

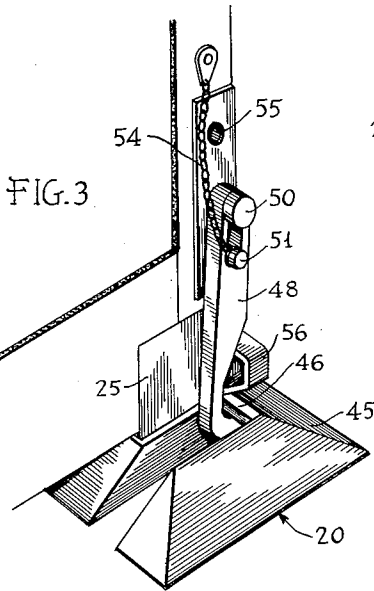
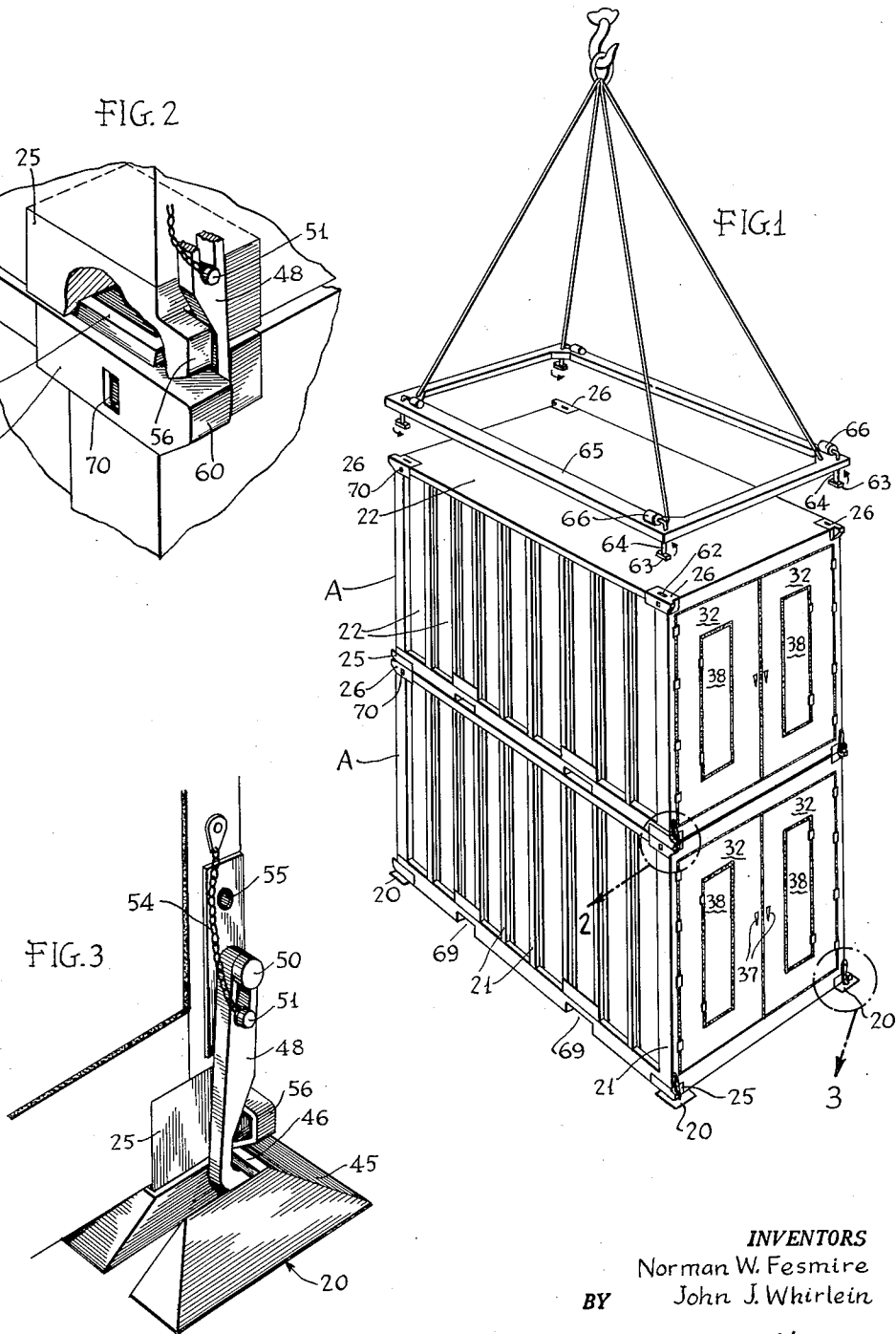
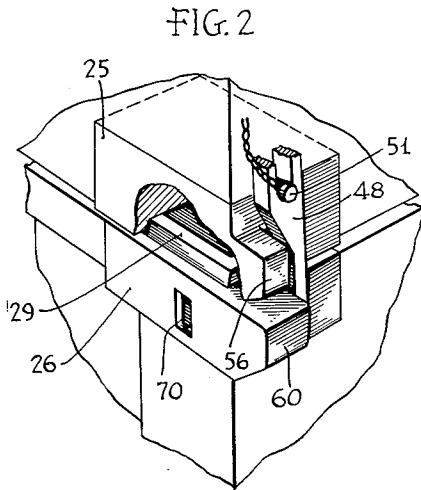
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STACKING CARGO CONTAINERS

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3 Sheets-Sheet 1



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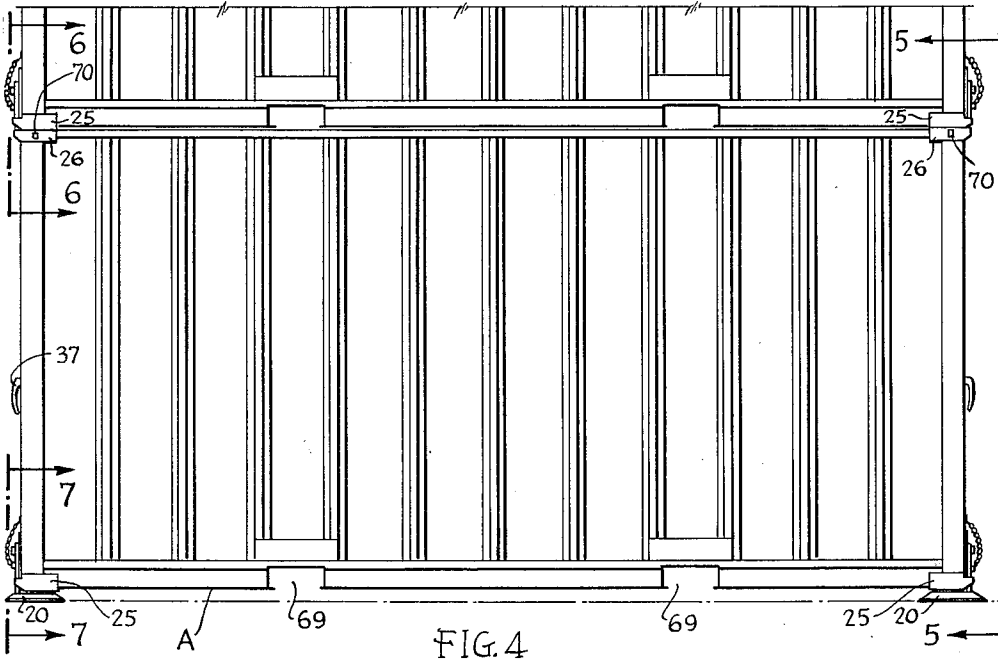


FIG. 4

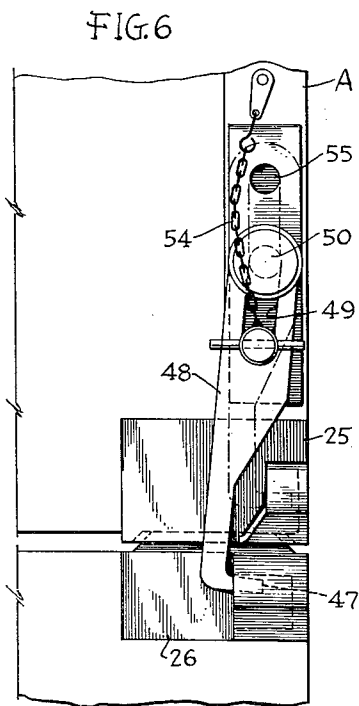


FIG. 6

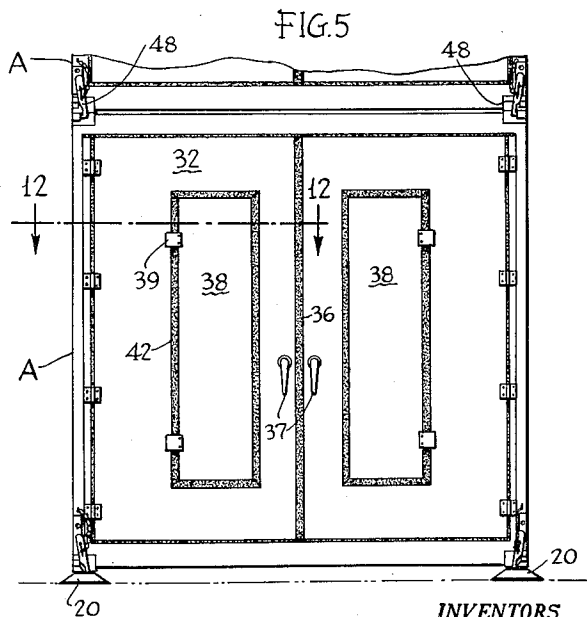


FIG. 5

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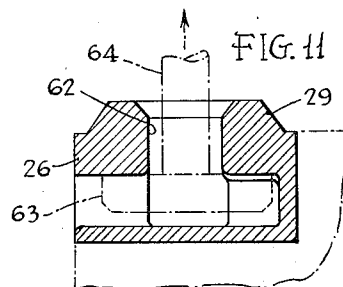
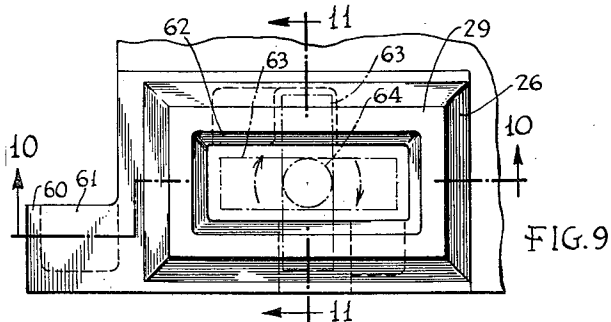
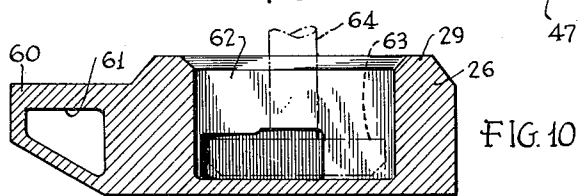
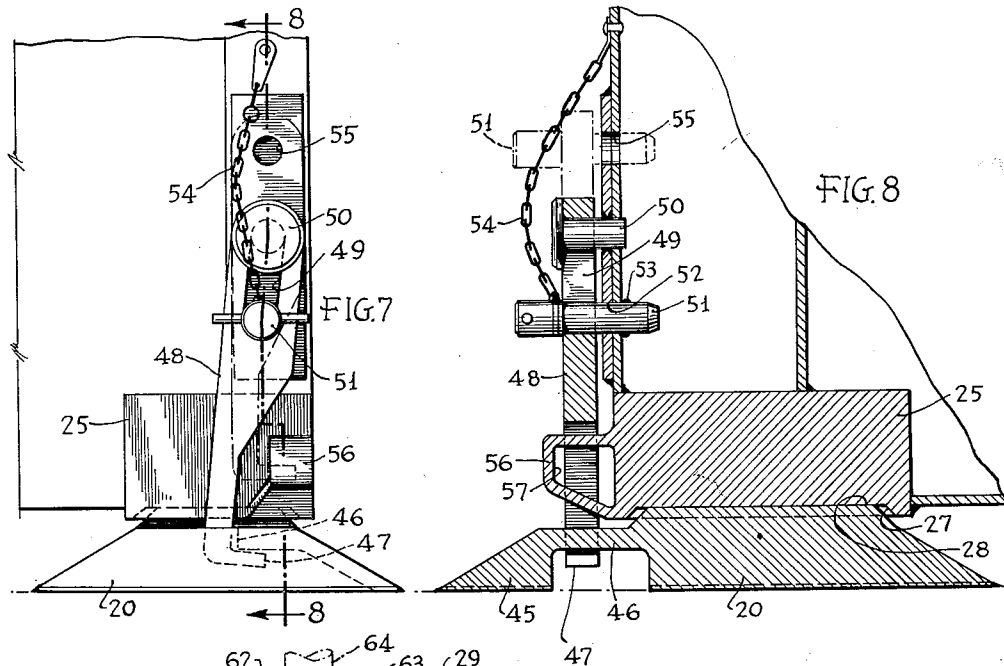
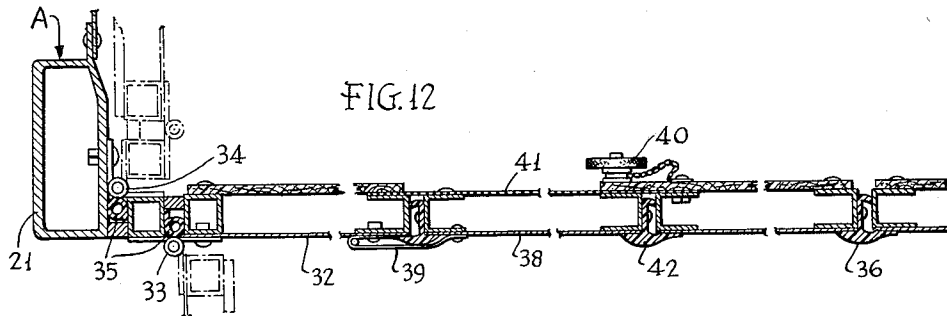
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STACKING CARGO CONTAINERS

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8 Claims. (Cl. 220-1.5)

This invention relates to stacking cargo containers, as for rail, road, air or ship conveyance, and has for an object the provision of improvements in this art.

One of the particular objects of the invention is to provide improved connectors or tie-down means for containers.

Another object is to provide improved lifting connections for containers.

Another object is to provide improved corner fittings for containers which cooperate both for lifting and tie-down functions.

The above and other objects and various features and advantages of the invention will be apparent from the following description of an exemplary embodiment, reference being made to the accompanying drawings, wherein:

FIG. 1 is a perspective view of two containers stacked on a floor or deck and connected together, and also showing a lifting crane rig approaching a position to connect with the corner fittings of the top container;

FIG. 2 is an enlarged view in the circle 2 of FIG. 1;

FIG. 3 is an enlarged view in the circle 3 of FIG. 1;

FIG. 4 is an enlarged side elevation of the lower container and part of the upper container;

FIG. 5 is an end view taken on the line 5-5 of FIG. 4;

FIG. 6 is a partial enlarged end view taken on the line 6-6 of FIG. 4;

FIG. 7 is a partial enlarged end view taken on the line 7-7 of FIG. 4;

FIG. 8 is a vertical section taken on the line 8-8 of FIG. 7;

FIG. 9 is a top plan view of a top corner fitting;

FIG. 10 is a vertical section taken on the line 10-10 of FIG. 9;

FIG. 11 is a vertical section taken on the line 11-11 of FIG. 9; and

FIG. 12 is an enlarged partial section taken on the line 12-12 of FIG. 5.

Two containers A are shown stacked in FIG. 1 and secured to deck or floor fittings 20. These floor fittings may be secured by screws, bolts, rivets, welding or the like, depending on the nature of the floor or deck and the purposes to be served. They are tapered on all sides so they can be easily run over by the wheels of vehicles travelling over the floor or deck.

The containers are formed of substantial corner and intermediate structural members 21 and sheet covering 22, here interiorly of the structural members.

Each container has bottom fittings 25 and top fittings 26 at the four corners. The bottom fittings are recessed and tapered on the under side at 27, as shown in FIG. 8, to fit on tapered top projections 28 of the floor fittings 20 or, as shown in FIG. 7, on the tapered top projections 29 of the top fittings 26.

At one or both ends the containers are provided with large end doors 32 which, as shown in FIG. 12, are adapted to open either outward on hinges 33 or inward on hinges 34. Weather stripping 35 and 36 is provided for the doors and latches 37 keep them closed.

Small ventilating doors 38 are mounted on hinges 39 on the large doors and are held closed by a fastener 40 on the inside. Strong open-work grid panels 41, as of expanded metal, are permanently secured over the open-

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ings for the small doors to prevent theft and exclude undesired animals or insects. Weather stripping 42 is provided on the small doors.

As shown in FIGS. 3, 7 and 8, the floor fittings 20 are so formed and located that an end projection 45 at the outer side extends beyond the bottom fitting of a container and has an undercut overhanging keeper bar 46 for engagement by the lateral hook 47 of a latch 48 mounted on the bottom corner of a container above its bottom fitting.

The latch 48 is provided with a vertical slot 49 slidable up and down on a headed retaining pin 50 secured to the container. When the latch is in its lower position, as shown in FIGS. 3, 7 and 8, its hook or finger is engaged below the keeper bar 46. The latch is held in this position by a locking pin 51 which passes through the lower end of the slot and through a hole 52 in the container. The pin is retained in the hole as by spring ball detents 53 or other suitable means. The pin is held against loss by a tether chain 54.

Means are provided for holding the latch in a stowed position clear above the bottom of its container when not in use. This means comprises the same pin 51 and an upper hole 55 at the upper end of the slot when the latch is in its uppermost position. The bottom fitting 25 is provided with a protruding extension 56 having a laterally opening socket 57 to receive the hook or finger of the latch when it is raised and swung into stowed position, as shown in broken lines in FIGS. 7 and 8.

As shown in FIGS. 6, 9, 10 and 11 the top fittings 26 are provided with end projections 60 with undercut retaining bars 61 for engagement by the latches in the same manner as they engage the floor fittings.

The top fittings 26 within their nesting tapered top projections 29 are provided with turn or bayonet joint sockets 62 adapted to receive the elongated ends 63 of the turnable lift members 64 of a lifting crane rig 65 (FIG. 1). The members 64 are turned by any convenient means, such as the air operated motors 66 mounted on the lifting rig. FIG. 9, 10 and 11 show in broken lines how the lifting members are inserted and turned in their undercut sockets to engage and disengage the top fittings of the containers.

Reinforced lift fork pockets 69 are provided on the sides of the containers. Reflectors 70 are provided on the corners of the containers to outline their position in lights, as when carried on trailer trucks.

It is thus seen that the invention provides simple, economical and efficient stackable cargo containers and improved fittings, tie-down and lift means therefor.

While one embodiment of the invention has been disclosed for purposes of illustration it is to be understood that there may be various embodiments and modifications within the scope of the invention.

What is claimed is:

1. Stacking cargo containers comprising in combination, a parallelepiped container body, nesting corner fittings attached to said body at the top and bottom corners of the containers, nesting floor or deck tie-down fittings vertically aligned with said corner fittings of said containers, raised tapered projections on said top fittings and said floor fittings for engagement into lowered tapered recesses in said bottom nesting corner fittings, said top and floor fittings having side-opening sockets for receiving a hook or finger locking bar from the side, latches secured to the container bodies for pivoting and sliding movement, said latches having hooks or fingers adapted to enter said side-opening sockets by a pivoting movement of said latches, and means for locking said latches in said sockets, whereby said containers may be physically locked to each other between said top and bottom corner fittings and

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between said bottom and floor fittings so that each locked corner-fitting restrains movement in all directions.

2. Stacking cargo containers as set forth in claim 1, further characterized by the fact that said bottom fittings are provided with projections having side-opening sockets to receive the hook of the latch in stowed position, and means for locking said latch in an upper stowed position.

3. Stacking cargo containers as set forth in claim 1, further characterized by the fact that said top fittings are provided with bayonet type top opening turn sockets for receiving an elongated turnable lifting member for lifting and stacking said containers.

4. Stacking cargo containers as set forth in claim 1, further characterized by the fact that said floor fittings are beveled on all sides for easy passage of traffic thereover.

5. Stacking cargo containers as set forth in claim 1, wherein said fittings having tapered recesses and projections are registered in nesting engagement, and said projections on the top or floor fittings provide the sole support means of the containers.

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6. Stacking cargo containers as set forth in claim 1, wherein said latches are provided with vertical slots slidable up and down on a fixed pin, said locking means for the latch comprising a pin enterable in the ends of the slot and selectively in vertically spaced holes in the container.

7. Stacking cargo containers as set forth in claim 1, further characterized by the fact that said container body has reinforced lift pockets for fork lifting devices.

8. Stacking cargo containers as set forth in claim 1, wherein said fittings having tapered recesses or projections serve as a guide alignment means when said containers are being stacked by a lifting device.

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