

[54] CONTAINER DUMPING MECHANISM FOR A REAR LOADER REFUSE VEHICLE

[75] Inventors: William A. Herpich; Donal W. Chaney, both of Galion, Ohio

[73] Assignee: Peabody Galion Corporation, Galion, Ohio

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

[58] Field of Search ..... 214/302, 303, 308, 214/310, 83.3, 44 A, 503

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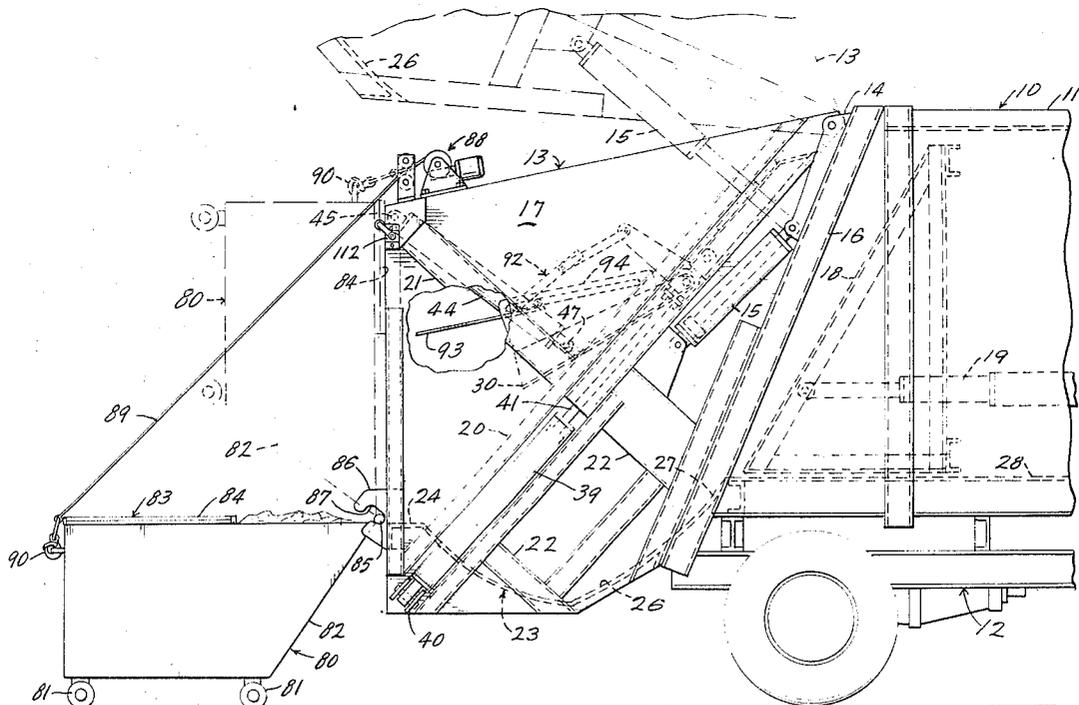
Primary Examiner—Gerald M. Forlenza  
Assistant Examiner—Lawrence J. Oresky  
Attorney—Carl F. Schaffer et al.

[57] **ABSTRACT**

A rear-loading refuse vehicle having a tailgate that is

pivotally mounted at its upper forward end to the rear of the vehicle body. The tailgate has a hopperlike bottom into which refuse is dumped through an open rear end that has a horizontal sill. A transversely-extending packer blade extends across the tailgate and is movably mounted within the tailgate by a plurality of hydraulic cylinders to move in a closed, loop-like path, one leg of which lies in close proximity to the hopper bottom and the return leg of which is in vertically spaced relationship above the hopper bottom. Means are provided for grasping, elevating, and tilting an open-top refuse container over the horizontal sill so that the contents of the refuse container are dumped into the tailgate. To facilitate the dumping action, a raking mechanism, comprising fork-like tines, is shiftably mounted on the packer blade and means are provided for projecting the tines into the interior of the elevated container as the packing blade approaches its rearmost position and for moving the tines downwardly and forwardly through the container to assist in discharging any compacted contents of the refuse container out of the container and into the tailgate, as the packer blade moves forward through the hopper.

7 Claims, 9 Drawing Figures



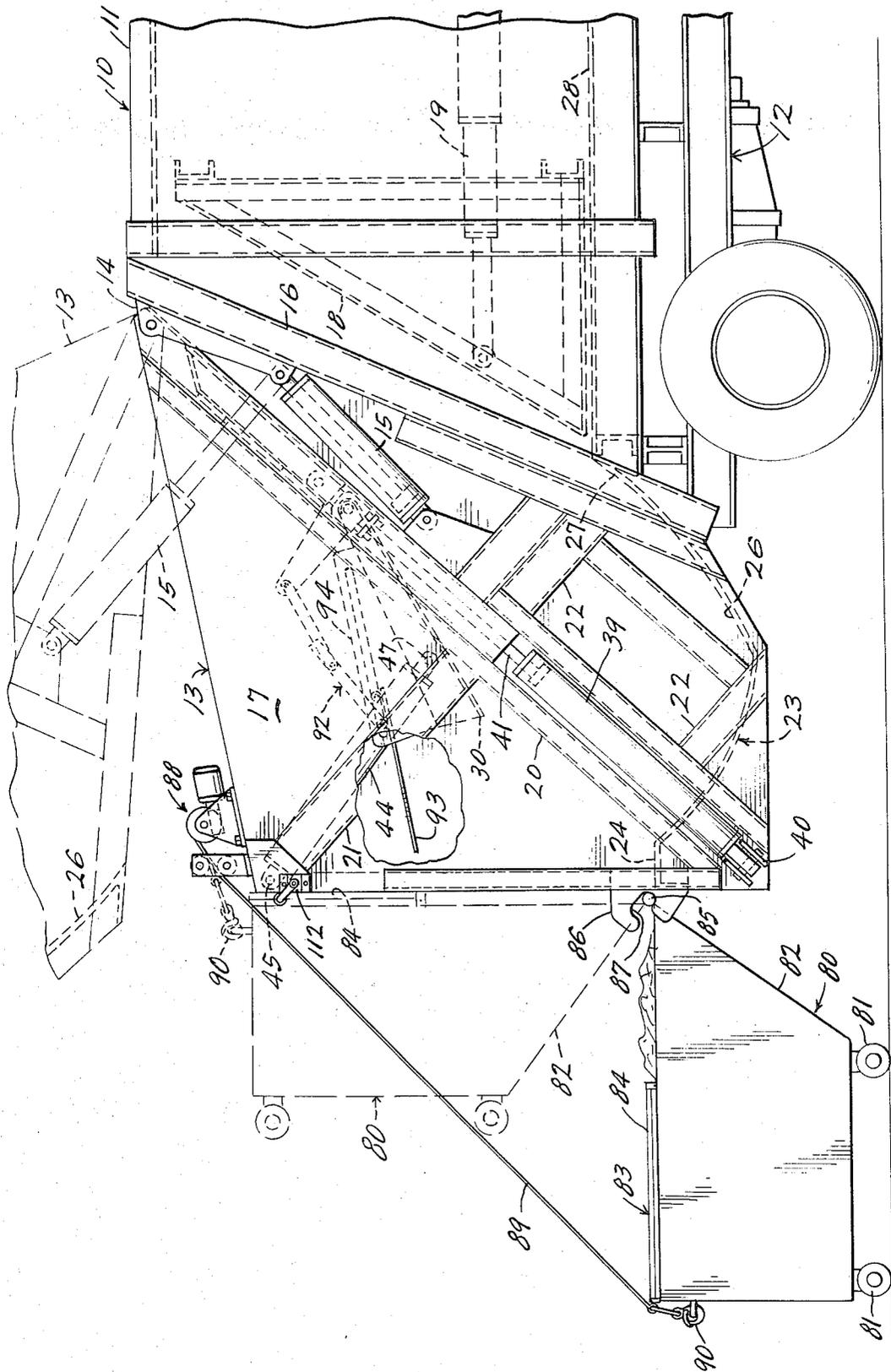


FIG. 1

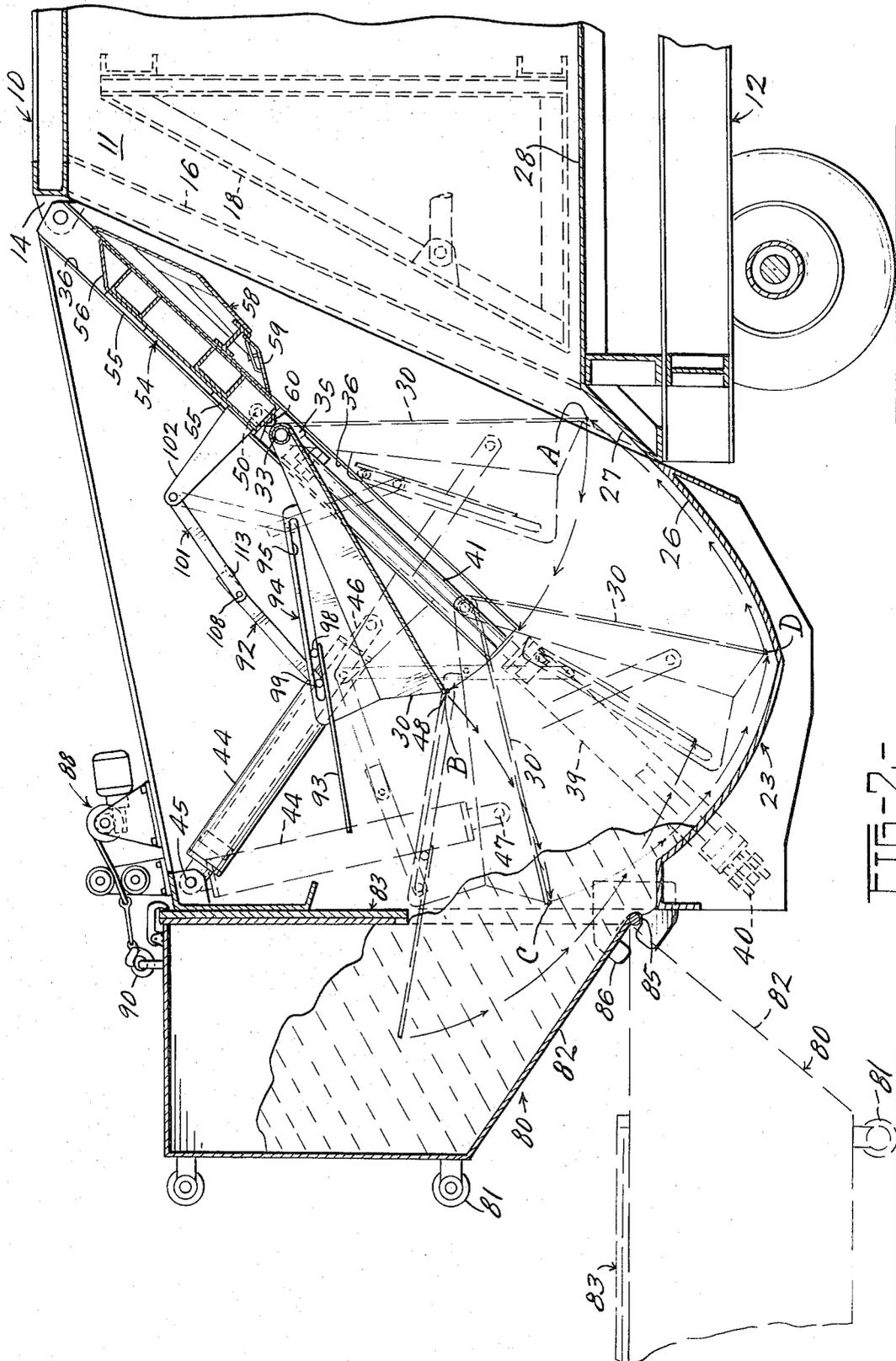


FIG-2-

81-81

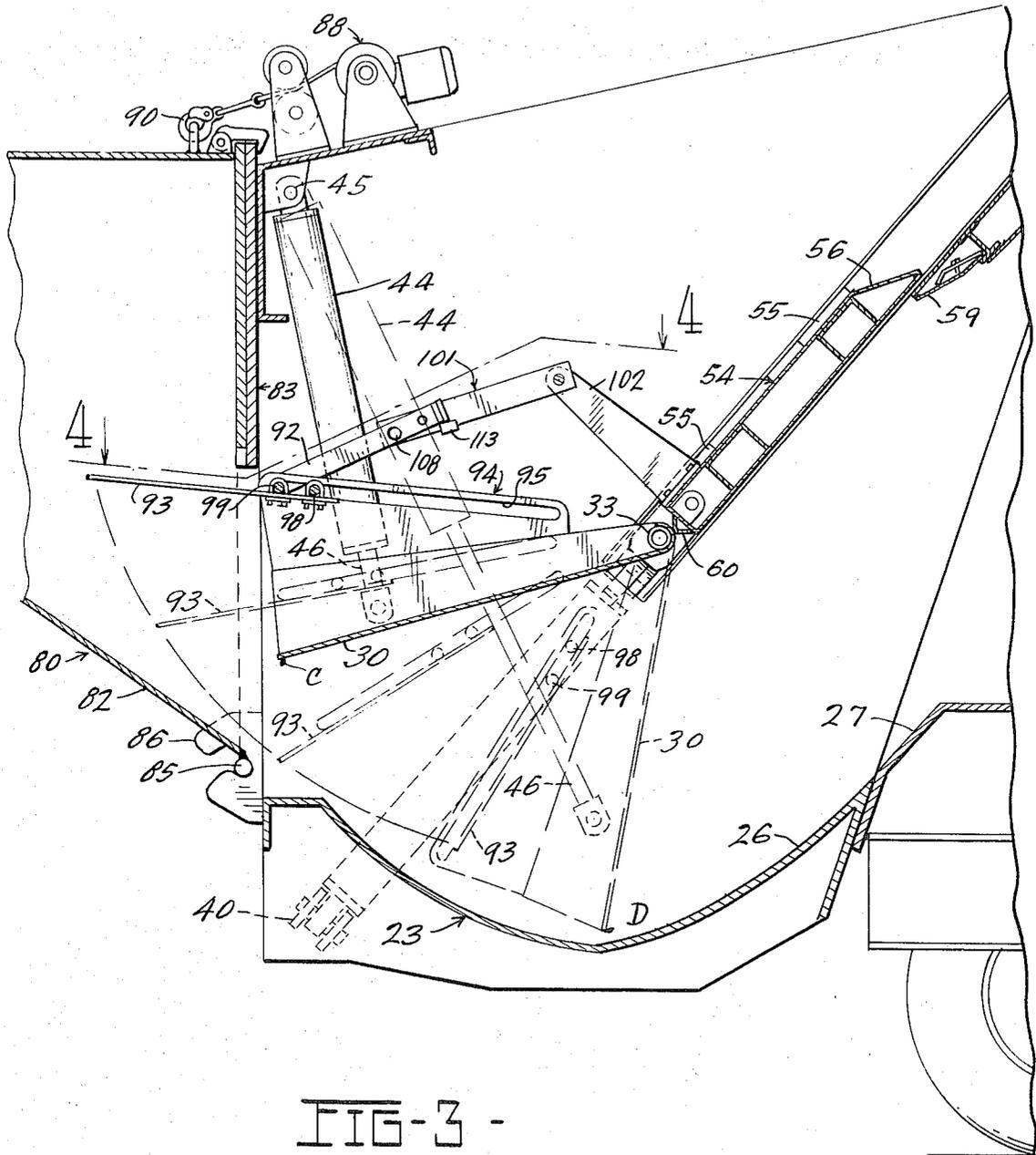


FIG-3 -

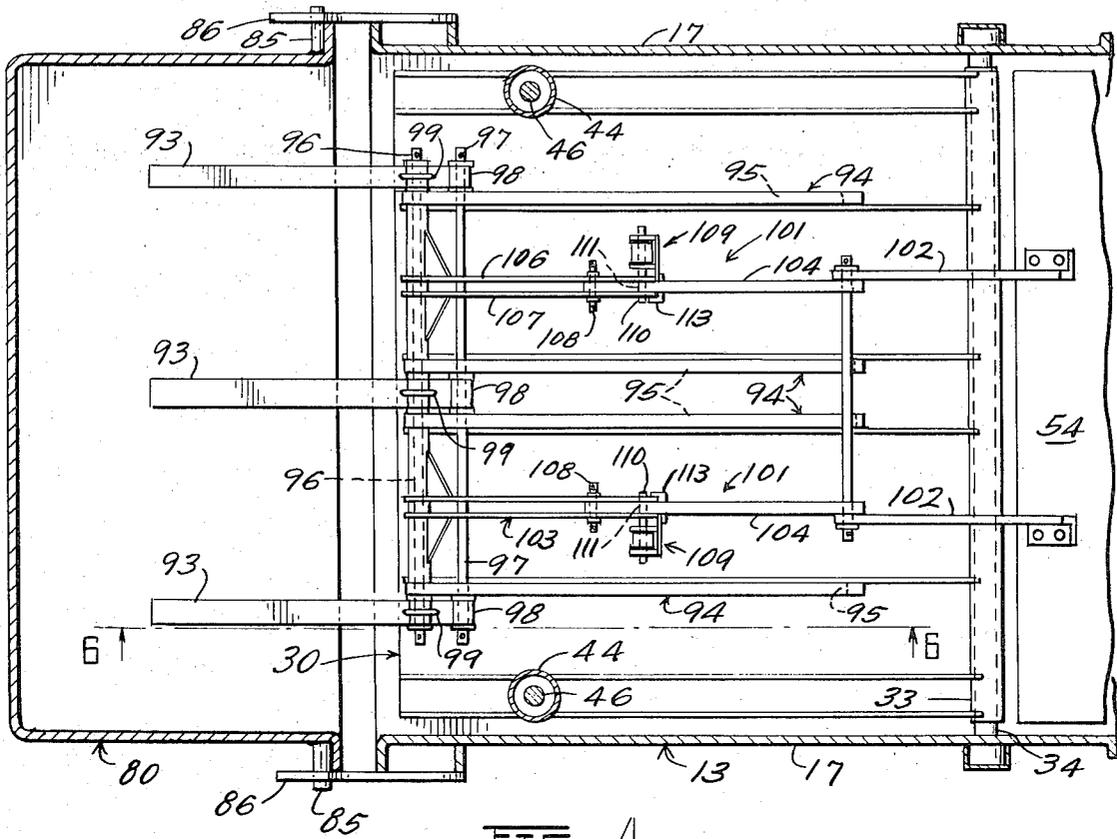


FIG-4-

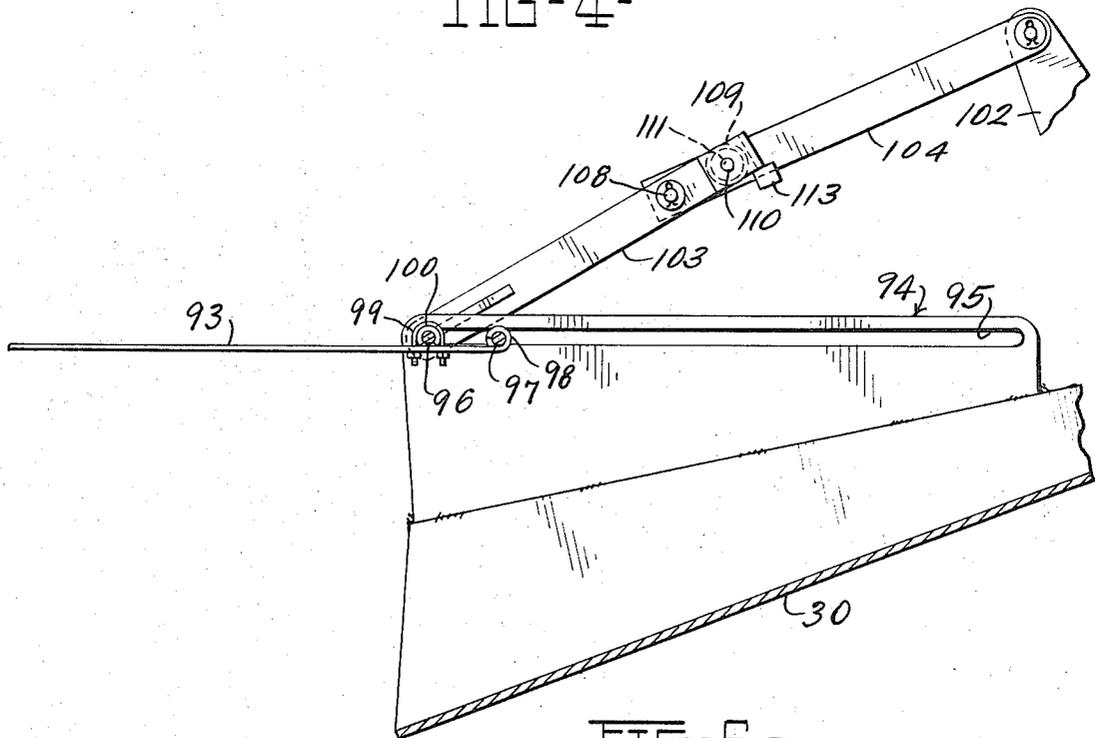


FIG-6-

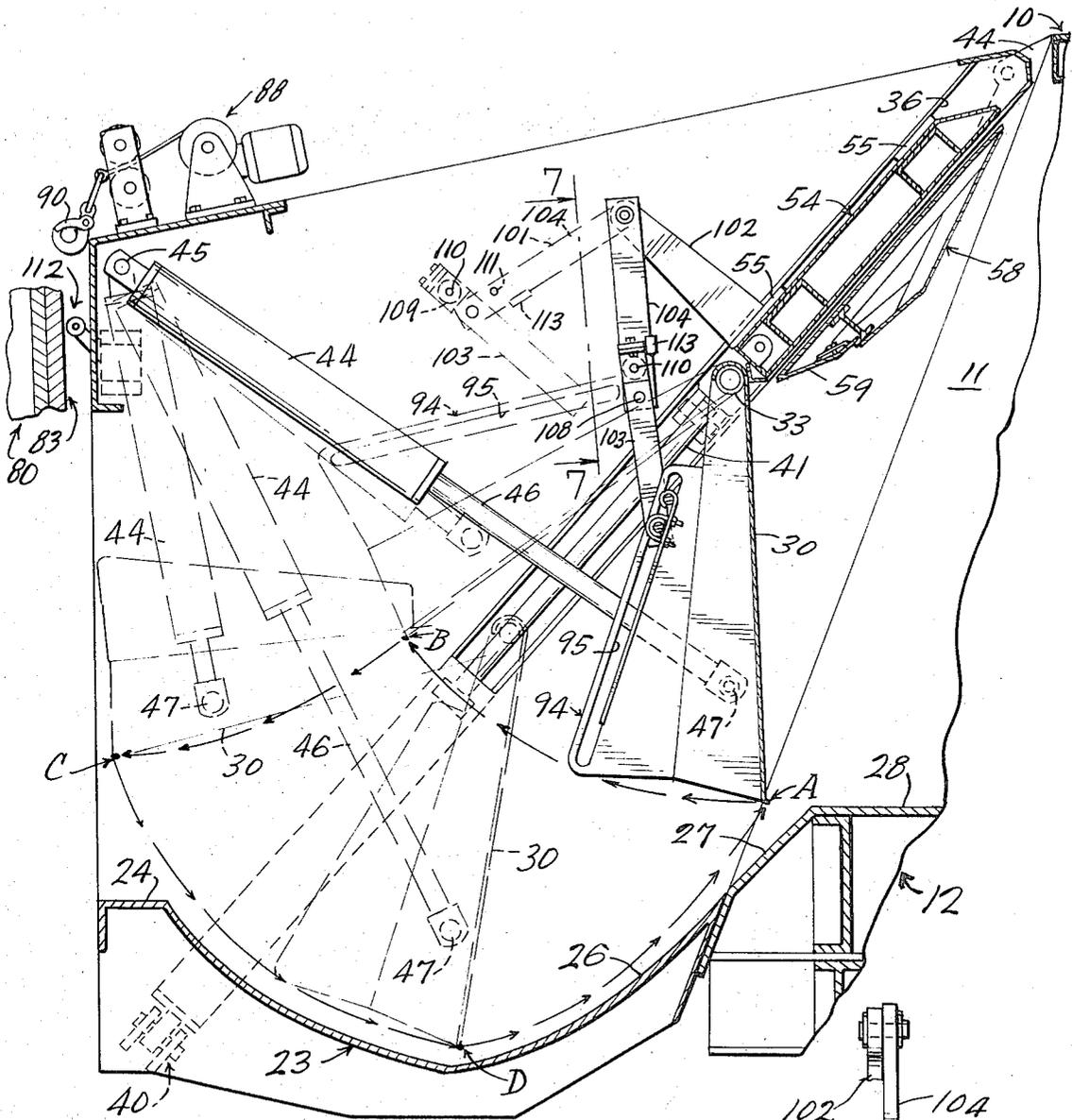


FIG-5-

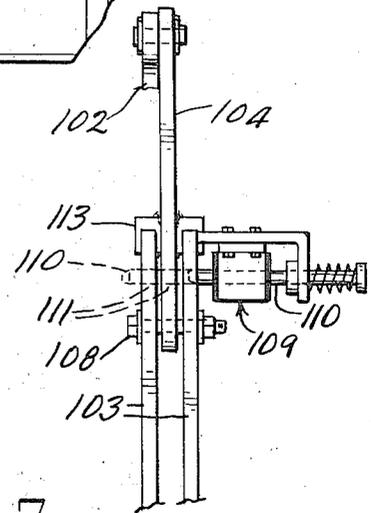


FIG-7-

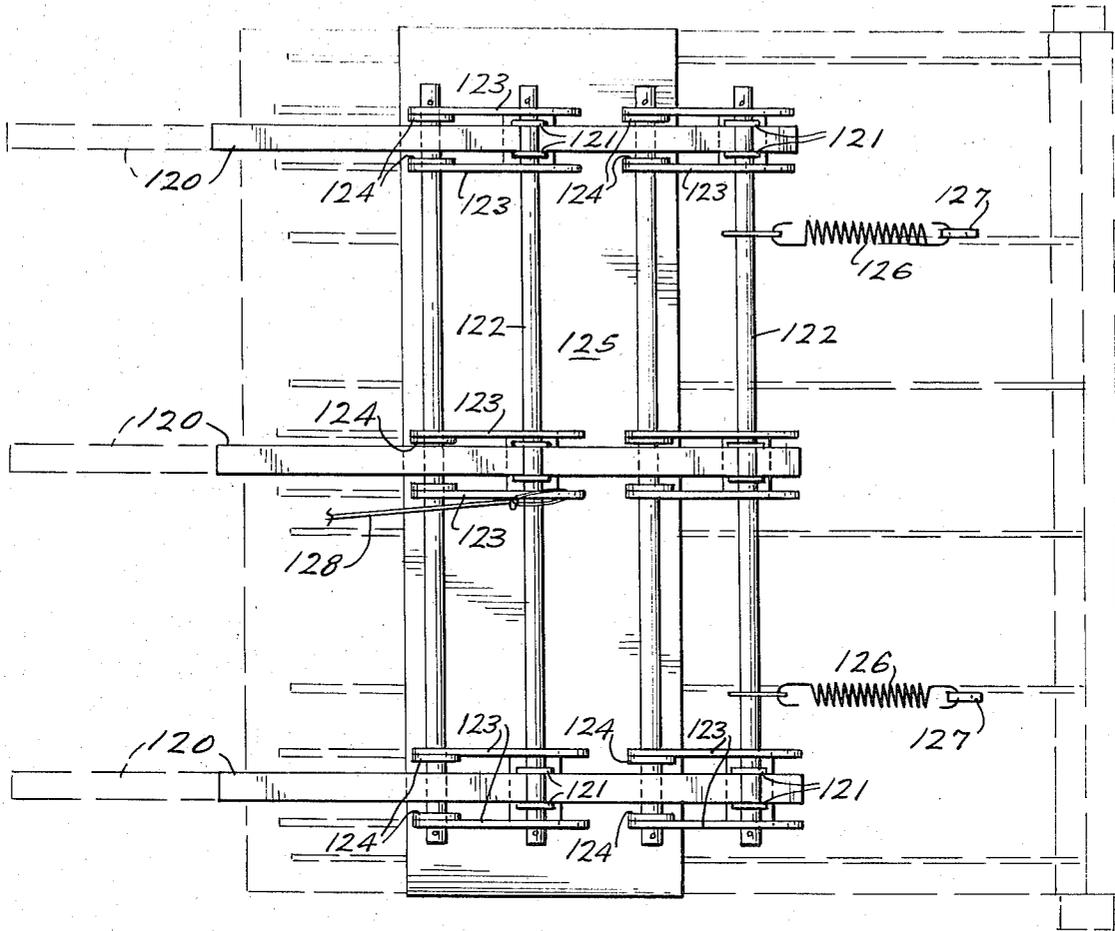


FIG-9-

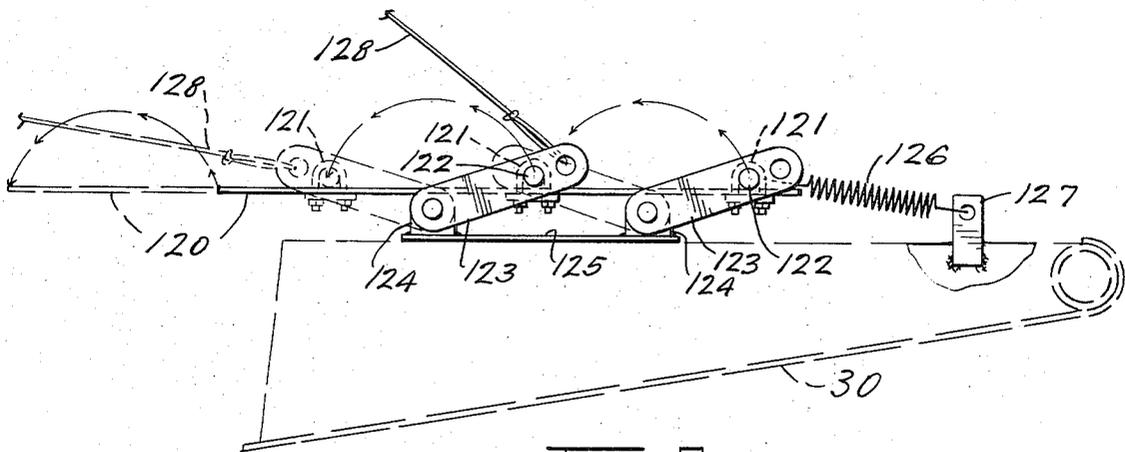


FIG-8-

## CONTAINER DUMPING MECHANISM FOR A REAR LOADER REFUSE VEHICLE

### BACKGROUND OF THE INVENTION

Rear-loading refuse vehicles have become a standard commercial type of vehicle for the collection of refuse, for example, in municipal collection systems, wherein domestic refuse cans are emptied into the hopperlike tailgate of such a vehicle by sanitary department workers, and many designs for the interior mechanisms of such vehicles have been proposed.

Most of this type of vehicle which have been successful have a hopper like depression in the bottom of the tailgate, a packer blade which is cycled back and forth through the tailgate to sweep refuse upwardly and forwardly out of the hopper into the body, and mechanical and hydraulic structures which actuate the packer blade in its excursions.

It has become a standard practice for industrial and commercial establishments to accumulate their refuse in relatively massive open-top containers which cannot be manually lifted above the tailgate sill for dumping. Hence, many refuse vehicles have been provided with power-actuated mechanisms for grasping, elevating, and tilting such containers above the tailgate sills to dump their contents into the hopper. However, there are many instances in which refuse in the container is wedged or packed so tightly that it will not fall out under the influence of gravity alone, and some means for forcibly removing the refuse from the container is required.

It is an object of the instant invention to provide a refuse-packing mechanism in a tailgate or rear-loading refuse vehicle which includes a packer blade actuated by power means which moves the packer blade back and forth through the tailgate to move accumulated refuse out of the tailgate into the body of the refuse truck, and, additionally, includes raking means which are movable rearwardly out of the tailgate to project into a refuse container that is elevated above the sill of the tailgate to assist in moving the contents of the refuse container into the tailgate.

Still another object of the invention is to provide a refuse-loading mechanism for a refuse vehicle having an open end defined in part by a horizontal sill which includes means for elevating an open-top refuse container to a position above and adjacent said sill and shiftable fork means mounted within the vehicle and arranged to project into the elevated refuse container to assist in sweeping the contents of the container downwardly into the refuse vehicle and over said sill.

### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a fragmentary view in side elevation of the rear end of a refuse vehicle equipped with a rear-loading tailgate embodying the invention;

FIG. 2 is a longitudinal, vertical, sectional view of one embodiment of this invention illustrating the movement of the packer blade relative to the hopper of the tailgate and the corresponding movement of the fork tines of the raking mechanism relative to the tilted elevated refuse container;

FIG. 3 is a fragmentary, longitudinal, vertical, sectional view similar to FIG. 2 but illustrating the projection of the raking mechanism or fork tines into, and its movement through, an elevated refuse container as the

packer blade is moved through the hopper of the tailgate;

FIG. 4 is a fragmentary, sectional view taken from the position indicated by line 4—4 of FIG. 3;

FIG. 5 is a view similar to FIG. 3 but showing the mechanism in a different position, particularly illustrating the packing stroke of the packer blade;

FIG. 6 is a fragmentary, detailed view taken along line 6—6 of FIG. 4 and shown in an enlarged scale;

FIG. 7 is a fragmentary, detailed view taken along line 7—7 of FIG. 5;

FIG. 8 is a view similar to FIG. 3, but illustrating a modification form of this invention wherein the projection of the raking mechanism on the fork tines is manually controlled by a pullrope; and

FIG. 9 is a view similar to FIG. 8 but showing the fork tine mechanism in its retracted position.

### DESCRIPTION OF PREFERRED EMBODIMENT

A rear-loading refuse vehicle generally indicated by the reference number 10 has a generally rectangular body 11 mounted on a heavy duty chassis 12. A tailgate 13 is pivotally mounted by heavy ears 14 at the upper rear corner of the body 11. In normal position the tailgate 13 closes off the rear of the body 11 but may be swung upwardly into elevated position, shown in dotted lines in FIG. 1, by the action of tailgate elevating cylinders 15 which are connected between the sides of a body end frame 16 and side walls 17 of the tailgate 13. When the tailgate 13 is in the elevated position, refuse is discharged from the then open rear end of the body 11 by an ejector plate 18 located interiorly of the body 11 and movable therethrough from front to back, for example, by a shaft 19 operated by a heavy telescoping hydraulic cylinder (not shown).

The two spaced vertical side walls 17 of the tailgate 13 are rigidified by heavy channels such as the parallel guide channels 20 and cross channels 21 and 22 and by a hopper bottom 23. A heavy sill 24 extends across the tailgate 13 between the side walls 17 at the upper rear margin of the hopper bottom 23. The hopper 23 comprises two arcuate portions 25 and 26 of generally V-shaped, longitudinal cross section, the front edge of the forward portion 26 blending into an apron 27 at the rear of the body 11 which leads upwardly to a body floor 28. The rear of the tailgate 13 is open in the area above the sill 24 to enable refuse to be dumped through such opening from containers such as a manually-handled refuse can (not shown) or from a power-dumped container 30, shown in FIGS. 1, 2 and 3.

A transversely extending, generally rectangular packer blade 30 comprises a flat front panel 31 strengthened by a plurality of ribs 32, the upper, forward edge (FIGS. 3 and 5) of the panel 31 being curved around and welded to a heavy cross tube 33 (see also FIG. 4) to which the ends of the ribs 32 are also rigidly welded. A heavy pivot pin 34 is set into each open end of the tube 33 and protrudes laterally therefrom, being received in a suitable bore in a slide block 35 at each side of the packer blade 30. The slide blocks 35 are reciprocal in a pair of upwardly and forwardly inclined guide tracks 36 which overlie slots (not shown) in the side walls 17. The guide tracks 36 are closed at their outer sides and have parallel front and back walls between which the blocks 35 slide.

The blocks 35 and thus the upper end of the packer blade 30 are moved back and forth in the guide tracks

36 by a first pair of lineally extensible hydraulic cylinders 39, one of which is mounted on the outer side of each of the side walls 17. The lower ends of the cylinders 39 are secured to the lower rear corners of the side walls 17, for example, by pin and clevis mountings 40 with their center lines aligned with the center lines of the guide tracks 36 and the upper ends of their piston rods 41 (FIG. 2) extend between spaced ears 42 of the slide blocks 35 and are secured therein by cross pins 43. Thus, when hydraulic fluid is applied to opposite ends of the cylinders 39, their rods 41 are extended or retracted, the slide blocks 35 are moved up or down the guide tracks 36, and the upper end of the packer blade 30 is carried between its uppermost position, as illustrated by solid lines in FIGS. 2 and 5, and its lowermost position, as illustrated by solid lines in FIG. 3.

Second hydraulic cylinders 44 are pivotally mounted, one at each side and interiorly of the tailgate 13, by heavy pivot pins 45 to which the upper rear ends of the cylinders 44 are connected. The ends of piston rods 46 (FIGS. 2 and 4) of the hydraulic cylinders 44 are pivotally connected, one at each side, to the packer blade 30 by heavy pins 47 which extend through the ribs 32 along a line removed from the upper end of the packer blade 30 where it is pivoted in the slide blocks 35 and closer to its trailing edge 48. As can best be seen by reference to FIGS. 2, 3 and 5, the packer blade 30 is moved through a cycle in which its trailing edge 48 is moved through a closed path consisting of four curved legs A-B, B-C, C-D and D-A.

In position "A" (shown in solid lines in FIG. 5 and in broken lines in FIG. 2) the packer blade 30 is at its upper, forwardmost position, also referred to as the "packing position," closing off the lower portion of the rear open end of the body 11 and leaving the hopper 23 fully opened for the receipt of refuse dumped over sill 24 through the open rear end of the tailgate 13. In this position, slide blocks 35 are at the upper end of their travel in the guide tracks 36 and the piston rods 41 are fully extended out of their hydraulic cylinders 39. The piston rods 46 are also fully extended. It will be noted in FIG. 5 that the trailing edge 48 of the packer blade 30 extends upwardly almost to the level of the floor 28 of the vehicle and overlies the vehicle floor apron 27.

After a sufficient quantity of refuse has been dumped into the hopper 23 to require it to be moved forwardly and upwardly into the body 11, the operator actuates controls for the hydraulic circuit comprising the necessary lines, pump and reservoir (not shown) to apply pressure to the cylinders 44 to retract their rods 46 and to swing the packer blade 30 along the path A-B, moving its trailing edge 48 upwardly and rearwardly to Position "B," shown in solid lines in FIG. 2 and dotted lines in FIG. 5. Because there is no force resisting this retractive movement, this portion of the peripheral excursion of the packer blade 30 takes place easily. When the rods 46 of the cylinders 44 are fully retracted (FIG. 2), the increase in pressure in the hydraulic system automatically switches controls to apply power to the two outboard, aligned cylinders 39, causing their rods 41 to be retracted, moving the slide blocks 35 downwardly in the guide tracks 36 to the position thereof shown in solid lines in FIG. 3. However, because the cylinders 44 remain in retracted position and are pivotally connected to the packer blade 30 by the pins 31, the trailing edge 48 of the packer blade 30 moves along the

curved path B-C to its rearward position above the hopper sill 24, shown in solid lines in FIG. 3 and in dotted lines in FIG. 2 and indicated as Position "C."

Again, when the rods 41 of the cylinders 39 reach their fully retracted position, the increase in hydraulic pressure in the hydraulic circuit actuates the control valving to apply hydraulic pressure to the upper ends of the cylinders 44 to extend their rods 46, angularly swinging the packer blade 30 downwardly and forwardly on the pins 34 by which it is carried by the slide blocks 35. Extension of the piston rods 46 of the cylinders 44 moves the packer blade 30 along the path C-D until it reaches Position "D," shown in dotted lines in FIGS. 2 and 3.

During this portion of the movement of the trailing edge 48 of the packer blade 30, considerable resistance to movement of the packer blade 30 is quite often encountered. Heavy objects such as sticks of wood, branches of trees, metal cans, heavy cartons and the like may overlie the hopper sill 24. By reason of the mechanical relationship of the mechanism embodying the instant invention, the cylinders 44 are able to exert very high force, effectively moving the trailing edge 48 of the packer blade 30 across the inner corner of the sill 24 as a shear, to break, cut or snap many of the objects which would otherwise cause a jam at this point.

As mentioned earlier, the tailgate 13 is rigidly braced so that sufficient strength exists in its sidewalls 17 and general structure that the reaction force of the cylinders 44 exerting pressure against objects which may overlie the sill 24 is applied directly to the tailgate structure itself to a considerably greater degree than such reactive forces are applied to the upper end of the packer blade 30 and thus through the slide blocks 35 to the guide tracks 36. That portion of this force which is applied to the slide blocks 35 acts in a downwardly direction and is resisted by the tailgate structure elements such as the cross channels 22 (see FIG. 1).

The curvature of the rearward portion 25 of the hopper bottom 24 is defined by the path of movement C-D of the trailing edge 48 of the packer blade 30. It is an arc described around the center of the packer blade pivot pins 34, when the slide blocks 35 are in their lowermost position in the guide tracks 36. Movement of the packer blade 30 along the path C-D from Position "C" to Position "D" effects some pre-compaction of objects such as cardboard cartons and the like because the components of force exerted by the packer blade 30 are in large measure perpendicular to the general extent of the forward, upwardly-curved portion 26 of the hopper 23. Indeed, by comparing the position of the packer blade 30 relative to the forward portion 26 of the hopper 23 in both Position "C" and in Position "D" (FIGS. 2 and 3), this precompaction or crushing action of the packer blade 30 will be apparent.

When the trailing edge 48 of the packer blade 30 reaches Position "D," the piston rods 46 of the rearwardly extending hydraulic cylinders 44 are fully extended. The increase in hydraulic pressure in the circuit resulting upon this full extension of the rods 46 again actuates the controls to apply hydraulic pressure to the lower end of the first set of hydraulic cylinders 39 to extend their piston rods 41 and to move the slide blocks 35 directly up the guide tracks 36, moving the packer blade 30 along the path D-A, gradually pivoting the packer blade 30 around its pivot pins 34 in the slide blocks 35 and progressively moving the packer blade

through the intermediate positions indicated in broken lines in FIG. 2 as "D-1" and "D-2," finally reaching the uppermost and forwardmost Position "A."

During the portion of the excursion of the packer blade from Position "D" to Position "A," considerable resistance to its movement is encountered by reason of the continued precompaction action of the front panel 31 against the hopper portion 26 and apron 27 and against refuse which previously has been loaded into the rear of the body 11. During each loading cycle, and particularly during that portion of the cycle wherein the trailing edge 48 of the packer blade moves along the path D-A, the ejector plate 18 (FIG. 1) functions as a movable restraining wall preventing previously transferred refuse from being pushed forwardly loosely into the body 11.

Each time that a charge of refuse is moved from the hopper 23 into the body 11, it is further compacted by the packer blade 30 against previously moved refuse and against the ejector plate 18. As subsequent charges of refuse are moved upwardly and forwardly by the packer blade 30, the refuse between the packer blade 30 and the ejector plate 18 becomes sufficiently dense that it cannot further be compacted and the packer blade 30 would not be able to finish its movement from Position "D" to Position "A." At this point, the ejector plate 18 is moved forwardly in the body 11. This may be achieved either by manually actuating the controls for the hydraulic circuit to the ejector plate cylinder (not shown) or by so designing the hydraulic circuitry to the ejector plate cylinder that the application of the force exerted by the packer blade 30 through the dense refuse to the ejector plate 18 is sufficient to actuate the controls to move the ejector plate 18 forward a distance sufficient to provide additional space behind the ejector plate 18 into which the packer blade 30 then can continue to pack refuse.

Because the instant application is not directed to the hydraulic circuitry or the control system for either the ejector plate cylinder or the packer blade actuating cylinder 39 or 44, and because the operation so far described of the hydraulic circuits is well-known in the art, a further explanation is not made herein.

During the movement of the packer blade 30 from Position "D" to Position "A," the hydraulic cylinders 44 and their rods 46 act as counter force resisting struts. In other words, if movement of refuse being moved upwardly and forwardly out of the hopper 23 creates great resistance, force is transferred through the cylinders 44 to the side walls 17 of the hopper 13 and only a small portion of that reactive force is applied to the slide blocks 35 and then to the guide tracks 36. Again, such force as is applied acts in a downward direction by reason of the relative locations of the pivot pins 47 connecting the rods 46 to the packer blade 30 and the packer blade pivot pins 34 in the slide blocks 35. The bracing structural cross channels 22 again resist this force.

By reason of the mechanical arrangement so far described in which the first hydraulic cylinders 39 are aligned with the guide tracks 36 and apply their power directly to the lower rear sides of the slide blocks 35, no tilting or torquing force is applied to the slide blocks 35 by the cylinders 39. This eliminates any destructive forces being applied either to the slide blocks 35 or to their guide tracks 36. Because the force for moving the slide blocks 35 up to the guide tracks 36 and thus for

carrying the upper end of the packer blade 30 along the guide tracks 36 is an in-line application of force, applied below the slide blocks 35, a further advantage results. The upwardly and rearwardly extending hydraulic cylinders 44 are connected as mentioned between the packer blade 30 and the side walls 17 of the tailgate 13. Therefore, the tendency of the packer blade to swing around the pivots 45 by which the rods 46 are connected thereto is minimized. Such reactive force as is created by the resistance to movement of the refuse is applied in major proportion directly to the tailgate structure rather than to the slides 35 and the guide tracks 36.

In a rear-loading refuse vehicle according to the instant invention, the application of force to the slide blocks in direct alignment with their guide tracks eliminates one source of difficulty, and the application of packer blade swinging force from cylinders mounted on the strong side walls of the tailgate eliminates a second source of difficulty.

#### FALLBACK SHIELD

Because of the mechanical arrangement so far described as embodied in a rear-loading refuse vehicle according to the invention, the area above the slide blocks 35 and the upper end of the packer blade 30 readily can be closed off by lightweight fallback shields which prevent refuse previously charged into the vehicle body 11 from falling backwardly over the packer blade when it is at the lower levels of its cycle. In this embodiment of the instant invention, each of the slide blocks 35 has an upwardly extending ear 49 (FIG. 2) through which there extends a transverse bore in which there is positioned a pivot pin 50. The inner end of each of the pivot pins 50 provides a mounting for a lightweight, hollow fallback shield 54. The fallback shield 54 extends across the tailgate 13 and its side edges extend into the guide tracks 36.

The longitudinal length of the fallback shield 54 is such that when the slide blocks 35 and the packer blade 30 are at the lowermost end of their travel in the guide tracks 36, an upper edge 56 of the fallback shield 54 overlies a lower edge 57 of a stationary fallback shield 58 mounted in the tailgate and extending transversely across between its side walls 17 to which the stationary fallback shield 58 is rigidly connected. Thus, even when the slide blocks 35 and the packer blade 30 are at the lowermost end of their travel along the guide tracks 36, the traveling fallback shield 54 and the stationary fallback shield 58 fully close off the open end of the vehicle body 11 above the upper end of the packer blade 30. When the slide blocks 35 are moved to the upper end of their travel in the guide tracks 36 (FIG. 3), the traveling fallback shield 54 slides over the stationary fallback shield 58.

In order to prevent any sticky or tacky refuse from being carried upwardly on the under surface of the traveling fallback shield 54, a spring-urged wiper 59 is mounted on the lower end of the stationary fallback shield 58, extending across the tailgate 13 with its free edge wiping the under surface of the traveling fallback shield 54.

The mechanism thus far described is identical to that described and illustrated in the co-pending application Ser. No. 241,183, filed Apr. 5, 1972, and assigned to the assignee of the instant application. The additional mechanism for assisting the dumping of the contents of

a massive refuse container into the hopper of the tailgate will now be described in detail.

#### CONTAINER CLEANING MECHANISM

A typical large refuse container 30 for industrial or commercial establishments comprises a generally rectangular body portion mounted on wheels 81 and having an upwardly and forwardly inclined front wall 82 to assist in dumping of the contents into a vehicle. A suitable cover 83 may be provided for the container 80 having a horizontally hinged forward portion 84 which can be folded back to the position illustrated in FIG. 1 to open up the top portions of the container 80 above the inclined wall 82. Container 80 is generally of about the same width as the tailgate 13 and is provided at its top forward extremities with laterally projecting pivot pins 85. A pair of brackets 86 are respectively provided on opposite sides of the tailgate 13 adjacent the sill 24, and such brackets are slotted as indicated at 87 so as to receive the pivot pins 85 therein and provide a pivot mounting by which the container 80 may be pivoted upwardly relative to the tailgate 13 to discharge its contents into the hopper 23.

The upward pivotal movement of the filled refuse container 80 may be conveniently accomplished by a motor-driven winch 88 suitably mounted on the top center of tailgate 13 and connected by a cable 89 and a hook 90 to a handle 91 on the rear wall of container 80. Actuation of the winch 88 to wind up the cable 89 will therefore produce a forward and upward tilting movement of the entire refuse container 80 to dispose it in a discharge position illustrated in FIGS. 2 and 3. In this position, the open top wall portion of the refuse container 80 is aligned with the rear opening of the tailgate 13, and the contents of the container 80 may spill by gravity into the hopper 23, falling over the sill 24.

It often happens that refuse is sufficiently compacted or wedged into the container 80 that it will fail to dislodge itself when elevated to the above-described unloading position. In accordance with this invention, a raking mechanism 92 is provided which is shiftably mounted within the tailgate 13 and controlled so that a plurality of fork-like tines 93 of the raking mechanism 92 enter the interior of the refuse container 80 and move downwardly and forwardly through such container, as illustrated by the dotted lines of FIG. 3, to assist in discharging the contents of the container into the hopper 23.

In accordance with one embodiment of this invention, and specifically referring to FIGS. 3, 4 and 6, the raking mechanism 92 includes a plurality of upstanding brackets 94 which are respectively welded to the reinforcing ribs 32 provided on the back of the packer blade 30. Each of the brackets 94 is provided with an elongated slot 95, and a pair of spaced fork tine support shafts 96 and 97 (see FIG. 6), respectively, are mounted in the slots 95 for sliding movement therealong. Each fork tine 93 has a curved forward end portion 98 encircling the shaft 97, while a "U" bolt 99 surrounds the shaft 96 and secures each tine 93 to a sleeve 100 mounted on the shaft 96.

All of the fork tines 93 are concurrently shifted relative to the packer blade 30 by a linkage 101. The linkage 101 (FIG. 6) comprises a pair of laterally spaced pivot brackets 102 rigidly secured to the side walls of channel 36 and a pair of sets of mutually pivoted links 103 and 104. Link 102 is secured to the sleeve 100

which is journaled on the shaft 96, and link 104 is pivoted at its forward end to the pivot bracket 102 by a pivot pin 105. As best shown in FIG. 4, the link 103 actually comprises two laterally spaced members 106 and 107, respectively, disposed on opposite sides of the rear end of the link 104 and connected to the link 104 by a pivot bolt 108.

When the links 103 and 104 are free to pivot relative to each other, then the fork tines 93 remain in a retracted position relative to the packer blade 30, as best shown in FIG. 5, as the packer blade 30 moves through its entire peripheral path A to B, B to C, C to D, D to A. When it is desired to actuate the raking mechanism 92 to project the tines 93 rearwardly relative to the packer blade 30, a pair of suitable solenoid-operated latches 109 (FIG. 4) are actuated to drive their locking pins 110 through aligned pin holes 111 in the links 103 and 104 at points spaced from the pivot bolts 108, thus rigidifying these link members. Solenoid latches 109 may be energized by a suitable electrical circuit (not shown), including a limit switch 112 which is disposed near the top rear surface of the hopper 13 and actuated to a closed position by virtue of the movement of the refuse container 80 to its vertical unloading position.

When the solenoid latches 109 are not actuated so that the linkages 101 fold as illustrated in FIG. 5, during the excursion of the packer blade 30 the tines 93 are not extended. The linkages 101 are returned to the position shown in solid lines in FIG. 5 when the packer blade 30 reaches Position "A." Stops 113 prevent the links from passing this position and the pin holes 111 in the links 103 and 104 are realigned thereby.

Assuming that this actuation of the solenoid latches 109 occurs when the packer blade 30 is in its forward position, as shown in FIG. 5, as the packer blade 30 is then moved rearwardly along its peripheral path from points A to B and from B to C, the fork tines 93 will be shifted rearwardly relative to the packer blade 30 so as to project into the interior of the elevated refuse container 80 (FIG. 3). As the packer blade 30 moves from Position "C" to Position "D," the fork tines 93 are gradually retracted by the action of the rigidified links 103 and 104 so that the tines pass freely over the sill 24 (as shown by the dotted lines in FIG. 3), and no interference between the tines 93 and the other parts of the tailgate is produced. This downward and forward motion of the fork tines 93 will serve to dislodge any compacted or jammed refuse lying in the elevated refuse container 80 and thus assist in discharging the contents of such container over the sill 24 and into hopper 30.

In accordance with the second embodiment of this invention illustrated in FIGS. 7 and 8, fork tines 120 are secured by "U" bolts 121 to a pair of longitudinally spaced, transversely extending shafts 122. Each of the shafts 122 is carried by three parallel links 123. The lower ends of the links 123 are provided to ears 124 supported by a cross-plate 125 which is, in turn, welded on the reinforcing ribs 32 of the packer blade 30. A plurality of tension springs 126 are connected between the shafts 122 and eyes 127 welded on the rib 32 so that normally fork tines 120 are resiliently held in a forward retracted position (to the right in FIG. 8) relative to the packer blade 30. A cable 128 is connected to the upper end of one of the links 123 and extends upwardly and outwardly through the roof of the tailgate 13 and is directed by suitable pulleys (not shown) to a position where an operator can grasp the free end of the cable

and pull on it, thus shifting the fork tines 120 to their rear extended position, as illustrated in dotted lines in FIGS. 7 and 8. The operator would not actuate the fork tines until the loaded refuse container 80 was in its vertical discharging position, and he would have to release the tension on the actuating cable 128 to permit the tines 120 to be retracted as the packer blade moved from Position "C" to "D" to "A" (FIG. 3) in order to avoid interference of the fork tines 120 with the sill 24 of the tailgate 13. Despite the simplicity of this concept, it is nevertheless apparent that the operator is provided with shiftably-mounted rake means within the body of the tailgate 13 to project into the elevated refuse container and exert a raking action on the contents of such container as a consequence of the forward motion of the packing blade 30.

We claim:

1. Refuse loading and packing mechanism for a rear-loading refuse vehicle body having a rear ingress opening defined in part by a horizontal sill and communicating with a hopperlike bottom, and a power-actuated, reciprocal packer blade that is pivotally mounted and is movable through said hopper in close proximity to said hopper bottom to a rest position and rearwardly movable from said rest position along a path above said hopper bottom to a loading position, comprising:

- 1. means for elevating and tilting an open top refuse container to a location at said ingress opening and above said sill to permit the container contents to be dumped out of said container and over said sill,
- 2. fork means shiftably mounted on the rear of said packer blade,
- 3. means for shifting said fork means rearwardly into said container as said packer blade approaches said loading position, whereby movement of said packer blade produces movement of said fork means within said container to urge the contents of the container over said sill, and
- 4. means for retracting said fork means as said packer blade approaches said hopper-like bottom and said fork means approaches said sill.

2. The combination defined in claim 1, wherein said fork means is pivotally mounted on said packer blade and said last-mentioned means comprises a spring op-

eratively connected between said fork means and said packer blade to urge said fork means to its retracted position.

3. The combination defined in claim 1, wherein said fork means is slidably mounted on the rear face of said packer blade for movement between a retracted position wherein the fork tines do not project beyond the lower edge of said packer blade and an extended position wherein the fork tines do project substantially beyond said lower edge of said packer blade, a pair of mutually pivoted links interconnecting said fork means and a pivot pin that is fixed relative to the pivotal axis of said packer blade, and lock means for selectively rigidifying the pivotal connection between said pair of links whereby said fork means are moved relative to said packer blade as a consequence of the pivotal movement of said packer blade.

4. The combination defined in claim 3, and means responsive to the arrival of said waste container at its elevated position above said sill for actuating said lock means.

5. Refuse loading and packing mechanism for a rear loading refuse vehicle body having a rear ingress opening that is defined in part by a horizontal sill and that communicates with a hopperlike bottom, and a power-actuated, reciprocal packer blade that is mounted pivotally and is movable through said hopper in close proximity to said hopper bottom to a forward rest position and rearwardly movable from said rest position along a path above said hopper bottom to a loading position, comprising:

- 1. means for elevating and tilting an open top refuse container to a location at said ingress opening and above said sill to permit the container contents to be dumped out of said container and over said sill,
  - 2. fork means shiftably mounted in said body, and
  - 3. means for moving said fork means into and through said elevated container to facilitate the discharge of the container contents over said sill.
6. The combination defined in claim 5 in which the fork means are carried on the packer blade.
7. The combination defined in claim 5 and means for selectively deactivating said fork means.

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