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Convertible, collapsible and reusable shipping crate

Abstract

The present invention generally relates to a convertible, collapsible and reusable shipping crate. The crate is convertible in that the same base can used with extendable gates or fixed gates to ship equipment of differing heights, lengths, and wheel bases. At least one end of the crate may operate as a gate on a hinge for the loading and unloading of motorized vehicles. The hinge is comprised of a slotted plate on each side to lock the gates into place for loading and to raise the gates upright once loading is completed. The slotted plate positions the gates in an upright, locked position to carry all the weight on the upright beams of the gate, rather than the hinges, thereby allowing multiple crates to be stacked. The slotted plates also allow each of the two gates to collapse inward and flat on the base for stacking during return. The gates, optional cross braces, and slotted plates all contain removable pins as connectors so that no hand tools are required for setup, operation, and breakdown of the crate. The crate is reusable many times.

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Background/Summary

FIELD OF THE INVENTION

(1) The present invention generally relates to reusable shipping crate and, more particularly, to a convertible, collapsible and reusable shipping crate for use with shipping motorized vehicles.

BACKGROUND OF THE INVENTION

(2) Most motorized vehicles are shipped using wood crates that are simply discarded after use. Metal crates are ironically a greener solution because they can be reused many times. Returning these metal crates is, however, very expensive.

(3) Metal crates are also difficult to adjust for a variety of differently sized vehicles and, therefore, generally prevent use for more than one purpose. Adjustable crates could resolve this deficiency in the prior art.

(4) Metal crates generally require the use of tools to assemble, open, close, stack, and breakdown. A crate that would allow a user to assemble, use, and breakdown without the use of hand tools would be beneficial.

(5) Prior art metal crates do not contain hinges that would allow one side of the crate to operate as a loading gate. A metal crate that would open one side as a gate with a heavy-duty hinge would be beneficial. Hinges are generally not heavy duty, however. If the hinge can be made so as to transfer the vertical load to the vertical frame members, that would be beneficial and allow stacking of multiple crates.

(6) What is needed is a metal crate that can be reused multiple times. While wood crates might

seem to be a cheaper and greener solution than metal crates, the opposite is true.

(7) Metal crates may be used multiple times, often with nothing more than minor repairs, making them far cheaper and greener over their lifespan.

(8) What is needed is a metal crate that can be adjusted for use with many different types and sizes of motorized vehicles. Generally metal crates avoid adjustability because adjustable portions are often too weak to support the heavy use for shipping heavy motorized vehicles. What's worse is trying to stack metal crates with adjustable portions. A metal crate that can be easily adjusted would be beneficial to a manufacturer shipping multiple types and sizes of vehicles.

(9) What is needed is a metal crate that can be assembled, used, adjusted, and broken down for return without the need for hand tools. Crates that require hand tools generally take far longer to setup and use. Tools may or may not be available in any event.

(10) What is needed is a metal crate that can be broken down easily and stored in a smaller vertical height for return shipping. Most metal crates cannot be folded or otherwise shipped in any state other than fully assembled or fully disassembled with many loose parts. A metal crate with little to no loose parts that can fold onto itself to allow for space efficient stacking would be beneficial.

(11) An object of the present invention is to provide a metal shipping crate that may be reused multiple times to avoid the use of wood, which is not generally reusable for shipping crates.

(12) An object of the present invention is to provide a metal shipping crate that is adjustable so as to allow users to ship multiple sizes, shapes, and types of cargo.

(13) An object of the present invention is to provide a metal shipping crate that may be assembled, setup, used, adjusted, and broken down without the need for hand tools.

(14) An object of the present invention is to provide a metal shipping crate that may be folded while assembled to minimize storage space when not in use and when stacked for return to the manufacturer for reuse.

SUMMARY OF THE INVENTION

(15) The present invention accomplishes the foregoing object by providing a collapsible, convertible and reusable shipping crate that may be reused multiple times to avoid the use of wood, plastic or other materials, which are not generally reusable for shipping crates.

(16) The present invention accomplishes the foregoing object by providing a collapsible, convertible and reusable shipping crate that is adjustable so as to allow users to ship multiple sizes, shapes, and types of cargo.

(17) The present invention accomplishes the foregoing object by providing a collapsible, convertible and reusable shipping crate that may be assembled, setup, used, adjusted, and broken down for return without the need for hand tools.

(18) The present invention accomplishes the foregoing object by providing a collapsible, convertible and reusable shipping crate that may be folded while assembled to minimize storage space when not in use and when stacked for return to the manufacturer for reuse.

(19) The present invention provides a collapsible, convertible and reusable shipping crate, comprising: three rectangular frames comprised of a multiplicity of perpendicularly connected members bound together, wherein each of said three rectangular frames are fastened together perpendicularly to form an enclosure comprising a base, first gate and second gate; wherein said first gate and said second gate are connected to opposing ends of said base by a hinged connector that allows each of said first gate and second gate to pivot from substantially parallel to substantially perpendicular to said base; wherein said hinged connector comprises a slotted locking plate disposed upon each of its distal ends, said slotted locking plate configured to allow one of said first gate and said second gate to lock into place when pivoted to the substantially parallel position and when pivoted to the substantially perpendicular position, so that any weight placed upon the opposite end of said first gate and said second gate will be transferred to said base through at least two of said multiplicity of perpendicularly connected members within one of said first gate and said second gate; and a multiplicity of connectors to connect said base, first gate and second

gate, without the use of hand tools.

(20) In another aspect of the invention, the reusable, collapsible shipping crate may optionally be configured wherein said base, first gate, and second gate may each pivot so that said base, first gate, and second gate may be folded into a parallel stack without the use of hand tools.

(21) In another aspect of the invention, the reusable, collapsible shipping crate may optionally be configured to contain a side brace for diagonally connecting one of said three rectangular frames to another of said three rectangular frames.

(22) In another aspect of the invention, the reusable, collapsible shipping crate may optionally be configured wherein the hinged connector is of sufficient strength to allow the loading of a motorized vehicle while one of said first gate and second gate are pivoted to a position substantially parallel to said base.

(23) In another aspect of the invention, the reusable, collapsible shipping crate may optionally be configured wherein said multiplicity of perpendicularly connected members bound together are of sufficient strength so to support the weight of one or more additional collapsible shipping crates stacked thereon.

(24) In another aspect of the invention, the reusable, collapsible shipping crate may optionally be configured wherein said multiplicity of perpendicularly connected members bound together contain a multiplicity of connection holes so as to allow adjustment of the lengths of the various multiplicity of perpendicularly connected members bound together.

(25) In another aspect of the invention, the reusable, collapsible shipping crate may optionally be configured wherein said multiplicity of perpendicularly connected members bound together that comprise said first gate are extendable so as to lengthen said first gate.

(26) In another aspect of the invention, the reusable, collapsible shipping crate may optionally be configured wherein said multiplicity of perpendicularly connected members bound together that comprise said second gate are extendable so as to lengthen said second gate.

(27) In yet another aspect of the invention, a method is provided to use a collapsible, convertible and reusable shipping crate comprising: three rectangular frames comprised of a multiplicity of perpendicularly connected members bound together, wherein each of said three rectangular frames are fastened together perpendicularly to form an enclosure comprising a base, first gate and second gate; wherein said first gate and said second gate are connected to opposing ends of said base by a hinged connector that allows each of said first gate and second gate to pivot from substantially parallel to substantially perpendicular to said base; wherein said hinged connector comprises a slotted locking plate disposed upon each of its distal ends, said slotted locking plate configured to allow one of said first gate and said second gate to lock into place when pivoted to the substantially parallel position and when pivoted to the substantially perpendicular position, so that any weight placed upon the opposite end of said first gate and said second gate will be transferred to said base through at least two of said multiplicity of perpendicularly connected members within one of said first gate and said second gate; and a multiplicity of connectors to connect said base, first gate and second gate, without the use of hand tools.

(28) The method is optionally performed wherein said base, first gate, and second gate may each pivot so that said base, first gate, and second gate may be folded into a parallel stack without the use of hand tools.

(29) The method is also optionally performed wherein said collapsible, reusable shipping crate further comprises a side brace for diagonally connecting one of said three rectangular frames to another of said three rectangular frames.

(30) The method is also optionally performed wherein said hinged connector is of sufficient strength to allow the loading of a motorized vehicle while one of said first gate and second gate are pivoted to a position substantially parallel to said base.

(31) The method is also optionally performed wherein said multiplicity of perpendicularly connected members bound together are of sufficient strength so to support the weight of one or

more additional collapsible, reusable shipping crates stacked thereon.

(32) The method is also optionally performed wherein said multiplicity of perpendicularly connected members bound together contain a multiplicity of connection holes so as to allow adjustment of the lengths of the various multiplicity of perpendicularly connected members bound together.

(33) The method is also optionally performed wherein said multiplicity of perpendicularly connected members bound together that comprise said first gate are extendable so as to lengthen said first gate.

(34) The method is also optionally performed wherein said multiplicity of perpendicularly connected members bound together that comprise said first gate are extendable so as to lengthen said second gate.

(35) The method is also optionally performed wherein said multiplicity of perpendicularly connected members bound together that comprise said first gate and said second gate are fixed-length.

(36) The method is also optionally performed wherein said multiplicity of perpendicularly connected members bound together that comprise said base further comprise an adjustable wheel chock for shipping motorized vehicles with a multiplicity of wheel base sizes.

Description

DESCRIPTION OF THE DRAWINGS

(1) The invention will be more readily understood with reference to the following specification in conjunction with the drawings herein:

(2) FIG. 1 is a diagonal view of a convertible, collapsible and reusable shipping crate according to a preferred embodiment of the invention.

(3) FIG. 2A is a diagonal view of a pivoting gate used in a convertible, collapsible and reusable shipping crate according to a preferred embodiment of the invention, where the pivoting gate is in the upright position.

(4) FIG. 2B is a diagonal view of a pivoting gate used in a convertible, collapsible and reusable shipping crate according to a preferred embodiment of the invention, where the pivoting gate is in the loading position.

(5) FIG. 2C is a diagonal view of a pivoting gate used in a convertible, collapsible and reusable shipping crate according to a preferred embodiment of the invention, where the pivoting gate is in the return shipping position.

(6) FIG. 3A is a diagonal view of a convertible, collapsible and reusable shipping crate according to a preferred embodiment of the invention, where the pivoting gates are in the loading position.

(7) FIG. 3B is a diagonal view of a convertible, collapsible and reusable shipping crate according to a preferred embodiment of the invention, where the pivoting gates are in the upright shipping position.

(8) FIG. 3C is a diagonal view of a convertible, collapsible and reusable shipping crate according to a preferred embodiment of the invention, where the pivoting gates are in the folded return shipping position.

(9) FIG. 4 is a diagonal view of an adjustable gate used in a convertible, collapsible and reusable shipping crate according to a preferred embodiment of the invention.

(10) FIG. 5A is a side view of a three stacked convertible, collapsible and reusable shipping crates according to a preferred embodiment of the invention.

(11) FIG. 5B is a side view of a chain locking mechanism used for stacking convertible, collapsible and reusable shipping crates according to a preferred embodiment of the invention.

(12) FIG. 6 is a diagonal view of a base used in a convertible, collapsible and reusable shipping

crate according to a preferred embodiment of the invention.

(13) FIG. 7A is a diagonal view of a convertible, collapsible and reusable shipping crate according to a preferred embodiment of the invention, where the pivoting gates are in the loading position.

(14) FIG. 7B is a diagonal view of a convertible, collapsible and reusable shipping crate according to a preferred embodiment of the invention, where the pivoting gates are in the upright shipping position.

(15) FIG. 7C is a diagonal view of a convertible, collapsible and reusable shipping crate according to a preferred embodiment of the invention, where the pivoting gates are in the folded return shipping position.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

(16) Referring now to FIG. 1, a convertible, collapsible and reusable shipping crate **100** is illustrated according to a preferred embodiment of the invention. Three rectangular frames comprised of a multiplicity of perpendicularly connected members are bound together to form an enclosure comprising a base **10**, first gate **20** and second gate **30**. The multiplicity of perpendicularly connected members are preferably comprised of metal tubing as illustrated in FIG. 1. Each of first gate **20** and second gate **30** are connected on opposing ends to base **10** with a heavy-duty hinge that allows first gate **20** and second gate **30** to pivot from a substantially perpendicular position to substantially parallel position to base **10** in two directions. In this manner, first gate **10** and second gate **20** may be raised or lowered to load a motorized vehicle for shipment, and later folded inward for return shipping. The hinge is comprised of two slotted locking plates **50** affixed to each distal end of first gate **20** and second gate **30**.

(17) One or more diagonal braces **60** may be used to further stiffen the enclosure in the upright position. Because the invention is designed for assembly and breakdown without the use of hand tools, diagonal braces **60** would be preferably connected with a standard locking pin on each distal end, rather than nuts and bolts.

(18) Referring now to FIG. 2A, slotted locking plate **50** is illustrated in more detail according to a preferred embodiment of the invention. Pins **51** and **52** are affixed to hold slotted locking plate **50** in place on each end of a first and second gate. Pin **51** is removable so that slotted locking plate **50** may pivot on pin **52**. By contrast, pin **52** is not designed to be easily removable. Pin **52** is preferably a bolt with a locknut that cannot be removed without hand tools. The same configuration for slotted locking plate **50**, pin **51** and pin **52** is preferably used on the opposite gate also, where for example first gate **20** from FIG. 1 uses a mirrored version of the same configuration as second gate **30**.

(19) As shown in FIGS. 2A, 2B, and 2C, these pins operate within L-shaped groove **55** to allow the gate to be raised and lowered for the loading and unloading of motorized vehicles and to fold the gate flat for return shipping. Importantly, when the gate is in the raised position, slotted locking plate **50** allows the upright members **53** on each end of the gate to transfer all of the load from the upper portions of upright members **53** to the base **10**, rather than to pins **51** and **52**. In this manner, multiple shipping crates **100** can be safely stacked for shipping, where all of the load is carried by the multiplicity of perpendicularly connected members bound together to form base **10**, first gate **20**, and second gate **30**, rather than pins **51** and **52**.

(20) FIG. 2B illustrates slotted locking plate **50** in the lowered position for loading motorized vehicles. Pin **51** has been removed and the gate has been lowered to the loading position by pivoting slotted locking plate **50** on pin **52**.

(21) FIG. 2C illustrates slotted locking plate **50** in the return shipping position. Again, pin **51** has been removed and now the gate has been folded inward to lie parallel on top of base **10**, by pivoting the gate on pin **52**. In this manner, both first gate **20** second gate **30** may be folded inward onto base **10** to reduce the overall size of shipping crate **100** for return shipping after the motorized vehicle is removed.

(22) Operation of slotted locking plate **50** is further illustrated in FIGS. 3A, 3B, and 3C. FIG. 3A

shows first gate **20** and second gate **30** in the lowered position for the loading or unloading of motorized vehicle **110**, in this case a riding lawn mower. At least two of the multiplicity of perpendicularly connected members bound together to form second gate **30**, illustrated here as members **31** and **32**, may be used to create a loading ramp when second gate **30** is lowered as shown.

(23) FIG. **3B** indicates first gate **20** and second gate **30** in the raised and locked position for the shipment of the motorized vehicle. Diagonal braces **60** are now affixed to fasten first gate **20** and second gate **30** to base **10** for additional strength. Each diagonal brace **60** consists of a length of rigid material, preferably metal, with a pin hole in each distal end. Rather than nuts, bolts, screws and the like, removable pins are inserted into each of these pin holes and then through holes in the matching locations on each of first gate **20**, second gate **30**, and base **10**, as shown. In this manner, no hand tools are required to load and unload a motorized vehicle for shipment. Moreover and preferably, no hand tools are required for any setup, use, or return shipment of shipping crate **100**.

(24) When motorized vehicle **110** has been removed from shipping crate **100** after shipping, as shown in FIG. **3C**, shipping crate **100** may then be folded into a smaller footprint for return shipping. The removable pins used to connect one or more diagonal braces **60**, if used, are removed. Pin **51**, not illustrated here, may then be removed. First gate **20** and second gate **30** are then pivoted on pins **52** and folded into a parallel position on top of base **10** as shown. In this manner, shipping crate **100** is collapsible. A multitude of shipping crates **100** may be stacked into a single load for return shipping to reduce shipping costs. In this manner, shipping crate **100** is reusable many times.

(25) A preferred embodiment of the shipping crate of the present invention is also adjustable for use with a variable sized payload. As shown in FIG. **4**, at least two of the multiplicity of perpendicularly connected members bound together to form first gate **20**, for example, may be extendable as with extendable members **21** and **22** in the upper portion of first gate **20**. A series of holes **23** are present in extendable members **21** and **22**, that match with a series of holes **24** in the lower portion of first gate **20**. Extendable members **21** and **22** insert into the slightly larger members in the lower portion of first gate **20** as shown. Once the desired length of first gate **20** is reached, two or more removable locking pins **25** are inserted into the matching points through holes **23** and **24** to lock extendable members **21** and **22** into place.

(26) Shipping crate **100** may also be stacked for shipping multiple motorized vehicles in a single shipment as shown in FIG. **5A**, where three zero-turn-mowers (ZTR) are stacked in three shipping crates **101**, **102**, and **103**, according to a preferred embodiment of the invention. FIG. **5B** illustrates a preferred means of binding each of the three shipping crates together when stacked using chain **56** and hook **57**. In a preferred embodiment of the invention, each shipping crate has a hook **57** on the lower portion of each base, along with a chain **56** on the upper portion of gates **20** and **30**.

When stacked and pin **51** is inserted as shown, chain **56** on crate **101** may be fastened to hook **57** on crate **102**, on each of the four corners. The same may be done to fasten crate **102** to crate **103**.

(27) In some cases, an entirely different type of motorized vehicle or other cargo may need to be shipped using shipping crate **100**. If, for example a ZTR needs to be shipped, rather than a tractor-style riding mower, shipping crate **100** is also convertible. Prior art metal shipping crates are single-type-use only, meaning they can only be used to ship a single, specific type of motorized vehicle with a defined length, width and weight. One aspect of the present invention, however, is that base **10** is easily reconfigurable to accept a variety of different motorized vehicles.

(28) In a preferred embodiment of the invention, shipping crate **100** is convertible as follows. As shown in FIG. **6**, the tire chock location is adjustable using removable chocks **200**, which fits into chock adjustment bases **210**. The user may simply remove chocks **200** and place them into a different slots within adjustment bases **210** as illustrated to allow for a shorter or longer wheel base vehicle.

(29) Because other motorized vehicles may also be shorter or longer, such as a ZTR compared to a

tractor mower, first gate **20** and second gate **30** may be converted from adjustable as shown in FIG. **4**, to fixed length as shown in FIGS. **7A**, **7B**, and **7C**. This is often necessary so as to allow gates **20** and **30** to fold for return shipping as shown in FIG. **7C**. This elimination of adjustability in this new converted configuration may also provide additional strength to shipping crate **100** as may be needed to ship heavier motorized vehicles.

(30) The invention has been described with reference to the preferred embodiments without limit thereto. Additional embodiments and improvements may be realized which are not specifically set forth herein but which are within the scope of the invention as more specifically set forth in the claims appended hereto.

Claims

1. A collapsible, convertible and reusable shipping crate, comprising: three rectangular frames comprised of a multiplicity of connected members bound together, wherein said three rectangular frames are fastened together to form an enclosure comprising a base, first gate and second gate; wherein said first gate and said second gate are connected to opposing ends of said base by a hinged connector that allows each of said first gate and second gate to pivot from substantially parallel to substantially perpendicular to said base; wherein said hinged connector comprises a slotted locking plate configured to allow one of said first gate and said second gate to lock into place when pivoted to the substantially parallel position and when pivoted to the substantially perpendicular position, so that any weight placed upon said first gate and said second gate will be transferred to said base through at least two of said multiplicity of connected members within one of said first gate and said second gate; a multiplicity of connectors to connect said base, first gate and second gate, without the use of hand tools.
2. The collapsible, reusable shipping crate of claim 1, wherein said base, first gate, and second gate may each pivot so that said base, first gate, and second gate may be folded into a parallel stack without the use of hand tools.
3. The collapsible, reusable shipping crate of claim 1, further comprising a side brace for diagonally connecting one of said three rectangular frames to another of said three rectangular frames.
4. The collapsible, reusable shipping crate of claim 1, wherein said hinged connector is of sufficient strength to allow the loading of a motorized vehicle while one of said first gate and second gate are pivoted to a position substantially parallel to said base.
5. The collapsible, reusable shipping crate of claim 1, wherein said multiplicity of perpendicularly connected members bound together are of sufficient strength so to support the weight of one or more additional collapsible, reusable shipping crates stacked thereon.
6. The collapsible, reusable shipping crate of claim 1, wherein said multiplicity of perpendicularly connected members bound together contain a multiplicity of connection holes so as to allow adjustment of the lengths of the various multiplicity of perpendicularly connected members bound together.
7. The collapsible, reusable shipping crate of claim 1, wherein said multiplicity of perpendicularly connected members bound together that comprise said first gate are extendable so as to lengthen said first gate.
8. The collapsible, reusable shipping crate of claim 1, wherein said multiplicity of perpendicularly connected members bound together that comprise said second gate are extendable so as to lengthen said second gate.
9. The collapsible, reusable shipping crate of claim 1, wherein said multiplicity of perpendicularly connected members bound together that comprise said first gate and said second gate are fixed-length.
10. The collapsible, reusable shipping crate of claim 1, wherein said multiplicity of perpendicularly

connected members bound together that comprise said base further comprise an adjustable wheel chock for shipping motorized vehicles with a multiplicity of wheel base sizes.

11. A collapsible, convertible and reusable shipping crate, comprising: three rectangular frames comprised of a multiplicity of connected members bound together, wherein each of said three rectangular frames are fastened together to form an enclosure comprising a base, first gate and second gate; wherein said first gate and said second gate are connected to opposing ends of said base by a hinged connector that allows each of said first gate and second gate to pivot from substantially parallel to substantially perpendicular to said base; wherein said multiplicity of connected members bound together that comprise said first gate are extendable so as to lengthen said first gate; wherein said multiplicity of connected members bound together that comprise said second gate are extendable so as to lengthen said second gate; wherein said hinged connector comprises a slotted locking plate configured to allow one of said first gate and said second gate to lock into place when pivoted to the substantially parallel position and when pivoted to the substantially perpendicular position, so that any weight placed upon said first gate and said second gate will be transferred to said base through at least two of said multiplicity of connected members within one of said first gate and said second gate; a multiplicity of connectors to connect said base, first gate and second gate, without the use of hand tools.

12. The collapsible, reusable shipping crate of claim 11, wherein said base, first gate, and second gate may each pivot so that said base, first gate, and second gate may be folded into a parallel stack without the use of hand tools.

13. The collapsible, reusable shipping crate of claim 11, further comprising a side brace for diagonally connecting one of said three rectangular frames to another of said three rectangular frames.

14. The collapsible, reusable shipping crate of claim 11, wherein said hinged connector is of sufficient strength to allow the loading of a motorized vehicle while one of said first gate and second gate are pivoted to a position substantially parallel to said base.

15. The collapsible, reusable shipping crate of claim 11 wherein said multiplicity of perpendicularly connected members bound together are of sufficient strength so to support the weight of one or more additional collapsible, reusable shipping crates stacked thereon.

16. The collapsible, reusable shipping crate of claim 11, wherein said multiplicity of perpendicularly connected members bound together contain a multiplicity of connection holes so as to allow adjustment of the lengths of the various multiplicity of perpendicularly connected members bound together.

17. A method of using a collapsible, convertible and reusable shipping crate, comprising the steps of: providing three rectangular frames comprised of a multiplicity of perpendicularly connected members bound together, wherein each of said three rectangular frames are fastened together to form an enclosure comprising a base, first gate and second gate; wherein said first gate and said second gate are connected to opposing ends of said base by a hinged connector that allows each of said first gate and second gate to pivot from substantially parallel to substantially perpendicular to said base; wherein said hinged connector comprises a slotted locking plate configured to allow one of said first gate and said second gate to lock into place when pivoted to the substantially parallel position and when pivoted to the substantially perpendicular position, so that any weight placed upon said first gate and said second gate will be transferred to said base through at least two of said multiplicity of connected members within one of said first gate and said second gate; and providing a multiplicity of connectors to connect said base, first gate and second gate, together without the use of hand tools.

18. The method of using a collapsible, convertible and reusable shipping crate, according to claim 17, wherein said base, first gate, and second gate may each pivot so that said base, first gate, and second gate may be folded into a parallel stack without the use of hand tools.

19. The method of using a collapsible, convertible and reusable shipping crate, according to claim

- 17, wherein said collapsible, reusable shipping crate further comprises a side brace for diagonally connecting one of said three rectangular frames to another of said three rectangular frames.
20. The method of using a collapsible, convertible and reusable shipping crate, according to claim 17, wherein said hinged connector is of sufficient strength to allow the loading of a motorized vehicle while one of said first gate and second gate are pivoted to a position substantially parallel to said base.
21. The method of using a collapsible, convertible and reusable shipping crate, according to claim 17, wherein said multiplicity of perpendicularly connected members bound together are of sufficient strength so to support the weight of one or more additional collapsible, reusable shipping crates stacked thereon.
22. The method of using a collapsible, convertible and reusable shipping crate, according to claim 17, wherein said multiplicity of perpendicularly connected members bound together contain a multiplicity of connection holes so as to allow adjustment of the lengths of the various multiplicity of perpendicularly connected members bound together.
23. The method of using a collapsible, convertible and reusable shipping crate, according to claim 17, wherein said multiplicity of perpendicularly connected members bound together that comprise said first gate are extendable so as to lengthen said first gate.
24. The method of using a collapsible, convertible and reusable shipping crate, according to claim 17, wherein said multiplicity of perpendicularly connected members bound together that comprise said second gate are extendable so as to lengthen said second gate.
25. The method of using a collapsible, convertible and reusable shipping crate, according to claim 17, wherein said multiplicity of perpendicularly connected members bound together that comprise said first gate and said second gate are fixed-length.
26. The method of using a collapsible, convertible and reusable shipping crate, according to claim 17, wherein said multiplicity of perpendicularly connected members bound together that comprise said base further comprise an adjustable wheel chock for shipping motorized vehicles with a multiplicity of wheel base sizes.
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