R. W. VAIL.

ASH AND GARBAGE COLLECTING AND CONVEYING CART.

APPLICATION FILED FEB. 12, 1915.

1,214,976.

Patented Feb. 6, 1917.

5 SHEETS—SHEET 1.

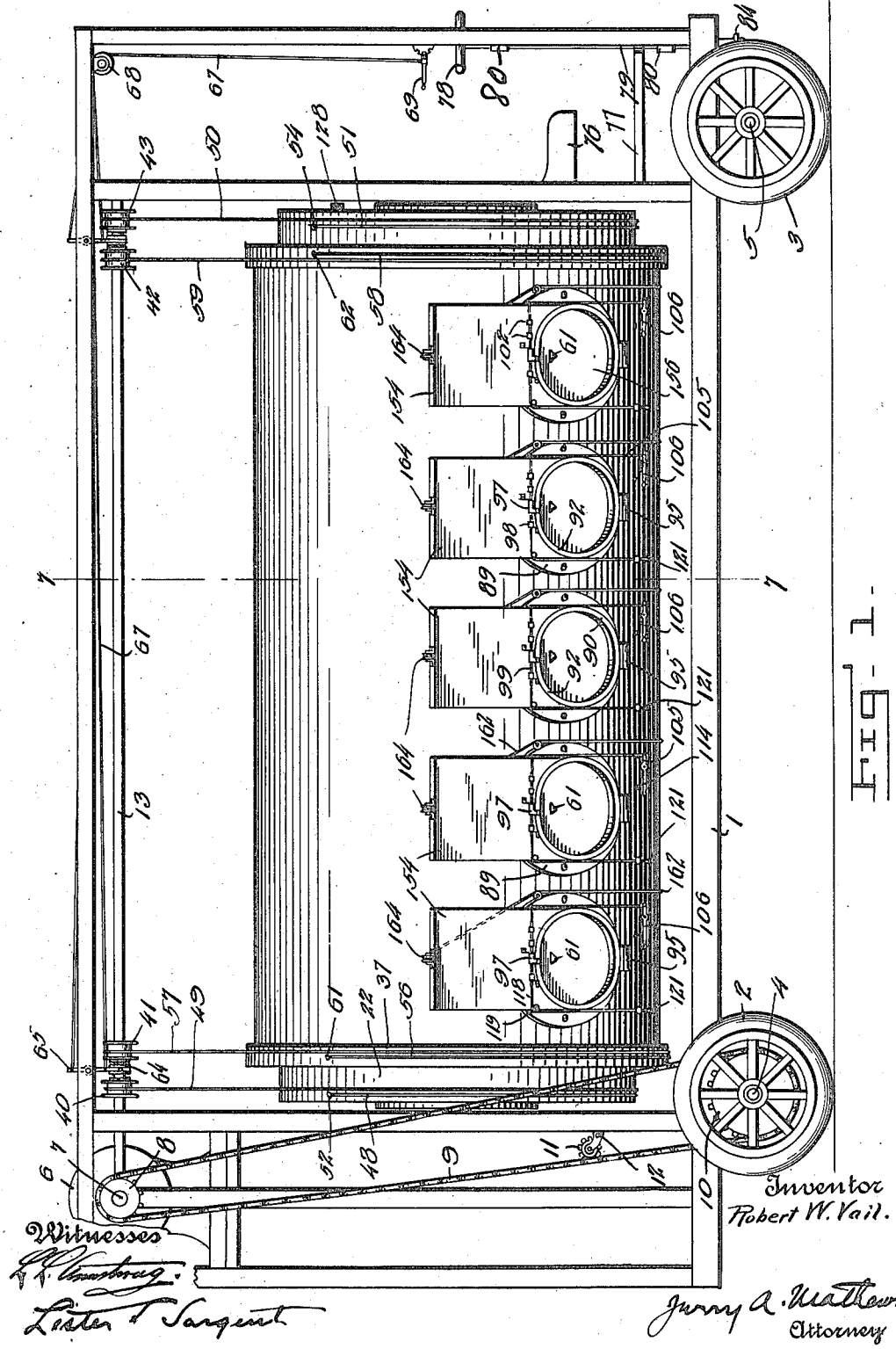


Fig. 1.

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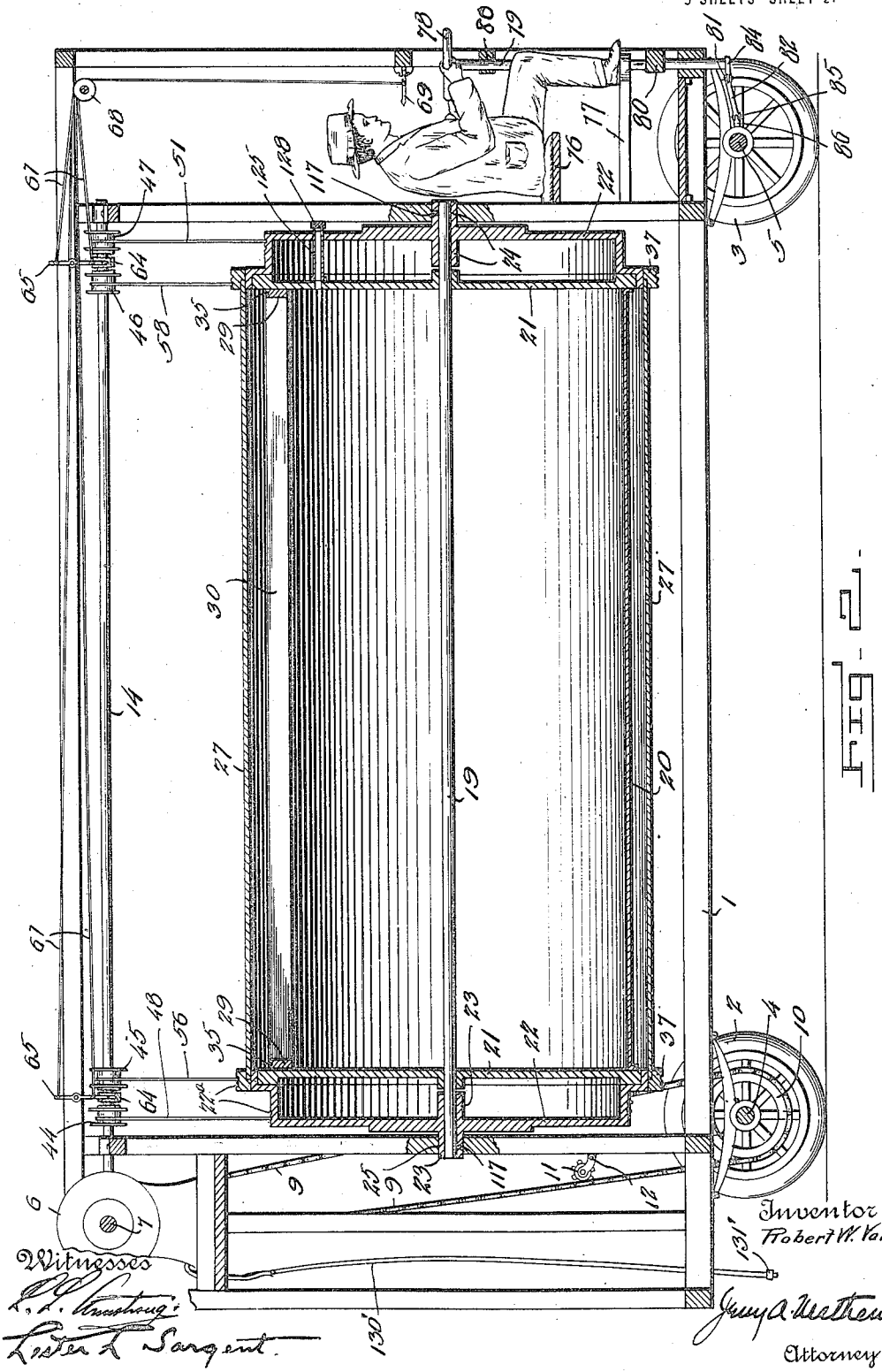


Fig. 2.

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5 SHEETS—SHEET 3.

Fig. 3.

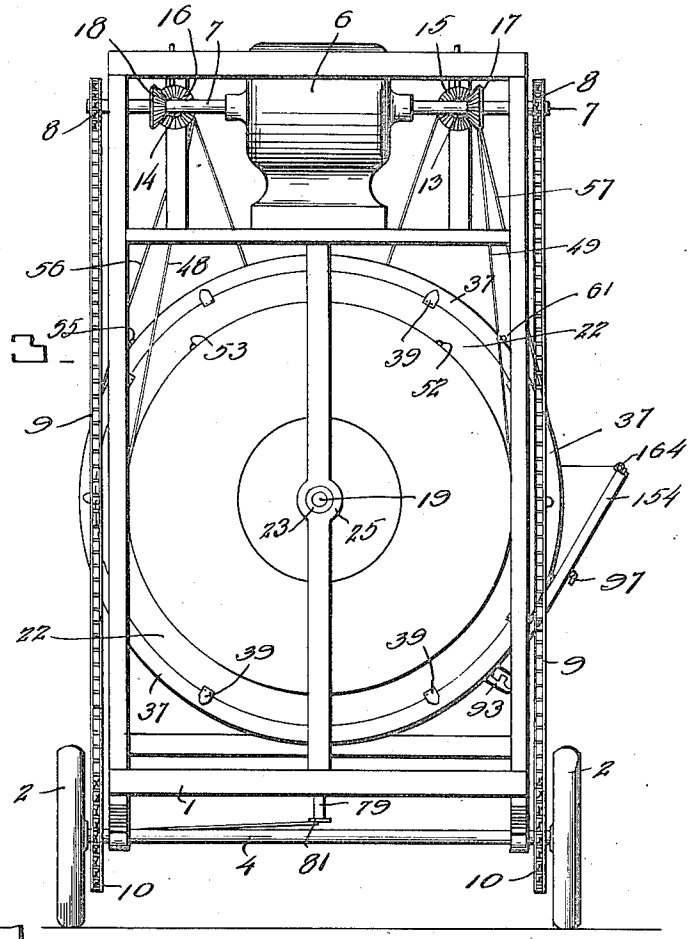


Fig. 5.

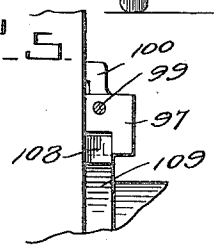


Fig. 6.

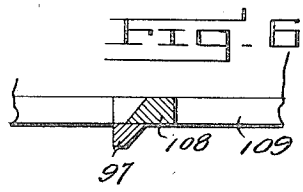
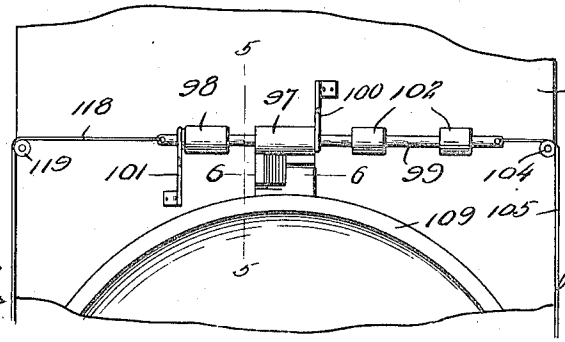


Fig. 4



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5 SHEETS—SHEET 4.

Fig. 7.

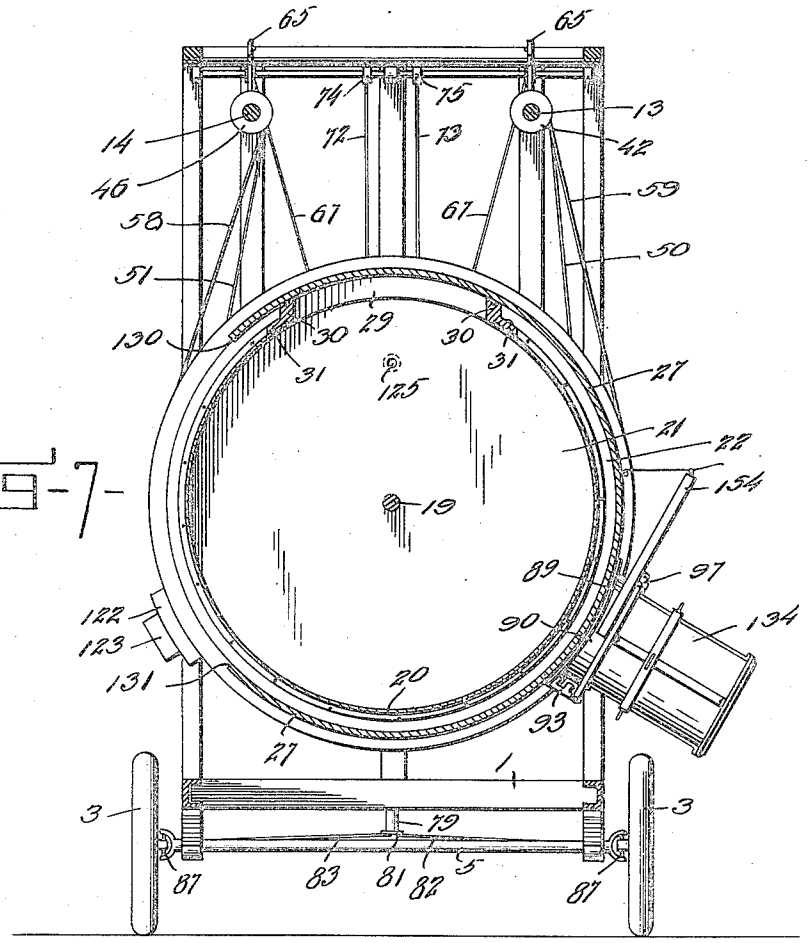
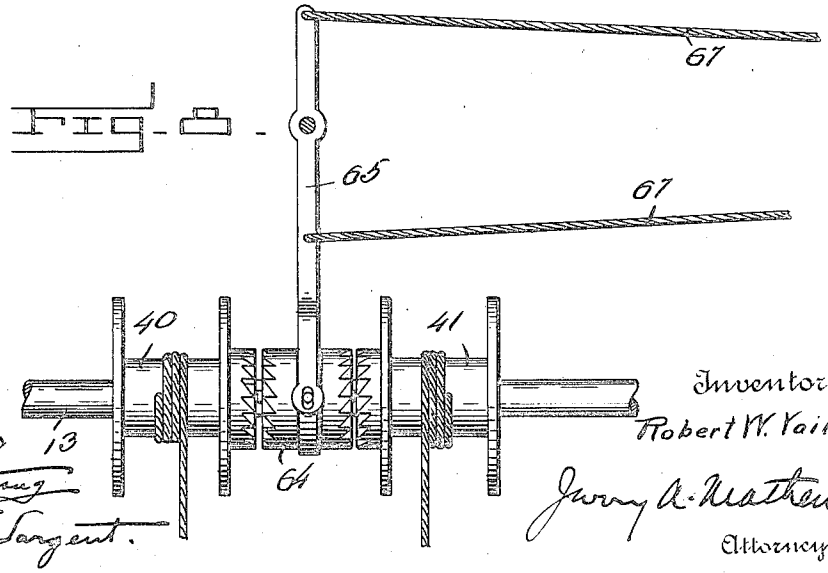


Fig. 8.



Witnesses

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5 SHEETS—SHEET 5.

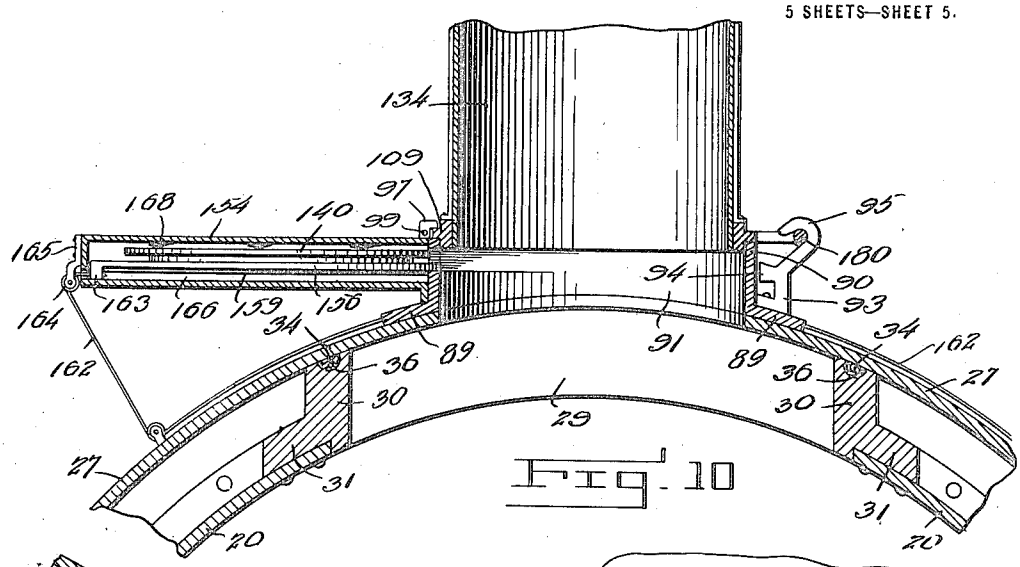


Fig. 10

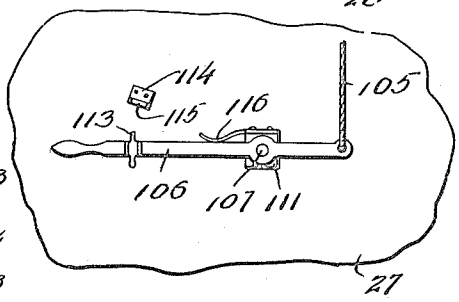


Fig. 9.

Fig. 11.

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UNITED STATES PATENT OFFICE.

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ASH AND GARBAGE COLLECTING AND CONVEYING CART.

1,214,976. Specification of Letters Patent. Patented Feb. 6, 1917.

Application filed February 12, 1915. Serial No. 7,910.

To all whom it may concern:

This is to certify that I, ROBERT W. VAIL, of 71 East Fifty-ninth street, in the city of New York, State of New York, United States of America, am the inventor of this device, entitled Ash and Garbage Collecting and Conveying Carts.

This invention has for its object the rapid collection of ashes and garbage in such manner that, in the case of ashes, no dust escapes into the atmosphere during the transfer of the ashes from the barrel to the cart, nor does the dust escape from the cart after the receipt of ashes, nor during its transit to the final dumping terminus. In the case of garbage, no odors are allowed to escape during the transfer of the garbage from the barrel to the cart, nor after the reception of garbage by the cart, nor during its transit to the final dumping place. To accomplish this result I have invented a patent ash barrel especially adapted to operate with the ash and garbage collecting and conveying cart, applied for with this case as a separate patent, entitled Ash and garbage, dustless and odorless barrel.

By this result, the exclusion of infected dust and pestiferous odors from the atmosphere of large cities and smaller communities, the otherwise grave danger of pestilence from these agents is lessened. Especially during times of war and death do plagues threaten, calling for precautionary measures. A clearer atmosphere is advanced by the use of these inventions contributing to the personal comfort of the community.

Referring to the accompanying drawings, Figure 1 is a side elevation of the cart; Fig. 2 is a longitudinal section of the cart; Fig. 3 is a rear elevation; Fig. 4 is a detail elevation of the latch member for holding the barrel on the cart; Fig. 5 is a detail of the latch member on line 4—4 of Fig. 4; Fig. 6 is a detail on line 6—6 of Fig. 4; Fig. 7 is a vertical transverse section on line 7—7 of Fig. 1; Fig. 8 is a detail view of one of the clutch members; Fig. 9 is a detail of the locking lever for latch shown in Fig. 4; Fig. 10 is a detail sectional view showing barrel attached to the cart and in dumping position; and Fig. 11 is a similar view showing the barrel in position before being raised to dumping position, the barrel being shown in dotted lines in as first applied to the cart before being swung into full engagement with the cart.

A structural steel frame-work 1 is mounted on axles 4 and 5, which axles are provided with wheels 2 and 3, for the purpose of conveying the frame-work.

A motor 6 is mounted on the frame-work 1, and is provided with a shaft 7. Sprocket wheels 8 are mounted on each end of the shaft 7, and traveling over the sprocket wheels 8 and sprocket wheels 10 on the axle 4 are sprocket chains 9. Power is conducted from the motor to the axle 4 for the purpose of driving the vehicle or cart. Idlers 11 are connected to the frame-work 1 by means of stub-shafts 12, and the idlers are adapted to engage the chains 9 for holding them taut.

Extending longitudinally of the frame-work 1, are two parallel winding shafts 13 and 14. The shaft 13 is provided with a bevel gear 15 which meshes with a bevel gear 17 on the motor shaft 7, and shaft 14 has a bevel gear 16 meshing with bevel gear 18 on the motor shaft 7. These shafts 13 and 14 are caused to rotate continuously upon the rotation of the motor shaft 7.

A shaft 19 is mounted longitudinally of the frame-work, and mounted on the shaft are heads 21 of the barrel or body wall 20. Head caps 22 are provided with hubs 23—24 through which the shaft 19 extends, the hubs being connected to the shaft by means of pins 117. The head caps 22 are provided with recesses in which the heads 21 are received and fitted so that the heads 21 and head caps 22 rotate as a unit. The hubs 23 and 24 are journaled in bushings 25 and 26, respectively, which are mounted in the frame-work 1.

An outer shell 27 is mounted concentrically of the cylindrical body wall 20, and extends around the body wall about, say two-thirds, of its circumference. Annular rings 37 are mounted upon the head caps 22 and are capable of rotating thereon. Connected to the rings 37 is the outer shell 27, so that upon the rotation of the rings the shell is carried thereby.

The body wall 20 is provided with a longitudinal opening, and fitted in the opening and supported by the body wall is a frame, consisting of end and side members 29 and 30, respectively. The side members 30 are provided with flanges 31 which engage the outer surface of the body wall 20 for supporting the frame on the body. The side members 30 are provided with grooves 36 in which any suitable packing may be received for forming a tight joint between the frame and the inner surface of the outer shell 27. The end members 29 are provided with grooves 35 in which a packing is received for forming a tight joint between the inner surface of the outer shell 27 and the ends of the frame. The packing being designated at 34. Of course, if desired the side and end members could be made of a size to engage the inner surface of the outer shell, and thereby dispense with the packing. The rings 37 are held in position on the head caps 22 by clips 39.

The winding shaft 13 is provided with a plurality of winding drums 40, 41, 42 and 43, and the shaft 14, is provided with winding drums 44, 45, 46 and 47. The head caps 22 and rings 37 are provided with circumferential grooves 22^a, in which the wires or cables for rotating the body wall and outer shell are received.

A wire 48 is connected to the head cap 22 by a knob 52 at one end, and is connected at its other terminal to a winding drum 44; and a wire 49 is connected to the head cap 22 by a knob 53 at one end, and at its other end to the winding drum 40. The other head cap has a wire 51 attached to a knob 54 thereon, and the wire is connected at its other terminal to winding drum 47 on shaft 14; another wire 50 is connected to a knob 55 on the head cap, and leads to winding drum 43 on shaft 13. The wires 50 and 49 cause the body wall to rotate in one direction, and the wires 48 and 51 cause the body wall to rotate in an opposite direction.

A wire 57 is connected to winding drum 41 of shaft 13 and to a knob 60 on one of the rings 37, and a wire 56 is connected to the same ring by a knob 61. The wire 56 is connected at its other terminal to the winding drum 45 of the shaft 14. The other ring 37 has a wire 59 connected thereto by a knob 63, which wire is also connected to winding drum 42; and a wire 58 is connected to the ring 37 by a knob 62, the wire being also connected to a winding drum 46 on the shaft 14. Wires 56 and 58 upon the rotation of shaft 14 cause the outer shell 27 and rings 37 to rotate in one direction, and the wires 57 and 59 upon the rotation of shaft 13 cause the outer shell and rings to rotate in an opposite direction.

The winding drums 40, 41, 42, 43, 44, 45, 46 and 47, are all provided with a suitable clutch mechanism for operating each drum separately, and I have shown a clutch casing 64, with an operating arm 65, which is connected to a lever arm 69 by a wire rope 67, the wire rope passing over a guide pulley 68 on the frame 1. Each drum is equipped in this manner and upon the operation of the lever arms 69 the desired winding drum can be operated so that it will be caused to rotate with its particular shaft 13 or 14, as the case may be.

The outer shell 27 may be operated independently of the body wall 20, and in such instance, the winding drums are operated for causing them to rotate with the shaft which will cause the outer shell or body wall to rotate in the direction desired.

When the body wall 20 remains stationary, and the outer shell 27 rotates to the right or left, then the clutches of the winding drums 40, 43, 44 and 47 of the body wall are unclutched by drawing down on the lever arm 69; and if it is desired to have the outer shell 27 remain stationary, then the clutches of the winding drums 41, 42, 45 and 46 are unclutched by drawing down another lever arm 69. When either body wall or outer shell is unclutched while the other is clutched, it is only necessary to reverse the motor to turn the clutched member in an opposite direction from that in which it has been previously rotated. A wire rope 72 is connected to the motor and a third lever arm 69 for operating the motor. The wire rope 72 passes over a guide wheel 74 on the frame work 1. For reversing the motor a wire rope 73 is provided which passes over a pulley 75 and then to a fourth lever arm 69. A foot rest 77 and seat 76 for the operator are connected to the frame-work 1, and a steering shaft 79 is connected to the frame-work by brackets 80. A steering wheel 78 is mounted on the shaft 79. Connected to the lower terminal of the steering shaft 79 are arms 84 to which bars 82 and 83 are connected as at 81. The bars 82 and 83 are connected at their outer terminals to arms 86, at 85, the arms 86 being connected to posts 87, which are mounted on the axle 5.

A plurality of cylindrical or tubular members 90 are connected to curved plates 89, which plates are provided with openings registering with the openings 91 of the members 90. The plates 89 are connected to and conform to the convex surface of the outer shell 27. The shell 27 is provided with openings which register with the openings of the plates and members 90. Brackets 93 are bolted to the lower edges of the plates 89. The forward ends of the brackets are curved forming hooks 95, and a lug 94 is formed on the upper surface of the brackets. Each ash can or barrel, or garbage receptacle 134, is provided with a band 109 at the upper end thereof, and a trunnion 180 is

formed at one edge of the band, and is adapted to be received in the socket of the hook 95 of the bracket in swinging the can or barrel onto the vehicle or cart, as shown in dotted lines in Fig. 11. The lug 94 insures the retention of the trunnion in the socket of the hook 95, and prevents the trunnion from sliding longitudinally of the bracket. When the can or barrel has been swung upwardly so that its upper end is flush with the surface 92 of the member 90, the lug 108 on the band 109, which projects outwardly therefrom, is engaged by a catch 97 mounted on the outer shell 27 for locking the barrel in position.

Guide blocks 98 and 102 are connected to the housing or casing 154, which is mounted on the member 90, and a rod 99 has a sliding engagement with said blocks, that is, the rod is supported by and is capable of sliding through the blocks. Connected to the rod is the catch 97, a spring 100 is connected to the casing 154 and engages an end of the catch, and another spring 101 engages an end of the rod 99 for maintaining the catch in a relative position. The outer surface of the catch 97 is beveled along one edge, and the inner surface of the lug 108 is beveled along one edge, so that when the can or barrel is swung upward, the beveled surface of the lug 108 will engage the beveled surface of the catch 97, causing the catch to be moved laterally, and when the lug has moved to its limit of movement the spring 101 which engages the end of rod 99, will cause the catch to be forced toward and engage the lug 108 for confining the barrel or can against the member 90. A wire rope 118 is connected to one end of the rod 99, and passes over a pulley 119 mounted on the outer shell 27, to which a handle 121 is connected for operating the rod 99 to withdraw the catch from engagement with the lug 108. Another wire rope 105 is connected to the opposite end of the rod 99, and passes over a pulley 104. The lower terminal of the wire rope is connected to a lever 106 pivoted at 107 to a block 111. A spring 116 connected to the block 111 engages the lever for normally holding it in a position so that it will not affect the operation of the catch 97. A plate 114 is connected to outer shell 27 and is provided with a projection 115 adapted to be engaged by a spring catch 113 carried by the lever 106, when it is desired to lock the catch 97 in engagement with the lug 108.

The casing or housing 154 has communication with the cylindrical member 90, so that the cover 140 of the barrel or can can be drawn into the casing for the purpose of emptying the barrel. Drop-weights 156 are mounted in the casing and travel on tracks 159. The drop-weight 157 is provided with a projection 163 to which a wire 162 is connected, the wire passing upwardly through the casing and over a pulley 164 supported on a bracket 165 on the casing 154. A lug or projection 160 on the cover enters a cavity or recess 161 in the weight 156 when the barrel is swung into position on the outer shell 27, so that when it is desired to empty the contents of the barrel the wire rope 162 is operated and the cover is drawn into the casing 154. Springs 168 are provided in the casing for guiding the movement of the cover 140, so that it can be properly fed into and from the casing. The casing 154 is provided with a chamber 166 in one side thereof in which the projection 163 and wire 162 travel.

After the barrels or barrel have been placed on the outer shell 27, the clutches are thrown into position for causing the proper winding drums to be operated to cause the outer shell to be moved about the body wall 20, which is held stationary, and when the members 90 are in registry with the opening formed in the body wall by the frame 29 and 30, the covers of the barrels are withdrawn by pulling on the wire ropes 162, so that the contents of the barrels may be discharged into the body-wall. The opening in the body wall is of such size that the members 90 can be positioned over the same, so that the contents of the barrels may be distributed evenly in the body-wall 20. After the barrels are emptied they are returned to their original position, and during these operations, no dust or odors escape, because the cover 140 on each barrel is not removed until the barrels are over the opening of the body-wall 20, and when the barrels are drawn away from the body-wall the inner surface of the outer shell 27 engages the upper surface of the frame 29—30, so that the dust and odor cannot escape from the body-wall.

When the barrel is full and it is desired to empty the same, the outer shell 27 is revolved so that the opening formed between the edges 130 and 131 thereof, is located over the running gear of the vehicle, the body-wall is then rotated, and when the opening therein formed by the frame 29—30 registers with the opening of the outer shell 27, the contents of the barrel can be discharged.

A counterbalance weight 122 is attached to the rings 37, in connection with a weight 123 for counteracting the weight of the member 90, casing 154 and barrels or cans when filled.

A tube 125 is connected to the head 21 for the introduction of a disinfectant, and is provided with a screw-threaded end 128, for the reception of a cap when not in use.

The apparatus may be operated by the electrical street supply, and for this purpose a cable 130′ and plug 131′ are provided.

The power necessary for the various movements of this apparatus is derived from the

motor supplied by cells contained in case 133 (case can be made of any size by enlargement of frame). 132 is the cable transmitting power between the cells and the motor.

I claim:—

1. The combination with a body-wall, of an outer shell encircling the body wall having openings therein, means for supporting barrels or cans on the outer shell over the openings, said body-wall having an opening therein with which the openings of the outer shell are adapted to be brought in registry, and means for rotating the outer shell for causing the openings therein to be brought in registry with the opening of the body wall so that the contents of the barrels or cans can be discharged into the body-wall.

2. The combination with a body wall having an opening therein, of an outer shell encircling the body wall for normally closing the opening of the body wall, said outer shell having openings therein, means for supporting barrels or cans on the outer shell over the openings thereof, and means for rotating the outer shell to cause the barrels to be brought into registry with the opening of the body-wall so that the contents of the barrels may be discharged into the body-wall.

3. The combination with a frame-work, of a body wall rotatably mounted thereon having an opening therein, an outer shell encircling the body wall and normally closing the opening of the body wall, said shell being provided with openings for the admission of material to the body wall, and an opening through which the contents of the body wall may be discharged, and means for rotating the body-wall and outer shell simultaneously and independently.

4. The combination with a frame-work having a motor mounted thereon, a motor shaft connected to the motor, winding shafts mounted on the frame-work, means connecting the winding shafts to the motor shaft so that the winding shafts will be rotated upon the rotation of the motor shaft, of a rotary body-wall mounted on the frame work, and having an opening therein, an outer shell encircling the body-wall for normally closing the opening of the body wall, and means for transmitting motion to the body-wall and outer shell, whereby they may be rotated independently and simultaneously.

5. The combination with a frame-work having a motor mounted thereon, a motor shaft connected to the motor, winding shafts mounted on the frame-work, means connecting the winding shafts to the motor shaft for operating the winding shafts, of a rotary body-wall mounted on the frame-work, and having an opening therein, an outer shell encircling the body-wall for normally closing the opening of the body-wall, means for transmitting motion from the winding shafts to the body-wall and outer shell for rotating them simultaneously and independently, and means for controlling the rotation of the body-wall and outer shell.

6. The combination with a frame-work having a motor mounted thereon, a motor shaft connected to the motor, winding shafts mounted on the frame-work, means for connecting the winding shafts to the motor shaft for operating the winding shafts, of a rotary body-wall mounted on the frame-work and having an opening therein, rings rotatably mounted on the body-wall, an outer shell connected to the rings and adapted to normally close the opening of the body-wall, and means connected to the winding shafts and to the body-wall and rings for rotating the body-wall and outer shell simultaneously and independently.

7. In a garbage dumping device, in combination with a cart having cylindrical members encircling openings in the wall of the cart, a cover-receiving casing disposed above each opening and having its only open end in communication therewith, members adapted to engage a garbage barrel from opposite portions of the opening in the wall of the cart, and means slidable within the cover-casing for engaging the cover to the barrel and withdrawing it into the casing, whereby the cover may be withdrawn from the garbage barrel without exposing it to the outside atmosphere.

8. In a garbage dumping device, in combination with a cart having openings in its wall, a cover-receiving casing disposed above each opening and having its only open end in communication therewith, a garbage receptacle having a cover, a projecting member mounted near the end of the garbage receptacle, a hook-shaped member mounted on the part in proximity to each of the openings in the cart and adapted to engage the projection on the garbage receptacle, an opposite pivoted member above each opening in the cart adapted to releasably engage the garbage receptacle to secure it to the cart opening, means slidably mounted in the cover-receiving casing to engage the receptacle cover, and means for operating the last mentioned means to remove the cover from the garbage receptacle and to restore it to closed position, substantially as described.

9. In a garbage dumping device, in combination with a cart having a rotatable body wall, the wall having openings therein, cover casings having a single open end in communication with the openings the aforesaid cover casings being attached to and rotating with the body wall about a common axis, means for fastening a garbage receptacle over each opening in the body wall of the cart, means slidably mounted in the cover casing to releasably engage a garbage recep-

tacle cover, a garbage receptacle having means for engaging the cart member and a cover slidably mounted on the receptacle.

10. In a garbage dumping device, in combination with a garbage receiving body having cylindrical openings for the admission of garbage, cover casings having their only open end in communication with the openings in the garbage receiving body the said casings being attached to and rotatable with the body wall about a common axis, garbage receptacles, covers slidably mounted thereover, means for locking the garbage receptacle in sealed communication with the openings in the garbage receiving body, means within the cover casings adapted to engage the covers and means for actuating the cover-engaging means to dump the contents of the garbage receptacles, substantially as and for the purposes described.

11. In a garbage dumping device, in combination with a cart having rotatable body walls and having openings communicating with the interior of the cart, cylindrical members encircling the openings of the outer wall, garbage receptacles adapted to engage over the openings, opposite means positioned adjacent each opening for locking the garbage receptacle to the respective opening in the cart body in sealed communication therewith, covers slidably mounted on the garbage receptacle, cover casings having their sole open end in communication with the openings into the cart body the cover casings being attached to the outer body wall and rotatable therewith about a common axis, means slidably carried within the cover casings having means adapted to engage the garbage receptacle covers to slide same from closed to open position, and manually controlled means for actuating the means for sliding the covers off the receptacles, whereby the contents of the garbage receptacle may be discharged into a substantially sealed cart the covers to the receptacle also being substantially sealed when withdrawn into the cover casings, substantially as and for the purposes described.

12. The combination with a body wall having openings therein, of an outer shell rotatably mounted thereover and arranged to close the openings of the inner shell when in normal position and having openings adapted to be brought into juxtaposition with the openings of the inner shell for emptying of garbage, and electrically controlled means adapted to be operated from the driver's seat for causing the openings in the outer shell to be brought in registry with the openings of the body wall so that the contents of the barrels can be discharged into the body wall.

13. In a garbage dumping device, a rotatable outer shell, a rotatable inner shell concentrically mounted, openings in each of the shells positioned to be rotated into or out of communication, the inner shell being spaced apart from the outer shell and having side members adjacent to the openings arranged to engage the inner surface of the outer wall, the side members having grooves, and packing in the grooves for forming a tight joint between the inner and outer shell.

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