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Brown et al.

[11] **3,804,277**

[45] **Apr. 16, 1974**

[54] **WASTE RECEPTACLE AND DUMPING MECHANISM THEREFOR**

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[73] Assignee: **Rubbermaid Industrial Products Corporation,** Statesville, N.C.

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[21] Appl. No.: **339,636**

[52] **U.S. Cl.** ..... **214/302,** 214/1 Q, 214/14, 214/7 G

[51] **Int. Cl.** **B65f 3/02**

[58] **Field of Search** ..... 214/1 QA, 302, 1 Q, 303, 214/317, 370, 372, 373, 147 R, 147 G, 653, 654, 384

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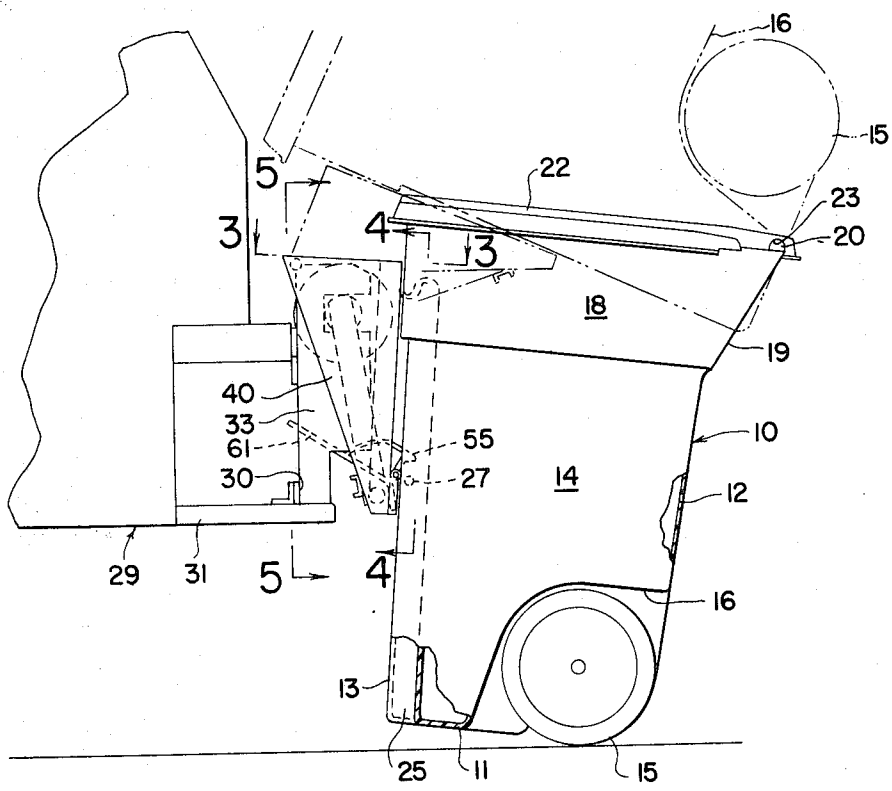
Primary Examiner—Robert J. Spar
Assistant Examiner—Lawrence J. Oresky
Attorney, Agent, or Firm—Hamilton, Renner & Kenner

[57] **ABSTRACT**

Dumping mechanism comprising a normally vertical face plate mounted on a pick-up vehicle for upward rotation and having an upper saddle for engaging a downwardly directed recess in a portable waste receptacle, to invert the receptacle as the face plate rotates, and a lower hook which automatically moves into engagement with a cross bar on the receptacle as the face plate rotates to hold the receptacle in inverted position.

8 Claims, 8 Drawing Figures



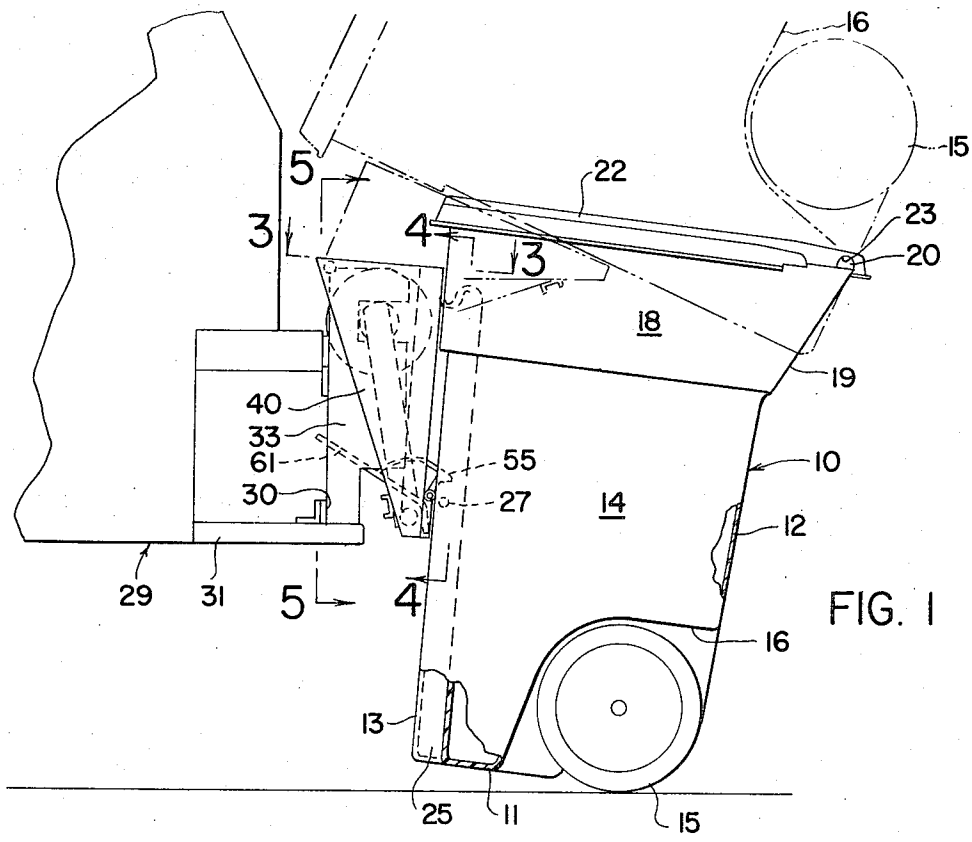


FIG. 1

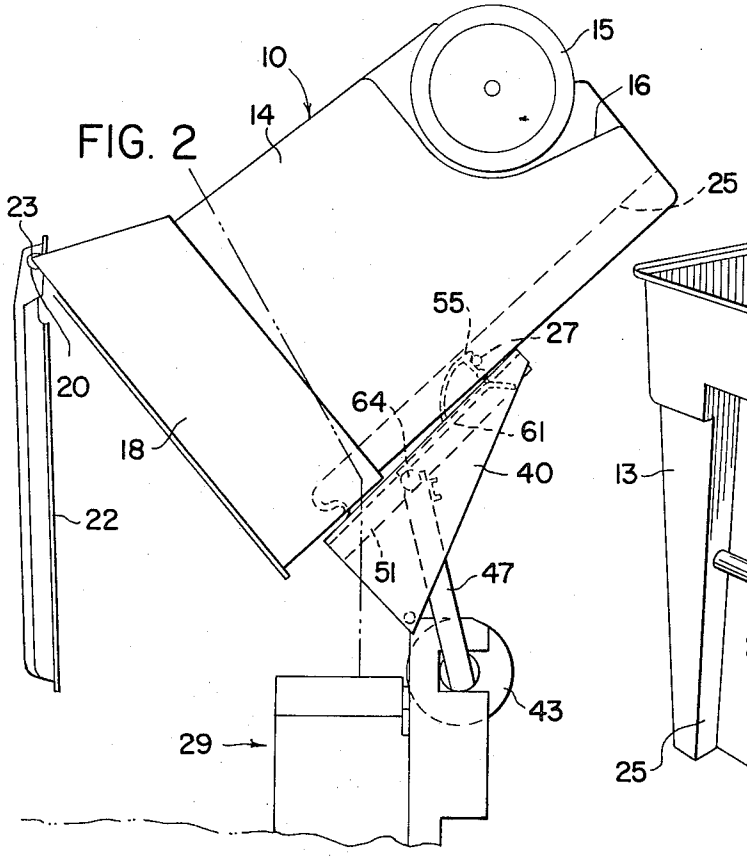
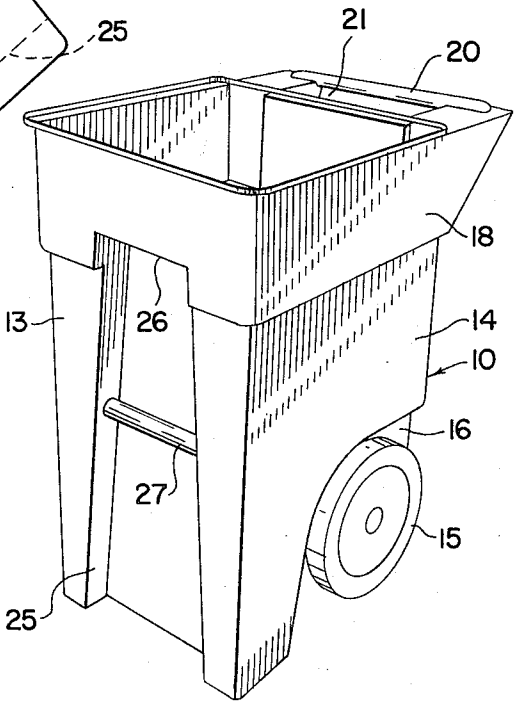
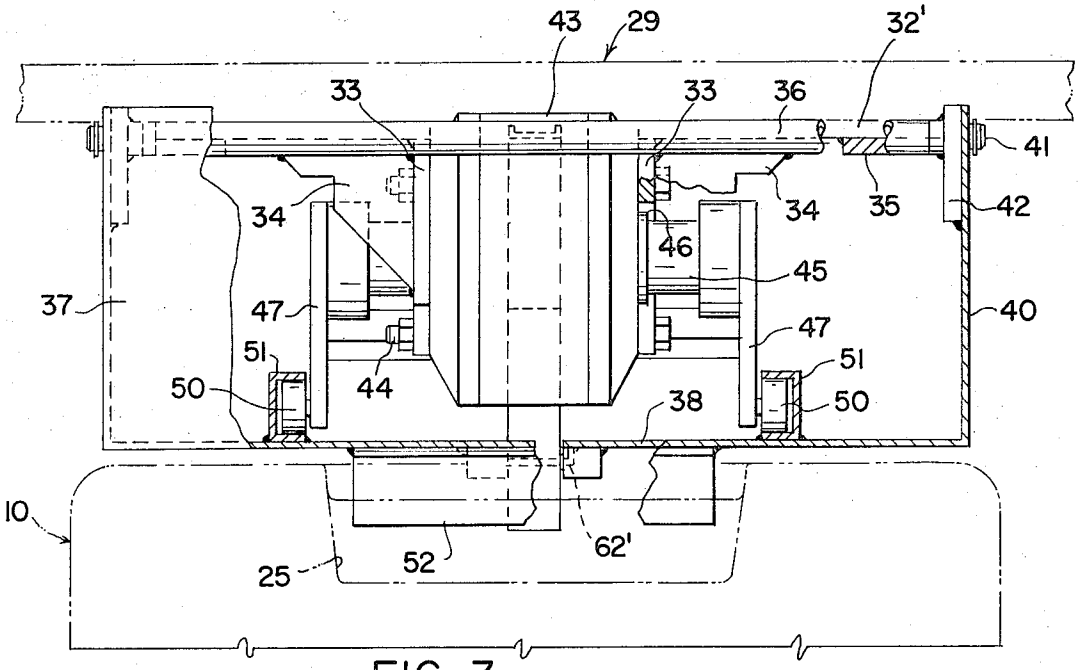


FIG. 2

FIG. 8

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38
10
62'
25
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FIG. 3

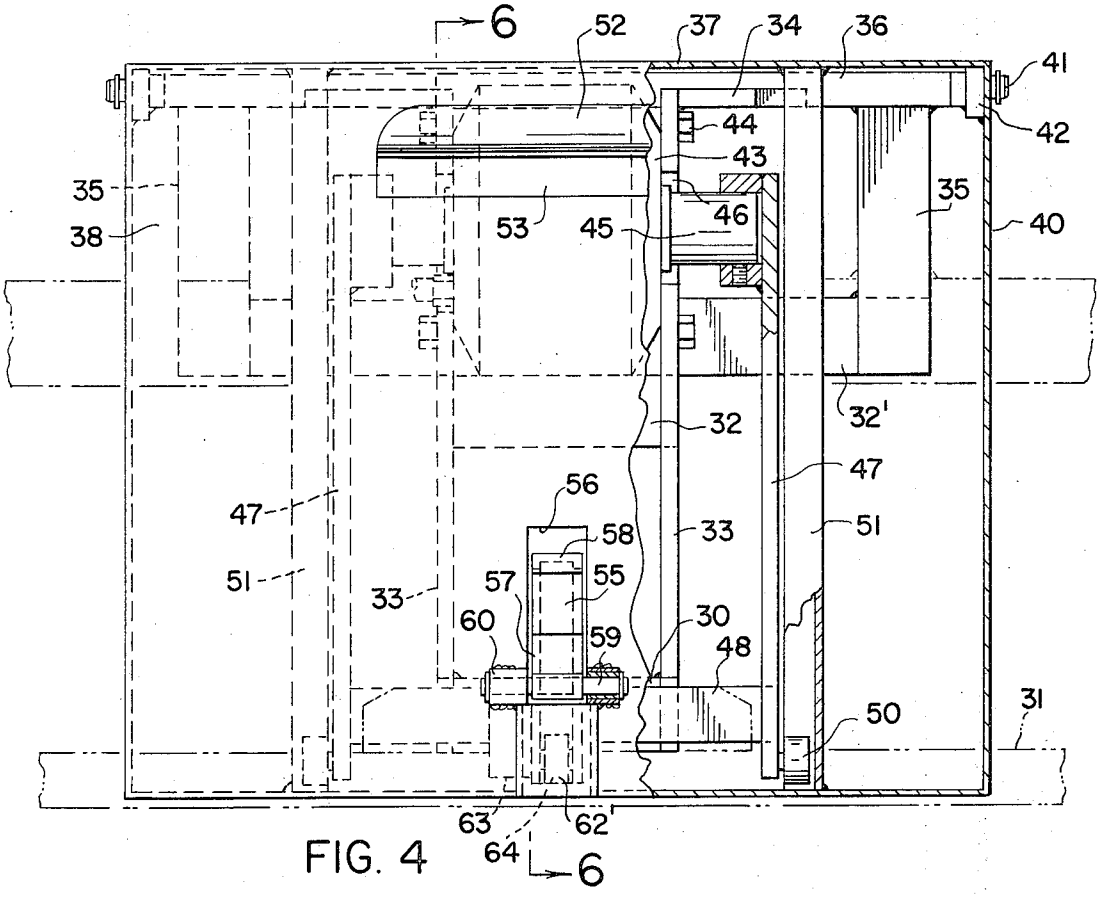
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FIG. 4

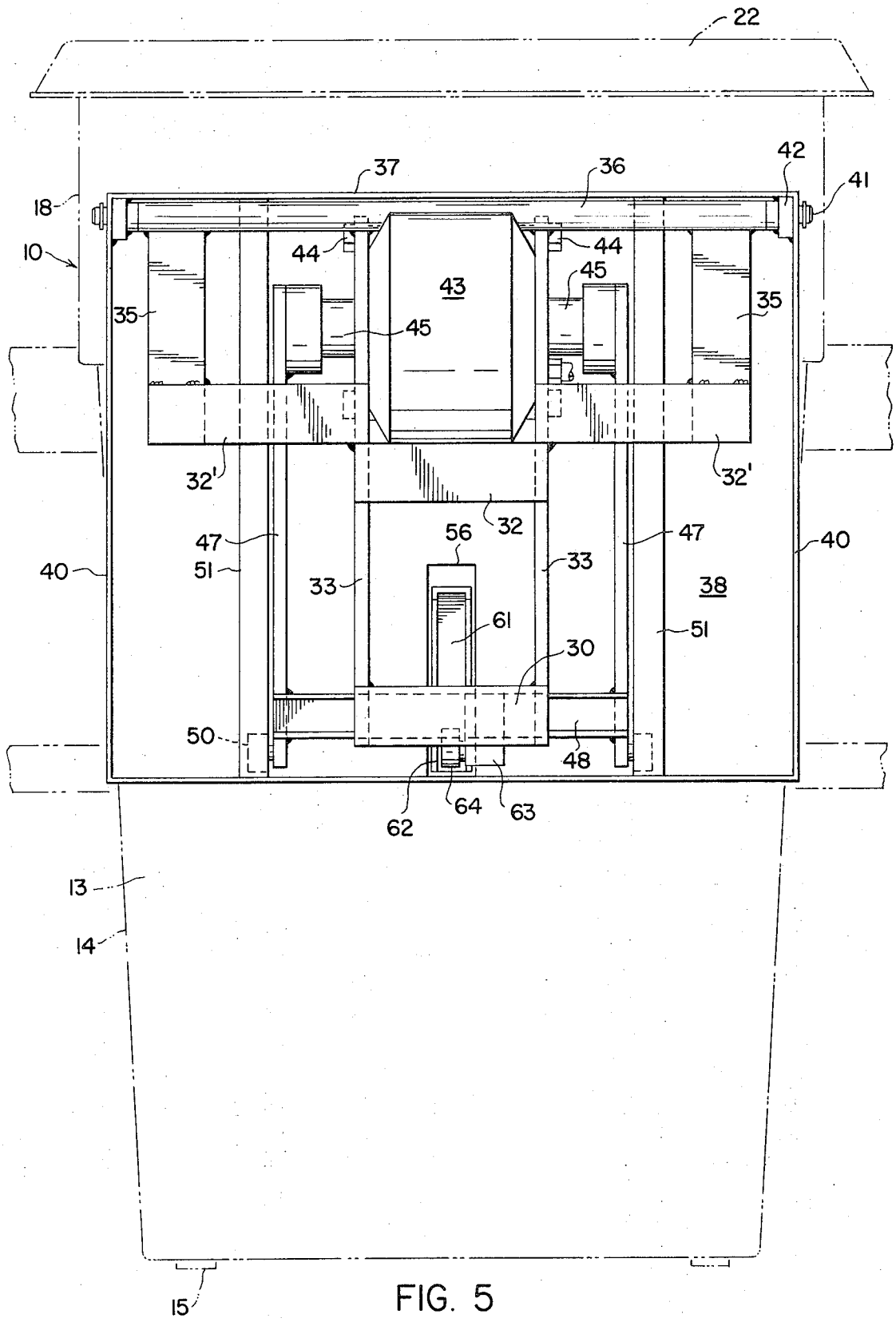
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FIG. 5

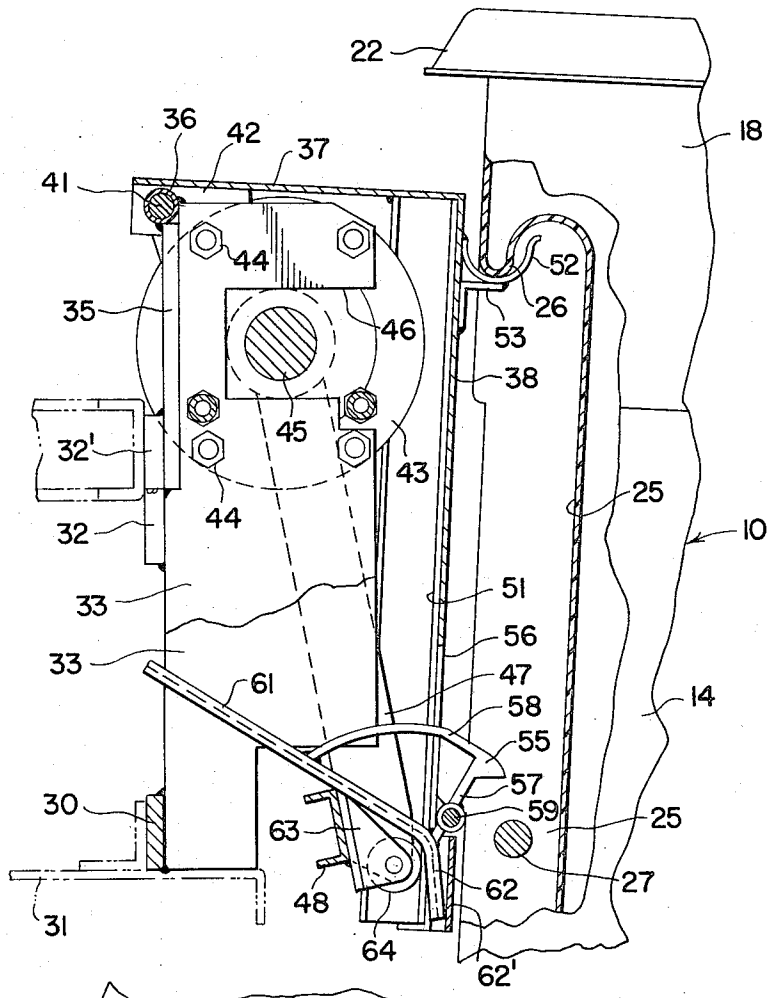
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FIG. 6

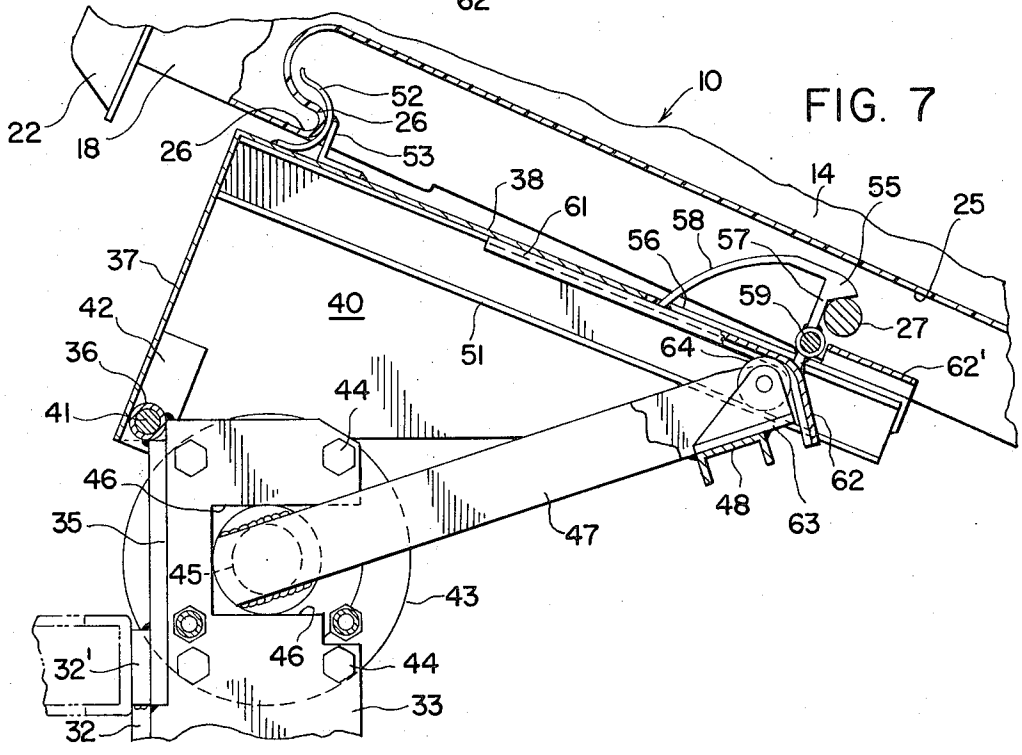
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FIG. 7

WASTE RECEPTACLE AND DUMPING MECHANISM THEREFOR

BACKGROUND OF THE INVENTION

Certain prior devices for dumping portable waste receptacles into pick-up trucks and the like have required complicated and expensive dumping mechanisms. Certain of these have included means for detachably engaging and holding the receptacle as it is inverted and emptied, and the holding means sometimes accidentally releases the receptacle in inverted position, especially if the receptacle is jarred or bumped, to allow it to fall into the waste-receiving opening of the pick-up truck.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a novel combination of an improved portable waste container and improved cooperative dumping means mounted on a pick-up vehicle.

More specifically, it is an object to provide an improved portable waste container having on one side a lower cross bar and an upper downwardly directed recess, and dumping mechanism including a rotatable face plate having an upper saddle adapted to engage in the recess and a lower movable hook for automatically engaging the cross bar as the face plate is rotated to tilt the receptacle.

A further object is to provide an improved portable waste container having on one side an elongated recess, said recess having an upper overhanging wall and a lower cross bar therein for engagement by lifting and dumping mechanism.

These and other objects are accomplished by the improvements comprising the present invention, a preferred embodiment of which is shown by way of example in the accompanying drawings and described in detail herein. Various modifications and changes in details of construction are comprehended within the scope of the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevation showing the improved receptacle in position to be lifted by the improved lifting mechanism, the receptacle being shown in phantom lines in partly tilted position.

FIG. 2 is a similar view showing the receptacle further tilted to dumping position.

FIG. 3 is an enlarged partial plan sectional view on line 3—3 of FIG. 1.

FIG. 4 is an enlarged partial sectional view on line 4—4 of FIG. 1.

FIG. 5 is an enlarged partial sectional view on line 5—5 of FIG. 1.

FIG. 6 is a partial sectional view on line 6—6 of FIG. 4.

FIG. 7 is a similar view showing the lifting mechanism and receptacle in partly tilted position.

FIG. 8 is a front perspective view of the improved receptacle.

DESCRIPTION OF A PREFERRED EMBODIMENT

The improved waste receptacle is indicated generally at **10**, has a bottom wall **11**, rear wall **12**, front wall **13** and side walls **14**. Wheels **15** are journaled in recesses **16** in the side walls rollably supporting the receptacle.

The upper portion **18** of the receptacle is preferably enlarged and has an inclined rear wall **19**.

At its upper edge the rear wall **19** has a transverse handle **20** formed thereon, the wall being cut out below the handle as indicated at **21**. A cover **22** for the receptacle has notches **23** in its side walls adapted to snap over the handle **20** for hinging the cover thereon. The front wall **13** of the receptacle has an elongated and preferably tapered recess **25** therein extending from the bottom upwardly into portion **18**. At the top of the recess an overhanging wall **26** is formed over the recess (FIG. 6) and the wall **26** provides the equivalent of a transverse bar by which the receptacle may be lifted in a manner to be described. Spaced below the wall **26**, substantially midway between wall **26** and the bottom of the recess **25**, is a transverse bar **27** within and spanning the recess for a purpose to be described.

Referring to the improved receptacle dumping mechanism, part of a waste collection vehicle or pick-up truck on which the mechanism may be mounted is shown generally at **29** in the drawings and comprises a lower horizontal bar **30** which may rest on the vehicle running board **31** and an upper horizontal bar **32**. Mounted edgewise on the bars **30** and **32**, as by welding, are two spaced-apart vertical plates **33** which extend above bar **32** and have horizontal bracket plates **34** connected to their upper ends. Spaced laterally outward of the plates **33** are two vertical bars **35** welded at their lower ends to horizontal bars **32'** extending laterally from the top of bar **32**.

The upper edges of bars **35** and the upper bracket plates **34** are welded to a horizontal sleeve **36** on which the upper leg **37** of an L-shaped frame having a vertical face plate **38** is hinged or rotatably mounted. The face plate frame has triangular side wings **40** connected to upper leg **37**, and a hinge shaft **41** journalled in sleeve **36** extends through the wings **40** and reinforcing plates **42** thereon at the rear outer edges of upper leg **37** and pivotally supports the face plate frame.

A rotary motor or activator **43** of known construction is mounted between the upper ends of vertical plates **33** by bolts **44**, the opposite ends of the activator shaft **45** extending through notches **46** in the plates. The outer ends of the shaft **45** have secured thereon the upper ends of downwardly extending lever arms **47** having their lower end portions connected by a cross channel **48** and outwardly projecting cam rollers **50** journaled on their ends. The cam rollers **50** are rollably engaged in channel tracks **51** mounted on the inner surface of the vertical face plate **38**. An upwardly facing hook-shaped saddle **52** is secured as by welding on the exterior of face plate **38** near its upper edge and supported by an angle **53** secured to the face plate.

The saddle **52** is adapted in the normal lowered position of the face plate to engage under the overhanging wall **26** within the recess **25** of a portable waste receptacle **10** which has been wheeled up to the face plate and tilted rearwardly a slight amount, as indicated in FIGS. 1 and 6.

Hence, rotation of the lever arms **47** by the activator **44** will roll the cam rollers **50** in trackes **51** and raise and tilt the receptacle **10** upwardly through the position of FIG. 7 to the position of FIG. 2.

As best shown in FIGS. 4 and 6, the lower central portion of the face plate **38** has an outwardly and downwardly facing hook **55** projecting therefrom through a vertical slot **56** in the plate. The hook **55**

preferably has a downwardly extending arm **57** and an upper substantially arcuate arm **58** extending through the slot **56.** The arm **57** is mounted on a pin **59** journaled at its ends in bearing brackets **60** fixed on the face plate **38.** The lower end of arm **57** and the inner end of arm **58** are secured to a supplemental cam track **61** located inside the face plate **38.** The cam track **61** has a lower angular end portion **62** which, in the normal upright position of the face plate shown in FIG. **6,** extends downwardly from the inner end of hook arm **55** behind a front stop wall **62'** extending downwardly from bearings **60.** The upper portion of track **61** extends angularly inward from end portion **62.**

The cross channel **48** connecting the lower ends of lower arms **47** has at its central portion a bracket **63** in which a supplemental cam roller **64** is journaled, and the roller **64** is adapted to rollably engage the supplemental track **60** when the arms **47** are rotated by the activator **43.**

When the saddle **52** is engaged under the overhanging wall **26** of a portable waste receptacle **10** in the position of FIGS. **1** and **6,** the hook **55** extends part way into the recess **25** of the receptacle and is spaced a short distance above the cross bar **27** therein. Now, as the lever arms are rotated (counter-clockwise as viewed in FIG. **6**) to lift and tilt the receptacle, the cam roller **64** engages the cam track and when the roller reaches the straight upper portion **61** of the track, the track is forced against the inner surface of the face plate **38** and the hook **55** is automatically pivoted outwardly thereof into locking engagement behind the cross bar **27,** as shown in FIG. **7.**

As the lever arms continue to rotate, the rollers **50** rolling in cam tracks **51** tilt the receptacle **10** to the receptacle dumping position of FIG. **2,** where the activator stops the rotation. In this position the supplemental cam roller is near the inner end of supplemental cam track **61** and the hook **55** continues to be securely locked behind cross bar **27,** so that the receptacle can not fall off the face plate even though it is bumped or jarred.

When the arms are reversely rotated to return the waste receptacle to its original upright position, as the supplemental roller **64** passes the position of FIG. **7** and engages the lower portion **62** of the supplemental cam track, the hook **55** is pivoted to disengage it from the bar **27** and return it to the position of FIG. **6** with portion **62** engaging the stop wall **62',** whereupon the receptacle can easily be slightly tilted to disengage it from the upper saddle **52.**

It will be apparent that the improved waste receptacle construction provides an upper downwardly directed recess formed by the overhanging wall and a lower cross bar adapted to be engaged by the improved lifting and dumping mechanism which includes a face plate for abutting the receptacle and having an upper saddle for engaging under the overhanging wall and a lower pivoted hook for automatically engaging behind said cross bar to hold the receptacle when it is inverted.

We claim:

1. In combination, a portable waste receptacle having a lower cross bar and an upper overhanging wall on the exterior of its front wall, dumping mechanism mounted on a waste collector comprising a rotatable frame pivoted on said waste collector and having an upper saddle adapted to engage under said overhanging wall to support said receptacle, means to rotate said frame to invert said receptacle, a downwardly directed hook pivotally mounted on said frame, and means on said frame to positively pivot said hook over and behind said cross bar in response to the rotation of the frame to invert said receptacle.

2. The combination as defined in claim **1,** in which said upper overhanging wall overhangs a recess in said one side wall, and said recess extends downwardly behind said lower cross bar.

3. The combination as defined in claim **1,** in which said rotatable frame includes a face plate from which said upper saddle projects and on which said hook is pivoted.

4. The combination as defined in claim **2,** in which said rotatable frame includes a face plate from which said upper saddle projects and on which said hook is pivoted.

5. The combination as defined in claim **3,** in which the means to rotate same frame comprises a rotatable arm having a cam follower rollably engaging said face plate, a cam track on said hook, and a second cam follower on said rotatable arm rollably engaging the cam track on said hook.

6. The combination as defined in claim **4,** in which the means to rotate said frame comprises a rotatable arm having a cam follower rollably engaging said face plate, a cam track on said hook, and a second cam follower on said rotatable arm rollably engaging the cam track on said hook.

7. Dumping mechanism for lifting and dumping a waste receptacle comprising a rotatable frame adapted to be pivotally mounted on a waste collector, an upper saddle mounted on said frame, a downwardly facing hook pivotally mounted on said frame below said saddle, means to rotate said frame to lift and tilt a waste receptacle supported thereon by engagement with said saddle and hook, and means on said frame to positively pivot said hook downwardly in response to the rotation of the frame to invert the waste receptacle.

8. Dumping mechanism as described in claim **7,** in which the means to rotate said frame comprises a rotatable arm having a cam follower rollably engaging said frame, a cam track on said hook, and a second cam follower on said rotatable arm rollably engaging the cam track on said hook.

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