

- [54] **CARGO CONTAINER**
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49/463; 49/466
- [51] Int. Cl.² **B65D 87/00**
- [58] Field of Search **220/1.5, 4 F, 22, 4 R;**
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210, 46

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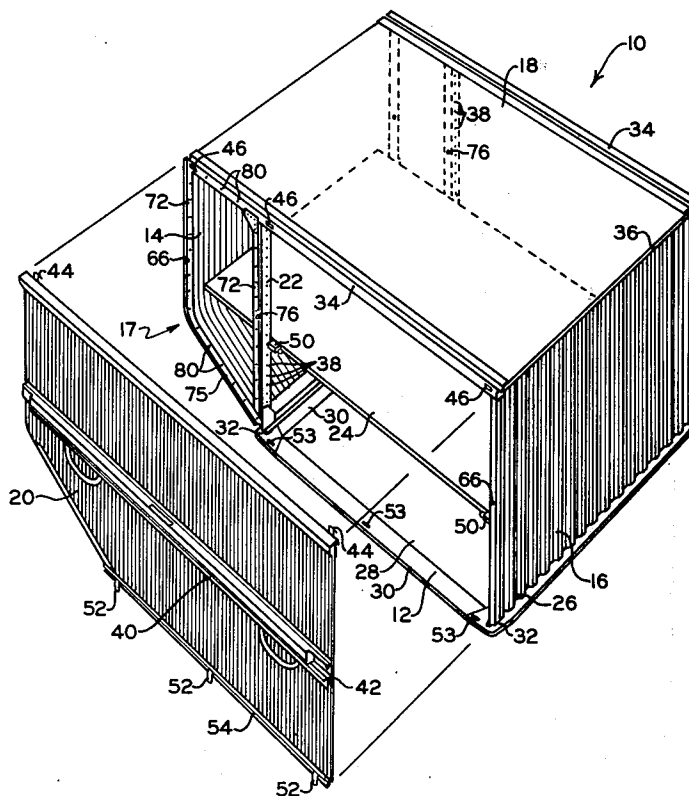
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Attorney, Agent, or Firm—Oldham & Oldham

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[57] **ABSTRACT**
 A cargo container is presented which is adaptable to implement any of numerous options while maintaining a basic structural concept. Fundamentally, the invention comprises a cargo container of the type having a cubicle construction with a trapezoidal end section at one end thereof. Various provisions are made in the basic framework such that a full width door may be utilized or a square door in combination with a sealed trapezoidal end section may be utilized. Regardless of what type of structure is incorporated, the basic framework of the cargo container remains the same. Further provisions are made for the implementation of disinsection louvers for spraying the interior of the container without having to open the same.

7 Claims, 5 Drawing Figures



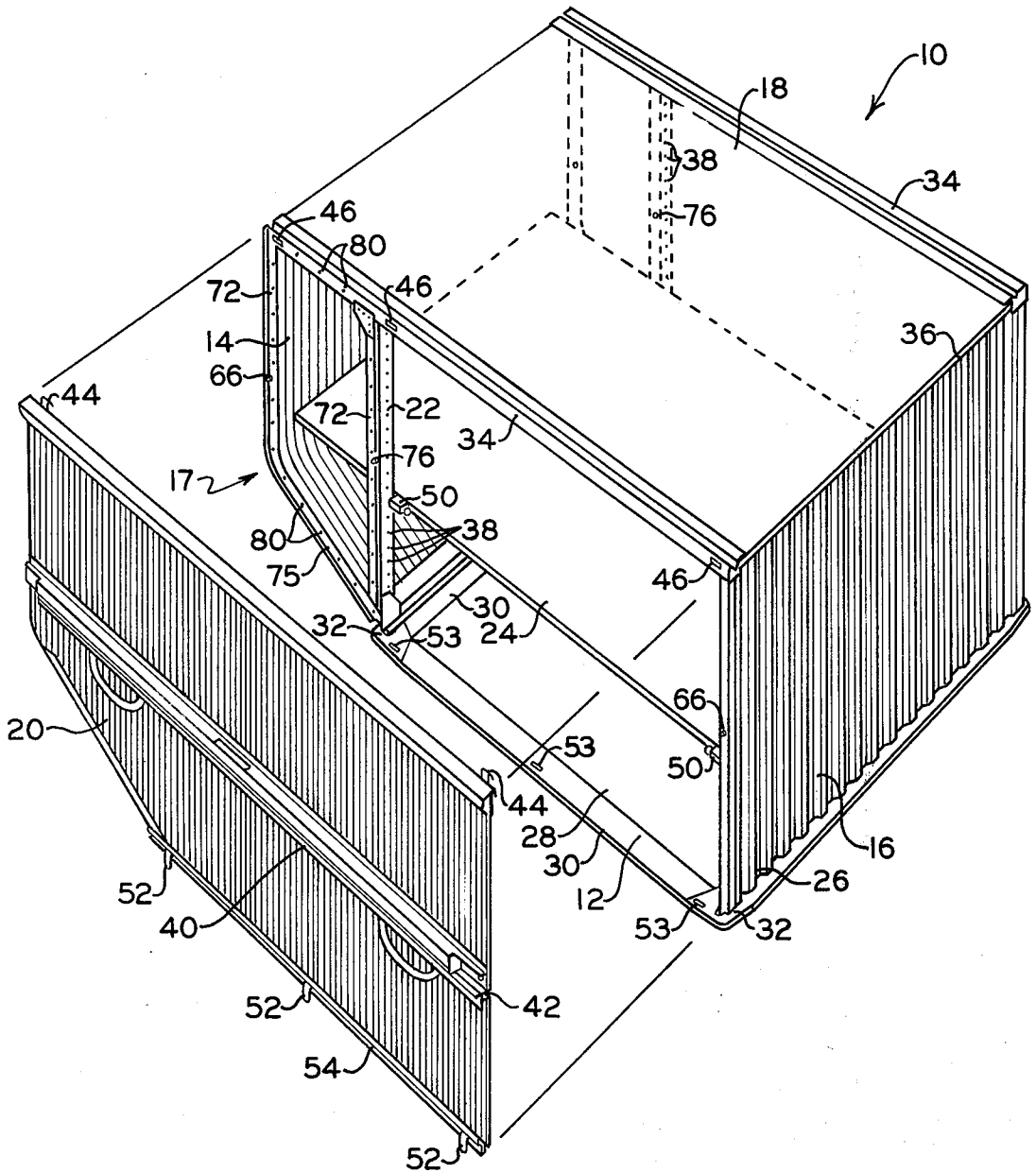


FIG-1

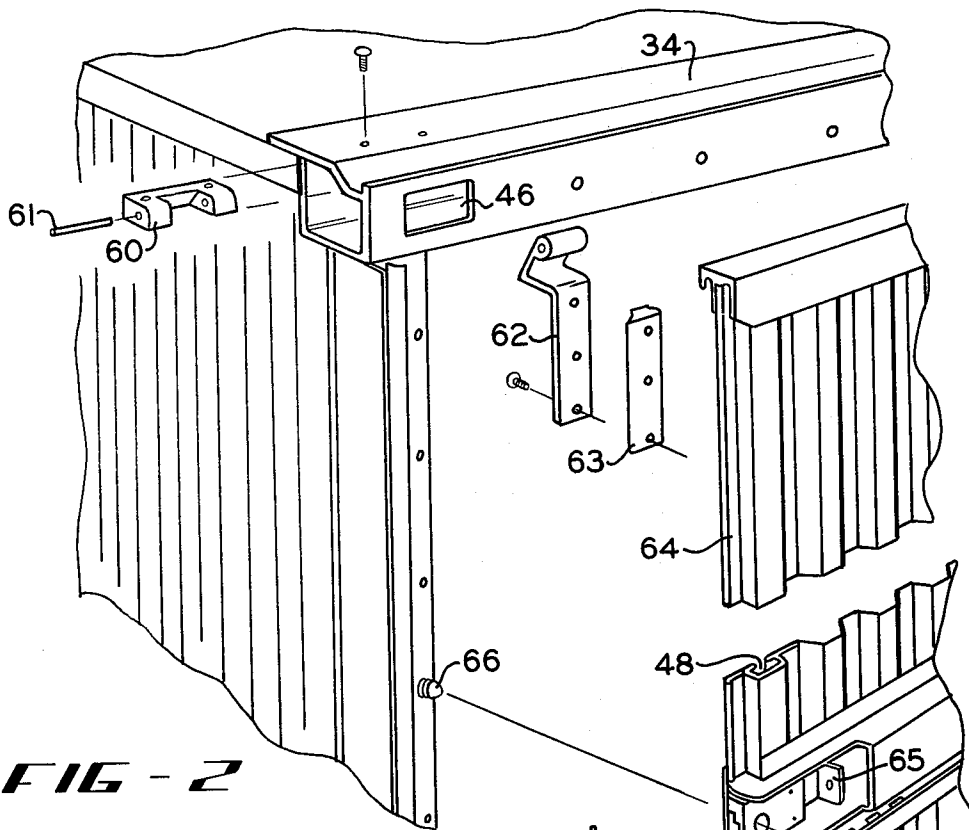


FIG - 2

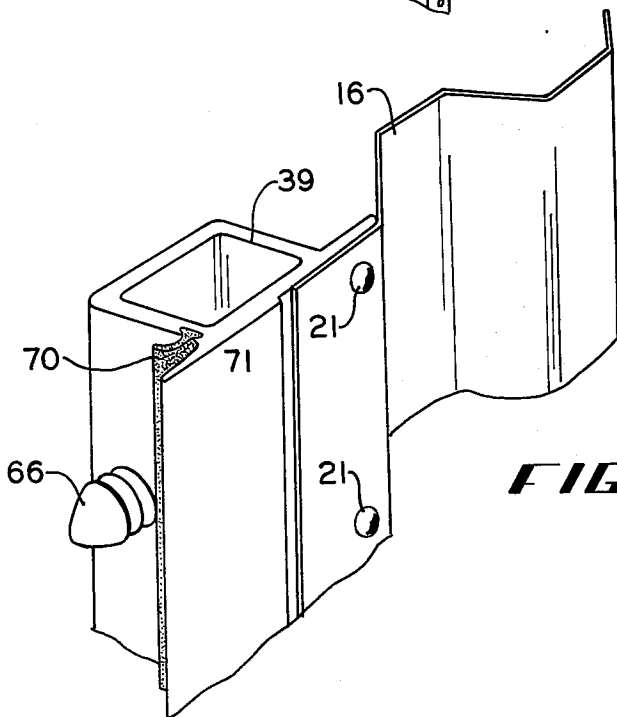


FIG - 3

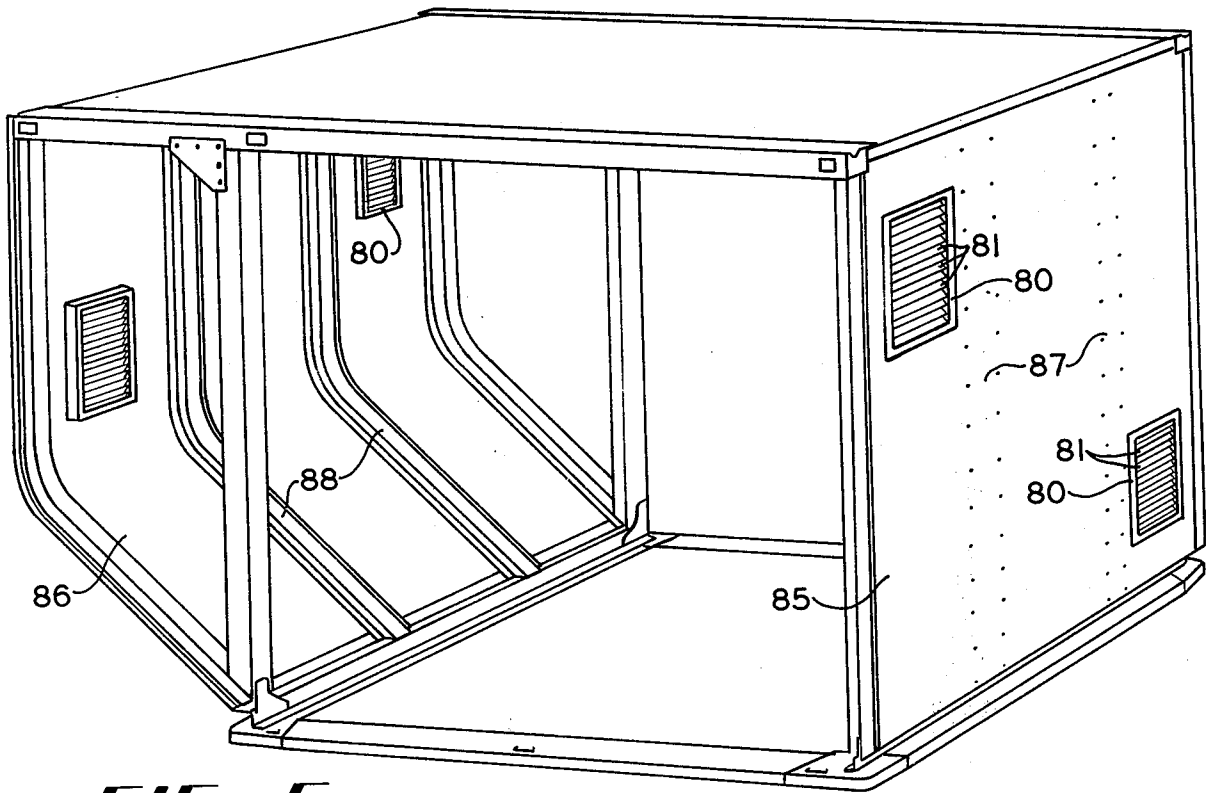


FIG - 5

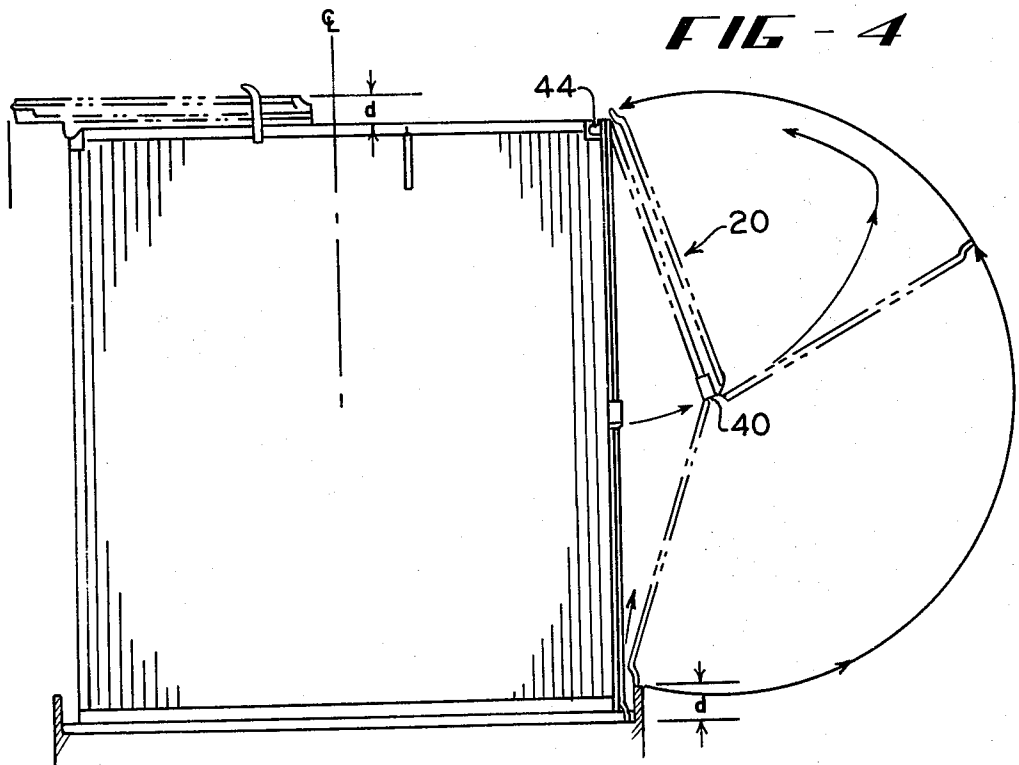


FIG - 4

CARGO CONTAINER

BACKGROUND OF THE INVENTION

Heretofore various types of cargo containers have been known and utilized in the air transport industry. Cargo containers having the same basic structural characteristic are satisfactory to meet the needs of any of various users. However, many of the individual users have their own particular options, add-ons, or alterations so as to make the basic cargo container best adapted for achieving their particular purposes. It is most desirable that a single cargo container be constructed so as to have basic structural characteristics required by all users and adaptable to implement any of numerous changes so as to satisfy the specific requirements of each of the various users.

Consequently, it is an object of the instant invention to present a cargo container having a basic structural design satisfactory for use on any of numerous aircraft.

Yet another object of the invention is to present a structurally basic cargo container wherein provisions are made for options, add-ons, and other variations on the basic theme of the structure so as to provide a flexible and adaptable unit.

These objects and other objects which will become apparent as the detailed description proceeds are achieved by the improvement in a cargo container having a base, a top, and end panels interconnecting the base and top, comprising: a header interconnecting the end panels and top and having a plurality of hinge receiving slots therein; a vertical beam perpendicularly interconnecting the top and base and having a latch stud receiving hole, weather seal receiving groove, and a plurality of securing means receiving holes therein; edge members connected to each vertical edge of each of the end panels, each edge member having a latch stud receiving hole and a weather seal receiving groove therein and the edge member nearest said vertical beam having a plurality of securing means receiving holes therein; and a door hung by hinges received in less than all of the header hinge receiving slots, and sealing against weather seals received in less than all of the weather seal receiving grooves present and securedly engaging with latch studs received in less than all of the stud receiving holes present.

For a thorough understanding of the objects and structure of the invention reference should be had to the following detailed description and accompanying drawings wherein:

FIG. 1 is an elevational view of the basic structure of the invention utilizing full width doors and showing one thereof removed from the basic structure;

FIG. 2 is a segmented view of an end section of the cargo container showing the functional relationship between the door and framework of the cargo container;

FIG. 3 is a sectional view of end panel and edge member showing the stainless steel door latch and weather seal utilized therewith;

FIG. 4 is an end view of the cargo container showing the manipulation and storage of the doors thereof; and

FIG. 5 is an illustrative showing of a cargo container utilizing flat sheet end construction and having louvers therein for disinsection.

Referring now to the drawings and more particularly FIG. 1, it can be seen that the basic structure of the invention is designated generally by the numeral 10. As can be seen, the basic structure of the cargo container

10 comprises a base 12, end panels 14, 16 and a top 18. The top 18 is preferably of a corrugated aluminum construction having a thin aluminum sheet placed thereover to present a flat surface for facilitating the removal of snow and ice. The top is preferably rivetted fore and aft to extruded aluminum beams constituting the headers 34. The inboard and outboard end panels 14, 16 are flangedly connected to the top 18 at 36.

The basic structure 10 is operatively sealed at the fore and aft sides thereof by means of full width doors 20. The doors 20 are preferably of a two piece corrugated metal construction reinforced along the full width thereof by a center beam extrusion 42 and hingedly interconnected along the entire width thereof by the continuous stainless steel hinge 40. The hinge 40 allows the door to be effectively folded in half before being stowed atop the cargo container as discussed hereinafter.

Vertical posts 22 are presented fore and aft of the cargo container and interconnect the headers 34 with the base 12. The vertical posts 22 are preferably of an extruded aluminum construction and provide rigid vertical stability to the structure. As is seen in FIG. 1, a trapezoidal end section, designated generally by the numeral 17, is defined by the vertical posts 22, the headers 34 and the end panel 14. Thus the cargo container storage section overhangs the base 12 by an amount defined by the trapezoidal section 17.

A full width adjustable shelf 24 is interposed in parallel relationship between the base 12 and the top 18. Spring loaded quick release pins 50, connected to the shelf 24, provide for securing engagement of the shelf 24 with the cargo container framework so as to maintain the shelf in a preselected fixed position. Shelf 24 is cantilevered into the trapezoidal end section as shown in FIG. 1.

In accordance with the preferred construction of the cargo container of the invention, a clearance is provided at 26 between the bottom of the corrugations of the end panel 16 and the base 12. The clearance provides for air vents whereby rapid decompression of the cargo container may be achieved in accordance with safety standards.

The base 12 of the cargo container 10 preferably comprises a center section 28 which is a sandwiched panel of aluminum clad balsa wood. The sandwiched panel 28 is substantially closed about the periphery thereof by means of the aluminum extrusion rails 30 which are riveted or otherwise fixedly secured thereto. Four corner sections 32 of cast construction are riveted to the sandwiched panel 28 and rails 30 to complete the base construction. Any of the sections 28, 30 or 32 may be removed and replaced as wear or damage so dictate.

The vertical posts 22 have positioned therealong a plurality of holes 38 spaced in one inch increments for receiving the quick release pins 50 securing the adjustable shelf 24. Similar holes 38 are spaced along vertical edge members 39 which are fixedly attached to the fore and aft ends of the end panel 16.

As can be seen in FIG. 1 and is better illustrated in FIG. 2, the header 34 contains hinge receiving slots 46 therealong for securing the door 20 to the container framework. As can be seen, the hinge assembly designated generally by the numeral 44 in FIG. 1 comprises a header plate 60 fixedly attached to the header 34, a door plate 62 passing through slot 46 and retained in the header plate 60 by means of the hinge pin 61, and

a nylon slide 63 fixedly secured to the plate 62. The slide 63 is adapted to be received into the track 48 presented in extruded edge members 64 at each side of the upper section of the door 20. As can be seen in FIG. 4, the doors 20 are adaptable to be lifted upward and outwardly so as to disengage the blades 52 from the slots 53, be folded about the continuous hinge 40, pivoted about the hinge assembly 44, and then slid atop the cargo container by means of the slide and track 62, 63, 48. Thus it can be seen that the doors associated with the cargo container of the invention are low profile in that they extend above the cargo container a minimum amount of distance, preferably four inches, and overhang the front of the cargo container a second minimal distance of approximately seven inches. It should be briefly noted that the base engaging blades 52 depend from an extruded edge member 54 running the length of the bottom of the door 20.

As can best be seen in FIG. 2, a slide latch assembly 65 is positioned at each end of the center beam extrusion 42 for securing the upper and lower portions of the door 20 to the cargo container. The slide latch assembly 65 is adapted to make securing engagement with a stainless steel stud 66. The slide 65 and stud 66 are similar in nature to those described in U.S. Pat. No. 3,752,520. It should be readily apparent then that to seal the doors 20 into engagement with the cargo container 10, the door sections are unfolded along the continuous hinge 40, the blades 52 are engaged with the slots 53, and the upper and lower sections are forced into flush alignment along the door opening of the container at which time the slides 65 are caused to engage their respective studs 66.

FIG. 3 shows a sectional view of a portion of the vertical edge member 39 as the same is engaged with the corrugated end panel 16 by means of rivets 21. As can be seen, a weather seal 70 is securely engaged along the length of the extruded edge member 39 by means of a bead and groove engagement 71. A similar weather seal 70 is presented along the bottom of the door 20 to make weather tight engagement with the base of the cargo container.

As is shown in FIG. 1, grooves 72 are presented not only along the edge members 39, but also down the full length of the vertical posts 22, and along the extruded edge members 75 about the trapezoidal end section. It should also be noted that each of these members also includes drilled holes 76 for receiving the stainless steel stud 66 associated with the slide latches 65. It should also be noted that there are provided along the headers 34 three hinge receiving slots 46. There is also presented around the periphery of the trapezoidal end section 17 a plurality of predrilled holes 80. The provision of the holes 80, and the multiplicity of the holes 76 and slots 46 provide for a particularly unique attribute of the instant invention. The provision of such duplicity and multiplicity of elements allows the basic structure of the invention to be utilized with either a full width door or a single door extending only from the vertical post 22 to the extruded edge member 72 of the end panel 16; in the latter case the trapezoidal section would be covered by means of a trapezoidal end panel of flat aluminum sheet riveted or otherwise securedly attached by means of the holes 80. If such a configuration is desired then the hinges of the door are affixed to the slots 46 presented in the headers 34 above the center posts 22 and the edge members 39. In such a

case, the weather seals 17 of the invention will be placed in the grooves 72 provided in the posts 22 and the edge members 39 and similarly, the holes 76 thereof will have affixed thereto the door latch studs 66.

If it is desirable that a full width door be utilized then the hinges of the door will be affixed to the slots 46 at each end of the headers 34 and the grooves of the edge members 75 and 39 will receive the weather seal and similarly the holes 76 of those respective edge members will receive the stainless steel studs 66. The holes 76 and grooves 72 of the posts 22 and the holes 80 about the trapezoidal end sections 17 will be present but not used when the cargo container employs a full width door 20. It should be apparent however that mass production and rapid assembly can be achieved by pre-drilling all of the cargo containers alike and then utilizing those holes and slots as are necessary depending upon the particular desired options.

As is shown in FIG. 5, another of the options available with the basic structure of the invention is the utilization of dissection louvers on the end panels of the cargo container. These louvers, designated generally by the numeral 80, provide for weather retardant ventilation systems such that insecticide may be sprayed therethrough and into the contents of the cargo container to kill any insects which might be housed within the container. As can be seen, the vanes 81 of the louvers 80 are angled in a downward direction thus preventing the entry of rain water even in the most violent of storms. As can be seen, when the dissection louver option is incorporated, the end panels 85, 86 are not of the corrugated aluminum construction but are rather of a flat aluminum sheet construction so as to provide for easy adaptation of the louver assemblies. When the flat aluminum sheet is utilized for the end panels, it is necessary to include straight stiffeners 87 with the end panel 85 and angled stiffeners 88 at the end panel 86 to reinforce the relative strengths thereof.

Regardless of the utilization of the louver option or the flat aluminum sheet construction of the end panels, the basic structure of the cargo container remains the same and the predrilling of the elements thereof remain consistent and readily adaptable to mass production techniques.

While in accordance with the patent statutes only the best mode and preferred embodiment of the invention have been presented and described in detail, it is to be understood that the invention is not limited thereto or thereby. Consequently, for an appreciation of the scope and breadth of the invention reference should be had to the appended claims.

What is claimed is:

1. In a cargo container having a base, a top parallel to the base, and end panels interconnecting the top and base at opposite ends thereof, the improvement comprising:

an extruded header beam interconnecting the two end panels and top and having at least three hinge receiving slots spaced therealong;

a number of hinges less than the number of slots received in certain of said slots and engaging a door pivotally suspended from the header;

a vertical beam interconnecting the top and base and defining a trapezoidal panel with the top and an end panel, each of the end panels having an extruded edge member connected to each vertical

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edge thereof, the vertical beam and one of the edge members having a plurality of holes therein for receiving and securing an end panel of trapezoidal shape thereover;

wherein the vertical beam and extruded edge members each have latch stud holes therein and wherein less than all of the latch stud holes receive studs therein; and

wherein the vertical beam and extruded edge members each have a groove therein running the entire length thereof, the grooves being adapted to receive weather sealing strips therein and less than all of the grooves receiving such strips.

2. The improvement in a cargo container as recited in claim 1 wherein the door is a full-width door extending the entire width between the two end panels, the extruded edge members receiving weather sealing strips and latch studs therein and the header receiving hinges in the two slots thereof closest to each end of the header.

3. The improvement in a cargo container as recited in claim 1 wherein a trapezoidal panel is secured to the vertical beam and one of the vertical edge members and wherein the door extends between the vertical beam and the other edge members and makes sealing engagement with weather sealing strips received within the grooves thereof and is operative to latch with studs received in the latch stud holes thereof.

4. The improvement in a cargo container as recited in claim 1 wherein each of said end panels has at least one disinsection louver therein to provide cross ventilation to the interior of the cargo container and to receive gaseous spray therethrough.

5. In a cargo container having a base, a top, and end

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panels interconnecting the base and top, the improvement comprising:

a header interconnecting the end panels and top and having a plurality of hinge receiving slots therein; a vertical beam perpendicularly interconnecting the top and base and having a latch stud receiving hole, weather seal receiving groove, and a plurality of securing means receiving holes therein;

edge members connected to each vertical edge of each of the end panels, each edge member having a latch stud receiving hole and a weather seal receiving groove therein and the edge member nearest said vertical beam having a plurality of securing means receiving holes therein; and

a door hung by hinges received in less than all of the header hinge receiving slots, and sealing against weather seals received in less than all of the weather seal receiving grooves present and securedly engaging with latch studs received in less than all of the stud receiving holes present.

6. The improvement in a cargo container as recited in claim 5 wherein a trapezoidal panel is secured to the vertical beam and one of the edge members by means of the securing means receiving holes and wherein the door extends from the vertical beam to the other edge member, the door being laterally hinged about the vertical center thereof and adaptable to be folded in half before being stowed atop the cargo container.

7. The improvement in a cargo container as recited in claim 5 wherein the door extends between both edge members and wherein the holes and groove of the vertical beam remain unpopulated.

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