are shipped by rail, stopping and starting of railcars may result in adjacent containers contacting, impacting and/or otherwise exerting forces on one another.

[0006] To provide the strength required to withstand such pressures as well as stacking loads and other loads associated with, e.g., handling by forklifts, many commercial shipping containers have a relatively heavy steel construction, and as a result their weight may be a significant percentage of their capacity. For example, a Goodpack MB5 intermediate bulk container that is capable of carrying a payload of about 1,650 kg. or 3,637 lbs. in commercial use may have a tare weight of about 126 to 136 kg., or 280 to 300 lbs. There is a continuing interest in providing new and improved shipping containers that provide similar functionality to existing commercial containers but with decreased tare weight.

[0007] Collapsible shipping containers often include a bar code label, RFID tag, or other means to facilitate tracking by providing a unique, machine readable identifier for each container. In some cases, labels or tags can be difficult to access, e.g., for containers at the top of a five-high stack. Such labels and tags can also be subject to damage or wear due, e.g., to impacts with or abrasion by forklift tines, other containers. There is a need for improvement in this area as well.

Summary

[0007a] According to a first aspect of the present invention, there is provided a collapsible, stackable cargo unit having an erected configuration in which the cargo unit may define an enclosed interior, and a collapsed configuration in which the cargo unit may be stored and transported compactly, the cargo unit comprising:

a generally rectangular base having a front, a rear and two sides, with forklift slots on its front, rear and each side;

front and rear walls extending upward from the base;

first and second side walls extending upward from the base between the front and rear walls, the first side wall having a length greater than the second side wall;

a first lid member that includes a hinged edge hingedly attached to the first side wall; and

a second lid member that includes a hinged edge hingedly attached to the second side wall,

wherein each of the first and second lid members includes a free edge opposite its hinged edge, and wherein the first lid member is larger than the second lid member, with a dimension between its hinged edge and its free edge being larger than a corresponding dimension of the second lid member, each of the lid members is permanently attached to the respective side wall, and capable of pivoting through a 270° arc between a generally horizontal closed position in which the free ends of the lid members are adjacent one another, and a generally vertical open position in which the lid member hangs against an outside surface of its associated side wall,

wherein in a collapsed configuration, the first lid member is rotated to rest on the first side wall the second lid member is generally coplanar with the second side wall.

[0007b] According to a second aspect of the present invention, there is provided a double cargo unit having an erected configuration in which the cargo unit may define an enclosed interior, and a collapsed configuration in which the cargo unit may be stored and transported compactly;

the double cargo unit comprising a pair of similar individual cargo units joined to one another;

each of the individual cargo units comprising, when in erected configuration:

a generally rectangular base having four sides, with forklift slots on at least three sides;

first, second and third upstanding walls extending upward from the base to define a three sided enclosure and an open side;

an integrated lid hingedly attached to one or more of the walls; and

the individual cargo units being joined together at their open sides,

wherein the integrated lid of each individual cargo unit comprises a first lid member that includes a hinged edge hingedly attached to the first wall, and a second lid member that includes a hinged edge hingedly attached to a second wall,

wherein each of the first and second lid members includes a free edge opposite its hinged edge, and wherein the first lid member is larger than the second lid member, with a dimension between its hinged edge and its free edge being larger than a corresponding dimension of the second lid member, each of the lid members is permanently attached to the respective side wall, and capable of pivoting through a 270° arc between a generally horizontal closed position in which the free ends of the lid members are adjacent one another, and a generally vertical open position in which the lid member hangs against an outside surface of its associated side wall,

wherein in a collapsed configuration, the first lid member is rotated to rest on the first side wall the second lid member is generally coplanar with the second side wall.

[0007c] According to a third aspect of the present invention, there is provided a method of unloading and collapsing a collapsible, stackable cargo unit having an erected configuration in which the cargo unit defines an enclosed interior, and a collapsed configuration in which the cargo unit may be stored and transported compactly, the cargo unit comprising a generally rectangular base having a front, a rear and two sides, with forklift slots on its front, rear and each side; front and rear walls extending upward from the base; first and second side walls extending upward from the base between the front and rear walls; locking mechanisms that are capable of holding the cargo unit in its erected configurations; and a two-piece integrated lid that is in a generally horizontal position when the cargo unit is in its erected configuration, comprising:

(a) opening first and second lid members by pivoting each lid member through an arc of about 270° about a hinge that connects it to a respective one of the first and second side walls to a generally vertical open position in which the lid member hangs against an outside surface of its associated side wall, wherein the first lid member is larger than the second lid member, with a dimension between a hinged edge and a free edge being larger than a corresponding dimension of the second lid member, each of the lid members is permanently attached to the respective side wall;

(b) removing cargo from the cargo unit;

(c) releasing locking mechanisms on the front wall, and pivoting the front wall downward and inward about a pivotable connection to the base through an arc of about 90° so that it rests on the base;

(d) releasing locking mechanisms on the rear wall, and pivoting the rear wall downward and inward about a pivotable connection to the base through an arc of about 90° so that it rests on the base, with the pivotable connection comprising an upwardly extending slot on the base that permits upward movement of the pivotable connection of the rear wall to the base, and with the side walls remaining upright, supported by base corner posts;

(e) pivoting a first side wall downward and inward about a pivotable connection to the base through an arc of about 90° so that it rests on the base, with the pivotable connection comprising an upwardly extending slot on the base that permits upward movement of the pivotable connection of the first side wall to the base;

(f) pivoting a second side wall downward and inward about a pivotable connection to the base through an arc of about 90° so that it rests on the base, with the pivotable connection comprising an upwardly extending slot on the base that permits upward movement of the pivotable connection of the second side wall to the base; and

(g) pivoting the second lid member through an arc of about 180° about the hinge that connects it to the second side wall so that the second lid member rests on the first lid member rather than the second lid member, thereby reducing the height of the collapsed cargo unit.

[0008] Disclosed herein is a collapsible, stackable cargo unit having an erected configuration in which the cargo unit may define an enclosed interior, and a collapsed configuration in which the cargo unit may be stored and transported compactly. The cargo unit comprises a generally rectangular base having a front, a rear and two sides, with forklift slots on its front, rear and each side; front and rear walls extending upward from the base; first and second side walls extending upward from the base between the front and rear walls; and an integrated lid hingedly attached to one or more of the front, rear and side walls.

[0009] In some embodiments, all four walls are fully removable.

[00010] In some embodiments, the integrated lid comprises a first lid member that includes a hinged edge hingedly attached to the first side wall, and a second lid member that includes a hinged edge hingedly attached to the second side wall. In some embodiments, each of the first and second lid members includes a free edge opposite its hinged edge, wherein the first lid member is larger than the second lid member, with a dimension between its hinged edge and

CLAIMS

What is claimed is:

1. A collapsible, stackable cargo unit having an erected configuration in which the cargo unit may define an enclosed interior, and a collapsed configuration in which the cargo unit may be stored and transported compactly, the cargo unit comprising:

a generally rectangular base having a front, a rear and two sides, with forklift slots on its front, rear and each side;

front and rear walls extending upward from the base;

first and second side walls extending upward from the base between the front and rear walls, the first side wall having a length greater than the second side wall; ~~and~~

~~an integrated lid hingedly attached to one or more of the front, rear, and side walls~~

a first lid member that includes a hinged edge hingedly attached to the first side wall; and

a second lid member that includes a hinged edge hingedly attached to the second side wall,

wherein each of the first and second lid members includes a free edge opposite its hinged edge, and wherein the first lid member is larger than the second lid member, with a dimension between its hinged edge and its free edge being larger than a corresponding dimension of the second lid member, each of the lid members is permanently attached to the respective side wall, and capable of pivoting through a 270° arc between a generally horizontal closed position in which the free ends of the lid members are adjacent one another, and a generally vertical open position in which the lid member hangs against an outside surface of its associated side wall,

wherein in a collapsed configuration, the first lid member is rotated to rest on the first side wall the second lid member is generally coplanar with the second side wall.

2. The cargo unit of claim 1 wherein the base includes a first fixed upright wall adjacent to the first side wall and a second fixed upright wall adjacent to the second side wall, wherein the second fixed upright wall extends a greater height than the first fixed upright wall.

~~3. The cargo unit of claim 1 wherein the integrated lid comprises a first lid member that includes a hinged edge hingedly attached to the first side wall, and a second lid member that includes a hinged edge hingedly attached to the second side wall.~~

~~4. The cargo unit of claim 1 wherein in a collapsed configuration, the first lid member is rotated to rest on the first side wall the second lid member is generally coplanar with the second side wall.~~

~~5. The cargo unit of claim 4 wherein each of the first and second lid members includes a free edge opposite its hinged edge, and wherein the first lid member is larger than the second lid member, with a dimension between its hinged edge and its free edge being larger than a corresponding dimension of the second lid member.~~

~~6~~3. The cargo unit of claim ~~5~~1 wherein each lid member has a first handle extending outward over the front wall, and a second handle extending outward over the rear wall.

~~7. The cargo unit of claim 6 wherein each of the lid members is permanently attached to a side wall, and is capable of pivoting through a 270° arc between a generally horizontal closed position in which the free ends of the lid members are adjacent one another, and a generally vertical open position in which the lid member hangs against an outside surface of its associated side wall.~~

~~8~~4. The cargo unit of claim ~~7~~1 wherein the front wall comprises releasable locking mechanisms that are capable of locking the cargo unit in erected configuration.

~~9~~5. The cargo unit of claim ~~8~~4 wherein the front wall comprises a lower front wall and an upper front wall pivotably connected thereto, wherein the lower front wall includes locking mechanisms, the upper front wall includes locking mechanisms, and when the cargo unit is in its

erected configuration, the upper front wall may be either (1) locked in an upright configuration associated with a fully closed condition of the cargo unit, or (2) unlocked and folded outward and down through an arc of about 180° to hang against an outer surface of the lower front wall while the lower front wall remains locked in place to partially open the cargo unit and facilitate access to the interior.

~~10~~6. The cargo unit of claim ~~9~~5 wherein each of the front, rear and side walls is fully removable from the base.

~~11~~7. The cargo unit of claim ~~10~~6 wherein each of the base and walls comprises a metal frame, and one or more sheets of metal welded or otherwise attached to the frame.

~~12~~8. The cargo unit of claim ~~10~~6 wherein one or more of the base and walls comprises a unitary, one-piece stamped primary member incorporating integral structural contours to provide strength and rigidity.

~~13~~9. The cargo unit of claim 1 wherein the cargo unit is made of galvanized steel, and has a tare weight of about 80 to 90 kg.

~~14~~10. A double cargo unit having an erected configuration in which the cargo unit may define an enclosed interior, and a collapsed configuration in which the cargo unit may be stored and transported compactly;

the double cargo unit comprising a pair of similar individual cargo units joined to one another;

each of the individual cargo units comprising, when in erected configuration:

a generally rectangular base having four sides, with forklift slots on at least three sides;

first, second and third upstanding walls extending upward from the base to define a three sided enclosure and an open side;

an integrated lid hingedly attached to one or more of the walls; and

the individual cargo units being joined together at their open sides,

wherein the integrated lid of each individual cargo unit comprises a first lid member that includes a hinged edge hingedly attached to the first wall, and a second lid member that includes a hinged edge hingedly attached to a second wall,

wherein each of the first and second lid members includes a free edge opposite its hinged edge, and wherein the first lid member is larger than the second lid member, with a dimension between its hinged edge and its free edge being larger than a corresponding dimension of the second lid member, each of the lid members is permanently attached to the respective side wall, and capable of pivoting through a 270° arc between a generally horizontal closed position in which the free ends of the lid members are adjacent one another, and a generally vertical open position in which the lid member hangs against an outside surface of its associated side wall,

wherein in a collapsed configuration, the first lid member is rotated to rest on the first side wall the second lid member is generally coplanar with the second side wall.

~~15. The double cargo unit of claim 14 wherein the integrated lid of each individual cargo unit comprises a first lid member that includes a hinged edge hingedly attached to the first wall, and a second lid member that includes a hinged edge hingedly attached to a second wall.~~

~~16~~11. The double cargo unit of claim ~~15~~10 wherein the first upstanding wall of one of the individual cargo units comprises a lower front wall and an upper front wall pivotably connected thereto, wherein the lower front wall includes locking mechanisms, the upper front wall includes locking mechanisms, and when the double cargo unit is in its erected configuration, the upper front wall may be either (1) locked in an upright configuration associated with a fully closed condition of the cargo unit, or (2) unlocked and folded outward and down through an arc of about 180° to hang against an outer surface of the lower front wall while the lower front wall remains locked in place to partially open the cargo unit and facilitate access to the interior.

~~17~~12. The double cargo unit of claim ~~16~~11 wherein each of the upstanding walls is fully removable from the base.

~~18~~13. The double cargo unit of claim ~~17~~12 wherein each of the base and upstanding walls comprises a metal frame, and one or more sheets of metal welded or otherwise attached to the frame.

~~19~~14. The double cargo unit of claim ~~18~~13 wherein each of the base and walls comprises a unitary, one-piece stamped primary member incorporating integral structural contours to provide strength and rigidity.

~~20~~15. A method of unloading and collapsing a collapsible, stackable cargo unit having an erected configuration in which the cargo unit defines an enclosed interior, and a collapsed configuration in which the cargo unit may be stored and transported compactly, the cargo unit comprising a generally rectangular base having a front, a rear and two sides, with forklift slots on its front, rear and each side; front and rear walls extending upward from the base; first and second side walls extending upward from the base between the front and rear walls; locking mechanisms that are capable of holding the cargo unit in its erected configurations; and a two-piece integrated lid that is in a generally horizontal position when the cargo unit is in its erected configuration, comprising:

(a) opening first and second lid members by pivoting each lid member through an arc of about 270° about a hinge that connects it to a respective one of the first and second side walls to a generally vertical open position in which the lid member hangs against an outside surface of its associated side wall, wherein the first lid member is larger than the second lid member, with a dimension between a hinged edge and a free edge being larger than a corresponding dimension of the second lid member, each of the lid members is permanently attached to the respective side wall;

(b) removing cargo from the cargo unit;

(c) releasing locking mechanisms on the front wall, and pivoting the front wall downward and inward about a pivotable connection to the base through an arc of about 90° so that it rests on the base;

(d) releasing locking mechanisms on the rear wall, and pivoting the rear wall downward and inward about a pivotable connection to the base through an arc of about 90° so that it rests

on the base, with the pivotable connection comprising an upwardly extending slot on the base that permits upward movement of the pivotable connection of the rear wall to the base, and with the side walls remaining upright, supported by base corner posts;

(e) pivoting a first side wall downward and inward about a pivotable connection to the base through an arc of about 90° so that it rests on the base, with the pivotable connection comprising an upwardly extending slot on the base that permits upward movement of the pivotable connection of the first side wall to the base;

(f) pivoting a second side wall downward and inward about a pivotable connection to the base through an arc of about 90° so that it rests on the base, with the pivotable connection comprising an upwardly extending slot on the base that permits upward movement of the pivotable connection of the second side wall to the base; and

(g) pivoting the second lid member through an arc of about 180° about the hinge that connects it to the second side wall so that the second lid member rests on the first lid member rather than the second lid member, thereby reducing the height of the collapsed cargo unit.