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[21] Appl. No. **781,859**
[22] Filed **Dec. 6, 1968**
[45] Patented **Aug. 10, 1971**
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[54] **CONTAINER**
16 Claims, 29 Drawing Figs.

[52] U.S. Cl..... **220/1.5,**
220/4, 220/10, 220/83, 220/84

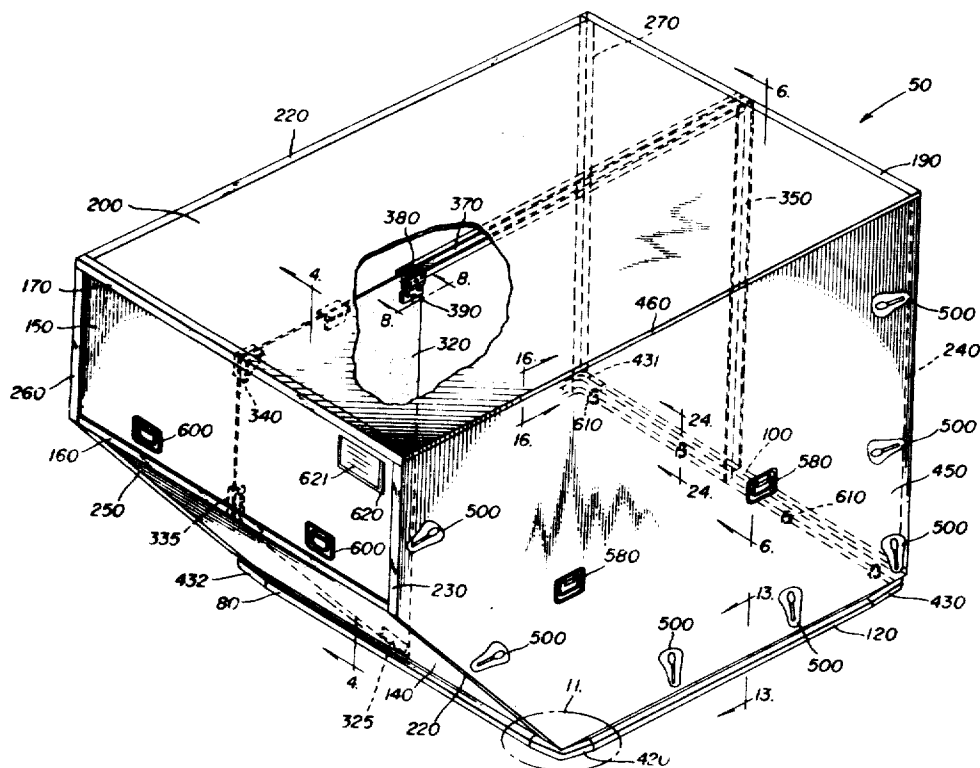
[51] Int. Cl..... **B65d 87/00**

[50] Field of Search..... 220/1.5, 84,
4, 10, 15, 83; 161/161

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ABSTRACT: There is disclosed a container adapted to be carried in an airplane and used to transport either cargo or baggage, the container comprising a plurality of panels, a plurality of frame members removably interconnecting the panels, each of the panels including a pair of spaced-apart sheet metal walls and a body of rigid cellular construction therebetween, a rigidifying panel and a set of stiffeners removably mounted in the container, a door removably mounted in the container by means of a hinge mechanism, a plurality of latching mechanisms in the door for engaging keeper structure in the container and being constructed to prevent inadvertent opening and subsequent removal of the door, handles housed by the door for removing the door from the container and including venting ports, a bumper mounted on the base panel of the container and extending therearound to protect the container from damage, and removable shelves in the container separated one from the other.



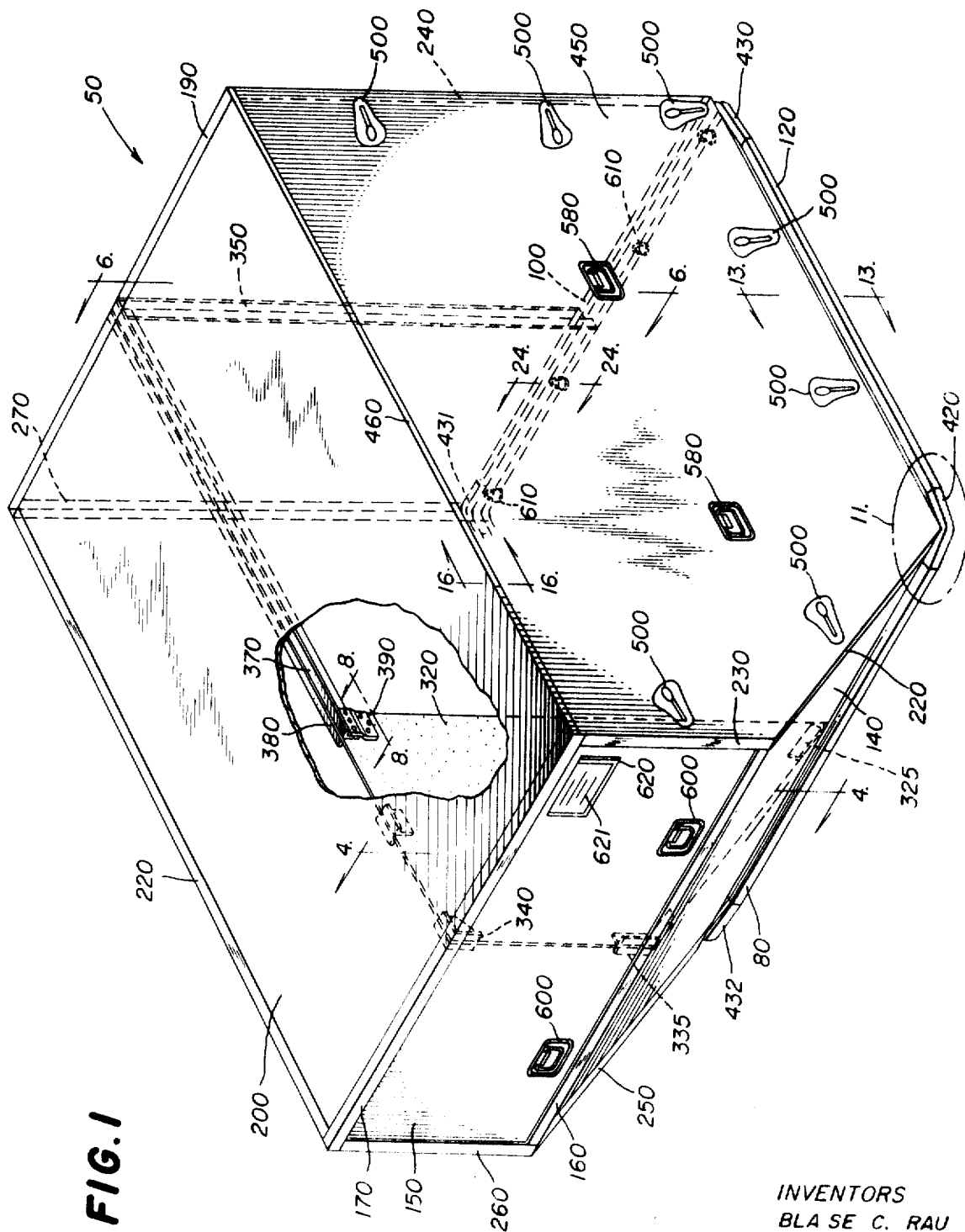


FIG. 1

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FIG. 2

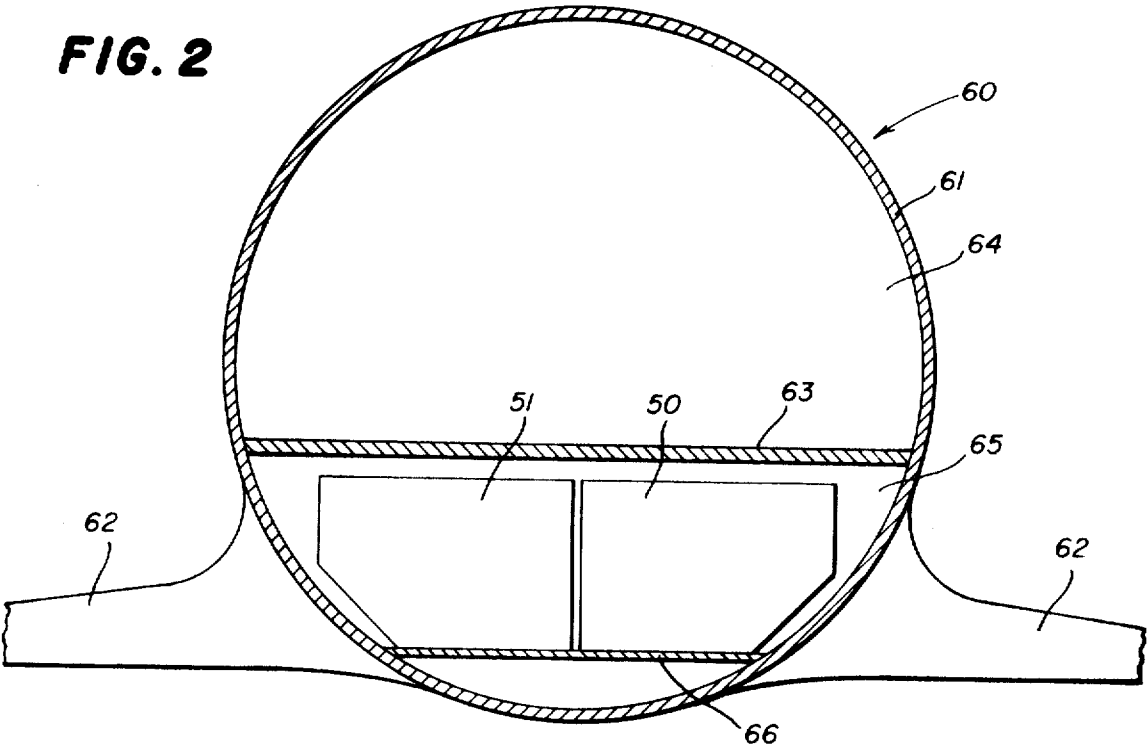
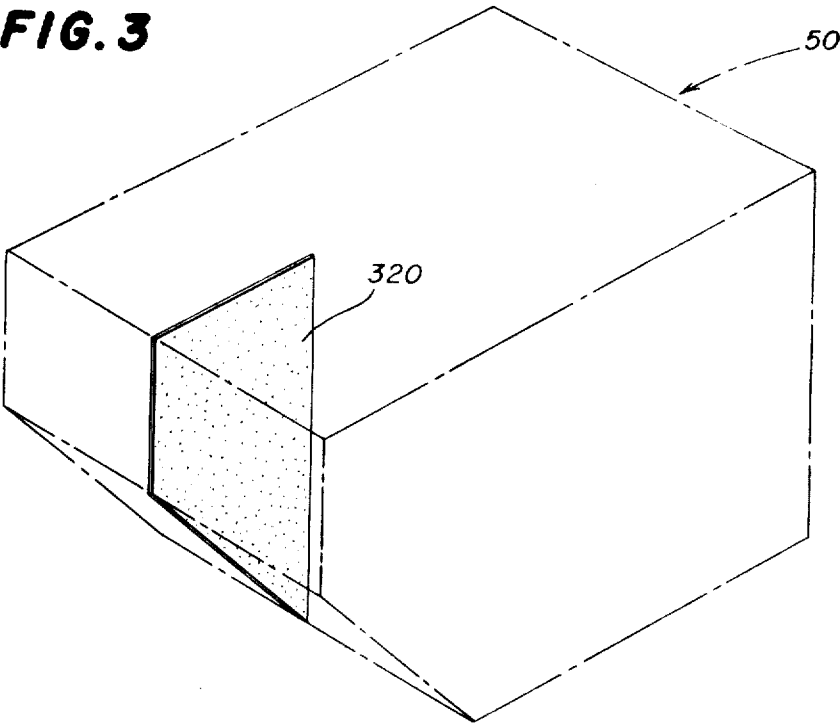
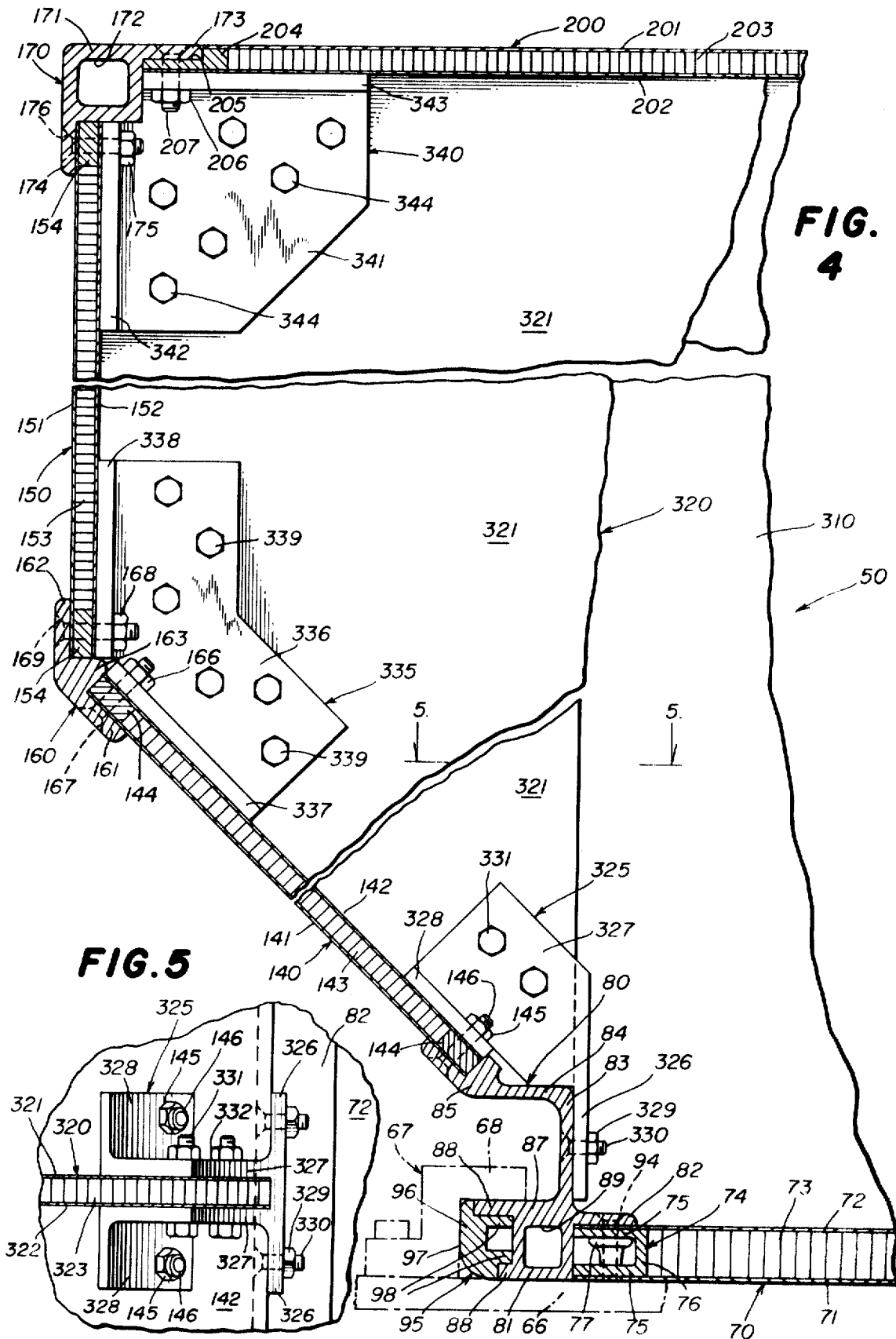


FIG. 3





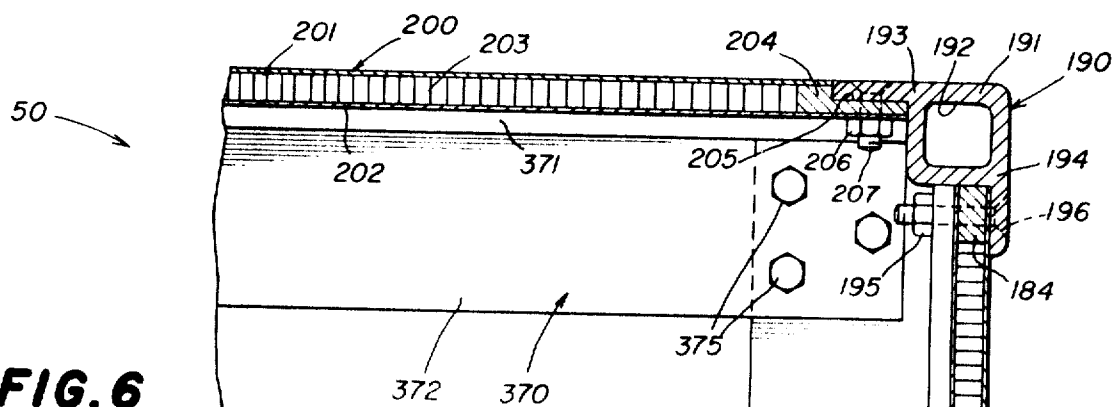


FIG. 6

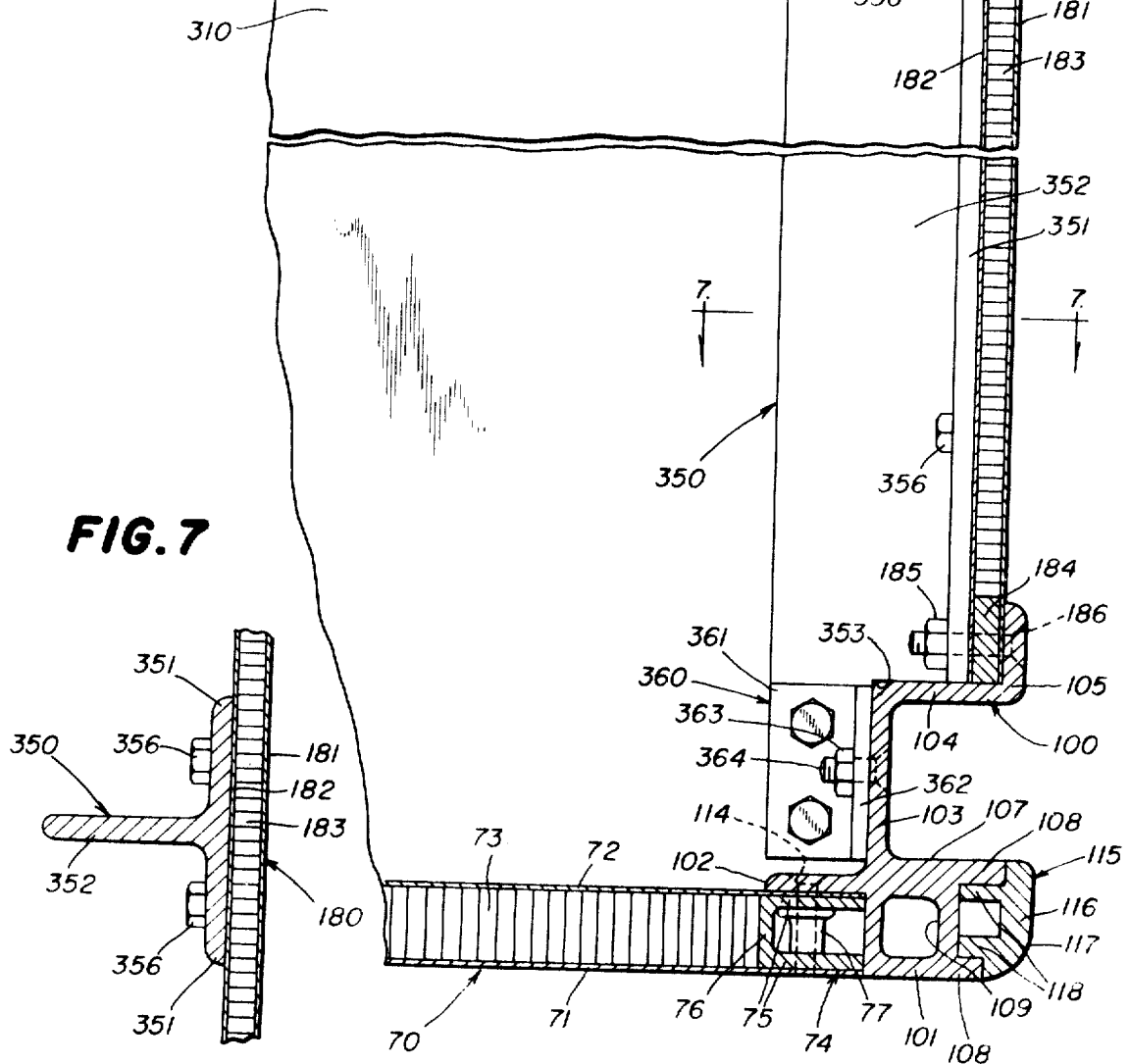


FIG. 11

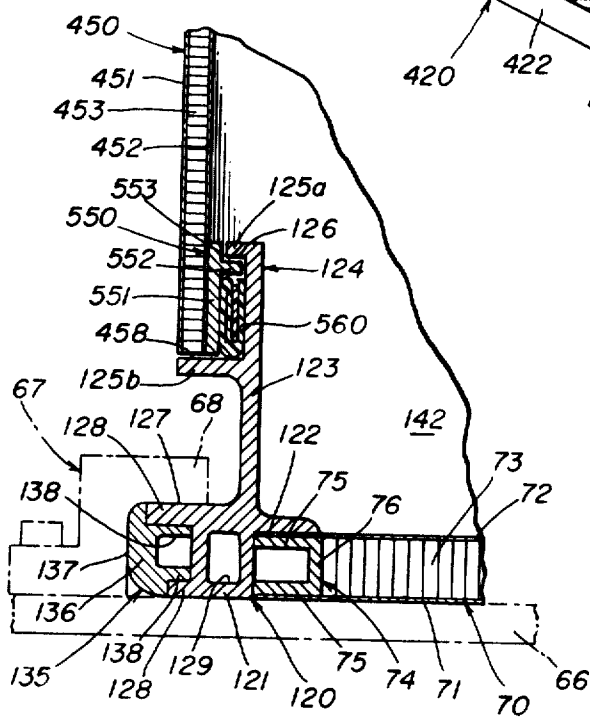
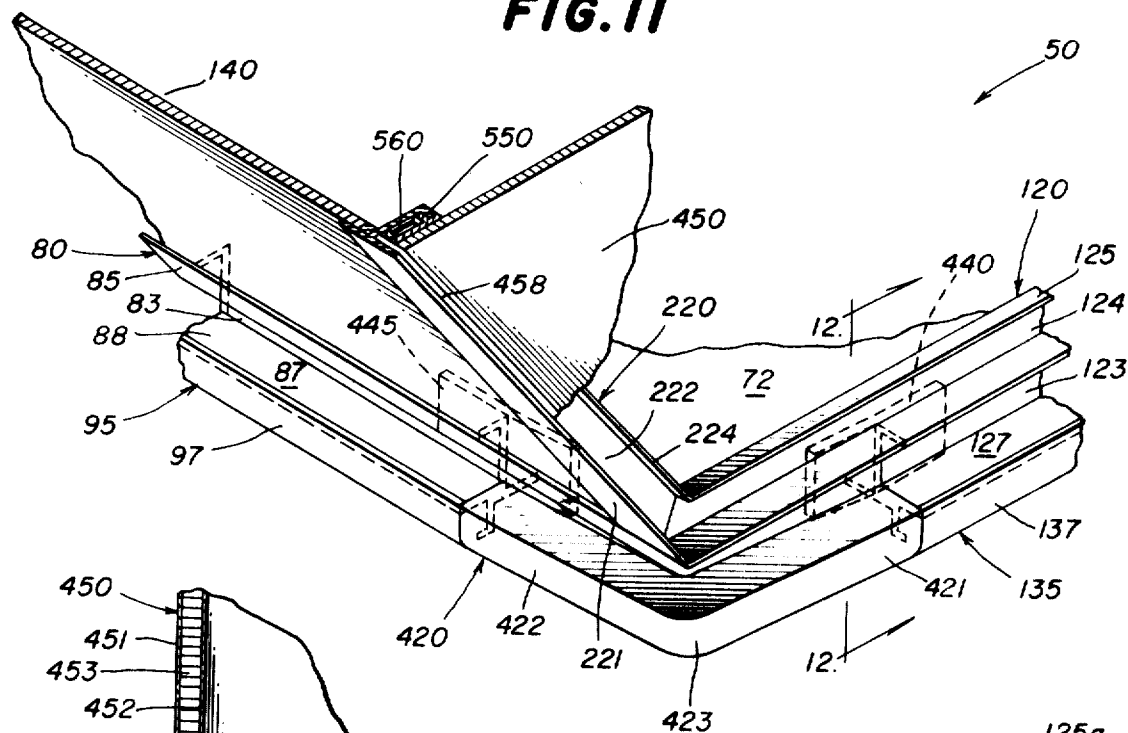


FIG. 13

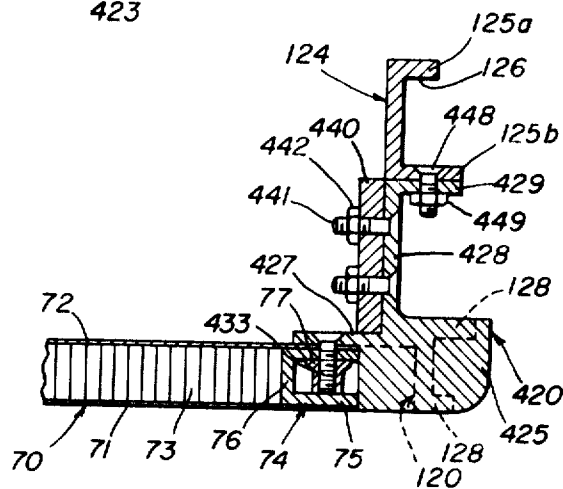


FIG. 12

FIG. 14

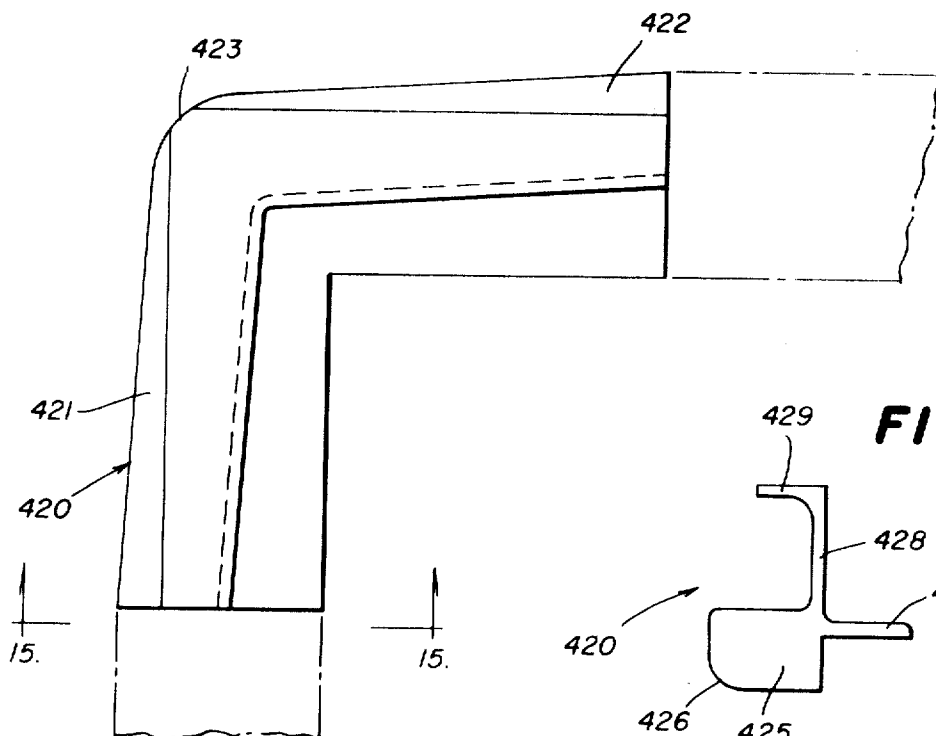


FIG. 15

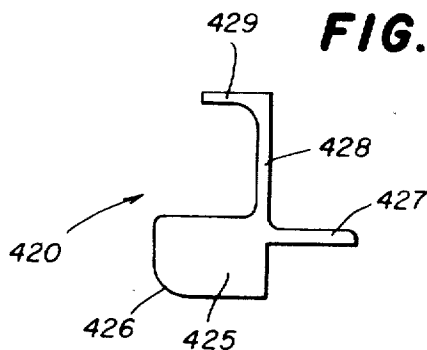


FIG. 16

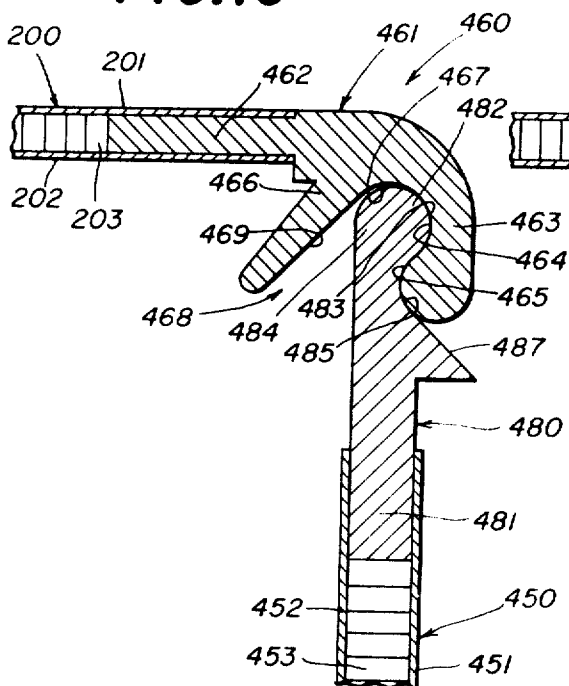


FIG. 17

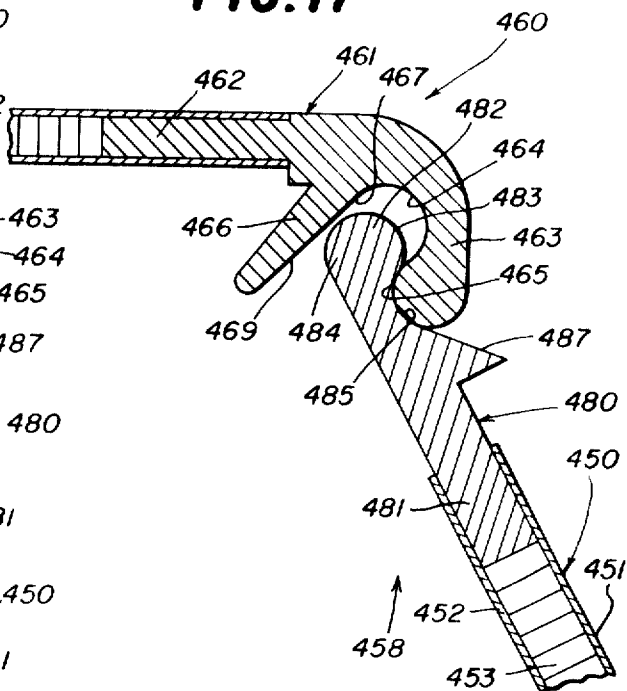


FIG. 19

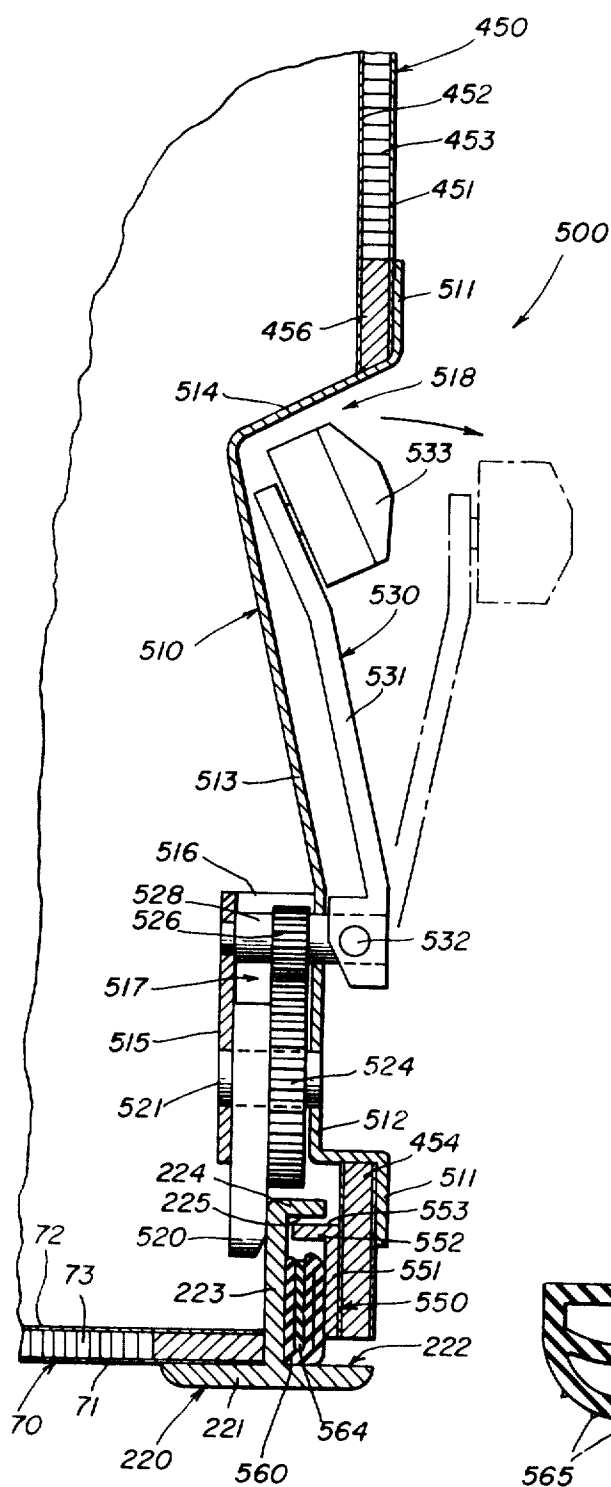


FIG. 18

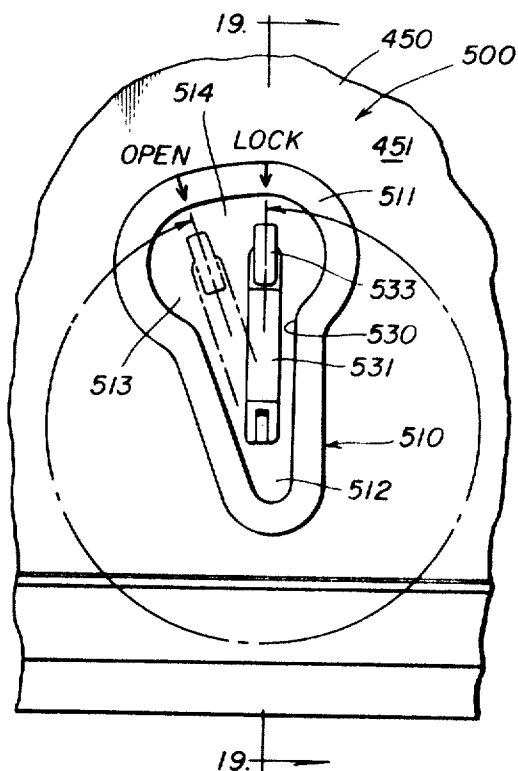


FIG. 20

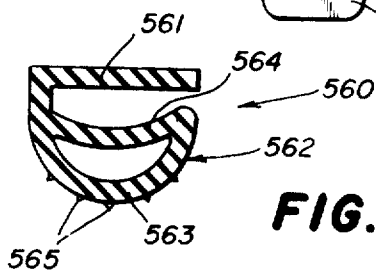
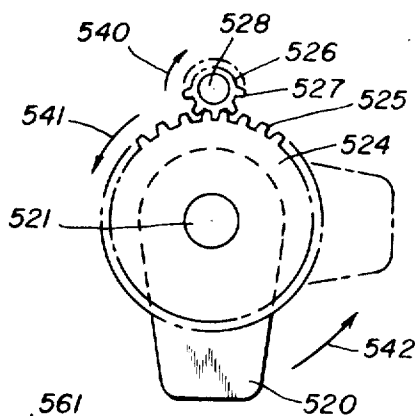


FIG. 21

FIG. 22

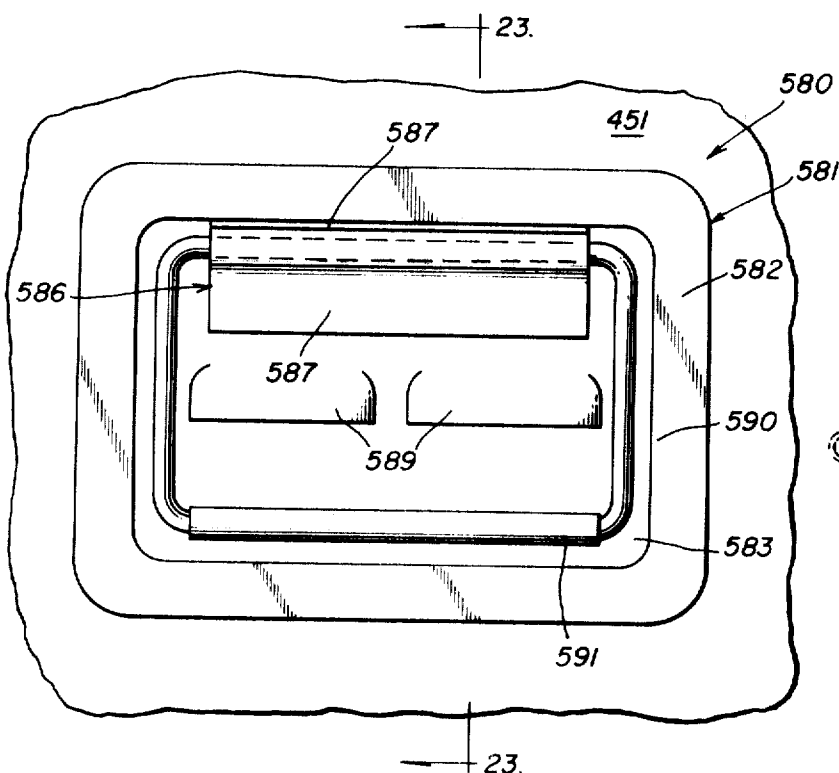


FIG. 23

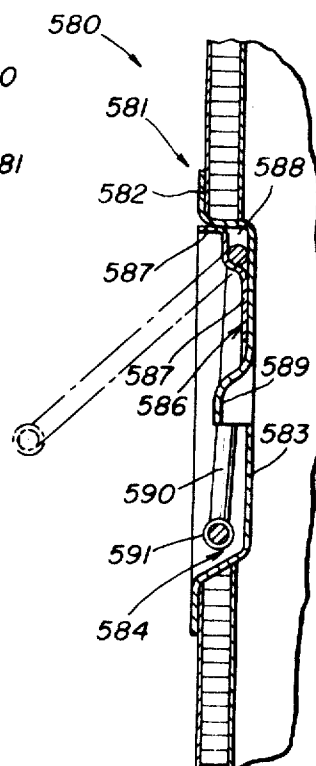
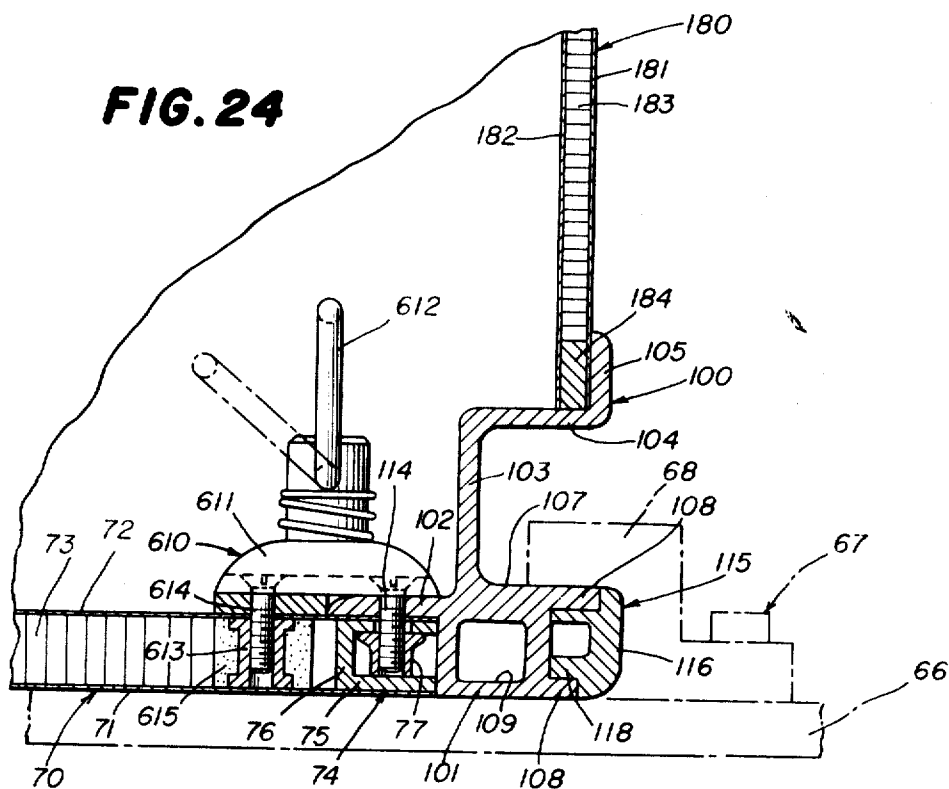


FIG. 24



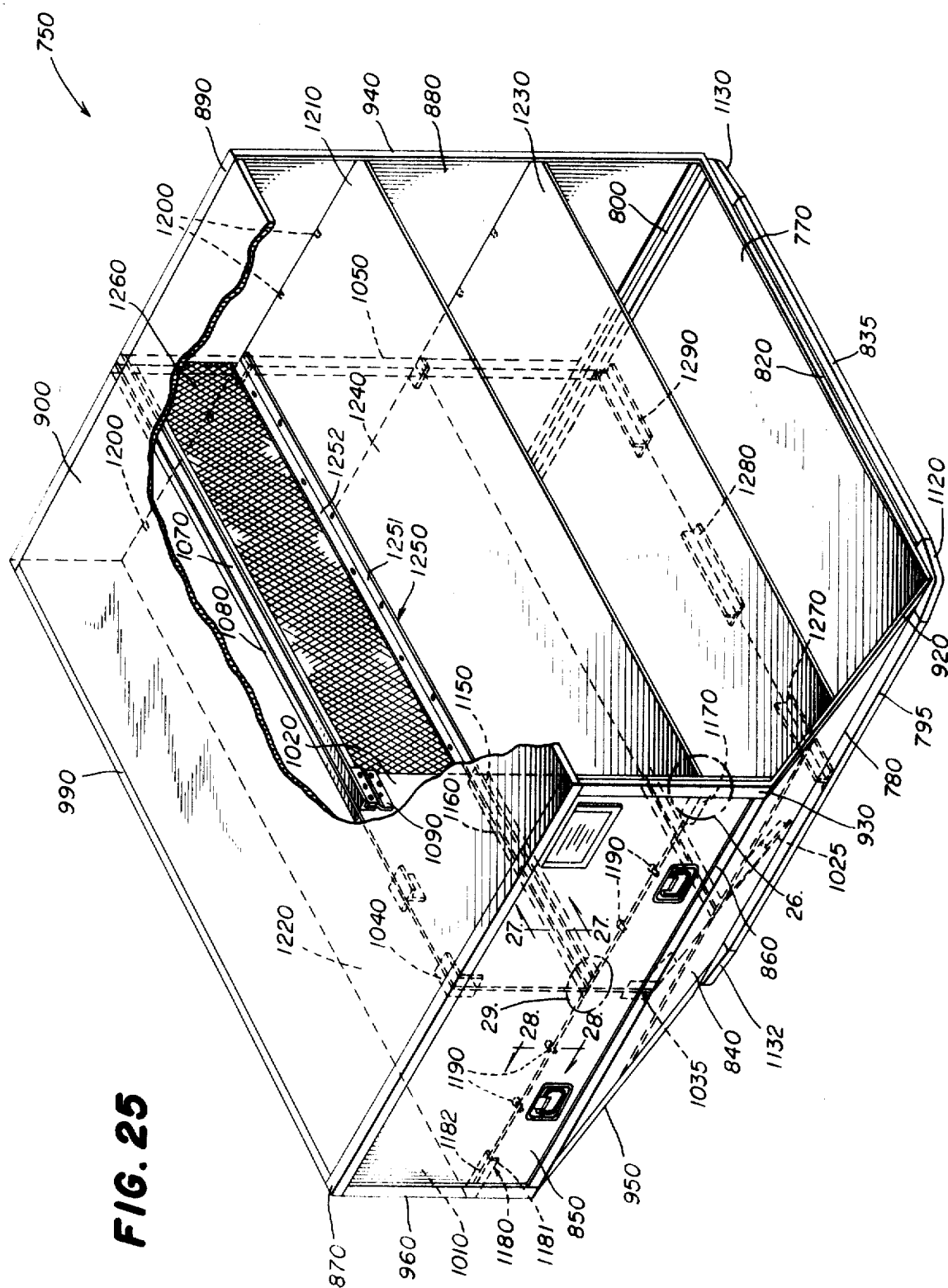


FIG. 26

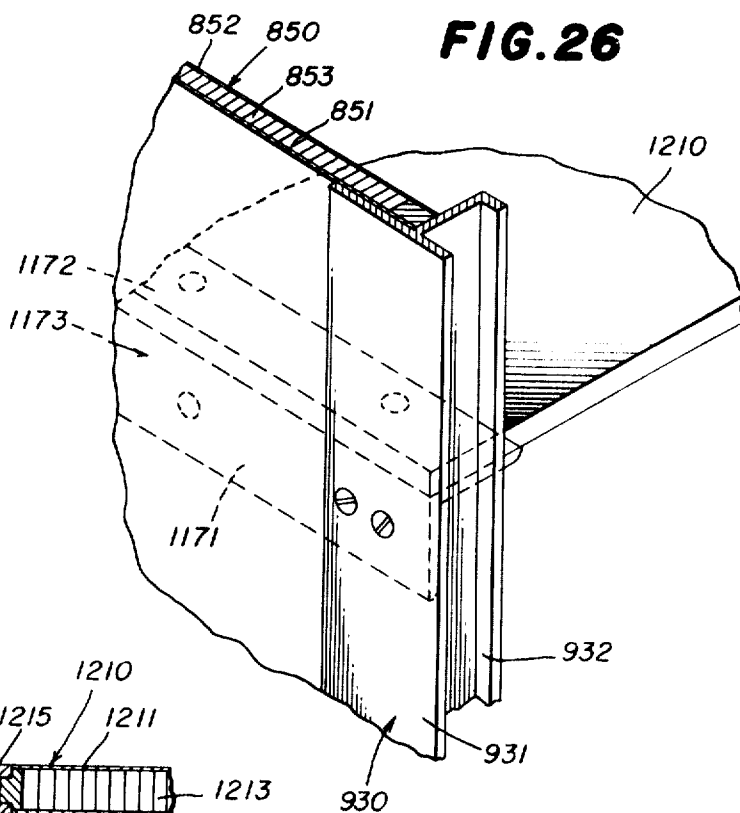


FIG. 27

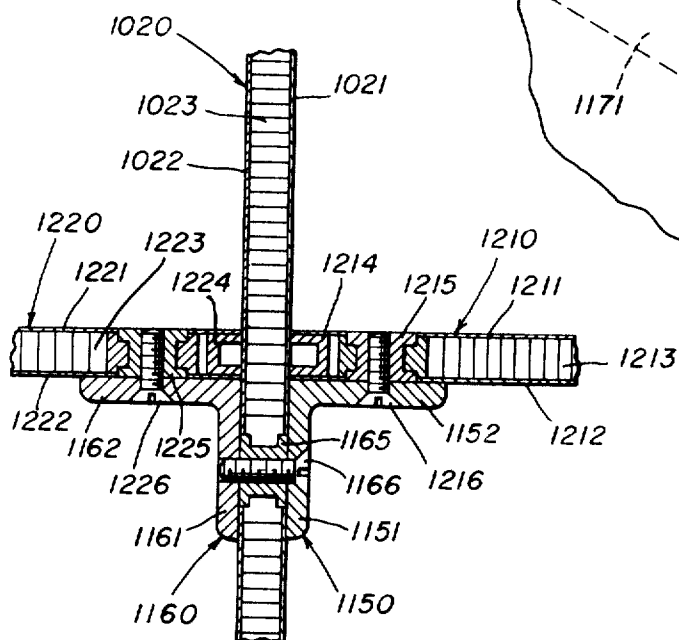


FIG. 29

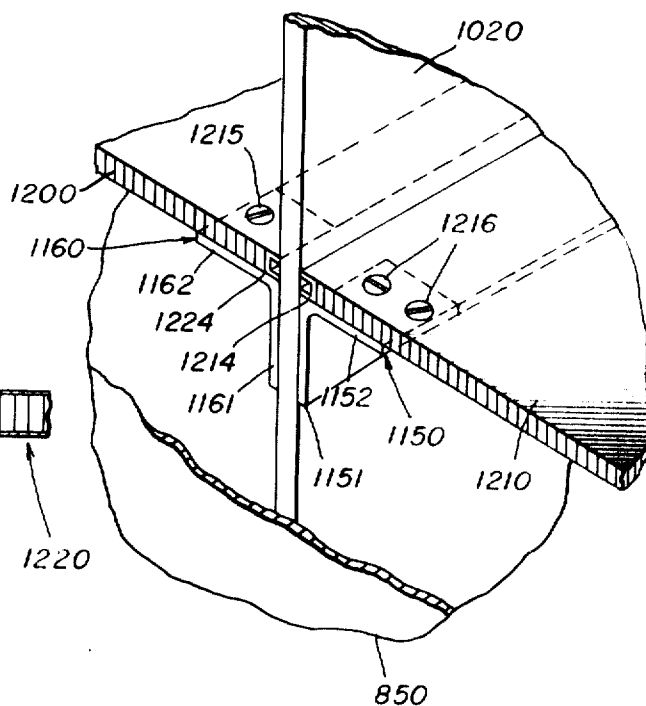
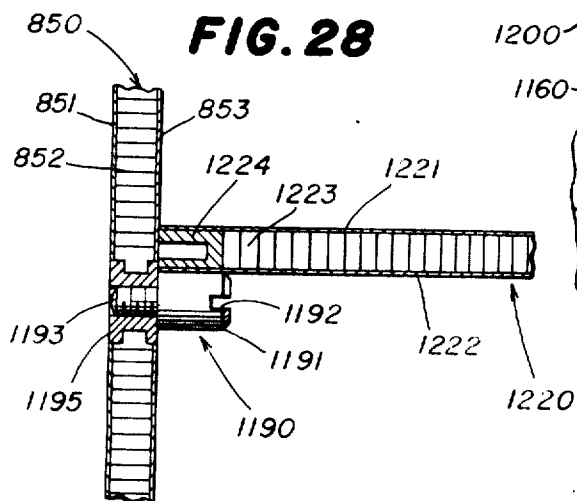


FIG. 28



CONTAINER

This invention is directed to a container for use in an airplane, the container being constructed to be lightweight, yet durable.

It is an important object of the present invention to provide a container comprising a base panel, elongated base frame members connected to the base panel at the margins thereof, two side panels respectively connected at one of the margins thereof to two of the base frame members, four elongated corner frame members respectively connected to the generally upstanding margins of the side panels, two elongated side top frame members respectively connected to the side panels at the upper margins thereof, a top panel connected at the side margins thereof to the side top frame members, two elongated end top frame members respectively connected to the top panel at the front and rear margins thereof.

In connection with the foregoing object, another object of the invention is to provide each of the panels with a pair of spaced-apart substantially parallel sheet metal walls and spacer structure and a body of rigid cellular construction disposed between the walls and secured thereto, the spacer structure being disposed between the associated sheet metal walls at the margins thereof and secured thereto and extending around the periphery of the associated body of rigid cellular construction.

In connection with the foregoing objects, it is another object to make the connections between the panels and the adjacent frame members detachable.

Another object of the invention is to provide a container comprising a door mounted in the door-receiving opening thereof for closure of the opening and readily removable therefrom for exposing the door-receiving opening.

Yet another object of the invention is to provide an improved container of the type set forth comprising a base panel, elongated base frame members detachably connected to the base panel at the margins thereof, two side panels respectively detachably connected at one of the margins thereof to two of the base frame members, four elongated corner frame members respectively detachably connected to the generally upstanding margins of the side panels, two elongated side top frame members respectively detachably connected to the side panels at the upper margins thereof, a top panel detachably connected at the margins thereof to the side top frame members, two elongated end top frame members respectively detachably connected to the top panel at the front and rear margins thereof, a rear panel detachably connected at the margins thereof to a rear one of the end base frame members and to the rear one of the top frame members and to the rear ones of the corner frame members, and a load-bearing rigidifying panel having a longitudinal extent substantially less than the longitudinal extent of the rear panel, the rigidifying panel having the edges thereof disposed against the top panel and detachably connected thereto and against one of the side panels and detachably connected thereto.

In connection with the foregoing object, another object of the invention is to provide a container of the type set forth and further comprising an elongated T-shaped side stiffener including a mounting flange secured to the other of the side panels and a platelike rib, a pair of elongated L-shaped top stiffeners each including a first attachment flange secured to the top panel and each including a second platelike rib, the second rib of one of the top stiffeners being detachably connected to one side of the first rib adjacent to the corresponding wall of the rigidifying panel, the second rib of the other of the top stiffeners being detachably connected to the other side of the first rib and adjacent to the corresponding wall rigidifying panel.

Still another object of the invention is to provide an improved container comprising a door adapted for mounting in the door-receiving opening of the container to close the same, a latch rotatably mounted on the door adjacent to the periphery thereof and being rotatable between a latching posi-

tion for engagement with the keeper structure in the container and a release position for disengagement from the keeper structure, a driven gear rotatably mounted on the door and drivingly connected to the latch for imparting rotation thereto. A driving gear rotatably mounted on the door and drivingly connected to the driven gear for imparting rotation thereto, and a handle drivingly connected to the driving gear for imparting rotation thereto to move the latch between the latching and release positions thereof.

In connection with the foregoing object, it is another object of the invention to provide an improved container wherein the latching mechanism is mounted in a housing fixedly mounted on the door adjacent to the periphery thereof and defining a handle recess, the handle being pivotal between an inner storage position disposed in the recess and an outer operating position disposed out of the recess.

Yet another object of the invention is to provide a latching mechanism including a latch, a driven gear drivingly connected to the latch for imparting rotation thereto, a driving gear rotatably mounted on the door and drivingly connected to the driven gear for imparting rotation thereto, and a handle drivingly connected to the driving gear for imparting rotation thereto to move the latch between the latching and release positions thereof, the gears being constructed and arranged to cause a given amount of rotation of the handle to impart a substantial lesser amount of rotation to the latch.

Still another object of the invention is to provide an improved container comprising a body having a door-receiving opening therein, a door support mounted on the body adjacent to the door-receiving opening, the door support including a retaining portion extending into the opening and a guide portion extending inwardly from the opening, the retaining portion having an arcuate outer retaining surface and the guide portion having an arcuate inner retaining surface in facing relationship with the outer retaining surface and defining a groove therebetween, a door for removably mounting in the door-receiving opening and having a closed position with respect thereto, a hanger mounted on the door along one edge thereof including a tongue having an arcuate outer bearing surface and an arcuate inner bearing surface, the hanger in the closed position of the door being disposed in the groove with the outer bearing surface in facing relationship with the outer retaining surface and with the inner bearing surface in facing relationship with the inner retaining surface.

In connection with the foregoing object, it is another object of the invention to provide a container wherein the retaining portion has a convex sliding pivot surface, having a concave sliding pivot surface, the convex pivot surface being disposed in abutting relationship with the concave pivot surface when the tongue is disposed within the groove and during the removal of the tongue from the groove.

Yet another object of the invention is to provide a door for closing the opening of a container, wherein there is mounted in the door a casing defining a handle recess with a socket therein, a handle pivotally mounted in the socket and pivotal between an inner storage position disposed in the recess and outer operating position disposed out of the recess.

Still another object of the invention is to provide a container comprising a base panel, base frame members on the base panel and each including a pair of outwardly directed spaced-apart retaining jaws, elongated side bumpers and end bumpers respectively disposed adjacent to the side and end base frame members, each of the bumpers including a pair of elongated spaced-apart gripping flanges thereon forcibly urged between the associated retaining jaws and respectively biased thereagainst, the bumpers being grippingly held by the associated retaining jaws and removable therefrom by forcibly withdrawing the gripping flanges from the retaining jaws.

In connection with the foregoing object, it is another object of the invention to provide a container which further includes a plurality of V-shaped corner bumpers each having a pair of diverging legs merging into a curved apex, the corner bumpers being respectively disposed adjacent to the corners of the base

panel with legs being respectively aligned with the adjacent side and end bumpers, the corner bumpers being attached to the base frame members and being readily removable therefrom.

Yet another object of the invention is to provide a container comprising a base panel with a base frame extending therearound, a plurality of tiedown mechanisms each having an adjustable finger thereon, the base frame having an abutment surface thereon against which the finger of each of the tiedown mechanisms abuts to hold the container in position on the floor.

Still another object of the invention is to provide a container with a plurality of shelf supports detachably connected therein, a pair of shelf panels carried by the shelf supports and detachably connected thereto, and a divider separating the shelf panels from each other.

Further features of the invention pertain to the particular arrangement of the parts whereby the above-outlined and additional features thereof are attained.

The invention, both as to its organization and method of construction, together with other objects and advantages, will best be understood by reference to the following specification taken in connection with the accompanying drawings, in which:

FIG. 1 is a perspective view of a cargo container made in accordance with and embodying the principles of the present invention;

FIG. 2 is a view in lateral cross section through the fuselage of an airplane showing two of the cargo containers of FIG. 1 in the operative position;

FIG. 3 is a perspective view showing the cargo container in phantom and showing the rigidifying panel in position therein;

FIG. 4 is an enlarged fragmentary view in vertical section through the cargo container of FIG. 1 along the lines 4-4 thereof;

FIG. 5 is a view in horizontal section of one of the rigidifying panel mounting brackets shown in FIG. 4 along the lines 5-5 thereof;

FIG. 6 is an enlarged fragmentary view in vertical section through the cargo container of FIG. 1 along the lines 6-6 thereof;

FIG. 7 is a view in horizontal section through the side stiffener and side panel of FIG. 6 along the lines 7-7 thereof;

FIG. 8 is an enlarged fragmentary view in vertical section through the cargo container of FIG. 1 along the lines 8-8 thereof and showing the juncture of the rigidifying panel and the top stiffeners;

FIG. 9 is a view in vertical section through the top stiffeners and top panel of FIG. 8 along the lines 9-9 thereof;

FIG. 10 is a view in vertical section through the rigidifying panel, the splice plates, the top panel and the top stiffeners of FIG. 8 along the lines 10-10 thereof;

FIG. 11 is an enlarged fragmentary perspective view of the corner of the cargo container of FIG. 1 within the circle 11 thereof, certain portions of the door being broken away to expose the door frame;

FIG. 12 is an enlarged view in vertical section through the door frame and bumpers of FIG. 11 along the line 12-12 thereof;

FIG. 13 is an enlarged fragmentary view in vertical section through the cargo container of FIG. 1 along the lines 13-13 thereof;

FIG. 14 is a top plan view of one of the four corner bumpers installed in the cargo container of FIG. 1;

FIG. 15 is a view in vertical section of the corner bumper of FIG. 14 along the lines 15-15 thereof;

FIG. 16 is an enlarged fragmentary view in vertical section through the cargo container of FIG. 1 along the lines 16-16 thereof and showing the detail of the hinge mechanism when the door is in the closed position thereof;

FIG. 17 is a view in vertical section similar to that of FIG. 16 but with the hinge mechanism in the condition thereof when the door is being removed from the cargo container;

FIG. 18 is an enlarged view of one of the latching mechanisms of the door in the cargo container of FIG. 1 and showing the handle in its latching and release positions thereof;

FIG. 19 is a further enlarged view in vertical section of the latching mechanism of FIG. 18 along the lines 19-19 thereof, with the handle being shown in its storage position in full lines and in its operating position in broken lines;

FIG. 20 is an elevation view of the gears and latch mechanism of FIG. 19 wherein the latch is shown in both its latching and release positions;

FIG. 21 is a view in lateral cross section of the elongated door-sealing gasket;

FIG. 22 is an enlarged elevation view of one of the handles on the door of the cargo container of FIG. 1;

FIG. 23 is a view in vertical section of the handle of FIG. 22 along the lines 23-23 thereof;

FIG. 24 is a view in vertical section of the tiedown mechanism in the cargo container of FIG. 1 along the lines 24-24 thereof;

FIG. 25 is a perspective view of a second embodiment of a baggage container made in accordance with and embodying the principles of the present invention;

FIG. 26 is an enlarged perspective view of a portion of the baggage container of FIG. 25 and showing the mounting of the shelf;

FIG. 27 is an enlarged fragmentary view in vertical section through the baggage container of FIG. 25 along the lines 27-27 thereof and illustrating further aspects of the shelf mounting;

FIG. 28 is an enlarged view in vertical section of the baggage container of FIG. 25 along the lines 28-28 thereof; and

FIG. 29 is an enlarged perspective view of the portion of the baggage container of FIG. 25 shown in the circle 29, and showing further aspects of the shelf mounting.

Referring now to the drawings, and particularly to FIGS. 1 to 3 thereof, there is illustrated a cargo container 50 made in accordance with and embodying the principles of the present invention. The cargo container 50 is adapted for use in an aircraft 60 which has the usual parts such as a fuselage 61 and wings 62, with a longitudinally extending upper deck 63 disposed slightly below the midpoint of the aircraft 60, thus to define a passenger compartment 64 in the space above the deck 63. Spaced well below the deck 63 and extending substantially parallel thereto is a lower deck 66, defining a cargo and/or baggage compartment 65 between the decks 63 and 66. In use, there will be provided two rows of cargo containers 50 (or baggage containers as the case may be) in side-by-side relationship and disposed along the length of the fuselage 61. As will be understood more fully hereinafter, a portion of one wall in each of the cargo containers 50 is slanted so as to accommodate a container 50 of the maximum length (along the lateral dimension of the airplane 60).

Referring now to FIGS. 1 and 4, the details of construction of the cargo container 50 will be described. The cargo container 50 comprises a base panel 70 including a pair of spaced-apart substantially rectangular sheet metal walls extending generally parallel to each other. Disposed between the walls 71 and 72 is a filler 73 in the form of a body of rigid cellular construction preferably formed of aluminum having a honeycomb structure, the filler 73 being secured to the walls 71 and 72 by means of a sheet of epoxy. Disposed between the metal walls 71 and 72 at the margins thereof and extending around the periphery of the filler 73 is a rigid frame or spacer structure 74 in the form of an elongated channel having a U-shaped cross section with a bight 76 carrying flanges 75. The spacer structure 74 is bonded into the panel 70 by use of expanding epoxy disposed between the bight 76 and the adjacent portion of the filler 73, and by use of epoxy between the flanges 75 and the adjacent portions of the walls 71 and 72. Preferably for the sake of minimizing the weight, maximizing the strength, and simplifying the manufacture, the spacer

structure 74 is formed of an aluminum extrusion. The spacer structure 74 lends rigidity to the base panel 70 and, in addition, provides a means for attaching the base panel 70 to other parts of the cargo container 50. Disposed around the margin of the base panel 70 and extending through the wall 72 and through the flanges 75 is a plurality of holes through which bolts may be inserted for use in connecting other parts of the cargo container 50 to the base panel 70. For this purpose, there is provided a plurality of nuts 77 respectively in alignment with the holes in the wall 72.

The cargo container 50, as shown in FIG. 4, comprises an elongated side base frame member 80 disposed against the base panel 70 along the left-hand margin thereof as viewed in FIG. 1. The side base frame member 80 includes a body portion 81 carrying an inwardly directed attachment flange 82 and an upstanding flange 83, the upstanding flange 83 carrying an out-turned flange 84 having on the outer end thereof an upturned flange 85 directed upwardly and outwardly. The upper surface of the body portion 81 defines an engagement surface 87 for use with a plurality of locking mechanisms 67 mounted on the lower deck 66 of the aircraft 60. The locking mechanisms 67, one of which is shown in phantom, in FIG. 4, include a finger 68 which may be swiveled from a disengaging position to a position where it is disposed against the engagement surface 87 and tightened thereagainst to hold the cargo container 50 in place. It is to be understood that there are similar locking mechanisms disposed adjacent to other parts of the cargo container 50 and operated in a similar fashion as will be explained more fully hereinafter.

Projecting outwardly from the body portion 81 is a pair of longitudinally extending and spaced-apart retaining jaws 88. In order to minimize the weight yet provide maximum strength, the side base frame member 80 is preferably formed of an aluminum extrusion having therein a longitudinally extending bore 89 so as to minimize the amount of aluminum required. The side base frame member 80 is disposed adjacent to the left side (as viewed in FIGS. 1 and 4) of the base panel 70, with the attachment flange 82 disposed against the left-hand margin of the top wall 72. A threaded bolt 94 is passed through an opening in the attachment flange and through openings in the wall 72 and the flange 75 and threadably engages the nut 77 to secure the base frame member 80 in place. It is to be understood that there is a plurality of holes along the longitudinal extent of the attachment flange 82 corresponding in number to the holes in the wall 72 for use in securing the attachment flange 82 along the length thereof.

Although not shown in the drawings, the base frame member 80 does not have the cross section shown in FIG. 4 from the front of the base panel 70 to the rear thereof. For reasons that will become more clear subsequently, only the flanges 84 and 85 continue throughout the entire lateral extent of the base panel 70, the remainder of the parts, namely, the body portion 81, the attachment flange 82, the upstanding flange 83, and the retaining jaws 88, being somewhat shorter than the lateral extent of the base panel 70.

There is provided an elongated side bumper 95 preferably formed of an extruded length of aluminum and includes a body 96 having a rounded or curved outer surface 97. Integral with the body 96 is a pair of spaced-apart gripping flanges 98 which are biased away from each other. The side bumper 95 is installed on the base frame member 80 by urging the gripping flanges 98 into the space between the retaining jaws 88. Because the gripping flanges are biased away from one another, they will respectively abut against the retaining jaws 88 so as to be grippingly held thereby and removable therefrom by forcibly withdrawing the gripping flanges 98. The bumper 95 protects the left side (as viewed in FIG. 1) of the cargo container 50 as it is being moved and jostled about during loading and unloading thereof. It is to be understood that the lateral extent of the bumper 95 is less than the lateral extent of the base panel 70 and is equal in length to the length of the retaining jaws 88.

Referring now to FIGS. 1 and 6 of the drawings, the cargo container 50 further comprises an elongated side base frame member 100 disposed against the base panel 70 along the right-hand margin thereof as viewed in FIG. 1. The side base frame member 100 includes a body portion 101 carrying an inwardly directed attachment flange 102 and an upstanding flange 103, the upstanding flange 103 carrying an out-turned flange 104 having on the outer end thereof an upturned flange 105. The upper surface of the body portion 101 defines an engagement surface 107 for use with the locking mechanisms 67 mounted on the lower deck 66 of the aircraft 60 (see FIG. 24). As explained with respect to the frame member 80, the locking mechanisms 67 include a finger 68 which may be swiveled from a disengaging position to a position where it is disposed against the engagement surface 107 and tightened thereagainst to hold the cargo container 50 in place.

Projecting outwardly from the body portion 101 is a pair of longitudinally extending and spaced-apart retaining jaws 108. In order to minimize the weight, yet provide maximum strength, the side base frame member 100 is preferably formed of an aluminum extrusion having therein a longitudinally extending bore 109 so as to minimize the amount of aluminum required. The side base frame member 100 is disposed adjacent to the right-hand side (as viewed in FIGS. 1 and 6) of the base panel 70, with the attachment flange 102 disposed against the right-hand margin of the top wall 72. A threaded bolt 114 is passed through an opening in the attachment flange 102 and through openings in the wall 72 and the flange 75 and threadably engages the nut 77 to secure the base frame member 100 in place. It is to be understood that there is a plurality of holes along the longitudinal extent of the attachment flange 102 corresponding in number to the holes in the wall 72 for use in securing the attachment flange 102 along the length thereof.

Although not shown in the drawings, the base frame member 100 does not have the cross section shown in FIG. 6 from the front of the base panel 70 to the rear thereof. For reasons that will become more clear subsequently, only the flanges 104 and 105 continue through the entire lateral extent of the base panel 70, the remainder of the parts, namely, the body portion 101, the attachment flange 102, the upstanding flange 103, and the retaining jaws 108, being somewhat shorter than the lateral extent of the base panel 70.

There is provided an elongated side bumper 115 preferably formed of an extruded length of aluminum and includes a body 116 having a rounded or curved outer surface 117. Integral with the body 116 is a pair of spaced-apart gripping flanges 118 which are biased away from each other. The side bumper 115 is installed on the base frame member 100 by urging the gripping flanges 118 into the space between the retaining jaws 108. Because the gripping flanges are biased away from one another, they will respectively abut against the retaining jaws 108 so as to be grippingly held thereby and removable therefrom by forcibly withdrawing the gripping flanges 118. The bumper 115 protects the right side (as viewed in FIG. 1) of the cargo container 50 as it is being moved and jostled about during loading and unloading thereof. It is to be understood that the lateral extent of the bumper 115 is less than the lateral extent of the base panel 70 and is equal in length to the length of the retaining jaws 108.

Referring now to FIGS. 1 and 13 of the drawings, the cargo container 50 further comprises an elongated end base frame member 120 disposed against the base panel 70 along the front or forward margin thereof as viewed in FIG. 1. The end base frame member 120 includes a body portion 121 carrying an inwardly directed attachment flange 122 and an upstanding flange 123, the upstanding flange 123 carrying a channel-shaped portion 124 defined by a pair of spaced-apart elongated lips 125a and 125b extending generally parallel to each other. For reasons to be explained, the lower surface of the lip 125a defines an abutment surface 126. The upper surface of the body portion 121 defines an engagement surface 127 for use with the locking mechanisms 67 mounted on the lower

deck 66 of the aircraft 60. The locking mechanisms 67, one of which is shown in phantom in FIG. 13, includes a finger 68 which may be swiveled from a disengaging position to a position where it is disposed against the engagement surface 127 and tightened thereagainst to hold the cargo container 50 in place.

The base frame member 120 does not have the cross section shown in FIG. 13 from one side of the base panel 70 to the other side thereof. For reasons that will become more clear subsequently, only the channel-shaped portion 124 continues throughout the entire longitudinal extent of the base panel 70, the remainder of the parts, namely, the body portion 121, the attachment flange 122, the upstanding flange 123, and the retaining jaws 128, being somewhat shorter than the longitudinal extent of the base panel 70.

Projecting outwardly from the body portion 121 is a pair of longitudinally extending and spaced-apart retaining jaws 128. In order to minimize the weight, yet provide maximum strength, the end base frame member 120 is preferably formed of an aluminum extrusion having therein a longitudinally extending bore 129 so as to minimize the amount of aluminum required. The end base frame member 120 is disposed adjacent to the one side (as viewed in FIGS. 1 to 4) of the base panel 70, with the attachment flange 122 disposed against the left-hand margin of the top wall 72. A threaded bolt 134 is passed through an opening in the attachment flange 122 and through openings in the wall 72 and the flange 75 and threadably engages the nut 77 to secure the base frame member in place. It is to be understood that there is a plurality of holes along the longitudinal extent of the attachment flange 122 corresponding in number to the holes in the wall 72 for use in securing the attachment flange 122 along the length thereof.

There is provided an elongated side bumper 135 preferably formed of an extruded length of aluminum metal and includes a body 136 having a rounded or outer curved surface 137. Integral with the body 136 is a pair of spaced-apart gripping flanges 138 which are biased away from each other. The side bumper 135 is installed on the base frame member 120 by urging the gripping flanges 138 into the space between the retaining jaws 128. Because the gripping flanges are biased away from one another, they will respectively abut against the retaining jaws 128 so as to be grippingly held thereby and removable therefrom by forcibly withdrawing the gripping flanges 138 from the retaining jaws 128. The bumper 135 protects the front (as viewed in FIG. 1) of the cargo container 50 as it is being moved and jostled about during loading and unloading thereof. It is to be understood that the lateral extent of the bumper 135 is less than the longitudinal extent of the base panel 70 and is equal in length to the length of the retaining jaws 128.

Although not shown, it is to be understood that there is provided an end base frame member at the rear of the base panel 70 and having a construction like the base frame member 100. As is the case with the front end base frame member 120, the rear end base frame member (not shown) is shorter than the longitudinal extent of the base panel 70. Also the bumper (not shown) carried by the rear end base frame member is shorter than the longitudinal extent of the base panel 70. As will be explained in detail, the corner bumpers 420 fill the gaps left by the shorter side and end bumpers.

Referring now to FIG. 4, the cargo container 50 is therein shown to include a sloping side panel 140 having a construction similar to the other panels in the container 50, the panel 140 including a pair of spaced-apart substantially rectangular sheet metal walls 141 and 142 disposed generally parallel to one another. A filler 143 formed of a body of rigid cellular construction, is disposed between the walls 141 and 142 and secured thereto. A rigid frame or elongated spacer structure 144, preferably in the form of a solid aluminum extrusion, is disposed between the walls 141 and 142 at the margins thereof and extends around the periphery of the filler 143. The spacer structure 144 is secured both to the filler 143 and to the walls

141 and 142 to lend strength to the panel 140. Formed in the spacer structure 144 is a plurality of spaced-apart openings therethrough for use in receiving fasteners to attach the panel 140 to other parts of the cargo container 50. One of the margins of the sloping side panel 140 is disposed against the upturned flange 85 of the side base member 80 and is supported thereby, so as to slant upwardly and outwardly from the base panel 70. Bolts 146 pass through aligned openings in the upturned flange 85, the walls 141 and 142 and the spacer structure 144 and engage nuts 145 to secure the panel 140 in place.

There is also provided a vertical side panel 150 having a construction like that of the sloping side panel 140, and including a pair of spaced-apart substantially rectangular sheet metal walls 151 and 152 disposed parallel to one another. Disposed between the walls 151 and 152 is a filler 153 in the form of a body of rigid cellular construction, with a rigid frame or elongated spacer structure 154 extending around the periphery of the filler 153. There is provided a plurality of spaced-apart holes in the spacer structure 154 for use in attaching the panel 150 to other parts of the cargo container 50.

To interconnect the panels 140 and 150, there is provided an integral elongated connecting frame member 160 including attachment flanges 161 and 162 diverging at an obtuse angle, with a protrusion 163 being disposed between the attachment flanges 161 and 162. The connecting frame member 160 is disposed such that the protrusion 163 is between the adjacent ends of the panels 140 and 150, the attachment flange 161 being disposed against the wall 141 of the panel 140 adjacent to the margin thereof. A bolt 167 is passed through an opening in the flange 161 and aligned openings in the walls 141 and 142 and in the spacer structure 144 and engages a nut 166, thus to attach the connecting frame member 160 to the panel 140. It is to be understood that additional fasteners are provided along the length of the member 160. The flange 162 is disposed against the wall 151 of the panel 150 at the lower margin thereof. A bolt 169 is passed through an opening in the flange 162 and aligned openings in the walls 151 and 152 and in the spacer structure 154 and engages a nut 168, thus to attach the connecting frame member 160 to the panel 150. It is to be understood that additional fasteners are provided along the length of the member 160.

By virtue of the above described construction, the panel 150 will be disposed generally vertically and the panel 140 will slant from the lower end of the panel 150 inwardly and toward the base panel 70.

There is provided a left-hand (as viewed in FIGS. 1 and 4) top frame member 170 which includes an elongated body 171 and attachment flanges 173 and 174 disposed in planes generally normal to each other. Preferably, the frame member 170 is in the form of an aluminum extrusion having a longitudinal bore 172 therein to minimize the weight of the member 170 without any loss in strength thereof. The top frame member 170 is disposed on top of the side panel 150, with the attachment flange 174 being disposed against the wall 151 of the panel 150 at the margin thereof. Bolts 176 pass through openings in the flange 174 and through openings in the walls 151 and 152 and the spacer structure 154 and engage nuts 175, thus to mount the top frame member 170 upon the side panel 150.

Referring now to FIG. 6, details of the right-hand (as viewed in FIGS. 1 and 6) side panel 180 will be described, the side panel 180 including a pair of spaced-apart substantially rectangular sheet metal walls 181 and 182 and disposed generally parallel to each other. A filler 183 formed of a body of rigid cellular construction is disposed between the walls 181 and 182 and secured thereto. A rigid frame or elongated spacer structure 184, preferably in the form of a solid aluminum extrusion, is disposed between the walls 181 and 182 at the margins thereof and extends around the periphery of the filler 183. The spacer structure 184 is secured both to the filler 183 and to the walls 181 and 182 to lend strength to the panel 180. Formed in the spacer structure is a plurality of spaced-apart openings therethrough for use in receiving fasteners to attach the panel 180 to other parts of the cargo container 50.

The lower margin of the inner surface of the side panel 180 is disposed against the upturned flange 105 of the side base member 100 and is supported thereby. Bolts 186 pass through aligned openings in the upturned flange 105, the walls 181 and 182 and the spacer structure 184 and engage nuts 185 to secure the panel 180 in place.

Disposed on top of the side panel 180 is a top frame member 190 which includes an elongated body 191 and attachment flanges 193 and 194 disposed in planes normal to each other. Preferably, the frame member 190 is in a form of an aluminum extrusion having a longitudinal bore 192 therein to minimize the weight of the member 190 without any loss in strength thereof. The top frame member 190 is disposed on top of the side panel 180, with the attachment flange 194 being disposed against the wall 181 of the panel 180 at the margin thereof. Bolts 196 pass through openings in the flange 194 and through openings in the walls 181 and 182 and the spacer structure 184 and engage nuts 195, thus to mount the top frame member 190 upon the side panel 180.

The cargo container 50 further comprises a top panel 200 including a pair of spaced-apart substantially rectangular sheet metal walls 201 and 202 and a filler 203 in the form of a body of rigid cellular construction. There is also provided a rigid frame or spacer structure 204 disposed between the sheet metal walls 201 and 202, secured thereto and extending around the periphery of the filler 203. Formed in the spacer structure 204 in the opposite sides thereof adjacent to the frame members 170 and 190 is a pair of laterally extending recesses or rabbets 205. To connect the top panel 200 to the side panel 180, the attachment flange 193 of the right-hand top frame member 190 is disposed within the rabbet 205 on the right side of the top panel 200. A plurality of bolts 207 passes through openings in the flange 193 located at spaced-apart points thereon and through openings in the spacer structure 204 and in the wall 202 and respectively engages a plurality of nuts 206, thus to attach the top panel 200 to the side panel 180. To connect the top panel 200 to the side panel 150, the attachment flange 173 of the left-hand top frame member 170 is disposed within the rabbet 205 on the left side of the top panel 200. A plurality of bolts 207 passes through openings in the flange 173 located at spaced-apart points thereon and through openings in the spacer structure 204 and in the wall 202 and respectively engages a plurality of nuts 206, thus to attach the top panel 200 to the side panel 150. The depth of each of the rabbets 205 is equal to the thickness of the attachment flanges 173 and 193 so that the upper surfaces of the attachment flanges 173 and 193 and the upper surface of the top panel 200 are substantially flush with one another and present a smooth, substantially continuous surface, thereby preventing collection of water on the top panel 200.

Referring now to FIGS. 1, 11, and 19, it may be seen that the cargo container 50 includes a slanting corner frame member 220 that forms a continuation of the front end base frame member 120 and includes an attachment flange 221 carrying thereon a channel-shaped portion 222, the purpose for which will be described in detail hereinafter. The attachment flange 221 is secured to the sloping side panel 140 at the front margin thereof by utilizing nuts and bolts in a fashion similar to that described with reference to others of the panel-frame member interconnections. The channel-shaped portion 222 defines a keeper surface 223 and includes an out-turned lip 224, the bottom surface of the out-turned lip 224 providing an abutment surface 225 for use as will be described in more detail hereinafter.

There is also provided a vertical corner frame 230 member disposed on top of the slanting corner frame member 220 and secured to the vertical side panel 150 in a similar fashion. Although not shown, the vertical corner frame member 230 has a channel-shaped portion similar to the channel-shaped portion 222. A vertical corner frame member 240 is disposed adjacent to the right-hand (as viewed in FIG. 1) side of the cargo container 50 and has a construction like that described with reference to the corner frame member 230 and includes an attachment flange secured by means of nuts and bolts to

the side panel 180. There is also provided a rear slanting corner frame member 250 secured to the rear end of the slanting side panel 140 by means of nuts and bolts in the same fashion as previously described. The slanting corner frame member 250 may have a construction similar to the top frame members 170 and 190. Disposed on top of the slanting corner frame member 250 and having a construction similar thereto is a vertical corner frame member 260 secured to the vertical side panel 150 adjacent to the rear margin thereof. Disposed adjacent to the side panel 180 adjacent to the rear end thereof is a vertically extending corner frame member 270 having a construction similar to the construction of the corner frame member 260 and directed generally parallel thereto. One of the flanges of the corner frame member 270 is secured to the side panel 180 at the margin thereof by means of nuts and bolts in a fashion like that described with reference to others of the panels and frame members.

A top frame member 290 having a construction similar to the top frame members 170 and 190 is disposed at the rear of the top panel 200, with one of the attachment flanges of the member 290 being secured by means of nuts and bolts to the top panel 200 at the rear margin thereof. There is also provided a rear panel 310 having a rectangular shape but with one corner thereof sliced off so as to conform to the shape of a cross section of the cargo container 50 laterally therethrough. The rear panel 310 is disposed against the rear base frame member (not shown), against the corner frame members 250, 260, and 270, and against the top frame member 290. The rear panel 310 is secured to said last-mentioned frame members by means of nuts and bolts. If desired, the rear panel 310 could be a removable door such as the door 450 presently to be described.

What has been described thus far is a cargo container of exceptionally strong construction by virtue of the body of rigid cellular construction in each of the panels, yet lightweight, due to the panels being constructed preferably of aluminum. Without sacrificing any loss in strength, the cargo container 50 can be completely disassembled within a very short period of time because all of the panels are secured to the frame members by nuts and bolts which can easily be removed. There are a number of desirable ramifications of this feature. For example, if one panel becomes damaged at a point far removed from the situs of the manufacturing facility of the cargo container 50, the user merely calls the manufacturing facility and asks that the panel or the frame member which has become damaged be shipped out immediately to the place where it is needed. Since the replacement part is relatively small and consumes a small amount of space, it can find room to be transported with very short notice. Also the manufacturer of the cargo containers can ship them in a knockdown condition, thereby utilizing less space on the vehicle used to transport them and accordingly reducing the manufacturer's cost.

To strengthen the cargo container 50, there is shown, in FIGS. 1, 2, and 4, a rigidifying panel 320, including a pair of spaced-apart sheet metal walls 321 and 322 and a filler 323 in the form of a body of rigid cellular construction between the walls 321 and 322 and secured thereto by means of epoxy as previously described with reference to others of the panels in the cargo container 50. There is also provided spacer structure 324 around the periphery of the filler 323 (see FIG. 10). The rigidifying panel 320 is in the form of a rectangle, but with one corner thereof sliced away.

As shown in more detail in FIG. 5, to mount the rigidifying panel 320 centrally within the cargo container 50, there is provided a bracket 325, the bracket 325 including a generally vertically extending attachment flange 326 which, in turn, carries a pair of spaced-apart substantially parallel side attachment flanges 327 extending upwardly and outwardly from the attachment flange 326. The side attachment flanges 327 respectively carry a pair of attachment flanges 328 lying in the same plane and inclined with respect to the attachment flange 326. There are provided bolts 330 that pass through openings

in the upstanding flange 83 of the side base frame member 80 and engage nuts 329 to mount the bracket 325 on the frame member 80. The bolts 146, in addition to passing through the upturned flange 85 of the side base frame member 80 and through the side panel 140, also pass through the inclined attachment flanges 328 and engage the nuts 145. Also, bolts 321 pass through the side attachment flanges 327 and through the portion of the rigidifying panel 320 disposed therebetween and engage nuts 332, thereby to interconnect the rigidifying panel 320, the side panel 140, and the frame member 80.

There is also provided a second bracket 335 including an attachment flange 336 having the shape of a flattened V, the attachment flange 336 carrying thereon further attachment flanges 337 and 338. The bolts 167, in addition to passing through the connecting frame member 160 and through the panel 140, also pass through the attachment flange 337 and engage the nuts 166. Similarly, the bolts 169, in addition to passing through the connecting frame member 160 and the side panel 150 also pass through the attachment flange 338 and engage the nuts 168. There is provided adjacent to the opposite wall 322 of the rigidifying panel 320 a bracket (not shown) like the bracket 335 and aligned therewith. A plurality of bolts 339 passes through the attachment flange 336 and the attachment flange on the opposing bracket (not shown) and through the rigidifying panel 320 disposed therebetween, and respectively engages a plurality of nuts (not shown), thereby to interconnect the rigidifying panel 320 with the slanting side panel 140 and the vertical side panel 150.

There is also provided a third bracket 340 including an attachment flange 341 having a generally square shape but with a corner thereof sliced off, the attachment flange 341 carrying thereon attachment flanges 342 and 343 disposed in planes directed generally normal to each other. The bolts 207 pass, not only through the attachment flange 173 and the top panel 200, but also through the attachment flange 343 and engage the nuts 206. Similarly, the bolts 176 pass, not only through the attachment flange 174 and through the side panel 150, but also through the attachment flange 342. It is to be understood that a bracket (not shown) similar to the bracket 340 is disposed on the opposite wall 322 of the rigidifying panel 320 and aligned with the bracket 340. A plurality of bolts 344 passes through the attachment flange 341 and the corresponding attachment flange on the opposing bracket (not shown) and through the rigidifying panel 320 and engages in nuts on the opposite side, thereby to interconnect the rigidifying panel 320 with the frame member 170, the side panel 150, and the top panel 200.

Referring now to FIGS. 1, 6 and 7, further details of the means for strengthening the cargo container 50 will be described. There is provided an elongated T-shaped side stiffener 350 including a mounting flange 351 and a platelike rib 352 directed normally thereto. The rib 352 is cut out adjacent to the bottom thereof, indicated by the reference numeral 353. The T-shaped side stiffener 350 is mounted in the container with the mounting flange 351 disposed against the wall 182 of the panel 180 approximately centrally thereof. The bolts 186 extend not only through the flange 105 and through the panel 180 but also through the mounting flange 351 and respectively engage nuts 185. Similarly, the bolts 196 pass not only through the flange 194 and the panel 180, but also through the mounting flange 351 adjacent to the top thereof and respectively engage the nuts 195. It is to be understood that there are similar nuts and bolts toward the rear side of the platelike rib 352 extending into the mounting flange 351. In addition there are provided bolts 356 that pass through the flange 351 and engage in nuts imbedded in the panel 180 so as to be hidden from view.

There is further provided an L-shaped bracket 360 disposed on both sides of the platelike rib 352 (only the front bracket 360 is shown), the bracket 360 including a pair of attachment flanges 361 and 362. The flange 362 is attached to the upstanding flange 103 of the side base frame member 100 by means of a bolt 364 and a nut 363. The attachment flange 361

of each of the brackets 360 is attached to the platelike rib 352 also by means of nuts and bolts.

Referring now to FIGS. 6 to 10, the cargo container 50 also comprises a front elongated L-shaped top stiffener including an attachment flange 371 and a platelike nut 372 disposed normal thereto. The attachment flange 371 is joined to the top panel 200 by means of bolts 373, engaging in nuts imbedded in the top panel 200 so as to be hidden from view.

There is also provided a rear elongated L-shaped top stiffener 380 including an attachment flange 381 and a platelike rib 382 disposed normally thereto. The attachment flange 381 is joined to the top panel 200 by means of bolts 383 threaded into nuts imbedded into the top panel 200 so as to be hidden from view. The top stiffeners 370 and 380 extend from adjacent to the top frame member 190 to the upper right-hand (as viewed in FIG. 8) corner of the rigidifying panel 320, the forward top stiffener 370 being disposed against the forward side of the T-shaped side stiffener 350 and on the forward side of the rigidifying panel 320, and the rear top stiffener 380 being disposed against the rear of the T-shaped side stiffener 350 and against the rear side of the rigidifying panel 320.

For connecting the stiffeners 370 and 380 to the rigidifying panel 320, there is provided a splice plate 390 including an attachment flange 391 and an offset flange 392. Also, there is provided a splice plate 400 including an attachment flange 401 and offset flange 402. A pair of bolts 405 extends through openings in the attachment flanges 391 and 401 and in the rigidifying panel 320 and engage nuts 404. Also there are provided bolts 407 passing the offset flanges 392 and 402, through the platelike ribs 372 and 382 and through the rigidifying panel 320 and engage the nuts 408, thereby to interconnect the L-shaped top stiffeners 370 and 380 and the rigidifying panel 320. There may also be provided a spacer 410 disposed between the ribs 372 and 382. A bolt 412 passes through the ribs 372 and 382 and through the spacer 410 and engages the nut 411. The thicknesses of the spacer 410 and the rigidifying panel 320 and the side stiffener 350 are the same so that tightening of the various nuts and bolts as described does not distort any of the members.

Accordingly, the rigidifying panel 320 is firmly attached to the top panel 200, to the vertical side panel 150 and to the sloping side panel 140. The side stiffener 350 is secured to the vertical side panel 180, and the L-shaped top stiffeners 370 and 380 are secured to each other, to the T-shaped side stiffener 350, to the top panel 200 and to the rigidifying panel 320. It may be seen that, with a minimum quantity of metal, an exceptionally strong container has been provided by reason of this rigidifying and stiffening structure. Like the outside panels and the associated frame members, the parts of the rigidifying and stiffening structure are also easily detachable from each other and from the other panels and frame members of the cargo container 50.

As previously described, the left side base frame member 80, the right side base frame member 100, the front end base frame member 120, and the rear end base frame member (not shown) do not extend to the corners of the base panel 70. To fill the gaps thereby created at the corners of the base panel 70, there is provided a set of four V-shaped corner bumpers 420, 430, 431 and 432. Each of the four bumpers has the same structure, whereby, in the interest of brevity, only the corner bumper 420 disposed at the forward left-hand corner (as viewed in FIG. 1) of the cargo container 50 will be described. Referring to FIGS. 14 and 15, the corner bumper 420 includes a pair of legs 421 and 422 diverging from each other at an obtuse angle and merging into a curved apex 423. Preferably, each corner bumper 420 is formed of an aluminum extrusion. The corner bumper 420 includes a body portion 425 having a curved outer surface 426 conforming in shape to the curved surface of the adjacent side bumper or end bumper, as the case may be. Depending inwardly upon the body portion 425 is an attachment flange 427, the body portion 425 carrying thereon an upstanding flange 428 which, in turn, carries an out-turned flange 429.

As is most clearly shown in FIG. 11, the corner bumper 420 is so positioned and placed that the curved outer surface 426 on the leg 421 forms a continuation of the curved outer surface 137 of the front end bumper 135, and the curved surface 426 of the leg 422 forms a continuation of the curved outer surface 97 of the left side bumper 95. The attachment flange 427 is disposed against the wall 72 of the base panel 70 and is removably connected thereto by means of bolts 433 (FIG. 12) extending through the attachment flange 427 and engaging in the nuts 77 in the channel-shaped spacer structure 74.

The corner bumper 420 is joined to the adjacent portion of the front end base frame member 120 by means of a splice plate 440. Bolts 441 pass through the upstanding flange 428 in the leg 421 and through one portion of the splice plate 440 and respectively engage nuts 442. Additional bolts 441 pass through the upstanding flange 123 of the front end base frame member 120 and through another portion of the splice plate 440, thereby securely to attach the corner bumper 420 to the front end base frame member 120. As previously described, the channel-shaped portion 124 continues to the corners of the container 50, the corner bumper 420 being connected to the channel-shaped portion 124 by means of bolts 448 extending through the lip 125b and through the out-turned flange 429 and engaging nuts 449.

The corner bumper 420 is joined to the adjacent portion of the left side base frame member 80 by means of a splice plate 445. Bolts (not shown) pass through the upstanding flange 428 in the leg 422 and through one portion of the splice plate 445 and respectively engage nuts (not shown). Additional bolts (not shown) pass through the upstanding flange 83 of the left side base frame member 80 and through another portion of the splice plate 445, thereby securely to attach the corner bumper 420 to the left side base frame member 80. It is to be understood that the corner bumpers 430, 431, and 432, respectively mounted on the other three corners of the base panel 70, have the same construction as the corner bumper 420 and are respectively secured to the adjacent frame members in much the same way.

Because the legs of each of the corner bumpers diverge at an obtuse angle, the distance between the apex 423 of the corner bumper 420 and the apex of the corner bumper 430 (and the distance between the apexes of the corner bumpers 431 and 432) is less than the corresponding distance between the left side bumper 95 and the right side bumper 115. Also, the distance between the apex 423 of the corner bumper 420 and the apex of the corner bumper 432 (and the distance between the apexes of the corner bumpers 430 and 431) is less than the distance between the front end bumper 135 and the rear end bumper (not shown). The fact that the corners are closer together than the side facilitates moving the container 50 about.

The corner bumpers 420, 430, 431, and 432, the side bumpers 95 and 115, and the end bumpers 135 (only one is shown) define a continuous bumper extending around the periphery of the base panel 70 to protect it and the cargo container 50 from damage as the container is being moved about. From time to time, therefore, the corner bumpers 420, 430, 431, and 432 may become damaged or worn out and require replacement thereof. To this end, the corner bumpers 420, 430, 431, and 432 are readily detachable by loosening the bolts associated with the splice plates.

Referring now to FIGs. 1, 16, and 17, details of the door 450 will be described. The door 450 includes a pair of spaced-apart generally rectangular sheet metal walls 451 and 452 disposed generally parallel to each other and a filler 453 in the form of a body of rigid cellular construction disposed between the walls 451 and 452 and secured thereto. There is provided spacer structure 454 (see FIG. 19) adjacent to the bottom of the door 450 and disposed between the walls 451 and 452 and secured thereto. There may also be provided spacer structure (not shown) between the walls 451 and 452 adjacent to the sides thereof.

To mount the door 450 in the cargo container 50, there is provided a hinge mechanism 460 including an integral generally F-shaped door support 461 including an attachment portion 462, a retaining portion 463 depending therefrom and a guide portion 466 extending from the attachment portion 462 and away from the retaining portion 463. The retaining portion 463 has an arcuate outer retaining surface 464 that faces toward the interior of the container 50. The guide portion 466 has an inner retaining surface 467 that faces toward the exterior of the container 50, the outer retaining surface 464 being a continuation of the inner retaining surface 467 and in facing relationship therewith to define a groove 468 therebetween. The guide portion 466 finally includes a guide surface 469 disposed toward the outer retaining surface 464 and being a continuation of the inner retaining surface 467. The attachment portion 462 is disposed between the walls 201 and 202 of the top panel 200 adjacent to the forward ends thereof, the attachment portion 462 being secured therein by means of epoxy. With the attachment portion 462 so mounted, the retaining portion 463 extends downwardly into the door-receiving opening 458 and the guide portion 466 extending downwardly and inwardly of the door-receiving opening 458. It is to be understood that the door support 461 extends from one side of the door-receiving opening 458 to the other side thereof. The extremity of the retaining portion 463 is partly bounded by an inwardly facing arcuate convex pivot surface 465.

The hinge mechanism 460 further includes a hanger 480 having an attachment portion 481 disposed between the walls 451 and 452 of the door 450 and secured thereto. The hanger 480 also includes a tongue 482 having an arcuate outer bearing surface 483 facing toward the exterior of the cargo container 50 and an inner bearing surface 484 facing toward the interior of the cargo container 50. The portion of the hanger 480 between the tongue 482 and the attachment portion 481 is in part bounded by an outwardly facing concave pivot surface 485. The hanger finally includes an outwardly directed guide surface 487 that is a continuation of the concave surface 485. It is to be understood that in the preferred embodiment the inner bearing surface 484 and the concave pivot surface 485 are each arcuate. In addition, the outer bearing surface 483 is a continuation of the inner bearing surface 484 and the concave pivot surface 485 is a continuation of the outer bearing surface 483.

In the closed position of the door 450, the tongue 482 is disposed in the groove 468 with the outer bearing surface 483 in facing relationship with the outer retaining surface 464 and with the inner bearing surface 484 in facing relationship with the inner retaining surface 467 of the door support 461. It can be appreciated that, if the opposite end of the door 450 is locked or latched onto the cargo container 50, the door 450 will be held in place by virtue of the above-described hinge mechanism 460. When it is desired to remove the door 450, the latching mechanisms will be unlatched, the construction of which will be explained in detail hereinafter, and the door 450 is rotated while maintaining the concave pivot surface 485 in abutting relationship with the convex pivot surface 465 permitting the tongue 482 to be moved out of the groove 468 followed by removal of the door 450 from the door-receiving opening 458.

The guide portion 466, in addition to precluding movement of the door 450 when in the locked position thereof, also serves as a guide for repositioning the door 450 into the door-receiving opening 458. When the door 450 is to be replaced in the door-receiving opening 458, the operator merely positions the door 450 such that the tongue 482 is placed in contact with the guide surface 469 adjacent to the lower end thereof and such that the guide surface 487 is disposed in contact with the convex pivot surface 465. The operator then moves the door 450 such that the tongue 482 moves along the guide surface 469 into the groove 468. Also the guide surface 487 moves along the convex pivot surface 465 until the pivot surfaces 465 and 485 are in abutting relationship.

An important feature of the hinge mechanism 460 is the fact that the door 450 can be completely removed from the container 50 so as to permit unobstructed loading and removal of cargo stored therein. Another advantage of the above-described construction resides in the fact that any tendency of the door 450 to rotate about the longitudinal axis of the tongue 482 while the door 450 is locked is precluded because of the abutting relationship of the pivot surfaces 465 and 485. Any tendency of the door 450 to rotate while closed could cause bowing or distortion of the door 450 in response to forces tending to open the door.

It is to be understood that, although the rear panel 310 is shown to be readily detachably connected to the adjacent frame members, it can define a door having the same construction as the door 450. In such case, the rear panel 310 would be mounted by means of a hinge mechanism like the hinge mechanism 460 so that such rear panel 310 would be readily removable from the container 50.

As shown in FIG. 1, the door 450 is hinged adjacent to the top thereof and a plurality of latching mechanisms 500 are located at spaced-apart points on the door 450 adjacent to the three free edges thereof, seven such latching mechanisms being shown in the embodiment of FIG. 1.

Referring now to FIGS. 18 through 20, the details of one of the latching mechanisms 500 will be described. It is to be understood that all seven latching mechanisms 500 are identical to one another, whereby the ensuing description with respect to one of them is equally applicable to each of them. The latching mechanism 500 includes a housing 510 including a lip 511 defining the periphery of the housing 510 and having a generally keyhole-shaped outline. The housing 510 includes an inwardly offset wall 512 located adjacent to one end of the housing 510 and merging into an inwardly sloping wall 513 and then to the lip 511 by means of an outwardly sloping wall 514. The housing 510 further includes a rear wall 515 spaced rearwardly from the inwardly offset wall 512 and disposed generally parallel thereto and spaced therefrom by means of connecting walls 516 (only one is shown), thus to define a compartment 517 between the walls 512, 515 and 516.

The latching mechanism 500 also includes a latch 520 located in the compartment 517 and against the rear wall 515 and rotatably mounted in the housing 510 by means of a gudgeon 521 fixedly secured to the latch 520 and rotatably journaled into the walls 512 and 515. There is also provided a driven gear 524 having gear teeth 525 and partly disposed in the compartment 517, the gear 524 being drivingly connected to the latch 520 for imparting rotation thereto by virtue of its being fixedly mounted onto the gudgeon 521.

The latching mechanism 500 also includes a driving gear 526 disposed in the compartment 517 and fixedly mounted onto a gudgeon 528 that is rotatably journaled into the walls 512 and 515. The driving gear 526 is drivingly connected to the driven gear 524 for imparting rotation thereto by virtue of the gear teeth 527 of the driving gear 526 being meshed with the gear teeth 525 and the driven gear 524.

The latching mechanism 500 finally includes a handle 530 including an arm 531 connected to the gudgeon 528 by means of a transverse pin 532. The arm 531 is connected adjacent to the other end thereof to a knob 533 rotatably mounted thereon so that the user in rotating the handle 530 rotates the knob 533 independently of the arm 531 to facilitate rotating of the handle 530. The pin 532 provides a driving connection between the handle 530 and the driving gear 526 so that rotation of the handle 530 rotates the driving gear 526 which in turn rotates the driven gear 524 which in turn rotates the latch 520. In addition, the handle 530 is pivotally movable about the pin 532 in the direction of the axis of the gudgeon 528 toward and away from the housing 510, whereby the handle 530 is pivotal between an inner storage position disposed in a recess 518 represented by the handle 530 shown in solid lines, whereby the handle 530 is relatively inaccessible to a user. By grasping the handle 530, it may be moved to an outer operating position indicated by the phantom lines wherein the han-

dle 530 is disposed out of the recess 518 and is accessible to a user to permit subsequent rotation thereof to move the latch 520.

The latching mechanism 500 is disposed in a door opening with reinforcing structure 456 therearound. The lip 511 is secured to the wall 451 of the door 450 thus to secure the latching mechanism 500 in place. The latch 520 will be disposed slightly to the rear of the keeper surface 223 of the corner frame member 220. It is to be understood that the latching mechanisms 500 disposed adjacent to the corner frame members 230 and 240 will engage similar keeper surfaces disposed thereon. On the other hand, the three latching mechanisms 500 disposed adjacent to the bottom of the door 450 will engage the rear surface of the upstanding flange 123 of the front end base frame member 120 (see FIG. 13).

In operation, the latch mechanism has a latching position wherein the latch 520 engages the keeper surface 223, and the handle 530 is in the position pointing to the designation "LOCK," which position is indicated by the solid lines in FIG. 18. The latching mechanism also has an inner storage position wherein the handle 530 is disposed in the recess 518. If it is desired to open the door 450, the user grasps the handle 530 and pivots it about the pin 532 to move the handle 530 from the inner storage position to an outer operating position wherein the handle is disposed out of the recess 518. The user then rotates the handle 530 in the clockwise direction which rotates the driving gear 526 in the direction of the arrow 540 which, in turn, imparts rotation to the driven gear 524 in the direction of the arrow 541 which in turn moves the latch 520 in the direction of the arrow 542. When the handle 530 reaches the position pointing to the designation "OPEN," which, in turn, is indicated by the broken lines in FIG. 18, the handle has traversed about 340° and the latch 520 disengages the keeper surface 223 to unlock the door 450. The operator then pushes the handle 530 back into the recess 518 to the inner storage position thereof. This operation is carried out for each of the seven latching mechanisms whereupon the door 450 is unlocked and can be pivoted as previously described and pulled out of the door-receiving opening 458 of the cargo container 50.

To replace the door 450, the hanger 480 of the hinge mechanism 460 is inserted into the door support 461 as previously described and each of the latching mechanisms 500 is then locked by first pulling the handle 530 out from the inner storage position thereof into the outer operating position thereof, followed by rotation of the handle 530 in the counterclockwise direction thereof, as viewed in FIG. 18, to move the latch 520 from the release position thereof into the latching position thereof.

By constructing the gears 524 and 526 such that the gear ratio of the former to the latter is substantially greater than 1:1 and preferably on the order of 4:1, the user must impart a substantial rotation to the handle 530 to rotate the latch 520 from the latching position thereof to the release position thereof. This is a desirable aspect since the cargo container 50 is used in an airplane where an unwanted opening during flight would of course damage the contents of the container. An airplane is always susceptible to a good deal of jostling during landing, takeoff and often during the actual flight. Any of these occurrences could of course cause unwanted opening of the container 50. Because the handle 530 must be rotated a substantial amount, on the order from 300° to 360°, the chance of such inadvertent rotation of the handle is far less likely to move the latch 520 from the latching position to the release position thereof. Further, because the handle 530 is normally in the storage position thereof, the handle 530 itself is relatively inaccessible so that the chances of inadvertently rotating the handle 530 is also reduced. The combination of these two features, make it extremely unlikely that any unwanted opening of the container 50 could occur.

To minimize side-to-side movement of the door 450 when the door 450 is in the locked position thereof, there is provided an integral elongated restraining member 550 extending

along the lower edge of the door 450. The restraining member 550 includes an attachment flange 551 secured to the wall 452 and an inturned lip 552 defining an abutment surface 553 facing toward the opposite side of the door 450. When the door 450 is in the closed position thereof, the inturned lip 552 is disposed immediately adjacent to the out-turned lip 224 and the abutment surfaces 553 and 225 are in facing relationship. Any tendency of the door 450 to move from side to side will cause the abutment surfaces 553 and 225 to engage thereby preventing such movement.

The elongated restraining member is disposed around the entire free margin of the door 450, whereby when the door is closed, one portion of the lip 552 will be disposed immediately adjacent to the out-turned lip (not shown) of the left-hand corner frame member 230 and inwardly thereof. Another portion of the lip 552 is disposed immediately adjacent to the out-turned lip (not shown) on the right corner frame member and inwardly thereof. The restraining member 550 also has a portion thereof located at the bottom of the door 450 and, as shown in FIG. 13, has the lip 552 thereof disposed immediately beneath the out-turned lip 125a of the front end base frame member 120, with the abutment surfaces 126 and 553 being in facing relationship to limit vertical movement of the door 450 in the closed position thereof. By virtue of the elongated restraining member 550 extending around the free margin of the door 450 and the cooperation therewith of the frame members 120, 220, 230 and 240, movement of the door 450 in the plane thereof is prevented when the door is closed.

The container 50 further comprises an elongated gasket 560, the construction of which is best shown in FIG. 21. The gasket 560 includes an elongated substantially flat attachment portion 561 and a hollow crescent-shaped portion 562 integral with the attachment portion 561. The crescent-shaped portion includes an outer curved longer resilient segment 563 and an inner curved shorter resilient segment 564. Disposed on the outer surface of the outer curved resilient segment 563 is a plurality of projections 565. As shown in FIG. 19, the gasket 560 is positioned within the channel-shaped portion 222 of the slanting corner frame member 220, with the attachment portion 561 being connected in the portion 222 by means of a connector element 566. The gasket 560 is also disposed in channel-shaped portions (not shown) of the corner frame members 230 and 240. In addition, as is best shown in FIG. 13, the gasket is also disposed in the channel-shaped portion 124 of the front end base frame member 120 and secured thereto.

In the closed position of the door, the attachment portion 551 of the restraining member 550 engages the outer surface of the outer curved resilient segment 563 of the gasket 560 and flattens it and the inner curved segment 564 against the attachment portion 561. The resiliency in the segments 563 and 564 urge the door 450 outwardly but such movement is precluded by virtue of the latching mechanisms 500 being in the latching positions thereof. The resiliency in the gasket 560 provides a good seal for the door 450 to prevent seepage of moisture into the container 50.

As can be seen in FIG. 1, there is provided a pair of handle assemblies 580 mounted on the door 450 to be grasped by a user to move the door 450 out of the door-receiving opening 458 after the latching mechanisms 500 have been placed in their release positions. Each of the handle assemblies 580 are identical, whereby only one will be described. The handle assembly 580 is more clearly shown in FIGS. 22 and 23, and is shown to include a casing 581 having a generally rectangular outline. The casing includes a lip 582 around the periphery of the casing 581 and a rear wall 583 disposed rearwardly of the lip 582 to define a recess 584. The handle assembly 580 also includes a clip 586 having a pair of attachment flanges 587 respectively attached to the casing 581 and bent to define a socket 588. The casing 581 also has the rear wall 583 struck out to define two venting ports 589. There is also provided a handle 590 in the form of a rectangular loop, one leg of the loop having a rubber sleeve 591 thereon to be grasped by a user. The opposite leg of the handle is located in the socket

588 and is pivotal therein between a storage position wherein the handle 590 is disposed in the recess 584 and an outer operating position wherein the handle 590 is disposed out of the recess 584. The handle assembly 580 is positioned within an opening provided therefor in the door 450 with the lip 582 disposed against the outer wall 451 of the door 450 and secured thereto. The venting ports 589 permit equalization of the inside of the cargo container 50 with the atmosphere.

There also is provided a pair of handle assemblies 600 mounted in the side panel 150 for use in moving the container 50 around. The handle assembly 600 has a construction identical to the construction of the handle assemblies 580, whereby further description of these handle assemblies is unnecessary.

In order to prevent the cargo in the cargo container 50 from moving around therein during transportation thereof, there is provided a plurality of tiedown mechanisms 610 mounted in the container 50 on the base panel 70 at various points around the periphery thereof. Each of the tiedown mechanisms 610 includes a base 611 movably supporting thereon a wire loop 612. The base 611 includes two openings therein for receiving therethrough bolts 114 for engaging the nuts 77. There are also provided openings in the base 611 through which pass bolts 614 engaging what are referred to as 37 potted-in-place" inserts 613. The inserts 613 are disposed in a cavity formed in the base panel 70 and are held therein by means of an epoxy 615. In use, ropes are passed around the cargo contained in the cargo container 50 and threaded through the loop 612 of each of the tiedown mechanisms 610 and tied in place so as to preclude the cargo from moving about during transportation of the container 50.

There is also provided a tag holder 620 for carrying a destination tag 627 indicating where the particular cargo container 50 is bound.

In use, the cargo containers 50 are brought to the entrance of the airplane 60 and moved onto a ball transfer mat consisting of a multiplicity of balls defining a ball bearing surface. The containers 50 are moved on the ball bearing surface so as to orient them and align them into two longitudinally extending side-by-side rows, the sloping side panel 140 of each of the containers accommodating the curvature of the airplane fuselage 61. Because the containers 50 are moved on a ball transfer mat, the fact that no connections are made on the bottom wall 71 of the base panel 70 is highly desirable as there are no obstructions to free movement of the containers. After all the containers are positioned at the desired locations, the fingers 68 of locking mechanisms 67 disposed at various points on the lower deck 66, are swiveled so as to engage the engagement surface of the adjacent base frame member and tightened to hold the cargo container 50 to prevent movement thereof. When the airplane 60 reaches its destination, the containers 50 are rolled out of the airplane and brought to a convenient location in the airport, and the doors 450 are removed to permit the cargo to be conveniently removed from the containers.

In an operating form of the invention, each of the panels 70, 140, 150, 180, 200, 310, 320, and the door 450 had walls formed of aluminum sheet such as that sold under the designation 7075-T6 Alclad; the outside wall of each of the panels except the base panel 70 had a thickness of 0.012 inches; the inside wall of each of the panels except the base panel 70 had a thickness of 0.012 inches; the walls of the base panel 70 had a thickness of 0.04 inches; the filler in each of the panels other than the base panel 70 was an aluminum honeycomb construction having a 3/16-inch cell size and a 3.1 lb. per cu. ft. density, with a thickness of between 0.222 inches and 0.472 inches depending on the particular panel; the filler in the base panel 70 was an aluminum honeycomb construction having a 1/4-inch cell size and an 8.1 lb. per cu. ft. density with a thickness of 0.545 inches; the fillers were joined to the walls of the associated panel by the use of an epoxy having a density of 0.06 lb. per sq. ft. in the base panel 70 and 0.03 lb. per sq. ft. in all the other panels; each of the frame members were formed

of an aluminum extrusion composed of an aluminum alloy sold under the designation 606-T6 and having a yield strength of about 35,000 lbs. per sq. inch; the T-shaped side stiffener 350 and the L-shaped top stiffeners 370 and 380 were each aluminum alloy extrusions sold under the designation 7075-T6; the side, end, and corner bumpers were formed of aluminum alloy extrusions sold under the designation 7075-T6; the gear ratio of the driven gear 524 to the driving gear 526 was 4:1; the handle 530 had to be rotated approximately 340° to release the latching mechanism 500; the gasket 560 was formed of neoprene.

There is illustrated in FIG. 25 a baggage container 750 made in accordance with another embodiment of the present invention. The baggage container 750 has the same basic exterior construction as the cargo container 50 and in order to show correspondence of parts therebetween, the parts of the baggage container 750 are indicated by the same reference numerals used with respect to the corresponding parts in the cargo container 50, but with a factor of 700 added thereto. More specifically, the baggage container 750 comprises a base panel 770 having side base frame members 780 and 800 respectively secured to the sides thereof, a front end base frame member 820 secured to the front thereof and a rear base frame member (not shown). The frame members are readily detachably secured to the base panel 770 in the manner described with reference to the cargo container 50. The baggage container 750, in addition, includes corner frame members 920, 930, 940, 950 and 960; and the side panels 840, 850, and 880 respectively readily detachably connected to the corner frame members 920, 930, 940, 950, and 960 and the base frame members 780, 800, and 820. There are also provided top frame members 870, 890, and 990 and a top panel 900 removably attached thereto. The rear panel 1010 in this embodiment is a door readily removably mounted in the container 750 by means of a hinge mechanism like the hinge mechanism 460 in the cargo container 50, so that such rear panel 1010 is readily removable from the container 750. Although not shown in FIG. 25, the baggage container 750 also includes a door constructed like the door 450 in the cargo container 50 and hingedly mounted to the container 750 by means of a similar hinge mechanism and latched by means of similar latching mechanisms. There is also provided a continuous bumper surrounding the base panel 770 defined in part by the bumpers 1132, 795, 1120, 835, and 1130.

The container 750 includes a rigidifying panel 1020 in the shape of a rectangle with one corner sliced away. The rigidifying panel 320 is mounted centrally within the baggage container 750, with the shorter edge thereof being disposed against the panel 850, and with the oblique edge thereof being disposed against the slanting panel 840. The rigidifying panel 320 is secured by means of brackets 1025, 1035, and 1040 in the same way as the corresponding brackets secure the rigidifying panel 320 in the cargo container 50. There is also provided an elongated T-shaped side stiffener 1050 disposed against the panel 880 and readily detachably secured thereto. There is provided a pair of elongated spaced-apart L-shaped top stiffeners 1070 and 1080 disposed against the inner surface of the top panel 900 generally centrally thereof and detachably secured thereto.

The baggage container 750 thus far described is of precisely the same construction as the cargo container 50, and has the same highly desirable features of being strong and durable by reason of the panels being constructed of bodies of rigid cellular construction. Each and every panel is readily removably attached to the adjacent frame member so that the baggage container 750 may be shipped in a disassembled condition and so that any one panel may be readily removed and easily replaced.

Referring now to FIGS. 25, 27 and 29, details of the shelf mounting structure will be described. There is provided a center shelf bracket 1150 having an attachment flange 1151 and a support flange 1152 disposed in planes substantially normal to each other. The attachment flange is secured to the

rigidifying panel 1020 on the front wall 1021 thereof and at a position about one-third the way down from the top panel 900. There is also provided a center shelf bracket 1160 having an attachment flange 1161 and a support flange 1162 disposed in planes substantially normal to each other. The attachment flange 1161 is disposed against the wall 1022 of the rigidifying panel 1020 in such a manner that the support flange 1162 lies in the same horizontal plane as the support flange 1152. The attachment flanges 1151 and 1161 are readily removably attached to the rigidifying panel 1020 by means of an insert 1165 mounted by means of epoxy within the panel 1020. A threaded bolt 1166 passes through aligned openings in the attachment flanges 1151 and 1161 and through the insert 1165 detachably to connect the brackets 1150 and 1160 to the rigidifying panel 1020.

There is further provided a corner shelf bracket 1170 including an attachment flange 1171 and a support flange 1172 lying in planes substantially normal to each other. The attachment flange 1171 is disposed against the vertical side panel 850 and removably secured thereto and at a vertical position thereon such that the support flange 1172 lies in the same horizontal plane as the support flanges 1152 and 1162. There is further provided a corner shelf bracket 1180 including an attachment flange 1181 and a support flange 1182 lying in planes substantially normal to each other. The attachment flange 1181 is removably secured to the vertical side panel 850 in a manner such that the support flange 1182 lies in the same horizontal plane as the support flange 1152. There are provided similar corner shelf brackets (not shown) on the opposite vertical side panel 880 such that their support flanges also lie in the same horizontal plane as the support flanges 1172 and 1182.

As is shown more clearly in FIG. 28, there is also provided a plurality of intermediate supports 1190 and as more clearly shown in FIG. 28, each intermediate support 1190 includes a cylindrical stud 1191 having therein a slot 1192 for receiving a screwdriver to rotate the support 1190. Formed on one end of the stud 1191 and integral therewith is a threaded shank 1193 which engages an insert 1195 epoxied into the associated side panel 850. As shown in FIG. 25 four such intermediate supports are provided and are located on the panel 850 such that they lie in the same horizontal plane as the support flanges 1152, 1162, 1172 and 1182. There are provided similar intermediate supports 1200 on the panel 880 disposed in the same plane as the intermediate supports 1190.

The baggage container 750 further comprises a shelf 1210 including a pair of spaced-apart generally rectangular walls 1211 and 1212 disposed generally parallel to each other. Disposed between the walls 1211 and 1212 is a filler 1213 in the form of a body of rigid cellular construction secured thereto. Disposed around the periphery of the filler 1213 and secured thereto and to the walls 1211 and 1212 is a spacer structure 1214 for use in reinforcing the shelf 1210 and for mounting the same. The shelf 1210 is positioned in the container 750 such that it rests upon the support flanges 1152, 1172 and on the support flanges on the brackets on the panel 880 and on the intermediate supports 1190 and 1200. The shelf 1210 is secured in place by means of fasteners extending through the support flanges 1152 and 1172. There is further provided a second shelf 1220 having the same construction as the shelf 1210, namely including a pair of spaced-apart generally rectangular sheet metal walls 1221 and 1222 extending generally parallel to each other. Disposed within the walls 1221 and 1222 is a filler 1223 in the form of a body of rigid cellular construction. A spacer structure 1224 extends around the periphery of the filler 1223 and is secured thereto and to the walls 1221 and 1222. The shelf 1220 rests upon the support flanges 1162 and 1182 and on the support flanges (not shown) of the brackets on the panel 880. The shelf 1220 also rests upon the intermediate supports 1190 and 1200.

If desired, there may be provided another shelf 1230 disposed beneath the shelf 1210 and extending generally parallel thereto and mounted on structure essentially the same

as the shelf mounting structure used with respect to the panel 1210. Finally, there may be provided a shelf 1240 disposed in the same horizontal plane as the shelf 1230 and mounted on a similar structure as are used to mount the rest of the shelves.

To compartment the baggage container 750, there is provided an L-shaped retaining bracket 1250 secured to the shelf 1210 adjacent to the inner edge thereof and extending from the inner edge of the rigidifying panel 1020 to the right side panel 880. The bracket 1250 includes a pair of attachment flanges 1251 and 1252 lying in planes normal to each other, the attachment flange 1251 being secured to the shelf 1210. There is provided a similar retaining bracket (not shown) on the shelf 1220 and being spaced apart from the retaining bracket 1250 and disposed generally parallel thereto. In order to prevent baggage from shifting during transit, there is provided a divider 1260 which, in the preferred form, is formed of an expanded metal to define a mesh. The divider 1260 is disposed between the platelike ribs of the L-shaped top stiffeners 1070 and 1080 and extends down through the retaining bracket 1250 and the facing retaining bracket (not shown), through the space between the shelves 1230 and 1240 upon which are mounted similar retaining brackets and down to the base panel 770 upon which are mounted three spaced-apart retaining brackets 1270, 1280, and 1290. The divider 1260 extends from the rigidifying panel 1020 to the platelike rib of the T-shaped side stiffener 1050. The divider 1260 is secured by means of fasteners extending through the attachment flange 1251 and through the divider 1260 and through the opposing attachment flange (not shown). Similarly, fasteners extend through the remainder of the retaining brackets and through the divider 1260 to hold the divider in place. As is the case with the rest of the parts of the baggage container 750, the divider 1260 and the retaining brackets therefor are readily removable from the container 750, so that they may be easily replaced. The divider 1260 and the rigidifying panel 1020 define a substantially continuous wall completely separating the shelf panels 1210 and 1230 and the front portion of the base panel 770 from the shelf panels 1200 and 1240 and the rear portion of the base panel 770 to minimize the shifting of baggage in transit.

While there has been described what are at present considered to be the preferred embodiments of the invention, it will be understood that various modifications may be made therein, and it is intended to cover in the appended claims all such modifications as fall within the true spirit and scope of the invention.

What we claim is:

1. A container comprising a generally rectangular base panel, two elongated side base frame members and two elongated end base frame members respectively disposed against said base panel at the margins thereof, two upstanding side panels each disposed with one of the margins thereof upon a different one of said side base frame members, four elongated corner frame members respectively disposed against the generally upstanding margins of said side panels, two elongated side top frame members each disposed upon a different one of said side panels at the upper margin thereof, a horizontal top panel disposed between and against said side top frame members, two elongated end top frame members respectively disposed against said top panel at the front and rear margins thereof, a rear panel disposed with the margins thereof against a rear one of said end base frame members and against the rear one of said end top frame members and against the rear ones of said corner frame members, each of said panels including a pair of spaced-apart substantially parallel sheet metal walls and a body of rigid cellular construction disposed therebetween and spacer structure extending therearound, said body being disposed centrally of said walls and secured thereto with said spacer structure being disposed at the margins of said walls and secured thereto and extending along the periphery of said body, a plurality of readily detachable first fasteners respectively detachably connecting said panels to said frame members, a load-bearing rigidifying panel having a

width substantially less than the width of said rear panel, said rigidifying panel having one edge thereof disposed against said top panel and another edge thereof disposed against one of said side panels and extending generally parallel to said rear panel, and a plurality of readily detachable second fasteners and brackets respectively detachably mounting said rigidifying panel on the adjacent panels in said container.

2. The container set forth in claim 1, wherein said rigidifying panel includes a pair of spaced-apart substantially parallel sheet metal walls and a body of rigid cellular construction disposed therebetween and spacer structure extending therearound, said body being disposed centrally of said walls and secured thereto with said spacer structure being disposed at the margins of said walls and secured thereto and extending along the periphery of said body.

3. The container set forth in claim 1, wherein said one side panel includes a first portion extending generally parallel to the other of said side panels and a second portion extending from said first portion toward said second side panel and said base panel, said rigidifying panel having a longer side edge and a shorter side edge extending generally parallel to one another and a top edge disposed normal to both of said side edges and an oblique edge joining the bottoms of said side edges, said top edge being disposed against said top panel and said shorter side edge being disposed against said first portion and said oblique edge being disposed against said second portion.

4. The container set forth in claim 1, wherein said rigidifying panel is disposed with its plane perpendicular to and generally centrally of said top panel and said one side panel.

5. A container comprising a generally rectangular base panel, two elongated side base frame members and two elongated end base frame members respectively disposed against said base panel at the margins thereof, two upstanding side panels each disposed with one of the margins thereof upon a different one of said side base frame members, four elongated corner frame members respectively disposed against the generally upstanding margins of said side panels, two elongated side top frame members respectively disposed upon said side panels at the upper margins thereof, a top panel disposed with the side margins thereof between and against said side top frame members, two elongated end top frame members respectively disposed against said top panel at the front and rear margins thereof, a rear panel disposed with the margins thereof against the rear one of said end base frame members and against the rear one of said end top frame members and against the rear ones of said corner frame members, each of said panels including a pair of spaced-apart substantially parallel sheet metal walls and a body of rigid cellular construction disposed therebetween and spacer structure extending therearound, said body being disposed centrally of said walls and secured thereto with said spacer structure being disposed at the margins of said walls and secured thereto and extending along the periphery of said body, a plurality of readily detachable first fasteners respectively detachably connecting said panels to said frame members, a load-bearing rigidifying panel having a width substantially less than the width of said rear panel, said rigidifying panel having one edge thereof disposed against said top panel and another edge thereof disposed against one of said side panels, said rigidifying panel extending generally parallel to said rear panel, a plurality of readily detachable second fasteners and brackets respectively detachably mounting said rigidifying panel on the adjacent panels in said container, an elongated T-shaped side stiffener disposed on the inner surface of the other of said side panels and in alignment with the adjacent edge of said rigidifying panel, said side stiffener including a mounting flange secured to the other of said side panels and a first platelike rib extending toward said rigidifying panel, a pair of elongated L-shaped top stiffeners disposed on the inner surface of said top panel and interconnecting said side stiffener and said rigidifying panel, each of said top stiffeners including an attachment flange secured to said top panel and a second platelike rib extending toward said bottom panel, the second rib of one of

said top stiffeners being disposed adjacent to one side of said first rib and adjacent to the corresponding wall of said rigidifying panel, the second rib of the other of said top stiffeners being disposed adjacent to the other side of said first rib and adjacent to the corresponding wall of said rigidifying panel, and a plurality of readily detachable third fasteners detachably connecting said top stiffeners to said side stiffener and to said rigidifying panel.

6. The container set forth in claim 5, wherein, said rigidifying panel is disposed with its plane perpendicular to and generally centrally of said top panel and said one side panel.

7. The container set forth in claim 5, and further comprising at least one spacer disposed between said second ribs at a point disposed between said side stiffener and said rigidifying panel to maintain a predetermined spacing between said second ribs.

8. The container set forth in claim 5, and further comprising a first splice plate disposed against one side of said rigidifying panel and one of said L-shaped top stiffeners, a second splice plate disposed on the other side of said rigidifying panel and against the other of said L-shaped top stiffeners, at least one fastener interconnecting said splice plates and said L-shaped top stiffeners and said rigidifying panel, and at least one fastener interconnecting only said splice plates and said rigidifying panel.

9. A container comprising a body having a door-receiving opening therein, an integral generally F-shaped door support defining an edge of said door-receiving opening and including an attachment portion and a retaining portion extending substantially normal to each other and a guide portion disposed therebetween and extending away from said attachment portion and away from said retaining portion, said guide portion terminating in a free distal end spaced from said attachment portion and said retaining portion, said attachment portion being mounted on said container adjacent to said door-receiving opening with said retaining portion extending in the plane of and toward said opening and said guide portion extending inwardly thereof, said retaining portion having an convex cylindrical distal retaining surface disposed on the same side thereof as said attachment portion and said guide portion having a concave cylindrical retaining surface in facing relationship with said distal retaining surface and defining a groove therebetween, a door for removable mounting in said door-receiving opening and having a closed position with respect thereto, an integral hanger including a mounting portion attached to one edge of said door and including a tongue, said tongue having a concave cylindrical bearing surface on its outer face shaped complementary to said distal retaining surface and a convex cylindrical distal bearing surface shaped complementary to said guide portion concave cylindrical retaining surface, and said groove, said tongue in the closed position of said door being disposed in said groove with said concave bearing surface in contact with said distal retaining surface and with said distal bearing surface in contact with said guide portion concave cylindrical retaining surface, and at least one latching mechanism spaced from said hanger and said door support and having a latching condition for engagement of said door with said body and a release condition for disengagement of said door from said body, said latching mechanism in the latching condition thereof cooperating with said door support and said hanger to prevent pivoting of said door with respect to said container and thus to prevent removal of said tongue from said groove to hold said door in said door-receiving opening, said latching mechanism in the release condition thereof accommodating pivoting of said door with respect to said container and thus to permit movement of said tongue out of said groove whereby to allow removal of said door from said door-receiving opening.

10. The container set forth in claim 9, wherein said door support is elongated and extends essentially from one side of

said door-receiving opening to the other side thereof, said hanger being elongated and extending essentially from one edge of said door to the opposite edge thereof.

11. The container set forth in claim 9, wherein said door support is disposed adjacent to the top of said door-receiving opening.

12. The container set forth in claim 9, wherein said latching mechanism includes keeper structure mounted on said body adjacent to said door-receiving opening, a latch rotatably mounted on said door adjacent to the periphery thereof and being rotatable between a latching position for engagement with the associated keeper structure and a release position for disengagement from the associated keeper structure, a driven gear rotatably mounted on said door and drivingly connected to said latch for imparting rotation thereto, a drive gear rotatably mounted on said door and drivingly connected to said driven gear for imparting rotation thereto and a handle drivingly connected to said driving gear for imparting rotation thereto to move said latch between the latch and release positions thereof, said gears being constructed and arranged to cause a given amount of rotation of said handle to impart a substantially lesser amount of rotation to said latch, thereby to reduce the chances of an inadvertent rotation of said handle causing said latch to move from the latching position thereof to the release position thereof.

13. In a container adapted to be transported on the floor of a vehicle and subjected to striking other objects in the vehicle, the combination comprising a generally rectangular base panel, two elongated side base frame members and two elongated end base frame members each including an attachment flange and a pair of outwardly directed spaced-apart retaining jaws, said attachment flanges being respectively disposed against said base panel at the margins thereof and secured thereto, two elongated side bumpers respectively disposed adjacent to said side base frame members and two elongated end bumpers respectively disposed adjacent to said end base frame members, each of said bumpers having a longitudinal extent less than the longitudinal extent of the associated frame member, each of said bumpers including a pair of elongated spaced-apart gripping flanges thereon forcibly urged between the associated retaining jaws and respectively biased thereagainst, said bumpers being grippingly held by the associated retaining jaws and removable therefrom by forcibly withdrawing said gripping flanges from said retaining jaws, a plurality of V-shaped corner bumpers each having a pair of diverging legs merging into a curved apex, said corner bumpers being respectively disposed adjacent to the corners of said base panel with said legs being respectively aligned with the adjacent side bumper and end bumper, means attaching said corner bumpers to said base frame members and accommodating ready detachment of said corner bumpers therefrom, said side bumpers and said end bumpers and said corner bumpers defining an essentially continuous bumper around the periphery of said base panel to protect said container from damage when it strikes another object.

14. The combination set forth in claim 13, wherein the ends of said corner bumpers are disposed against the ends of said side base frame members, and further comprising, eight splice plates respectively disposed against said corner bumpers and the adjacent base frame members and respectively removably joined thereto.

15. The combination set forth in claim 13, wherein each of said corner bumpers includes a pair of legs diverging at an obtuse angle so that the distance between the apexes of successive corner bumpers is slightly less than the corresponding distance between opposing ones of said side and end bumpers to facilitate guiding of said container.

16. The container set forth in claim 15, and further comprising two doors respectively detachably mounted on said frame members to close the openings in the ends of said container.