A container system includes a container for shipping a parcel and a labeling system for providing information about the shipping of the container, such as to/from information. The container system further includes a closure mechanism for closing the lid of the container, a protection system for protecting the item housed in the container, and a rail system for supporting the container and maintaining its structure.
Fig. 54

Reusing Container --- DO NOT THROW AWAY

Fig. 55

Fig. 57

Fig. 58
REUSABLE LABEL SURFACE

Part #: X123667
Serial #: 008022
Description: Fiber Optic Linkage Kit, Leads

Return to:
Sending Company Name etc.
Attn: Department Manager
Address one
Address two
Address three

Tran Zip
Transition Packaging

Patent Pending

Fig. 65
PLACE SORTED PACKAGES IN TOTES

PACK AND SECURE PARCEL
DELIVER TO LOCAL ADDRESS
PACK AND LABEL PARCEL

SORT LABELED PACKAGES BY REGION
REMOVE LABELED PACKAGES FROM TOTES
PLACE LABELED PACKAGES IN TOTE
CONVEY TO CENTRALIZED DISTRIBUTION

PLACE LABELED PACKAGES IN TOTE
CONVEY TO REGIONAL COLLECTION

SHIP PALLETS TO REGIONS

PLACE SORTED PACKAGES IN TOTES
PALLETIZE TOTES BY REGION
SHIP PALLETS TO REGIONAL DISTRIBUTION

DELIVER TO LOCAL ADDRESS
SORT BY LOCAL ADDRESS
REMOVE LABELED PACKAGES FROM TOTES

PACK AND SECURE PARCEL
LABEL/BAR IDENTIFIER
CORRELATE RF CODE TO BAR CODE ID

DELIVER TO LOCAL ADDRESS
PLACE PARCELS IN TOTES

RF TRACKING

REMOVE AND SORT BY LOCAL ADDRESS
CONVEY TO CENTRALIZED DISTRIBUTION

SHIP PALLETS TO REGIONS
TOTE AND PALLETIZE BY REGION
REMOVE AND SORT PARCELS BY REGION

Fig. 74
Fig. 75
Fig. 76
Start

Retrieve RFID tag’s unique identifier

Correlate RFID tag’s unique identifier to destination address of intended recipient

Pack parcel into container

Deliver shipping package to destination address

End

Fig. 79
Establish user account with carrier service

Access user account by logging onto carrier server via remote terminal

Scan container's RFID tag to retrieve unique identifier

Is RFID tag available?

Y

Correlate shipping information to RFID tag's unique identifier

Enter Shipping Information

Schedule Package Pick-up

Complete package preparation

N

Obtain another container

Fig. 80a
Carrier picks up shipping package

Deliver shipping package to destination address, tracking package during transit as desired

Clear RFID tag for reuse

Go to Start or End

Fig. 80b
REUSABLE SHIPPING CONTAINER AND SYSTEMS THEREOF

CROSS REFERENCE TO RELATED APPLICATION

[0001] This application claims benefit, under 35 U.S.C. §119(e), of U.S. Provisional Application Ser. No. 61/047, 234, filed 23 Apr., 2008, the entire contents and substance of which is hereby incorporated by reference.

BACKGROUND

[0002] Various embodiments of the invention are directed to containers and systems that can be used for the shipment of items in a parcel shipping industry.

[0003] A fundamental need of commerce-based societies includes the transportation of goods from one location to another. The development of various postal systems, first on the national and then on an international basis, established an organized system wherein a carrier, for a price, would convey a parcel from a sender to a recipient. The service provided by such carriers resulted in increasing demand and expansion of their served customer base. In addition to the governmentally sponsored postal services, private carriers transport a wide variety of parcels for paying customers. Such private Parcel Express companies include, for example, those known as United Parcel Service, Federal Express, DHL, and TNT Express, plus an abundance of country- or regionally-based carriers that provide similar services either domestically or internationally. In addition, the aforementioned governmentally sponsored postal providers developed competing services to the private Parcel Express providers. The proliferation of such companies and offerings demonstrates the increasing need for their services.

[0004] In the past half-century, shippers have been conditioned to excessively package parcel shipments, because there have been few alternatives. Such excessive packaging leads to increased packing costs. This packaging cost results from at least three factors. First, the cost of packaging materials is not trivial. Typically, parcels are packed inside a one-time use only container, such as a cardboard carton, with the interior of the container filled with cushioning materials, such as Styrofoam “peanuts”, shredded paper, or other paper-based filler, to name a few. Second, there is a substantial time investment in packaging that results from the need to carefully pack and seal the cardboard carton and then the shipping documents for same. A third factor derives from the excessive packaging causing shipping costs to further increase due to the size/weight of the package.

[0005] In addition to the problem of cost, packing waste is one of the leading contributors to landfill waste today, and is a frustration for both the shipper and the recipient. This results from the need to inventory and dispose of these non-reusable materials. As internet commerce and mobile inventory management processes continue to grow, waste from shipped parcels can only be expected to increase/worsen. This is especially true since a vast majority of parcels are excessively over-packaged with the actual product accounting for only about 25% of the available space inside each cardboard box.

[0006] Containers and systems to overcome these problems are desired and needed.

SUMMARY

[0007] Briefly described, various aspects of the present invention relate to a container. The container generally includes a plurality of sides; for instance, the container includes six sides. At least one of the sides is considered a lid, which can be openable and/or removable from the container for access into the defined interior of the container.

[0008] In one aspect, a container system is provided. The container system comprises a container, a closure mechanism for closing the lid of the container, a protection system for protecting the item housed in the container, and a rail system for supporting the container and maintaining its structure.

[0009] The closure mechanism can comprise two latch states, such that the interior is either accessible or inaccessible, depending on the state. That is, the closure mechanism can be open or closed, and thus can enable opening and/or closing of the lid with respect to the container. The closure mechanism can be either manual or automatic. Exemplary manual closure mechanisms include a quarter turn latch and a swivel latch assembly. An exemplary automatic closure mechanism is a rotary latch mechanism.

[0010] The protection system can be disposed within the interior of the container for protecting the item contained therein. The protection system can comprise an inflatable bladder and foam. The inflatable bladder can be inflated with air via a valve. The foam can be packaged loosely or packaged in a container, such as a bag, and can, for example, be either polyurethane-containing foam or polyethylene-containing foam.

[0011] The rail system is adapted to frame a top portion of the container and maintain the structure of the container. The rail system includes a rail insertable atop and coupled to the first, second, third and fourth sides.

[0012] Moreover, the lid of the container can define a cutout portion that is adapted to receive and maintain a shipping label assembly. The shipping label assembly comprises a label panel attached to the lid of the container, and a releasable adhesive material that is adherable to the label panel. The container can further comprise a protection layer in the interior of the container. Additionally, the container system can include a tracking system to identify the status and location of the container.

[0013] In another aspect, the container system is reusable and includes a container that is adapted to receive an item for shipment to an intended recipient. The container, generally, includes an outer shell having a bottom wall and a surrounding sidewall extending upwardly therefrom to define an interior for receiving the item. The container is adapted to receive an inflatable bladder, which is adapted to receive a filling medium. When the inflatable bladder is at least partially filled, the bladder is interposed between the item in the container and at least one of the bottom wall and the sidewall. In one aspect, the container includes at least one aperture in the sidewall that is in communication with the inflatable bladder, whereby a filling medium can be communicated from outside the container into the bladder. The container can be provided with a lid that is supported by the outer shell and is movable between an open state, permitting access to the interior, and a closed state, sealing the container to enclose the item. The container system can further include a securing system that is supported by the outer shell and is adapted to retain the lid the closed position. Exemplarily, the securing system can be a closure mechanism and can comprise one or more straps for surrounding the exterior of the container.

[0014] The container can employ a seal or protectant to reduce water intrusion into the interior thereof. The container is a new, non-obvious, and useful container for shipping items.
or parcels between locations. The container is durable for repeated reuse and is provided with protection assemblies therein for protecting the item(s) housed therein. Additionally, the container system comprises a reusable shipping container that includes a closure mechanism that both protects the container's contents from the rigors associated with the shipping industry and is durable enough to serve as a support surface for other containers of various dimensions to be stacked thereon.

[0015] These and other objects, features and advantages of the present invention will become more apparent upon reading the following specification in conjunction with the accompanying drawing figures.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] FIG. 1 illustrates a perspective view of a parcel being inserted into an open container, in accordance with an exemplary embodiment of the present invention.

[0017] FIG. 2 illustrates a perspective view of a locking structure with the container in a closed state, in accordance with an exemplary embodiment of the present invention.

[0018] FIG. 3 illustrates a cross-sectional view taken about lines 3-3 of FIG. 2.

[0019] FIG. 4 illustrates a top plan view of a label panel, in accordance with an exemplary embodiment of the present invention.

[0020] FIG. 5 illustrates a cross-sectional view of the label panel, in accordance with an exemplary embodiment of the present invention.

[0021] FIG. 6 illustrates a perspective view of a carton that is adapted to receive a plurality of containers of FIGS. 1-5, in accordance with an exemplary embodiment of the present invention.

[0022] FIG. 7 illustrates an end view in elevation, and partially broken-away and partially in cross-section of ensembles of stacked and filled containers on pallets for shipment, in accordance with an exemplary embodiment of the present invention.

[0023] FIG. 8 illustrates a perspective view of a parcel being inserted into another open container, in accordance with an exemplary embodiment of the present invention.

[0024] FIG. 9 illustrates a partial perspective view of the container of FIG. 8 in its open state, in accordance with an exemplary embodiment of the present invention.

[0025] FIG. 10 illustrates an exploded, perspective view of a protective insert insertable within the container shown in FIGS. 8-9, in accordance with an exemplary embodiment of the present invention.

[0026] FIG. 11 illustrates a front end view of the open container of FIGS. 8-9 once the parcel has been received therein, in accordance with an exemplary embodiment of the present invention.

[0027] FIG. 12 illustrates a perspective view of a locking structure, in accordance with an exemplary embodiment of the present invention.

[0028] FIG. 12b illustrates a partial perspective view of cross-section of a corner region of an alternate construction for the container, in accordance with an exemplary embodiment of the present invention.

[0029] FIGS. 13a and 13b illustrate top and bottom plan views of the protective insert in an unfolded condition, in accordance with an exemplary embodiment of the present invention.

[0030] FIG. 14 illustrates a perspective view of the container of FIGS. 8-12b, wherein a portion of a panel is peeled back to reveal the protective insert, in accordance with an exemplary embodiment of the present invention.

[0031] FIG. 15 illustrates a perspective view of the container of FIGS. 8-12b and 14, with portions of both the panel and the protective insert peeled back to reveal a bladder, in accordance with an exemplary embodiment of the present invention.

[0032] FIG. 16 illustrates a top plan view of an alternative construction for a protective insert in an unfolded condition, in accordance with an exemplary embodiment of the present invention.

[0033] FIG. 17 illustrates a perspective view of the bladder of FIG. 10, in accordance with an exemplary embodiment of the present invention.

[0034] FIG. 18 illustrates an enlarged, perspective view of an alternative valve construction for the bladder, in accordance with an exemplary embodiment of the present invention.

[0035] FIG. 19 illustrates a perspective view of a representative regulated compressor that can be used to fill the container's inflatable bladder.

[0036] FIG. 20 illustrates a partial, perspective view of an alternative construction for the bladder, in accordance with an exemplary embodiment of the present invention.

[0037] FIG. 21 illustrates a perspective view of yet another alternative construction for the bladder, in accordance with an exemplary embodiment of the present invention.

[0038] FIG. 22 illustrates a top plan view of the label panel, in accordance with an exemplary embodiment of the present invention.

[0039] FIG. 23 illustrates a cross-sectional view of the label panel on a pouch panel with the shipping label secured thereto, as viewed about lines 16-16 of FIG. 22.

[0040] FIG. 24 illustrates a perspective view of a shipping container, in accordance with an exemplary embodiment of the present invention.

[0041] FIG. 25 illustrates a perspective view of the shipping container of FIG. 24 that is now open to expose various components associated therewith, in accordance with an exemplary embodiment of the present invention.

[0042] FIG. 26 illustrates an exploded, perspective view of the shipping container of FIG. 25, in accordance with an exemplary embodiment of the present invention.

[0043] FIG. 27 illustrates a top plan view of the outer casing of the shipping container of FIG. 24 in an unfolded condition, in accordance with an exemplary embodiment of the present invention.

[0044] FIG. 28 illustrates a side view in elevation of the sidewall structure, in accordance with an exemplary embodiment of the present invention.

[0045] FIG. 29 illustrates a side view in elevation of an assembled protective, while illustrating the sidewall structure located between the panels of a shell insert, in accordance with an exemplary embodiment of the present invention.

[0046] FIG. 30 illustrates a front view in elevation of a bladder with a panel located in the shipping container, in accordance with an exemplary embodiment of the present invention.

[0047] FIG. 31 illustrates a perspective view of a partially cut away conventional tote box, according to the prior art.
FIG. 32 illustrates a cross-sectional view of a top portion of one of the corners of the conventional tote box of FIG. 31, taken about lines 2-2, according to the prior art.

FIG. 33 illustrates a perspective view of a plurality of conventional tote boxes stacked one on top of the other, according to the prior art.

FIG. 34 illustrates a perspective view of a container, in accordance with an exemplary embodiment of the present invention.

FIG. 35 illustrates a perspective view of the container of FIG. 34, partially cut away, in accordance with an exemplary embodiment of the present invention.

FIG. 36 illustrates a top plan view of the construction blank that can be folded to form the outer shell of the container of FIGS. 34 and 35, in accordance with an exemplary embodiment of the present invention.

FIG. 37 illustrates a top plan view of the construction blank that can be folded to form the insert adapted to be placed within the outer shell of the container of FIGS. 34 and 35, in accordance with an exemplary embodiment of the present invention.

FIG. 38 illustrates a top plan view of the construction blank of FIG. 36 and illustrating a portion of a securing system, in accordance with an exemplary embodiment of the present invention.

FIG. 39 illustrates cross-sectional view of the container of FIG. 34, taken about lines 9-9, in accordance with an exemplary embodiment of the present invention.

FIG. 40 illustrates a perspective view of a portion of the container of FIG. 34, and illustrating a closing system, in accordance with an exemplary embodiment of the present invention.

FIG. 41 illustrates a perspective view of another container, in accordance with an exemplary embodiment of the present invention.

FIG. 42 illustrates a perspective view of yet another container, in accordance with an exemplary embodiment of the present invention.

FIG. 43 illustrates a perspective view of another container, in accordance with an exemplary embodiment of the present invention.

FIG. 44 illustrates a perspective view of the container of FIG. 43 with the lid opened, in accordance with an exemplary embodiment of the present invention.

FIG. 45 illustrates a cross-sectional view, partially cut away taken about lines 15-15 of FIG. 44, in accordance with an exemplary embodiment of the present invention.

FIG. 46 illustrates a perspective view of the container of FIG. 44 with straps pulled back to reveal a lock underneath, in accordance with an exemplary embodiment of the present invention.

FIG. 47 illustrates a perspective view of an interior of a lid of the container, partially cut away to illustrate a lobe associated with a cam lock, in accordance with an exemplary embodiment of the present invention.

FIG. 48 illustrates a perspective view of an interior of a container wall to illustrate a receiver, which receives the lobe of the cam lock of FIG. 46, in accordance with an exemplary embodiment of the present invention.

FIG. 49 illustrates a perspective view of another container in use with an alternative cam lock, in accordance with an exemplary embodiment of the present invention.

FIG. 50 illustrates a perspective view of another container mounted on a wheeled carriage and foot, in accordance with an exemplary embodiment of the present invention.

FIG. 51 illustrates a perspective view of the wheeled carriage and foot of FIG. 50 without the container mounted thereto.

FIG. 52 illustrates a perspective view of a parcel being inserted into a container, in accordance with an exemplary embodiment of the present invention.

FIG. 53 illustrates an enlarged, top plan view of a reusable labeling construction attached to a top panel associated of the container of FIG. 52, in accordance with an exemplary embodiment of the present invention.

FIG. 54 illustrates an enlarged, top plan view of the label panel used with the container of FIG. 52, in accordance with an exemplary embodiment of the present invention.

FIG. 55 illustrates an enlarged, cross-sectional view of the labeling construction across line 4-4 of FIG. 53, in accordance with an exemplary embodiment of the present invention.

FIG. 56 illustrates an enlarged, top plan view of another reusable labeling construction, in accordance with an exemplary embodiment of the present invention.

FIG. 57 illustrates a perspective view of a container in the form of a cardboard box, in accordance with an exemplary embodiment of the present invention.

FIG. 58 illustrates an enlarged, cross-sectional view of a labeling construction for the container of FIG. 57, across line 7-7 of FIG. 57, in accordance with an exemplary embodiment of the present invention.

FIG. 59 illustrates an exploded, perspective view of a container with an anti-static protective insert, in accordance with an exemplary embodiment of the present invention.

FIG. 60 illustrates an enlarged, partial cross-sectional view of the container as viewed about line 9-9 in FIG. 59, in accordance with an exemplary embodiment of the present invention.

FIG. 61 illustrates an outer plan view of an unfolded anti-static protective insert of FIG. 59, in accordance with an exemplary embodiment of the present invention.

FIG. 61b illustrates an inner plan view of the unfolded anti-static protective insert of FIG. 59, in accordance with an exemplary embodiment of the present invention.

FIG. 62 illustrates a perspective view of a parcel being inserted a container having a reusable labeling construction, in accordance with an exemplary embodiment of the present invention.

FIG. 63 illustrates a top plan view of the reusable labeling construction disposed on the top panel of the container of FIG. 62, in accordance with an exemplary embodiment of the present invention.

FIG. 64 illustrates a perspective view of the labeling construction in the return address label receiving state, in accordance with an exemplary embodiment of the present invention.

FIG. 65 illustrates a top plan view of the labeling construction after insertion of the return address label, in accordance with an exemplary embodiment of the present invention.
FIG. 66 illustrates a top plan view of the labeling construction after receipt of both outbound and return address labels, in accordance with an exemplary embodiment of the present invention.

FIG. 67a illustrates a partial, cross-sectional view (not to scale) of the labeling construction and the container carrying same across line 66b-66b of FIG. 66, in accordance with an exemplary embodiment of the present invention.

FIG. 67b illustrates an exploded, partial, cross-sectional view (not to scale) of the labeling construction and container carrying same of FIG. 67a, in accordance with an exemplary embodiment of the present invention.

FIG. 67c illustrates a partial, cross-sectional view (not to scale) of the labeling construction in the return address label receiving state of FIG. 64, in accordance with an exemplary embodiment of the present invention.

FIGS. 68a-68c illustrate alternatives configurations for rails of the labeling constructions, in accordance with an exemplary embodiment of the present invention.

FIG. 69 illustrates a perspective view of a semi-rigid container, namely a corrugated box, provided with the reusable labeling construction, in accordance with an exemplary embodiment of the present invention.

FIG. 70 illustrates a side, cross-sectional view of the labeling construction and container across lines 9-9 in FIG. 69, in accordance with an exemplary embodiment of the present invention.

FIG. 71a illustrates a perspective view of a reusable packing accessory for use with a container, in accordance with an exemplary embodiment of the present invention.

FIG. 71b illustrates a perspective view of another packing accessory, in accordance with an exemplary embodiment of the present invention.

FIG. 72 illustrates a perspective view of a shipping container in an unpacked or pre-shipment state, illustrating some of the packing material in cross-section, in accordance with an exemplary embodiment of the present invention.

FIGS. 73a-73f illustrate exemplary sequences for packing a plurality of parcels into the container of FIG. 72 in preparation for shipment, wherein the lid is not shown in FIGS. 73a-73d, in accordance with an exemplary embodiment of the present invention.

FIG. 74 illustrates a diagrammatic view of a generalized shipping method, in accordance with an exemplary embodiment of the present invention.

FIG. 75 illustrates a diagrammatic view of the shipping method incorporating automated tracking, in accordance with an exemplary embodiment of the present invention.

FIG. 76 illustrates a diagrammatic view of the shipping system for a plurality of senders and a plurality of recipients, in accordance with an exemplary embodiment of the present invention.

FIG. 77 illustrates a perspective view, partially broken-away view, of a radio frequency (RF) transmitter in a container, in accordance with an exemplary embodiment of the present invention.

FIG. 78 illustrates a perspective view of a representative RF signal transmitter shown in FIG. 77, which can be incorporated into a container, in accordance with an exemplary embodiment of the present invention.

FIG. 79 illustrates a flow chart illustrating a methodology of shipping and using RF signal transmitters, in accordance with an exemplary embodiment of the present invention.

FIGS. 80a and 80b are both portions of the same flow chart to illustrate, in somewhat greater detail, the principal concepts of the methodology, in accordance with an exemplary embodiment of the present invention.

FIGS. 81a and 81b illustrate cross-sectional views of rails for the container, in accordance with exemplary embodiments of the present invention.

FIG. 82a illustrates a top plan view of a trampoline-like bladder, in accordance with an exemplary embodiment of the present invention.

FIG. 82b illustrates a cross-sectional view of the trampoline-like bladder of FIG. 82a, in accordance with an exemplary embodiment of the present invention.

FIG. 83 illustrates a cross-sectional view of a temperature-controlled interior of the container, in accordance with an exemplary embodiment of the present invention.

FIG. 84 illustrates a first elevation view, partly in cross-section, of a swell latch assembly shown in a latched position.

FIG. 85 illustrates a first elevation view, partly in cross-section, of the swell latch assembly of FIG. 84 in an unlatched position.

DETAILED DESCRIPTION

To facilitate an understanding of the aspects, principles, and features of the invention, it is explained hereinafter with reference to its implementation in an illustrative embodiment. In particular, aspects of the invention are described in the context of a container system for shipping items via a parcel system. In at least one aspect, the container system is reusable.

The container system, however, is not limited to shipping items via a parcel system. Rather, the container system can be used when a device or system for protecting an item either in shipment or storage is needed or desired. As a result, the container system described hereinafter can also find utility for other applications, beyond that of shipping needs.

The materials described hereinafter as making up the various elements of the system are intended to be illustrative and not restrictive. Many suitable materials that would perform the same or a similar function as the materials described herein are intended to be embraced within the scope of various aspects of the system. Such other materials not described herein can include, but are not limited to, for example, materials that are developed after the development of the system.

Additionally, the components described hereinafter as making up the various elements of the device and system are intended to be illustrative and not restrictive. Many suitable components that would perform the same or a similar function as the components described herein are intended to be embraced within the scope of various aspects of the system.

Referring now to the figures, a container system and systems related thereto are described.
be of a flexible or modular construction, and can further include one or more protective components for shipping of non-breakable, non-fragile, and even many fragile parcels. In similar or different aspects, the container is adapted to house and protect an item in a storage environment. This container can form part of a system that includes a plurality of containers along with cartons or "toxes" that can be palletized between support and cover pallets during transport. Additionally, the container can include a labeling system, as described herein, and can further be implemented in a shipping system, as also described herein.

[0113] In various aspects of an exemplary embodiment, a container of the container system 5 can include a flexible pouch. For example, with reference first to FIG. 1, a container 10 is shown that is in the form of a flexible pouch. The container 10 is adapted to receive an item or a parcel 12 in an interior 14 thereof. The container 10 includes a front panel 16 and a back panel 18, both of which can be rectangular, although other shapes can be employed.

[0114] The panels 16 and 18 can be joined along a number of their edges. For example, the panels 16 and 18 are joined along three edges 21, 22, and 23, which are located at the perimeter thereof. The panels 16 and 18 are opened along a portion of the perimeter to define a mouth 20 through which the parcel 12 can be inserted into the interior 14, thus to define a received parcel.

[0115] The front panel 16 can support a label panel 24 that is affixed to container 10 in many convenient manners, such as adhesive, sewing, and the like. A shipping label 26 can then be removably secured to the label panel 24, which is described more thoroughly below.

[0116] A closure apparatus 30 can be provided to enable opening and closing of the container 10. For example, the closure apparatus can be a zipper 30 with a pull-tab 32. The zipper 30 includes the pull-tab 32, and is shown in FIG. 1, in an open position; accordingly, the mouth 20 is open.

[0117] Referring now to FIGS. 2-3, the perimeter edges of the container 10, such as edge 22, can be formed by sewing margins 17 and 19 of the panel 16 and 18 together. Furthermore, the front panel 16 can be formed out of fabric layers 34 and 36 with a cushioning layer 35 sandwiched or interposed therebetween. Likewise, the back panel 18 can be formed by a pair of fabric layers 38 and 40 with a cushion layer 39 interposed therebetween.

[0118] In an exemplary embodiment, each of panels 16 and 18 can be flexible. The outer fabric layers 34 and 38 and the inner fabric layers 36 and 40 can be formed of many suitable materials. For instance, they are both formed of a sufficiently durable material enabling the container 10 to be reusable. Each of the fabric layers 34, 36, 38, and 40 can be formed of a heavy gauge cotton cloth or canvas material, but other suitable materials can be substituted as would be within the ability of the ordinarily skilled person in this art. Cushion layers 35 and 39 can be formed by a cotton batting, or other material known in the packing arts, of suitable thickness so as to provide some soft cushioning effect for a received parcel placed within the container 10.

[0119] As shown in FIGS. 1-2, the container 10 can be placed in a closed state by manipulating zipper 30 to close the mouth 20. When open, the pull-tab 32 is located at one corner 42 of container 10 but, when closed, it is located proximally to a second corner 44 of the container 10.

[0120] The front panel 16 can include a metal grommet 46. The metal grommet 46 is located proximally to the second corner 44. Similarly, the back panel 18 is provided with a metal grommet 48 that is also located proximally to the second corner 44 so that the metal grommets 46 and 48 are in opposed, facing relationship to one another. Moreover, the grommets 44 and 46 are located proximally to the pull-tab 32 when the zipper 30 is zipped shut with the container 10 being in the closed state.

[0121] The zipper 30 provides a closure means for the container 10 that is movable between an open position, such that the parcel can be inserted and removed from the interior 14 of the container 10, and a closed position so as to retain the parcel in the interior 14 as a received parcel. It should be understood, however, that closure/movement devices other than the zipper 30 can be implemented herein.

[0122] In order to retain the closure apparatus (such as the zipper 30) in the closed position, a locking structure 49 can be implemented. A portion of the locking structure 49 can be provided by the grommets 46 and 48.

[0123] In an exemplary embodiment, the locking structure 49 can include a cable tie 50. The cable tie 50 has a locking head 52 provided with a ratcheting locking mechanism with the locking head 52 located on an end of an elongated tail 54. The tail 54 is adapted to extend through the openings 47 and 49 of the grommets 46 and 48, respectively and through an eye 33 of the pull-tab 32 of the zipper 30. The tail 54 is then inserted through locking head 52, so that the ratchet teeth 56 engage the locking structure 49 in the locking head 52, as would be well known in the art of cable ties. At this point, the closed or "sealed" container 10 cannot be opened without either damaging cable tie 50 or zipper 30 or otherwise compromising the construction of container 10. That is, the sealed container is generally resistant to tampering during the ordinary course of shipment of parcel 12. Moreover, the panels 16 and 18 can have an opaque color, such that a person can not readily view the contents of the received parcel 12.

[0124] As illustrated in FIGS. 4-5, the label panel 24 can be affixed to the front panel 16. In one way, the label panel 24 is attached to the front panel 16 by a stitching 60. As one skilled in the art would appreciate, other attachment techniques can be implemented to attach the label panel 24 to the front panel 16.

[0125] Referring specifically to FIG. 5, the removable label 26 can be formed as a strip 62 of a selected strip of material, e.g., paper, that includes a layer 64 of a suitable adhesive material that is adapted to adhere to the label panel 24. The label 26 can be a standard address label typically used on cardboard cartons and the like.

[0126] Referring back to FIG. 4, the label 26 includes an area 66 located on the strip 62 with area 66 adapted to receive information corresponding to the address of an intended recipient for the parcel (e.g., recipient destination indicia). The strip 62 also has an area 68 adapted to receive information corresponding to the address of the sender (e.g., sender origin indicia).

[0127] In addition, a number of areas, for example, areas 71, 72, and 73 can be provided on the strip 62 for bar code information, which can provide an identifier for the particular package as well as a code for the sender and the recipient, including the recipient's address. By way of example, bar code "A" as referenced in area 71 can be information that identifies a tracking number for the package. Bar code "B" corresponding to area 72 can be information including the name of the recipient and the recipient's address. Finally, bar
The label 26 is adapted to be secured to the label panel 24 in a manner wherein the adhesive layer 64 can adhere sufficiently to retain the label 26 to the container body during shipment, yet from which the label can be forcefully removed without normally tearing strip 62 during removal. To this end, and with reference again to FIG. 5, the label panel 24 includes a layer, such as the layer 76, of a substrate material such as a plastic material that is surfaced with a coating or layer of release material such as polytetrafluoroethylene (e.g., Teflon®) or other suitable material. Accordingly, one skilled in the art would appreciate that the release material 78 be selected to intermix with the adhesive material 64 along with the composition of the strip 62, such that the label 26 is firmly yet releasably secured to the container 10. This enables the label 26 to remain on the container 10 throughout shipment, yet permits the label 26 to be removed from the label panel 24, so that the container 10 can be reused a number of times.

In an exemplary embodiment, a plurality of the containers 10 can be placed in a carton 82 for shipment. For example, as is shown in FIG. 6, a suitable carton or tote 82 is illustrated with the carton 82 adapted to receive a plurality of containers 10. The carton 82 includes a bottom wall 84, a pair of sidewalls 86, and a pair of end walls 88, which collectively form an open interior 90 that can receive containers, such as container 10. An upper edge 92 of the carton 82 can extend from a top portion of both the side walls 86 and the end walls 88, to form a shoulder 94 that is sized such that a plurality of cartons 82 can be stacked, one on top of another. To this end, a bottom portion 84 of an upper carton 82 can nest with the top portion of a lower adjacent carton 82 with bottom wall 84 resting on the shoulder 94 of a lower adjacent carton 82.

A first stack ensemble 96 of filled cartons 82' and a second stacked ensemble 98 of filled cartons 82' are illustrated in FIG. 7. While two such stacked ensembles 96 and 98 are shown, in use, four stacked ensembles can be supported on a support pallet 100 that is adapted to support at least one stacked ensemble of filled cartons 82' placed thereon as a supported ensemble. A cover pallet 102 can be placed on the top of the stacked ensembles 96 and 98 and secured together by a connector assembly formed by tie-downs 104 and 106 interconnected by a fastener 108. The fastener 108 can be similar to the palletized loads securing the cover pallet to the support pallet as to encase the stacked ensembles in a manner that does not deprive access to the interiors of the cartons/totes. The palletized loads, however, when loaded on a carrier, such as a truck, do not permit significant load shifts during transit due to the relatively small volume of the interior of each carton/tote. This adds to the stability and safety.

Further, each of the cover pallets 102 can be constructed as a common construction with the support pallets 100, such that the cover pallet 102 is simply an inverted the support pallet 100. As shown in FIG. 7, the pallet 100 includes a base 112 and an upwardly extending peripheral rim 114 dimensioned sufficiently so that the filled containers 82' can be nestably received therein. The peripheral rim 114 can be dimensioned sufficiently to accommodate the enlarged upper edge 92 of each carton 82, as the largest horizontal dimension of the stack ensembles of cartons. Further, more than one pallet can be stacked on top of each other. When two palletized loads are stacked on top of one another, as shown in FIG. 7, the cover pallet 102 can interlock with an upwardly adjacent support pallet 100. A least two rails 116 and 118 are provided with each rail 116 and 118 being spaced apart to form a channel 120 that is sized to receive a rail 118 therein. This interlocks the pallets together for stability during carriage.

Referring generally now to FIGS. 8-23, a number of aspects of an exemplary embodiment, the container system 5 can include a container of modular construction with one or more protective components so that it can be used for shipping non-breakable, non-fragile and even many fragile parcels.

With reference to FIGS. 8-10, a container 210 of the container system 5 can be of modular construction. The container 210 is adapted to receive a parcel 12 in the container's interior 214.

As shown in FIG. 10, the modular container 210, according an exemplary embodiment, incorporates a protective ensemble to reduce the risk of damage to the parcel 12 during shipment. The protective insert ensemble can include both a puncture resistant lining 270 and an inflatable bladder 280, both of which are sized and adapted to be removably inserted into the interior of a pouch 208 to substantially envelop the parcel 12 to provide protective layers for a fragile item. Exemplarily, the puncture resistant lining 270 is sized and adapted for insertion into the open mouth 220 of the pouch 208, and the inflatable bladder 280 is sized and adapted for insertion interiorly of the puncture resistant lining 270. The parcel 12 is then insertable into the open mouth 220 of the bladder 280, after which the bladder 280 can be inflated to an appropriate level so that it conforms to the shape of the parcel 12. This modular construction of container 210, thus, provides a cushioned environment for the parcel 12 by virtue of the inflatable bladder 280, as well as an added protective layer provided by lining 270, which reduces, if not prevents, puncturing of both the parcel 12 and its surrounding bladder 280 during shipment and/or storage.

As depicted in FIG. 8, the pouch 208 of the container 210 includes a front panel 216 and a back pouch panel 218 that are rectangular in shape and are joined about three edges 221, 222, and 223, which are located at the perimeter thereof. The front and back panels 216 and 218 are open along a portion of the perimeter to define a mouth 220 through which the puncture-resistant lining 270 and the inflatable bladder 280 are insertable therethrough, after which parcel 12 can be inserted, thus defining a received parcel. The front panel 216 supports a label panel 224, such as placard card, that is affixed to the pouch 208 of the container 210 in many convenient manners, e.g., by sewing, adhesive, and the like.

A shipping label 226 can be removably secured to label panel 224. If desired, panels 216 and 218 of the pouch 208 can be have printed indicia thereon, such as company logos, names, designs, and the like, so that the container 210 is readily identifiable. Also, a closure apparatus, such as a zipper 230 is provided and includes a pull-tab 232 (shown in an open position in FIGS. 8-9) so that the mouth 220 is adaptable
between open and closes states. In an exemplary embodiment, the zipper 30 can be a No. 10 type luggage pull zipper, which is available from a variety of companies including, for example, YKK America.

[0138] With reference to FIGS. 12a and 12b, the perimeter edges of the pouch 208, such as the edge 222, can be formed by sewing margins 217 and 219 of the panels 216 and 218 together. Further, the front panel 216 is formed out of fabric layers 234 and 236, while the back panel 218 is formed by a pair of fabric layers 238 and 240. Each of panels 216 and 218 can be flexible. The outer fabric layers 234 and 238, as well as the inner fabric layers 236 and 240 can be formed of many suitable materials, but it is desirable that they be formed out of a sufficiently durable material so that container 210 can be reusable. For example, each of the fabric layers 234, 236, 238 and 240 can be formed of a heavy gauged cotton cloth or canvas material, but one skilled in the art would appreciate other materials can be used. Accordingly, differing fabrics each offering a high degree of wearability, e.g., a 2-ply, 3-ply or foam-backed fabric, can be implemented. The fabric can be a wearay poly-blend cloth that can facilitate reuse while also allowing for cleaning in an industrial washing machine, if desired. Even still, a heavy grade denim, such as 750, 1000, or even a "ballistic-nylon", can be also employed. Although more costly, such a denim fabric material can provide for a greater number of uses. Accordingly, the fabric of choice can depend on the intended use.

[0139] FIG. 12b illustrates an alternative construction for a pouch 308 that can be used in the container 210. The pouch 308, like the pouch 208, includes a pair of panels 316 and 318, which can be attached at their margins by sewing or other appropriate means. The upper panel 316, however, in this version is formed of an outer protective material 334, such as about 30 mls rigid composite plastic, laminated to an approximate ½ inch foam composite layer 336 via an appropriate adhesive 335. Similarly, lower panel 318 is formed by a protective layer 338 laminated to a foam composite material 340. By constructing pouch 308 in this manner, the pouch itself provides both cushioning and puncture resistance during use.

[0140] As illustrated in FIG. 12a, the container 210 can be placed in a closed state once the parcel has been inserted. This can be accomplished by manipulating zipper 230 to close the mouth 220. When open, the pull-tab 232 is located at the corner 242 (see FIG. 8) of the container 210 but, when closed, it is located proximately to a second corner 244 (see FIG. 12a) of container 210. In various aspects, the front panel 216 can be provided with a metal grommet 246 with the metal grommet 246 being located proximately to corner 244. The back panel 218 is similarly provided with an associated metal grommet (not shown) that is also located proximately to corner 244, so that the two metal grommets are in opposed relationship to one another. Moreover, these grommets are located proximately to the pull-tab 232 when the zipper 230 is shut with the container 210 being in the closed state.

[0141] The zipper 230 provides a closure means for container 210 that is movable between an open position, wherein the parcel/item can be inserted and removed from the interior 214 of container 210, and a closed position so as to retain the parcel in the interior 214 as a received parcel.

[0142] Closure mechanisms other than the zipper 230 have been contemplated. As an example, the zipper 230 can be replaced by a tamper-resistant seal akin those typically found on bags that are used to ship pharmaceuticals. Such tamper-resistant seals exhibit a first color to ensure that the container is appropriately sealed, and exhibit a second color when broken to provide a visual indication that tampering has occurred. Where a tamper-resistant seal is employed, it is contemplated that the container’s pouch 208 can still be constructed of appropriate fabric materials, as discussed above, or a somewhat more rigid material such as about 20 mil rigid plastic.

[0143] Regardless of the closure construction employed, the closure (such as zipper 230) can be retained in the closed position by a locking structure. For the representative structure described above, a portion of this locking structure 250 is provided by the two grommets. In an exemplary embodiment, and as illustrated in FIG. 12a, the locking structure 250 is completed by the use of a cable tie 251. The cable tie 251 has a locking head 252 provided with a ratcheting locking mechanism (not shown) with the locking head 252 located on an end of an elongated tail 254. The tail 254 is adapted to extend through the openings formed by the grommets, respectively, and through an eye 233 of pull-tab 232. The tail 254 can be then inserted through the locking head 252, so that the ratchet teeth 256 engage the locking structure 250 and locking head 252. At this point, the closed or “sealed” container 210 cannot be opened without either damaging the cable tie 250 or the zipper 230 or otherwise compromising the construction of the container 210. That is, the sealed container 210 is resistant to tampering during the ordinary course of shipment of parcel 12. One skilled the art would appreciate that the panels 216 and 218 can be opaque, such that a person can not readily view the contents of the received parcel 12.

[0144] The puncture resistant lining 270, which can be used in connection with the modular container 210 is illustrated in FIGS. 13a and 13b. The puncture resistant lining 270 serves a variety of useful purposes. For example, it can line the inside of flexible pouch 208 and provide protection for parcels that are not shipped inside an air bladder. As such, the liner 270 can provide abrasion and shock resistance for products shipped inside the pouch 208. Further, the liner 270 can provide protection to the flexible pouch 208 if the shipped items are either oily or dirty. When the inflatable bladder 280 is used with the puncture resistant lining 270, the lining 270 can provide enhanced puncture resistance to both the inflatable bladder 280 and the shipped parcel 12.

[0145] An example of the puncture resistant lining 270 can be an elongated rectangular member. The lining 270 can be creased about a midline 273 to form a pair of geometrically congruent panel sections 272 and 274, which are oriented in a generally a spaced apart, confronting relationship to one another during shipment. The puncture resistant lining 270 is composed of many appropriate materials, which are both flexible and exhibits the protective capabilities discussed herein. For example, the lining can be composed of a semirigid plastic insert or be formed of Kevlar or other appropriate material(s).

[0146] A plurality of fastening structures can be provided on both the puncture resistant lining 270 and the inner panels 236 and 240 of flexible pouch 208 so that the lining 270 can be removably, yet semi-permanently, positioned within the flexible pouch 208. While a variety of fastening structures can be employed for this purpose, in an exemplary embodiment, the fastening structures can include cooperative hook fastening strips 275. The hook fastening strips 275 can be positioned along longitudinal and transverse edge margins of the lining 270. The hook fastening strips 275 are appropriately
maintained on the lining 270 through adhesive, sewing, or other appropriate securing means.

[0147] Referring now to FIG. 14, a number of cooperative loop structures 275 are sewn or adhered to the inner fabric layers of the flexible pouch 208, such as inner fabric layer 236 of panel 216. The cooperative loop structures 275 are positioned to cooperatively engage the outer hook fasteners 275 associated with the puncture resistant lining 270. Accordingly, the hook structures 275 and the loop structures 276 define a first fastening set. In this manner, the puncture resistant lining 270 can be retained in the flexible pouch 208 in a fastened state, as desired. Alternatively, if desired, a shipper can selectively remove the lining 270. Where the flexible pouch is formed from an appropriate fabric material, this material can have a pile construction, which permits engagement of the hook fasteners 275 thereto, without requiring separate loop fastening strips to be formed onto the pouch 208, and thus providing a cost advantage.

[0148] In FIGS. 13b and 15, a second fastening set, defined by of the cooperative hook and loop fastening strips 276 and 276′ can be adhered, respectively, to the inner surface of the lining 270. As such, when the lining 270 is creased about the crease line 273, the panel sections 272 and 274 can also be fastened together to better envelop the parcel during shipment and reduce the chance of, and ultimately prevent, disfigurement.

[0149] An alternative construction for the puncture resistant lining is illustrated in FIG. 16. Here, the puncture resistant lining 370 is constructed of the same material but is creased about a different crease line 373 that would necessarily be disposed adjacent to one of the longitudinal extending side edges of the flexible pouch 208 when inserted therein, such as 222 in FIG. 8. As such, this construction provides a cost benefit because fewer cooperative hook and loop fastening strips 375 and 376 need to be employed to accomplish securing of the lining 270 to the flexible pouch 208 and the panel sections 372 and 374 to each other. One skilled in the art would appreciate that the puncture resistant lining 370 can take on a variety of different configurations, including the ability to releasably secure to the inner panels of the flexible pouch 208 as well as to itself.

[0150] In many aspects, a permanent puncture-resistant lining 270 can be positionable within the container 210. That is, one or more puncture-resistant lining pieces can be permanently imbedded between the inner layer 234 and 236 and the outer layers 238 and 240 associated with the flexible pouch 208. As such, the modular container 210 can exhibit this protective capability permanently.

[0151] Referring now to FIG. 17, the inflatable bladder 280 can be used in conjunction with the modular container 210. In an exemplary embodiment, the inflatable bladder 280 is a generally rectangular flexible member formed of a multi-layered construction to include a matrix of cells 282, which communicate with one another to receive air via inflation valve 284. This provides a cushion of air to protect parcels having a higher degree of fragility, or for parcels that the consumer wants to provide additional protection.

[0152] With reference to FIGS. 17 and 18, the inflatable bladder 280 is formed by a pair of flexible panel sections 281 and 283, which are sealed together along their surrounding peripheral edge margin 285. This sealing can be accomplished by heat sealing and the like. The panels 281 and 283 are also secured by a matrix of spot “welds” to create the array of cells 284 to be inflated. To provide the bladder’s open mouth 282, after the flexible panels 281 and 283 are appropriately sealed together, the sealed structure is then folded over upon itself about fold line 288, and appropriately sealed again about transverse seam 289 to create a pouch-like structure. The sealing of the peripheral margin 284 of the bladder 280 and the spot welding creates a confined volume between the panels 281 and 283, so that the cells 284 can be inflated to a desired level. Accordingly, the “welds” limit the expansion of the bladder, while preferable providing approximately ½ to 1½ inches layer of expansion air protection for the product.

[0153] While the welds are shown in the figures to be even distributed to create the array of cells 284, these welds can be located in different patterned arrangements. This permits different regions of the bladder to have varying degrees of air cushioning so that the bladder can be tailored to accommodate different parcel configurations or provide varying degrees of air cushioning to different parts of a packaged parcel.

[0154] As shown in FIG. 18, inflation can be accomplished by injecting media, preferably air, through the inflation valve 286 of the bladder 280. The bladder can be inflated via many media-providing systems. For example, the inflation can occur through the use of a squeeze bulb 290. The squeeze bulb 290 is similar to that conventionally found on a medical blood pressure cuff. The squeeze bulb 290 includes a pair of opposed nipples 292 and 294, which are each sized and adapted for attachment to the valve stem 286 of bladder 280 to, correspondingly, inflate and deflate the bladder 280 when the bulbous body 292 of the squeeze bulb 290 is compressed. The squeeze bulb 290 can be generally used by those shippers sending only a few packages or shipping only occasionally since, relatively speaking, it will take more time to inflate and deflate the bladder 280, depending on the size of the parcel being inserted and the volume of air used to fill the bladder. The squeeze bulb 290 can be appropriately attached to the bladder through many appropriate means or simply inserted into the container so that it forms an integral part of the modular container 210, adding to the convenience of preparing the container 210 for shipment.

[0155] Alternatively, as generally represented in FIG. 19, quicker filling and deflation of the bladder can be accomplished through the use of a compressor 400, which is another exemplary media-providing system. The compressor 400 includes a power cord 402 and an appropriately designed valve connector 404, such as an NPT valve connector, for attaching to the valve 386 of the bladder 380. For example, the compressor 400 can include an AC compressor, which is available from the COIDO Corporation of Taipei, Taiwan. Inflation and deflation times with such a regulated compressor can typically last less than ten seconds. Moreover, regulated compressor 400 can prevent over-filling or under-filling of the bladder and might prove to be more convenient for those shippers who send and receive higher volumes of packages. A shipper can, for example, either purchase or lease one or more compressors to expedite and facilitate shipping preparation. Although this would entail a higher up front cost than the squeeze bulb 290 approach, it will result in a cost savings over time given the added efficiency and time savings that would be realized. Still a third means for inflating the bladder can be through the use of a hand pump.

[0156] An alternative construction for an inflation/deflation valve for use with the bladder 280 is illustrated in FIG. 20. Here, a valve is shown in the form of a nozzle 386 conven-
tionaly used for inflatable rafts, balls, and other similar items. Air would thus be blown into a bladder 380 via one’s mouth and retained therein by closing cap 388. In essence, the human becomes the media-providing system. Deflation can then be accomplished by releasing closure cap 388 and, if necessary, compressing the bladder 380 to eject the air.

[0157] Still another alternative construction for an inflatable bladder 280 is illustrated in FIG. 21. Here, inflatable bladder 480 is constructed similarly to inflatable bladder 280 discussed above except that its mouth region 482 has a somewhat different construction. The mouth margins 481 and 483 of the bladder 480 are adapted to releasably seal to one another in a water tight engagement. For example, this construction utilizes sealing means conventionally found on sandwich bags, freezer bags, and other types of bag structures where either an air tight seal or a water tight seal is desired. Accordingly, the bag’s lower mouth margin 483 includes a pair of transverse ridges 485 and 487 separated by an elongated transverse channel 489. Although not shown, the bag’s upper mouth margin 481 correspondingly includes a pair of spaced apart and transversely extending channels sealed by a transversely extending rib so that upper mouth margin 281 releasably and sealingly engages the lower mouth margin 483. The bladder 480 can be used as part of the modular container construction, such that it both is inflatable and can receive items for shipment in its mouth 482.

[0158] Another contemplated use for such a bladder 480 when used in conjunction with the flexible pouch 208 is that it can serve as both a floatable dry storage device (for storing things such as one’s personal items when rafting, canoeing, or otherwise), or it can even be used as a pillow while camping by virtue of its inflatability. Many of the bladder constructions discussed herein can be used in conjunction with a variety of flexible pouch constructions, including those described, to create such a pillow structure.

[0159] Referring now to FIGS. 22 and 23, the label panel 224 is affixed to the front panel 216, for example by stitching 260. As one skilled in the art would appreciate, other attachment techniques are known and can be utilized. The label panel 224 is preferably in the form of a semi-rigid plastic placard that provides some flexibility, with a memory to return to its flattened position. This placard 224 is designed sufficiently large enough to receive a label 276 formed as a strip 262 of a selected material such as plastic, that includes a lower layer 264 of a suitable adhesive material that is adapted to adhere to the label panel/placard 224. The opposite exposed surface of the label 276 can be provided with a Teflon-like coating 278 for receiving a sticky-backed address label 226. Thus, the label 276 is permanently placed on the label panel/placard 224, yet it is designed to allow for easy placement and removal, without tearing, of temporary address labels such as address label 226. For example and not limitation, the Kennedy Group of Cleveland, Ohio distributes such a label, which is the subject of U.S. Pat. Nos. 5,417,790 and 5,628,858. The label 226 is adapted to be secured to the label panel 224, such that the adhesive layer 264 can adhere sufficiently to retain the label 226 to the container body during shipment, yet from which the label can be forcibly removed without normally the tearing strip 262 during removal.

[0160] Accordingly, this construction provides for enhanced reuse of the container 210 without leaving a sticky residue or torn labels from previous deliveries. The release material can be formed by the Teflon-like coating 278 to interact with adhesive material 264, along with the composition of strip 262. Hence, the label 226 can be firmly yet releasably secured to container 210. This enables the label 226 to remain on the container 210 throughout shipment, yet permits it to be removed from label panel 224 so that the container 210 can be reused.

[0161] An address label 226 can include appropriate areas for receipt of information corresponding to the sender and the intended recipient. In addition, areas can be appropriately provided for bar code information to provide identifiers for the particular package, as well as codes for the sender and recipient, including the recipient’s address.

[0162] As noted above, the shipping label that releasably secures to the container’s placard can contain indicia, in either printed or bar code format, corresponding to pertinent shipping information such as the sender’s origin address, the recipient’s address destination, and the like.

[0163] Referring generally to FIGS. 24-30, in various aspects of an exemplary embodiment, the container system 5 can include a container having flexible outer casing, a protective insert, and a fillable insert.

[0164] With reference now to FIG. 24, a shipping container 510 is shown closed, locked and ready for shipment to the intended recipient. The various components of shipping container 510 are generally described with reference to FIGS. 25-26 and, as shown, can generally include an outer casing 520, a protective insert assembly 540, a fillable insert 560, and an accessory compartment 580.

[0165] Describing each of these components in turn, the outer casing 520 is generally rectangular in shape and can be formed from one piece of flexible material folded over itself so as to have both a front casing panel 522 and a back casing panel 524. As illustrated in FIG. 27, the outer casing 520 is a single piece of material that is folded over itself along a midline 526. A portion of the front panel 522 can then be stitched or otherwise joined to a portion of back panel 524 about their respective perimeter edges thereby to form an interior for receiving the various components of the shipping container and the parcel to be packed.

[0166] A portion of a first front panel edge 521 can be stitched, for example, to an equal portion of a first back panel edge 523, while a second front panel edge 525 is stitched to a second back panel edge 527. When the front panel 522 and the back panel 524 are so joined, the unjoined perimeter edges thereof define a mouth 530, which communicates with the casing interior 532, illustrated in FIG. 26.

[0167] The outer casing 520 of the container 510 can be formed of many suitable materials, but can be formed out of a sufficiently durable material so that shipping container 510 can be reused many times. For example, the casing 520 can be formed of a heavy gauged cotton cloth or canvas material, but other suitable materials can be substituted as would be within the ability of the ordinarily skilled artisan. Accordingly, differing fabrics each offering a high degree of wearability, such as a 2-ply, 3-ply or foam-backed fabric, can be employed. The fabric can be a wearable poly-blend cloth that can facilitate reuse, while also allowing for cleaning in an industrial washing machine, if desired. Even still, a heavy grade denim, such as 750, 1000 or even a “ballistic-nylon”, can be employed. Although more costly, such a denim fabric material can provide for a greater number of uses.

[0168] With continued reference to FIGS. 24-27, a casing mouth 530 is associated with first and second closures, shown here in form zippers 534 and 536, having respective pull-tabs
531 and 533. Use of alternative closures are also contemplated that would be appropriate for closing the casing mouth 530 to securely and safely retain the packaged parcel 12 therein, for example, a tamper-resistant seal akin those typically found on bags that are used to ship pharmaceuticals, as mentioned above.

[0169] As illustrated, the zipper 534 is located proximate to respective the top edges 531 and 533 of the casing panels 522 and 524, while the zipper 536 is located proximate to the unjoined portions of the edges 521 and 532 respectively of the casing panels. Both the zippers 534 and 536 are movable between open and closed positions. The zipper 534 is movable between a first open position illustrated, for example, in FIG. 26, and a first closed position illustrated in FIG. 24. Similarly, the zipper 536 is movable between a second open position, shown for example in FIG. 26, and a second closed position shown in FIG. 24.

[0170] The outer casing 520 also supports a shipping label 514, the construction of which is further described below.

[0171] As depicted in FIG. 26, the protective insert assembly 540 is removably disposed in the casing interior 532. The protective insert assembly 540 is provided to prevent general crushing and corner crushing of the shipping container 510, and thus helps protect the parcel or item 12 contained therein. The protective insert assembly 540 is formed by the assembly of two parts: a shell insert 542 and a sidewall structure 550, together forming a protective interior for the bladder 560. The shell insert 542 includes a bottom shell wall 544, and first and second spaced apart shell panels 546 and 548 supported thereby. The shell insert 542 is also provided with first and second closure flaps 541 and 543, which are hingedly joined, respectively to shell panels 546 and 548. The shell insert structure can be formed of puncture resistant material and can be an integral one-piece construction of corrugated material. The corrugated material can be, for example, approximately 4 mil corrugated plastic, such as manufactured by CORPLAST Packaging Industries.

[0172] An exterior of the bottom of the container described herein can include feet, for example, downwardly extending rivets, or a non-scratch element enabling pushing of the container along a floor surface without scratching same.

[0173] The sidewall structure 550 can be removably disposed between the shell body panels 546 and 548 and is formed of an end panel 552, a first sidewall panel 554, a second sidewall panel 556, a shell panel 558, and a shelf flap 572. The sidewall structure 550 can be an integral one-piece construction of corrugated material, and each panel that forms a part thereof is hingedly joined to the other, such that the configuration thereof can be manipulated. For example, the shell panel 558 is hingedly joined to the first sidewall panel 554. As shown in FIG. 28, the shell panel 558 is movable between a first orientation, in which it extends generally parallel to the end panel 552, and a second orientation, shown in phantom, wherein the shell panel 558 is oriented at an angle relative to the end panel 552.

[0174] With reference to FIG. 29, when the sidewall structure 550 is inserted between the body panels 546 and 548 of the shell insert 542, the end panel 552 confronts the bottom wall 542, the first and second sidewall panels 554 and 556 extend therebetween, and the shell panel 558 extends parallel to and in spaced relation to the bottom wall 542. Together the shell insert 542 and the sidewall structure 550 form a shell interior 551 that is protected and that is sized and adapted to receive the fillable insert 560. The assembled structure includes four corners, such as corners 581 and 583 for protecting the interior of the container, providing crush protection for the bladder or the parcel received therein.

[0175] As perhaps best illustrated in FIGS. 25 and 28-29, the first sidewall panel 554 has a first length that is generally equivalent to the length of each shell body panel 546 and 548. On the other hand, the second sidewall panel 556 can have a length that is less than that of the first sidewall panel, thereby creating a gap 555 between it and the shelf panel 558. The shelf flap 572, which is hingedly joined to shelf panel 558, can be selectively positioned to block the gap 555, prohibiting access to the shell interior 551. The usefulness of the gap 555 will become more readily apparent in the discussion below. Additionally, the sidewall structure 550 can be provided with a resilient protective lining, shown in the form of foamed pieces 570, joined thereto by conventional means such as adhesives.

[0176] With reference to FIGS. 25-26 and 30, the fillable insert structure is illustrated in the form of inflatable bladder 560. The bladder 560 is generally a rectangular flexible member having a matrix of cells 562, which communicate with one another to receive air via inflation valve 564. Other appropriate fillable insert structures are contemplated, that are adapted to receive a selected quantity of a filling medium, such as air, to provide a cushioned environment to protect parcels having a higher degree of fragility, or for parcels which the consumer wants to provide additional protection.

[0177] Inflation of the bladder 560 can be accomplished by injecting air into the bladder’s inflation valve 564, such as through the use of a squeeze bulb 590. As perhaps best shown in FIG. 30, the parcel 12 is insertable through the open mouth 566 and disposed in the interior 569 of the bladder 560. After disposed therein, the mouth 566 can be closed using a closure 568, for example a zipper and, subsequently, the bladder 560 can be inflated to an appropriate level so that it conforms to the shape of the parcel 12.

[0178] As depicted in FIG. 28, the accessory compartment 580 can be rectangular in configuration, and include an interior 582, which is sized and adapted to receive selected items to accompany the parcel 12 for shipment. The accessory compartment 580 is sized and adapted to receive squeeze bulb 590. The accessory compartment 580 can be open ended, and can be at least one end wall to assist in retaining the items placed therein.

[0179] Now that the components of the shipping container 510 have been described, the assembly thereof can be more readily understood. As can be appreciated, and as shown in FIG. 26, the protective insert assembly 540 can be disposed and assembled in the outer casing interior 532 thereby to form the shell interior 551 for receiving the bladder 560. The bladder 560 can then be disposed in the shell interior 551, either with or without the parcel 12. Because the shell panel 558 is movable, greater ease of disposing the bladder 560 into shell interior 551 can be accomplished by first moving the shelf panel 558 at an appropriate angle relative to the end panel 552, thereby allowing greater access to the shell interior 551.

[0180] Once the bladder 560 is disposed in the shell interior 551 with the parcel 12, which is disposed in the bladder interior, the appropriate filling medium can then be communicated thereto to provide a cushioned environment for the parcel as described above. Because the bladder 560 is already disposed in the shell interior, communication of a suitable filling medium, such as air, can be conveniently accomplished, by locating, for example, the inflation valve 564 so
that it is accessible via the gap 555, which is illustrated in FIG. 26, permitting it to easily accessible by the squeeze bulb 590 and allowing inflation to take place.

[0181] After inflation of the bladder 560 and after the shelf panel 558 is in the first orientation so that it is parallel to the end wall 552, the gap 555 can be blocked by orienting shelf flap so that it depends downwardly of the shelf panel 558 (as shown in FIG. 29). If desired, the accessory compartment 580 can be disposed on the shelf panel 558. The closure flaps 541 and 543 can then be oriented to close over the accessory compartment 580, such that it is located between the shelf panel 558 and the closure flaps 541 and 543 in a close fitted relationship.

[0182] The zippers 534 and 536 can be moved to their respective first and second closed positions to form a packed shipping container 510 ready for shipment (see FIG. 24). In the event, however, that it is discovered that bladder 560 requires additional filling medium, it can be quickly and conveniently moved by moving the zipper 534 into its open position. The squeeze bulb 590 can be removed from accessory compartment, and the shelf flap can then be swung open to again expose the inflation valve 564.

[0183] Still referring to FIG. 24, a locking structure can be provided, for example, in the form of a cable tie 599, to retain both of the zippers 534 and 536 in their respective closed positions. The cable tie 599 is looped through the pull tabs 531 and 533 of each zipper 534 and 536 to keep them in the closed position. Other appropriate locking structures are also contemplated that would retain closures in the closed position so as to safely retain the parcel in the shipping container.

[0184] With the above components and assembly thereof in mind, it should be appreciated that alternative constructions and materials can be used to accomplish the benefits derived by the shipping container 510. For example, the outer casing 520 can have one closure to accommodate all of mouth 530, rather than two. Also, with respect to the protective insert structure, the sidewall structure can be modified so that the side panels are each of equal length. Access to the inflation valve can be obtained by forming an opening through the sidewall in which the inflation valve can be mounted.

[0185] Referring now generally to FIGS. 34-51, the container system includes a reusable shipping container that is capable of withstanding the rigors associated with shipping parcels in commerce. One exemplary embodiment of the shipping container incorporates aspects of the construction of a conventional tote box that are advantageously modified to be a more durable, usable container that are adapted for use for a wide variety of shipping needs, rather than the limited use for which conventional tote boxes have conventionally been applied. The modified tote box further includes a lid, which together form one of the shipping containers contemplated herein.

[0186] The shipping containers can include features that further enhance their ability to be used in the shipping industry. For example, the shipping containers include a securing system, which is integrated with the construction of the shipping container. The securing system can provide a mechanism by which the lid is held closed. The securing system can also provide a mechanism by which the container can be more easily lifted and carried, whereby the weight of the container and its contents are evenly distributed so that it can be lifted or carried with one hand.

[0187] Also, the shipping container can be provided with reusable cushioning materials adapted to conform to contents of varying configurations. The ability to manipulate the reusable cushioning materials to conform to the dimensions of the selected contents permits the size of the shipping container to be standardized. Further, customized packing solutions, which are beginning to be used with some frequency, can be modified, so as to be used with the reusable cushioning materials to ensure that the items are packed in a manner to reduce the risk of damage or loss of the product.

[0188] To better appreciate the construction of the shipping container contemplated and its improvements over a conventional tote, it is perhaps useful to describe the construction of a conventional tote. Referring now to FIG. 31, a conventional tote 610 is illustrated, as commonly used in the automotive industry for transporting and storing auto parts. As illustrated, the tote 610 is formed by an outer shell 620 and a three-wall insert 640, both formed of corrugated plastic. The insert 640 is placed inside the outer shell 620 so as to reinforce or line a portion of the outer shell 620. The outer shell 620 and the opposed walls of the insert 640 are bonded together by sonic welding, which is common in the industry. The sonic welding of the two components forms the indentations 612.

[0189] The outer shell 620 is constructed of five walls configurable to generate an outer shell having a bottom wall (not shown), a pair of sidewalls 622 and 624, a front wall 626 and a back wall (not shown). The insert 640, on the other hand, is constructed of three walls—a bottom wall 641, a front wall 642, and a back wall 644. As used herein, reference to the sidewalls, the front and back walls, and the bottom walls are used to describe those walls as they are presented in the views of the figures of the application. Use of this terminology is intended for the purposes of providing clarification to the explanations of the features of the invention, and is not intended to be limitations to those features.

[0190] The insert 640 of the tote 610 is placed inside outer shell 620, such that bottom wall 641 of the insert 640 confronts the bottom wall of the outer shell 620, the front wall 642 of the insert confronts the front wall 626 of the outer shell 620, and the back wall 644 of the insert 640 confronts the back wall of the outer shell 620. As a result, two walls of outer shell 620, such as the sidewalls 622 and 624, are not reinforced by the insert 640, and thus are only a single layer thick. The front wall 626 and the back wall of the outer shell 620 as well as the front and back walls 642 and 644 of the insert are provided with handhold openings 614 of a selected size, and are configured to allow the human hand to be inserted for grasping the handhold opening 614 during the lifting and carrying of tote 610. Further, as shown, an identification label 616 for displaying information such as to identify the contents of the tote 610 is disposed on the front wall 626.

[0191] With reference now to FIGS. 31-33, the conventional tote 610 is further provided with a rail system 650 that is seated on the top edges (not shown) of the outer shell 620. Directing attention, for the moment, at the cut away portion of the tote 610 in FIG. 31, the front wall 642 of the insert 614 does not extend up the entire height of the front wall 626 of the outer shell 620. Rather, the front and back insert walls 642 and 644 are of reduced height compared to the front wall 626 and the back wall of the outer shell 620. This construction accommodates the seated placement of the rail system 650 on the top edges of the outer shell 620.

[0192] The rail system 650 employed by the tote 610 is an off-the-shelf product that is the combination of the self-locking tote rail and self-locking tote rail clip both manufactured by either Numatech Industries, Inc., having offices in Tay-
lor’s, S.C. or SeaGate Plastics of Waterville, Ohio and identified by SeaGate Plastics as product numbers SG-1111 and SG-1110 respectively. The construction of SeaGate Plastics’ connecting system (generally referred to in the figures as a rail system), as well as the manner in which it is mounted onto the top edges of a conventional tote, is described in U.S. Pat. No. 5,520,477 to Fink, which issued on 28 May 1996, ("Fink"), the disclosure of which is incorporated herein by reference. Fink describes a connecting system, the features of which are described for example, with reference to FIGS. 1-4 of Fink.

As disclosed in Fink, the self-locking tote rail clip is substantially U-shaped and engages rectangular openings disposed adjacent to the outer edge of the tote. The self-locking tote rail, which is a separate piece, is positioned over the clip and engages the clip; see, for example, with reference to FIG. 3 of Fink. Further, a connector (see FIG. 8 of Fink) can be utilized to allow for the formation of a 90° corner between adjacent sides of the tote.

With the construction of the connecting system of Fink in mind, then, and returning now to prior art FIGS. 31-33, the rail system 650 includes a rail member 652 and a flange 654, both of which reinforce the top edges of outer shell 620 and facilitate the stacking of multiple totes 610 of like construction. Accordingly, the conventional totes, such as the tote 610, are typically constructed so as to have tapered sidewalls in order for the bottom wall to be configured so that it can be seated upon the flange 654 of a companion tote 610.

With this understanding in mind, exemplary aspects of the container system 5 are illustrated in FIGS. 34-51. Referring to FIGS. 34-35, a shipping container 710 is constructed of an outer shell 720 and an insert 740 constructed of corrugated material that are adhered together. By way of example only, the outer shell 720 and the insert 740 can be adhered to one another by glue or suitable other adhesives, which are commonly used in the industry.

For example, the outer shell 720 can be constructed of corrugated plastic while the insert 740 is constructed of plastic corrugated material; the thickness of the corrugated plastic material can be, for example, about 8 mils for the outer shell 720 and about 6 mils for the insert 740. The thickness of these elements, however, is not limited to these measurements. As one skilled in the art would appreciate, other corrugated materials that can provide for a durable and reusable container can also be used, e.g., cardboard.

As shown, the shipping container 710 includes a lid 790 and can further be provided with one or more handhold openings, such as handhold openings 714 and 717, a shipping label 716, a rail system 750, and an integral securing system 770.

Referring to FIGS. 34-36, the outer shell 720 is generally in a form of a box having a surrounding outer container wall that forms an interior 729, and includes a bottom wall 721, a pair of sidewalls 722 and 724, front and back walls 726 and 728, a first pair of inner flaps 732 and 734, and a second pair of inner flaps 736 and 738. In one aspect, formation of the outer shell 720 is accomplished by means of a single, integral one-piece construction blank 760 that is configured to be folded into a box.

Referring now to FIGS. 35-36, the sidewalls 722 and 724 and the front and back walls 726 and 728 are extensions of the bottom wall 721, whereas the inner flaps 732 and 736 are extensions of the sidewall 722, and the inner flaps 734 and 738 are extensions of the sidewall 724. With respect to the dimensions of the walls and flaps of the outer shell, the inner flaps 732, 734, 736, and 738 are substantially similar to one another and are of reduced length as compared to each of walls 722, 724, 726, and 728. Further, the front and back walls 726 and 728 can be provided with handhold openings 714 and 718 respectively. The inner flaps 732 and 734 are each provided with notched cutouts, each forming half of a handhold opening 713, such that when assembled as shown in FIG. 35, the notched cutouts align to create another opening in a facing relation to handhold opening 714. The same holds true for inner flaps 736 and 738, and their associated notched cutouts 717.

Referring now to FIG. 36, an exemplary construction blank 760 includes longitudinal extending, parallel score or fold lines 762, which separate the sidewalls 722 and 724 from the bottom wall 721. The construction blank 760 also includes transverse score or fold lines 764, which separate the front and back walls 726 and 728 from the bottom wall 721 and that, further, separate the inner flaps 732 and 736 from the sidewall 722 and the flaps 734 and 738 from the sidewall 724. The longitudinal cuts 766 are formed as extensions of the fold lines 762 and serve to separate the flaps 732, 734, 736, and 738 from the front and back walls 726 and 728.

Accordingly, when the construction blank 760 is folded and glued, the inner flaps 732 and 734 are positioned side by side and in confronting relationship with the front wall 726 such that the handhold openings 713 form a whole handhold opening aligned in facing communication with the handhold opening 714. Similarly, the inner flaps 736 and 738 are positioned side by side and in confronting relationship with the back wall 728 such that the half handhold openings 717 form a whole handhold opening that is aligned in facing communication with the handhold opening 718.

When the construction blank 760 is folded to form the outer shell 720, the inner flaps 732, 734, 736, and 738 provide an additional layer of corrugated material to the front and back walls 726 and 728; the bottom wall 721 and the side walls 722 and 724 have only a single layer of corrugated material. With reference to FIGS. 35, 37, and 39, when the insert 740 is folded and placed within the outer shell 720, an additional layer of corrugated material can be added to the single layer bottom wall 721 and the sidewalls 722 and 724 thereby resulting in a uniform sidewall thickness throughout the container.

Turning now to FIG. 37, the three-walled insert 740 is formed of the bottom wall 741 and sidewalls 742 and 744. Similar to the construction blank 760, described above, the sidewalls 742 and 744 are extensions of the bottom wall 741 and separated therefrom by longitudinally extending, parallel score or the fold lines 746. As contemplated, the insert 740 is glued, or otherwise suitably affixed to the outer shell 720 such that the bottom wall 741 of the insert 740 confronts the bottom wall 721 of the outer shell and the sidewalls 742 and 744 of the insert, respectively, confront the sidewalls 722 and 724 of the outer shell 720.

As illustrated in FIGS. 35 and 39, the outer shell 720 and the insert 740, together form a container wherein each wall of the container 710 is provided with a two layers of corrugated material thereby resulting in a uniform sidewall thickness throughout the container 710. For example, as shown in FIG. 39, the flap 734 provides a second layer of corrugated material to the front wall 726, and the back wall 728. Similarly, the bottom panel 741 provides a second layer of material to the bottom wall 721 and the side panel 744 provides a second layer of material to the sidewall 724.
As mentioned, the shipping container 710 can include a securing system 770. Generally, as shown in FIG. 34, the securing system 770 can include a means of securing the lid shut. For example, the securing system 770 can include a strap or preferably an ensemble of flexible straps, which can be secured about the shipping container 710 by suitable means, such as with buckle 780, to provide a quick and easy way of fastening and cinching the straps.

The securing system 770 is can be formed as an integral part of container 710. As shown in FIG. 38, the securing system 770 can be formed as an ensemble of strap segments and can include two spaced apart lower strap segments 722 and 774, extending parallel with respect to one another across the bottom wall 721 of the construction blank 760 (which is similar to that described above with respect to FIG. 36). The lower strap segments 772 and 774 continue to extend beyond the bottom wall 721 and up a respective sidewall 722 and 724, where they converge upwardly and merge together where they are sewn or otherwise joined together at a respective junction 777 and 779.

The side strap segments 776 and 778 continue to extend beyond the respective junctions 777 and 779 up a respective sidewall 722 and 724, and are laced through the strap slots 771 and 773, formed, respectively, in the sidewalls 722 and 724. In this way, as shown in FIG. 34, the side strap segments 776 and 778 are accessible on the outside of the container 710. Specifically, as shown, the side strap segment 776 extends through the strap slot 771 and appears on the outside of the sidewall 722 proximate to the label 716. Similarly, the side strap 778 extends through the strap slot 773 (see FIG. 38) and spans the lid 790. The side strap segments 776 and 778 are fastened together by conventional means such as with the buckle 780, which can be similar to the type of buckle in a variety of industries, including the automotive industry, so that it can be quickly and easily fastened or unfastened.

When the side strap segments 776 and 778 are fastened and the securing system 770 is tightened about the shipping container 710, it maintains the lid 790 securely in place. Further, when fastened the securing system 770 can serve as a lifting and carrying handle. Because the securing system 770 includes the lower strap segments 772 and 774, which extend the length of the bottom wall 721, the entire load of the container’s contents can be supported from the bottom wall of the container itself.

Now that the strap system 770 has been described in some detail, reference can now be made to both FIGS. 38–39 to further describe aspects of the construction of the container 710, and the integration of the strap system 770 with its construction. First, the straps 772, 774, 776, and 778 are laid across the bottom wall 721 and the sidewalls 722 and 724 (see FIG. 38). Next, the insert panel 740, shown in FIG. 37, is placed over the straps and adhered to the respective walls of the outer shell thereby sandwiching the straps 772, 774, 776, and 778, therebetween. For example, as shown in FIG. 39, the straps 772 and 774 are sandwiched between the bottom wall 721 and the bottom panel 741. Similarly, as would be appreciated by one skilled in the art, the converging straps 772 and 774 and the single strap 778, extending up the sidewall 724, are sandwiched between the side panel 744 and the sidewall 724. Sandwiching the straps can remove the need to separately adhere the straps to either the outer shell or the insert. Further, since the straps are concealed, the straps are less likely to be frayed or damaged by continued use of the container and the container achieves an overall more aesthetic appearance.

Further, as depicted in FIG. 35, the container 710 also includes the connecting system 750. Accordingly, the connecting system 750 is constructed of four interconnecting pieces that are disposed on a respective top edge 751 of the sidewalls 722 and 724 and the front and back walls 726 and 728. Connecting system 750 includes self-locking tote clip combined with the self-locking tote rail.

Referring to FIG. 38, in order to accommodate the structure of the tote clip, a plurality of elongate openings 756 are disposed adjacent the top edge 751 that are substantially rectangular in shape. The tote clip engages the openings 756. In addition, the notches 758 are formed in the top edge 751 of the sidewalls 722 and 724 to accommodate a connector. The connector can be utilized to allow for the formation of a 90° corner between adjacent sides of the tote.

Referring back to FIG. 34, the rail system 750 includes the rail 752 and the flange 754, which circumscribes the upper perimeter of the interior 729 of the shipping container 710. As contemplated, the rail system 750 facilitates the stacking of multiple containers of like construction, wherein the bottom wall of a first container is seated on the flange of a second container, similar to that shown and described above with reference to FIG. 33. Additionally, however, the rail system 750 can instead provide a seat for a lid, such as the lid 790 shown in FIGS. 34–35.

Various designed rails can be implemented. One rail design, as shown in FIG. 81a, can include a block-h shape, or more specifically a blocked, lower case “h” shape. In this embodiment, the gap 4002 of the “h” rail 4000 can be slightly greater than the size of two walls of the container. In one such embodiment, the walls are about 6 mils each, and for support two such walls overlap one another. Thus, preferably the gap of the “h” is approximately 12 mils in size. Another rail design is a slot rail 4005 and has the shape as illustrated in FIG. 81b. A top rail portion 4007 can be fittable to receive a lid, such that a lid can be slid within the top rail portion.

The rails of the shipping container can be colored to identify the shipment of a parcel for a particular industry. For instance, when shipping for a medical benefit, such as a human limb or organ, the rail can have a particular color, like red. For other industries, when shipping particular parcels the rails can be colored other colors. By coloring the rails of the container, an organization or marking system is implemented, such that senders and receivers of packages are quickly and easily able to ascertain not only the importance of the container, but also its contents. Further, the rails can be etched with particular logos, designs, and the like as needed or desired.
Similarly, the exterior and interior of the container (i.e., the outer shell) can also be colored, preferably in green (e.g., Pantone 357C). Coloring of the container can, for example, identify the contents, the sender, and/or the recipient.

As shown in FIGS. 34-35, the lid 790 is sized and adapted to be nestly seated on the flange 754 of the rail system 750 and is substantially flush with the top of the rail member 752. The lid 790 completely encloses the interior of the container to protect the contents to be shipped, but can also serve as a planar surface upon which other containers can be stacked. The lid 790 can support companion containers of unlike construction such that the bottom walls that do not have to be sized so as to be seated on the flange of the connecting system. Accordingly, the containers can provide a more versatile container for stacking purposes.

Optionally, the container 710 can further be provided with the foam gasket 757, which, as shown in FIG. 35, is disposed on the flange 754. The foam gasket 757 assists the lid 790 in sealing the container 710 and helps to stop the intrusion of water into the interior of the container. Optionally, a drain hole, formed at the corners, for example the corner 701 formed by two sections of the rail system 650 as shown in FIG. 32, can be formed in one or more corners of the rail system 750 and used to channel water along the seam of the foam gasket 757.

In addition to providing a seal, the gasket 757 also functions to elevate the lid 790, so as to ensure that it can be substantially flush with the top of the rail member 752 once the strap system 770 is in place and fastened. The strap system 770 can provide a downward force on the lid 790 when cinched, essentially urging the lid 790 to be nestly seated with the confines of the rail system 750 to further secure it in place. The gasket 757 can cushion the lid 790 and protect it from damage resulting from the connecting system 750, while at the same time ensuring that the lid 790 remains flush with top of the rail member 752.

Referring now to FIG. 41, in one exemplary embodiment, a shipping container 810 is illustrated. Here, the container 810 is shown in use to package movie reel 809, although the container 810 can receive and contain other parcels 12. The shipping container 810 is constructed as described above with reference to FIGS. 45-49 to the extent that it can include outer shell adhered to a three-walled insert, a rail system, a securing system, and a lid. Rather than repeat the construction of each wall of the container 810 for the purposes of providing a description of FIG. 41, the walls of the container 810 can be referred to as the sidewalls 822 and 824 and the front and back walls 826 and 828.

As shown, the lid 890 further includes hinges 892. In one aspect, the hinges 892 are formed of a flexible material that can be the same material as that which forms the strap segments in the securing system discussed above. The hinges 892 can be glued or otherwise adhered to both the container 810 and the lid 890. One end of the hinges 892 can be sandwiched between the two layers of corrugated material that form the sidewall 824, while the opposite end is adhered or otherwise suitably affixed to the lid 890. The lid 890 can further include a foam lining 894, shown here to be egg crate foam although other suitable foam material readily available in the art can be employed. The foam lining 894 provides further protection for the container’s contents during shipment.

The lid 790 described above with respect to the container 710 and, for example illustrated in FIGS. 34 and 35, can also include hinges similar to that described above, although not shown in the figures for such a container. The lid 790, however, can be a separate piece without incorporating hinges. Further, the lids with or without hinges can be implemented in the various embodiments of the containers described herein.

The container 810 can also be provided with the foam inserts 801, 802, 803, and 804 (herein “foam inserts 801-804”), and an inflatable bladder 882 to provide a cushioned environment for the protection of the container’s contents during shipment. The foam inserts 801-804 and the bladder 882 can be used in conjunction with one another as complementary components to cushion the item. Alternatively, if desired, the bladder 882 and the foam inserts 801-804 can be used separately.

As shown in FIG. 41, the bladder 882 is positioned between the reel 809, the bottom wall 821 and the front and back walls 826 and 828. Accordingly, the bladder 882 does not line all sides of the container; an appropriately sized and configured bladder adapted to line all sides of the container can be used if desired. As illustrated, the foam inserts 801 and 803 can be sandwiched between the sidewalls 826 and 828, respectively, and the bladder 882, so as to cover handle openings, such as the handle opening 814. Covering handle openings with the foam inserts helps thwart the entry of dust, dirt, water, or other contaminates into the interior of the container.

The bladder 882 can be sized and adapted for insertion into the interior 829 of the container 810, after which it can be inflated to an appropriate level to cushion the item. The bladder 882 can be many suitable inflatable bladders such as known in the art and that is capable of receiving air through an inflation valve. For example, a one-way check valve is manufactured by Halkey-Roberts located in St. Petersburg, Fla. can be used. This provides a cushion of air to protect items having a higher degree of fragility, or for those items that the consumer wants to provide additional protection.

In one embodiment, the bladder of the container system can be cut to fit the needed bladder. That is, instead of providing a single bladder for a number of sized containers, the bladder can be manufactured with pre-sized matrices, enabling the sizing of a bladder for a particular container to be cut, for example, by a user.

Another exemplary bladder includes a trampoline-like bladder. As illustrated in FIGS. 822-826, the trampoline-like bladder 4010 can include an inflatable doughnut-shaped element 4012, covered by a fabric layer 4014. When the inflatable doughnut-shaped element 4012 is inflated, the fabric layer 4014 raises, and can envelope a portion of the parcel 12. Then, the parcel 12 can be safely secured within the container.

In similar or different embodiments, the side walls, bottom, and interior of the lid can include inflatable ribs. Similar to the bladder, the inflatable ribs are inflatable, and when inflated can extend into a portion of the interior of the container to help secure parcels therein.

Still referring to FIG. 41, inflation can be accomplished by injecting air through the bladder’s inflation valve (not shown) via the inflation tube 884, such as through the use of a squeeze bulb 883. As previously described, the squeeze bulb 883 is similar to that conventionally found on a medical blood pressure cuff, and is sized and adapted for attachment to
inflation tube 884, which interconnects the valve (not shown) of bladder 882 and bulb 886 to, correspondingly, inflate and deflate the bladder 882, all as is known in the art.

[0230] As would be understood by one skilled in the art, when the bladder 882 is used in conjunction with foam inserts, such as the inserts 801 and 803, the inflation of the bladder reduces the amount of empty space in the interior of the container 810 as well as the amount of space between the reel 899 and the foam inserts 801-204, thus enhancing its protection during shipment. For additional cushioning and to help reduce puncturing of the air bladder 882, an additional layer of foam can be placed between the item and the bladder. One or more inflatable bladders, such as the bladder 882 can be placed about a shipping container to cushion all or selective aspects of the item to be shipped.

[0231] It is contemplated that the bladder 882 can be filled either partially or completely with air after both it and the reel 899 are placed in the container 810. Accordingly, the aperture 888 is formed through a wall of the container 810, such as through the front wall 826, which is sized to receive the inflation tube 884. The bladder 882 can be provided with an inflation tube that either travels within the shipping container or apart therefrom. For example, and with reference still to FIG. 41, if the inflation tube was not intended to travel in the shipping container, then it can be desirable to mount a one-way check valve into a container wall, such as in the aperture 888 formed in the sidewall 826. The inflation tube 884 can then be adapted to secure into the mounted valve. Once the air bladder is filled with air, as desired, the inflation tube can be removed therefrom by forcibly pulling it free from the inflation valve.

[0232] Generally, the shipping container enables more packages on transport vehicle and aircraft, and further provides less highway ward and tear as less trucks/mobile vehicles will be needed. The shipping container also reduces manufacturing processes and use of vital environmental resources. One shipping container can replace up to 75 throw-away containers, such as boxes, and further significantly reduces the need of bubble-wrap, Styrofoam, packing peanuts, foam-in-place bags, and Kraft waste. Moreover, the components of the shipping container are reusable in other shipping containers, and be recycled when its life has exhausted.

[0233] In an exemplary embodiment, a container 910, as illustrated in FIG. 42 is provided. As mentioned above, some companies are manufacturing customized packing solutions for particular manufactures of relatively valuable products, such as expensive electronic equipment. Various aspects of the containers described herein includes modifying these customized shipping containers so as to employ the reusable cushion materials such as that described above with respect to FIG. 41.

[0234] Referring now to FIG. 42, a shipping container 910 is a hard-sided customized shipping container, similar to that of a suitcase or brief case, which is produced through a blow-molding, roto-molding, or fabrication method such as known in the art. Typically, customized shipping containers, such as those manufactured by the Pelican Products, Inc. of Torrance, Calif., employ customized foam packaging solutions to cushion and protect items during shipment and transportation. Foam inserts, such as those used by companies like Pelican Products, Inc., are customized for a particular item. Accordingly, if an item of different size or configuration is to be subsequently shipped or transported in the same case, in many circumstances the foam inserts would have to be replaced with appropriately sized and configured foam inserts to accommodate the item.

[0235] The container 910, however, can both accommodate existing foam inserts as well as reduce the need to replace these foam inserts for subsequent items packaged in such cases. For example, as shown in FIG. 42, a foam piece 903 is configured to accommodate the size and dimension of a representative a shipping item 999, which can be a fragile piece of electronic equipment. A lid 990 is lined with foam 994, shown here to be egg crate foam, but other suitable foam material readily available in the art can be used. Also, an inflatable bladder 982 can be provided and can be used to provide a more enhanced cushioned environment for the protection of the container’s contents during shipment. The ladder 982 is sized and adapted to be placed in the interior 929 of the container 910, which, as shown, lines the bottom wall 921 and partially lines the sidewall 924. Again, the bladder 982 can be sized to line additional walls of the container 910, if desired.

[0236] Accordingly, once the electronic equipment 999 (or other parcel 12) is placed in the foam 903, and the lid 990 is closed, the bladder 982 can be inflated. As air fills the bladder 982, the foam will be pressed into the electronic equipment 999 and further reduces voids present in the container 910. Similarly, if a smaller item is later shipped in this container, it can be possible to place the item within the foam interior and fill the bladder 982 with enough air such that the foam is pressed in the product so as to compensate for oversized cut out existing in the foam.

[0237] In an exemplary embodiment, a shipping container as provided as illustrated in FIGS. 43-44. The container 1010 can be constructed as described above with reference to FIGS. 36 and 37 to the extent that it includes an outer shell adhered to a three-wall insert of the selected size and configuration to provide a shipping container of uniform thickness. A pair of walls 1026 and 1028 each include handhold openings, such as handhold opening 1014, which is further reinforced with an insert 1013 surrounding the opening 1014. Such inserts are known in the art and can be formed of plastic or other suitable material for reinforcing and protecting the openings.

[0238] The container 1010 can be further provided with an off-the-shelf rail system 1050, such as manufactured by SeaGate Plastics or Numatech Industries, Inc., which is adapted to nestably receive a lid 1090. Referring to FIG. 45, the rail system 1050 is seated on the top edge 1051 of the container 1010. The rail system 1050 includes the rail 1052 and the flange 1054, which circumscribes the upper perimeter of the interior 1029 of the shipping container 1010 and can further be provided with foam striping to serve as a gasket 1057 (see FIG. 48). Different from the rail system described above, however, with respect to the container 110 shown in FIGS. 34 and 35, the rail system 1050 can be a single continuous piece rather than four interconnecting pieces that is secured to the container 1010 with a plurality of rivets 1053, for example. Accordingly, the rail system 1050 is of sufficient length so that it can be wrapped about the top edge of the container and seated therein. If necessary, the container 1010 can have an area of an overlap due to excess length of rail system that is also secured to container 1010 with rivets 1053, for example.

[0239] FIGS. 43-45 illustrate the lid 1090 of the container 1010. The container includes a shipping label 1016 mounted on the top surface 1091 thereof. Adhered to the bottom sur-
face 1093 of the lid 1090 is the foam 1094, shown here to be egg crate foam, which is adhered with a suitable adhesive, e.g., hot melt glue. As illustrated in FIGS. 44-45, the lid 1090 is formed of two pieces of fluted corrugated plastic 1092 and 1096. Preferably, as perhaps best shown in FIG. 44, pieces 1092 and 1096 can be adhered to one-another so as to be cross-fluted to further strengthen the lid 1090.

[0240] The lid 1090 is joined to the container 1010 with the hinge 1060, as shown in FIGS. 43-45. The hinge 1060 can include a living hinge such as known in the art, and is preferably of lightweight, yet durable and flexible material, such as piece of plastic. As shown, the hinge 1060 extends along the majority of the length of the lid 1090 and has a first section 1062 mounted to the top surface 1091 of the lid 1090, a second section 1064 mounted to the rail 1052, and a spine 1066, which bridges the two sections. Both the first and second sections 1062 and 1064 can be secured to the lid 1090 and the rail 1052, respectively, with rivets 1053, for example. Other suitable hinges known in the art can be employed such that the lid 1090 is appropriately joined to the container 1010 to permit the lid 1090 to be easily moved between an open position and a closed position.

[0241] With reference again to FIGS. 43-44, the container 1010 includes an aperture 1088 formed through the wall 1026, which is sized to receive inflation tube such as described above with reference to FIGS. 41-42. The bladder (not shown) is adapted to receive a filling medium, such as water, air, or other suitable medium, which is communicated from outside of the container to the bladder inside the container via the aperture 1088. The filled bladder thereby is interposed between the item to be shipped and at least two sides of the container. Preferably, the bladder is interposed at least between the item to be shipped and the bottom wall of the container to provide a cushioned environment for the item during shipment. To further ensure safe delivery of the item to be shipped, the item can be wrapped at least partly there about by a piece or pieces of foam of selected size and configuration. In this way, when the lid is in the closed position, the bladder can then be filled with the filling medium thereby to further embed the item into the foam and filling open areas left within the container.

[0242] The container 1010 is further provided with the securing system 1070, which can generally include the first strap 1076 and the second strap 1078 releasably secured to one another by the buckle 1080. The first and second straps 1076 and 1078 can be mounted to the outer surface of the wall 1022 and the lid 1090, respectively, with rivets 1053, for example. Accordingly, different from the securing system described above with reference, for example, to FIG. 38, the first and second straps 1076 and 1078 are not integrated with the construction of the shipping container 1010. Other suitable forms of releasably securing the first and second straps 1076 and 1078 together are also contemplated and can include straps that are releasably securable with cooperating hook and loop fasteners, snaps, ties, and the like, but it is preferred that the straps be quickly and easily released without compromising the integrity of their securing to one another.

[0243] As depicted in FIG. 43, the securing system 1070 can also include a pair of spaced apart bumpers 1082, mounted to the rail system 1050 of the wall 1022. As shown, the bumpers 1082 are located on either side of the buckle 1080. The bumpers 1082 can project outwardly from the container 1010 beyond that of the buckle 1080 to reduce the incidence of damage to the buckle during shipment. Additionally, the securing system 1070 includes the lock 1084, which is shown in phantom, and concealed by the strap 1078. The lock 1084 can be a barrel lock and provides additional security for the items shipped in the container as well as another means for keeping the lid 1090 nestly in place during shipment.

[0244] Turning now to FIGS. 46-47, the barrel lock 1084 is more particularly a cam lock, which can be a CyberLock such as those manufactured by Videx, Inc. located in Corvallis, Oreg., and that is operated by a barrel key 1086 such as a CyberKey also manufactured by Videx, Inc. As illustrated, the lock 1084 is mounted to the top surface 1091 of the lid 1090 such that the lock housing 1089 is substantially flush to the surface 1091 of the lid and further so that the key opening 1083 is accessible by the key 1086. The cylinder 1085 extends through the lid 1090 and is coupled to the cam 1081 having a lobe 1087, which is actuated by key 1086. A receiver 1071 is mounted to the rail system 1050 on the wall 1022 with the rivets 1059, and is located between the rivets 1053, which hold the bumpers 1082 (FIG. 49) in place. As further illustrated, the receiver 1071 can be an off-the-shelf angle bracket and, for example, be an L-shaped bracket. As should be appreciated, when the lid is in the closed position and the lock is locked, the lobe 1087 is located underneath the shelf 1073 of the receiver 1071. When unlocked with the appropriate key, the lobe 1081 slides out from underneath the shelf 1073 permitting the lid 1090 to be moved into the open position allowing access to the interior of the container.

[0245] Other locks can be provided with the shipping container, such as a keyless cam lock 1184, shown in FIG. 49 in the form of a combination lock in use with the container 1110. As shown, the lock 1184 is mounted to the wall 1122 of the container 1110. As should now be appreciated, the cylinder associated with the lock passes through the wall 1122 where it is coupled to a cam having a lobe. The receiver associated with the lock 1184, also not shown, is mounted on the interior of the lid 1190 whereby the lobe is moved underneath the associated shelf when the lid is in the closed and locked position, and moved out from underneath the shelf when unlocked to permit movement of the lid into the open position. As should also be appreciated, the lock 1184 can be concealed when the straps 1176 and 1178 are fastened.

[0246] In an exemplary embodiment, a container 1210 is shown in FIG. 50. The container 1210 is secured to a wheeled carriage 1230 similar to that used with luggage. The wheeled carriage 1230, which includes wheels, such as a wheel 1232, which are located beneath the container and adapted to engage the support surface. The wheeled carriage 1230 is further provided with a telescoping handle 1234, which can be retracted when not in use to conserve shipping space. The container 1210 further includes a foot 1240, which is disposed underneath the container and is also adapted to engage the support surface.

[0247] Various features of the wheeled carriage 1230 and the foot 1240 are illustrated in FIG. 51. The wheeled carriage 1230 includes a pair of wheels 1232 and 1233 (in phantom), both of which are located beneath a shelf 1236. A portion of the bottom wall of the shipping container is seated on the shelf 1236 and then secured thereto with, for example at least two bolts 1231. Similarly, a portion of the bottom of the container is seated on a top surface 1242 of the foot 1240 and secured thereto with the bolts 1241. Other suitable devices for secur-
ing the container to both the shelf of the wheeled carriage and foot known in the art are also contemplated.

[0248] Still referring to FIG. 50, once seated and secured to the wheeled carriage 1230 and the foot 1240, the container 1210 can be easily wheeled about to a desired location. This is especially useful if the container is too heavy to be easily moved from one location to another with the hands. When the container 1210 is at rest, the foot 1240 engages the support surface both to restrain further movement of the container 1210 as well as to keep the container and its contents level with the support surface.

[0249] Additionally, the container 1210 is shown in use with an alternative securing system 1270. Here, the securing system 1270 does not include straps, but rather simply another barrel lock 1284 mounted to wall 1222. Here, the barrel lock 1284 is actuated by a simple key, as opposed to a “CyberKey” as with the lock described above with respect to FIG. 46. The bumpers 1282 project outwardly farther than the lock housing of the lock 1284 to reduce the incidence of damage thereto.

[0250] The shipping container can be lined, both on its interior and its exterior with a protective lining. An exemplary lining can be Rhino Liner, which is a slip-resistant polyurethane coating and an added layer of protection against scratches and wear. In one embodiment, the Rhino Liner can be sprayed on the interior walls of the shipping container to provide a scratch-resistant interior. Additionally, by spraying the liner on the interior the container can be liquid-sealed, prohibiting liquid from entering or exiting the container when the container is in its closed state. On the other hand, if the liner is sprayed on the exterior, the exterior of the container can be scratch resistant, which can extend the life of the container in use. In a similar or different embodiment, the elements of the container, and specifically the side walls, bottom and lid can be dipped in the Rhino Layer, or when they are manufactured can include the Rhino Liner therein. Those skilled in the art would appreciate that other protective linings can be implemented.

[0251] In an exemplary embodiment, the interior of the shipping container and containers described herein can include a temperature-controlled environment. For example, as illustrated in FIG. 83, the container can include an interior shell 4020 that includes a first layer of corrugated plastic 4022, a second layer of temperature-sensitive material 4024, and a third layer of corrugated plastic 4022. Preferably, the first and third layers are the exterior layers 4022, and the second layer 4024 is sandwiched therebetween. Preferably, the temperature-sensitive material 4024, but all three layers 4020, 4022, and 4024 can be vacu-sealed and packaged, for example, within in a bag for pressure sealing. Alternatively, the temperature-sensitive material 4024 can be manufactured by AeuTemp of Dayton, Ohio.

[0252] In an exemplary embodiment, the container can be lined along its exterior with exterior protecting ribs to reduce, if not eliminate scratches and/or markings on the outside of the container.

[0253] The reusable labeling construction for the container system 5 can reduce inconvenience by facilitating the preparation of shipping packages by a sender, while at the same time adding convenience and reducing cost for parcel carriers.

[0254] Reference is now made to FIGS. 53-55 to discuss an exemplary embodiment for a labeling system of the container system 5. The labeling system, often referred to as labeling construction 1340 comprises a label panel 1342 adapted to be supported by a body of the container, such as a front panel 1316, and a removable label 1370. As shown, the label panel 1342 preferably includes a label substrate 1343 that can be affixed to the front body panel 1316 by stitching 1344 such that it travels with the container at all times. As represented in FIG. 55, the front panel 1316 can be a multi-layered construction having fabric layers 1334 and 1336 sewn together about their margins with a cushioning layer 1355 sandwiched or interposed therebetween. Accordingly, it can be seen in FIG. 55 that label substrate 1343 is secured most directly to upper fabric layer 1334 by the stitching 1344. The label substrate 1343 can be in the form of a stiff, rectangular placard made of many suitables materials such as vinyl or Lexan® (available from General Electric Company Corporation of Pittsfield, Mass.), so that it is not subject to deformation or damage during repeated use of the container. In addition to the label substrate 1343, the label panel 1342 can include a transparent layer 1500 that is disposed on and overlays a portion of label substrate 1343.

[0255] The construction for label substrate 1343 is generally shown in FIG. 54. It is contemplated that a container that is provided with a label panel such as that shown in the figures can be owned by a parcel carrier, referred to throughout this description as the “owner” of the container, and leased for a price to a customer so that it can be reused many times. Accordingly, should the container get misplaced during transit or for other reason need to be returned to the parcel carrier owner, label substrate 1342 allows for this to be done in a very convenient manner. To this end, it can be seen in FIG. 54 that the label panel 1342 is provided with return address indicia 1352 corresponding to the return address for the owner of the container (i.e., the parcel carrier in this example). This return address indicia can be printed on the rectangular placard 1343 with the transparent film layer 1350 overlaying it so that the return address indicia 1352 can be seen therethrough as shown in FIG. 54. Alternatively, the return address indicia (or other desired indicia for that matter) can be reverse printed on either the placard’s laminate or a surface of the transparent layer 1350 that faces the label substrate.

[0256] Also preprinted on the label substrate 1343 is another area 1353 in the upper left corner, which is also provided with the owner’s address information 1354, so that this address is visibly discernable at all times during transit. As shown in the figures, there are other types of information that can be printed or otherwise applied to placard 1343 to facilitate shipping of the parcel. These can include, for example, a tracking information area 1355 where appropriate tracking information 1356 can be applied. This tracking information 1356 can be in a variety of forms, such as a bar code, an alphanumeric designation, or the like. Also provided, preferably in the upper right hand corner is another region 1359 for receiving postage information 1360. As shown in FIGS. 53-54, the postage information 1360 can be in the form of an account number utilized by the sender and/or recipient that is printed on the label substrate 1343. Of course, as with the tracking information, the postage information can be in the form of an alphanumeric designation as shown or present in a bar code format. Alternatively, of course, the upper right corner of label substrate 1343 can simply be left blank but have sufficient room for application of postage stamps, package payment confirmation, and the like. As also shown in the figures, another region 1357 can be provided for receiving inventory tracking information 1358 associated
with the particular container, for which the reusable label construction 1340 is used, as well as yet another region 1361 containing preprinted information 1362 to alert users that the container itself is reusable in the hope of preventing inadvertent disposal thereof.

[0257] Of course, one skilled in the art would appreciate that the various types of information illustrated in the figures associated with the reusable labeling construction is for illustrative purposes only to explain certain aspects, and should not unduly limit or otherwise restrict the scope. For example, it can be that the sender, rather than leasing a container from a parcel carrier actually owns the container and its reusable label construction so that the indicia 1352 and 1354 in FIGS. 53-54 would correspond to the sender’s address because the sender and owner in such case would be one and the same.

[0258] With continued reference particularly to FIGS. 54-55, that transparent layer 1350 that overlays the owner’s return address indicia 1352 can be formed as a film of a transparent plastic material whereby the owner’s address indicia can be seen therethrough. Layer 50 is surfaced with a coating or layer of release material such as polytetrafluoroethylene or other suitable material. To this end, the layer 1350 can be the ER4-C Economy Clear available from the Kennedy Group of Willoughby, Ohio. Upon preparation of the shipping package, the sender prepares a removable label, such as the label 1370, which is formed as a strip of selected strip material 1371. Disposed on the strip 1371 is a layer 1372 of suitable adhesive material that is adapted to adhere to the exposed surface portion of the transparent layer 1350. The label 1370 can be a standard address label typically used on cardboard cartons and the like. With reference again to FIG. 53, the label 1370 includes an area 1375 adapted to receive information 1376 corresponding to the address of the intended recipient of the parcel. Another area 1377 can be provided to receive information 1378 corresponding to an address for the sender of the parcel.

[0259] The label 1370 is adapted to be secured to transparent layer 1350 in a manner so that adhesive layer 1372 can adhere sufficiently to transparent layer 1350 during shipment, yet from which the label 1370 can be forcefully removed without normally tearing the strip 1371 during removal. This allows the label 1370 to remain on the container 1310 throughout shipment, yet permits the label 1370 to be removed from the transparent layer 1350 so that the container 1310 and its associated labeling construction can be reused numerous times.

[0260] As discussed above, the labeling construction can take on a variety of different forms. One such alternative construction is shown in FIG. 56. Here, labeling construction 1340' is constructed similarly as that discussed above, such that it includes a label panel 1342' adapted to be supported by a body of the container, such as a front panel 1316', and a removable label 1370'. Also as discussed above, the label panel 1342' preferably includes both a label substrate 1343' and a transparent layer 1350'. In this embodiment of the labeling construction 1340', however, it can be seen that the transparent layer 1350' overlays a majority of the surface area of the label substrate 1343'. Accordingly, the transparent layer 1350' overlays more of the preprinted indicia that is either printed directly on the label substrate 1343' or reverse printed on the underside of its laminated surface, as discussed above. In this manner, it can be seen that a plurality of sticky labels can be applied at appropriate locations on the exposed surface of the transparent layer 1350 so that they can be removed without tearing or leaving residue. For instance, a removable label 1370' containing indicia corresponding to the recipient’s address can be placed over the pre-printed owner’s address information 1352'. A return address sticker 1354' can be placed over a preprinted area 1353'. In addition, a postage pre-paid sticker 1360' can be placed in the upper right hand corner over the pre-printed postage account information 1359', and a tracking sticker 1356' can be placed over the tracking information area 1355'. The labeling construction 1340', thus, has added versatility so that these various sticky labels, as desired, can be removably applied thereto to permit a container to be shipped repeatedly between senders and recipients while at the same time having the preprinted indicia discussed above so that it can be conveniently returned to the owner when necessary.

[0261] An exemplary embodiment for a container and associated labeling construction is shown in FIGS. 57-58. Here, container 1410 is shown as a conventional box construction formed of a suitable material such as cardboard or the like, so that it is constructed to be more stiff and rigid as compared to the flexible pouch containers described herein. One of the container’s box panels, such as the upper panel 1416, forms the label substrate 1443, upon which the appropriate indicia 1452 corresponding to the address of the owner/sender can be preprinted or otherwise provided. Overlaying the indicia 1452 is the transparent layer 1450, as discussed above. In this manner, and as shown in FIG. 58, a removable label 1470 having an associated adhesive layer 1472 can be releasably applied to transparent layer 1450. Accordingly, the container construction 1410 shown in FIGS. 56-57 effectively eliminates the need for a separate rectangular placard since one of the panels 1416 of the container body 1410 accomplishes this purpose.

[0262] Another exemplary embodiment of a container construction is shown in FIGS. 59-60. A container 1510, as with container 1310 discussed above with reference to FIG. 52, is in the form of a flexible pouch including a front pouch panel 1516 and a back pouch panel 1518 that are rectangular in shape and joined about three edges, all as discussed above. As can be seen, a closure structure in the form of a zipper 1530 is also provided so that the mouth 1520 of the container can be opened and closed as desired. The pouch 1510 also includes grommets 1546 so that the mouth thereof can be locked in the closed configuration. A reusable labeling construction 1540, which can be in the constructions discussed herein, is provided on front panel 1516.

[0263] The difference in the container 1510, from that shown in FIG. 52, is that the container 1510 can be constructed for use with shipping electronic components and parts. To this end, the panel layers 1516 and 1518 can be constructed to discharge static electricity. As shown in FIGS. 59-60, each of the top panel 1516 and the bottom panel 1518 is a single layer construction sewn about their edge margins, such as left edge margin 1519, via sewing 1521. Each of panels 1516 and 1518 is formed as a conductive fabric using conductive fibers that run through the fabric. As such, each of panels 1516 and 1518 is formed to include a cloth layer, 1526 and 1528, respectively, which can be made of polyester and stainless steel fabric. The cloth layers 1526 and 1528 are also preferably formed of threads having fire retardant characteristics to reduce, if not prevent, spark discharge. Suitable yarn having these characteristics is marketed under the name DekaTex®. Interwoven in the fabric layers 1526 and 1528 are a plurality of conductive stainless steel fibers 1522 and 1524,
such as those marketed under the name Bekinox®. Of course, other suitable fabrics and fibers can be employed other than those particularly described herein. Together, the fibers and yarns can reduce, if not prevent, the build-up of static electricity and avoid spark discharges.

[0264] As illustrated in FIG. 59, the conductive fibers can be preferably arranged throughout the fabric layers as a plurality of rows 1522 and columns 1524, thereby to create a matrix array. Each of the rows and columns of these stainless steel fibers are preferably spaced apart about 1/2 inches, which should adequately limit the amount of static build-up that can form on the surface layer of the fabrics. Of course, this spacing can vary but it is understood that spacing the fibers with too much fabric between them can increase the chance of static electricity forming.

[0265] As also shown in FIG. 59, a lining 1570 can also be provided that is sized and adapted for insertion into the open mouth 1520 of container 1510. When so used, this creates a modular container construction. The lining 1570 serves a variety of useful purposes. On the one hand, it can line the inside of the container 1510 and provide protection for parcels. As such, liner 1570 can provide abrasion and shock resistance for products shipped inside container 1510. Importantly also, the lining 1570 also has antistatic characteristics to alleviate the build-up of static electricity when electronic components are shipped. To this end, the lining 1570 is appropriately constructed in a manner that exhibits these capabilities.

[0266] As shown in FIGS. 59 and 61a-61b, the lining 1570 is preferably an elongated rectangular member that is cressed about a mid line 1573 to form a pair of geometrically congruent panel sections 1572 and 1574, which are oriented in a generally spaced apart, confronting relationship to one another during shipment. The lining 1570 includes an outer conductive plastic shell 1577, which is flexible yet somewhat rigid to provide puncture resistance, and an antistatic foam lining 1579 secured thereto in an appropriate manner, such as via adhesive or the like. The conductive plastic layer 1577 can be many lines of conductive plastics available from the Inteplast Corporation of Livingston, N.J., and marketed under the names ConPlast or Profile Plastics. Anti-static foam lining 1579 is preferably polyethylene foam laminated to conductive layer 1577 and commonly referred to as “Pink Poly”. Pink Poly is currently used to protect electronic components and can be manufactured as a thin liner, a bubble wrap, or foam of differing thicknesses. This foam lining is preferably soft, cushiony, and the thickness thereof can vary depending on the cushioning desired. An exemplary intent is to employ a conductive material that will not allow a build-up of static charges. The advantage of this polyethylene foam is that it can offer some cushioning when constructed in different thicknesses. This can be very helpful in the development of the anti-static system.

[0267] If desired also, although not shown in the drawings, a final layer of protection can be employed by placing the electronic component(s) inside a Mylar® bag and then placing the components inside the anti-static lining construction 1570. Alternatively, a thin film layer of Mylar® can be laminated to the polyethylene layer 1579 if this foam layer 1579 ultimately presents a problem with breaking down or “littering” the electronic component(s) after several uses. If a separate Mylar® bag is employed, then this makes it possible to utilize the bag many times. Another shipping option can utilize a nylon/urethane insert for the shipping container, in addition to lining 1570. Such an insert is not inherently anti-static but can be treated with a liquid film, through known processes utilized by manufacturers of dryer sheets and the like. Alternatively, a strip of conductive material can be attached to interconnect the inside conductive plastic liner to the outer shell 1577 of lining 1570, as well as the container’s fabric layers 226 and/or 228 utilizing an appropriate means, such as hook and loop fasteners.

[0268] As illustrated in FIGS. 59 and 61a-61b, a plurality of fastening structures are provided on lining 1570 so that it can be removable, yet semi-permanently, positioned within container 1510. Of course, cooperative fastening structures can be employed on the inner surfaces of the container’s panels 1516 and 1518. To this end, fastening structures can be provided as cooperative hook fastening strips 1575 (see FIG. 61a) positioned along longitudinal and transverse edge margins of the lining’s outer shell layer 1577. These fastening strips 1575 can be appropriately maintained on layer 1577 through adhesives, sewing or other appropriate securing means. With this construction, the hook fastening strips 1575 can directly engage the panel layers 1516 and 1518 if they are appropriately constructed of a fabric material that can cooperatively engage the hook fasteners. Alternatively, cooperative loop fastening strips can be secured to the inner surfaces of panel layers 1516 and 1518 at appropriate positions thereof to engage hook fastening strips 275.

[0269] As illustrated in FIG. 61b, cooperative hook and loop fastening strips 1576 and 1576c can be secured, respectively, to the inner foam surface 1579 of lining 1570. As such, when lining 1570 is cressed about crease line 1573, panel sections 1572 and 1574 can also be fastened together to better envelop the electronic components during shipment and reduce the chance of dislodgement.

[0270] With the above in mind relating to the container and the labeling constructions, which are contemplated by the container system, it should be appreciated that the container system also contemplates a method of shipping a parcel from a shipper located at an origin location to an intended recipient located at a destination location. According to this methodology, various steps occur at the origin location, and these steps can be accomplished in many appropriate orders. One of these steps relates to the creation of the shipping package by packaging the parcel to be shipped into an individual reusable container that includes an enclosable container body having an interior and a mouth communicating with interior, and a label panel. The label panel, itself, includes owner address indicia corresponding to an address for an owner of the container and an exposed transparent surface portion overlaying the owner address indicia so that the owner’s address indicia can be seen therethrough. The exposed surface portion formed of a release material. Another step contemplates the placement of a removable label onto the transparent surface portion. The removable label includes a strip constructed of a selected strip material and having a first surface provided with information corresponding to an address for the intended recipient for the parcel. An opposed second surface region of the removable label is provided with a layer of a selected adhesive so that the opposed second surface region of the label can be secured to the exposed surface portion during shipment to the intended recipient, yet removed there from at the destination location with out tearing the strip of material. According to the broad methodology, once the shipping pack-
age is created at the origin location, the terminal step in the methodology provides for delivery of the shipping package to the destination location.

[0271] An alternative form of this methodology contemplates the shipment of parcels between a plurality of shippers and a plurality of intended recipients. Each shipper is located at a respective origin location and each intended recipient is located at a respective destination location. According to this methodology, a respective shipping package is created at each respective origin location for a respective shipper in the manner discussed above. The respective shipping package is then delivered to the destination location associated with the intended recipient, and these steps are repeated at each respective origin location. Other shipping methods and embodiments are described herein.

[0272] Referring now to FIG. 62, a container 1610 is shown in the form of flexible pouch that is adapted to receive a parcel 1612 in its interior 1614. Container 1610 has a front pouch panel 1616 and a back pouch panel 1618, which are rectangular in shape and joined about three edges 1621, 1622 and 1623 located at the perimeter thereof. Panels 1616 and 1618 are unattached along a portion of the perimeter to define a mouth 1620 through which parcel 1612 can be inserted as a received parcel. A zipper 1630 includes a pull-tab 1632 and is shown in an open position to define a mouth 1620 for container 1610. The flexible pouch portion of container 1610 can assume a variety of configurations, but is preferably constructed as described in my U.S. Pat. No. 6,737,974, issued 18 May 2004, which is incorporated herein by reference.

[0273] Front panel 1616 of container 1610 supports a reusable labeling construction 1640 described in more detail in following figures. Reusable labeling construction 1640 allows items such as parcel 1612 to be conveniently shipped multiple times between senders and recipients while resisting damage to the container during transit. Conveniently also, and with reference to FIG. 63, the reusable labeling construction 1640 is provided with permanent indicia identifying the actual owner of the container. Being permanent, this provides a "fail-safe" manner of ensuring that the container 1610 is ultimately returned to its actual owner, for example, if labels are lost during transit, if the sender(s) and recipient(s) no longer have need for its use, or if the container is misplaced. Representative indicia 1650 minimally include the address 1652 of the container's owner. It is to be recognized that the owner of the container can also be one its senders or recipients, or even a third party who can, for example, be in the business of leasing or selling like containers to users.

[0274] The indicia 1650 can also include other information as shown in FIG. 63, such as pre-paid postage information 1654, suitable tracking information 1656 presented as barcodes, alphanumeric designations, or the like, and a logo 1658 for the owner. Additional indicia as shown can also be provided.

[0275] With reference now to FIG. 64 labeling construction 1640 is adapted to be placed in a receiving state so that a return address label 1632 can be removably inserted. The return address label 1632 has indicia 1634 corresponding to the sender's return address and can also include other information, such as information 1636 identifying the item being shipped. The labeling construction 1640 can be manipulated to create a sleeve 1642, which is sized to receive the return address label 1632 so that, once inserted, the return address label covers the address container's owner as illustrated in FIG. 65. The sleeve 1642 has at least one opening 1644, which is sized to receive return address label 1632. In exemplary embodiments, the sleeve 1642 also has an opposed opening 1646 so that the label 1632 can be inserted and removed from either side of the labeling construction 1640. Of course, one skilled in the art would recognize that other types of label receiving configurations can be provided without limitation. Desirably, with many constructions a label would be allowed to be removably received by the labeling construction, whereby it is visibly discernable once inserted, while also being somewhat protected during transit. To this end, pocket configurations having a closed end, slits, flaps and the like are contemplated.

[0276] Once the label 1632 is inserted, labeling construction can resume its flattened configuration to retain the label 1632 in a compact, snug manner. The labeling construction 1640 has at least the overlying portion of its sleeve 1648 (formed by the ensemble of layers 1672, 1673, and 1680 described in below subsequent figures) formed of a transparent material to create a window for viewing return address label 1632. Once the return address label 1632 is inserted, a sender applies a conventional outbound address label to the exposed surface of the sleeve 1648, as shown in FIG. 66, wherein the outbound address label 1633 is provided with indicia 1635 corresponding to the recipient's address. The label 1633 is formed as a strip of selected strip material provided with a suitable adhesive that is adapted to adhere to the sleeve’s exposed surface. The exposed surface is coated with or formed from a release material, such as polytetrafluoroethylene or other suitable material, so that label 1635 can adhere sufficiently to the window during transit, yet can ultimately be peeled away. Advantageously, this capability permits easy removal of conventional paper labels from the labeling constructions window 1648 without disrupting the ability to discern return address labels therethrough, thus allowing the container and its associated labeling construction to be reused numerous times.

[0277] Another aspect of the labeling construction 1640 that can be appreciated from FIG. 64 is aimed at protecting the construction and its applied labels during transit. Generally speaking, part of labeling construction 1640 has a raised construction, which, in exemplary embodiments, can be formed by a pair of opposed upstanding rails 1641 and 1643 that project above the labeling surfaces. As such upper surfaces 1645 and 1647, respectively, of these rails are elevated relative to other portions of the labeling construction 1640 so that, during transit, they can help reduce damage to the labeling construction and its associated labels by providing a protective barrier when the container is handled, placed in a stack with other items, etc.

[0278] Having described the capabilities of the labeling construction in FIGS. 62-66, the particulars of its construction are now described with reference to FIGS. 67a-67c. The construction can measure about "8" x "9", but can, of course, be of many suitable sizes depending on the environment of its use. A label substrate 1660 is directly supported by a body of the container, such as front panel 1616, to which it can be secured by stitching 1661. In its exemplary form, the base substrate 1660 is approximately 10 mils clear plastic vinyl. Adhered to a margin of the substrate's upper surface 1662 are the rails 1641 and 1643. From the viewpoint, for example, of FIG. 63 the rails 1641 and 1643 are disposed on opposed, longitudinally extending margins of the base substrate 1660. Each rail is secured to the substrate 1660 by a suitable per-
manent adhesive layer 1649 so that they can not become removed or dislodged during typical shipping situations. [0279] With brief reference to FIGS. 68a-68c, the rails can be of a variety of constructions to provide these benefits. Thus, for example, a representative rail 1741 in FIG. 68a can be a rubberized foam-based material 1742 that is backed with a double-sided adhesive 1743, upon which a peel away backing 1744 is disposed to expose the adhesive and allow rail 1741 to be affixed to the substrate. Alternatively, one or all of the rails can be formed as a corrugated plastic strip 1841 in FIG. 68d, which is also provided with an associated adhesive 1843 and peel away backing 1844. Alternatively still, and as shown in FIG. 68c, each rail 1941 can be formed from poly-carbone plastic bars 1942 with a double-sided tape backing 1943 and peel away surface 1944. Such material is available as part 04-402 from Rowmark Corporation, Findlay, Ohio. Other similar constructions can also be implemented.

[0280] Returning to FIGS. 67a-67c, an overlay 1664 is secured in facing relationship to substrate 1660, preferably via a permanent adhesive layer 1665. The overlay 1664 has a reduced transverse dimension relative to base substrate 1660 so that it is disposed within the bounds of rails 1641 and 1643. The overlay 1664 measures approximately 2 mils with about 1 mil layer of the adhesive 1665 sandwiched between it and the substrate 1660. The overlay 1664 is a piece of opaque white plastic to which the printed indicia 1650 (FIG. 63) is permanently applied through known printing techniques. Such a material along with its adhesive layer 1665, for example, is available as item 2 mil Coated Polyester from the Gerber Scientific Products Corporation, South Windsor, Conn. and comes with removable backing (not shown). Together, the overlay 1664 and the substrate 1660 to which it is secured form a label panel 1670.

[0281] Secured along portions of the overlay’s upper surface 1667 is a transparent overlay 1672, which is coated with a layer of clear, permanent adhesive 1673. The transparent layer 1672 and 1673 are preferably dimensioned the same as the pre-printed opaque layer 1664 and its associated adhesive 1665. Thus, the clear adhesive 1673 preferably coats the entire lower surface of the transparent layer 1672. The upper surface 1675 of transparent layer 1672 is of the release material so that the outboard label can be removably attached to it.

[0282] Extending longitudinally along a medial portion of transparent overlay 1672, and secured to adhesive 1673, is a transparent panel 1680 of reduced dimension. Thus, as can be appreciated with reference to FIG. 67c when the labeling construction is assembled the upper and lower margins of second overlay 1672 remain secured to the upper surface 1667 of overlay 1664 by virtue of the exposed adhesive 1673, while the medial portion is unsecured to the layer 1664 as a result of the interfacing panel 1680. This allows the ensemble of components 1672, 73 and 1680 to be manipulated to create the sleeve opening discussed above. It can also be appreciated that, since each of layers 1672, 1673 and 1680 are transparent the owner’s pre-printed permanent address can be viewed through the window created by them when the return label is removed.

[0283] A second exemplary embodiment for a container and its associated second labeling construction embodiment are shown in FIGS. 69 and 70. Here, container 1710 is shown as a conventional box construction formed of a suitable material, such as cardboard or the like, so that it is constructed to be more stiff and rigid as compared to the flexible pouch container above. Here, one of the container’s box panels, such as upper panel 1716, actually forms the base substrate 1760 to which is applied, for example, rails 1741, 1743 as well as layers 1664, 1665, 1672, 1673 and 1680 discussed above. Thus, aside from the box’s panel forming the substrate, in all other respects the labeling construction 1740 for container 1710 is as described above.

[0284] Many of the previously described labeling systems can be interfered with due to other packages/containers rubbing against the exterior of the container. Referring now to FIG. 73e, the lid of the container of the container system can define a cutout 1950. In an exemplary embodiment, the labeling system can be positioned within the cutout 1950 for securing the labeling system therein.

[0285] In an exemplary embodiment, the exterior of the container can be laminated with the releasable labeling system material, similar to the Teflon-like material. This lamination can provide at least two advantages. First, the labeling system can be placed anywhere on the outside of the container. A shipper need not place the labeling system on the top or cutout section of a lid. Rather, the labeling system can be placed on the sides, top, and/or bottom. Second, the lamination provides an added protection to the exterior for reducing, if not prohibiting, damage to the container’s exterior. In an exemplary embodiment, the lamination can be initially handled in a dipping process when the exterior of the container is developed.

[0286] The containers described herein can include a packing system, which are generally illustrated in FIGS. 71a-73c. [0287] Referring now to FIGS. 71a-71b, aspects of the packing system are illustrated. A first aspect of a packing accessory 1910 is depicted in FIG. 71a and is form of a reusable cushioning bag or pillow. To this end, the packing accessory 1910 includes a sealed bag 1912 that contains cushioning material in the form of a plurality of packing Styrofoam “peanuts” as commonly available in the industry. Oftentimes, these peanuts are distributed loosely within a shipping container to surround the contents, and disposed of when the container is opened by the recipient. Because they are loosely dispersed throughout the container, typically a cardboard box, they often become lodged in crevices or spilled as the contents within the box shift or are removed by the recipient. This can be somewhat frustrating to clean up. By containing the Styrofoam peanuts within a sealed bag as shown in FIG. 71a, these drawbacks are eliminated. At the same time, however, a packing accessory is provided that can be reused, yet which still has the advantages of providing a cushioning effect. The packing accessory 1910 has a generally square configuration and its bag 1912 is preferably formed by two layers 1916 and 1918 of plastic (e.g., approximately 3 mils each) that can be heat sealed along their surrounding peripheral edge margins. Alternatively, the packing accessory can be sealed in a resealable bag, similar to a Ziploc® type bag. The layers 1916 and 1918 can be either clear plastic or opaque. A polypropylene plastic material can also be employed.

[0288] Another example of the packing system is illustrated in FIG. 71b and shows a packing accessory 1920. Here, the packing accessory 1920 includes cushioning material/elements in the form of scrap foam that is cut to size in lieu of Styrofoam peanuts. Of course, one skilled in the art would appreciate that these cushioning pillows can assume a variety of sizes and configurations depending on the packing needs of a shipper, and that insert material other than Styrofoam peanuts and foam pieces can be used to provide the desired
cushioning effect. Representative substitutes can include, for example, shredded paper, suitable sealed gel substances and the like.

[0289] With reference to FIG. 72, a shipping container 1930 is shown. The shipping container 1930 includes a shell construction, similar to that described above. Each container 1930 can include foam inserts in conforming relationship to the side walls.

[0290] Additionally, the shipping container 1930 has its interior surrounded by foam inserts, such that there a foam insert 1932(1)-1932(4) secured to each side wall 1934(1)-1934(4), respectively. As such, the interior 1936 of the container is surrounded by inserts. To this end, foam inserts 1932(1)-1932(4) can assume a variety of types, such as, for example and not limitation, polyethylene (PE) foam or polyurethane (PU) foam. The side walls 1934(1)-1934(4) can each include a multi-layered construction of pressure fit or glued corrugated plastic pieces, for example, each being about 6 mils thick to form a composite sidewall thickness of about 12 mils.

[0291] The container includes handles 1936(1) and 1936(2). These handles 1936(1) and 1936(2) can be provided to facilitate lifting and transport. The container 1930 can include a hinged lid 1938 that includes foam attached thereto. For example, the lid 1938 can have egg crate polyurethane (PE) foam 1939 adhered thereto.

[0292] Associated with the lid 1938 is a closure mechanism that can either be manual or automatic. A first exemplary manual closure mechanism can be quarter turn bolts. For instance, the quarter turn bolts can be designed to be a flush mounted closure, and which can utilize left and right quarter (¼) turn bolts 1931(1) and 1931(2), and associated left and right keepers 1933(1) & 1933(2), as available from Southco, Inc. of Concordville, Pa. It is preferred to have a recessed design as shown to eliminate snap hazards. This design can be a replacement to the buckles and strap design above because the buckle/strap is a surface mounted arrangement and both items can become catch hazards when the container travels through the sort equipment in the parcel hubs. A second exemplary manual closure mechanism for the container can include swell latches. In one embodiment, swell latches available from Southco, Inc. can be implemented. For example, the 19/84 swell latches from Southco can be implemented. The flexible design of swell latches for use in blind installation, such as the closure mechanism, is beneficial. Generally, the swell latch includes; rubber collar swells to provide compressive action and deliver a good, quiet seal; multiple actuation styles fit a variety of application requirements for speed/convenience of access, space constraints, and flush mounting; lever-style 19 Class functions as a latch and a handle in one assembly, installs with affixing of a single nut; flush-style 19 Class functions like handle-actuated style mounted within cup recessed into door panel, permits clean, non-protruding panel design, installs with simple push-on retainer; and rotary-action 84 Class can be actuated with just a quarter turn of hand or tool operation to hold panels snug under short term or intermittent loading. Other manual closure mechanisms can be implemented in the container system.

[0293] For example, a swell latch assembly 4110 secures the lid of the container tight, and is operable between at least two positions: locked (or latched) and unlocked (or unlatched). In one embodiment, the swell latch assembly 4110 secures the lid in a closed state, relative to the rail assembly; in this position the swell latch is locked. When the swell latch assembly 4110 is unlocked, the lid can be opened in order to place a parcel 12 into the interior of the container or to access the parcel contained therein. The swell latch assembly 4110 can be secured by a cable tie or other securing means.

[0294] Generally, the swell latch assembly 4110 includes two elements for operation. First, the swell latch assembly 10 is mounted within an aperture of the lid of the container. Second, a retaining member 4118 is attached to the inner edge rail of the rail system. The retaining member 4118 is adapted to hold in two separate planes of force.

[0295] The swell latch assembly 4110 can be positioned within the aperture of the lid. The aperture is sized to cooperatively receive the swell latch.

[0296] Referring now to FIGS. 84-85, a swell latch assembly is illustrated. The swell latch assembly 4110 as illustrated in FIG. 84 is in a latched position (i.e., locked) and mounted in an aperture formed through a section of a first member 4182 (e.g., the lid). The first member 4182 as shown is in engagement with a section of a second member 4184. The first member 4182 can comprise a door, panel or the like which is adapted to engage the second member 4184 in a closed position, which can comprise a corresponding door, panel or the like or a frame structure depending on the application of the swell latch assembly 4110. Preferably, the first member 4182 is the lid 160.

[0297] As illustrated in FIGS. 84-85, the major components of the swell latch assembly 4110 are a handle member 4112, a shaft 4114, a latching member 4116, and a retaining member 4118.

[0298] The handle member 4112, as illustrated, is pivotally connected to the shaft 4114. The handle 4112 and shaft 4114 can be of one-piece in construction, with the shaft 4114 being preferably formed in connection with and extending from the handle 12 by a hinge 11 providing a living hinge.

[0299] In operation, the first member 4182 and the second member 4184 are brought into contact with one another for closing of the two members. As shown in the figures, the second member 4184 is provided with an aperture therethrough, in order to allow passage of the bushing 4116 and retaining member 4118, as the first and second members 4182 and 4184 are moved into a position in which preferably the inner surface of the first member 4182 is brought into contact with the outer surface of the second member 4184. From this position, the handle member 4112 is pivotally rotated from its open to its closed position which corresponds with axial movement of the shaft 4114 outwardly in the first direction toward the first member 4182. The pivotal rotation of the handle member 4112 moves the radiused distal ends of the bosses 4154 against the outer surface of the first member 4182 in a direction of the shaft 4112. The axil movement of the shaft 4114 operates to provide corresponding axial movement of the retaining member 4118, which works to compress and swell the bushing 4116 captured between the first member 4182 and retaining member 4118. The swelled outer surface of the bushing 4116 presses securely against the inner surface of the second member 4184 and the lower surface of the seatng member 4152 comes into contact with the outer surface of the first member 4182 in order to retain the first and second members 4182 and 4184 in the closed position.

[0300] In essence, the swell latch assembly 4110 permits locking and unlocking of the lid relative to the rail system.

[0301] An exemplary automatic closure mechanism can be a rotary latch mechanism. In an exemplary fashion, the rotary
latch mechanism operates similar to an automotive trunk latch. Of course, as one skilled in the art can appreciate, other automatic closure mechanism schemes can be implemented in the container system. An exemplary rotary latch mechanism is manufactured by Southco and includes the Southco R4 Push to Close Latch. The rotary latch mechanism can be hand-driven or pair with an array of actuators, has smooth operation and requires a low closing force, and can be compact, such that it minimizes interior protrusion.

[0302] In a similar but different aspect, the closure mechanism can be a magnetic lock, such that the container lid opens when a magnetic is placed in proximity to a magnet reader. The container opens if the magnet, i.e., key, correctly matches a preprogrammed magnetic signal.

[0303] To appreciate how the shipping container 1930 can be suitably packed with one or more items for shipment, reference is now made to FIGS. 72, 73a-73f and 74. For representative purposes only, the example items which are shipped include a projector, a conferencing phone and a power strip. Because these items are relatively expensive, having varying sizes and shapes and are fragile, they provide good illustrations for how the construct of the shipping container can be suitably employed to provide a safe shipping environment.

[0304] With initial reference to FIG. 72, it can also be seen that shipping container 1930 has a layered bottom construction, generally 1940. The layered bottom construction 1940 includes a cushioning assembly that, along with one or more of the packing accessories, forms a packing ensemble to provide an adjustable cushioning environment for items. The layered bottom construction 1940 can include a lowermost inflatable bladder of rectangular shape which is preferably secured in facing relationship to the bottom side wall 1934(5) of container 1930.

[0305] The bladder 1942 is similar the bladders described generally herein, and includes an inflation valve, which is fixedly positioned to communicate with an inflation tube 1944 via an intake port 1943 formed through side wall 1934(4). Disposed above and in facing relationship to bladder 1942 is a layer of about 4.5 millimeters of corrugated plastic 1950. Above this can be a layer 1952 of egg crate polyurethane (PU) foam (see FIGS. 72 and 74). As shown in FIG. 73f, a hand pump 1946 is employed to inject air into the bladder via inflation tube 1944. A protective grommet device 1945 can be mounted to the sidewall 1934(4) to register the inflation tube 1944 with the bladder's inflation valve. A hand pump 1946 and its associated inflation tube 1944 are available from a number of manufacturers, including for example, “Faster Blaster II” from NOA International Corp. Other inflation means can be provided, such as through the use of a squeeze bulb or the like, and include the other exemplary media providing systems described herein.

[0306] In order to prepare the container 1930 for shipment, the projector 1960 can be placed within shipping container 1930 so that it rests on upper layer 1952, as depicted in FIG. 73a. One or more of the pillow-shaped packing accessories, such as packing accessory 1920 discussed above in FIG. 71a, can then be placed atop the projector 1960 (see FIG. 73b). Thereafter, as illustrated in FIG. 73c, the remaining items, namely conferencing phone 1962 and power strip 1964, can be placed on top of pillows 1920(1) and 1920(2) (see FIG. 73c). Additional pillows 1920(3) and 1920(4) may be placed above these items 1962 and 1964, as shown in FIG. 73d.

[0308] Of course, a suitable number of pillows of various shapes and sizes can be employed to help fill in voids of the container. One skilled in the art would appreciate that the bladder and the packing accessories provided for the ability to cushion the contents with cushioning accessories of different types and/or configurations, thereby providing a shipping ensemble for the container 1930.

[0309] At this point, the lid 1938 can be closed as shown in FIG. 73e, and air can be pumped into the bladder via hand pump 1946 as shown in FIG. 73f. By inflating the bladder, the shipping items are elevated into a snug compressed state within the interior of the container. Thus, the layered bottom rises to snugly compress the shipping items into a compacted state between the different types of cushioning materials. Also, upon inflation of the bladder, the packing accessories are compressed against the interior of the lid relative to the lid's egg crate foam layer 1938. Void areas are filled by the pillows and the air system, resulting in a safe shipping environment for the contents that effectively eliminates shifting of the components during transit. At this point, container 1930 is in a prepared or packed state in preparation for shipment to a recipient.

[0310] In a similar or different embodiment, the gaps between the parcel and the walls of the container can be spray-filled with a foam. The foam can help secure the parcel within the container. In one embodiment, the foam can be expandable, such that after a predetermined duration, such as after the container is closed, the foam expands a certain amount. In one aspect, the foam can evaporate when exposed to water, so when water is poured on the foam, for example after receipt by the recipient of the container, the parcel can be accessed.

[0311] In one embodiment, polyurethane and polyethylene foam scraps can be generally positioned at predetermined locations to secure a parcel for shipment or security. In one system, the container can be shipped to a sender with a number of scraps included therein. Then, the sender can insert the parcel into the container and fill the interior of the container with the needed scraps to secure the parcel therein. Next, the sender can ship the container to the desired recipient. The sender could save, recycle, or dispose of the additional scraps. This, in essence, helps recycle the use of wasted scraps.

[0312] The container system described herein further includes at least one shipping method and/or a tracking system.

[0313] FIG. 74 illustrates an exemplary shipping method that can be used in the container system. Here, the steps of packing and labeling each of the parcels are shown to occur at 2000. This occurs at a respective origin location for a respective shipper. Thereafter, the labeled packages or parcels are placed in a carton or tote at 2020. Should a particular shipper sending a plurality of parcels, the shipper can fill one or more totes with labeled packages to form filled carton totes. Alternatively, an employee of the carrier can fill totes with labeled packages from one or more shipper as the employee receives the same. Label-ready containers can be supplied by the carrier at the time of package pick-up, or they can be inventoried at the shipper's premises.

[0314] The packing and labeling of the parcels, as 2000, is accomplished by packing each of the parcels to be sent in an individual re-useable container that is provided with a label panel, labeling each of the containers with information corresponding to an address of a respective intended recipient and closing each container with a respective parcel therein as
a shipping package. The label panel can include an exposed surface portion formed of a releasable material, as described herein, but the label including a removable strip constructed of selected strip material having a layer of adhesive thereon. Again, the release material and the adhesive are selected so that the label can be retained on the container body during shipment yet can be selectively released without tearing of the strip material so that the container can be reused. The packages/containers can be “labeled” electronically by way of RF signal identifiers. Therefore, for purposes of the container system, the term “labeling” can refer to techniques for correlating specific address information to a specific package.

After the labeled packages are placed in totes, they are conveyed to a centralized distribution location, as indicated at 2040. The labeled packages are removed from the totes at 2060 and the labeled packages are sorted by region at 2080. The sorted packages can then be re-packed in totes, at 2100, and the totes are palletized by region at 2120. These pallets are then shipped to the corresponding regions, at 2140. After reaching the specified region, the packages are removed from their respective totes at 2160, and are resorted at 2180 by local address. Finally, the packages are delivered to the local address at 2200.

As is shown in phantom in FIG. 74, a regionalized collection location can be employed, at 2030, so that the labeled package after being first placed in a tote from the shipper, are conveyed to a regional collection location, after which they are conveyed to the centralized distribution.

Here, by way of example, a centralized distribution can be located in Memphis, Tenn. Regional carrier locations can be located in Atlanta, Ga. and Denver, Colo. A hypothetical shipment from Athens, Ga. to Boulder, Colo. would take place by the carrier acquiring the package in Athens, Ga. and placing it in a tote at that location. The totes would then be conveyed to regional collection in Atlanta, after which they would be conveyed to central distribution in Memphis. In Memphis, the labeled packages would be removed, sorted, replaced in totes and palletized with the particular package in this example being palletized according to the regional Denver region. All of the pallets for Denver would then be shipped to that regional location, and the labeled packages would be removed from the totes in Denver. All of the labeled packages for the Denver region would then be removed from their respective totes and sorted by local address, after which they would be delivered. It should be understood, of course, that a number of intermediate regional locations can be employed. Thus, for this hypothetical example, all packages for Boulder can be conveyed from Denver to a sub-regional distribution location in Boulder after which they would be sorted by local address.

The container system can also including a tracking system. An exemplary tracking system includes a radio frequency system, such as an RFID chip/RF transmitter/RF receiver combination.

A container containing an RF transmitter, the method can include additional steps. As is illustrated in FIG. 75, the label packages can be packed at 2300, which can include securing the containers such as by use of cable ties. The packages are then labeled with a bar code identifier. The bar code identifier is correlated to the RF code of a transmitting system (as described more fully below), as is shown at 2304. After correlating the RF code of the particular container to its bar code identification, a plurality of labeled packages are placed in totes, as shown at 2306. These totes are then conveyed to a centralized distribution, at 2308, where they are removed and sorted by region, as indicated at 2310. Again, the labeled packages are torted and palletized by region, at 2312, and the pallets are then shipped to regions at 2314. At the regional locations, the labeled packages are removed and sorted by local address, as shown at 2316, and then delivered to the local address as shown at 2318. RF tracking, indicated at 2320, can interface with the process at a point after 2304 where there has been a correlation made between the RF code of the package and the bar code identifier or other address indicator.

Accordingly, packages can be interrogated at 2306-2318 so that the packages at many stages of the distribution process can be located by the carrier. Thus, of course, can be accomplished by tracking receivers, which can monitor the RF code of each package passing thereby with this information being passed along to a centralized computer system, so that the computer system would maintain data corresponding to the last detected location of package(s). Moreover, the carrier can perform a real time scan, for example, of a truckload of packages, to detect the RF code for each of the individualized labeled packages in a carrier load to determine if the respective package was present. This provides accurate carrier-to-customer information with respect to particular packages during the entire distribution process.

As depicted in FIG. 76, the method can be employed by a plurality of shippers designated as S1-Sn, and as shown at 2401, 2402, 2403, and 2404. Each of these shippers is located at a shipping address or origin address, designated as O1-On. The parcels can then be packed and labeled as shown at 2411-2414, and it should be understood that each of the packages there is a label corresponding to a particular destination address D1-Dn, as shown at 2451-2454. Each sender can send a plurality of packages for a plurality of destinations.

All of the labeled packages can be placed in totes and palletized as shown at 2420. This can occur at a shipper's location, at a regional collection point in the distribution chain or at other locations that are normally employed by carrier systems. The labeled packages are then conveyed to a centralized distribution at 2422, after which they are removed and sorted at 2424. This can be by automated equipment wherein the RF tracking, indicated at 2440, can monitor the position of a package according to its RF code and can sort the packages by RF code according to the region to which they are to be carried. The labeled packages are then re-torted and palletized at 2426, and shipped to regional distribution at 2428. The labeled packages are removed and resorted, at 2430 and conveyed to sub-regional distribution, if desired, at 2432. Thereafter, they are delivered to recipients R1-Rn, each respectively located at destination addresses D1-Dn. As noted above, RF tracking can locate and monitor the progress of a labeled package once it has been labeled at 2411-2414.

As described above, the address label can include appropriate areas for receipt of information corresponding to the sender and the intended recipient. In addition, areas can be appropriately provided for bar code information to provide identifiers for the particular package, as well as codes for the sender and recipient, including the recipient's address. As discussed herein, however, it is not necessary to provide this information in either handwritten format or bar coded format since the container can incorporate an imbedded RF signal transmitter, although such information can be provided as a back-up in the event the RF signal transmitter becomes inoperable or otherwise becomes damaged during use.
As also described above, the shipping label that releasably secures to the container’s placard can contain indicia, in either printed or bar code format, corresponding to pertinent shipping information such as the sender’s origin address, the recipient’s address destination, etc. Alternatively, or in conjunction with this, a more permanent identifier can also be provided, as shown in FIGS. 77 and 78. Here, a radio frequency (RF) transmitter 3110 is shown contained within a pocket 3112 formed on pouch panel 3016. The pocket 3112 is secured to the panel 3016 through a stitching 3114, although other approaches can be used to accomplish embedding the RF transmitter 3110 within the container, such as by placing it between the panel layers 3034 and 3036, or by releasably securing a pocket appropriately to the container’s pouch, such as through Velcro® or the like.

The RF transmitter 3110 can be held in position in many convenient manners so that it travels with the container. The RF transmitter 3110 can be of a type known in the art, such as those referred to as “presence detection” and “RF tags with proximity” that detect location and piece count. These devices each generate a signal of a unique identifier that identifies the particular container 3010 containing that particular transmitter 3110. Thus, a code for transmitter 3110 provides a tracking identifier code that is broadcast and that can be picked up by a suitably tuned receiver in a localized area.

As shown in FIG. 78, the RF transmitter or tag 3110 can be a “WhereTag II” available from WhereNet USA, located in Santa Clara, Calif. The WhereTag II is a component of a WhereNet Real Time Locating System (RTLS), and is an “active” tag that periodically broadcasts, via radio, its unique identification number. The tag’s beacon signal can be configured to “blink” within a range from every five seconds to once an hour. Further, the WhereTag II transmits its unique 32-bit identification number via a radio signal during each blink, and provides the capability of being pre-programmed with 12 bytes of supplementary data that can be included with each blink. Accordingly, a carrier can employ receivers, as part of the WhereNets RTLS infrastructure to detect the tag’s signal and precisely locate the tag and, accordingly, its associated container. For example, a proximity communication device, such as the WherePort also available from WhereNet, can be used to trigger the RF tag 3110 to cause it to transmit an alternate “blink” when the tag passes through the WherePort’s field. In addition, a hand-held computer, such as the WhereWand can be used to both wirelessly configure the RF tag 3110 and scan the tag as desired.

With the above in mind, the container system entails a methodology for shipping a parcel, having an appropriate RF transmitter embedded therein, from a shipper to an intended recipient. The container of the container system that can be employed to accomplish such a methodology can be in any of the forms as discussed herein, provided it at least incorporates the RF signal transmitter. A generalized diagram showing the method 3200 is depicted in the flowchart of FIG. 79. Following a start at 3202, the methodology 3200 proceeds to 3204, whereby a shipper retrieves the unique identifier for the RFID tag housed within the container. This unique identifier is then correlated to the destination address of the intended recipient at 3206, and the parcel to be shipped is packed into the container at 3208. Of course, the packing of the parcel into the container can occur before or after retrieval and correlation of the RFID tag’s unique identifier. Once the container is prepared, the delivered package is shipped to the destination address at 3210, and the methodology thereafter ends at 3212.

A more detailed rendition to illustrate the exemplary concepts of the methodology is depicted in the flowchart of FIGS. 80a-80b. This more detailed methodology permits a shipper, such as a corporation, to set up a service with an appropriate courier for the shipment of parcels that utilize containers having embedded, active RF tags. To provide an efficient shipping system, it is contemplated that the shipping company, or other type of shipper, have an appropriate computer system that is operative to establish a communication’s interface, such as through a web interface or the like, with a server computer system owned by the courier service. Also, the shipper corporation sets up a secure account with the courier, through password protection or the like, via which the shipping logistics can be arranged.

Accordingly, a methodology 3300 starts at 3302 and contemplates at 3304 that a user account has been pre-established with the courier service. Assuming the corporate shipper wishes to arrange for shipment of a container having a packaged parcel, the corporate user accesses his account by logging onto the courier’s server via a remote computer terminal, presumably located at the shipper’s origin location. The methodology 3300 proceeds to 3308, whereby the shipper scans the container’s RFID tag to retrieve its unique identifier. In at least one embodiment, this can be accomplished using the WhereWand. The retrieved identification number is unique to the RFID tag housed within the shipping container, and essentially serves as a “license plate number”, which uniquely identifies this tag. Presumably, this RFID tag and its associated shipping container is one of a plurality of tags and associated containers that the courier either purchases or leases from a company, such as WhereNet for use with its courier services. For a price, the courier can permit the corporate shipper and no other customers to use these particular tags and their associated containers, which can provide added security and peace of mind to the corporateshipper.

Assuming the particular RFID tag embedded in the container to be shipped is available, the response to inquiry 3310 returns a “yes” and the methodology 3300 proceeds to 3312 whereby shipping information is correlated to the RFID tag’s unique identifier. If, however, it is determined that the particular RFID tag is not available, thus indicating battery life trouble with the tag or that a previous shipment had not been closed, or other problem, the inquiry at 3310 will return a “no” and the shipper can proceed to obtain another container having an associated tag and scan its tag.

Because, in an example, the corporate user has an account with the courier, it is contemplated that the WhereWand for scanning the RFID tags can be either directly or remotely linked to the corporate shipper’s computer system. Accordingly, the tag’s unique identification number can be interfaced with appropriate software programming loaded onto the corporate shipper’s computer system. For example, once the corporate shipper logs on to his/her account, a graphical user interface (GUI) screen can appear whereby the corporate shipper inputs, either manually or directly via the WhereWand, the unique identifier for the RFID tag of interest. Assuming the RFID tag is available, then, the pre-installed software will proceed to allow the corporate shipper to input appropriate shipping information, thus accomplishing the methodology at 3312 in FIG. 80a.
[0333] Using the internet as a gateway for the shipper to enter all shipping information at 3312 and 3314 can be useful and provide a secure method for shipping containers. Detailed information on the shipper, the recipient, and the contents can be made in required fields displayed on the corporate shipper's computer system. Further, the computer IP address and e-mail address can also be extremely important information, especially when a package recipient wants to know from whom the package originated. This is useful in a corporate environment, as well as in the overall security of sending/receiving packages in general. Once the appropriate shipping information has been entered, it is correlated to the unique identifier associated with the RFID tag and no other tag, and it will remain cross-referenced to the tag for the duration of the shipment.

[0334] Through the loaded software program on the shipper's computer system and the interface with the courier's server, a prompt can be issued to the courier service to schedule package pick-up once all the appropriate shipping information has been completed. This prompt occurs at 3316 in FIG. 80a. Thereafter, or at other appropriate times before the package pick-up, preparation of the package to be shipped is completed at 3318. This entails, for example, placing the container in one of its modular configurations, as discussed herein, and securely sealing the parcel therein.

[0335] In one embodiment, the methodology generally depicted in the flowchart portion of FIG. 80a might necessarily occur at the shipper's origin location. Further, although not necessary, if desired, the shipper can also place an appropriate address label on the container by including handwritten, printed, or bar code shipping information. This can serve as a preventive measure in the event the embedded RFID tag fails or otherwise becomes inoperable during transit. Because, however, the RFID tag of choice can be pre-programmed with about 12 bytes of supplementary data, in addition to its embedded unique identification number, the appropriate shipping information can all be programmed into the tag via the software interface with the shipper's computer system so that this information is not discernable unless appropriately retrieved via a WhereWand or a WherePort device.

[0336] The methodology 3300 then proceeds to 3320 in FIG. 80d, whereby the courier picks up the shipping package, as well as other packages prepared for shipment according to the process discussed above. Using WhereNet's WherePort technology, the courier can quickly and accurately identify all packages that need to be sent without the need to individually handle and scan every package. Instead, using the RF technology discussed herein, the WherePort scanner can proximity count all packages that are ready for shipment at one time. Further, if it is necessary to identify a single individual package among a group of packages, then the WherePort can send the RF tags a signal that will "energize" the tags, initiating a sound or vibration to distinguish the individual package.

[0337] At 3322 the shipping package(s) is/are delivered to the destination address of the intended recipient, and the courier can employ appropriate tracking as desired utilizing WhereNet's real time locating system (RTLS) infrastructure. The courier can handle the individual packages as they would other packages in today's network, with the improved handling efficiency that can be integrated utilizing the active RF technology in lieu of passive bar code technology. Tracking can, thus, be accomplished by the courier using checkpoint scanning at various locations along the route to the intended recipient. Alternatively, since the container can be readily adapted for use with the somewhat larger beeper size tags that permit GPS tracking capabilities, shippers and couriers employing such tags can track parcels utilizing know GPS tracking techniques all the way through the delivery process to the intended recipient(s).

[0338] Once the package has been delivered to the intended recipient, the courier's delivery driver will close out the data information on the embedded RFID tag utilizing a hand-held computer, such as the WhereWand, and this clearing information can be sent wirelessly to the courier server's database. The close out information will include a prompt to clear the RFID tag for reuse at 324 so that the shipping process can begin again or end at 3326.


[0340] While many embodiments are described herein, it is contemplated each embodiment can both stand on its own and be combined with other combined embodiments. That is, no one embodiment need stand on its own; it can be used with other embodiments and aspects herein.

[0341] Moreover, while the container system and systems related thereto have been disclosed in its exemplary forms, it will be apparent to those skilled in the art that many modifications, additions, and deletions can be made therein without departing from the spirit and scope of the invention and its equivalents, as set forth in the following claims.

What is claimed is:

1. A container system comprising:
   a container comprising:
   a first side;
   a second side;
   a third side;
   a fourth side;
   a fifth side;
   a sixth side comprising a lid;
   the first, second, third, fourth, fifth and sixth sides defining an interior for receiving an item;
   a closure mechanism comprising a first latched state and a second unlatched state, the closure mechanism adapted to latch the lid in a secured state;
   a protection system disposed within the interior of the container for protecting the item contained therein; and
   a rail system adapted to frame a top portion of the container and maintain the structure of the container.

2. The container system of claim 1, the closure mechanism comprising a manual closing mechanism.

3. The container system of claim 2, the manual closing mechanism comprising a swell latch assembly.

4. The container system of claim 2, the manual closing mechanism comprising a quarter turn latch assembly.

5. The container system of claim 1, the closure mechanism comprising an automatic closing mechanism.

6. The container system of claim 5, the automatic closing mechanism comprising a rotary latch mechanism.

8. The container system of claim 1, the protection system comprising a media-receiving bladder.
9. The container system of claim 8, the media-receiving bladder adapted to receive air.
10. The container system of claim 8, the protection system further comprising polyurethane-containing foam.
11. The container system of claim 8, the protection system further comprising polyethylene-containing foam.
12. The container system of claim 1, the rail system comprising a rail insertable atop and coupled to the first, second, third and fourth sides.
13. The container system of claim 1, the lid of the container defining an aperture that is adapted to receive and maintain a shipping label assembly.
14. The container system of claim 13, the shipping label assembly comprising a label panel attached to the lid of the container.
15. The container system of claim 14, the shipping label assembly further comprising a releasable adhesive material that is adherable to the label panel.
16. The container system of claim 1, further comprising a protection layer in the interior of the container.
17. The container system of claim 1, further comprising a tracking system to identify the status and location of the container.
18. A container system comprising:
a shipping container comprising:
a first side;
a second side;
a third side;
a fourth side;
a fifth side comprising a bottom;
a sixth side comprising a lid;
the first, second, third, and fourth sides extend upwardly from the fifth side;
the first, second, third, fourth and fifth sides defining an interior for receiving an item;
a closure mechanism comprising a first latched state and a second unlatched state;
a protection system disposed within the interior of the shipping container for protecting the item contained therein;
a rail system adapted to frame a top portion of the shipping container and maintain the structure of the shipping container; and
a tracking system for identifying characteristics of the shipping container.
19. A reusable container system for protecting an item comprising:
a container comprising
a bottom wall;
at least one side wall extending upwardly from the bottom wall and defining an interior for receiving the item; and
a lid supported by the at least one side wall and moveable between an open state, permitting access into the interior of the container, and a closed state, enclosing the container and preventing access into the interior of the container;
a protection system comprising:
an inflatable bladder disposed in the interior of the container, the inflatable bladder comprising a valve mechanism for receiving a filling medium, such that when at least partially filled the inflatable bladder is positioned between the item in the container and at least one of the bottom wall and the at least one side wall; and
a insert disposed in the interior of the container, the insert positioned between the item in the container and at least one of the bottom wall and the at least one side wall for protecting the item and for receiving a portion of the vibration the container is exposed; and
a securing system adapted to retain the lid of the container in the closed state.

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