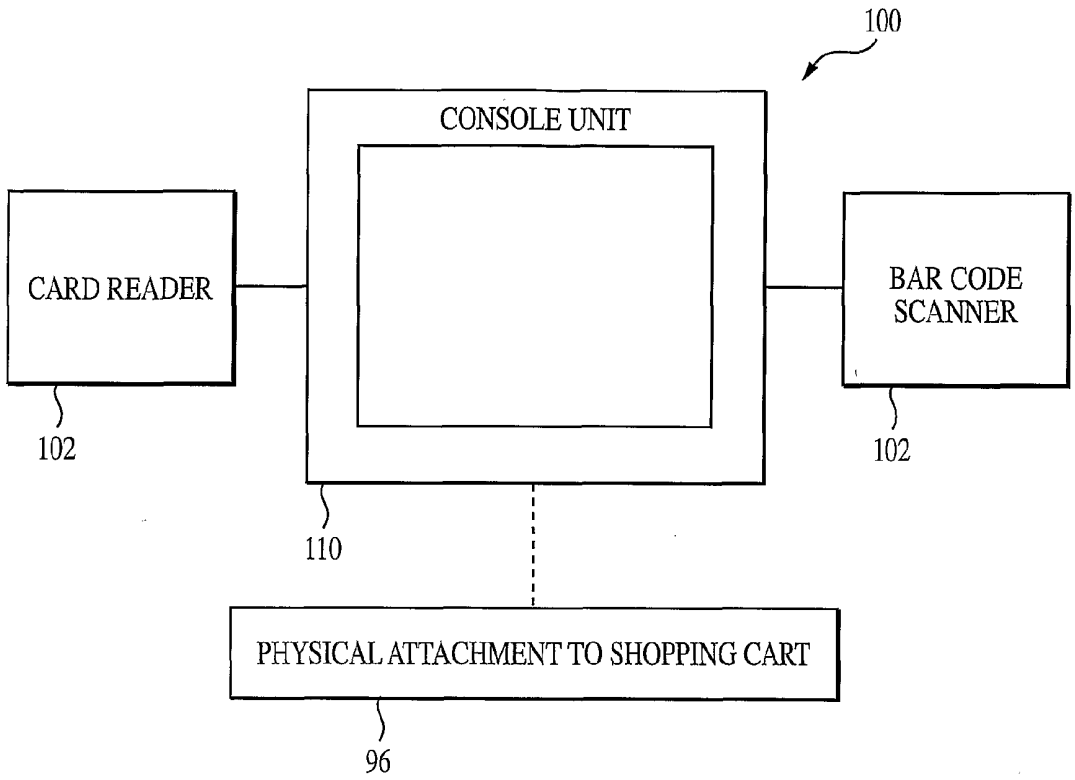

100
CONSOLE UNIT
CARD READER
BAR CODE SCANNER
102
102
110
PHYSICAL ATTACHMENT TO SHOPPING CART
96

FIG. 2

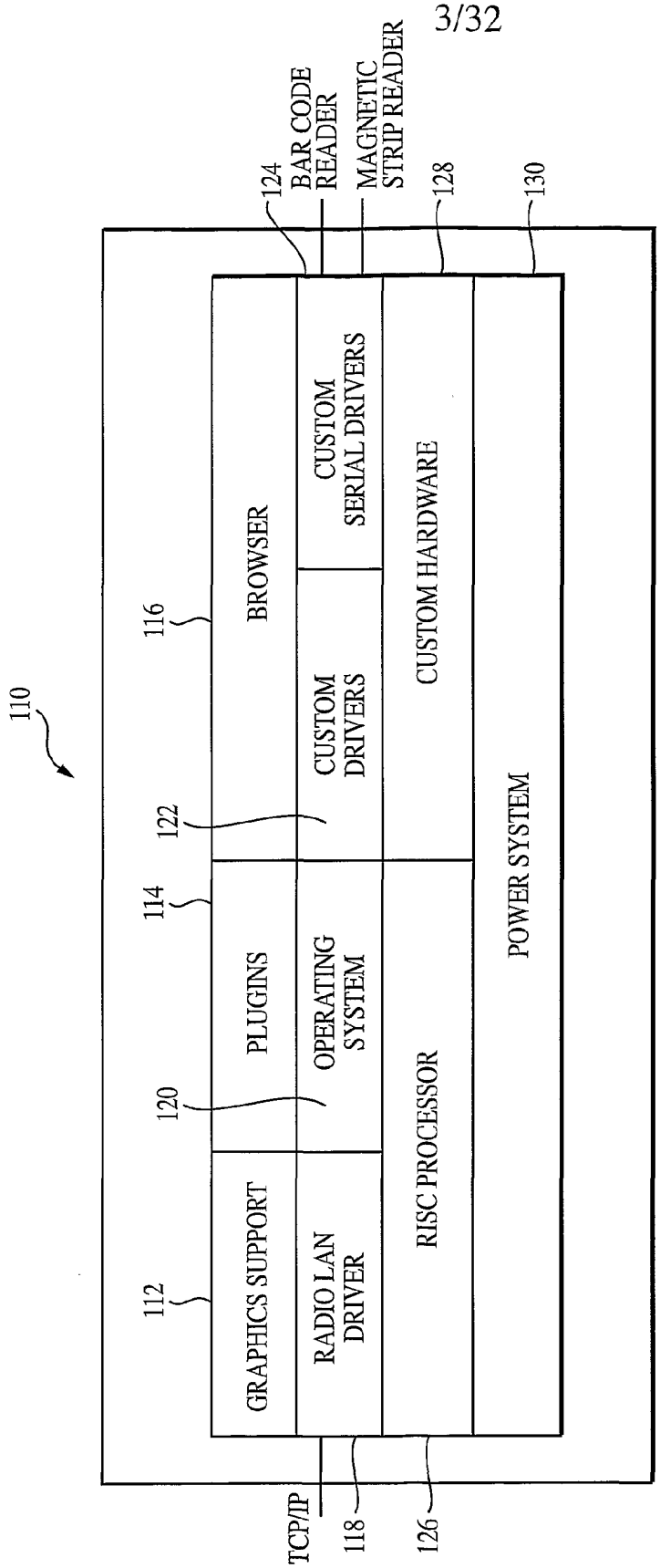

110
112
GRAPHICS SUPPORT
RADIO LAN DRIVER
120
114
PLUGINS
OPERATING SYSTEM
122
116
BROWSER
CUSTOM DRIVERS
CUSTOM SERIAL DRIVERS
RISC PROCESSOR
CUSTOM HARDWARE
POWER SYSTEM
124
BAR CODE READER
MAGNETIC STRIP READER
128
130
TCP/IP
118
126

FIG. 3

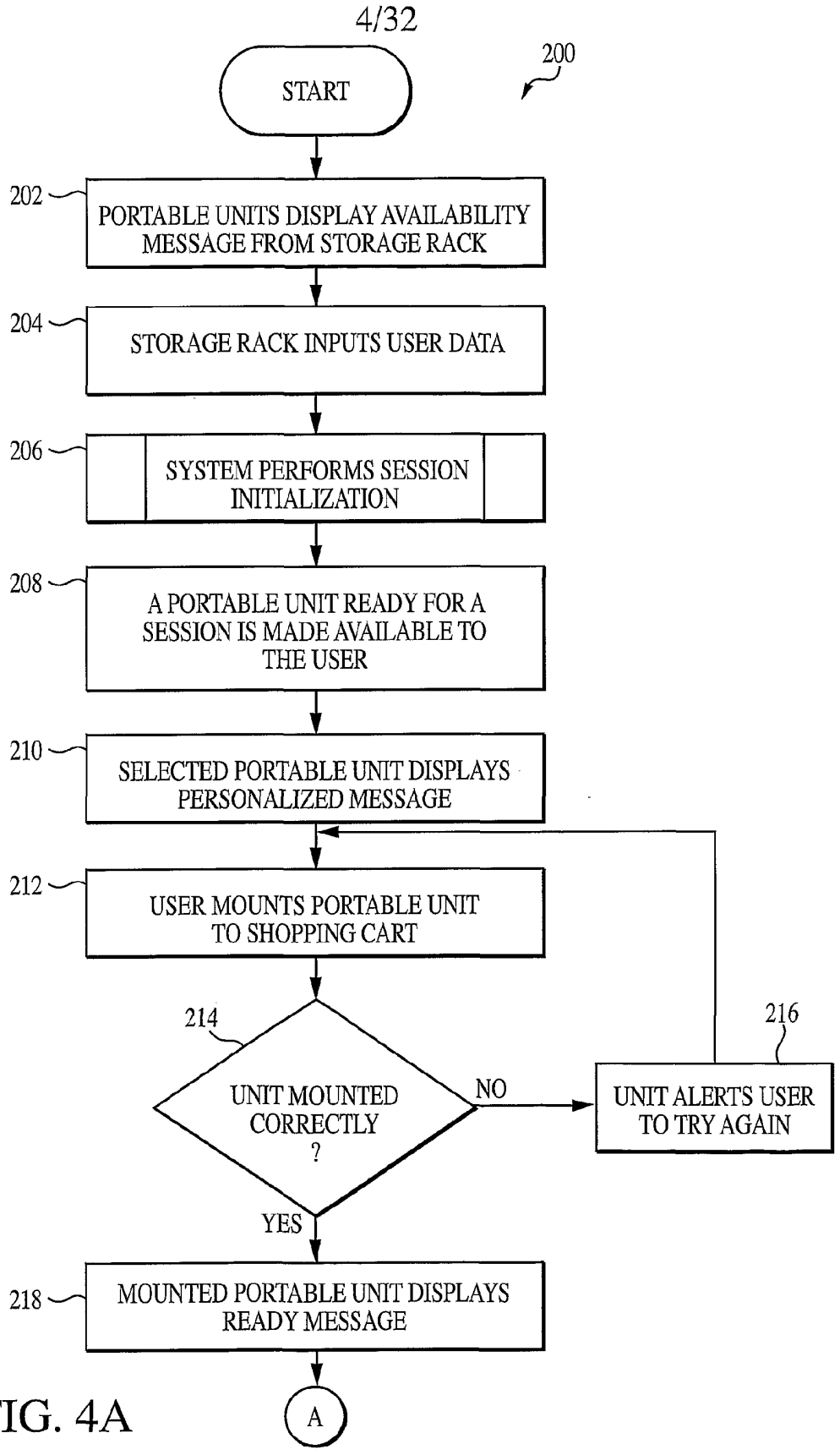

200
START
202
PORTABLE UNITS DISPLAY AVAILABILITY MESSAGE FROM STORAGE RACK
204
STORAGE RACK INPUTS USER DATA
206
SYSTEM PERFORMS SESSION INITIALIZATION
208
A PORTABLE UNIT READY FOR A SESSION IS MADE AVAILABLE TO THE USER
210
SELECTED PORTABLE UNIT DISPLAYS PERSONALIZED MESSAGE
212
USER MOUNTS PORTABLE UNIT TO SHOPPING CART
214
UNIT MOUNTED CORRECTLY ?
NO
216
UNIT ALERTS USER TO TRY AGAIN
YES
218
MOUNTED PORTABLE UNIT DISPLAYS READY MESSAGE
A

FIG. 4A

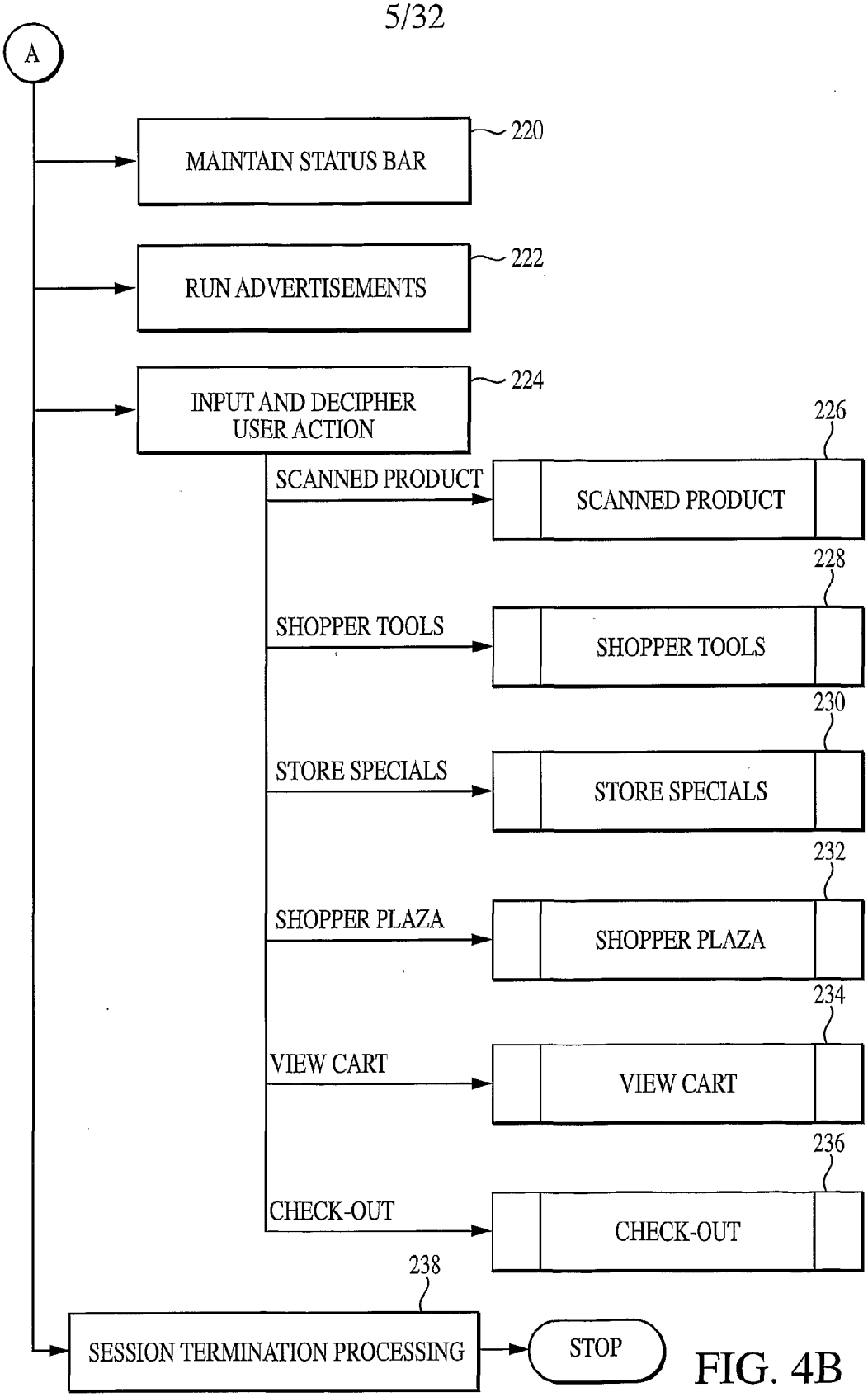
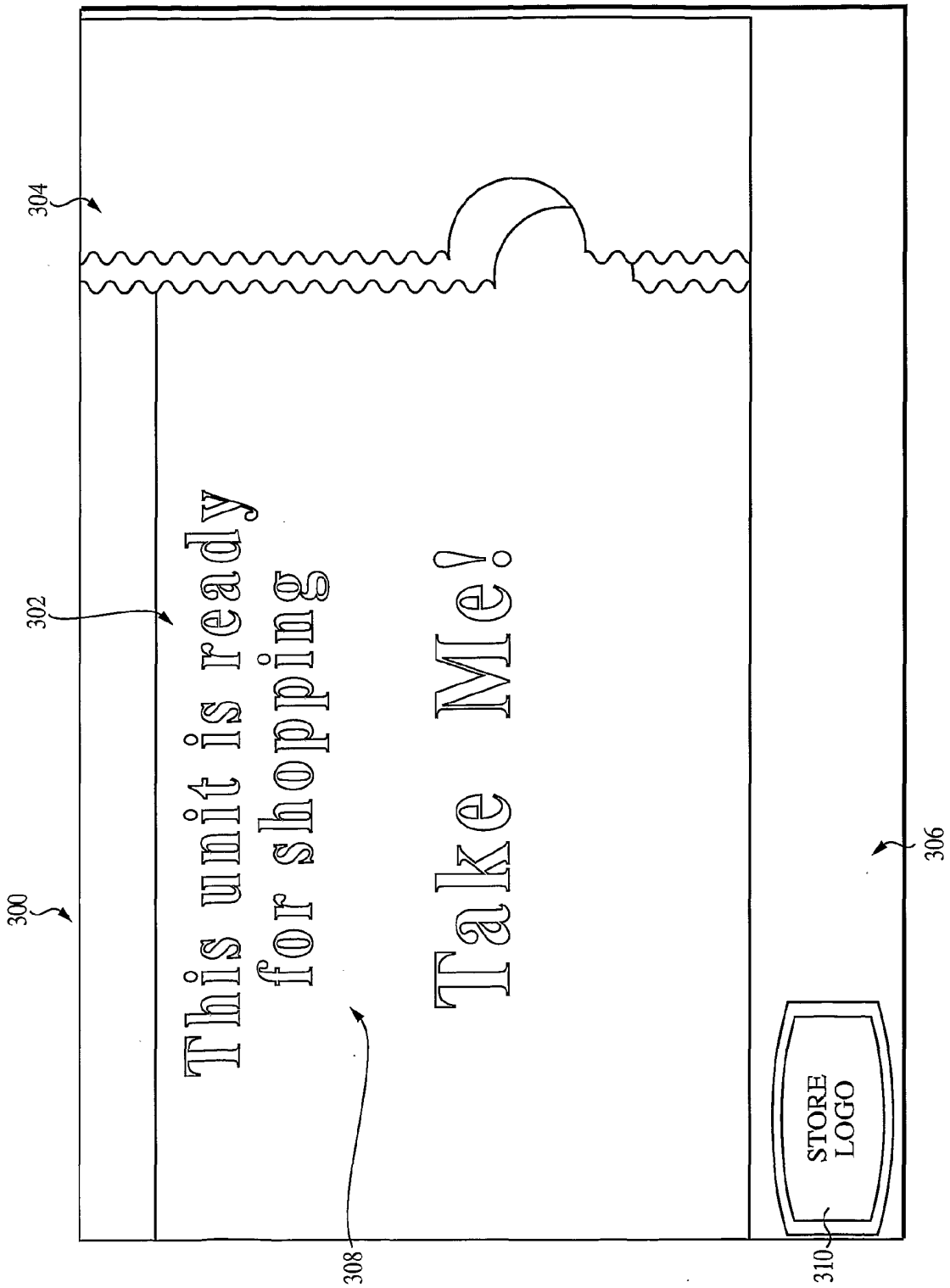

A
MAINTAIN STATUS BAR
220
RUN ADVERTISEMENTS
222
INPUT AND DECIPHER USER ACTION
224
226
SCANNED PRODUCT
SCANNED PRODUCT
228
SHOPPER TOOLS
SHOPPER TOOLS
230
STORE SPECIALS
STORE SPECIALS
232
SHOPPER PLAZA
SHOPPER PLAZA
234
VIEW CART
VIEW CART
236
CHECK-OUT
CHECK-OUT
238
SESSION TERMINATION PROCESSING
STOP

FIG. 4B

FIG. 5


304
302
300
This unit is ready for shopping
Take Me!
306
STORE LOGO
308
310

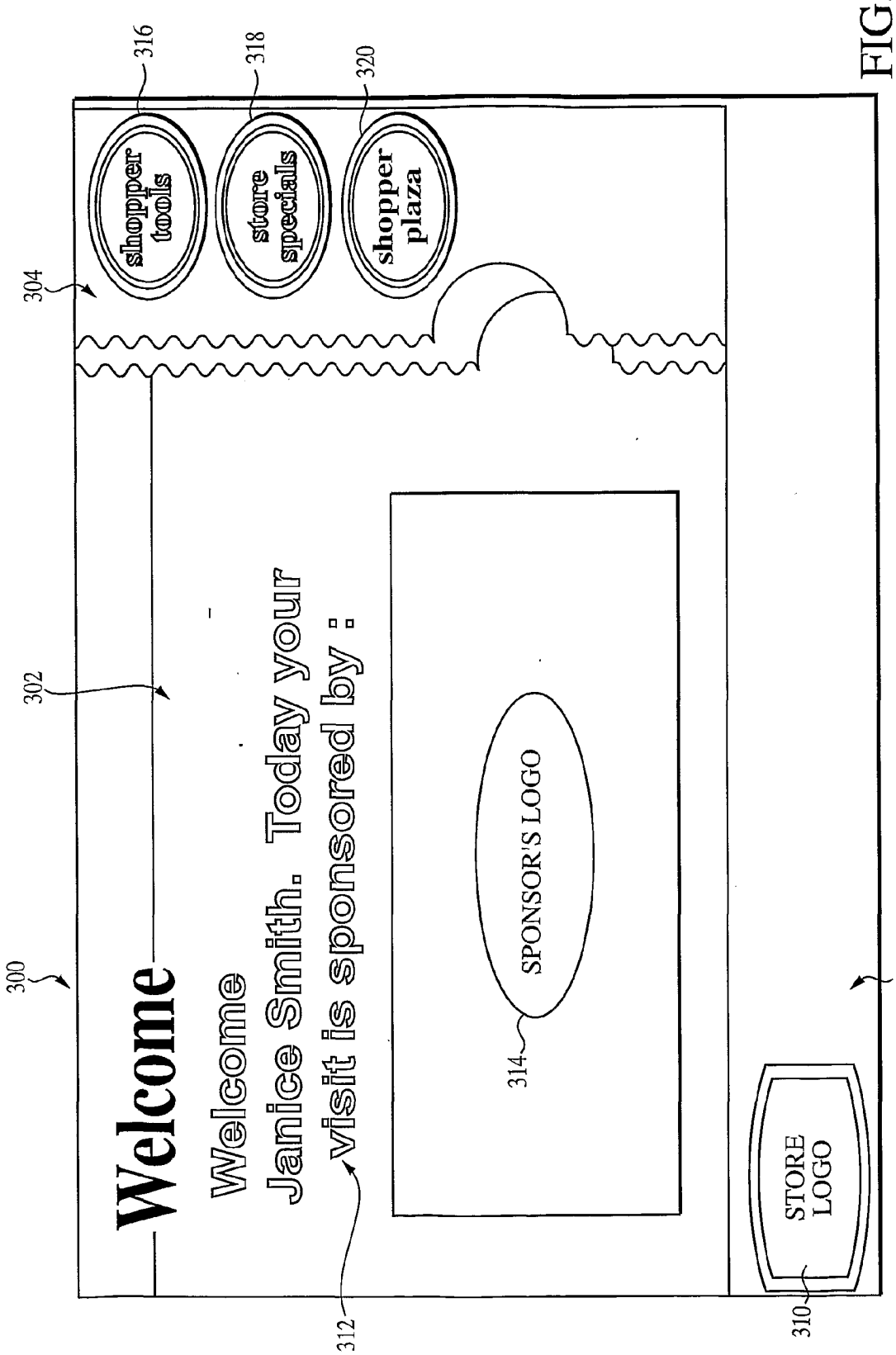

316
318
320
shopper tools
store specials
shopper plaza
304
302
300
Welcome
Welcome Janice Smith. Today your visit is sponsored by :
SPONSOR'S LOGO
314
306
STORE LOGO
312
310

FIG. 6

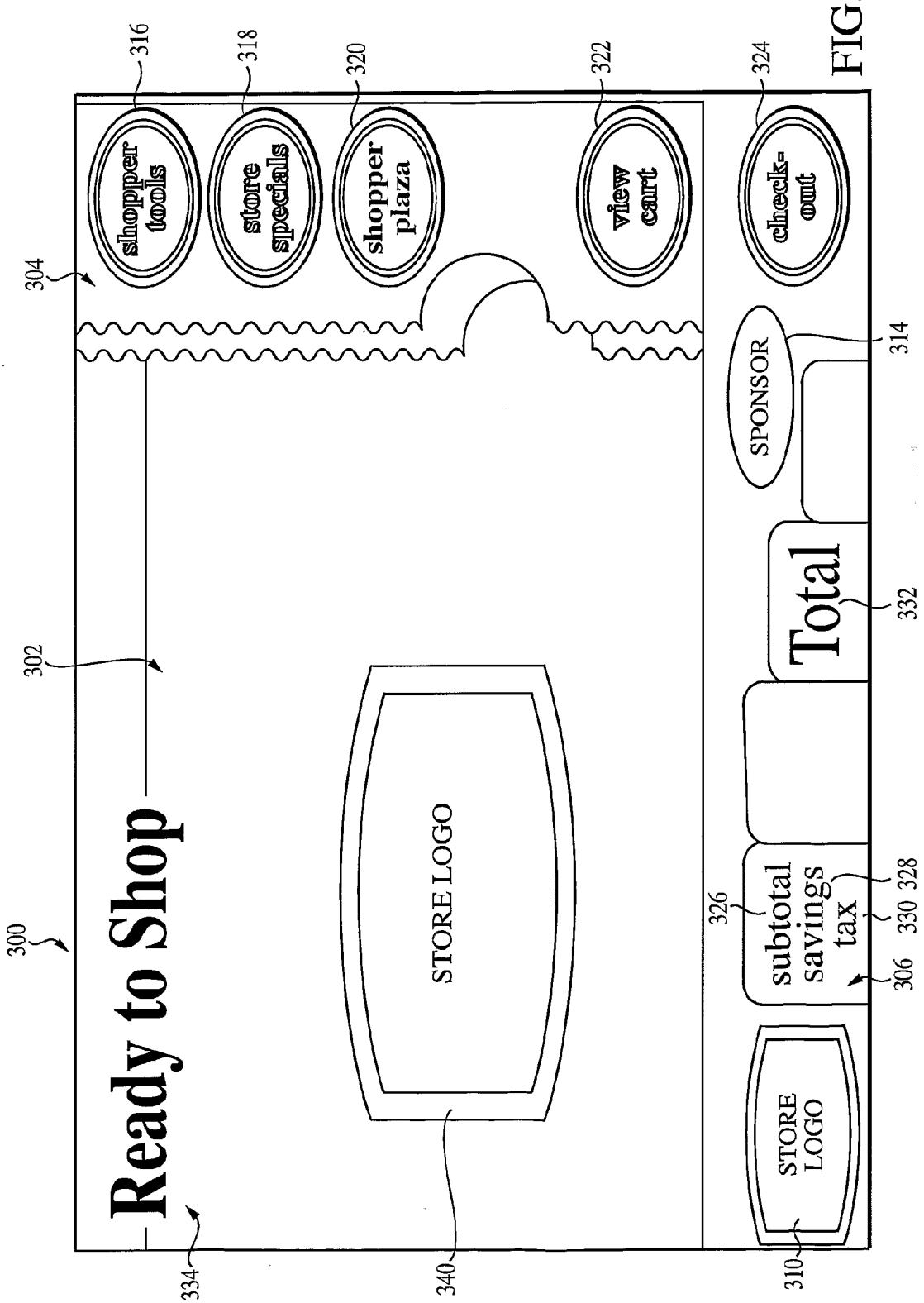

316
318
320
322
324
shopper tools
store specials
shopper plaza
view cart
check-out
304
SPONSOR
314
302
Total
332
Ready to Shop
STORE LOGO
326
subtotal
savings
tax
328
330
306
300
STORE LOGO
334
340
310

FIG. 7

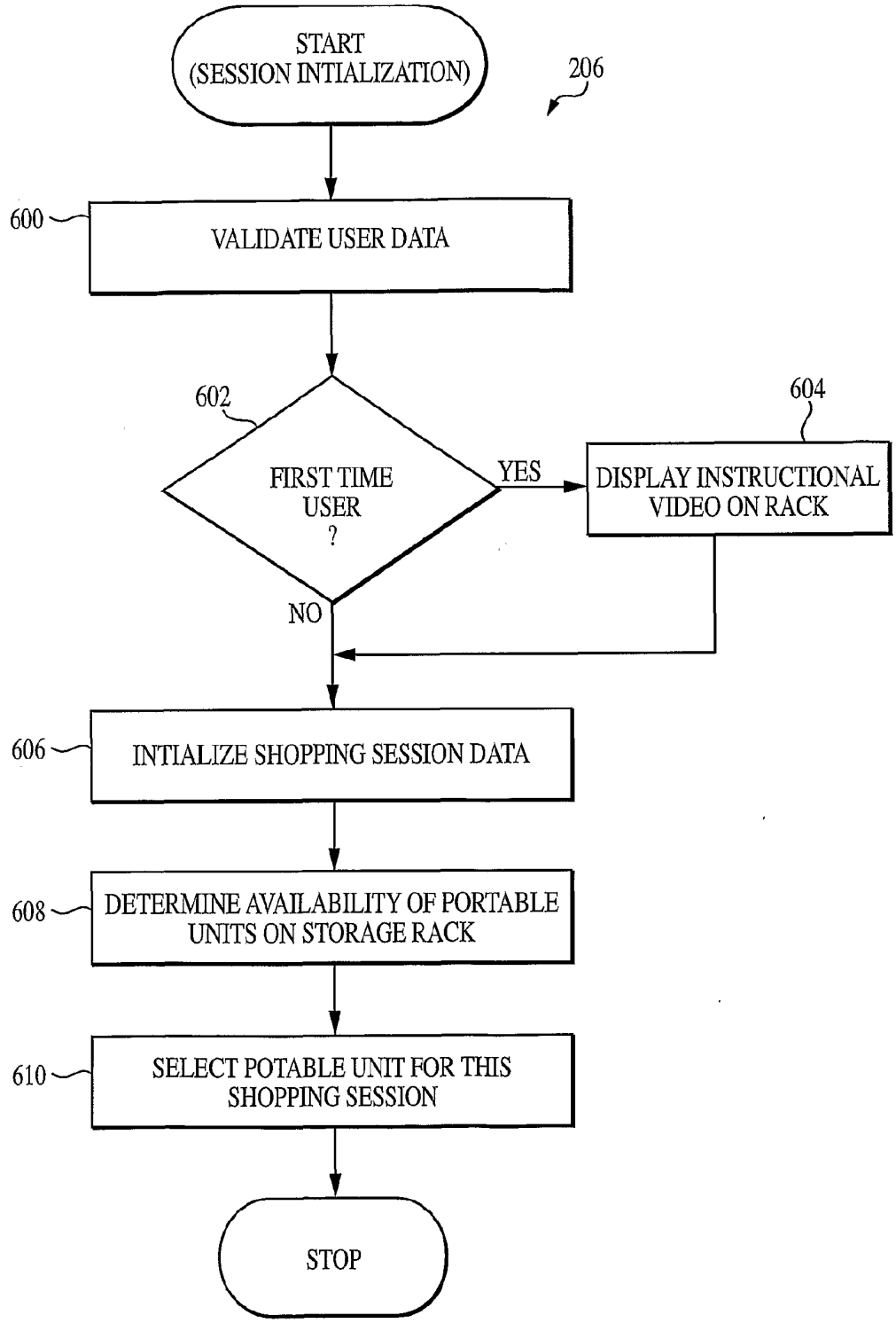

START
(SESSION INTIALIZATION)
206
600
VALIDATE USER DATA
602
FIRST TIME USER ?
YES
604
DISPLAY INSTRUCTIONAL VIDEO ON RACK
NO
606
INTIALIZE SHOPPING SESSION DATA
608
DETERMINE AVAILABILITY OF PORTABLE UNITS ON STORAGE RACK
610
SELECT POTABLE UNIT FOR THIS SHOPPING SESSION
STOP

FIG. 8

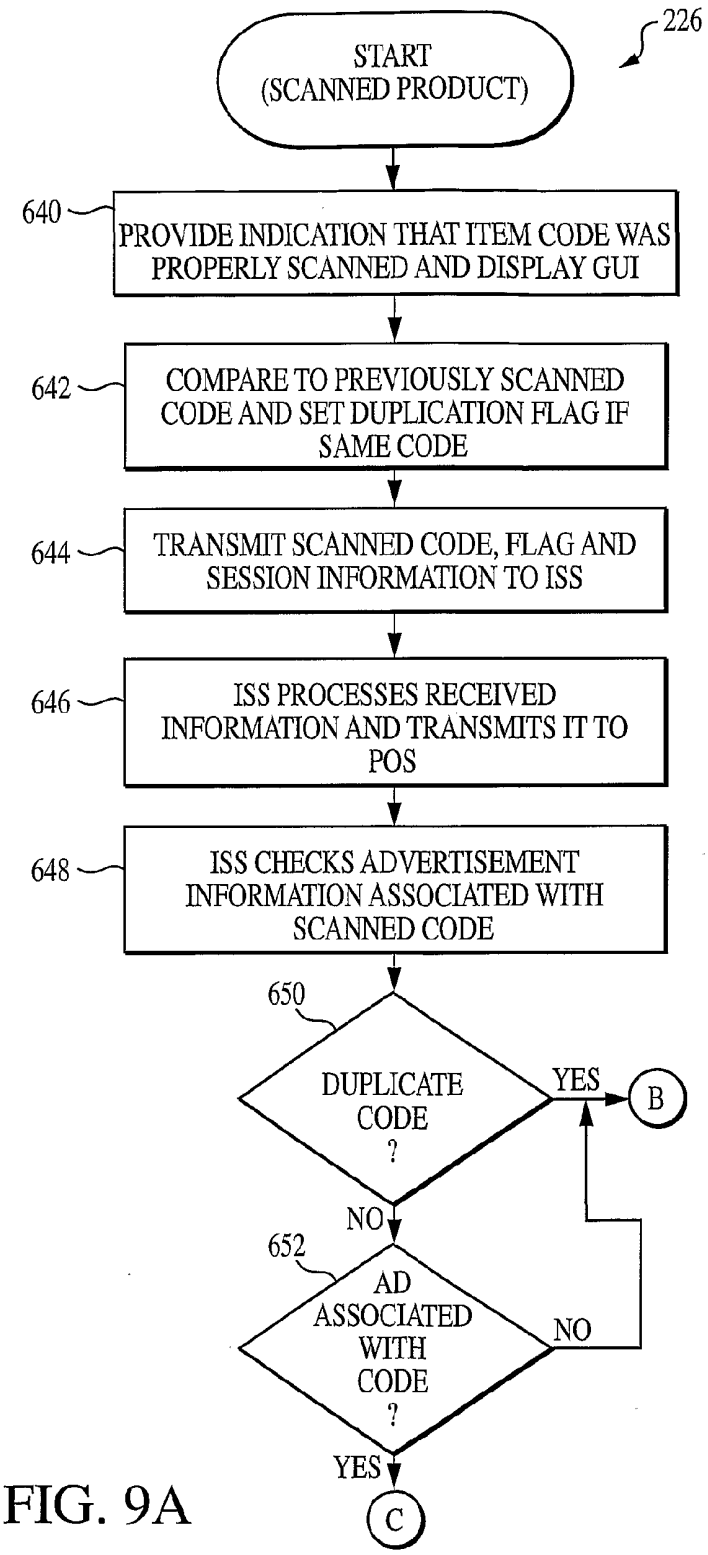

226
START
(SCANNED PRODUCT)
640
PROVIDE INDICATION THAT ITEM CODE WAS PROPERLY SCANNED AND DISPLAY GUI
642
COMPARE TO PREVIOUSLY SCANNED CODE AND SET DUPLICATION FLAG IF SAME CODE
644
TRANSMIT SCANNED CODE, FLAG AND SESSION INFORMATION TO ISS
646
ISS PROCESSES RECEIVED INFORMATION AND TRANSMITS IT TO POS
648
ISS CHECKS ADVERTISEMENT INFORMATION ASSOCIATED WITH SCANNED CODE
650
DUPLICATE CODE ?
YES
B
NO
652
AD ASSOCIATED WITH CODE ?
NO
YES
C

FIG. 9A

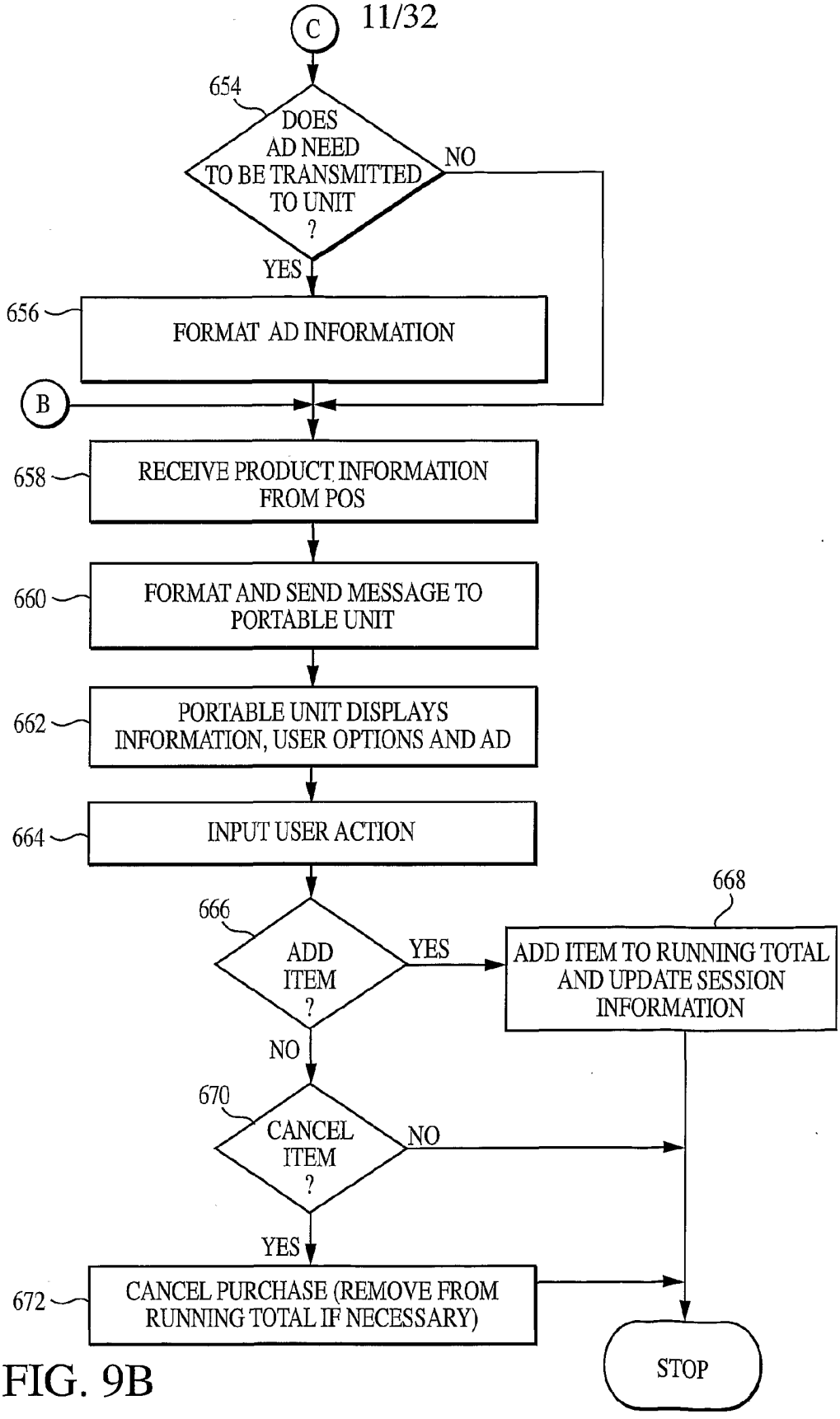

C
654
DOES AD NEED TO BE TRANSMITTED TO UNIT ?
NO
YES
656
FORMAT AD INFORMATION
B
658
RECEIVE PRODUCT INFORMATION FROM POS
660
FORMAT AND SEND MESSAGE TO PORTABLE UNIT
662
PORTABLE UNIT DISPLAYS INFORMATION, USER OPTIONS AND AD
664
INPUT USER ACTION
666
ADD ITEM ?
YES
668
ADD ITEM TO RUNNING TOTAL AND UPDATE SESSION INFORMATION
NO
670
CANCEL ITEM ?
NO
YES
672
CANCEL PURCHASE (REMOVE FROM RUNNING TOTAL IF NECESSARY)
STOP

FIG. 9B

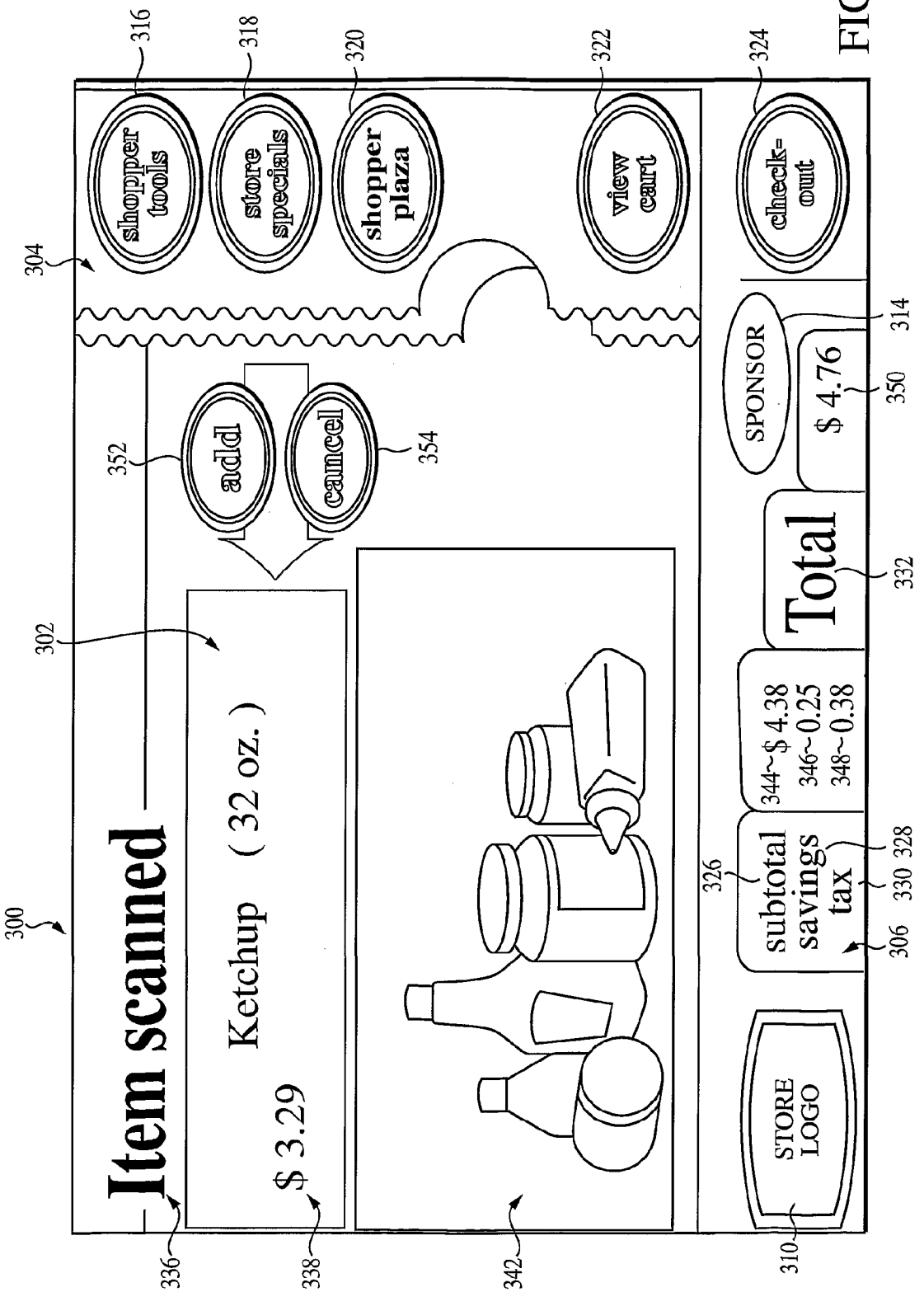

shopper tools
store specials
shopper plaza
view cart
check-out
316
318
320
322
324
304
300
302
Item scanned
Ketchup ( 32 oz. )
$ 3.29
336
338
342
add
cancel
352
354
SPONSOR
314
$ 4.76
350
Total
332
344~$ 4.38
346~0.25
348~0.38
subtotal
savings
tax
326
328
330
306
STORE LOGO
310

FIG. 10

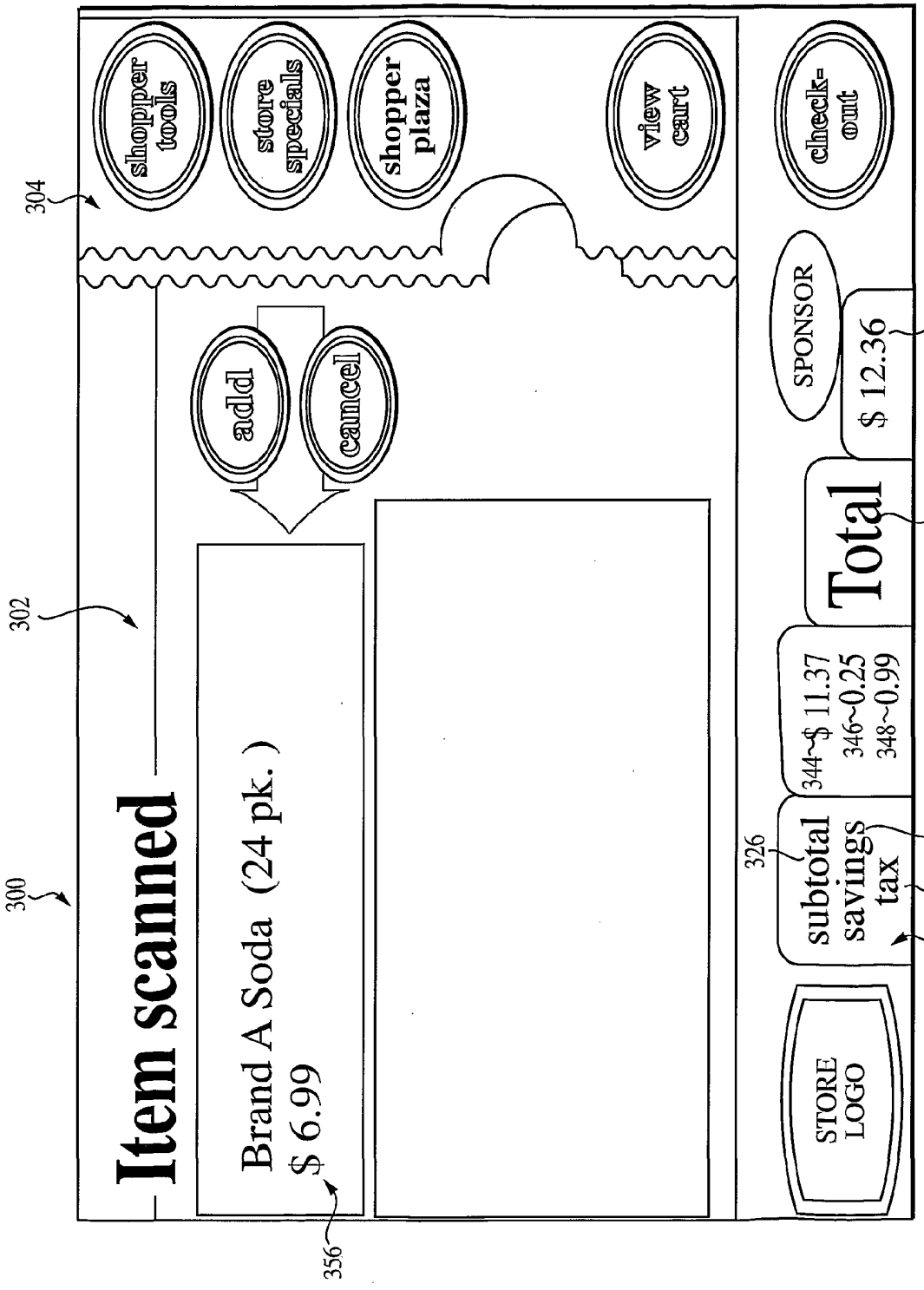

shopper tools
store specials
shopper plaza
view cart
check-out
304
add
cancel
Item scanned
Brand A Soda (24 pk.)
$ 6.99
356
302
300
SPONSOR
$ 12.36
350
Total
332
344~$ 11.37
346~0.25
348~0.99
326
subtotal
savings
tax
306
330
328
STORE LOGO

FIG. 11

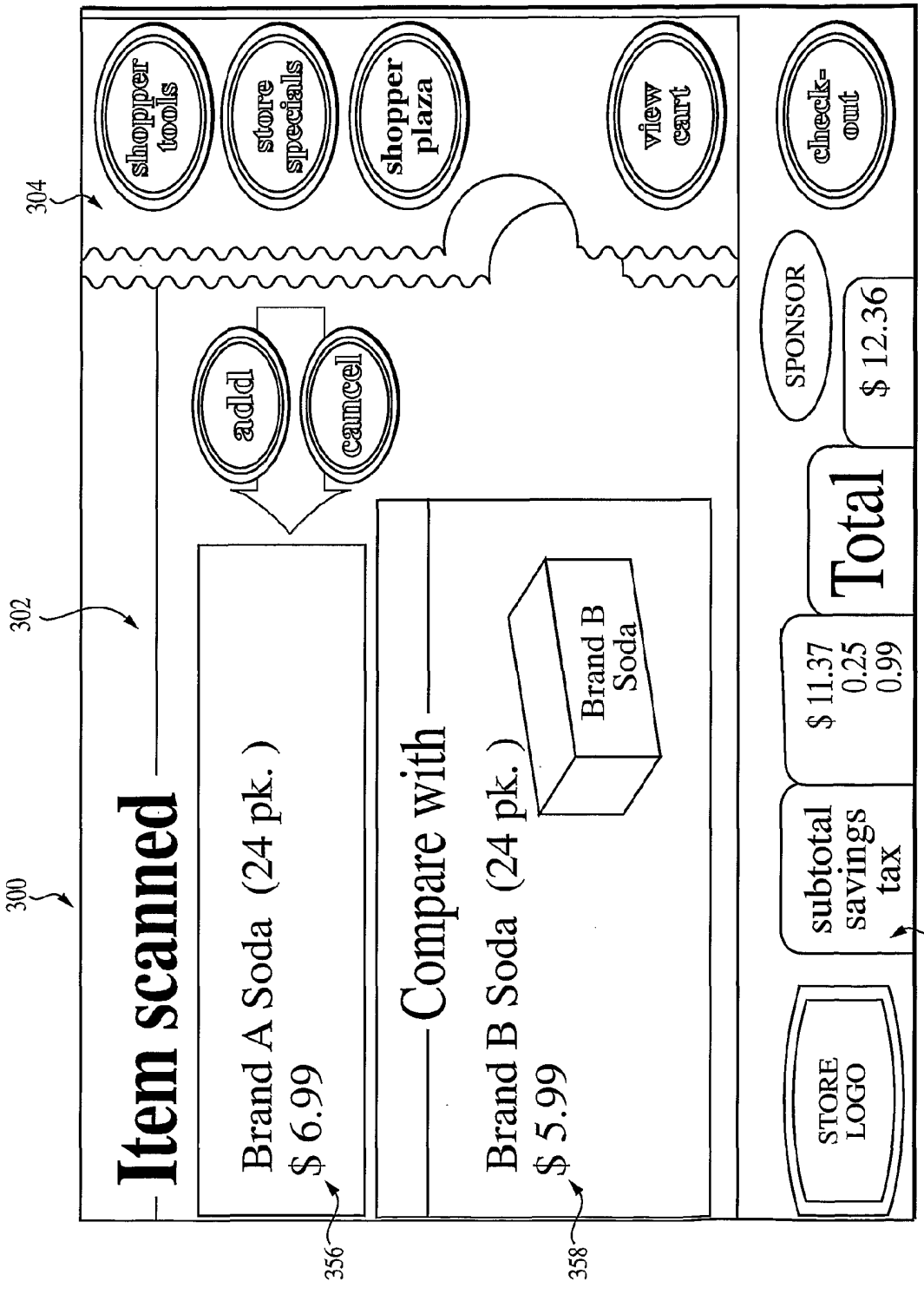

300
302
304
306
shopper tools
store specials
shopper plaza
view cart
check-out
add
cancel
Item scanned
Brand A Soda (24 pk.)
$ 6.99
Compare with
Brand B Soda (24 pk.)
$ 5.99
Brand B Soda
SPONSOR
$ 12.36
Total
$ 11.37
0.25
0.99
subtotal
savings
tax
STORE LOGO
356
358

FIG. 12

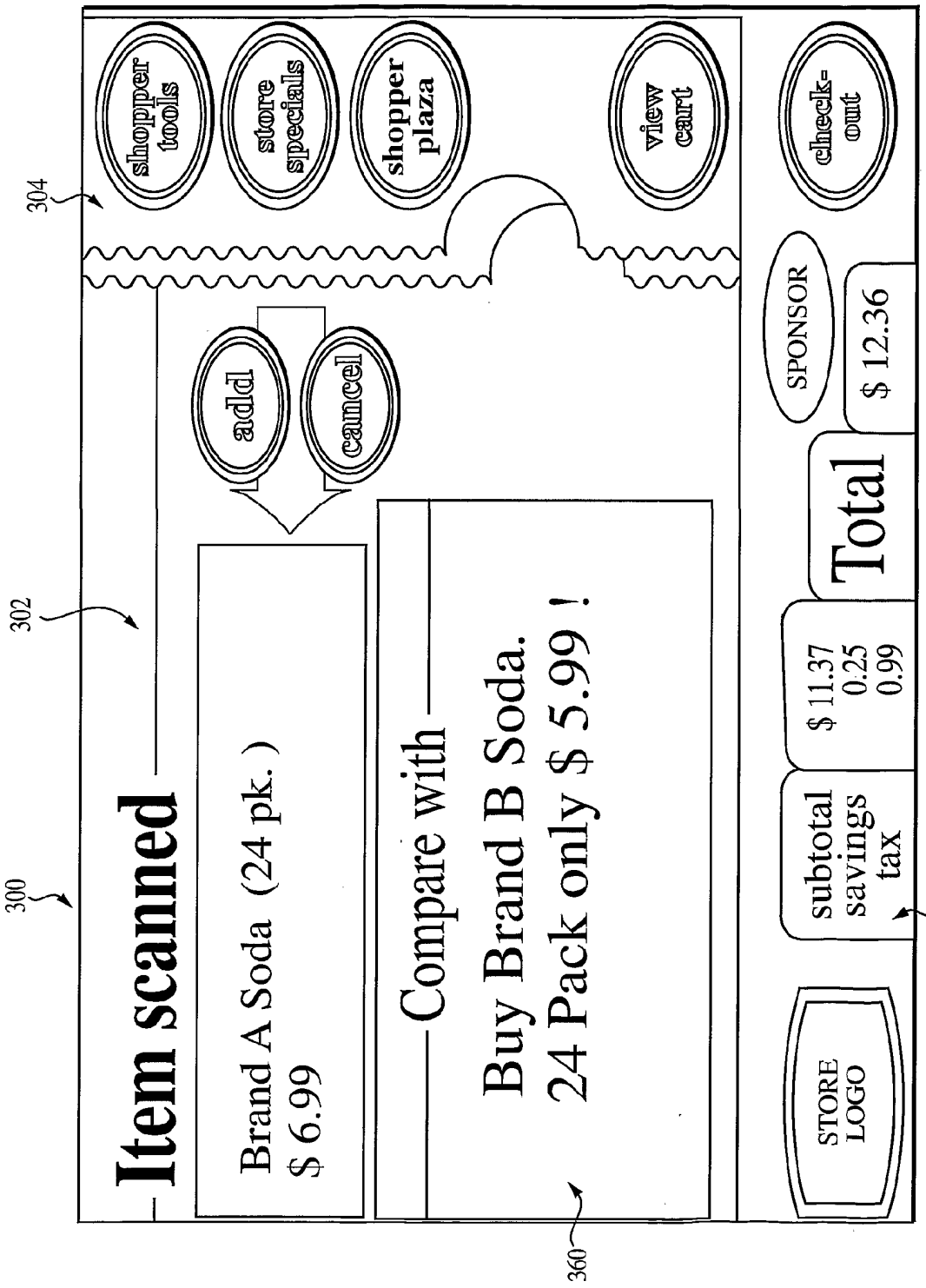

300
302
304
306
360
Item scanned
Brand A Soda (24 pk.)
$ 6.99
Compare with
Buy Brand B Soda.
24 Pack only $ 5.99 !
add
cancel
shopper tools
store specials
shopper plaza
view cart
check-out
SPONSOR
STORE LOGO
subtotal
savings
tax
$ 11.37
0.25
0.99
Total
$ 12.36

FIG. 13

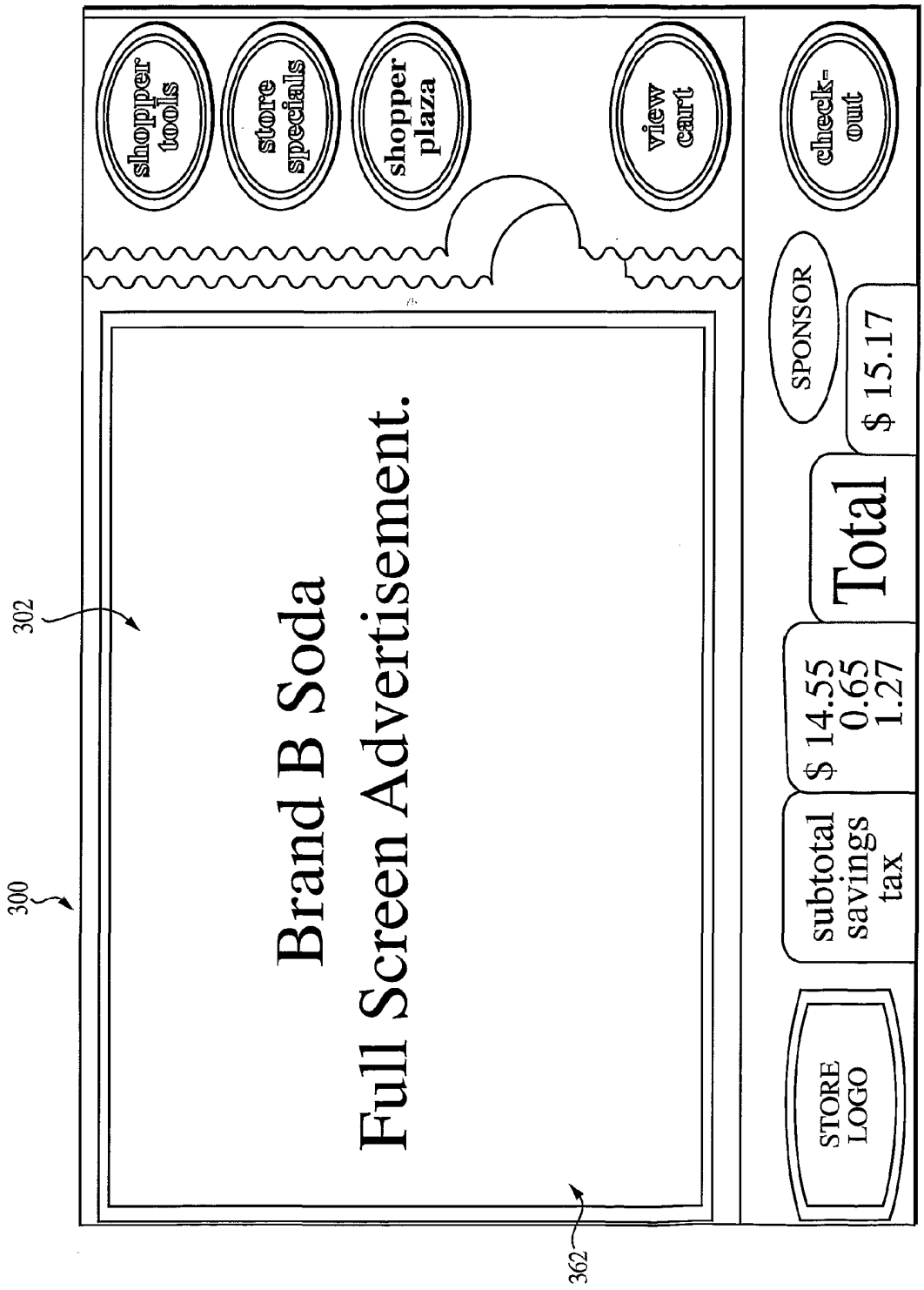

300
302
362
shopper tools
store specials
shopper plaza
view cart
check-out
Brand B Soda
Full Screen Advertisement.
SPONSOR
STORE LOGO
subtotal
savings
tax
$ 14.55
0.65
1.27
Total
$ 15.17

FIG. 14

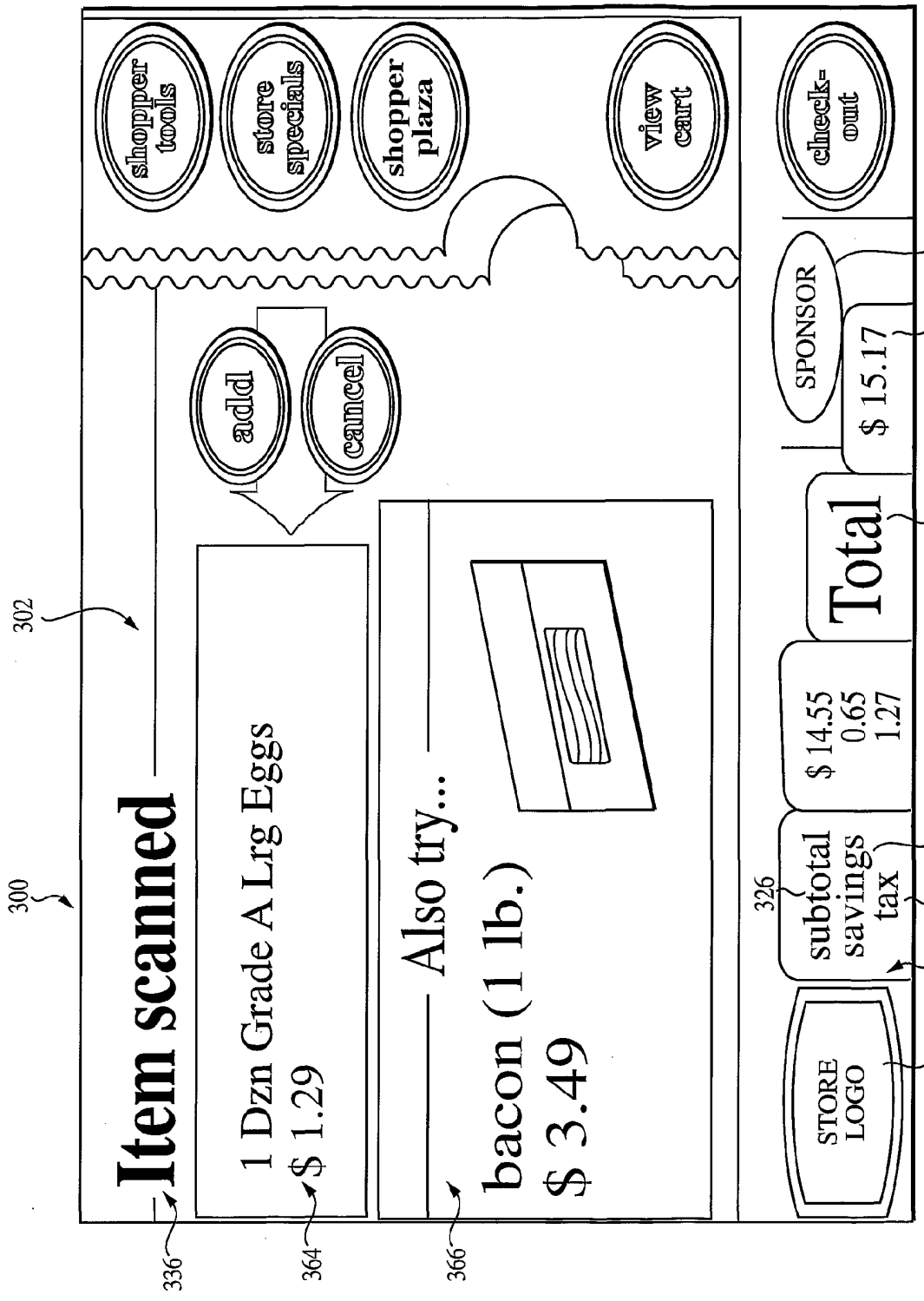

shopper tools
store specials
shopper plaza
view cart
check-out
Item scanned
1 Dzn Grade A Lrg Eggs
$ 1.29
add
cancel
Also try...
bacon (1 lb.)
$ 3.49
SPONSOR
$ 15.17
subtotal
savings
tax
$ 14.55
0.65
1.27
Total
STORE LOGO
300
302
310
314
326
328
330
332
336
350
364
366

FIG. 15

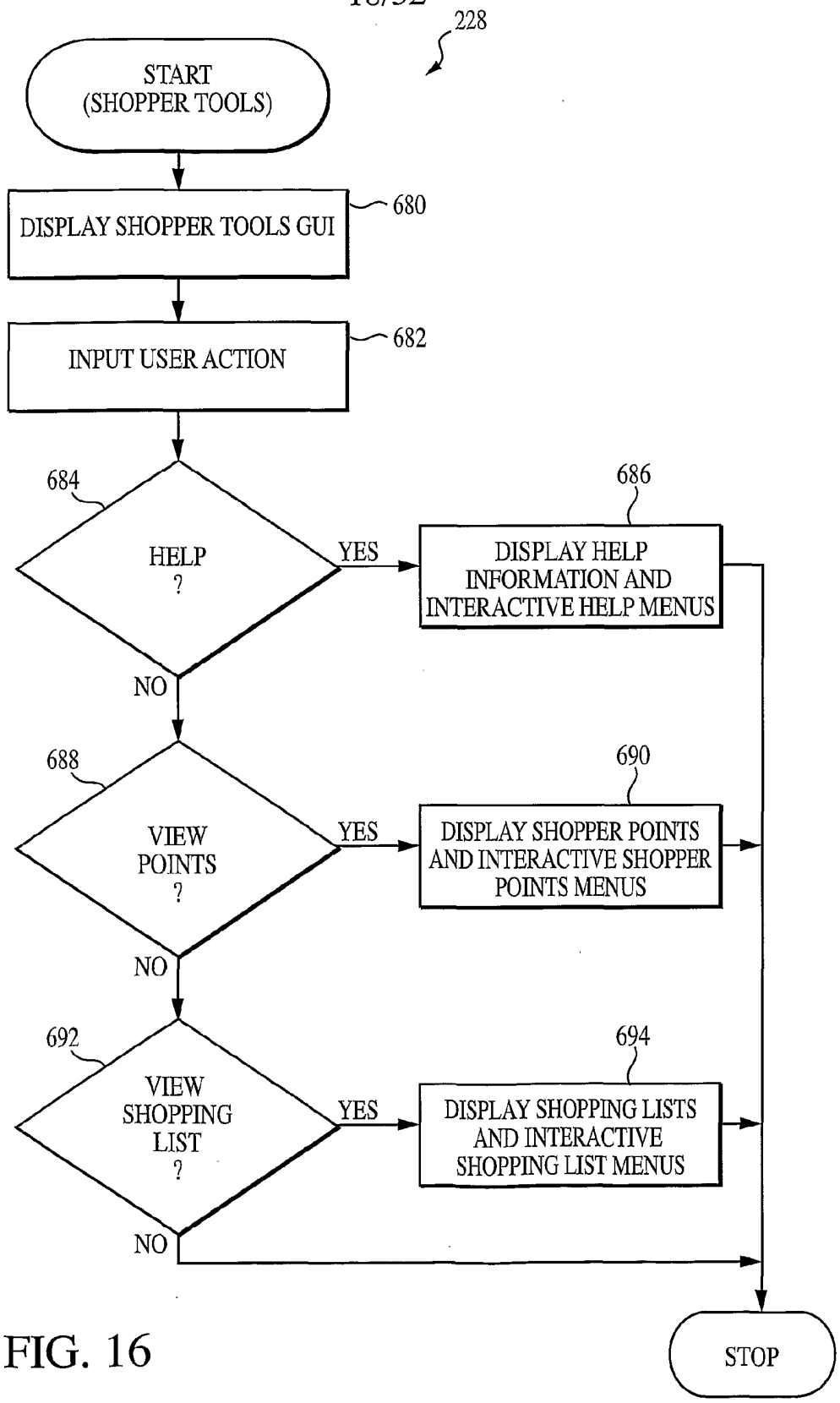

228
START
(SHOPPER TOOLS)
DISPLAY SHOPPER TOOLS GUI
680
INPUT USER ACTION
682
684
HELP
?
YES
686
DISPLAY HELP INFORMATION AND INTERACTIVE HELP MENUS
NO
688
VIEW POINTS
?
YES
690
DISPLAY SHOPPER POINTS AND INTERACTIVE SHOPPER POINTS MENUS
NO
692
VIEW SHOPPING LIST
?
YES
694
DISPLAY SHOPPING LISTS AND INTERACTIVE SHOPPING LIST MENUS
NO
STOP

FIG. 16

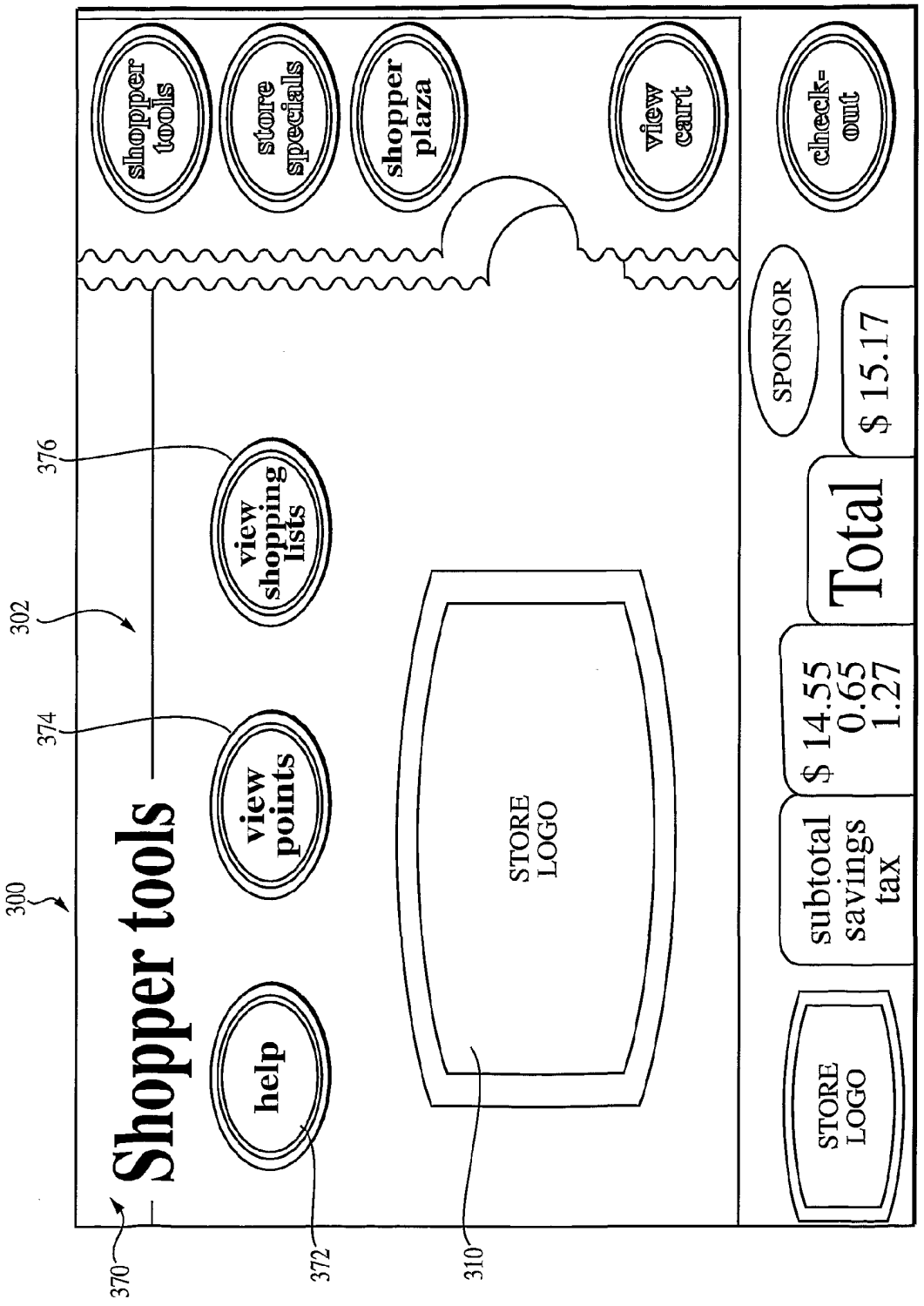

shopper tools
store specials
shopper plaza
view cart
check-out
SPONSOR
$ 15.17
Total
$ 14.55
0.65
1.27
subtotal
savings
tax
STORE LOGO
STORE LOGO
view shopping lists
view points
help
Shopper tools
300
302
374
376
370
372
310

FIG. 17

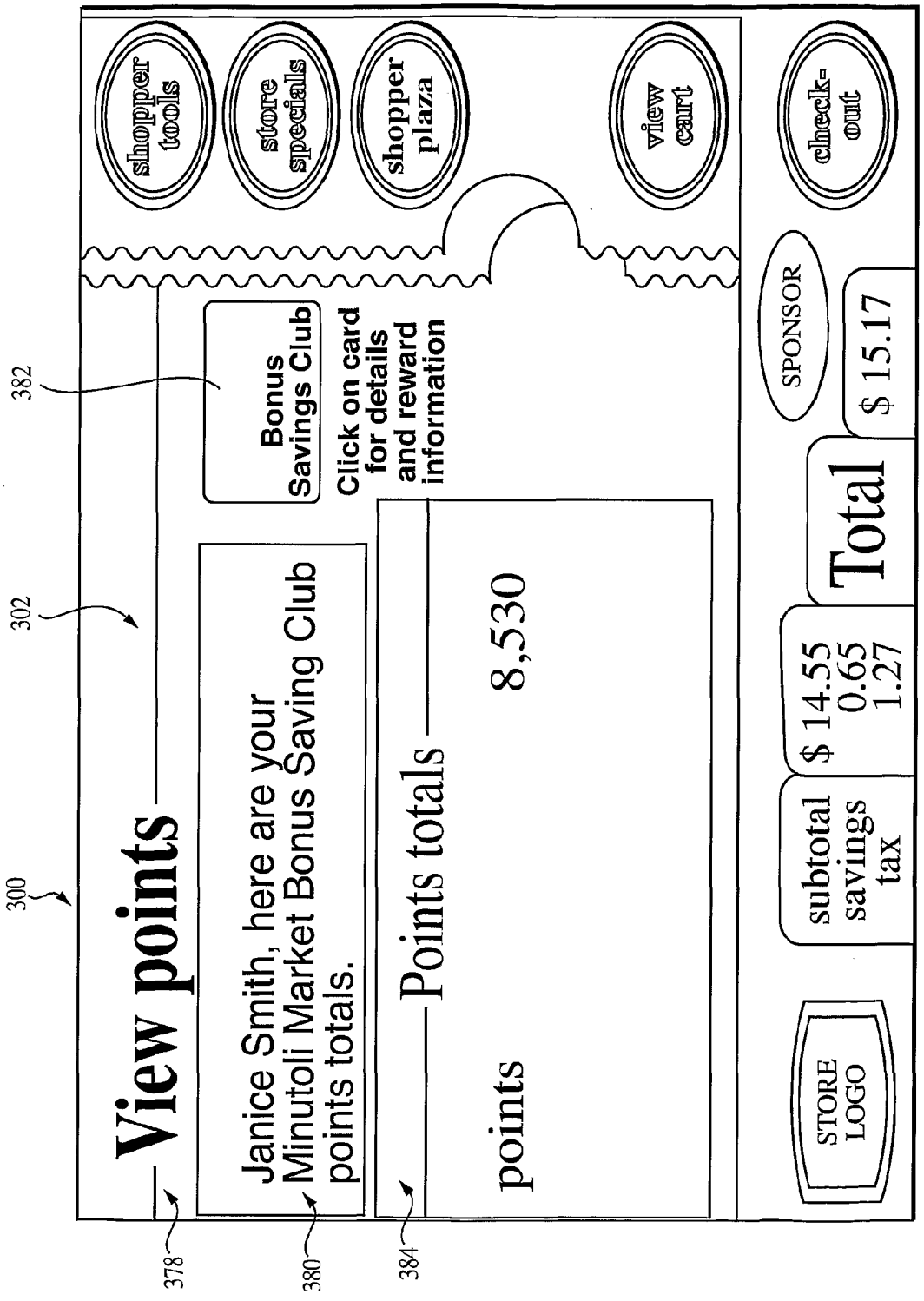

300
302
382
shopper tools
store specials
shopper plaza
view cart
check-out
View points
Janice Smith, here are your Minutoli Market Bonus Saving Club points totals.
Bonus Savings Club
Click on card for details and reward information
Points totals
8,530
points
SPONSOR
subtotal
savings
tax
$ 14.55
0.65
1.27
Total
$ 15.17
STORE LOGO
378
380
384

FIG. 18

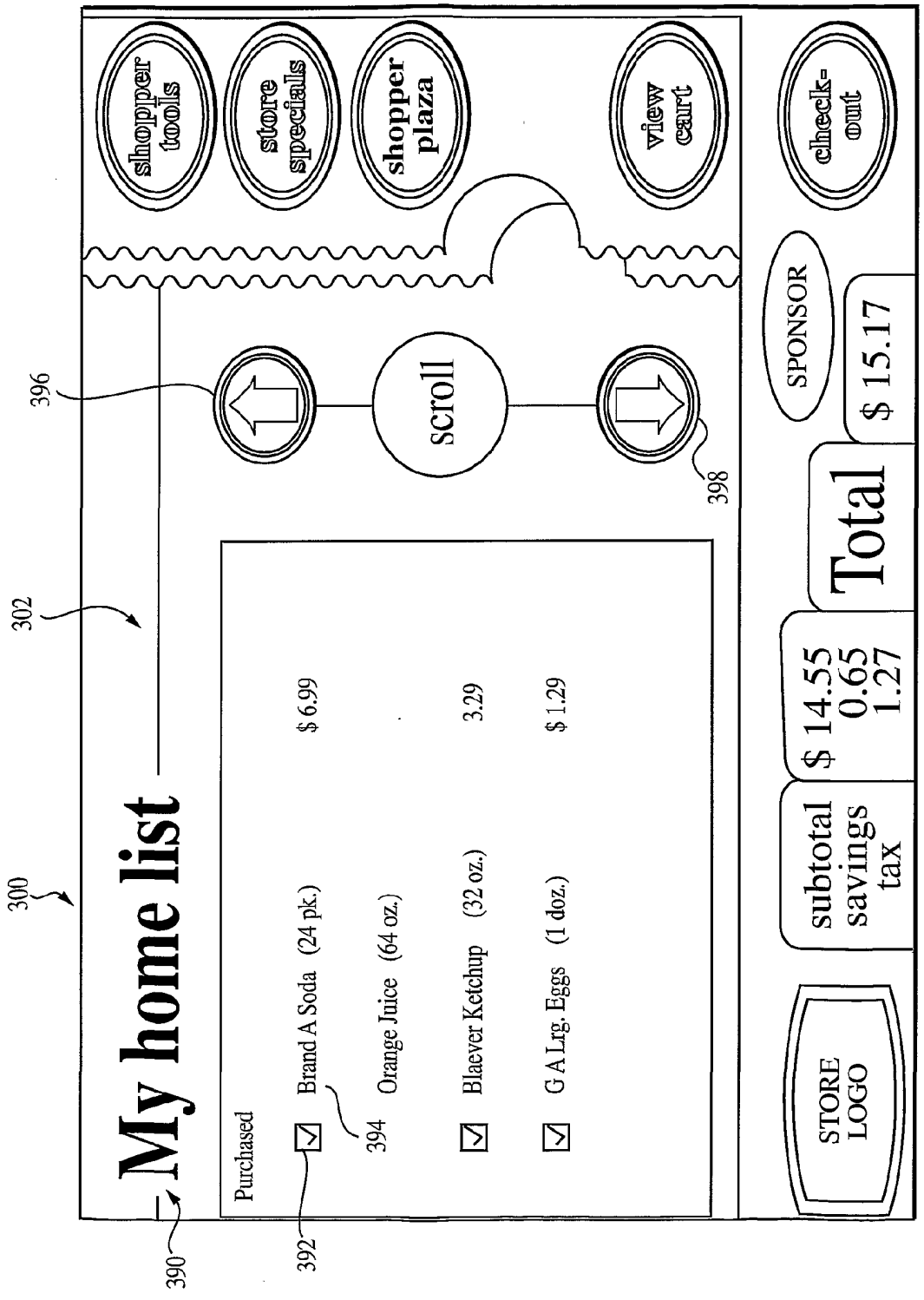

300
My home list
390
302
396
shopper tools
store specials
shopper plaza
view cart
check-out
scroll
398
Purchased
392
Brand A Soda (24 pk.) $ 6.99
394
Orange Juice (64 oz.)
Blaever Ketchup (32 oz.) 3.29
G A Lrg. Eggs (1 doz.) $ 1.29
SPONSOR
STORE LOGO
subtotal $ 14.55
savings 0.65
tax 1.27
Total $ 15.17

FIG. 19

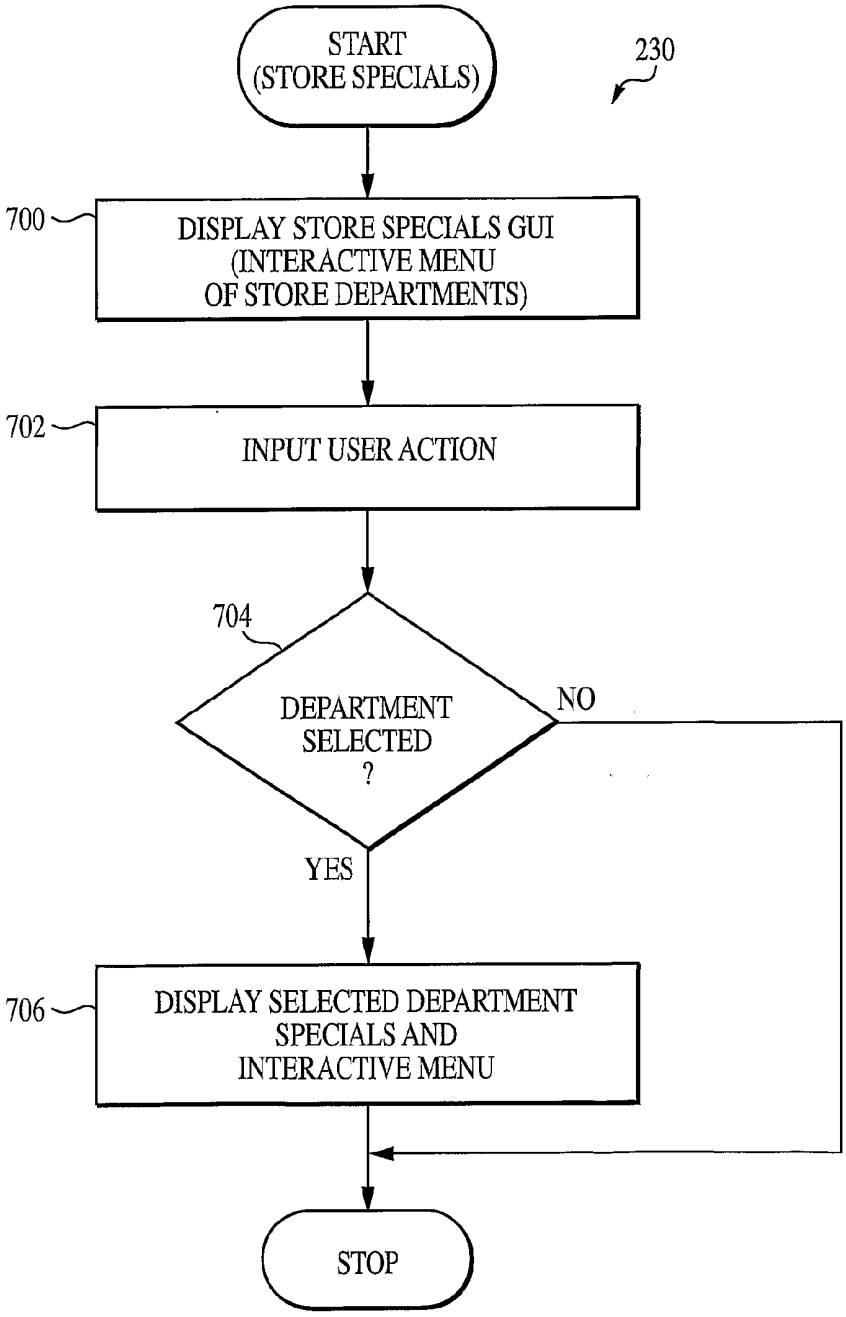

START
(STORE SPECIALS)
230
700
DISPLAY STORE SPECIALS GUI
(INTERACTIVE MENU
OF STORE DEPARTMENTS)
702
INPUT USER ACTION
704
DEPARTMENT
SELECTED
?
NO
YES
706
DISPLAY SELECTED DEPARTMENT
SPECIALS AND
INTERACTIVE MENU
STOP

FIG. 20

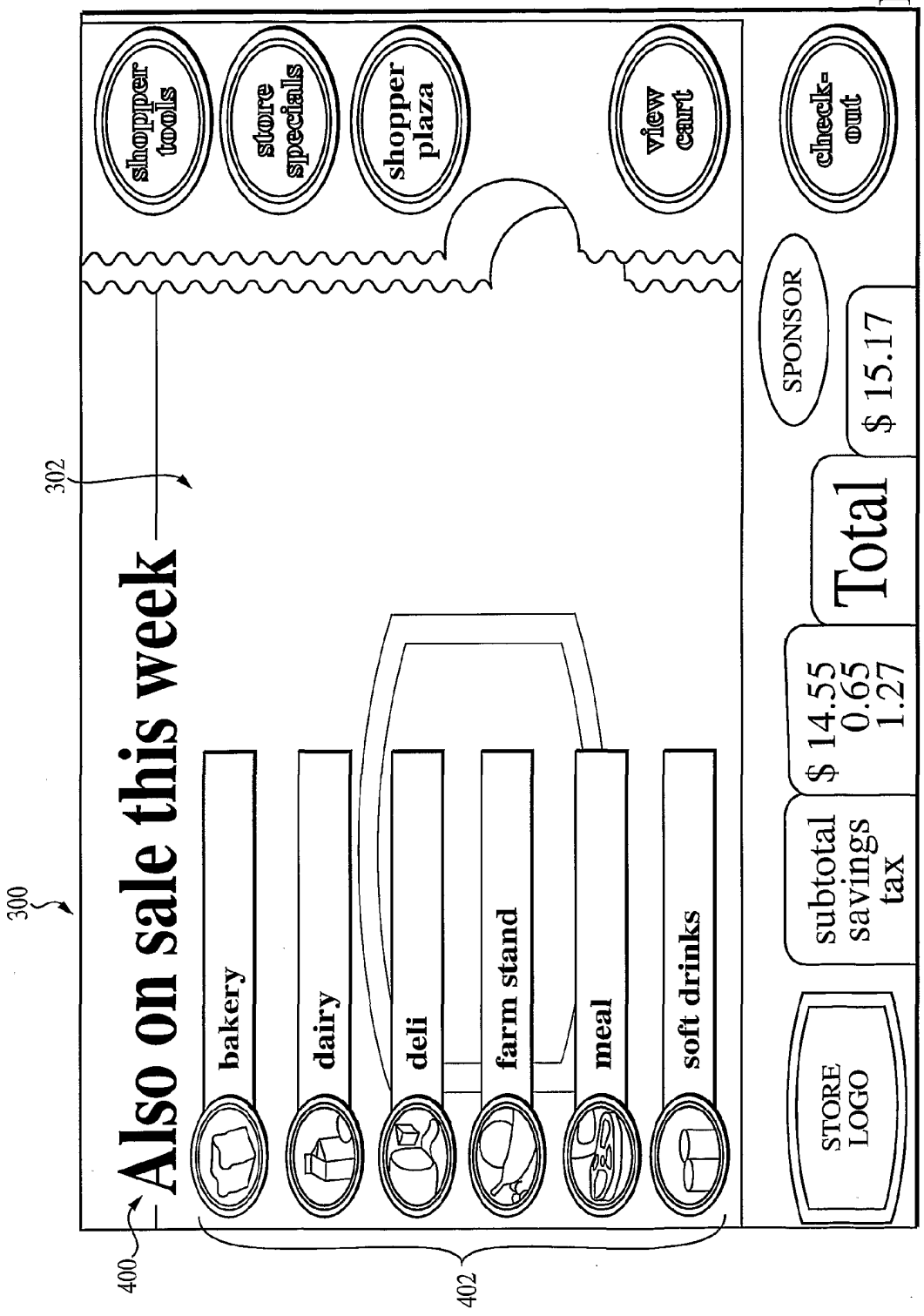

300
302
400
402
shopper tools
store specials
shopper plaza
view cart
check-out
Also on sale this week
bakery
dairy
deli
farm stand
meal
soft drinks
STORE LOGO
subtotal
savings
tax
$ 14.55
0.65
1.27
Total
$ 15.17
SPONSOR

FIG. 21

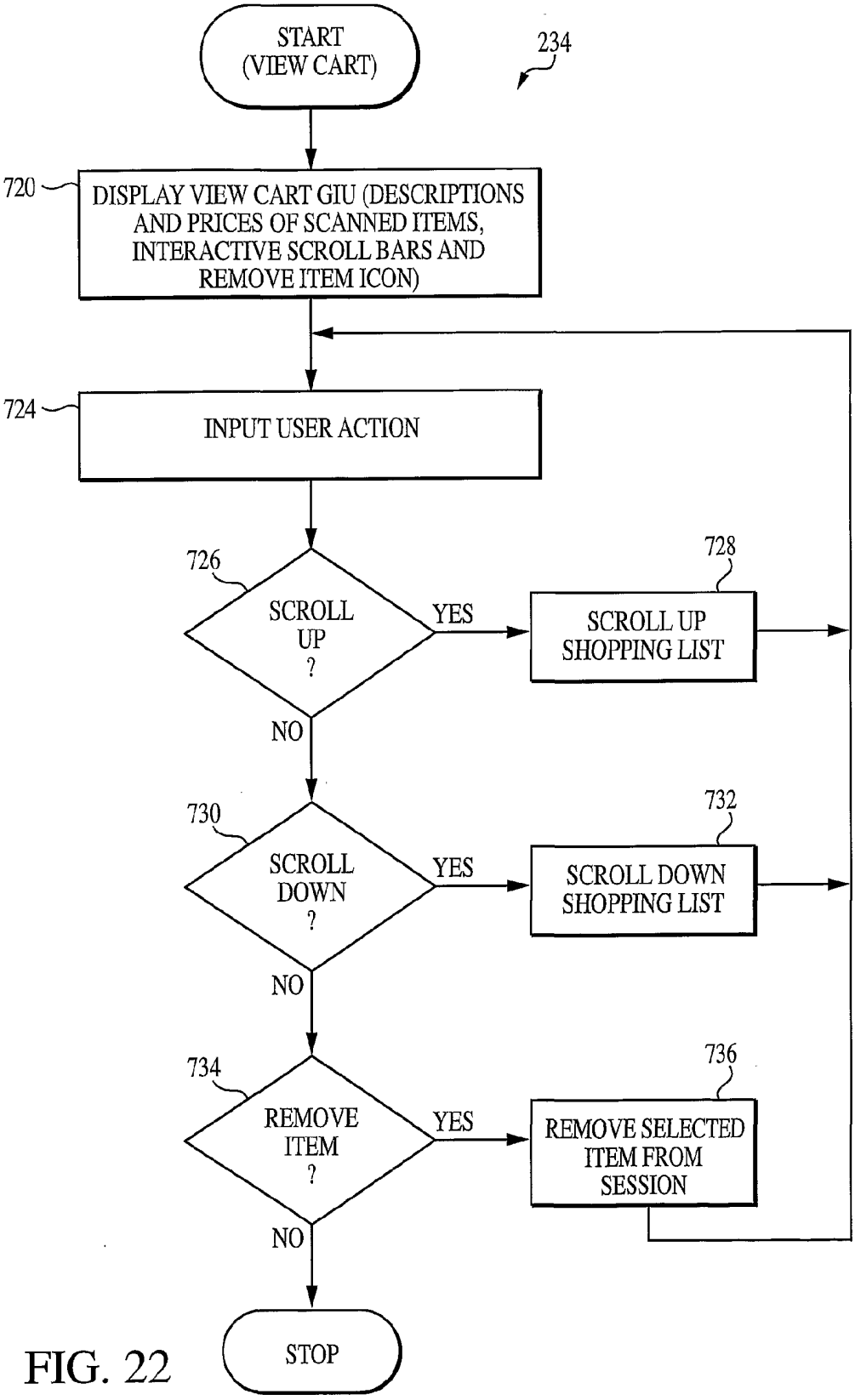

START
(VIEW CART)
234
720
DISPLAY VIEW CART GIU (DESCRIPTIONS AND PRICES OF SCANNED ITEMS, INTERACTIVE SCROLL BARS AND REMOVE ITEM ICON)
724
INPUT USER ACTION
726
SCROLL UP ?
YES
728
SCROLL UP SHOPPING LIST
NO
730
SCROLL DOWN ?
YES
732
SCROLL DOWN SHOPPING LIST
NO
734
REMOVE ITEM ?
YES
736
REMOVE SELECTED ITEM FROM SESSION
NO
STOP

FIG. 22

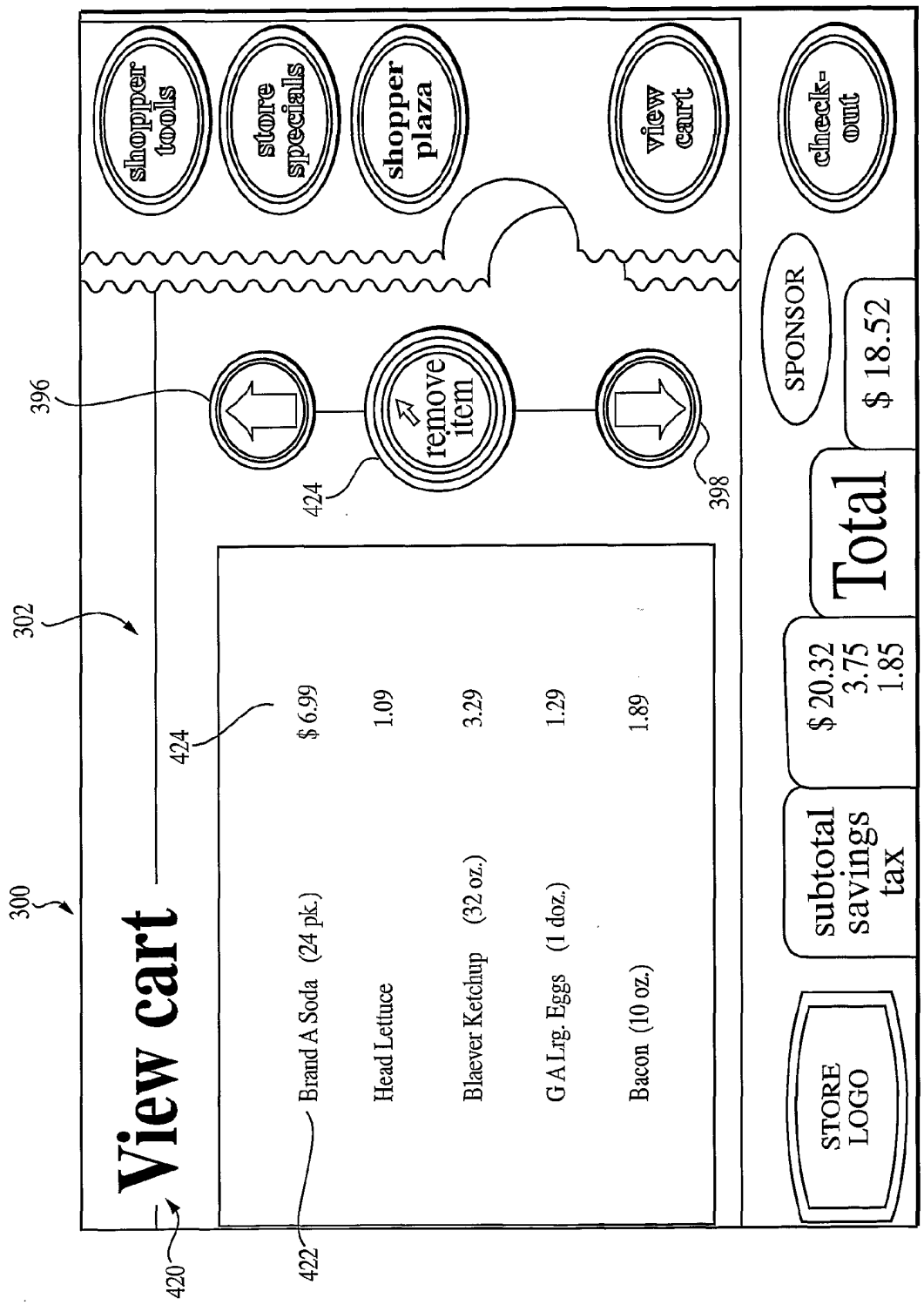

shopper tools
store specials
shopper plaza
view cart
check-out
View cart
remove item
SPONSOR
STORE LOGO
subtotal
savings
tax
$ 20.32
3.75
1.85
Total
$ 18.52
Brand A Soda (24 pk.) $ 6.99
Head Lettuce 1.09
Blaever Ketchup (32 oz.) 3.29
G A Lrg. Eggs (1 doz.) 1.29
Bacon (10 oz.) 1.89
300
302
396
398
420
422
424
424

FIG. 23

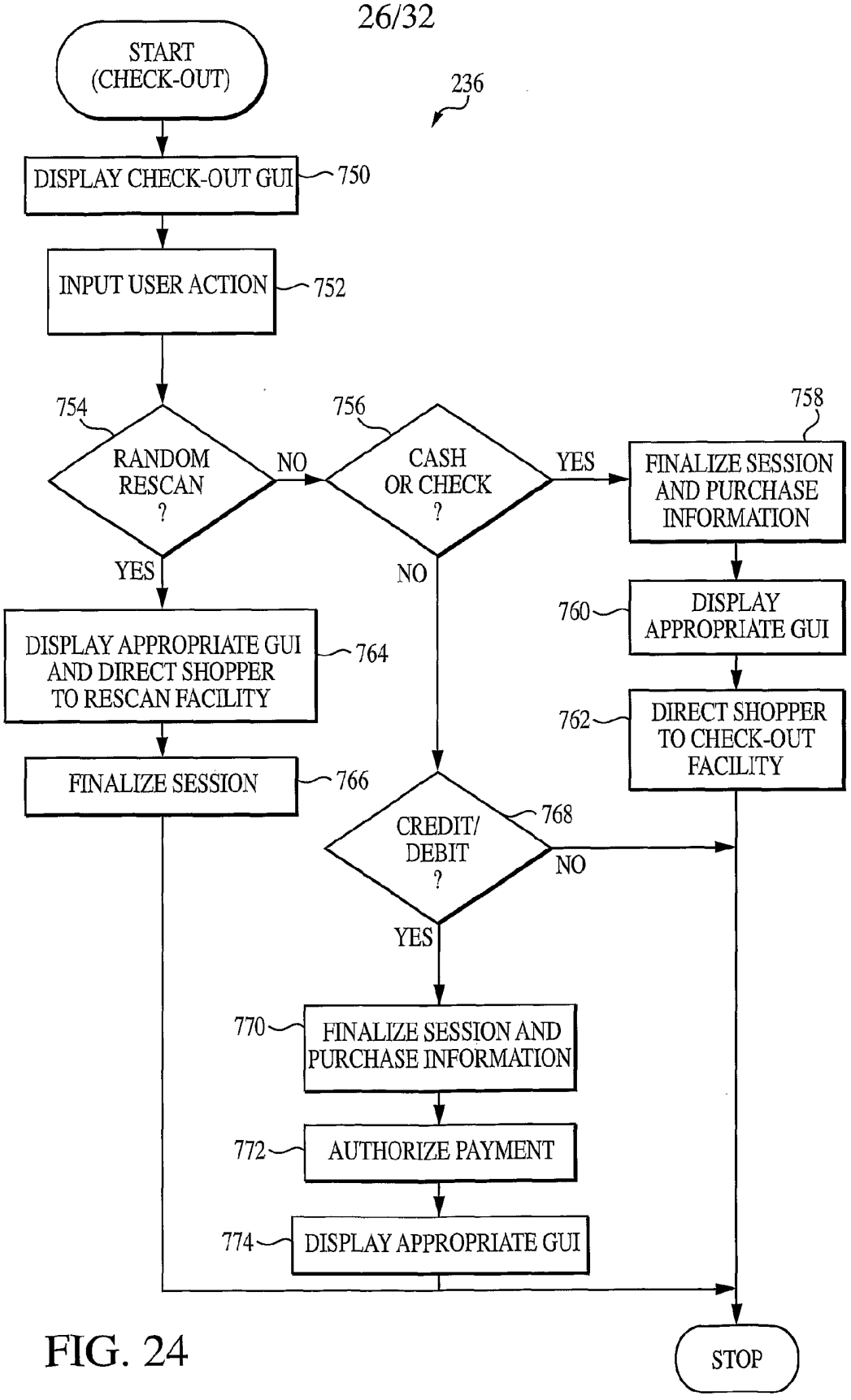

START (CHECK-OUT)
236
DISPLAY CHECK-OUT GUI
750
INPUT USER ACTION
752
754
RANDOM RESCAN ?
NO
756
CASH OR CHECK ?
YES
758
FINALIZE SESSION AND PURCHASE INFORMATION
YES
NO
760
DISPLAY APPROPRIATE GUI
762
DIRECT SHOPPER TO CHECK-OUT FACILITY
DISPLAY APPROPRIATE GUI AND DIRECT SHOPPER TO RESCAN FACILITY
764
FINALIZE SESSION
766
CREDIT/ DEBIT ?
768
NO
YES
770
FINALIZE SESSION AND PURCHASE INFORMATION
772
AUTHORIZE PAYMENT
774
DISPLAY APPROPRIATE GUI
STOP

FIG. 24

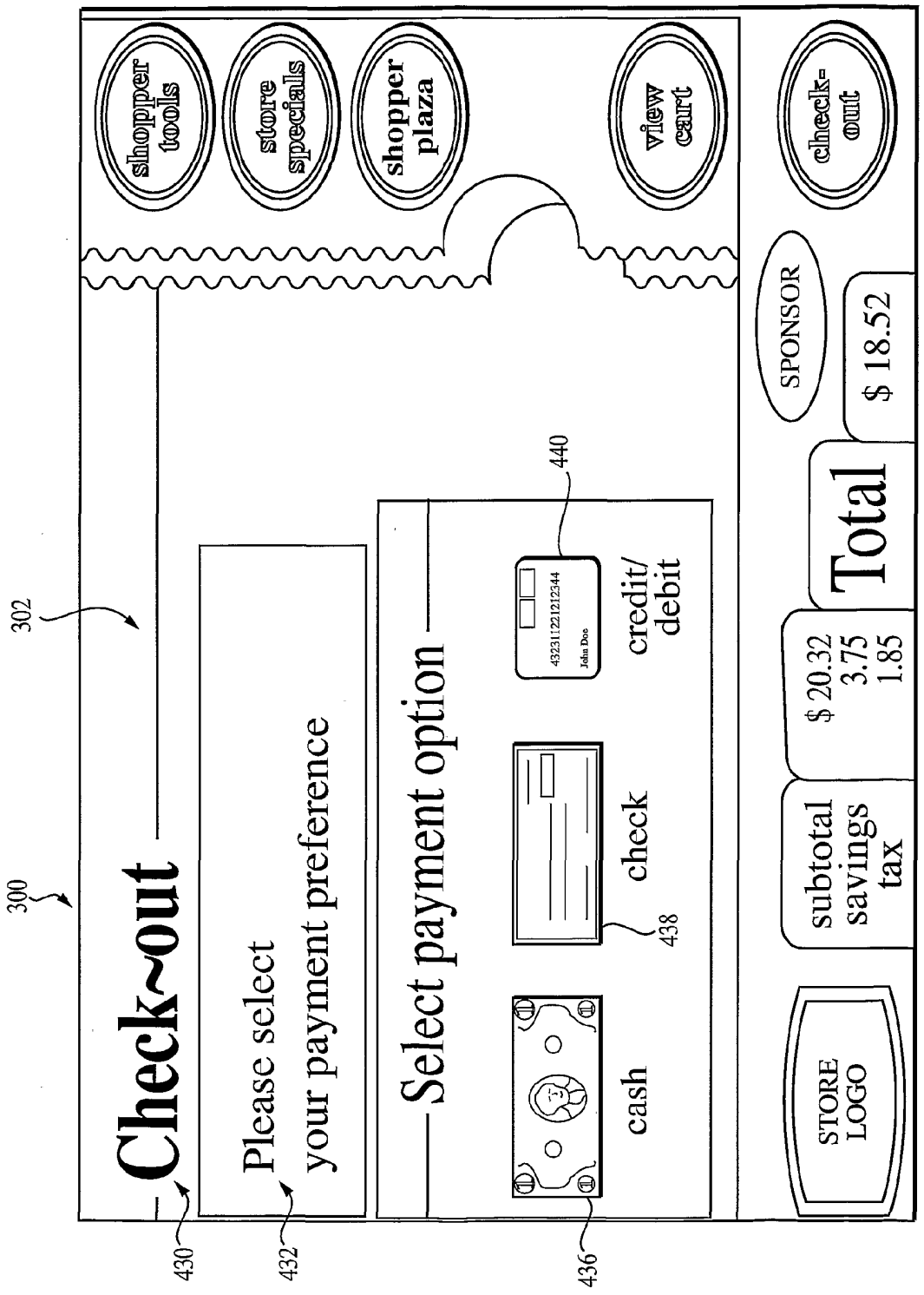
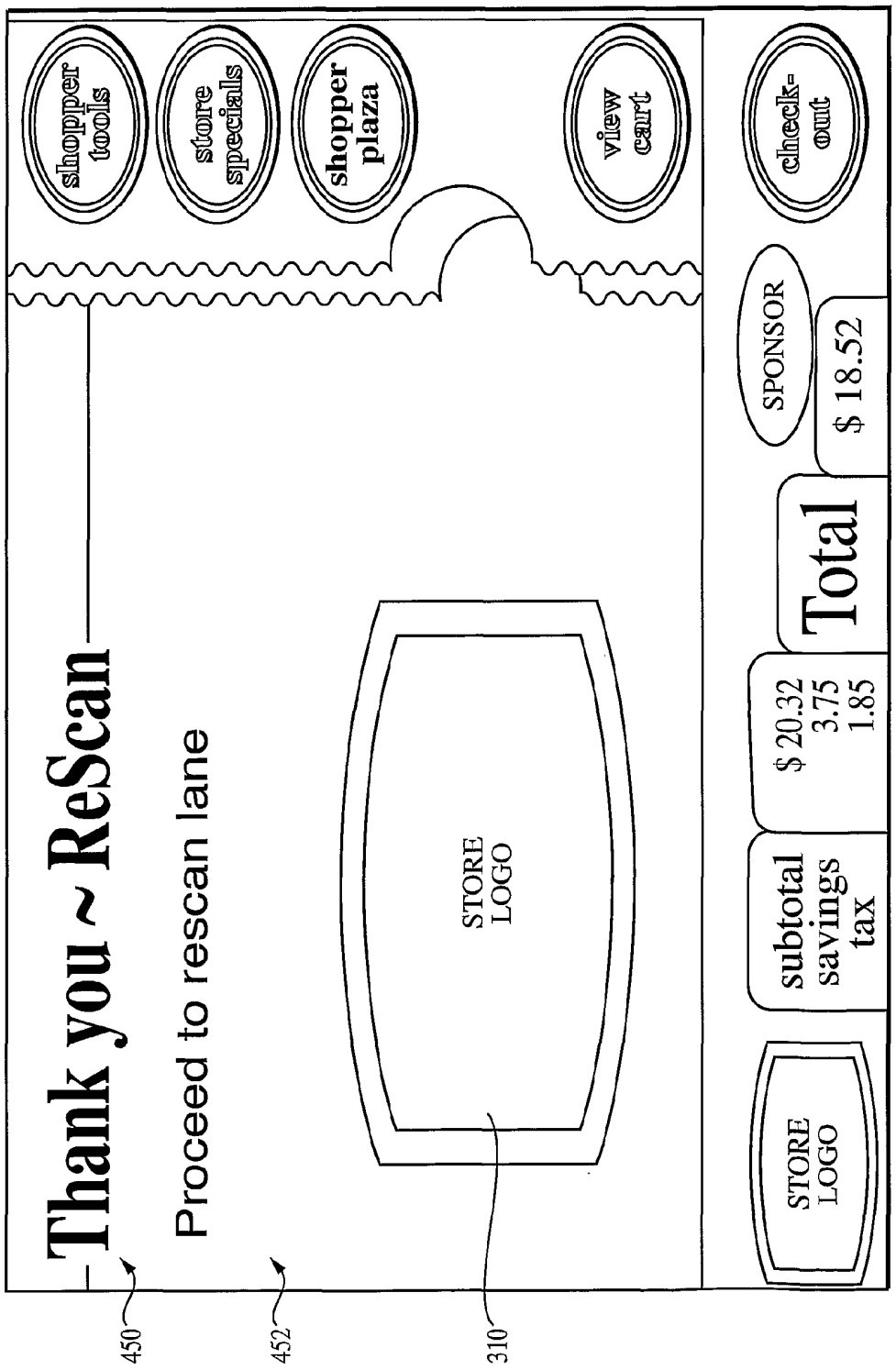

shopper tools
store specials
shopper plaza
view cart
check-out
Check-out
Please select your payment preference
Select payment option
cash
check
credit/ debit
4323112212212344
John Doe
SPONSOR
STORE LOGO
subtotal
savings
tax
$ 20.32
3.75
1.85
Total
$ 18.52
300
302
430
432
436
438
440

FIG. 25

FIG. 26


shopper tools
store specials
shopper plaza
view cart
check-out
Thank you ~ ReScan
Proceed to rescan lane
STORE LOGO
SPONSOR
Total
$ 18.52
subtotal
savings
tax
$ 20.32
3.75
1.85
STORE LOGO
450
452
310

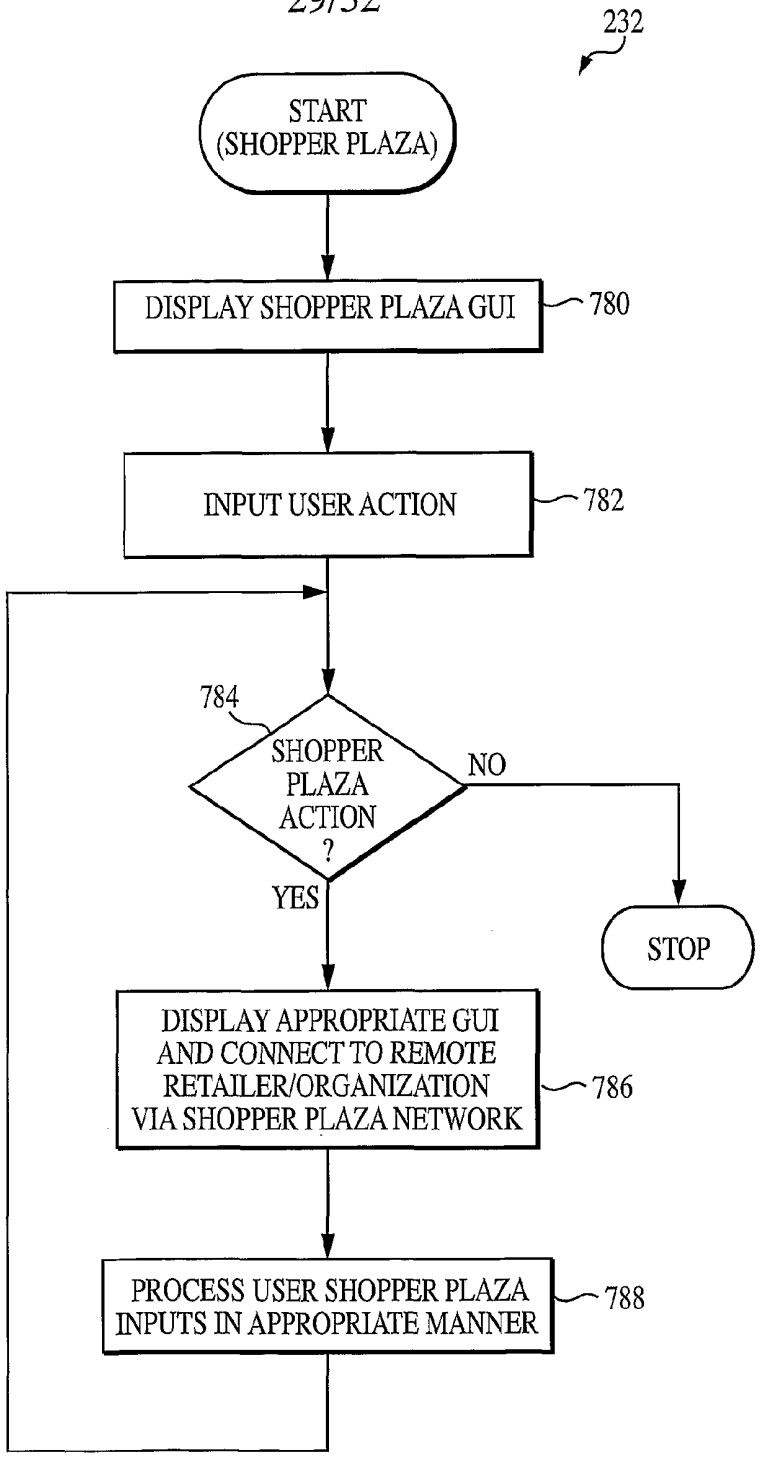

232
START
(SHOPPER PLAZA)
DISPLAY SHOPPER PLAZA GUI
780
INPUT USER ACTION
782
784
SHOPPER
PLAZA
ACTION
?
NO
YES
STOP
DISPLAY APPROPRIATE GUI
AND CONNECT TO REMOTE
RETAILER/ORGANIZATION
VIA SHOPPER PLAZA NETWORK
786
PROCESS USER SHOPPER PLAZA
INPUTS IN APPROPRIATE MANNER
788

FIG. 27

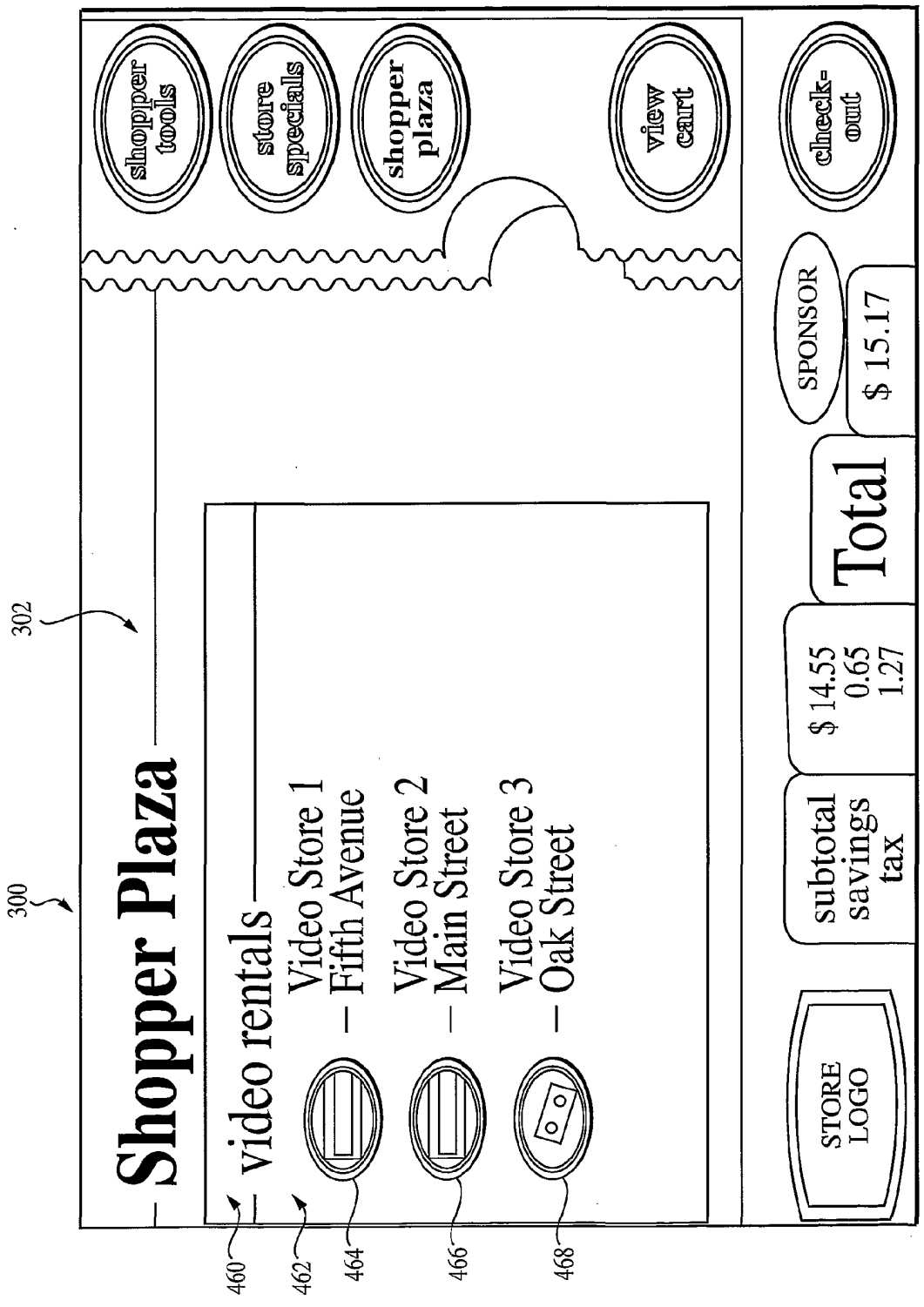

300
302
Shopper Plaza
shopper tools
store specials
shopper plaza
view cart
check-out
video rentals
Video Store 1
— Fifth Avenue
Video Store 2
— Main Street
Video Store 3
— Oak Street
460
462
464
466
468
STORE LOGO
subtotal
savings
tax
$ 14.55
0.65
1.27
Total
SPONSOR
$ 15.17

FIG. 28

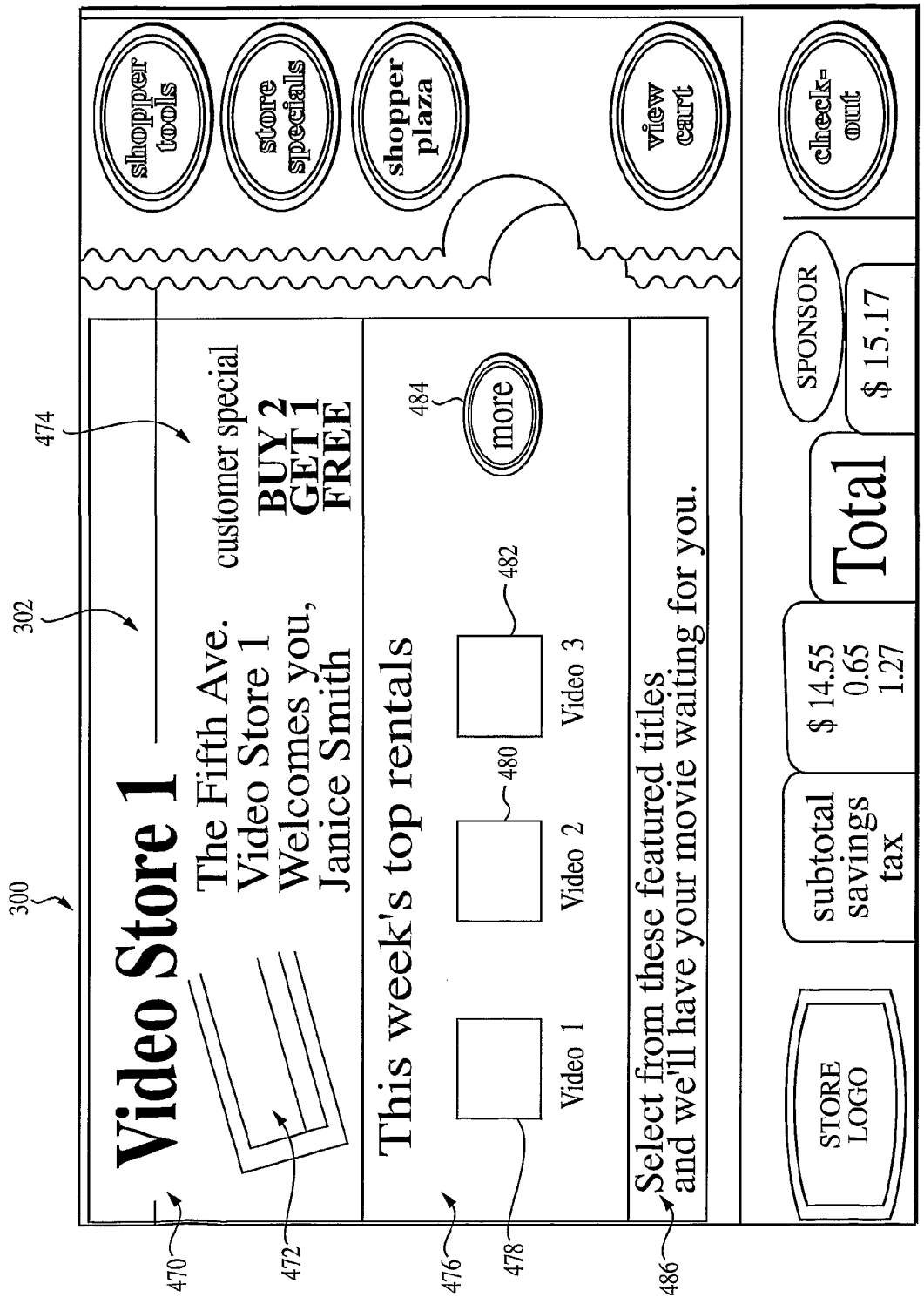

300
302
474
Video Store 1
The Fifth Ave.
Video Store 1
Welcomes you,
Janice Smith
customer special
BUY 2
GET 1
FREE
shopper tools
store specials
shopper plaza
view cart
check-out
This week's top rentals
484
more
482
480
Video 1
Video 2
Video 3
Select from these featured titles
and we'll have your movie waiting for you.
STORE LOGO
subtotal
savings
tax
$ 14.55
0.65
1.27
Total
SPONSOR
$ 15.17
470
472
476
478
486

FIG. 29

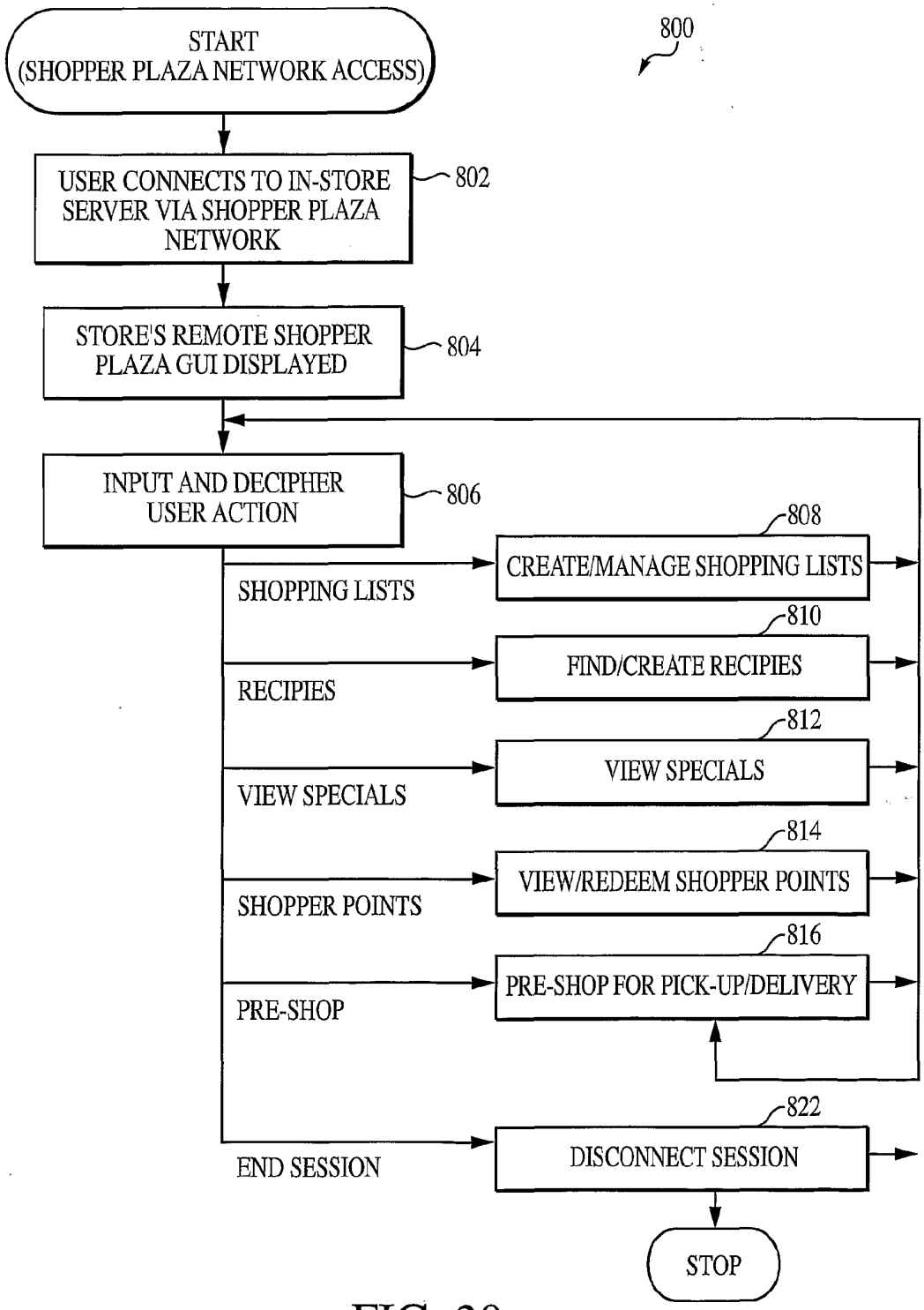

START
(SHOPPER PLAZA NETWORK ACCESS)
800
USER CONNECTS TO IN-STORE SERVER VIA SHOPPER PLAZA NETWORK
802
STORE'S REMOTE SHOPPER PLAZA GUI DISPLAYED
804
INPUT AND DECIPHER USER ACTION
806
SHOPPING LISTS
808
CREATE/MANAGE SHOPPING LISTS
RECIPIES
810
FIND/CREATE RECIPIES
VIEW SPECIALS
812
VIEW SPECIALS
SHOPPER POINTS
814
VIEW/REDEEM SHOPPER POINTS
PRE-SHOP
816
PRE-SHOP FOR PICK-UP/DELIVERY
END SESSION
822
DISCONNECT SESSION
STOP

FIG. 30

# INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/14455

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :G06F 17/60, 13/00, 17/00; G06K 15/00; A47F 9/04; H04N 5/44

US CL :Please See Extra Sheet.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 705/14, 26, 27, 42, 43; 235/379, 380, 381, 383, 385, 462, 472; 186/36, 37, 52, 60, 61, 62, 68; 348/734, 725

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

STN, WEST

search terms: self-service, shopping cart, card reader, display, internet, advertising, promotion, bar code reader...

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| Y | US 5,992,570 A (WALTER et al) 30 November 1999, figures 1-2; col. 3-11. | 1-13, 39-65 |
| Y | US 6,052,629 A (LEATHERMAN et al) 18 April 2000, figure 3; col. 2-7 | 1-13, 39-65 |
| Y | US 5,821,513 A (O'HAGAN et al) 13 October 1998, abstract, figures 1-2; col. 4-13 | 14-38 |
| Y | US 5,950,173 A (PERKOWSKI) 07 September 1999, col. 10-30 | 14-28 |
| Y | US 6,002,450 A (DARBEE et al) 14 December 1999, figure 1; col. 5-7 | 29-38 |
| A,E | US 6,085,177 A (SEMPLE et al) 04 July 2000, col. 2-5 | 1-13, 39-65 |

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

| | | | |
|---|---|---|---|
| * | Special categories of cited documents: | "T" | later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention |
| "A" | document defining the general state of the art which is not considered to be of particular relevance | "X" | document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone |
| "E" | earlier document published on or after the international filing date | "Y" | document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art |
| "L" | document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) | "&" | document member of the same patent family |
| "O" | document referring to an oral disclosure, use, exhibition or other means | | |
| "P" | document published prior to the international filing date but later than the priority date claimed | | |

Date of the actual completion of the international search

26 JULY 2000

Date of mailing of the international search report

28 AUG 2000

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/14455

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| A | US 6,014,698 A (GRIFFITHS) 11 January 2000, col. 4-10 | 29-38 |

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/14455

A. CLASSIFICATION OF SUBJECT MATTER:
US CL :

705/14, 26, 27, 42, 43; 235/379, 380, 381, 383, 385, 462, 472; 186/36, 37, 52, 60, 61, 62, 68; 348/734, 725