

[54] COLLAPSIBLE CONTAINER CARRIER SYSTEM

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[51] Int. Cl.: B66f 9/12

[58] Field of Search: 220/7, 6, 1.5; 214/620, 214/621, 302, 152; 294/67 R, 67 DA

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[57]

ABSTRACT

Lightweight container for articles of lading, collapsible when unloaded for return to point of shipment. The container has a grill-like metal base, end walls pivoted to opposite ends of the base at different levels to be folded one on top of the other, and removable side walls carried on posts detachably connected to the base and lifted from the top by a harness and lift truck. The posts transfer the lifting loads to the base free from the side walls of the container. The side and end walls are in the form of an open framework having cords interlaced thereacross under tension. Plastic panels may be mounted inside of the cords where it may be necessary to protect the contents of the container from pilferage. A top cover which may be plastic may also be sealed to the container. As alternative forms of the invention, the cover may be hinged to the two side walls. One side wall may then be folded over the top to accommodate loading from the side, or the side wall and cover may be raised to accommodate entry into the container for loading. In these forms of the invention, locking and sealing of the container is through the means locking the posts to the base.

8 Claims, 18 Drawing Figures

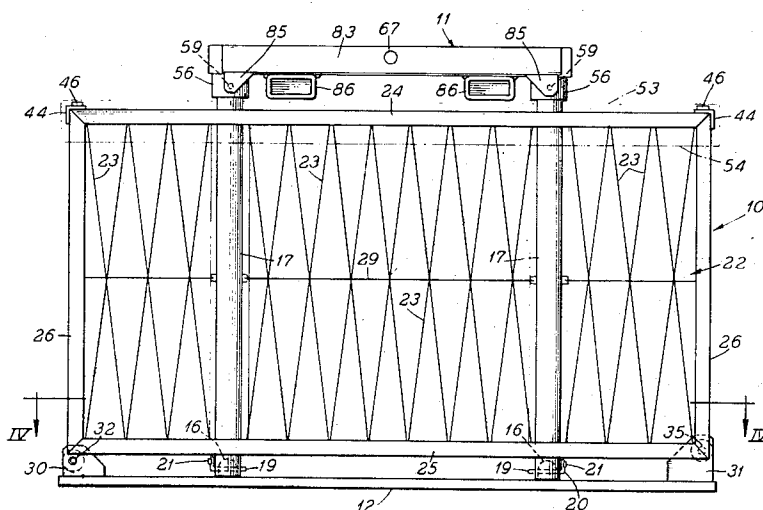


Fig. 1

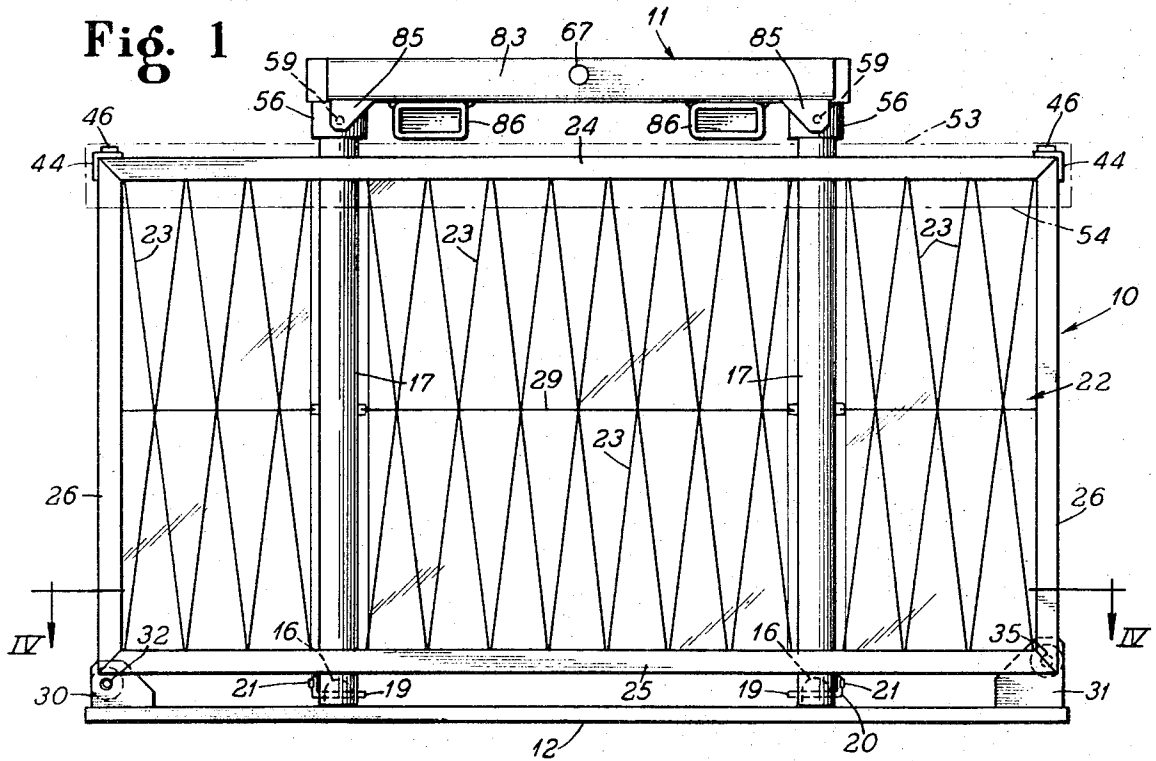
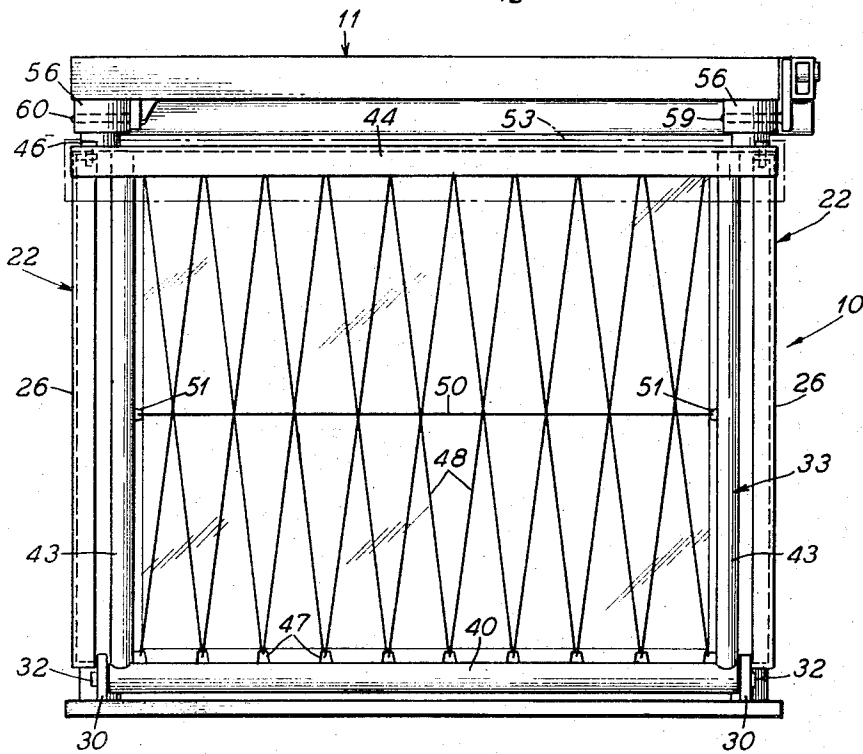


Fig. 2

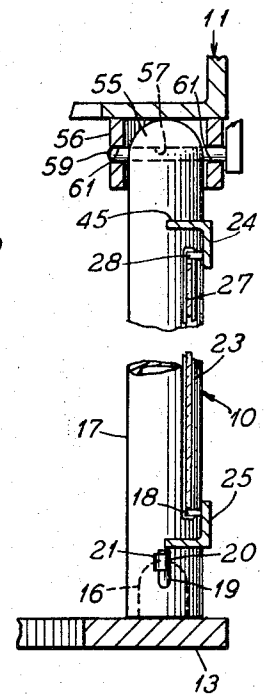


Fig. 3

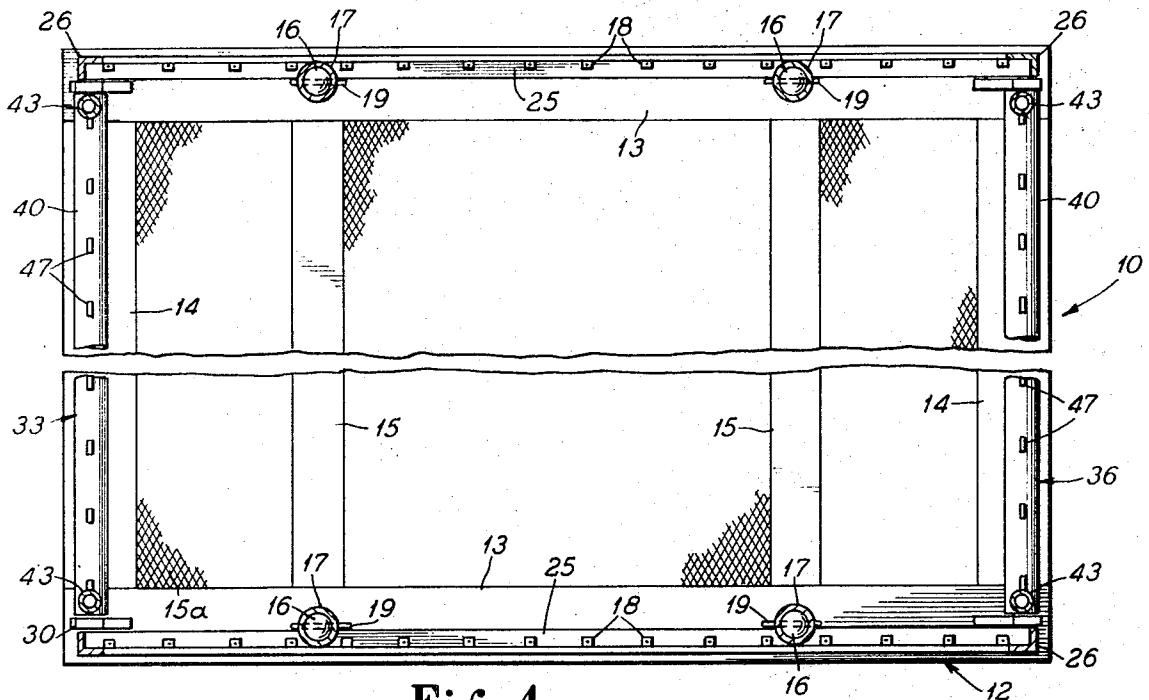
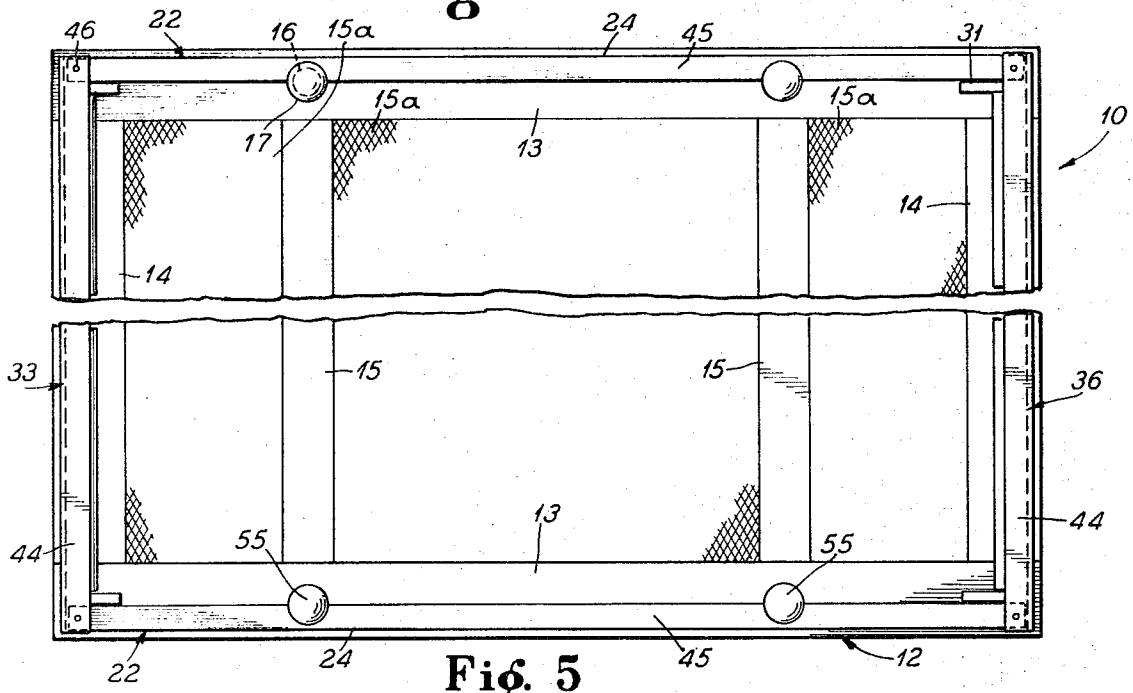
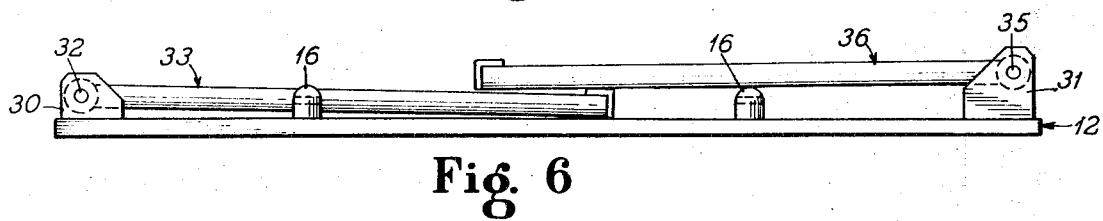


Fig. 7

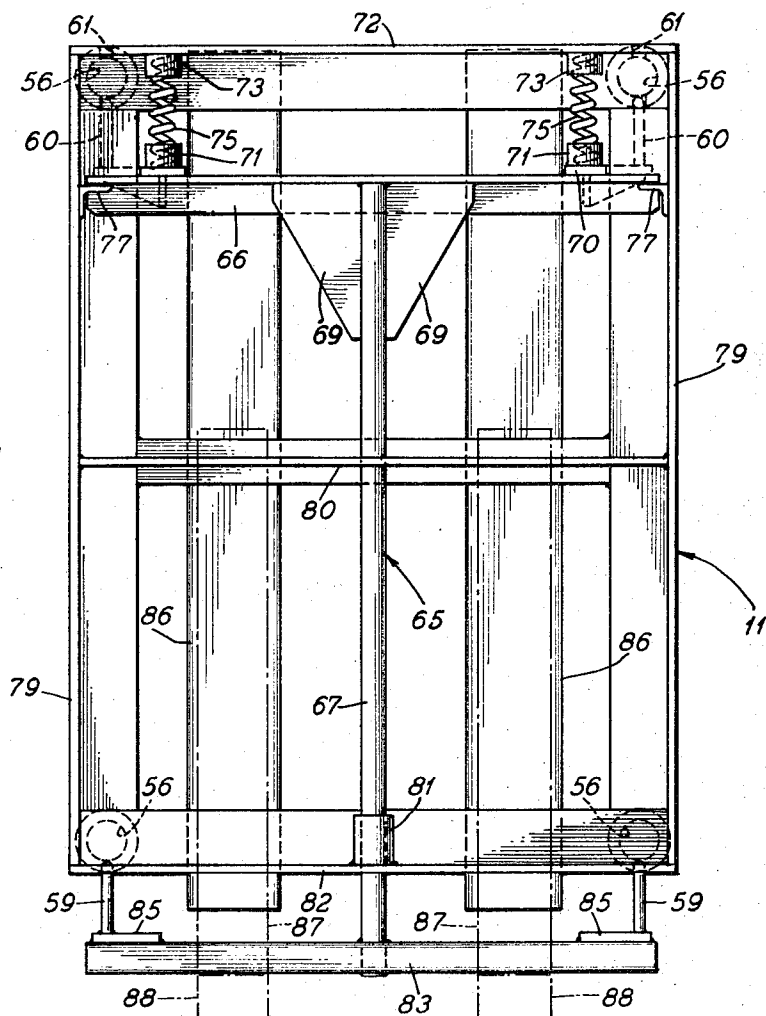
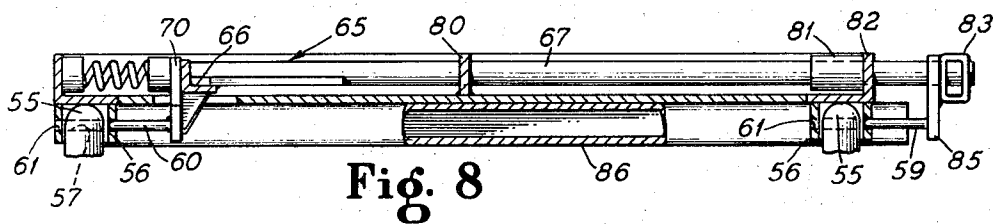


Fig. 8

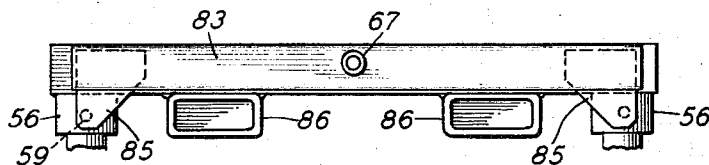


Fig. 9

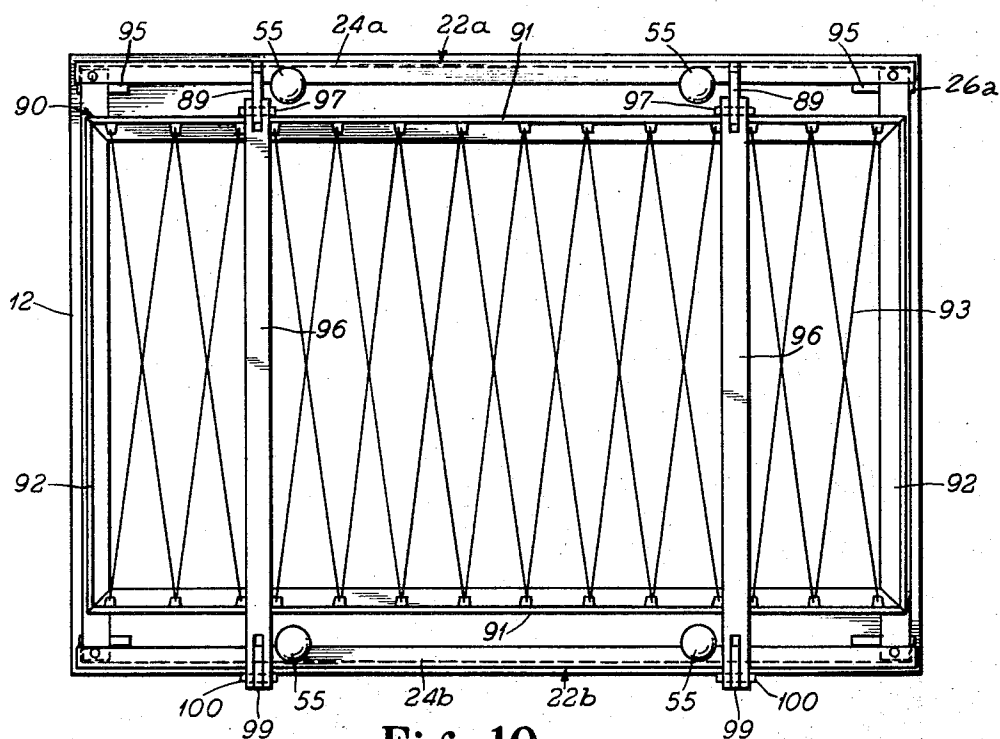


Fig. 10

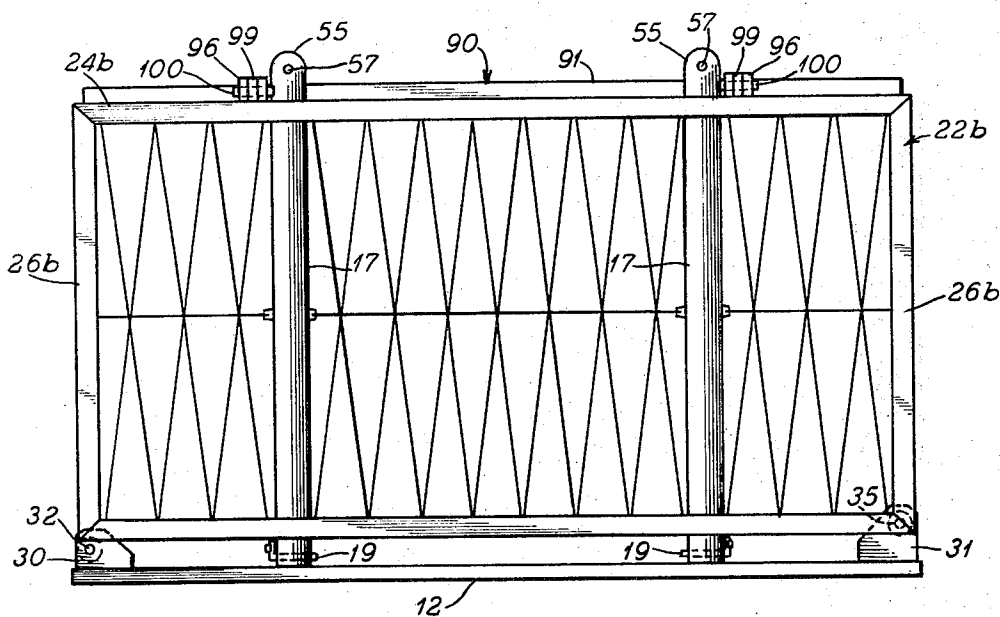


Fig. 11

Fig. 12

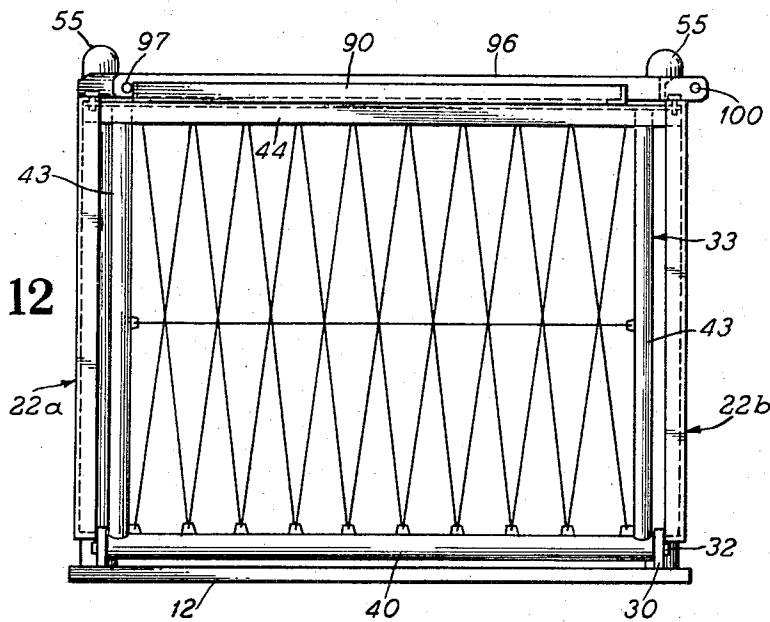


Fig. 13

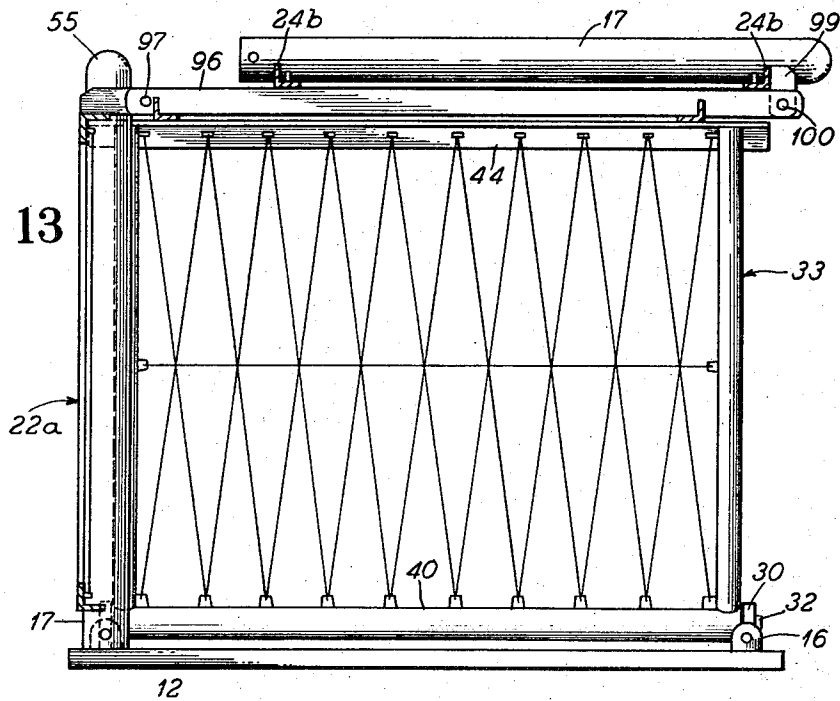


Fig. 14

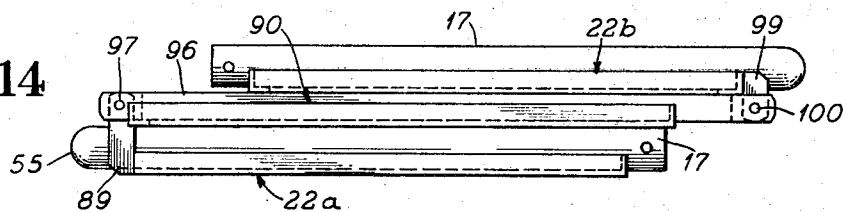


Fig. 15

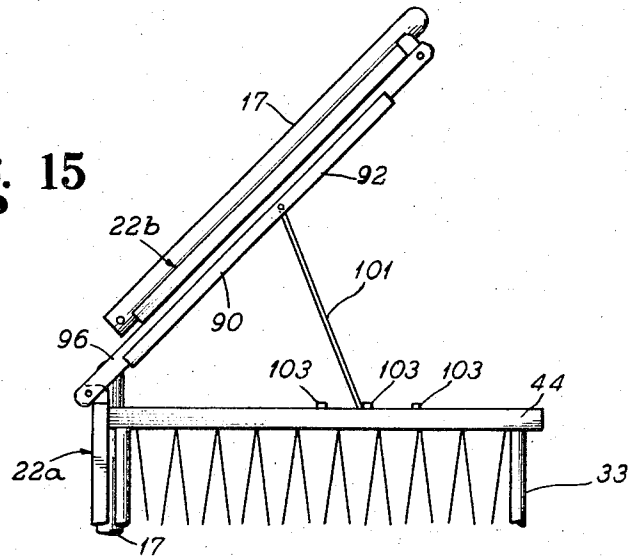


Fig. 16

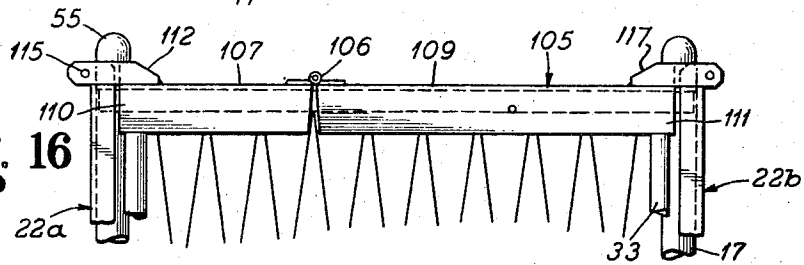


Fig. 17

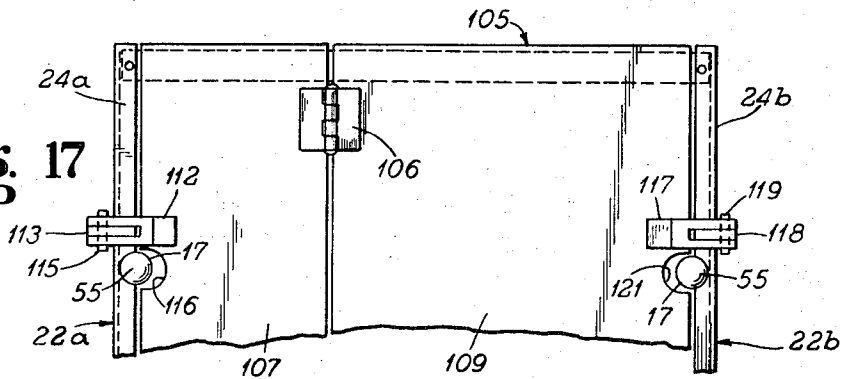
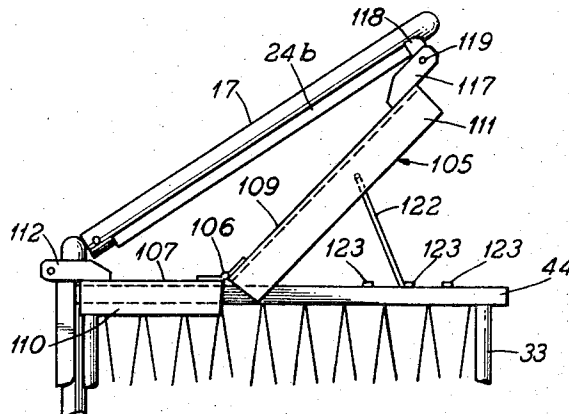


Fig. 18



COLLAPSIBLE CONTAINER CARRIER SYSTEM

BACKGROUND, SUMMARY, ADVANTAGES AND OBJECTS OF INVENTION

Small shipments of freight by truck, railway, air freight or ship have heretofore created prohibitive handling costs due to the multiplicity of articles of varying size and shape to be shipped and the difficulty in keeping these articles together during shipment, and protecting them from loss and pilferage. While containers loaded with articles of freight have been used for such shipments, these containers are usually made from corrugated board or a like material and have a short life. Also, because of their bulk, the containers are left at the destination of the shipment, and are seldom in condition for reuse, nor is it economically feasible to return the empty containers to the shipper. It is further difficult to lift such containers by the forks of a fork lift truck or by other lifting devices, without the use of pallets or other protective devices for the containers which adds to the expense of transportation and loading and unloading of the containers.

In accordance with the principles of the present invention, these deficiencies are remedied by providing collapsible cargo containers made of lightweight metal and of an open framework protected from pilferage by plastic panels, in which the container is sealed by the shipper after the packages of lading have been loaded into the container at the shipper's warehouse.

These collapsible cargo containers are so constructed as to be adapted to be lifted by a harness carried by the forks of a fork lift truck, and the lifting connection from the harness to the container is such that the container is picked up from the top, and the lifting loads are transmitted to the bottom of the container, to enable the container to readily be loaded in a truck on a rail car, or in containers carried by trucks, rail cars or ships, and to be loaded into the freight compartment of air craft in a simple and efficient manner.

The advantages of the present invention are that the container loaded by the shipper and sealed and shipped to its destination retains small shipments for a particular destination together and when unloaded may be collapsed and returned to the shipper, with other collapsed containers, all of which require a minimum amount of space during return.

Another advantage of the invention is in the lightweight, open construction of the container, which may readily be collapsed or extended to a rectangular form, to provide an efficient cargo carrier for truck, rail, ship or air freight shipments.

A further advantage of the invention is in the construction of a container in the form of an open framework, and in the provision of parallel spaced posts supporting the side walls of the container in their upright conditions, and detachably locked to the base of the container, and picked up from their tops by a harness and fork lift truck, and transferring the lifting loads from the side walls of the container to the bottom thereof.

A still further advantage of the invention is that the side walls and cover may be hinged to each other, in such a manner that one side wall may be folded over the cover and biased upwardly with the cover to afford access to the container, and means locking the posts to the base serves to transfer the lifting forces to the base

of the container and to lock the container to the base.

A principal object of the present invention, therefore, it to provide an improved form of lightweight collapsible container sufficiently rugged to contain articles of lading and arranged with a view toward ease in lifting from the top by a conventional lifting device, and transferring the lifting loads to the base of the container.

Other objects, features and advantages of the invention will be readily apparent from the following description of a preferred embodiment thereof, taken in conjunction with the accompanying drawings, although variations and modifications may be effected without departing from the spirit and scope of the novel concepts of the disclosure.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a view in side elevation of a cargo container constructed in accordance with the principles of the present invention, showing a lifting harness locked to the container, in position to pick up the container from the top thereof.

FIG. 2 is an end view of the container and harness shown in FIG. 1.

FIG. 3 is a fragmentary partial transverse sectional view taken through a side wall of the container, illustrating one of the hollow posts, locked to the base of the container at its bottom, and to a harness at the top, and also showing certain details of the side wall of the container.

FIG. 4 is a horizontal sectional view of the container taken substantially along line IV—IV of FIG. 2.

FIG. 5 is a top plan view of the container.

FIG. 6 is a side view of the container with the side walls removed and showing the end walls folded over each other along the base of the container.

FIG. 7 is a top plan view of the lifting harness for the container shown in FIGS. 1 and 2.

FIG. 8 is a fragmentary transverse sectional view taken through the harness.

FIG. 9 is an end view of the harness shown in FIGS. 7 and 8.

FIG. 10 is a plan view of a modified form of the invention showing a hinged cover for the container of the same general construction as the end and side walls of the container.

FIG. 11 is a view in side elevation of the container shown in FIG. 10.

FIG. 12 is an end view of the container shown in FIGS. 1 and 2.

FIG. 13 is a generally transverse sectional view of the container with certain parts broken away and certain other parts shown in transverse section and showing a side wall opened and hinged over the cover for the container to accommodate loading the container from the side.

FIG. 14 is a side view of the folded walls and cover for the container, showing the cover folded over one side wall and the opposite side wall folded over the cover for transportation.

FIG. 15 is a partial fragmentary side view of a modification of the container shown in FIGS. 10 and 14 inclusive, showing a side wall of the container hinged over the cover and showing the cover and side wall raised, and braced in a raised position to facilitate loading from the side of the container.

FIG. 16 is a partial fragmentary side view of still another modification of the container shown in FIG. 15, showing the cover hinged intermediate its ends with the cover and side wall in a closed condition.

FIG. 17 is a partial fragmentary plan view of the container shown in FIGS. 16 and 17; and

FIG. 18 is a partial fragmentary side view of the container shown in FIG. 16, with the cover open and a side wall folded back over the cover to facilitate loading of the container from the side.

DESCRIPTION OF PREFERRED EMBODIMENT OF THE INVENTION

In the form of the invention illustrated in the drawings, I have shown a collapsible cargo container 10 for small articles of lading and of a type adapted to be loaded onto railway cars, trailers, trucks, air craft, ships and the like. I have also shown a harness 11 at the top of the container in position to lift the container by the forks of a fork lift truck, or other lifting apparatus.

The container 10 is shown as comprising a flat grill-like base or bottom 12, preferably made from a lightweight metal such as aluminum and generally rectangular in form. The base 12 is shown in FIGS. 4 and 5 as being formed from flat side end plates 13 and 14 respectively, connected together at the corners of the base as by welding or in any other conventional manner. If desired or required, the base may be mounted on rollers or skids (not shown).

The side plates 13 of the base 12 are connected together intermediate their ends, by intermediate spacer and reinforcement plates 15. Open lightweight gratings 15a are diagrammatically shown in FIGS. 4 and 5 as filling the spaces between the end plates 14 and intermediate plates 15 and between the intermediate plates 15, to complete the bottom of the container.

Mounted on the side plates 13 in centered relation with respect to the intermediate plates 15 are locating and lifting devices shown as being in the form of domes 16. While the domes 16 are shown as semispherical in form, they need not be so formed but may be of any form which will form a centering member for a socket and capable of having the socket locked thereto.

The domes 16 engage within and form locating means for tubular posts 17, extending downwardly along said domes and detachably locked thereto, as by locking pins 19. The lower ends of the posts 17 thus form sockets for the domes 16 and said domes locate and hold said posts in position.

The locking pins 19 may be manually operated pins, each having a handle 20 on the outer end thereof, extending upwardly when the locking pins 19 are in locked positions. Clips 21 are provided to detachably hold said handles in their upright locked positions. Said clips may be spring clips of a conventional construction suitably secured to the posts 17 and extending outwardly therefrom and along the peripheral portions of said posts, a distance sufficient to have yieldable clipping engagement with the handles 20. The posts 17 form supports for side walls 22 of the container shown as being of an open framework construction having flexible cords 23 shown as being diagonally interlaced under tension, between top and bottom frame members 24 and 25 of said side frame members to strengthen the side walls and maintain the cargo thereto. Said cords may be made from any suitable flexible material, such

as a fabric cord or wire and are preferably made from a nylon cord having high tensile strength.

The top and bottom side frame members 24 may be in the form of angle irons and are suitably secured to the posts 17, as by welding or by any other suitable securing means, and are connected together at their ends by end frame members 26 which also may be angle irons. While the top, bottom and end frame members of the side walls are shown as being in the form of angle irons, they may be tubular in form or of various other sections suitable to fabricate a lightweight open side wall for the container.

As shown in FIG. 1, the interlaced cords 23 extend diagonally downwardly from a corner of the side wall and then diagonally upwardly and back and forth to a post 17. Similar cords 23 extend alternately diagonally upwardly and downwardly between the posts and other cords 23 extend from the end post to the remote end frame member 26. The cords are being laced upwardly and downwardly through eyes 18 extending inwardly of the vertical legs of the angles 25 and through eyes 28 extending inwardly of the vertical legs of the angles 24, and are laced through said eyes under tension. Where the articles of lading may be relatively small and it may be considered necessary to protect the container from pilferage, lightweight panels 27 made from a plastic material such as Fiberglas may be placed between the end frame members 26 and posts 17 and between the posts 17 and retained thereto as by flexible cords 29 extending longitudinally of the side wall under tension intermediate the ends thereof and suitably connected between the members 26 and posts 17 and connected between the posts 17. The cords 29 accommodate the insertion of the panels 27 against the tensioned cords 23 to rest on the eyes 18 and resiliently retain said panels thereto.

The base 12 is also shown as having bearing brackets 30 extending upwardly therefrom adjacent one end thereof, and bearing brackets 31 extending upwardly therefrom adjacent the opposite end thereof. The bearing brackets 30 form bearing mountings for pivot pins 32 for an end wall 33 of the container. The bearing brackets 31 form bearing mountings for transverse pivot pins 35 for an opposite end wall 36 of the container. The brackets 31 are higher than the brackets 30 and position the axes of the pivot pins 35 at a greater elevation than the elevation of the axes of the pivot pins 32 to accommodate the end wall 33 to be folded downwardly along the base 12 and the end wall 36 to be folded thereover, as illustrated in FIG. 6, when the container is collapsed for return to its destination.

When the container has reached its destination and is unloaded and returned to its point of shipment, the side walls 22 are removed and the end walls 33 and 36 are folded downwardly along the base 12 in the position shown in FIG. 6. The side walls 22 may be stacked on top of said end walls. The side walls 22 may be clipped or otherwise secured to said end walls 33 and 36 during return to the point of shipment, by suitable clips or other detachable retaining means, which are not herein shown or described since they form no part of the present invention.

The end walls 33 and 36 are each of the same construction, except the end wall 36 is shorter than the end wall 33 due to the difference in elevation between the pivots 32 and 35 of the respective end walls so the same part numbers will be applied to the same parts of each

end wall. The end wall 33 has a tube 40 extending along the bottom thereof having the pivot pins 32 extending from the ends thereof and pivotally carried in the bearing brackets 30.

The opposite end wall 36 has a similar tube 40 extending across the bottom thereof having the pivot pins 35 extending from opposite ends thereof and pivotally mounted in the bearing brackets 31.

As shown in FIGS. 2 and 4 of the drawings, each end wall 33 has tubular side frame members 43, secured to and extending upwardly from the tubular member 40 and connected together at their tops by an angle iron 44 extending beyond opposite sides thereof and over top flanges 45 of the side frame members 24. The angle irons 44 extending over the top flanges 45 of the side frame members 24 may be apertured in registry with similar apertures in the flanges 45 and are shown in FIG. 1 as detachably secured to said flanges by pins 46, to thereby retain the end and side walls in upright positions perpendicular to the base 12 and at right angles with respect to each other to provide a rigid open box-like construction for the container, when in its extended condition. The pins 46 may be retained to the side walls by a suitable flexible retaining means (not shown).

The tubes 40 have eyes 47 spaced therealong and extending upwardly therefrom adapted to have a cord 48, such as nylon cord laced therethrough and to accommodate the alternate diagonal lacing, between the tube 40 and angle irons 44 in a manner similar to which the cords 23 are interlaced across the side walls 22.

A Fiberglas panel (not shown) may be provided for each end wall and about the cords 48 laced under tension between the top and bottom surfaces of said end wall. Like the panels extending along the side walls 22, the Fiberglas panels may be retained to the end walls as by a cord 50, extending across each panel and connected at its opposite ends to eyes 51, extending inwardly of the upright or side frame members 43 of the panels.

When the cargo container has been extended to its rectangular cargo carrying form, and it is desired to protect the container from pilferage, it may be covered by a cover 53, shown in phantom in FIGS. 1 and 2, as having a skirt 54 depending therefrom and extending downwardly along the side and end walls of the container along the outer sides thereof. The cover 53 may be suitably locked to the container and may be sealed by a suitable seal, such as is commonly used to seal freight containers or box-cars, and may also be locked in its closed position.

As shown in FIG. 1, the cover 53 is apertured in alignment with the posts 17, to extend downwardly along the posts 17 into engagement with the angles 24, to accommodate locating domes 55 on the tops of the posts 17 to extend within sockets 56 of the harness 11. Where a cover is used, the pins 46 may be enclosed by the cover to further protect the container from pilferage.

Referring now in particular to the lifting means for picking up the container and loading the container into a box-car, a container carried by a truck or railway car, a ship or the cargo compartment of aircraft, the domes 55 on the tops of the posts 17 fit within the downwardly opening sockets 56 adjacent the corners of the harness, and have holes 57 extending transversely thereacross through which fit inner and outer locking pins 59 and

60 respectively, which also extend through apertured portions 61 in the walls of the sockets 56.

The locking pins 59 and 60 are carried in a cradle 65 slidably guided in the harness 11 for movement transversely thereof. The cradle 65 has an inner locking bar 66, extending longitudinally of the harness and carried on the end of a pressure bar 67 extending transversely of the cradle and gusseted to said inner locking bar as by gussets 69 extending along opposite sides of said pressure bar, and along the inner side of the locking bar 66, and welded or otherwise secured thereto. The locking bar 66 is shown as being in the form of an angle having a plate 70 extending along the vertical leg thereof and depending from the connecting bar 67 into registry with the sockets 56. The locking pins 59 extend outwardly from said plate and may be welded or otherwise secured thereto. Said locking pins are biased to extend into an apertured portion 61 of the wall of the socket 56 to be inserted through the apertured portion 57 of the dome 55 and a diametrically opposed apertured portion 61 in the wall of said socket, as by movement of a fork lift into position to pick up said harness and the container disposed therebeneath. The plate 70 has longitudinally spaced spring sockets 71 opening toward an end wall 72 of the harness. Aligned sockets 73 are carried on the inner side of said end wall in direct alignment with the sockets 71. The aligned sockets 71 and 73 are on each side of the cradle 65 and carry compression springs 75, biasing the locking pins 59 and 60 into their release positions. Angle irons 77 extending inwardly of side frame members 79 of the harness limit retractable movement of the locking pins 59 and 60.

The connecting bar 67, slidably extends through an intermediate plate 80 extending between the end frame members 79 and welded or otherwise secured to said end frame members at its ends, as shown in FIG. 7. The connecting bar 67 also extends through a guide boss 81 extending inwardly of the vertical leg of a side frame member 82 of the cradle, and outwardly therefrom. The connecting bar 67 is shown as extending through a rectangular hollow beam 83 to the outer end thereof and may be welded or otherwise secured thereto. The beam 83 extends in opposite directions from said connecting bar equal distances. The beam 83 has plates 85 extending downwardly along opposite inner end portions thereof, and therebeneath and forming mountings for the locking pins 59 which may extend through and be welded or otherwise secured to said plates.

Disposed beneath the side frame members 72 and 82 and extending across the harness and welded or otherwise secured to horizontal legs of said side frame members are a pair of parallel spaced rectangular hollow members forming fork openings 86, adapted to receive forks 87 of a fork lift truck (not shown), for lifting the harness and cargo container when locked to the domes 55 and transporting the cargo container to a desired location.

When it is desired to lift the container 10, the forks 87 of the fork lift truck may first be inserted in the fork openings 86 and lift and place the harness on the posts 17 with the domes 55 registering with the sockets 56. The forks of the fork lift have upright portions 88 shown in phantom in FIG. 7 as engaging the hollow beam 83. As the fork lift truck is moved toward the container and harness, the beam 83 and connecting bar 67 will move the locking pins 59 and 60 inwardly into locking engagement with the domes 55 against the bias

of the springs 75. The locking pins will be held in locked relation with respect to said domes by the upright portions 88 of the forks 87. The forks will then remain in position to hold the harness locked to the domes 55 during lifting, transporting and lowering of the container.

As the container is placed in a desired location, the fork lift truck will be withdrawn from the harness, a distance sufficient to accommodate the springs 75 to release the locking pins 59 and 60 from the domes 55. The forks 87 may then be elevated to remove the harness from the container and place it on another container for loading this container into a selected cargo carrier.

The harness is not shipped with the container and may be stored at the place of shipment. Other harnesses may be stored at the destination of the containers, or in many cases, it may not be necessary to use the harness at the destination due to the provision of other unloading means, for the containers, such as conveyors or various other forms of mechanisms suitable for loading containers into cargo compartments. The containers, however, when unloaded at their destination may be collapsed in the manner previously mentioned, with the end walls folded flat along the base and the side walls stacked on the top of the end walls and suitably secured thereto.

In the embodiment of the invention illustrated in FIGS. 10 to 14, the container shown is generally of the same construction as that shown in FIGS. 1 to 9, except the cover is hinged to one side wall and the opposite side wall is hinged to the cover to accommodate the side wall to be folded over the cover, to afford access to the container from the side of the container and to accommodate the cover to be folded over one side wall and the opposite side wall to be folded over the cover, when collapsing the container for return to point of shipment. The same part numbers, therefore, will be applied to the same parts as in FIGS. 1 to 9 and a description of the container structure need not be repeated herein except as to differences in construction.

In this form of the invention, a pair of parallel spaced bars 89 extend inwardly of a top frame member or angle iron 24a of a side wall 22a and form pivot mountings for a hinged lid or cover 90, shown as being of an open framework construction similar to the side and end walls of the container. As herein shown, the hinged cover is formed from a pair of parallel spaced side rails 91 in the form of angle irons connected together by end rails 92, which are also in the form of angle irons. Cords 98 are angularly laced across the side rails 91 in alternate relation with respect to each other under tension and may retain a sheet of material, which may be Fiberglas or any other suitable material, to the horizontal legs of the end and side rails 91 and 92. The side rails 92, as shown, rest directly on the top rails 44 of the end walls 33 of the container.

When the container is assembled, side frame members 26a of the side walls 24a of the container extend along the outer sides of the side frame members 43 of the end walls 44 of the container. Lugs or stops 95 extend inwardly of the top rails 24a of the side walls 22a and come into engagement with the insides of the end walls 33, to retain the end walls in the upright positions shown in FIGS. 11, 12 and 13. Similar stops 95 on top rails 24b on opposite side walls 22b engage the insides

of the end walls 33, when said side wall is in position on the base 12.

Hinge bars 96 extend across the top of the cover 90 and are welded or otherwise secured thereto. Said hinge bars have opposite outwardly opening bifurcated end portions. The bifurcated end portions of said hinge bars adjacent the bars 89, extend along opposite sides of said bars and are hinged thereto as by pivot pins 97, to accommodate upward hinging movement of the cover about said pivot pins. The opposite ends of the hinge bars 96 extend along opposite sides of lugs 99 extending upwardly and outwardly of the top rail 24b of an opposite side wall 22b and are hinged thereto as by pivot pins 100. The lugs 99 space the axes of the pivot pins 100 outwardly of the centers of the posts 17 and the top rail 24b, to accommodate upward hinging movement of the cover about the axes of the pivot pins 97 upon release of the locking pins 19, to release the posts 17 from the domes 16 and to then accommodate the entire side wall 22b to be folded over the top of the cover 90, as shown in FIG. 12, to provide an open side and to accommodate the container to be loaded from its side.

It should here be noted that the pivot pins 97 are spaced inwardly of the respective posts 17 a distance sufficient to accommodate upward hinging movement of the cover 90 without interfering with said posts, and that the pivot pins 100 are so spaced with relation to the respective posts 17, as to accommodate the entire side wall and posts to be hinged relative to the lid 90 through an arc of 270° to then rest on the lid 90 for loading.

When it is desired to collapse the container, the side wall 22b is hinged over the cover 90. The locking pins 19 locking the opposite posts 17 to the base 12 are then released and the side walls and cover are lifted from the base 12 to accommodate inward hinging movement of the end walls one on top of the other and to then accommodate the side wall 22b to be folded under the cover 90, as shown in FIG. 14.

The side walls and cover in their folded form may then be placed on top of the end walls, folded to extend along the base and strapped or otherwise secured thereto, and the container in its disassembled form may be returned to its point of shipment.

It may be seen from the foregoing that in the form of the invention just described, the entire container is locked closed when the locking pins 19 lock the posts 17 to the domes 16, and that individual locks and seals (not shown) may be incorporated in the clips 21 to positively lock the posts to the base 13 and thereby prevent an unauthorized individual from having access to the container and its contents.

In the modified form of the invention illustrated in FIG. 15, the container structure is similar to that shown in FIGS. 10 to 14, except braces 101 are shown as pivoted to the cover, intermediate the ends of the cover, to brace the cover and side wall 22b in an open position, to accommodate a person to walk into the container during loading and to more readily accommodate the container for loading by a lift truck and the like.

The braces 101 may be provided on each side of the cover 90 and are pivoted to the side rails 92 of the cover and engage stops 103 spaced along the horizontal legs of the top rails or angles 44 of the end walls 33.

While stops 103 are shown as forming abutments for the braces 101, it should be understood that the brace structure shown is for illustrative purposes only and that the braces may be of various suitable forms and may engage notches or holes extending through the top legs of the angles 44 or may be held in position in any suitable manner.

In FIGS. 16, 17 and 18, I have shown a solid cover 105 hinged intermediate its ends by hinges 106 to accommodate the side wall to be folded over the cover and the cover to be raised to facilitate loading as shown in FIG. 18. In this form of the invention, the cover 105 has a rear cover part 107 and a front cover part 109, hinged to the front cover part by the hinges 106. The front and rear cover parts 107 and 109 have skirts 110 and 111 respectively, extending downwardly along the end walls 33 beneath the top rails 44 thereof.

The rear cover part 107 has spaced bifurcated hinge members 112 welded or otherwise secured thereto and extending rearwardly therefrom, with the furcations thereof opening toward the rear of the container and receiving ears 113 welded or otherwise secured to the top angle 24a of the rear side wall 22a. Hinge pins 115 pivotally connect the ears 113 to the hinge members 112 in outwardly spaced relation with respect to the associated side wall 22a, to accommodate said side wall to be folded under the cover when returning the container to the shipper for reuse. The rear cover section 107 terminates closely adjacent the horizontal leg of the top angle 24a of the side wall 22a and has spaced recesses 116 formed therein to accommodate the domes 55 and posts 17 and to accommodate said rear cover section to be pivoted to pass over said domes where required.

The front cover section 109 likewise has parallel hinge members 117 welded or otherwise secured to the top thereof and projecting forwardly therefrom and bifurcated to receive ears 118 secured to and projecting forwardly of a top rail 24b of the side wall 22b. Hinge pins 119 pivotally connect said hinge members 117 to the ears 118.

The hinge members 117 are placed on the outsides of the domes 55 and the front cover part 109 has recessed portions 121 therein extending partially along the posts 117 when the cover is in its closed position and accommodating pivotal movement of the side wall 22b about the axes of the hinge pins 119 to extend backwardly along the cover 105 when the front cover part 109 is opened about the axes of the hinges 106, as shown in FIG. 18. Braces 122 are pivoted to the skirts 111 to brace the front cover part in an open position and abut stops 123 to hold the cover in the open position shown in FIG. 18. The braces 122, like the braces 101, may be of various suitable forms and said braces and stops therefore are only shown diagrammatically for illustrative purposes.

A suitable width for the container may be in the order of 66 inches and the axes of the hinges 106 may be spaced 26 inches forwardly of the rear wall of the container, to accommodate upward pivotal movement of the forward part 109 of the cover 105 to the extent required to afford free access to the container. This location of the hinges is adequate to accommodate a man to enter the container from the side for loading or to accommodate loading by a lift truck and the like and is sufficiently short that it does not interfere with the loading. The container, however, may be of various

sizes depending upon how the container is to be shipped and the articles to be loaded in the container.

In this last form of the invention, the cover and side wall take up far less vertical height than in the form of the invention shown in FIG. 15 and the cover may be open to varying degrees dependent upon the clearance required for free loading. Also, if desired, the entire cover part 109 may be folded backwardly over the cover part 107 and allow the side wall 24b to depend from said cover part. Clips (not shown) may be provided to clip the braces 122 to the skirts 111 during shipment, when the cover is collapsed or closed.

In these forms of the invention, the entire container is locked by the locking pins 19, which may be sealed and locked in their locked positions, and the container may be lifted by the harness 11 in the same manner as in the forms of the invention illustrated in FIGS. 1 through 9.

It may be seen from the foregoing that the collapsible cargo container just described may be picked up by a harness locked to the top of the container by the forks of a standard fork lift truck, which lifts the harness and container and that the lifting loads are transmitted through the posts 17 to the base of the container. This enables a lightweight collapsible container to be used to carry relatively large quantities of cargo and reduces the expense in handling small shipments by truck, rail, ship and airlines, by retaining the cargo to the relatively small area taken up by the container and protecting the cargo from pilferage during loading, transporting and unloading. The concentration of the small shipments in the container thus materially reduces the expense of transporting the shipments, simplifies shipping and assures that large quantities of small articles of cargo may be safely transported over long distances and reach their destination intact.

The return of the collapsed containers further materially reduces the space which would otherwise be required for returning corrugated board, fiberboard or other containers, and makes it possible to establish shipment bases handling small shipment tonnages, and loading the containers when extended to their rectangular form, transporting the containers loaded with cargo to their destination for distribution by the consignee's personnel and then collapsed and returned to the shipper.

I claim as my invention:

1. In a container for articles of lading and in combination with a lift truck having lift forks,
 - a flat rectangular base,
 - collapsible parallel side and end walls extending upwardly of said base,
 - a plurality of locating members spaced along each side of said base and extending upwardly therefrom,
 - load transferring members extending vertically along said side walls and centered on said locating members,
 - releasable locking means locking said load transferring members to said locating members,
 - a lifting member adapted to be lifted by the forks of the lift truck, and
 - means detachably connecting said lifting member to the upper ends of said load transferring members, for lifting the carrier and transferring the lifting

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loads to said base upon vertical lifting movement of said lifting member.

2. The carrier of claim 1,

wherein the load transferring members are posts, forming the supports for said side walls.

3. The carrier of claim 2, including other locating members mounted on the upper ends of said posts, downwardly opening sockets on said lifting member engaging said other locating members, and locking members on said lifting member having releasable locking engagement with said other locating members to effect the picking up of the container from the top and the transferring of the lifting loads to said base upon upward lifting movement of the forks of the lift truck.

4. The container of claim 3,

wherein the lifting member is in the general form of an open rectangular harness having downwardly opening sockets in the bottom thereof for registry with said other locating members, and having parallel spaced fork openings extending transversely thereof for receiving the forks of a fork lift truck, and

wherein the locking members are moved into locking engagement with said other locating members upon inward movement of the lift truck and forks along said fork openings.

5. The container of claim 4, including

springs biasing said locking members out of engagement with said other locating members, and a common member actuated by the fork lift truck upon movement of the lift truck toward said harness and container, for lockingly engaging said locking members with said other locating members.

6. The container of claim 4,

wherein the locking members are in the form of parallel locking pins on the inside and the outside of said harness,

parallel spaced inner and outer locking bars extending longitudinally of said harness, each carrying a pair of said parallel spaced locking pins,

a connecting bar extending transversely of said harness and connecting said locking bars for movement together, means slidably supporting and guid-

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ing said connecting bar for movement transversely of said harness, the outer of said locking bars, being on the outside of said harness and spaced from the outer wall thereof a distance sufficient to accommodate locking engagement of said pins with said locating members, upon abutting engagement of the lift fork therewith, as the forks extend inwardly along said fork openings.

7. The container of claim 6, including springs seated on said harness adjacent the inner locking bar, and seated on said inner locking bar to bias said locking pins out of engagement with said locating members.

8. A system of handling small articles of lading comprising the steps of providing a series of collapsible containers,

a lift harness for the containers,

a fork lift truck for lifting each individual harness,

each container having a flat base,

parallel side end walls collapsible to be stacked on said base,

a plurality of locking members extending along each side of said base and upwardly therefrom,

load transferring members supporting said side walls in vertical positions and centered on said locating members,

releasable locking means locking said load transferring members to said locating members,

other locating members extending upwardly of said load transferring members and side walls and adapted to locate the harness relative to the container,

locking members actuated by the forks of a fork lift for detachably locking said harness to said other locating members, including the steps of extending the container to a rectangular form,

filling the container with articles of lading, covering and sealing the container,

locking the harness to the container by the forks of a fork lift truck,

picking up the container by the lift harness from the top of the container and transferring the lifting forces to the bottom of the container as placing the container in a cargo transporting compartment.

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