

[54] **REFUSE CONTAINER**  
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[21] Appl. No.: **47,009**

**Related U.S. Application Data**

[63] Continuation-in-part of Ser. No. 797,436, filed Feb. 7, 1969, abandoned.

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[58] Field of Search .....220/29; 214/302, 303, 317; 100/229, 229 A, 233

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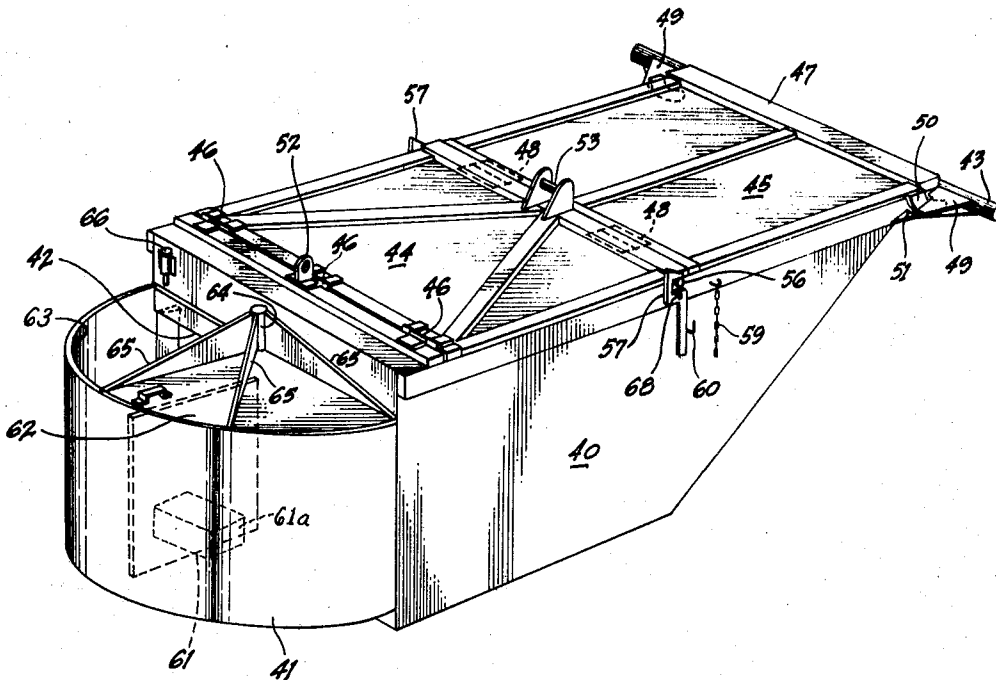
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[57] **ABSTRACT**

A portable refuse container has a cover formed of a pair of panels arranged for latching down tightly over the top opening of the container with the panels hinged to raise up automatically as the container is dumped. The forward edge of the container has a pivot axis about which the container is raised for dumping, and a cable for raising the container is attached to or threaded through a retainer on the cover so that the cover lifts as the container is raised. Releasable latches normally hold the cover down so that the container can receive compacted refuse.

**18 Claims, 8 Drawing Figures**



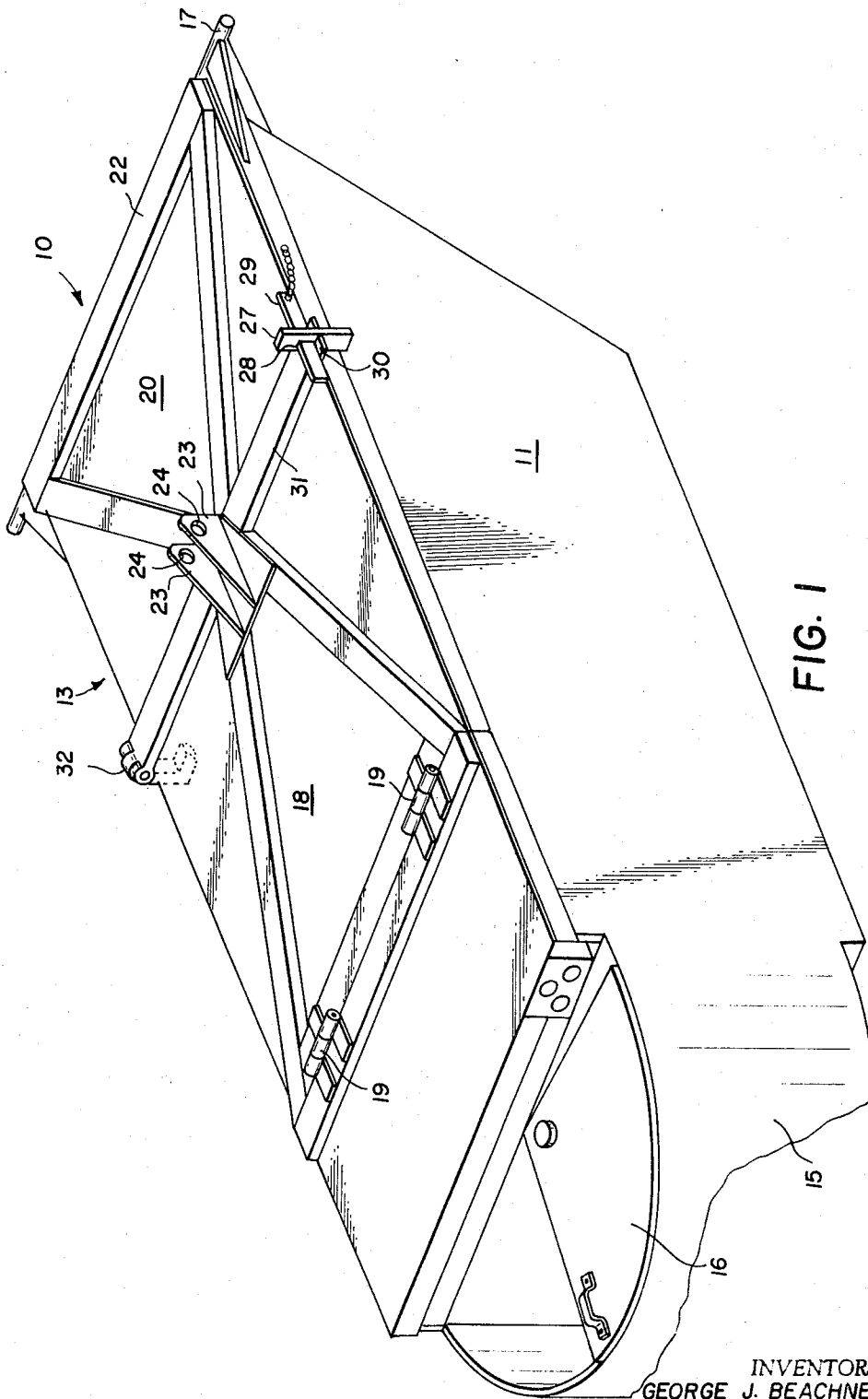


FIG. 1

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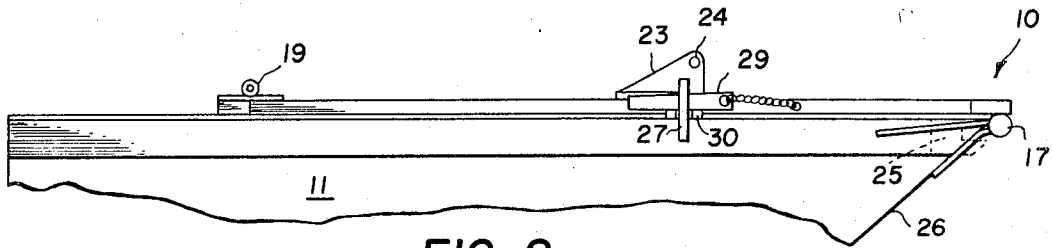


FIG. 2

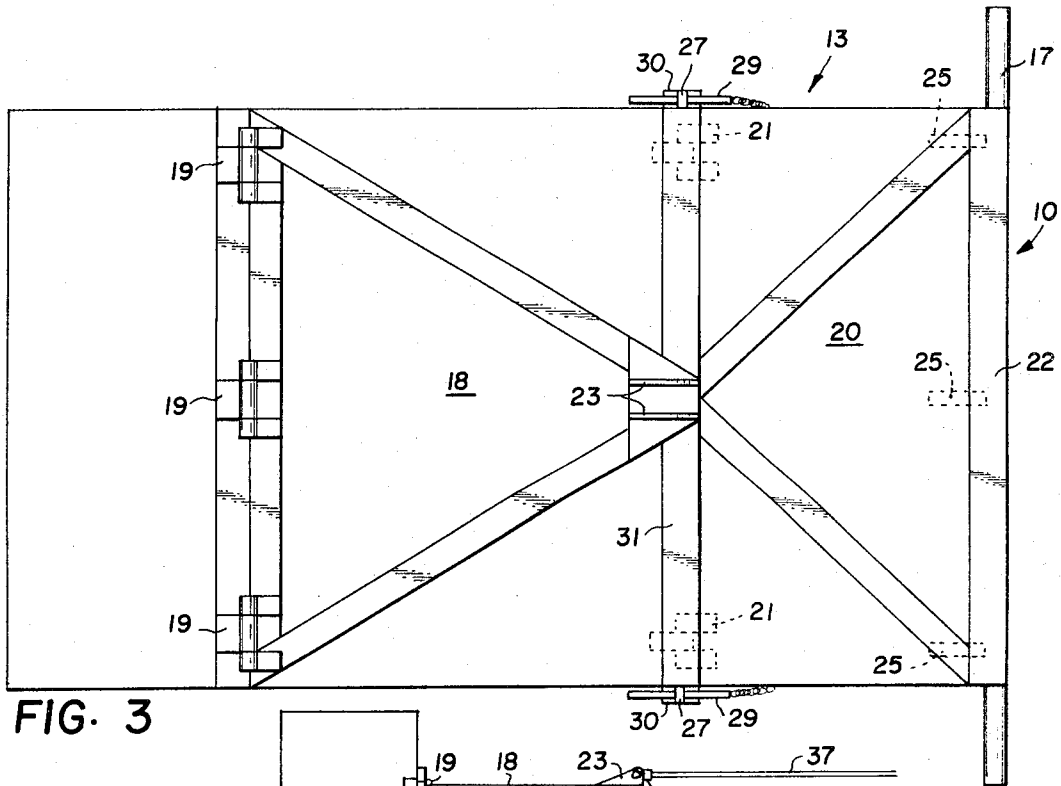


FIG. 3

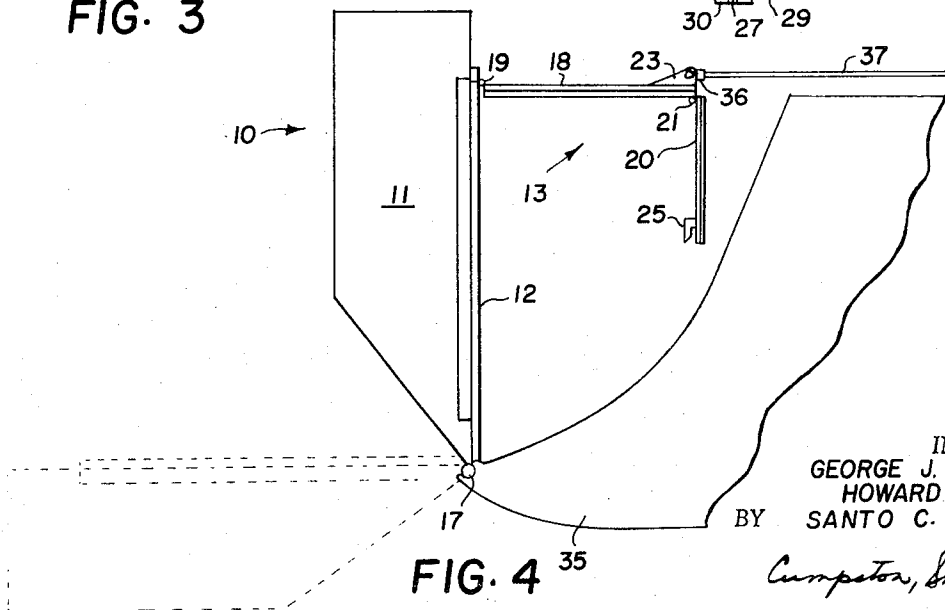
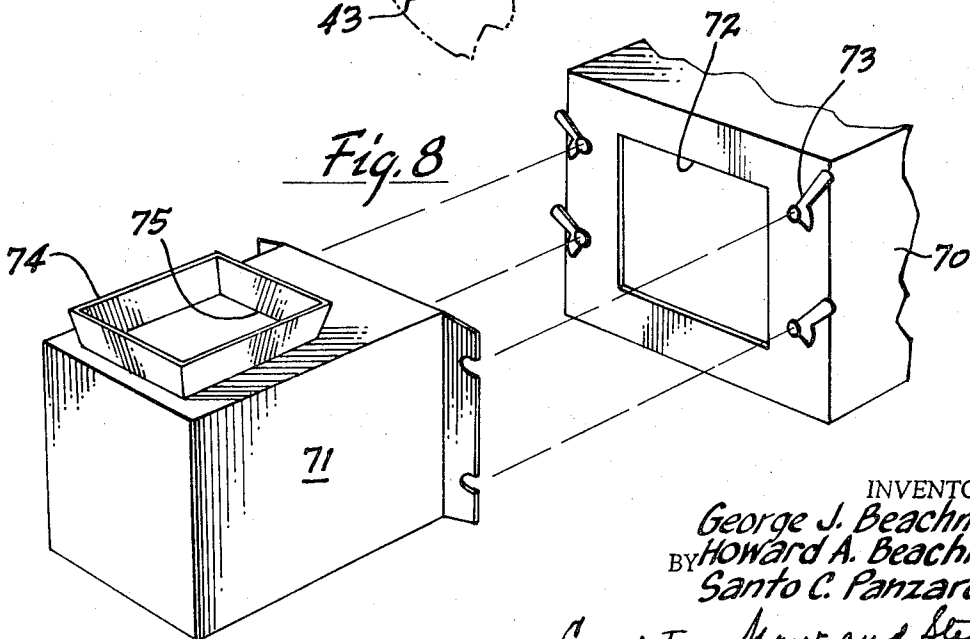
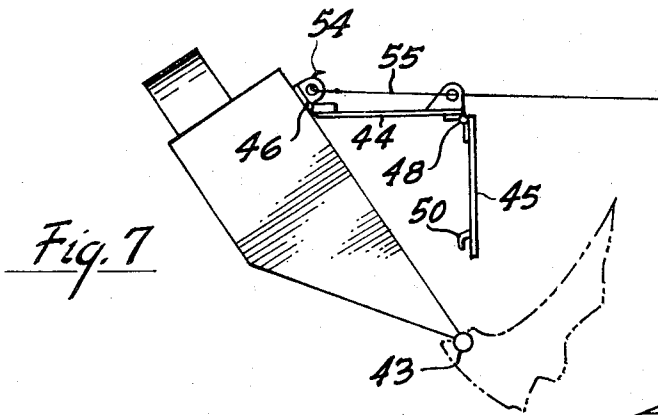
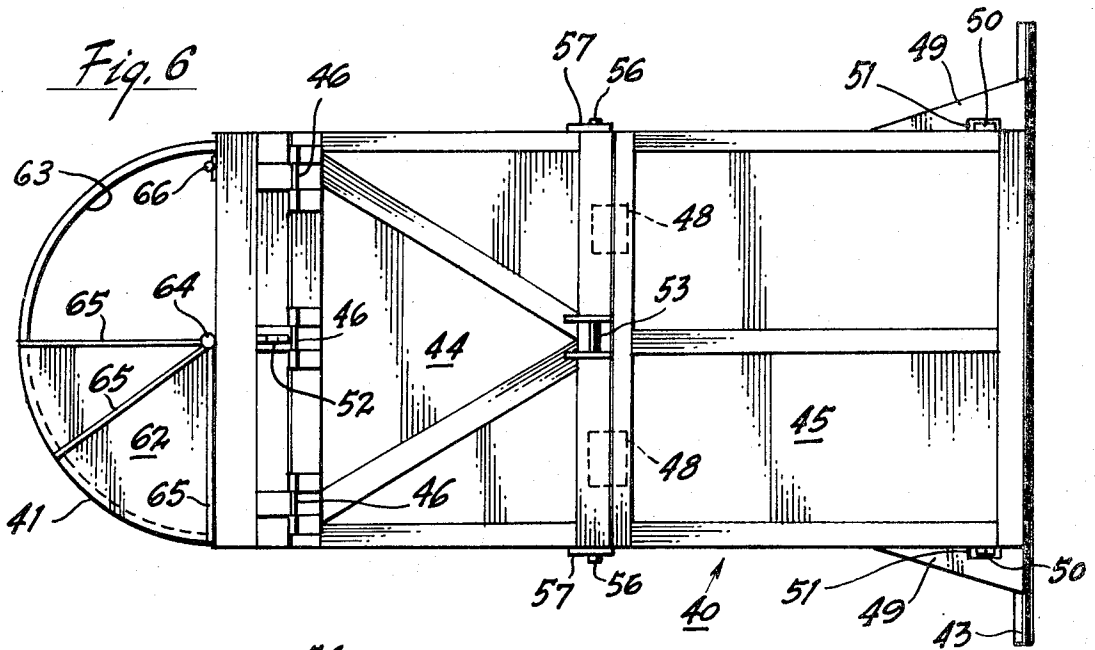


FIG. 4

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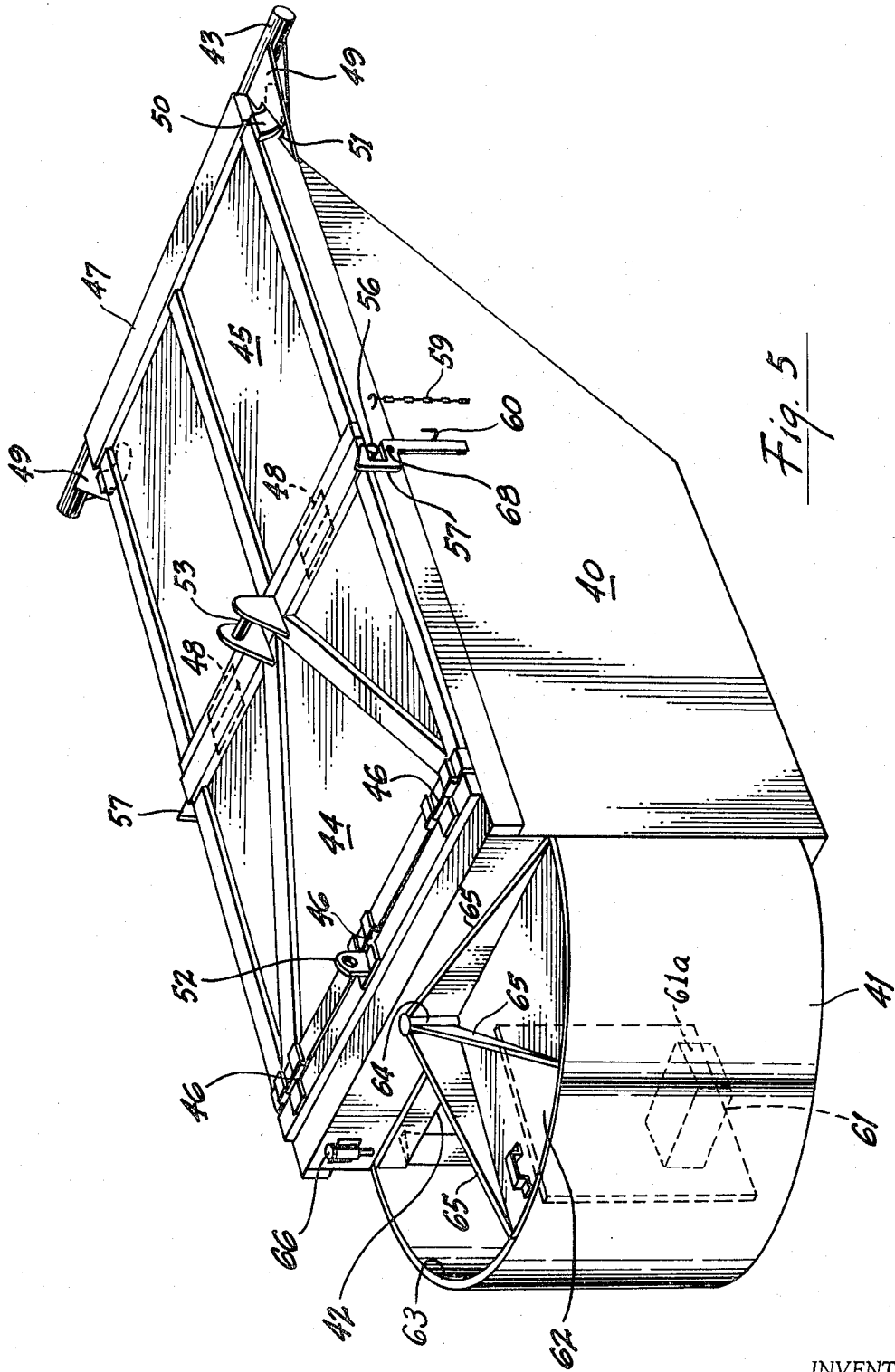


Fig. 5

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**REFUSE CONTAINER****RELATED APPLICATIONS**

This application is a continuation-in-part of a parent application, Ser. No. 797,436, filed on Feb. 7, 1969, and abandoned upon the filing of this application.

**THE IMPROVEMENT EFFECTED**

Portable refuse containers made for dumping their contents into a truck are presently popular. These containers are usually filled through a covered top opening and are periodically emptied into a truck by pivoting the container up over a truck body. Much time and expense is expended having a truck and driver stop frequently to empty such containers. Besides the trip to the container site, the emptying operations include backing up to the container, opening the cover, hooking lifting hardware to the container, raising the container up, lowering it back in place, and disconnecting it. All this must be done carefully and often to ensure that the container fulfills its purpose of keeping refuse properly stored and covered and the surrounding premises neat. If it becomes overloaded, the cover is usually left open, and spilling, overflowing, and blowing refuse quickly becomes a mess.

According to the invention, a small compactor is used with such a portable refuse container to increase its storage capacity substantially and to reduce the frequency and expense of emptying the container. In addition, the invention structures the container differently from previous containers to make it safer and more efficient to handle, to reduce the time and cost of each unloading, and to ensure that refuse is always covered and securely contained. These structural improvements include provision for loading refuse into the refuse compartment through the compactor arranged at a side opening of the compartment so that the top cover is kept closed to ensure neatness and eliminate any blowing out or spilling out of refuse. Also, the cover is made to latch down securely with simple and effective latches that are quickly and easily unlatched for dumping and container. Further, the top cover includes an eye for receiving a lifting cable so that the cover is automatically opened as the container is pivoted up for dumping into a packer truck.

**SUMMARY OF THE INVENTION**

The refuse container includes a refuse holding chamber having a side opening and a top opening; a compactor for forcing refuse into the chamber through the side opening; a pivot axis for raising the container to dump its contents; and a cover for the top opening. The cover is formed of a plurality of panels with a forward panel covering the portion of the top opening adjacent the pivot axis, and a rearward panel covering the portion of the top opening opposite the pivot axis. A first hinge set connects the rearward panel to the edge of the top opening opposite the pivot axis, and the first hinge set has an axis parallel with the pivot axis and allows the rearward panel to swing upward relative to the top opening. The forward panel has a free forward edge adjacent the pivot axis and includes means for latching down the free edge of the forward panel when the cover is closed. A second hinge set connects the rearward edge of the forward panel to an adjacent panel of

the cover, and the second hinge set has an axis parallel with the pivot axis and allows the forward panel to swing downward relative to the adjacent panel. A cable-receiving means is arranged in the region of the second hinge set so that when the cable is tensioned to raise the container for dumping, the axis of the second hinge set is raised by the cable to open the cover. Releasable latches near the ends of the second hinge set hold the cover tightly down during loading of the chamber.

**DRAWINGS**

FIG. 1 is a perspective view of a preferred embodiment clamps the inventive refuse container; showing two preferred alternative cover clamps;

FIG. 2 is a fragment of a side elevation of the container of FIG. 1 showing the cover construction;

FIG. 3 is a plan view of a preferred cover construction for the inventive container; showing one of the preferred cover clamps from the refuse container of FIG. 1;

FIG. 4 is a side-elevation of the container of FIG. 1 elevated to dump position;

FIG. 5 is an isometric view of another preferred embodiment of the inventive refuse container;

FIG. 6 is a plan view of the refuse container of FIG. 5;

FIG. 7 is a partially schematic view showing the dumping of the refuse container of FIG. 5; and

FIG. 8 is a partially schematic, fragmentary, isometric view of another preferred embodiment of the inventive container.

**DETAILED DESCRIPTION**

Refuse container 10 has a refuse-holding compartment 11 that is closed for receiving compacted refuse and includes a top opening 12 normally closed by cover 13. Container 10 also includes a compactor 15 arranged at one end of container 10 for forcing refuse through a side opening into compartment 11. The compactor contained within housing 15 is powered and follows generally known principles. A sliding door cover 16 is arranged over compactor wall 15 and is opened for dropping refuse into a position where the compactor can drive it into compartment 11.

Container 11 also includes a fulcrum bar 17 arranged at one end to form a pivot axis for engaging a truck and supporting container 10 as it is pivoted for dumping into a truck for emptying its refuse through top opening 12. Other equipment such as trunnions can also establish the pivot axis provided by fulcrum bar 17.

Cover 13 is formed of two hinged panels and arranged for latching down securely to close top opening 12. A first cover panel 18 is hinged to the top of container 10 by hinges 19 arranged on a hinge or pivot axis parallel with fulcrum bar 17 on the container pivot axis. Second panel 20 is hinged to first panel 18 by hinges 21 arranged on a hinge axis that is also parallel with fulcrum bar 17. Hinges 19 are oriented to allow panel 18 to pivot upward from container 10 and hinges 21 are oriented to allow panel 20 to pivot downward relative to panel 18. The free edge 22 of panel 20 closes down over top opening 12 in the region of fulcrum bar 17. A plate 23 is secured to the top of panel 18 in the region of the hinge axis for hinges 21 and has a hole 24 for

receiving a lifting hook for pivoting and dumping container 10.

Latch blocks 25 are secured to the underside of panel 20 in the region of its free edge 22 to extend through openings in front container wall 26 and under fulcrum bar 17 to latch down the free edge 22 of panel 20. As cover 13 is lowered, latch blocks 25 slide automatically into latching position under latch bar 17.

Another set of latches holds down the sides of cover 13 at the ends of the axis for hinge set 21. Two types of such side latches are illustrated in FIG. 1, a key and hole latch and a toggle clamp. The key and hole latch is formed with a plate 27 secured to the body of container 10 and extending upright with a hole 28 for receiving a key 29 that slides through hole 28 above a forked plate 30 that straddles plate 27 and is secured to the bottom of cross channel 31 secured to the top of plate 18. As cover 13 is lowered, forked plate 30 comes astraddle plate 28 and key 29 is tapped in place in hole 28 above plate 30. Key 29 is preferably tapered to wedge down plate 30 and is removed by being tapped out of latch position. A toggle clamp 32 is schematically represented opposite key latch 29 for holding down the other side of cover 13. A variety of toggles and clamps are suitable for such latching if they are strong enough to hold cover 13 against the pressure of compacted refuse and are easily and quickly unlatched for emptying container 10.

In operation, cover 13 is closed and latched and refuse is gradually added to compartment 11 through compactor housing 15 until the time for emptying container 10. Then a refuse truck 35 backs into engagement with fulcrum bar 17, and the driver unlatches key 29 or clamp 32 to release cover 13 at the axis for hinge set 21. He also inserts a hook 36 in hole 24. Then by reeling in the cable 37 attached to hook 36, panel 18 of cover 13 is drawn upward and pivots container 10 upward around the pivot axis established by fulcrum bar 17. This also slides latch blocks 25 out from under fulcrum bar 17 to unlatch panel 20. The lifting strain exerted by cable 37 is transmitted through panel 18 and hinges 19 to container 10 for elevating it as shown in FIG. 4 to dump the refuse from compartment 11. Panel 20 of cover 13 hangs freely downward from panel 18 during the dumping process and is clear of the path of refuse passing from compartment 11 into truck 35.

After container 11 is elevated to the position shown in FIG. 4 for dumping, it is lowered to the ground by paying out cable 37, and as it returns to its normal horizontal position, cover 13 lowers and the free edge 22 of panel 20 slides along the top of container 10 until its latch blocks 25 extend under fulcrum bar 17 in latching position. The driver then re-latches key 29 or clamp 32.

Container 10 enjoys the advantage of holding a large capacity of compacted refuse without the disadvantages of having to disconnect a compactor for dumping. Also, cover 13 is not only strongly braced over container 10 for holding compacted refuse, but is quickly and easily unlatched with a minimum of labor and participates in the dumping operation so that no manual opening of cover 13 is required. Furthermore, container 10 ensures that refuse in compartment 11 is always covered and secure against scattering by animals or wind.

An alternative, preferred refuse container 40 is shown in FIGS. 5 - 7. Container 40 is generally similar to container 10 in having a refuse-holding chamber that is charged by a compactor arranged within housing 41 through a side opening 42 and is pivoted on a fulcrum bar 43 for raising and dumping. A cover over the top opening of the container is formed of a rearward panel 44 and a forward panel 45, and a hinge set 46 connects the rear edge of panel 44 to container 40. The axis of hinge set 46 is parallel with fulcrum bar 43, and hinge set 46 is oriented to allow rearward panel 44 to raise upward relative to the top opening of container 40. Forward panel 45 has a forward free edge 47 adjacent fulcrum bar 43, and the rearward edge of forward panel 45 is connected to adjacent panel 44 by hinge set 48. The axis of hinge set 48 is parallel with fulcrum bar 43, and hinge set 48 is arranged to allow panel 45 to swing downward relative to panel 44.

Gussets 49 between the body of container 40 and the lateral extensions of fulcrum bar 43 brace and support fulcrum bar 43. Each gusset 49 has an opening 51, and forward panel 45 has hooks 50 arranged to slide through openings 51 under gusset 49 as the container cover is lowered. Hooks 50 thus latch down the free edge 47 of panel 43 during loading of container 49.

An eye 52 is arranged adjacent hinge set 46 back of rearward panel 44 to receive a hook 54 attached to lifting cable 55. Cable 55 is passed under a loop or bar 53 on panel 44 above hinge set 48, as best shown in FIG. 7, so that when cable 55 is reeled in to raise container 40, the axis of hinge set 48 is raised relative to the top of container 40 to lift panels 44 and 45 to open container 40 for dumping refuse.

Pins 56 extend outward from panel 44 near the ends of the axis of hinge set 48, and latch hooks 57 fit over pins 56 to hold down panels 44 and 45 at the axis of hinge set 48 for loading of container 40. Hooks 57 turn on pivots 58 and can be held out of latching position by chains 59 coupled to hooks 60.

The compactor within housing 41 includes a pivotal blade 61 that swings into side opening 42 to force refuse into the holding chamber of container 40, and a cover 62 is arranged to open and close a charging opening 63 at the top of compactor 41. Cover 62 is approximately a sector of a circle and is supported on a sleeve 64 that is pivotal on a vertical axis for horizontal movement of cover 62 over charging opening 63. Gussets 65 extend radially between sleeve 64 and cover 62 to support cover 62, and a releasable latch 66 on container 40 snaps over a gusset 65 to hold cover 62 closed. A generally known compactor mechanism 61a pivotally reciprocates blade 61 to compact refuse into container 40.

FIG. 8 schematically shows how the inventive container 70, which is similar to containers 10 or 40 described above, can be used with a separable compactor contained within housing 71. Container 70 has a side opening 72 through which refuse is forced by the compactor in housing 71, and releasable dogs or clamps 73 hold compactor housing 71 in place against container 70 for such operation. A hopper 74 guides refuse into a top charging opening 75 on compactor housing 71 which has a blade for forcing refuse through side opening 72 into container 70. By releasing dogs 73, compactor housing 71 can be separated from con-

tainer 70 as desired, and container 70 is preferably covered, closed, and pivoted for dumping as described above for containers 10 and 40.

Those skilled in the art will appreciate that the cover closing panels of the inventive refuse container can be divided, and a cover formed of more than two panels can be used within the spirit of the invention. Preferably, any such cover has loops or eyes for coupling to the lifting cable so that the cover is lifted automatically as the container is raised for dumping. Also, many latches and hooks are available for use on the inventive container, and those skilled in the art will appreciate how different compactors, and different latching and lifting hardware can be applied within the spirit of the invention.

Persons wishing to practice the invention should remember that other embodiments and variations can be adapted to particular circumstances. Even though one point of view is necessarily chosen in describing and defining the invention, this should not inhibit broader or related embodiments going beyond the semantic orientation of this application but falling within the spirit of the invention.

We claim:

1. A refuse container comprising:
  - a. a chamber for holding refuse;
  - b. said chamber having a side opening;
  - c. means for compacting refuse into said chamber through said side opening;
  - d. means on said container establishing a pivot axis for raising said container to dump refuse from said chamber;
  - e. said chamber having a top opening adjacent said pivot axis for said dumping of refuse;
  - f. a cover for said top opening;
  - g. said cover having a plurality of panels;
  - h. a forward one of said panels covering the portion of said top opening adjacent said pivot axis;
  - i. a rearward one of said panels covering the portion of said top opening opposite said pivot axis;
  - j. a first hinge set connecting said rearward panel to said container along the edge of said top opening opposite said pivot axis;
  - k. said first hinge set having an axis parallel with said pivot axis;
  - l. said first hinge set being arranged to allow said rearward panel to swing upward relative to said top opening;
  - m. said forward panel having a free forward edge adjacent said pivot axis;
  - n. means for latching down said free edge of said forward panel;
  - o. a second hinge set connecting the rearward edge of said forward panel to an adjacent panel of said cover;
  - p. said second hinge set having an axis parallel with said pivot axis;
  - q. said second hinge set being arranged to allow said forward panel to swing downward relative to said adjacent panel;
  - r. means for receiving a cable for pivoting and raising said container;
  - s. said cable-receiving means being arranged in the region of said second hinge set for raising said axis of said second hinge set to open said cover as said container is raised; and

t. releasable means for holding said cover down in the region of the ends of said axis of said second hinge set.

2. The refuse container of claim 1 wherein said cover is formed of two panels with said rearward panel comprising said panel adjacent said forward panel, and said second hinge set connecting said forward panel to said rearward panel.

3. The refuse container of claim 1 wherein said latching means comprises hooks in the region of said free edge of said forward panel, arranged to slide under surfaces of said container as said cover is lowered over said top opening.

4. The refuse container of claim 1 wherein said cover-holding means comprises releasable latch hooks;

5. The refuse container of claim 1 wherein said cable-receiving means comprises means for retaining a hook attached to said cable.

6. The refuse container of claim 1 wherein said cable-receiving means comprises a loop arranged to extend over said cable to hold said axis of said second hinge set near said cable during said raising of said container.

7. The refuse container of claim 6 wherein said container includes means arranged in the region of said first hinge set for retaining a hook attached to said cable.

8. The refuse container of claim 1 wherein said compactor means is separable from said container.

9. The refuse container of claim 1 wherein said compactor means is integral with said container.

10. The refuse container of claim 9 wherein said compactor means includes a pivotal blade arranged to push refuse through said side opening.

11. The refuse container of claim 10 wherein said compactor means has a top charging opening, and a horizontally pivotal cover is arranged for opening and closing said charging opening.

12. The refuse container of claim 11 wherein said pivotal cover is approximately a sector of a circle, and a vertical sleeve supports said sector.

13. The refuse container of claim 12 including gussets extending radially between said sleeve and said sector.

14. The refuse container of claim 13 including a latch arranged to hold said pivotal cover closed.

15. The refuse container of claim 1 wherein said cover is formed of two panels with said rearward panel comprising said panel adjacent said forward panel, said second hinge set connecting said forward panel to said rearward panel, and said cover-holding means comprises releasable latch hooks.

16. The refuse container of claim 15 wherein said latching-means comprises hooks in the region of said free edge of said forward panel arranged to slide under surfaces of said container as said cover is lowered over said top opening.

17. The refuse container of claim 16 wherein said cable-receiving means comprises a loop arranged to extend over said cable to hold said axis of said second hinge set near said cable during said raising of said container.

18. The refuse container of claim 17 wherein said container includes means arranged in the region of said first hinge set for retaining a hook attached to said cable.