

United States Patent

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[56]

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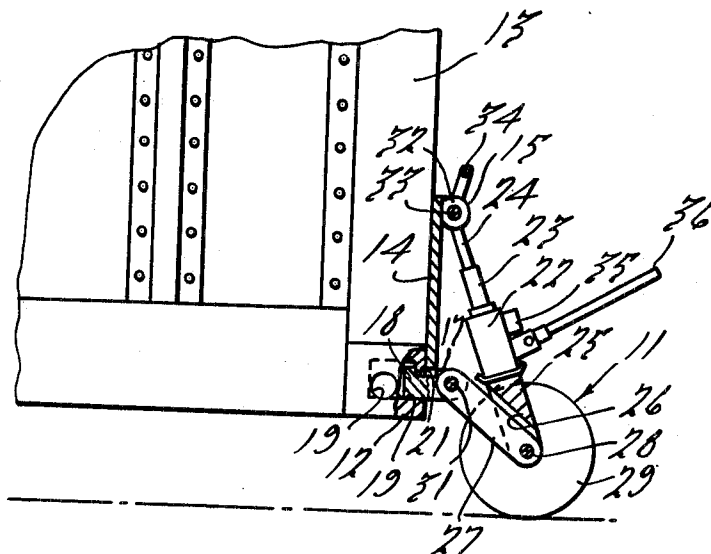
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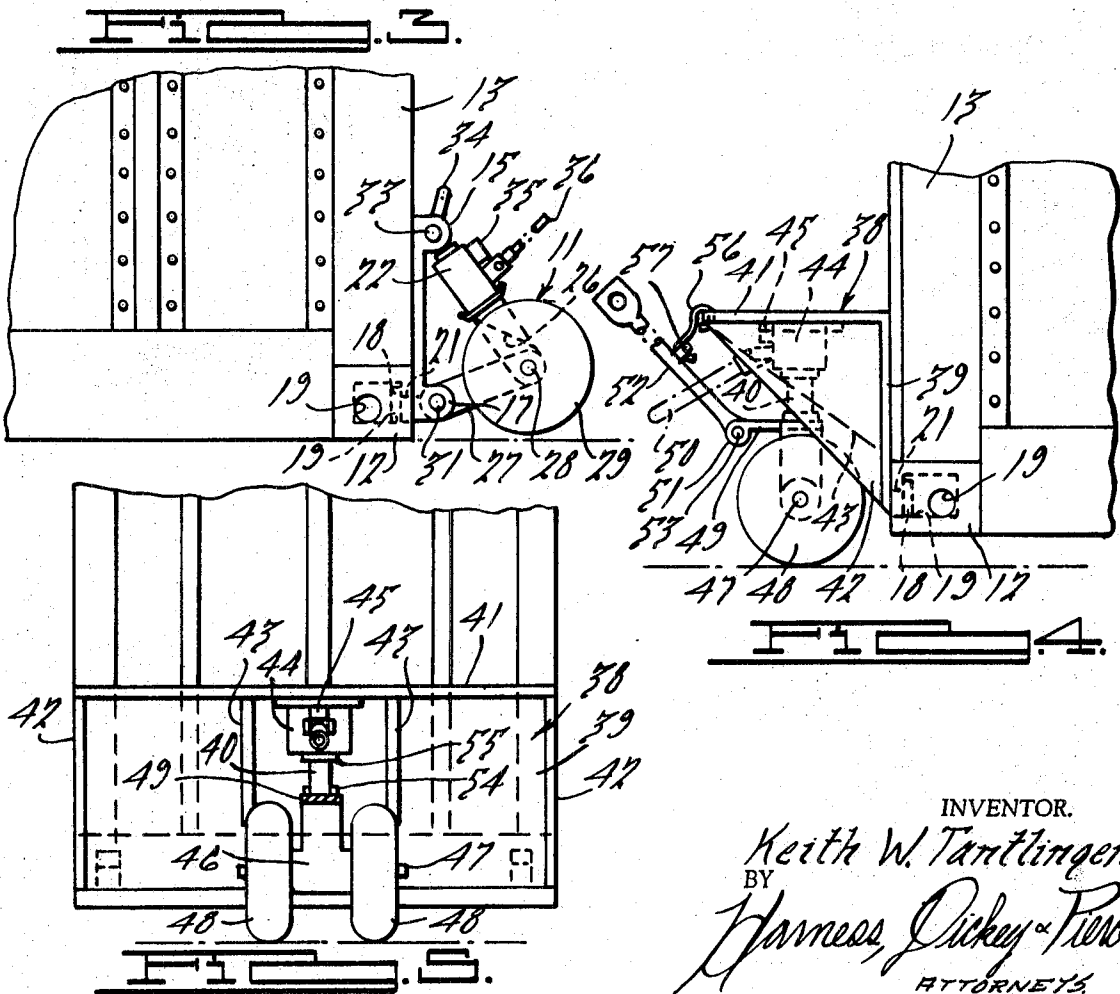
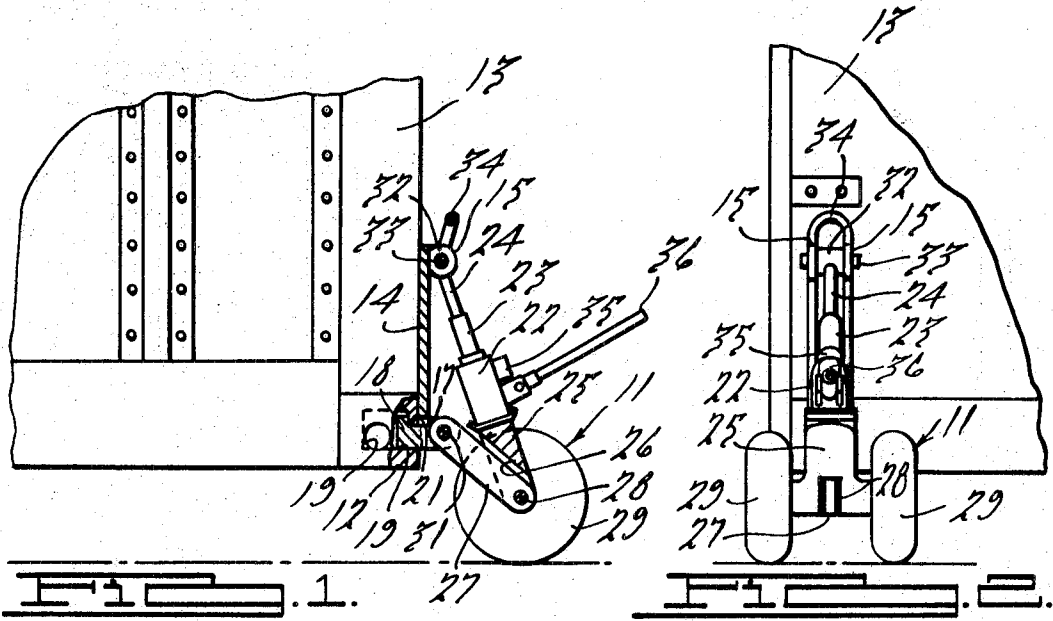
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[54] **SEPARABLE WHEEL UNITS FOR VEHICLIZING
CONTAINER**
5 Claims, 5 Drawing Figs.

[52] U.S. Cl. **214/390,**
280/43.23, 254/2
[51] Int. Cl. **B60p 1/64**
[50] Field of Search **214/390;**
280/43.11, 43.23; 254/2

ABSTRACT: The wheel units are releasably attached to the bottom corner sockets of a shipping container which raises the container on the wheels of the units when a hydraulic ram on the unit is extended.





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SEPARABLE WHEEL UNITS FOR VEHICLIZING CONTAINER

BACKGROUND OF THE INVENTION

Reference may be had to the following patents which illustrate the state of the art: U.S. Pat. Nos. 2,968,490; 3,243,193; 3,156,484; 3,253,668; 3,193,301.

SUMMARY OF THE DISCLOSURE

The invention pertains to a wheeled unit having a frame with projections at the bottom corners which extend into apertures in sockets at the front bottom corners of the container. The wheeled unit is mounted on a ram located at the central part of the frame for moving the wheels thereof downwardly and raising the frame on the piston rod of the ram which is turnable to permit the wheels and front end of the container to be steered. Separate wheeled units are employed at the rear corners of the container, each having a frame which abuts the rear wall of the container when secured thereon by a projection extending into the aperture of the rear bottom corner sockets of the container. A link and a ram are pivoted on the frame and to the wheels on which the container is supported when the ram is extended. The rams have a pump thereon operated by a lever which delivers the oil or other fluid under pressure to the cylinder for extending the piston rod or a double piston rod when used, and a manual operable valve returns the pressurized fluid in the cylinder to the other side of the piston and to a reservoir when lowering the container to the ground. The units are self contained and are simple to attach and operate.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a broken view of a corner of a container having a wheeled unit thereon embodying features of the present invention with the container shown in raised position;

FIG. 2 is a rear view of the structure illustrated in FIG. 1;

FIG. 3 is a view of the structure illustrated in FIG. 1, before the container has been raised or after it has been lowered;

FIG. 4 is a broken view of the front end of the container with a steerable unit secured thereto with the container shown in raised position; and

FIG. 5 is a front view of the structure illustrated in FIG. 4.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIGS. 1, 2 and 3, a unit 11 is illustrated, two of which are attached to rear bottom sockets 12 of a container 13. The unit 11 has a frame 14 containing spaced bosses 15 at the top and spaced bosses 17 at the bottom on the outer face thereof. A cylindrical pin 18 extends from the inner face of the plate of a diameter to pass into an aperture 19 in the socket 12. The pin 18 has a notch 21 therein which receives the metal at the top of the aperture 19 to form a hooked relation therewith. A ram 22 has a pair of telescoped piston rods 23 and 24 of conventional form with the cylinder secured to an inverted T-shaped support 25 containing a slot 26 for receiving one end of a link 27. The link is secured to the support 25 by an axle 28 on the ends of which a pair of wheels 29 are secured. The opposite end of link 27 is secured by a pivot 31 in the space between the bottom bosses 17 in pivotal relation thereto. The upper end of the piston rod 24 has a boss 32 which is secured between the bosses 15 by a pivot 33. An inverted U-shaped bar 34 is secured to the upper end of the bosses 15 to form a handhold for moving the unit to and from the container. The ram 22 has a manually operated pump 35 thereon actuated by a handle 36 for pumping fluid from a reservoir and one end of the cylinder to the other for extending the piston rod and moving the wheels 29 downwardly to thereby raise the container on the unit 11, as illustrated in FIGS. 1 and 2.

In FIG. 3, the unit 11 is shown after it has been moved into position with the container with the frame 14 in contact with the rear face thereof and the pin 18 disposed in the rear corner

aperture 19. Upon the pumping of fluid into the ram 22, the frame 14 will be moved upwardly to have the notch 21 of the pin engage the wall of the aperture to form a hook engagement. Thereafter, the extension of the pistons 23 and 24 will raise the corner of the container on the wheels 29. By manually operating a valve, the fluid will flow from one to the other side of the piston and to the reservoir to permit the pistons 23 and 24 to retract and drop the container to the ground in the position illustrated in FIG. 3. When in this position, the unit 11 may be separated from the container by the movement of the pin 18 from the aperture 19.

Referring to FIGS. 4 and 5, a unit 38 is illustrated which is employed at the front of the container. The unit embodies a frame having a back plate 39, a top plate 41 and end gussets 42 with spaced reinforcing gussets 43 near the central portion. A pair of pins 18 extend from the corners of the back plate 39 in position to enter apertures 19 in the front bottom corner sockets 12 of the container. The pins 18 have notches 21 which form a hook with the upper portion of the wall of the apertures 19. A cylinder 44 is secured to the underside of the top plate 41 between the gussets 43 having a manually operated pump 45 thereon actuated by a handle 50. A piston rod 40 extends from the cylinder 44 and is secured to an inverted T-shaped support 46 through which an axle 47 extends for supporting a pair of wheels 48. An arm 49 extends forwardly from the T-shaped support 46 having spaced bosses 51 thereon to which a towbar 52 is secured by a pivot 53. With this arrangement the unit 38 is not only pulled by the towbar 52 but the wheels 48 can be steered by rotating the piston rod 40 and its piston within the cylinder 44.

When the container 13 is resting upon the ground the unit 38 is moved against the front thereof to insert the pins 18 within the apertures 19. Thereafter, the pump handle 50 is operated to introduce fluid under pressure to within the cylinder 44 to extend the piston rod 40 and thereby raise the container 13 on the wheels 48. Projections 54 at the top of the arm 49 engage notches in a collar 55 of the cylinder when wheels are disposed normal to the back plate 39 upon the lowering of the cylinder so as to prevent the steering of the wheels when the frame 38 is separated from the container. When in this position, the towbar 52 is secured by a hook 56 pivoted to the top plate 41 and engaged in an eye 57 on the towbar for retaining it in fixed position.

When employing either of the frame units 11 or 38, the fixed relationship of the back frame 14 and plate 39, respectively, with the back and front walls of the container is made possible by the use of the pins 18 having the notch 21 therein which produces a hooked relationship that prevents the separation of the bottom of the plates from the sockets of the container. By the use of two types of units, a container may be raised, transported to a position and again lowered to the ground or other support which permits the units to be removed therefrom. The units are of simple construction using a single ram and notched projecting pins which positively attach to the sockets at the bottom corners of the container permitting the container to be raised and transported on the wheels of the units.

I claim:

1. Separate wheel units for raising a transportable container having bottom corner sockets which are engageable by the units, each said units having a frame, pin means on said frame extendable into said sockets from the front and rear end of the container, each said frames having a ram including a cylinder and a piston rod mounted thereon, wheel means at one end of the rams, means for extending said rams for raising said pin means and the corners of the container onto said wheel means for supporting said container for transportation thereon, said pin means having a notch therein providing a hook engagement with the inner wall of said sockets and being the sole means for locking the units against removal when the container is raised.

2. Separate wheel units for raising a transportable container as recited in claim 1, wherein the frame at the front end of the

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container is of such width as to support two of said pin means in position to enter the sockets at the corners of the front end of the container with the wheel means centrally disposed therebetween, and pivot means provided between said wheel means and said frame to permit the wheel means to be steered.

3. Separate wheel units for raising a transportable container as recited in claim 2, wherein a towbar is secured to said pivot means.

4. Separate wheels units for raising a transportable con-

tainer as recited in claim 1, wherein two separate units are applied at the rear end of the container, and link means between said frames and rams which causes said pin means and the corners of the container to be raised when the rams are extended.

5. Separate wheel units for raising a transportable container as recited in claim 1, wherein a manual operable pump on each separate unit provides fluid to the ram for producing its extension.

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