United States Patent [19]

Kent

[11] 3,841,505

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[54] **ROLL OFF CONTAINER**

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[21] Appl. No.: **330,215**

[52] **U.S. Cl.** **214/83.3**, 214/82, 214/517, 214/505

[51] **Int. Cl.** **B65f 3/00**

[58] **Field of Search** 214/82, 83.3, 503, 518, 214/505, 515

[56] **References Cited**

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[57] **ABSTRACT**

A self-packing and ejecting roll off container has a top door and two side doors slightly spaced from a first closed end. A concave packing and ejecting blade having a replaceable edge with a downward extending, friction reducing strip is mounted on a frame which is supported on guides spaced upward from the bottom of the sidewalls. The frame and curved blade are homed at the first closed end with the blade near the door openings. The frame and blade are moved by a multiple stage hydraulic cylinder. A connection in the power lines permits the cylinder to be operated by a stationary power supply at the filling station and by the truck's hydraulic power supply. When operating in a packing stage, the cylinder moves the blade half-way through the container and then returns the blade to its homed position. When excessive pressure occurs in the actuator during packing, the blade is returned to the home position without travelling its full length. In the ejecting mode, the frame and blade are driven substantially the full length of the container. The container is completed by a power drive tailgate which closes the container and by a seal which extends inward from the tailgate against the open end to tightly seal the container. The base of the container has hooks at opposite longitudinal ends so that the container may be rolled on and rolled off trucks at either end.

9 Claims, 7 Drawing Figures

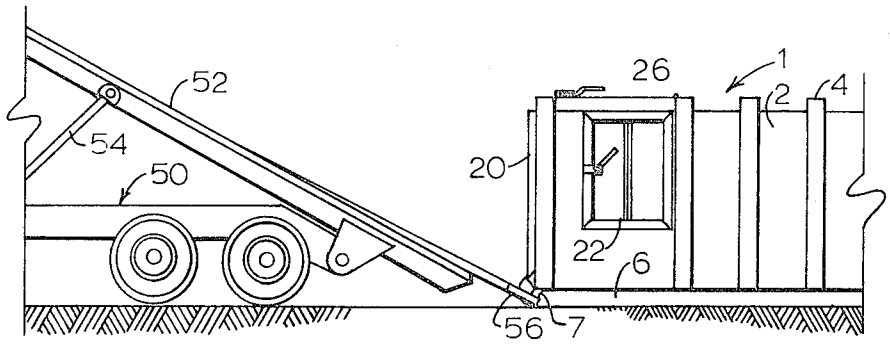


FIG. 1

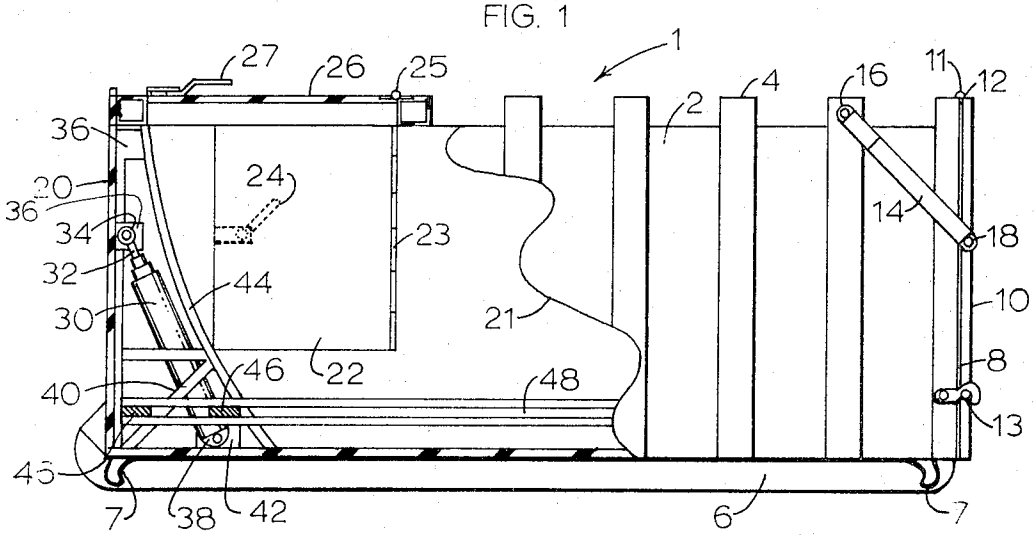


FIG. 3

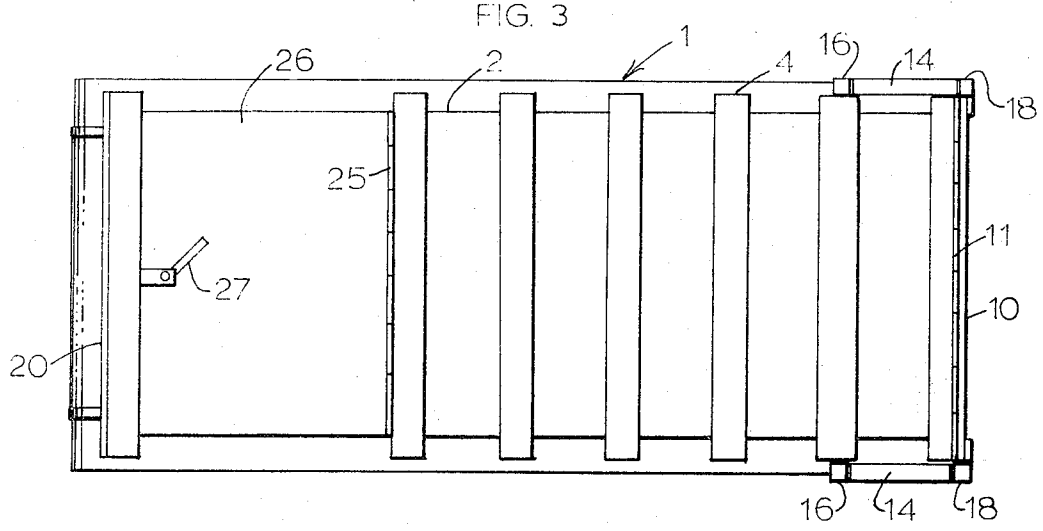


FIG. 2

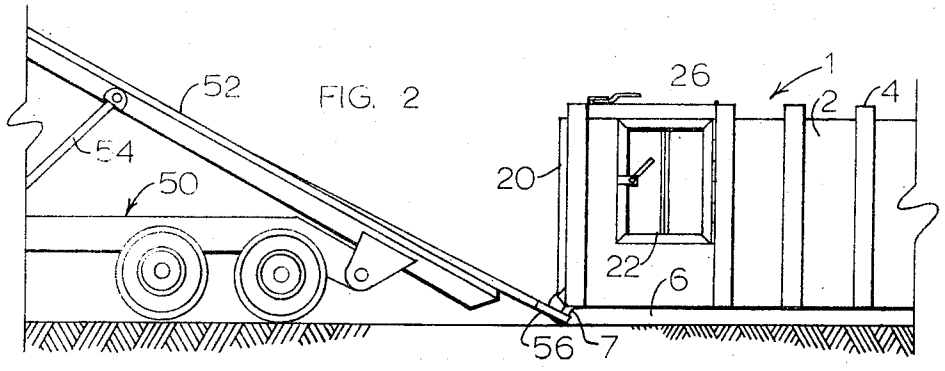
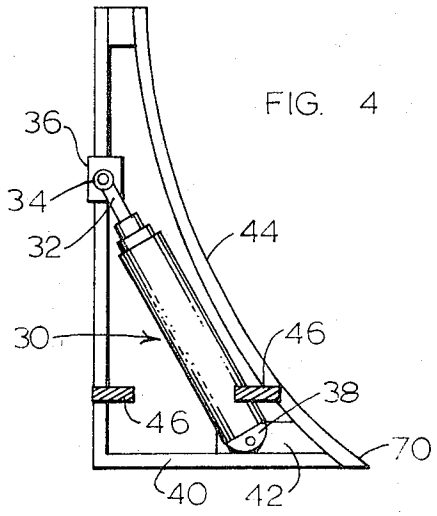


FIG. 4



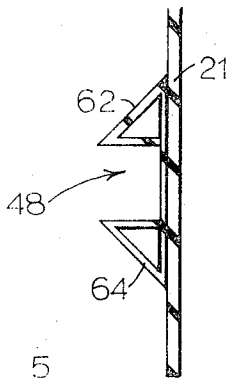


FIG. 5

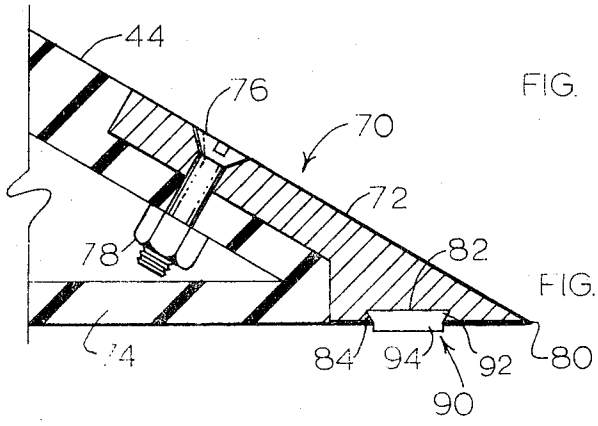
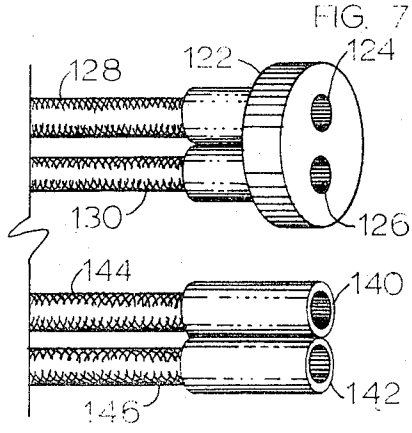
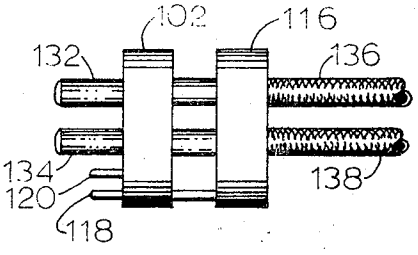
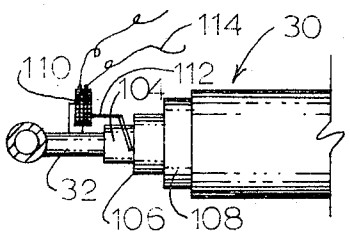


FIG. 6

FIG. 7







ROLL OFF CONTAINER

BACKGROUND OF THE INVENTION

Roll off containers are well known and are especially used in the waste materials collection and transportation industry. As an example, one type of roll off container used for waste materials collection at a first site and disposal at a distant site is shown in U.S. Pat. No. 3,613,569. A truck bed is tilted. The container is hooked and is pulled up on the truck bed by a hydraulic jacking system. In a reverse operation, the container is slid off the tilted truck bed by a reverse jacking procedure. At the container filling station, a problem exists in loading the container and in tightly compacting loose lightweight materials within the container. One solution to that problem is contained in the aforementioned patent. The container has an opening at the bottom of its loading end. A stationary packer is connected to that opening. The packer has a ram with a pusher blade which is substantially flush with the opening. Waste material is put in the container through a door near the pusher blade, and the ram drives the pusher blade across the bottom of the door, pushing materials toward the opposite end of the container. After the container is loaded, it is disconnected from the stationary ram before it is loaded on a truck. During the disconnection and subsequent loading, a problem of material spillage may exist at the opening. This results in a requirement for increased hand labor as does the closing of the opening. Because the opening exists at the rear bottom of the container, there may be a propensity for liquid collected from the waste to spill out of the bottom rearward opening when the container is tipped.

In somewhat related devices of the prior art, a hopper with a ram and blade which move through the hopper is connected to the rearward opening of a container. Instead of loading materials directly into the container, materials are deposited in the hopper and then are forced into the container by the ram. Problems upon disconnection and loading the container on the truck are similar to the problems previously described, wherein a ram moves a plate beneath the door of a container.

Other roll off containers have been developed with front end hoppers and with rams and plates moving through the hoppers to force material into the container which is mounted to the rear of the hopper. In those cases, the hopper and container are mounted on a single frame, and the container is shortened by the length of the hopper. In some devices of that type, the power supply to drive the ram is mounted on the container, usually adjacent the hopper, perhaps slightly above and at one side of the hopper. In other cases, the ram is powered by a stationary power supply which may be connected to the ram after the container is rolled off the truck bed.

In all of the previously described devices, the ram and blade simply clear the trash from the loading area and do not compact the trash within the container. While the front mounted hoppers avoid the problems of waste spillage upon disconnecting of stationary rams or hoppers, the front mounted hoppers reduce the available container volume by the length of the hopper and do not pack the material within the container. In all of the cases, the rams and blades only move through the hopper or loading area.

Waste materials hauling trucks are known in which a truck drives up to a stationary bin, engages the bin with forks and lifts the bin over the top of the cab before tipping the bin into a hopper space at the front of a container on the truck. A blade then clears the hopper space for the next binload of material.

It has been reported that in large bituminous hauling trucks, boxes may be provided with false end gates movable from a forward portion of a box to the rearward portion of the box to force material in the box outward through the rear opening. A disclosure of that type is shown in U.S. Pat. No. 3,273,728.

Large roll off containers appear to be the best solution to the problems of increasing hauling capacity while minimizing the number of weekly collections at a single refuse generation point and reducing labor costs of handling and hauling refuse. However, no equipment is commercially available, and apparently no equipment has been designed with features which produce fully satisfactory results. The cost of combined stationary compacters attached to large containers is too expensive compared to the performance in actual operation. Compaction is poor with a blade which penetrates only a small portion of the container. Wasting the space and weight to mount a power package and hopper with a container on a roll off unit is inefficient. When separating refuse containers from stationary packers, refuse spills are the rule, not the exception. Poor sanitary conditions and increased handling requirements are created. When raising a mounted container on a truck for emptying refuse at a landfill site, excessive jerking of the chassis is required to free stuck refuse. The jerking of the truck creates unnecessary strain on the entire equipment system, which is the truck, its frame, the hoist and pivoted frame and the container. With refuse having a high liquid content, leakage between the compacter and the container is unavoidable.

Under severe climatic conditions, freezeup occurs in two important areas. First, the stationary compacter itself may freeze if high liquid content refuse is handled or if rain and snow are allowed to accumulate. Under those conditions in freezing weather, the ram and packer plate cease to operate. Second, any freezeup within the container jams the load and prohibits its dumping.

SUMMARY OF THE INVENTION

The present invention overcomes many of the problems of the prior art devices. The present container, which may be referred to as a packing and ejecting roll off container, has a base configured for mounting on the ground and for sliding on and off tilting truck bodies. The base has hooks at opposite longitudinal ends so that the container may be loaded on trucks from either direction. The container has bottom, side and top walls; one longitudinal end is closed; and the second longitudinal end is open. The open end has a hinge along its top which supports a tailgate which is power operated, preferably by hydraulic rams on either side to raise and lower the tailgate. A seal extends inward from the tailgate to abut the open end. A latching mechanism is provided to hold the tailgate closed tightly against the open end with the seal compressed, thereby completely sealing the rear end of the container. A slidable frame is mounted within the container and is stationed adjacent its closed end. The frame is supported on outward

extending lugs which slide in tracks mounted a short distance above the bottom on the sidewalls. The lugs and tracks may be coated with friction reducing material such as high molecular weight polyolefins, and the lugs are constructed so as to be readily detached from the frame and replaced after predetermined usage cycles. A curved packer-pusher blade extends substantially from top to bottom and from side to side and has a concave curve around generally horizontal axes. The blade and frame are configured so that the blade is closer to the first end wall at its top than at its bottom. First and second side doors with rearward hinges open outward by the face of the blade when in its homed position. A top door with a rearward hinge opens upward directly above the curved blade in its homed position.

Material placed in a container through the doors is automatically directed rearward by the curvature of the blade. After substantial material has been placed in the container through the doors, the blade is cycled rearward in a packing mode, that is a packing condition of actuator controls.

The actuator may be any convenient form of actuator, such as an electric or fluid actuator, including pneumatic and hydraulic actuator. In a preferred form of the invention, a multiple stage hydraulic cylinder is employed. The ram is attached to a reinforced anchor in the first end wall of the container. As used herein, the first end wall encompasses any suitable end structure. For example, the end wall may be an open frame having a reinforced portion or anchoring one end of the actuator. The second end of the actuator is pivoted to a lug on the slidable frame near the base of the blade. The blade itself may constitute the only transverse barrier structure with the end wall and the frame comprising open framework. The bottom edge piece of the blade is constructed separate from the remainder of the blade and is removable from the frame for replacement. Preferably, the edge section is constructed of high carbon steel formed in a wedge for long life and reduced wear. Across the bottom surface of the wedge, running from one side wall to the other, a rabbeted groove is machined. A high molecular weight polyolefin strip is fitted in the groove and extends downward from the groove, creating a low friction surface between the blade and the bottom of the container. The strip is removable by extending the blade from the container and sliding the old strip out and a new strip in.

When the actuator drives the blade in a packing mode, switches in the power line limit travel of the blade to about one-half the length of the container. It has been found that by so limiting the travel of the blade in the packing mode of operation, the packing cycle time during which the container is unavailable for loading is reduced without adversely affecting the packing and filling of the container. A limit switch causes the actuator to reverse upon half extension of the blade in the container when the controls are placed in the packing condition.

To further save time, to create an even packing of the load, and to prevent jamming, the power system is provided with an override, which stops forward movement of the actuator and returns the actuator and blade to the home position when a predetermined packing force is exceeded by the blade. In the embodiment of the invention in which a fluid actuator drives the blade, the sensing means is a pressure switch in the fluid line which changes the condition of the fluid line to reverse the actuator upon sensing a pressure in excess of a predetermined maximum.

The blade driving systems includes power lines connected to the actuator for driving the actuator means in forward and reverse directions. A control system connected to the power lines controls the direction of drive, the extension of the actuator and the force with which the actuator moves the blade. Preferably the control system has two conditions. In one condition, the blade driving system is configured for driving the blade in a packing mode. Extension of the blade is limited to one half the length of the container, and force of the blade is limited to a predetermined maximum. When the blade reaches its extension limit or the force is exceeded, the control system causes the actuating means to reverse and to return the blade to the home position.

The control system has a switching means with two positions, one for permitting packing and the other for permitting pushing or ejecting of the load which permits a full extension of the blade through the container and a full force up to a predetermined maximum. The switching means may be simply a two position, manually operated, solenoid operated or fluid operated pilot switch which changes the condition of travel-limiting switching devices and pressure sensitive switching devices to render them operable or inoperable. Such a switch may be mounted directly on the container or may be mounted in a cab truck. In one embodiment of the invention, the switching means is positioned near fluid power connections so that when a connector from a stationary fluid power source is engaged, the switching means is set to a packing mode condition, and when the stationary power supply is uncoupled and the truck power supply is coupled, the switching means is changed to a load pushing and ejecting mode with fuller extension and increased force and pressure in the actuating system. In the latter case, the switching means may be configured so that it may be moved to a packing mode position while the truck power supply is coupled to the power lines.

Further solenoid switch interlocks may be employed to permit operation of the controls in an ejecting load pushing condition only when the tailgate is open or only when the tailgate is partially or fully extended by the tailgate actuator. For example, a contact switch on the tailgate prevents disabling of the pressure and travel limiting switches. The side and top doors or only the side doors may be provided with solenoid or fluid operated locks to prevent opening of the doors when the blade is away from the home position adjacent the first end of the container.

Buildup of water and formation of ice creates a difficult problem in geographical areas which experience freezing. The blade of the present invention, which is concave or substantially concave, removes the conventional sharp angle in the blade to provide better breaking up and turning over of any ice which builds up on the bottom of the container. The edge of the blade is constructed of a separate removable high carbon steel wedge for long life and reduced wear. The wedge is easily replaced and incorporates a strip of high molecular weight polyolefin material set in and extending from a machined groove on its bottom surface. The strip elimi-

nates steel to steel contact, further reducing wear. A minimum of effort is required to replace the strip.

In the the preferred embodiment, the plate guides or channels running the length of the container to support the blade are positioned at least 8 to 10 inches above the floor level to insure that the track is above the level of most liquid or other materials that might freeze or that might otherwise reduce mobility and increase friction. Blocks supporting the weight of the plate or blade ride in the channel or guide track. Two blocks at each side of the plate and its supporting frame are mounted for ease of removal or replacement. The blocks are constructed of a material to reduce friction and wear.

One object of the invention is the provision of a self packing and self ejecting roll off container configured for resting on the ground and resting on a truckbed and having provision for connecting to a stationary power supply for packing and a truck power supply for ejecting.

Another object of this invention is the provision of a self packing and self ejecting roll off container having a substantially concave curved blade which is capable of movement through the container.

Another object of the invention is the provision of a self packing and self ejecting roll off container with a concave blade and a removable high carbon steel edge with a friction reducing insert at its bottom.

Another object of the invention is the provision of a self packing and self ejecting roll off container having blade supporting channels positioned out of an ice accumulation area and having replaceable supporting blocks connected to the blade and moving within the channels.

Another object of the invention is the provision of a self packing and self ejecting roll off container for resting on the ground and pulling onto a truckbed having a control means for cycling the blade in limited extension and with limited force in a packing mode and with increased extension and increased force in an ejecting mode.

Another object of the invention is the provision of a self packing and self ejecting roll off container with a hydraulic cylinder driven blade with a pressure actuated valve for returning the blade to its home position when excessive pressure occurs during a forward portion of a packing cycle of the blade and having a limit switch controlling forward extension of the blade to a limited amount and causing returning of the blade to its home position upon that extension in the packing mode.

Another object of the invention is the provision of a self packing and self ejecting roll off container having a base for resting on the ground and having a hooking structure under the base for engaging pulling apparatus of a tilted truckbed and having similar hooking structure at opposite longitudinal ends whereby the base and its container may be loaded on a truck and rolled off a truck by either longitudinal end of the container.

These and further and other objects and features of the invention are apparent in the disclosure, which is the drawings and the foregoing and ongoing specification, which includes the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is partially cut away side elevational schematic view showing a container with a side and top loading door near its first or front end and showing a packing and pushing blade and its supporting end actuating the structure.

FIG. 2 is a schematic view of a container such as shown in FIG. 1 being loaded on a tilting bed of a truck.

FIG. 3 is a top plan view of a container shown in FIG. 1, showing the top access door.

FIG. 4 is a detail of the concave packing and ejecting blade, its supporting frame and blocks and the actuator which drives the frame and blade.

FIG. 5 is a detail of the sidewall mounted channels in which the blade and frame supporting blocks move.

FIG. 6 is a detail of the replaceable hardened steel edge of the concave blade and the replaceable polyolefin friction reducing strip mounted on the lower surface of the blade wedge.

FIG. 7 is a schematic representation of one embodiment of a blade actuating power control system with connections for stationary and truck power supplies.

DETAILED DESCRIPTION OF THE DRAWINGS

Referring to FIG. 1, a self packing and ejecting roll off container is generally indicated by the numeral 1. The roll off container has a container body 2 which is formed of sheet material with self corrugation reinforcements 4. A base 6 is configured for resting on the ground and for loading on a truck. The base 6 has hooks 7 at opposite ends so that the base and its container body 2 may be pulled onto sloping truckbeds from either longitudinal sense of direction.

An open end 8 of container 2 is closed by a tailgate 10, which is mounted on a hinge 11, which extends across the container on a rearward raised reinforcement section. A compressible seal 12 extends inward from tailgate 10 around the rearward peripheral area of the opening so that tailgate 10 forms a tight liquid seal with the container. A latch 13, which may be opened and closed by a solenoid or fluid actuator, holds the tailgate firmly in compression of seal 12. Hydraulic ram 14 has a cylinder connected to a pivot 16 on one reinforcement section and has a piston connected to a pivot 18 extending laterally from the tailgate. Cylinders are used on opposite sides of the container body. In one embodiment, cylinders 14 are single acting to lift the tailgate, and compression of the cylinders is dampened just sufficiently to allow the tailgate to fall against the opening with sufficient force to lift latches 13 and to compress the seal 12 whereupon latches 13 on opposite sides of the tailgate fall into place, holding the tailgate tightly against the opening. In another embodiment, hydraulic cylinders 14 are double acting and pull the tailgate and seal against the body.

At the opposite end of the container, which is referred to as the front end or the first end, a first end wall provides a substantial and rigid support for the remaining structure. The first end wall 20 may be constructed of a solid ribbed sheet material with a small opening for access to one end of the blade actuator. Preferably, end wall 20 is constructed of a heavy duty framework which is completely or at least partly closed to prevent refuse, or slops from coming behind the packer plate and falling out. Sidewalls 21 extend upward from a bottom wall and rearward from front wall 20 to open end 8. Preferably, the side walls, bottom wall and ceiling wall have plain interior surfaces with channel shaped members 4 being welded exteriorly for

support. The inside of a sidewall door 22 on the far side of a container is shown in FIG. 1. Door 22 is mounted on hinges 23 to open forward and is held closed by latch 24. A hinge or plurality of hinges 25 extending across the top of the container 2 at the forward reinforcement portion supports a top door 26, which opens forwardly and which is secured by latch 27. As shown in FIG. 1, the doors open at the blade depicted in its homed position. The forward edge of the top door is directly over the adjacent portion of the blade, and the forward edge of the side door is directly adjacent a curve of the blade.

As shown in FIG. 1, an actuator 30 propels a packing and ejecting blade from a first end of the container toward a second end of the container and back to its homed position adjacent the first end 20 of container 2. The actuator has a ram 32 which is connected to a pin 34 on an anchor 36, which is firmly attached to the first end wall structure 20. The cylinder 30 has an end 38 attached to a lug 42 of a slidable frame, which is generally indicated by the numeral 40. Frame 40, which extends from the bottom to the top of container 2 and across the front wall 20 supports the concave packing and ejecting blade 44. The concave blade has a substantially uniform curvature in one embodiment and has a substantially uniformly changing curvature of diminishing radii from top to bottom in another embodiment. The blade extends substantially from sidewall to sidewall 21 and from top wall to bottom wall in completion of the closing of a container at its first longitudinal end. Care is taken to discourage the passing of material around the blade toward the first end.

The blade mounting frame 40 has two outward extending support blocks 46 on each side, which ride in parallel tracks on the side walls. The tracks are spaced upward from the bottom wall of the container 2 to raise the tracks from areas which are susceptible to the accumulation of freezing liquid or heavy track obscuring debris.

Referring to FIG. 2, the materials handling container 1, with its body portion 2, reinforcement channels 4 and base 6 is shown ready for lifting onto a truck, generally indicated by the numeral 50. The tilting truck bed has been raised by hydraulic ram 54 and a gripping device 56 has been engaged with hook 7 on the first end of the container base 6 adjacent end wall 20. Gripping device 56 is then hydraulically driven upward along sloping bed 52, while the container is pulled on the truck. As shown in the drawing, the container 1 is being pulled on the truck by a hook 7 adjacent its first end, which is depicted in FIG. 2 with the first end wall 20 and adjacent side door 22 and top door 26. In the present invention, the container uniquely may be pulled on the truck from a similar hook 7 on its opposite end as shown in FIG. 1.

FIG. 3 shows the top view of the container body 2 in which door 26 opens forward while pivoting on hinges 25. A latch 27 holds the door closed. This door can be made of aluminum to facilitate its opening and closing.

In FIG. 4, details of the actuator 30 and slidable frame 40 are shown. It can be seen that the actuator 30 has a ram 32 attached to a pin 34 of an anchor 36, which is fixed on the first end structure of the container. End 38 of the cylinder of actuator 30 is connected to lug 42 for moving the slidable frame 40 as the actuator is extended and contracted. Blocks 46, which may be connected to the frame member or to the frame member and to blade 44, support the frame and blade during its movement and when it rests in the homed position. The leading lower edge section 70 of blade 44 is detachable as discussed with reference to FIG. 6.

In FIG. 5, a guide channel generally indicated by the numeral 48 is shown mounted on sidewall 21. The channel consists of two separated triangular portions 62 and 64, which may be separately mounted on the wall or which may be joined by a thin bridging strip to hold the members in proper alignment. As shown in the drawings, the members are triangular to aid in the deflection of materials away from the channel space between the members for keeping the channel clear.

In FIG. 6, a detail of the detachable wedge portion 70 of blade 44 is presented. The wedge portion 70 has a sloping face 72 which continues the curve of the face of blade 44 to an edge 80. The wedge portion is connected to the blade and to a leading portion 74 of frame member 40 by bolts 76 and nuts 78. These fasteners make wedge 70 readily removable for replacement. On the bottom of wedge 70 a rabbeted groove 82 is formed. The groove has inwardly divergent sides 84 to hold a complementarily formed upper portion 92 of a high molecular weight polyolefin strip 90. The strip has a projecting portion 94, which rides against the bottom surface of the container for preventing metal to metal contact. The polyolefin strip 90 is easily removed and replaced by projecting the wedge 70 from the open end 8 of the container and sliding a new strip 90 into groove 82 or by removing wedge 70 from the blade 44 prior to replacing strip 90.

One control embodiment for operating actuator 30 is schematically shown in FIG. 7. Actuator 30 has a ram 32 which extends outward with multiple stages. Valve 102 controls the application of fluid pressure to drive the actuator 30 in its extension or retraction mode. Ram 32 is extended. Cylindrical elements 104, 106 and 108 are extended. A microswitch 110 is mounted on the ram 32, and feeler 112 presses against an end of cylindrical element 106. The elements extend together, first 108 stopping upon its full extension, then 106, then 104 and finally ram 32. As soon as one-half of the cylindrical ram elements have been extended, sensor 112 feels the relative movement of ram 32 and element 106. The latter relative movement indicates that the actuator 30 has been extended one-half of its full amount and that blade 44 has been driven halfway toward tailgate 10.

Microswitch 110 communicates the information over lines 114 to valve 102, which changes state and reverses to flow to actuator 30, causing the blade 44 to retract to the homed position adjacent the first end of the container.

Two position, pressure responsive valve 116 reverses flow to actuator 30, causing the return of blade 44 to its homed position upon a predetermined resistance force encountered by blade 44, which causes a predetermined pressure maximum in the supply lines to actuator 30. When pressure in the lines is terminated upon completion of a cycle, valve 116 automatically returns to the blade advancing position.

As shown in FIG. 7, the valves 102 and 116 have disabling devices 120 and 118 respectively for preventing the reversing operation of the valves during load ejecting modes of operation. As an example, the disabling devices 118 and 120 may be simply reciprocal wedges

which mechanically prevent movement of valves 102 and 116 into reversing positions. The wedges and their actuators 118 and 120 may be spring loaded to an outward valve blocking position. An enlarged collar 122 presses the actuator 118 and the actuator 120 inward, permitting normal reversing operations of valves 102 and 116. Collar 122 is carried on couplings 124 and 126 of hoses 128 and 130, so that when the couplings are fitted on nipples 132 and 134, collar 122 depresses arms 118 and 120, permitting normal operation of valves 102 and 116 for controlling the packing mode of operation of actuator 30.

Hoses 128 and 130 are connected to a stationary power supply, which is the usual power supply, while the container is being packed. Couplings 140 and 142 connect truck power supply hoses 144 and 146 to nipples 132 and 134. When couplings 140 and 142 are attached to the container mounted nipples, arms 118 and 120 remain in position for blocking operation of valves 102 and 116, to permit full extension and pressure for operating actuator 30 and blade 44 in the load ejecting mode.

When directly coupled to valves 102 and 116, nipple 132 supplies pressure to line 136 to extend the cylinder and blade. At the same time, nipple 134 is connected to line 138. When either of the valves operates, the connection is reversed so that nipple 132 supplies pressure through line 138 to retract actuator 30.

Nipples 132 and 134 and couplings 124, 126, 140 and 142 are provided with conventional hydraulic line connection features, which prevent fluid flow upon disconnection.

Truck power supply lines 144 and 146 are provided with a valve to control the forward and reverse drive of the actuator 30 by respectively pressurizing line 144 and draining line 146 to extend the cylinder and blade and pressurizing line 146 and draining line 144 to retract cylinder 30 and blade 44.

A similar type valve is provided in stationary power supply lines 128 and 130. The valve in the stationary supply line is provided with an additional feature which returns the valve to a neutral position following a pressure surge in line 128, which occurs upon completion of the return stroke to the homed position.

While the invention has been described with references to specific examples, it will be obvious to one skilled in the art that modifications may be made without departing from the spirit and scope of the invention. The scope of the invention is defined in the following claims.

I claim:

1. A self packing and ejecting roll off container comprising a base, an elongated container mounted on the base and having a bottom wall, first and second sidewalls, a ceiling wall, a first end wall and having a second open end, a hinge attached to the second open end adjacent the ceiling wall, and a tailgate attached to the hinge for overlying the open end in completion of the closing of the container, first and second openings in the first and second sidewalls, respectively. and first and second side doors hinged to the first and second walls and covering the first and second openings, a slidable frame mounted within the container for sliding longitudinally therein between the first end and the second end, a blade mounted on the slidable frame and facing the second end, an actuator connected to the slidable frame and connected to the container for pushing the slidable frame and the blade toward the second end and for retracting the frame and blade toward a home position near the first end with the blade being positioned between the first and second doors and the first end, power means connected to the actuator for driving the actuator toward the second end and toward the first end, and control means connected to the power means for controlling application of power to the actuator in a first packing condition and in a second ejecting condition, wherein the actuator comprises an extensible fluid actuator, and wherein the power means comprises fluid lines connected between the actuator and a first power source on a vehicle and a second power source at a loading station, pressure responsive valve means in the fluid lines for limiting pressure to the actuator in a packing condition, a second valve means in the fluid lines and travel limiting means connected to the fluid actuator and to the second valve means for reversing the second valve means upon extension of the fluid actuator to a predetermined limit in a packing condition, and connection means for selectively connecting either of the fluid lines to one of the first and second power sources.

2. The container apparatus of claim 1 further comprising sealing means mounted on the tailgate and extending inward toward the second open end for sealing the container when the tailgate is closed, and for holding the sealing means away from the container when the tailgate is open.

3. The container apparatus of claim 1 further comprising a third opening in the ceiling wall adjacent the first end wall, and a top door hinged to the ceiling wall for closing the third opening.

4. The apparatus of claim 1 wherein the control means is positioned in a first packing condition when the actuator is connected to the second power source, and wherein the control means is configured in a second ejecting condition when the actuator is connected to the second power source.

5. The apparatus of claim 1 wherein the blade comprises a curved blade having a concave face and curving smoothly in a top to bottom direction.

6. The apparatus of claim 1 wherein the blade has a separable bottom edge piece constructed of high carbon steel in a wedge shape which may be removed from the frame and from the blade and replaced on the frame and the blade.

7. The apparatus of claim 6 further comprising a rabbeted groove extending across the lower face of the wedge shaped edge piece parallel to the edge and having a replaceable strip of high molecular weight polyolefin material fitted in the rabbeted groove and extended outward and downward therefrom for supporting the blade on the bottom wall of the container and eliminating contact between metal pieces.

8. The apparatus of claim 1 further comprising guide channels mounted on the sidewalls and facing inward and spaced upward from the bottom wall and outward extending guide plates mounted on the slidable frame and fitted into the guide channels for supporting the frame in the channels, the guide plates being removably mounted on the frame and having a friction reducing surface.

9. The apparatus of claim 1 further comprising a first hooking means at a first longitudinal end of the base and having a second hooking means at a second longitudinal end of the base, whereby the roll off container may be loaded on a truck at either end of the container and whereby the container may be rolled off the truck at either end.

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