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- (71) Applicant: **BRIVO SYSTEMS, INC.** [US/US]; 1925 North Lynn Street, Suite 500, Arlington, VA 22209 (US).
- (72) Inventors: **OGILVIE, Timothy**; 2123 California Street, N.W., Apt. F-9, Washington, DC 20008 (US). **STEIN, Mark**; 2500 Clarendon Boulevard, Apt. 73, Arlington, VA 22201 (US). **GRIFFIN, Carter**; 2801 Connecticut Avenue, Apt. 1, Washington, DC 20008 (US). **VAN TILL, Steve**; 4228 Blue Barrow Ride, Ellicott City, MD 21042 (US).
- (74) Agent: **ARPIN, James, B.**; Baker Botts LLP, The Warner, Suite 1300, 1299 Pennsylvania Avenue, N.W., Washington, DC 20004-2400 (US).
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(54) Title: SYSTEMS AND METHODS FOR OUTBOUND SHIPPING OF PACKAGES USING UNATTENDED TRANSFER DEVICES

(57) Abstract: A system and method for outbound shipping of packages using an unattended transfer device are disclosed. According to one embodiment, a method for a user to conduct outbound shipping of packages using an unattended transfer device via a shipping company includes the following steps: (1) the user establishing a relationship with a network agent; (2) the user preparing a package for shipping; (3) the user affixing a unique identifier to the package; (4) the user initiating shipment of the package with the shipping company; (5) the shipping company determining a proper treatment for the package; (6) the shipping company calculating shipping fees; (7) the shipping company identifying a package source; and (8) the shipping company notifying the network agent of the shipping fee for the package.

SYSTEMS AND METHODS FOR OUTBOUND SHIPPING OF PACKAGES USING UNATTENDED TRANSFER DEVICES

BACKGROUND OF THE INVENTION

1. Field of the Invention

5 The invention relates generally to unattended transfer devices. In particular, the present invention is directed to systems and methods for outbound shipping of packages using one or more unattended transfer devices.

2. Description of Related Art

10 Consumers today are busier than ever, and are challenged to find a sustainable balance between work and family. As a result, consumers have shown a strong willingness to embrace innovations that bring convenience and flexibility to their lives. Two trends that illustrate this phenomenon are (a) telecommuting and other home-based work situations, and (b) convenience-driven self-service devices and utilities. It is estimated that there are over 10 million workers in the United States who telecommute
15 (i.e., work from home rather than travel to their office to work) more than one day per week. That figure is in addition to the more than 24 million Americans who operate businesses from their homes. The dramatic rise in self-service innovations, such as automatic teller machines (ATMs) and Internet-based commerce, attests to the great demand for convenience and flexibility, especially when it is centered on the home.

20 One of the more unrewarding and time-consuming tasks for people who perform work at home or consumers who lead busy lives is the sending of outbound packages. These packages may be product returns for goods purchased through the Internet or via mail order catalogs, or work products developed at home and directed toward clients or co-workers. When individuals want to send packages from their
25 residence, they generally must either commute to the Post Office (because the U.S. Postal Service will not accept packages weighing over one pound introduced into the mail stream at locations other than a Post Office) or offices of a shipping company (e.g.,

Federal Express, United Parcel Service, etc.), or call to schedule a pick-up from the Postal Service or a delivery company.

Normally, packages that are packed at home are carried or transported to a drop-off point for shipment. The shipping fees are typically calculated and paid at the drop-off point. This process is time-consuming and often includes automotive travel and waiting in line. Alternatively, a consumer may schedule a pick-up by a commercial transport company (such as the U.S. Postal Service, United Parcel Service, Federal Express, or other international, regional, or local courier) which may result in additional cost and may involve waiting for the transport company to come directly to their home for the pickup. While this method eliminates the travel to a drop-off point, it still requires scheduling and waiting for the transport company to arrive and make the pickup.

SUMMARY OF THE INVENTION

Therefore, a need has arisen for systems and methods for outbound shipping of packages using unattended transfer devices.

According to an embodiment, a method for a user to conduct outbound shipping of packages using an unattended transfer device via a shipping company includes the following steps: (1) the user establishing a relationship with a network agent; (2) the user preparing a package for shipping; (3) the user affixing a unique identifier to the package; (4) the user initiating shipment of the package with the shipping company; (5) the shipping company determining a proper treatment for the package; (6) the shipping company calculating shipping fees; (7) the shipping company identifying a package source; and (8) the shipping company notifying the network agent of the shipping fee for the package.

According to another embodiment of the present invention, a method for a user accessing a unattended transfer device to ship a package via a shipping company includes the following steps: (1) the user accessing the unattended transfer device; (2) the user depositing the package in the unattended transfer device; (3) the unattended transfer device transmitting information to a control center; (4) the control center receiving the communication and processing the information; (5) a shipping agent accessing the unattended transfer device; (6) the shipping agent removing the package

for shipping; (7) the shipping agent closing the unattended transfer device; (8) the unattended transfer device notifying the control center of the pickup; and (9) the control center notifying the user of the pickup.

In yet another embodiment, a system for monitoring shipping establishes
5 a relationship with a user, and the user has access to an unattended transfer device. The system comprises means for monitoring a service provided by a shipping company for the user; means for receiving a cost for the service from the shipping company; and means for charging the user. The system may further comprise means for receiving and processing user information; and means for establishing a user account for the user;
10 whereby the system establishes the relationship with the user. Moreover, the system may comprise means for receiving a request from the user for a shipment; means for generating an access code for the shipment; means for requesting a pickup by the shipping company; and means for providing the shipping company with the access code.

A technical advantage of the present invention is that consumers and
15 business persons are provided with increased convenience and increased productivity. With this innovation they can ship packages from their homes or businesses without traveling to a drop-off location or waiting around for a pick-up. Another technical advantage of the present invention is that the shipping companies that participate in this service benefit from increased user loyalty due to greater convenience. At the same time,
20 the packages that enter their system come from known sources, eliminating a possible risk. Yet another technical advantage of the present invention is that shipping companies are provided with the ability to make unattended pick-ups, thereby eliminating the cost of pick-up attempts that are unsuccessful because the user was not home at the time the Shipping Company's driver arrived. Still another technical advantage of the present
25 invention is that shipping companies that participate will receive immediate settlement of the charges for each package that enters through this channel (once the Network Agent is invoiced), because the Network Agent will make direct payment on a regular basis.

Other objects, features, and advantages will be apparent to persons of
ordinary skill in the art in view of the following detailed description of preferred
30 embodiments and the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

For a more complete understanding of the present invention, the needs satisfied thereby, and the features and advantages thereof, reference now is made to the following descriptions taken in connection with the accompanying drawings in which:

5 **Fig. 1** depicts a flush-mounted unattended transfer device according to one embodiment of the present invention;

Fig. 2 depicts an unattended transfer device with a one-way mechanism according to one embodiment of the present invention;

10 **Fig. 3** depicts a secure door system according to one embodiment of the present invention;

Fig. 4 depicts secure door system having a full-size door according to one embodiment of the present invention;

Figs. 5a-b depict a subterranean enclosure transfer system according to one embodiment of the present invention;

15 **Figs. 6a-b** depict a tether transfer system according to one embodiment of the present invention;

Fig. 7a-c depict a peg board transfer system according to one embodiment of the present invention;

20 **Fig. 8a-b** depict a sensor transfer system according to one embodiment of the present invention;

Fig. 9 depicts a multiple transfer bin device according to one embodiment of the present invention;

Fig. 10 is a flowchart depicting steps of a method for outbound shipping of packages according to one embodiment of the present invention; and

25 **Fig. 11** is a flowchart depicting steps of a method for outbound shipping of packages according to another embodiment of the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Preferred embodiments of the present invention and their advantages may be understood by referring to **Figs. 1-11**, like numerals being used for like corresponding parts in the various drawings.

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Although the term “transfer” is used throughout this document, it should be recognized that, as used in this application, this term includes shipping, delivery and storage of goods.

The present invention is preferably used in conjunction with an unattended delivery or transfer device, such as the device described in U.S. Patent No. 5,774,053 to Porter, entitled “Storage Device for the Delivery and Pickup of Goods,” which is incorporated herein by reference. The unattended transfer device preferably is equipped for communications, whether they be wireless or landline. In an embodiment, a wireless network may be used. In another embodiment, telephone lines may be used. In yet another embodiment, the radio spectrum may be used.

Other types of unattended transfer devices may also be used. For example, referring to **Fig. 1**, a flush-mounted unattended transfer device (e.g., a controlled access door) is provided. Device 100 may be mounted in exterior wall 150 of a building, such as a house, a garage, an office building, etc. Device 100 includes an access portal, such as exterior door 102, access controller 104, interior compartment 106, and interior door 108. Interior compartment 106 may be a solid-walled compartment, as shown in **Fig. 1**, or it may be a cage.

Access controller 104 controls the access to interior compartment 106 by unlocking or locking exterior door 102. Access controller 104 may include an input device, such as a keypad, that allows a person to enter a code into the device. A variety of input devices or a plurality of such input devices may function as part of access controller 104, which may include, but is not limited to, an infrared receiver, a radio antenna, an optical scanner, a magnetic strip reader, a lock and tumbler, and combinations thereof.

Device 100 also may include locking mechanism 110 to prevent interior door 108 from being opened from the inside of interior compartment 106. Locking mechanism 110 may be a lock and tumbler device or a similar lock; in other embodiments, locking mechanism 110 may comprise a latch on the outside of interior door 108.

Device 100 may operate in a manner similar to the device disclosed in U.S. Patent No. 5,774,053. Generally, during a delivery, access to interior compartment

106 may be granted by access controller 104, and an item for delivery may be placed within interior compartment 106. Exterior door 102 then is closed. For a shipment, the user may place an item in interior compartment 106 via either exterior door 102 or interior door 108.

5 Access controller 104 then transmits information to a remote location. This information may include, inter alia, the access time, the access code, the number of packages, etc. The information may also include a status of the device, such as door status (e.g., open or closed, battery status, communication signal strength, etc.)

10 Referring to **Fig. 2**, an unattended transfer device with a one-way mechanism according to one embodiment of the present invention is provided. Device 200 includes access controller 104, which is substantially identical to that of flush mounted transfer device 100. One-way mechanism 200 also includes rotating door 202 that is mounted on hinge 204. As shown in the figure, rotating door 202 includes walls 206 and 208, which are mounted at a suitable angle to each other. In an embodiment, 15 walls 206 and 208 may be substantially perpendicular to each other; other appropriate angles may be used.

Rotating door 202 may include at least one handle (not shown) for allowing the user to rotate rotating door 202 open or closed.

20 During a delivery, when rotating door 202 is unlocked, the user may extend rotating door 202 outward to accept item 210. Item 210 may be placed on wall 206 of rotating door 202, and rotate rotating door 202 closed. Once rotating door 202 is closed, item 210 shifts to rest on wall 208 of rotating door 202. For shipping, the user is on the inside, the user may place item 210 on wall 208 of rotating door 202. If the user is on the outside, the process is the same as a delivery.

25 Referring to **Fig. 3**, secure door transfer system 300 according to an embodiment of the present invention is disclosed. In this embodiment, the user may decide to permit access to a limited area a building (e.g., a garage, a breezeway, a mud room, or the like) and protect the rest of the building through a separate security system. When access is granted by access controller 104, exterior door 302 is unlocked, providing 30 access to the interior of a portion of the building. In an embodiment, external door 302

may open to reveal a tote or a basket 304, or simply an open area on the floor, onto which any deliveries may be placed.

Referring to **Fig. 4**, in another embodiment, external door 402 of secure door system 400 may be a full size door, permitting an authorized person to enter an area of a building (e.g., a garage or a separate building) to make a delivery or a pickup. If necessary, security to the remainder of the building may be achieved by an additional security system, including locking a door to the building, or providing an electronic (e.g., motion detectors) or video surveillance system to prevent or announce entry into unauthorized areas.

In an embodiment, external door 402 may be an interior door of a building. For example, external door 402 may open to reveal a storage area, such as a room, a basement, and the like. Thus, the present invention may be used in both personal and commercial storage areas. In yet another embodiment, external door 402 may be used as a replacement for any conventional door.

In another embodiment, a subterranean enclosure transfer system is disclosed. For example, referring to **Figs. 5a** and **5b**, a user may use access controller 104 to unlock access door 502 that is adjacent to building 504, which leads to enclosed underground area 506, such as the entrance to a storm cellar. The user gains access to area 504 through external door, 502, or through an internal door (not shown) similar to those described above. This embodiment may be less obtrusive from an aesthetic standpoint, but may also benefit from temperature control advantages provided by subterranean thermodynamics (e.g., substantially constant year-around temperatures of about 55° F).

Alternatively, a “safe zone” may be provided into which packages may be inserted and from which they cannot be removed without triggering an alarm. The safe zone for unattended transfer may be a section of a property, including a porch, a deck, a carport, or other designated area that may be adjacent to or near a building or home. Security may be provided through some non-enclosed means of attachment or sensing, as will be discussed below.

In another embodiment, a tether transfer system may be provided. Referring to **Figs. 6a** and **6b**, tether system 600 may use a small lanyard or plug-in that

is attached to the shipping package or container. Upon delivery of a package to the home, tether 602 may be received in connection 604 that is provided in container 606. Container 606 is then protected from theft until tether 602 is released by access controller 104 by a entering a code or providing a key. In an embodiment, tether 604 may be secured to container 606 in such a way that container 606 or its contents may be damaged or destroyed in order to remove container 606 without properly unlocking tether 602. Alternatively, tether 602 may be integral to the locking system on the home, and container 606 may come with either a loop (not shown) through which tether 602 may pass, or female connector 608 to match male end 610 of tether 602.

10 In another embodiment, a tether may be integral with the container, and may be received by a receptacle provided in the secure area. In yet another embodiment, a special container may be provided. The special container may be made of a material, such as plastic, to provide durability, and may be equipped with either a tether or a receptacle for the tether. The special container may be provided with a locking
15 mechanism as well.

In another embodiment, a peg board transfer system may be provided. A peg board system includes one or more hooks attached to a package. In **Fig. 7a**, pegboard system 700 includes access controller 104 and pegboard 702, which may be divided into a plurality of zones, or regions. Packages 704, such as those shown in **Figs. 7b-c**, may be delivered with pegs 706 protruding from a portion of the package. Packages 704 may include special containers that have pegs 706 formed integrally therewith, or pegs 706 may simply be attached to packages 704.

Similar to the tether design, pegs 706 are received by holes 710 in pegboard 702. Pegboard 702 may be part of a larger, home or business security system where any inserted pegs may then be secured in place by a locking mechanism. Packages 704 are then secure until they are released by access controller 104 through the actions of someone possessing a key (or codes that serve as a key). Pegs 706 may be secured to package 704 in such a way that package 704 or its contents may be damaged or destroyed in an attempt to remove it without unlocking peg board 702.

30 In yet another embodiment, a sensor transfer system is provided. Referring to **Figs. 8a** and **8b**, sensor system 800 may operate by using electric sensor 802

that emits electric beam 804 in a predetermined area. Packages 806 include sensors 808 that may be located on the outside of package 806 or within package 806 or as a part of (e.g., integral with) package 806. Sensor 808 may be a small chip similar to the shoplifting prevention device attached to clothing in some retail stores, such as U.S. Patent No. 4,123,749 and U.S. Patent No. 5,874,896. In yet another embodiment, a sensor 808 may be integrated with a special container (not shown).

Once package 806 including sensor 808 is recognized, sensor system 800 is switched into "locked" mode and maintains electronic contact with the package 806 or may be locked through mechanical means. If this contact is interrupted, a warning is provided. This may include sounding an alarm, or on activating other security measures (e.g., activating an electronic camera to capture activity in the area). As with other embodiments, to remove package 806 from the area, an authorized recipient may be required to possess a key or a code to disable the alarm.

Regardless of the specific embodiment, the unattended transfer device may be part of a simple physical security mechanism, or part of a broader device with intelligence. For example, the intelligence may be used to notify the homeowner of delivery of the package. For deliveries to the system, input codes that identify the package may be used, so that notification could be specific as to the package, the Shipping Company, the time of delivery, and the like.

Further, the user may be required to register the unattended transfer device with a service provided. This may include transmitting the individual's name, social security information, home and work address, telephone and other digital/analog communication numbers or electronic mail addresses, as well as information regarding the individual's preferences as a user of the system, including preferred means of notification, preferred shipping provider, preferred transfer device pick-up times, a "buddy-list" of additional people authorized to use the device, and so forth. The user also may register payment information into the central database. A preferred method of payment is a credit card; however, it is possible that payment may be accepted via a debit card, check, electronic-check ("e-check"), or electronic-wallet ("e-wallet") - the latter two examples referencing forms of electronic payment made over the Internet.

In an embodiment of the present invention, a third party may serve as an intermediary between the user, which may be a consumer or business person, and the shipping company. The third party may be referred to as a Network Agent.

5 In another embodiment, a plurality of unattended transfer devices may be collocated in a “post office box” type of arrangement. In this embodiment, the individual “bins” may each be owned, or they may be commonly owned by a party, and “leased” or rented to users. For example, a user may rent an individual bin in the same manner that a person may rent an apartment, and may have exclusive possession of that individual bin during that time period. A group of users may rent an individual bin in the
10 same manner. Further, a user may rent an individual bin for a single delivery, or a bin may be dynamically assigned for temporary use.

An important issue associated with shared resources is their effective utilization. Utilization of a cluster box may be described in classic telecom theory. For example, arrival rates (both inbound and outbound), how often the bin is being used and
15 by how many users; and average handle times (how long the package is in the bin from insertion to pickup) should be considered.

Package size is an important consideration with such a device. For smaller packages, a common bin may be provided, such that access to remove packages may be limited to the carrier. These would be very similar to the bins that carriers use
20 today to drop off packages for pickup. For larger packages, a common cluster of bins may be used. As will be described below, a combination of large and small bins may be provided in a common device.

Referring to **Fig. 9**, an example of a multiple transfer bin device 900 is provided. In this figure, a plurality of bins 902 are provided in device 900. In one
25 embodiment, bins 902 may be the same size. In another embodiment, bins 902 may be of different sizes. For example, bins 902 may be provided different sizes that accommodate shipping envelopes (e.g., FedEx® letters, UPS® PadPacks®, and the like), small or medium packages, and large packages. If bins 902 are provided on a per-delivery basis, a delivery to a larger bin may cost more than a delivery to an envelope bin.

30 In another embodiment, some of bins 902 may be provided with additional convenience features, such as having a heater or a refrigeration unit. In one embodiment,

a common heater or a common refrigeration unit, or both, may be provided for device 900, and may be individually (or selectively) activated by the person leaving the item in the particular bin. If bins 902 are not owned by a user, an additional charge may be imposed for use of such features.

5 Bins 902 may be provided with an indicator that indicates when the bin is in use. In an embodiment, each bin 902 may be provided with a LED that illuminates when the bin is in use. In another embodiment, a central display (not shown) may indicate when a bin is in use.

 Device 900 may be provided with at least one access controller 104.
10 Access controller 104 may be substantially the same type as described in conjunction with other embodiments. Alternatively, the controller may be at a remote location, such as a home LAN gateway. Other devices, however, are within the contemplation of the present invention.

 In an embodiment, a separate access controller 104 is provided for each
15 bin 902. All access controllers 104 may be linked to a common processor, or they may be completely independent. In an embodiment, access controllers 104 share a common communication port.

 Referring to **Fig. 10**, a method for shipping according to one embodiment
of the present invention is provided. First, in step 1002, the user establishes a
20 relationship with the network agent. In one embodiment, this may be accomplished when the user receives a unattended transfer device. The unattended transfer device may be provided by the network agent; in another embodiment, it is provided by a third party. In an embodiment, the network agent is authorized to make payments to at least one shipping company on the user's behalf, and, consequently, the network agent has a
25 mechanism to be compensated by the user for any such expenditures, plus any appropriate service fees.

 In step 1004, the user prepares an item for shipping. This may include
selecting service options. To send a item, the user may be required to prepare the item
according to standard shipping requirements, to include taking proper protective
30 measures and affixing a recipient's address and a sender's address in a prominent place. In addition, the user may select the shipping company he/she intends to use, and may

select the service options he/she prefers. For example, the user may choose between ground transport and air transport, or between overnight service and second-day service. These selections might be supported by using pre-printed materials provided by the shipping company, or they might be supported by Web-based tools and a printer
5 available in the user's home. The user may attain a cost estimate for the shipment from printed or online materials provided by the Network Agent, or other entities.

In step 1006, the user affixes a unique network agent+user identifier to the package. In an embodiment, the user may be required to identify the package as originating from the user, and as being supported by Network Agent. In another
10 embodiment, the identifier may be a machine readable code, such as a bar code label, printed from the user's home printer, or it may be a pre-printed adhesive label similar to a postage stamp, but bearing alphanumeric, bar, or other codes that identify the user and the network agent. This identifier does not need to be specific to the package it is affixed to, nor does it need to reflect the fees associated with that package. The identifier simply
15 informs the shipping company about the identity of the user and the network agent.

In step 1008, the user requests a pickup from the shipping company. Alternatively, the Network Agent may summon the shipping company for pickup. Such requests may be for immediate pickup or may be aggregated for delayed pickup. Once the item is properly packaged, the user signals the shipping company to make a pick-up.
20 This signal may be transmitted through a pre-programmed "hot" button on the transfer device, or it may be via a telephone call, e-mail, or facsimile transmission to the shipping company's call center. Alternatively, an external signal to the shipping company so shipping company's agent, such as a driver or route-person, knows to look for the package may be used, or there may be standing instructions to look for packages in a
25 specific place. Further, a driver or route-person may be contacted directly so that the driver or route-person may be re-routed. Ideally, the package may be placed in a secure transfer device that provides controlled access. This provides important protections to both the shipping company and the user. Any special timing/service instructions (e.g., rush delivery) would need to be made to the shipping company at the time of notification.

In step 1010, the user may deposit the package into an unattended transfer device (optional). In the event the user has access to an unattended transfer device, the package may be placed in the device to await pick-up by the shipping company. This approach has the advantage of allowing the user to leave home, or the site of the device, to perform other errands, or to engage in some other work task that might preclude the user from handing the package to the shipping company's driver directly. This mode of delivery into the logistics channel may be referred to as "asynchronous," or "unattended," because it frees the user and the shipping company from having to synchronize their schedules to affect the pick-up.

In step 1012, the shipping company picks up package. Upon receiving the user's request for a package pick-up, the shipping company dispatches a pick-up service driver to the user's location. The pick-up may be scheduled at a mutually convenient time or, if a secure transfer device is used, the shipping company may schedule the pick-up at its convenience.

In step 1014, the shipping company determines proper package treatment (e.g., weighs package, notes delivery service selection, and the like) and transports it to a central location. Once the package is received into the shipping company's system, the shipping company then determines the proper treatment of the package, including special markings, routings, and the like. This in-processing might take place at the moment of pick-up, through a hand-held device, or it might take place in the shipping company's truck. Alternatively, it might take place at a central location, such as a parcel depot.

In step 1016, the shipping company calculates fees. Based on the service selection by the user and the weight and girth of the package, the shipping company determines the appropriate shipping fees.

In step 1018, the shipping company identifies the package source as a member of the network. The shipping company recognizes from the unique package indicator that the package originated within the network operated by the network agent. This recognition may be made by a hand-held scanner, by an automated sorting system, or manually. The shipping Company's system recognizes these packages and associates the correct fees with each of them.

In step 1020, the shipping company notifies the network agent of all packages and fees. The shipping company may, on a periodic basis, calculate the outstanding fee balance within the network agent's network and transmit an invoice to the network agent. This submission may be accompanied by line item detail of the packages and their individual fees.

The periodic basis may be after every shipment, daily, weekly, bi-monthly, monthly, etc. In general, any acceptable time period may be used.

In step 1022, the network agent pays the shipping company directly. Based on this invoice, the network agent may pay the shipping company directly for the cumulative fees earned by the shipping company for all parcel shipment services within the network. This payment may be made by check, or electronic funds transfer, or other appropriate payment mechanism.

In step 1024, the network agent determines the user originator of each package and charges their account. Finally, the network agent may use the line item detail provided by the shipping company to determine individual account balances at the user level. The network agent then may charge the accounts of all users with outstanding balances, to include charging any pre-determined network agent fees for providing the outbound shipping data services.

In an embodiment, the network agent may charge an additional service charge for the services rendered, or an additional fee for each system use.

Referring to **Fig. 11**, a method for a user accessing an unattended transfer device for outbound shipping is provided. In step 1102, the user approaches the device with an item that the user desires to have shipped. In an embodiment, it is preferred that the item be packaged in accordance with the standards set forth by the shipping company.

As discussed above the user may affix a label to the package containing the item. In an embodiment, the user may access a shipping company's website (e.g., ups.com, fedex.com, and the like) and may generate a shipping form, or waybill, for a particular shipping company, that includes the user's address, destination address, account number, etc. In another embodiment, the user may access a shipping portal, from which information from several shipping companies is provided, and, from this site, generate a shipping label. In still another embodiment, the user may generate a generic

shipping label that may be used with multiple shipping companies. In yet another embodiment, the user may complete a shipping form by hand.

In step 1104, the user accesses the device. In an embodiment, the device may be opened by entering a code on an input device, such as an alphanumeric keypad.

5 In another embodiment, the code may be communicated to the device via a radio frequency, infrared transmission, or digital, cellular, or wireless-based signal. The code also may be entered by the presentation of a machine readable code before an optical scanner included in the device, and operably coupled to a control device as described below, which reads the code and transmits it to the control device. Alternatively, a user
10 may press the button of an accessorized device from inside the adjacent house (or business) that causes the transfer device to open.

In an embodiment, the device may include several "hot-buttons" presenting the name of shipping, delivery, or local interest entities or companies. These hot-buttons may be buttons, levers, knobs, or switches. Alternatively, a display screen
15 may present such options to the user in the form of a menu. The user chooses a preferred shipping company, company, or entity that may pick-up the package by actuating the button displaying the name of the entity. In another embodiment, the device also may feature a hot-button that is labeled "send." The pressing of this hot button completes the user interface with the actual shipping of the outbound package.

20 In step 1106, an access controller operating the transfer device and its input device determines whether the access to the interior of the device should be granted. In step 1110, if the code matches the code entered by the user to known codes to verify that the user is recognized. In another embodiment, the access controller transmits the entered code to a remote location where it is verified. In still another
25 embodiment, the access controller determines whether the entered code is valid (e.g., it satisfies a predetermined algorithm). If so, the control panel approves the user and provides access to the interior of the device. This may be accomplished by opening the door by hydraulic, electrical, pressurized, or other means, or simply unlocking the door. However, if the code does not match, in step 1108, the door does not open.

30 Once the device is opened, in step 1112, the user places the package(s) inside the device, and in step 1113, the user provides the Network Agent with pickup

information, such as the number of packages deposited, the shipping destination (e.g., destination zip code), the selected shipping company, or combinations thereof, and the like. . In step 1114, the user re-secures (closes) the unit. The user may then simply walk away from the device.

5 After the user closes the device, or after a hot-button is activated, in step 1116, the device transmits information to a control center. This communication may be made via wireless or cellular-based networks, or via wires connecting the unit via a node to a larger network such as the Internet, an extranet, or an intranet. The communication may contain information including, but not limited to, the transfer device identification
10 number, the identification of any hot-button that has been depressed, the user's name and address, the time and date of package deposit, the package weight sensed by a sensing device installed within the transfer device (if provided), the number of packages sensed by a sensing device in the transfer device (if provided), payment information associated with the user, and the like. The transmission of other information is well within the
15 contemplation of the present invention.

 In step 1118, the control center receives the communication and processes the information. In an embodiment, the control center notifies a shipping agent (step 1119) or other designated entity that a package is ready to be picked up. The control center may be operated or overseen manually or by a software package running on
20 computer hardware. Either way, the control center may transmit the transfer device identification number (or translates this identification number into a physical address and then communicates that physical address), along with, at the discretion of the central operations center, additional information, such as the number or weight of the package(s), time shipping request was made, the access code, and the like, (or combinations thereof)
25 to the selected shipping agent or entity. The communication to the agent may be made electronically, via the Internet, via protocols for Electronic Data Interchange (EDI), or via virtual private networks (VPNs), extranets, or other proprietary electronic networks, or the communication may be made verbally using land-line, wireless, or cellular telephone systems. A preferred method of communication to the shipping agent is over
30 an electronic network, namely the Internet or a VPN.

In step 1120, when the shipping agent receives the communication instructing it to pick up a package from a particular transfer device unit or physical address, it routes delivery personnel accordingly. The shipping personnel approach the device, and in step 1122, open the device entering a code or similar method, as discussed
5 above. Preferred methods of code entry by the shipping agent are alphanumeric entry or infrared recognition. In step 1124, as described above, the access controller verifies the code. In step 1128, if a code is verified, the shipping agent is recognized and approved, and the unit opens itself automatically or releases for manual opening. If the code is not verified, in step 1126, the device remains closed.

10 In step 1130, once the device opens, the shipping agent removes the package for shipping, and, in step 1132, the shipping agent closes the device. In step 1134, the user is notified of the pickup, and in step 1136, the user (or the shipping company or another) is billed. This may be initiated after the device is closed by the shipping agent; in other embodiments, it may be initiated by the shipping agent accessing
15 the interior of the device; in still another embodiment, it may be triggered by some other external event.

Once the shipping agent has the package; the shipping company may process it to its final destination. In one embodiment, the device records the time and date of the shipping company's pick-up, the length of time it took the shipping company
20 to complete the pick-up, the name of the shipping company, the weight of the packages removed, and the like. This information may be communicated to the control center by one of the methods described above. The control center may record this information in a central database and may transmit the details of the package pick-up to the device user. The information may be transmitted electronically by any of the forms previously
25 enumerated, but the control center attempts to notify the user by the user's preferred notification method, which also may be a wireless communication to a pager or cell phone or an electronic mail notification.

While the invention has been described in connection with preferred
embodiments and examples, it will be understood by those skilled in the art that other
30 variations and modifications of the preferred embodiments described above may be made without departing from the scope of the invention. Other embodiments will be apparent

to those skilled in the art from a consideration of the specification or practice of the invention disclosed herein. It is intended that the specification is considered as exemplary only, with the true scope and spirit of the invention being indicated by the following claims.

CLAIMS

1. A method for monitoring shipping comprising:
establishing a relationship with a user, the user having access to an
unattended transfer device;
5 monitoring a service provided by a shipping company for the user;
receiving a cost for the service from the shipping company; and
charging the user.
2. The method of claim 1, wherein the step of establishing a
relationship with a user comprises:
10 receiving and processing user information; and
establishing a user account for the user.
3. The method of claim 2, wherein the user information includes at
least one of a user address, user billing information, user contact information, and an
identification number for an unattended transfer device.
- 15 4. The method of claim 1, further comprising the step of establishing
a relationship with a shipping company.
5. The method of claim 1, wherein the step of monitoring a service
provided by a shipping company for the user comprises:
20 receiving a request from the user for a shipment;
generating an access code for the shipment;
requesting a pickup by the shipping company; and
providing the shipping company with the access code.
6. The method of claim 5, wherein the request is initiated by the user
actuating a hot-button on the unattended transfer device.

7. The method of claim 5, wherein the access code is an numerical code.
8. The method of claim 5, wherein the step of monitoring a service provided by a shipping company for the user further comprises:
5 notifying the user when the shipping company picks up the shipment.
9. The method of claim 5, wherein the step of monitoring a service provided by a shipping company for the user further comprises:
tracking the shipment; and
providing tracking information for the user.
10. The method of claim 5, wherein the shipping company is provided with the access code by a means selected from the group consisting of a direct telephone call, e-mail, and facsimile transmission.
11. The method of claim 1, wherein the cost is received from the shipping company periodically.
12. The method of claim 1, wherein the step of charging the user comprises:
15 charging the user for the service and a surcharge.
13. The method of claim 1, wherein the step of charging the user comprises:
20 charging the user for less than the cost of the service provided.
14. The method of claim 13, wherein the shipping company receives less than the cost of its services.

15. The method of claim 13, wherein the cost comprises a plurality of services.

16. The method of claim 1, wherein the user is selected from the group consisting of an individual and a business.

5 17. A system for monitoring shipping, wherein the system establishes a relationship with a user and the user has access to an unattended transfer device, the system comprising:

means for monitoring a service provided by a shipping company for the user;

10 means for receiving a cost for the service from the shipping company; and
means for charging the user.

18. The system of claim 17, the system further comprising:
means for receiving and processing user information; and
means for establishing a user account for the user;

15 whereby the system establishes the relationship with the user.

19. The system of claim 17, the system further comprises:
means for receiving a request from the user for a shipment;
means for generating an access code for the shipment;
means for requesting a pickup by the shipping company; and
20 means for providing the shipping company with the access code.

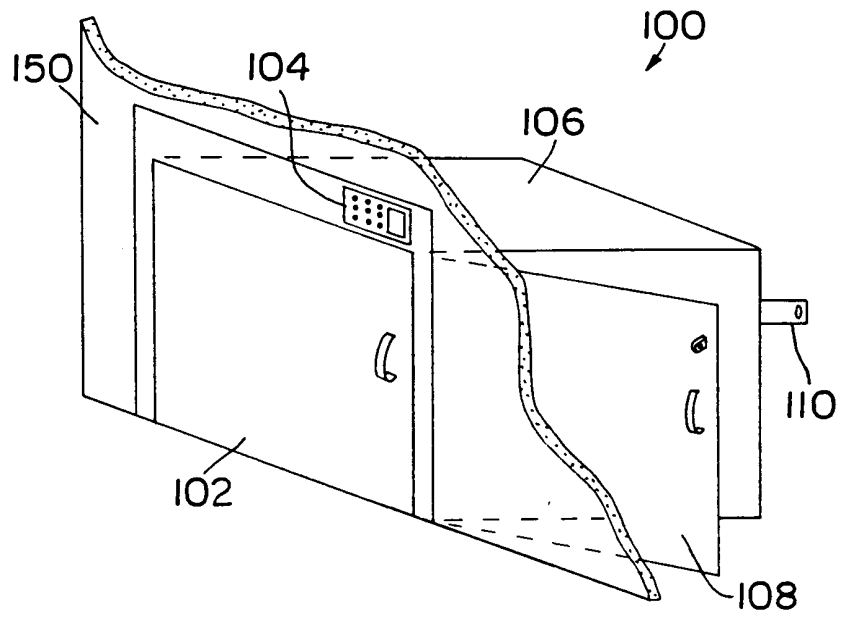


FIG. 1

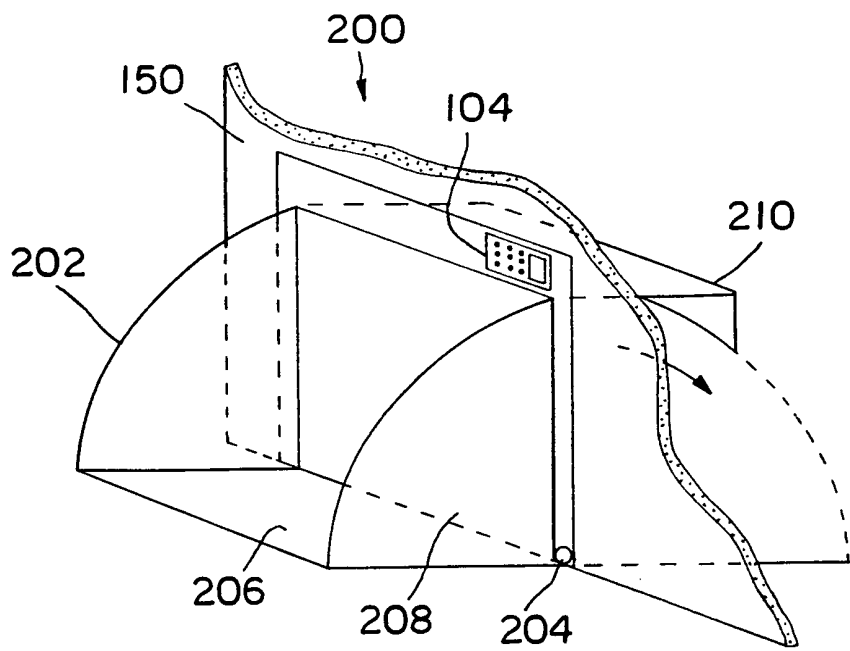


FIG. 2

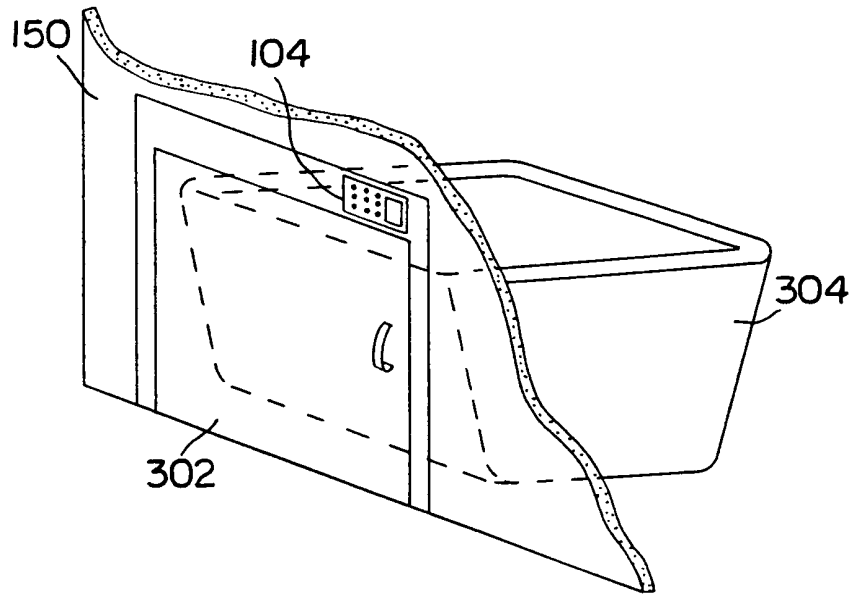


FIG. 3

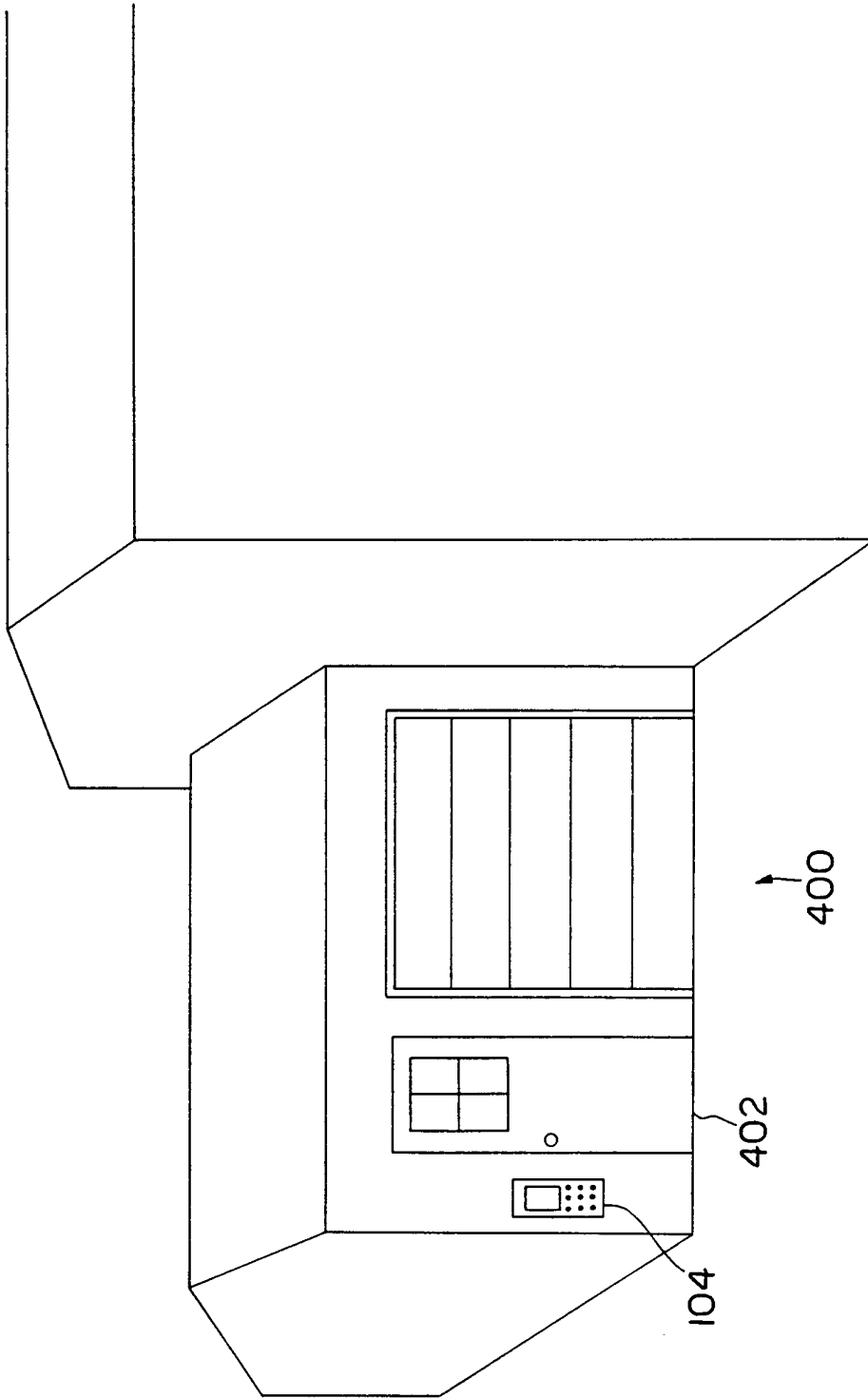


FIG. 4

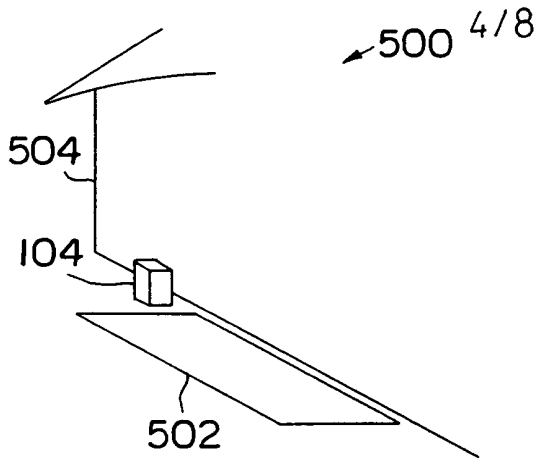


FIG. 5A

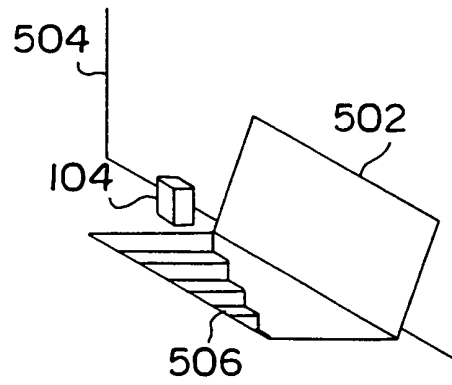


FIG. 5B

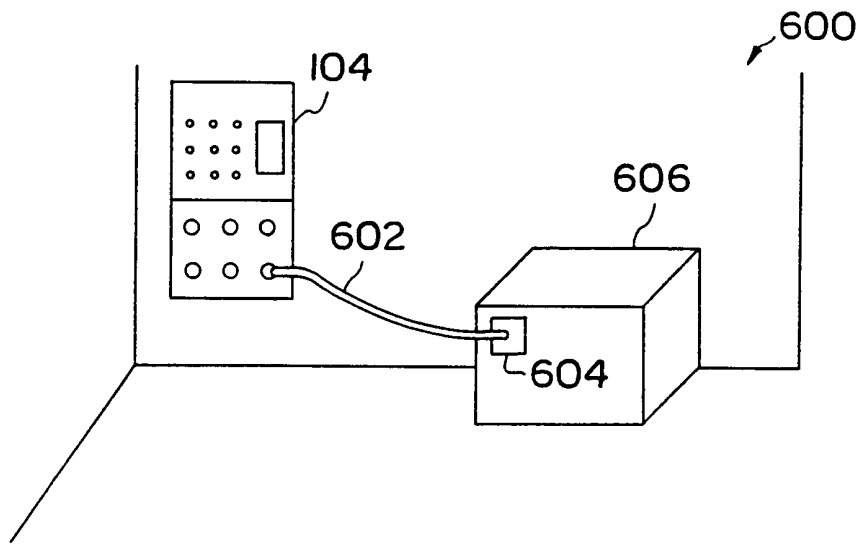


FIG. 6A

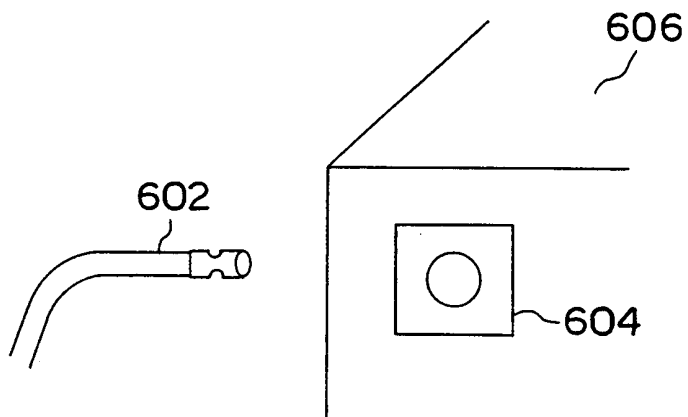


FIG. 6B

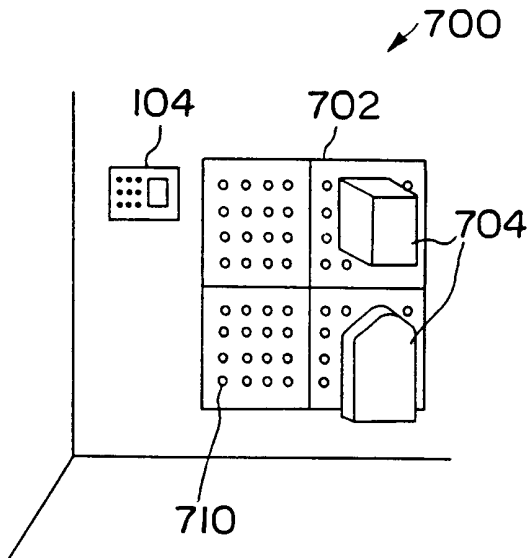


FIG. 7A

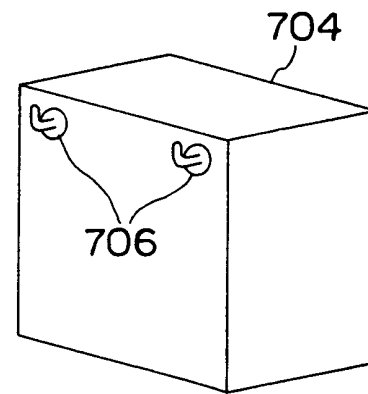


FIG. 7B

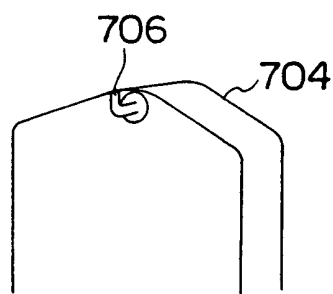


FIG. 7C

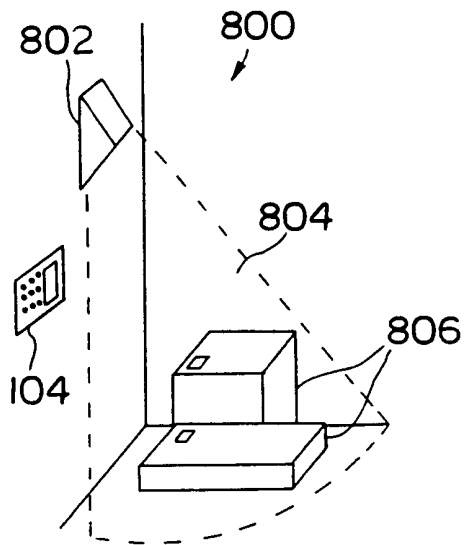


FIG. 8A

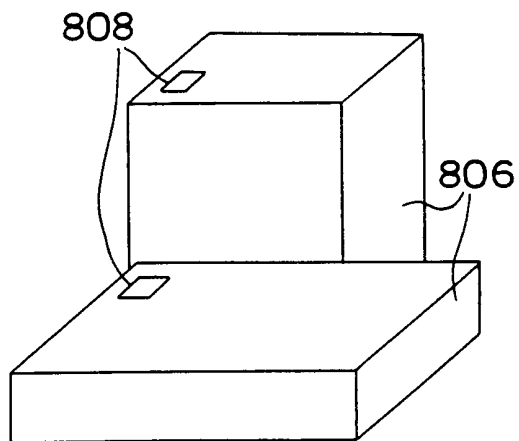


FIG. 8B

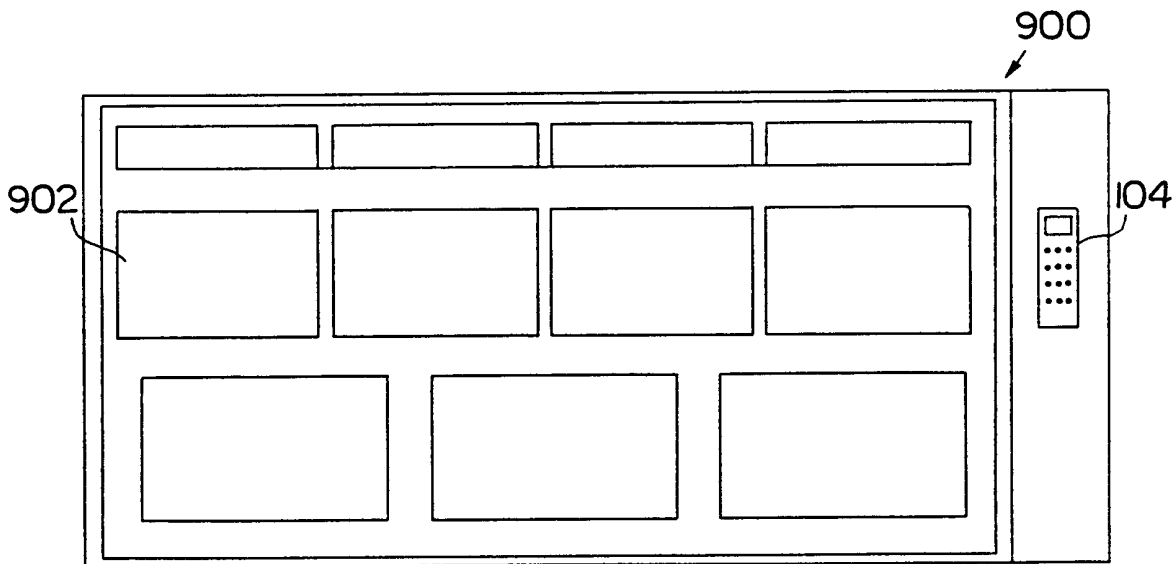


FIG. 9

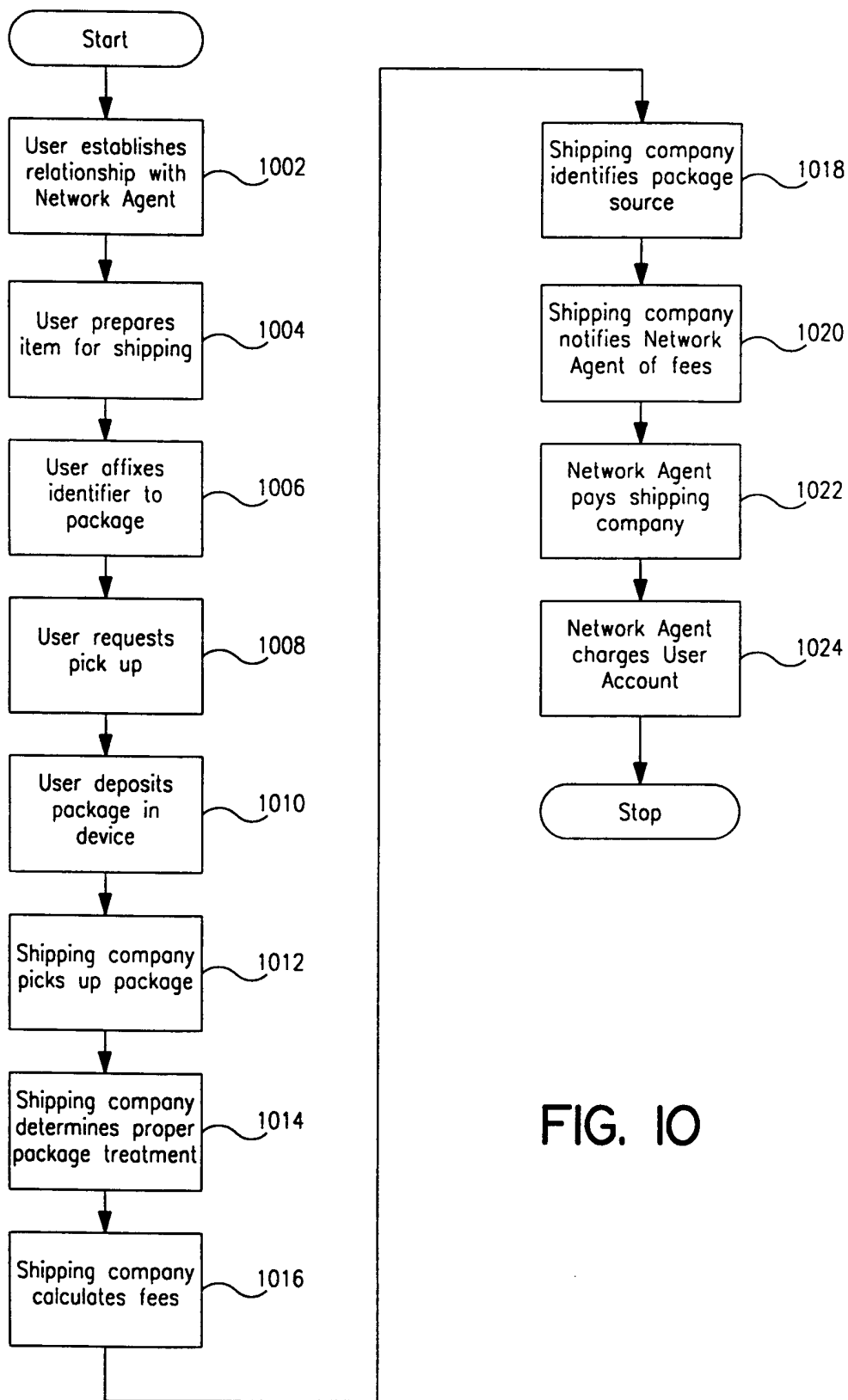


FIG. 10

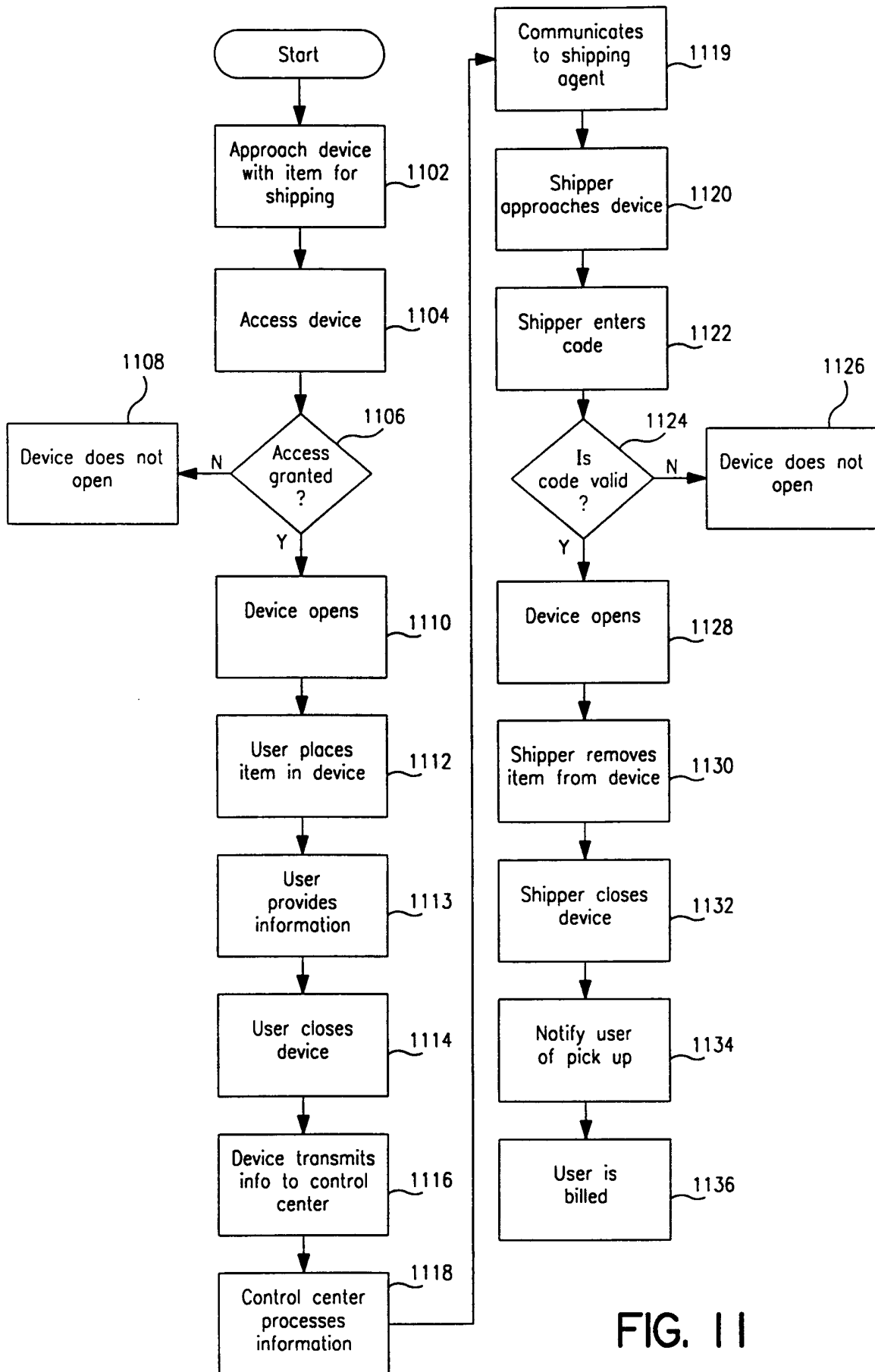


FIG. 11