

[54] **WASTE DISPOSAL SYSTEM**

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100/215, 100/221, 100/229 A, 100/237,
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[51] Int. Cl. B30b 1/32

[58] **Field of Search**92/53; 53/124;
141/73; 100/209, 229 A, 229 R, 255, 269,
295, 193, 215, 221, 224, 237, 53

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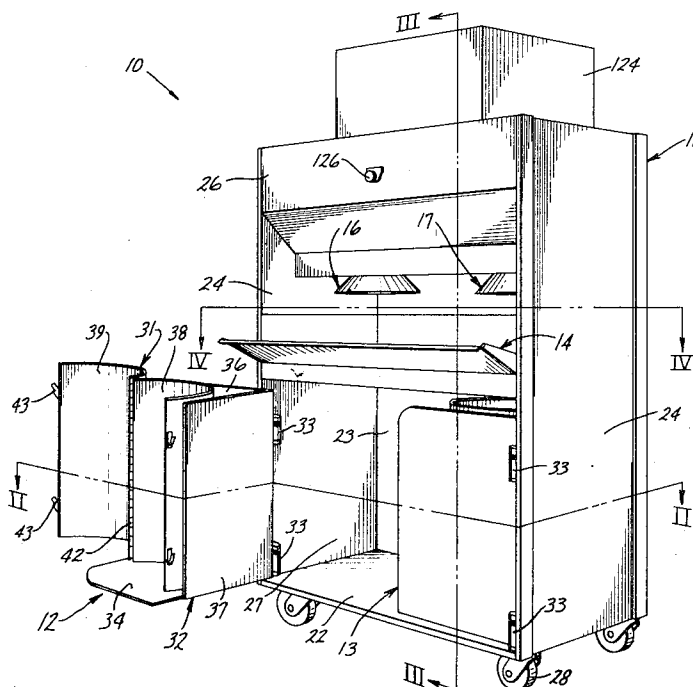
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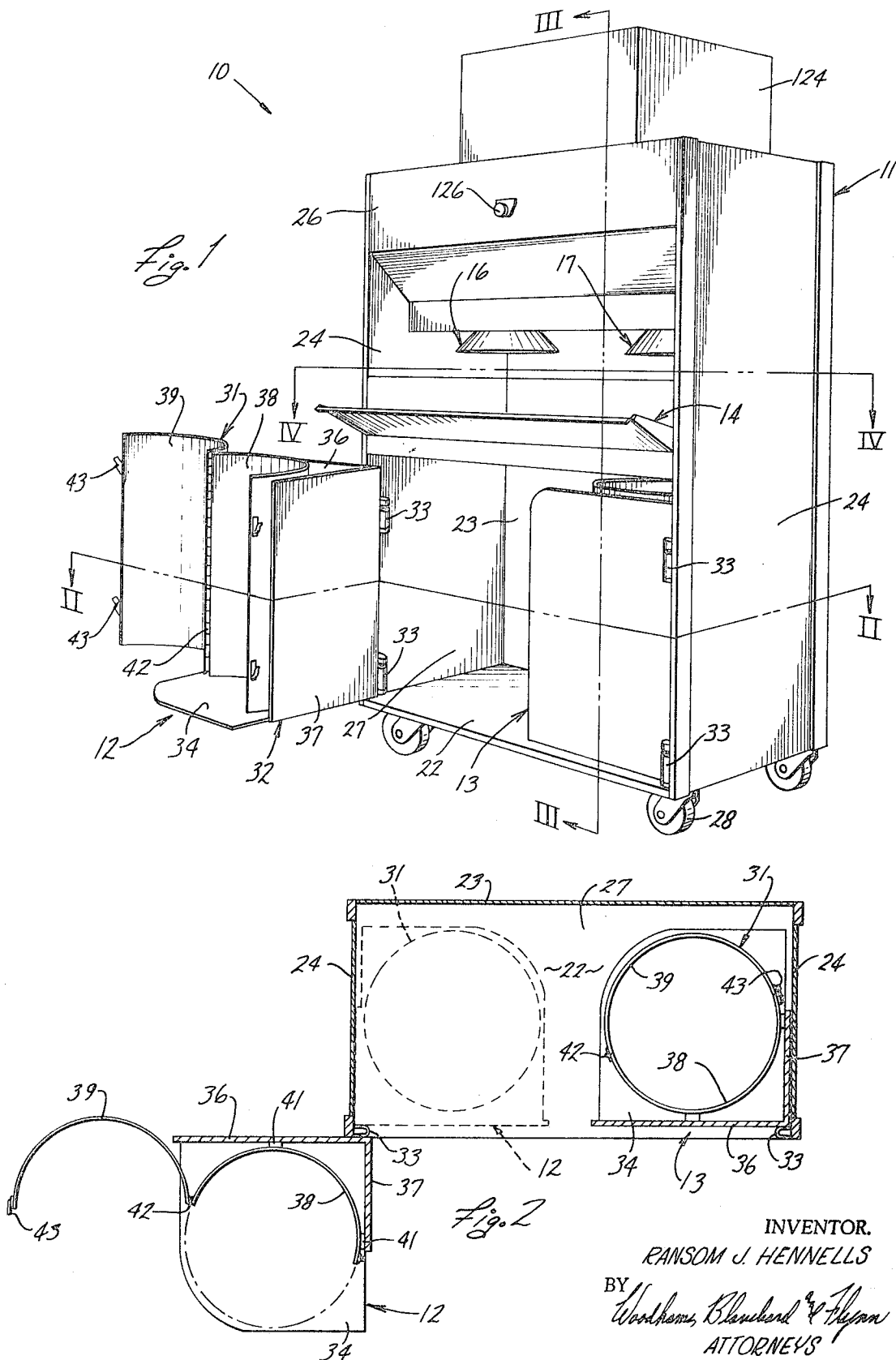
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[57] **ABSTRACT**

A waste compactor comprising a cabinet having an extendible ram assembly mounted adjacent the upper end thereof and a swingable receptacle assembly positionable below the ram assembly. The receptacle assembly includes a platform hingedly mounted on the cabinet for horizontal swinging movement between a filling position wherein the receptacle is positioned directly under the ram, and an emptying position wherein the receptacle is swung outwardly from the cabinet to facilitate unloading of bags filled with compacted waste. The receptacle includes a first arcuate portion fixed to the swingable platform and a second arcuate portion hingedly connected to the fixed portion. The hinges connecting the platform to the cabinet include cam means for causing upward lifting of the platform away from the base of the cabinet as the platform is initially swung away from the filling position. ram assembly includes a telescoping fluid pressure cylinder having a compacting shoe on the lower end thereof.

21 Claims, 13 Drawing Figures





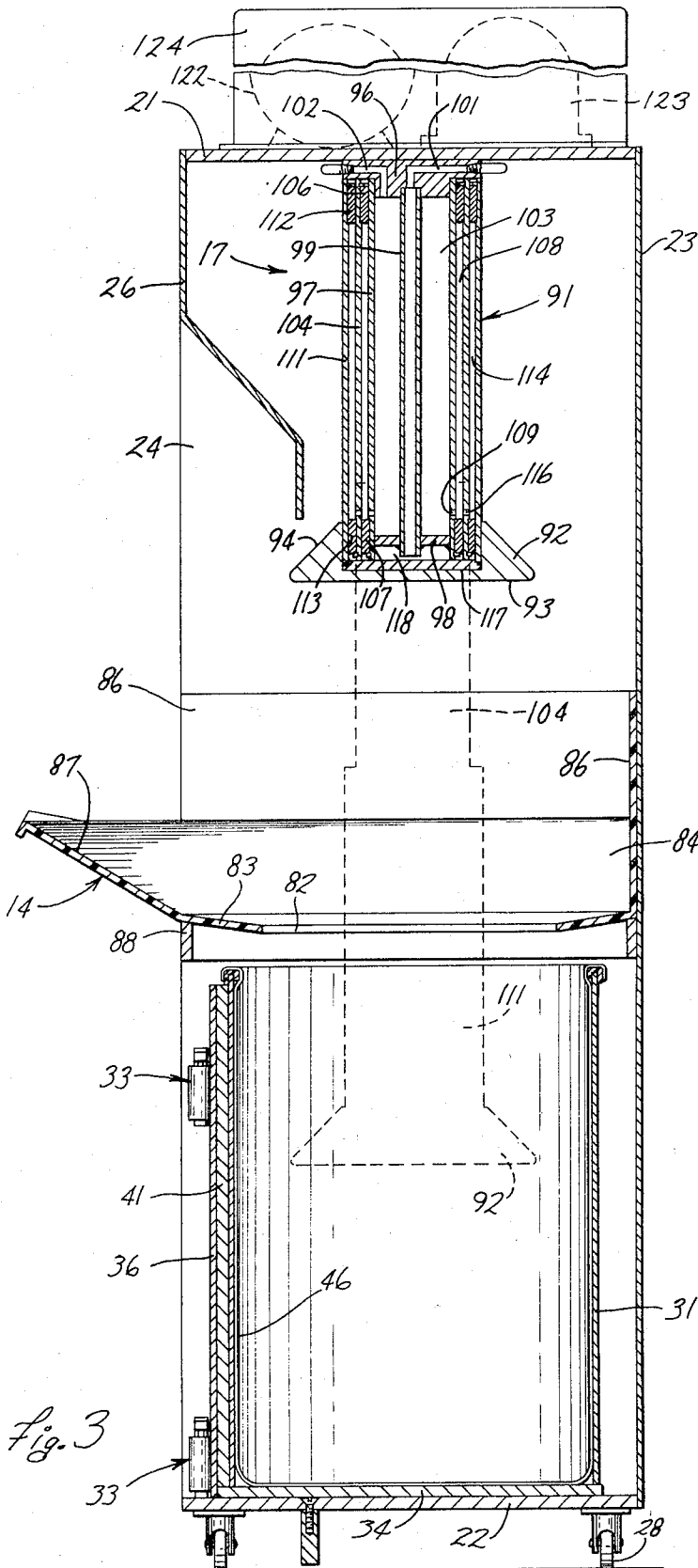


Fig. 3

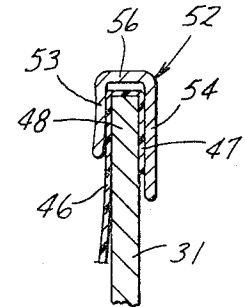


Fig. 10

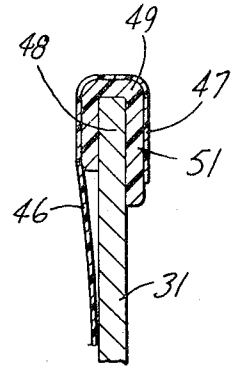


Fig. 9

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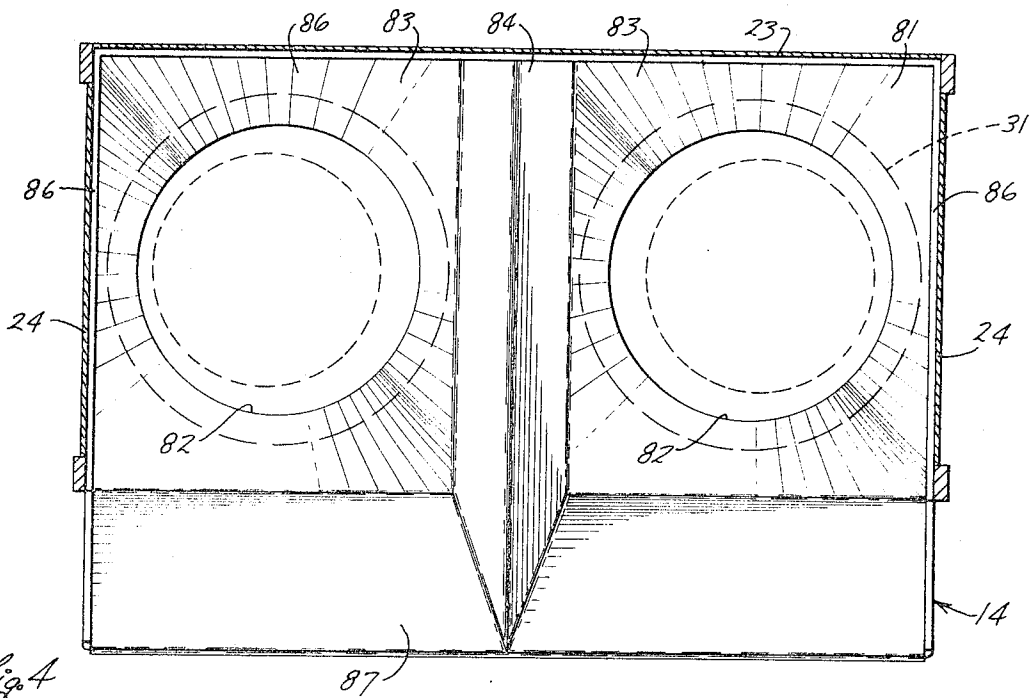


Fig. 4

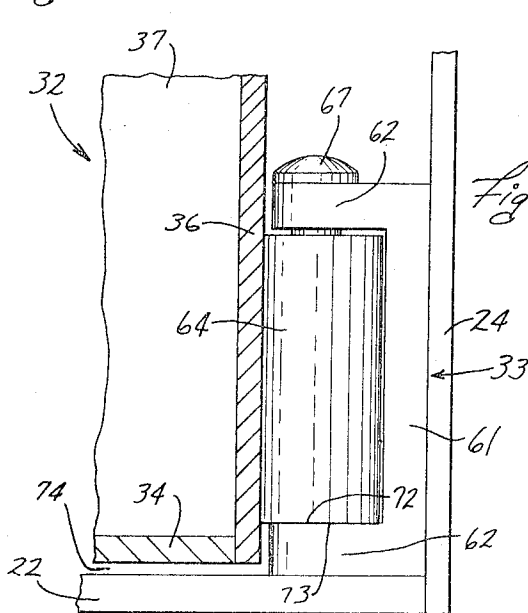


Fig. 6

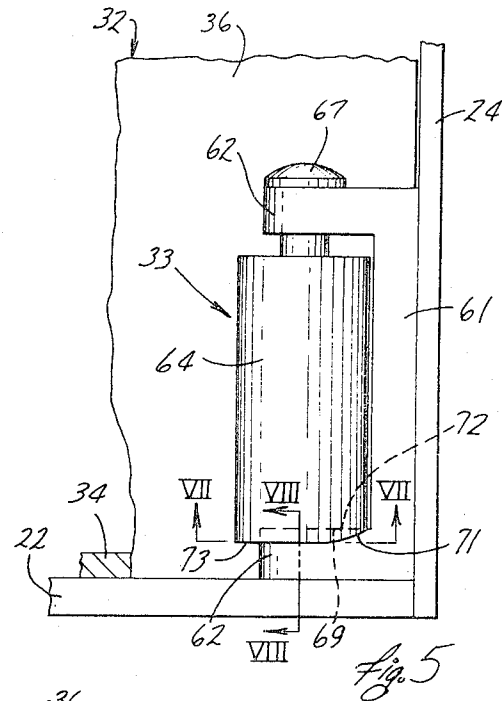


Fig. 5

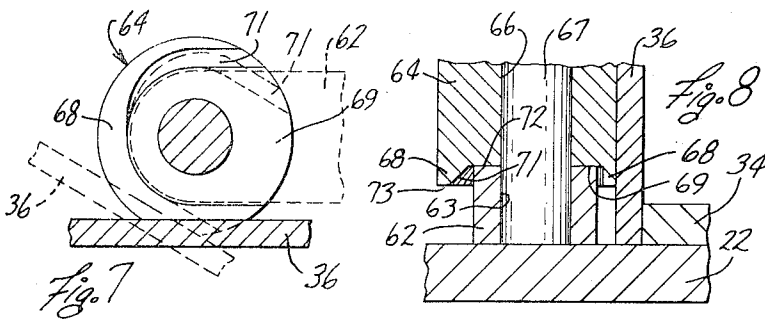
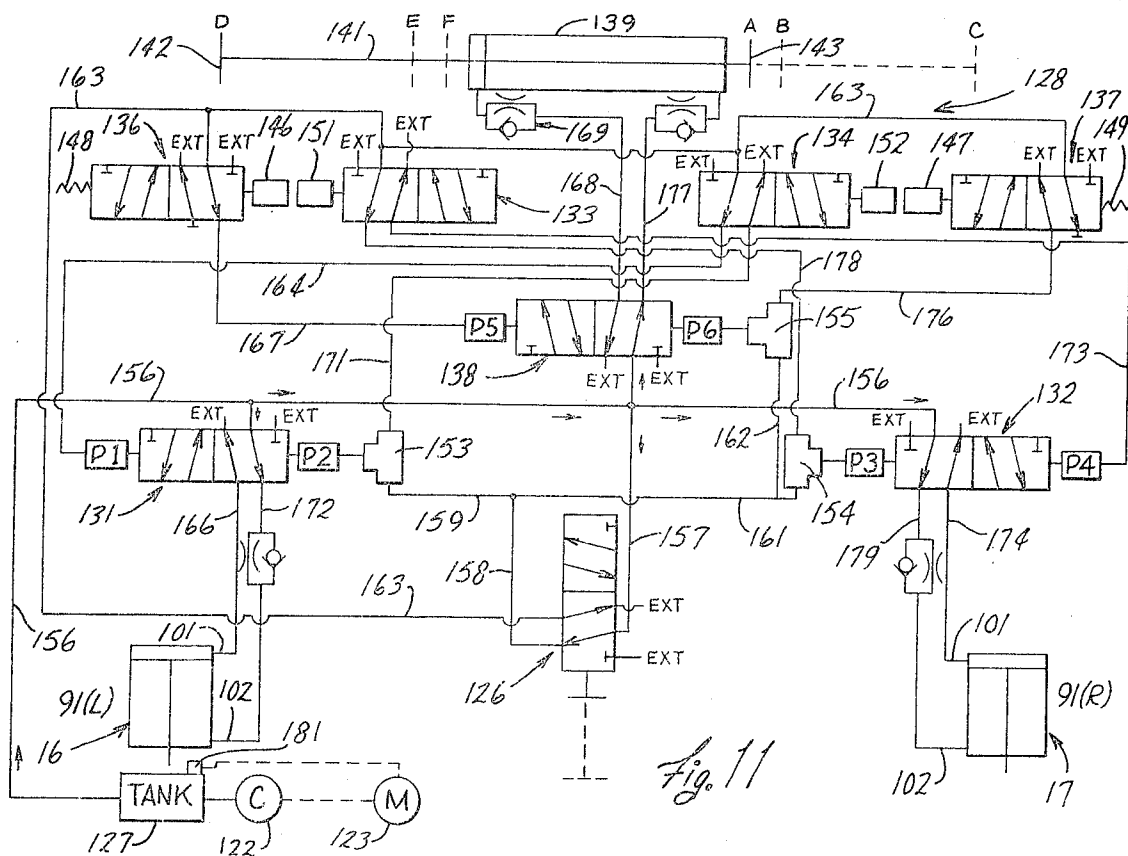
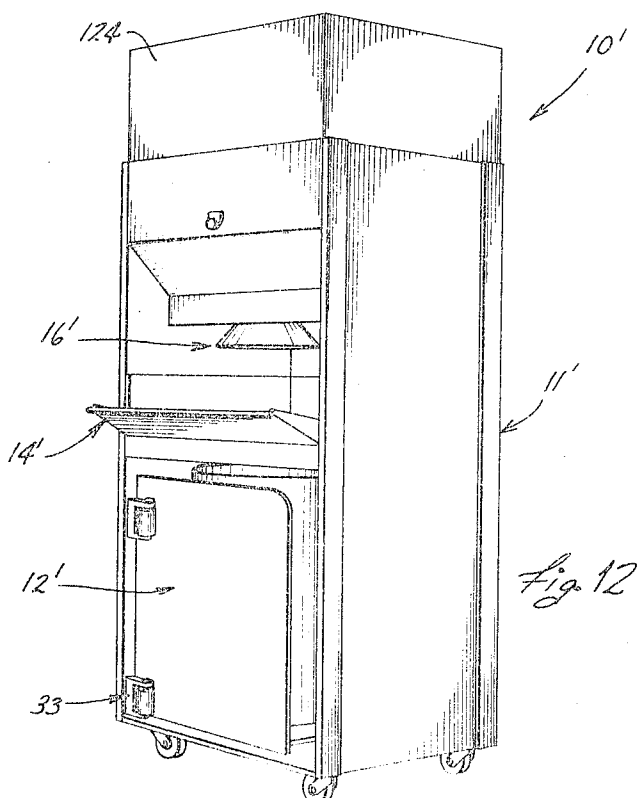
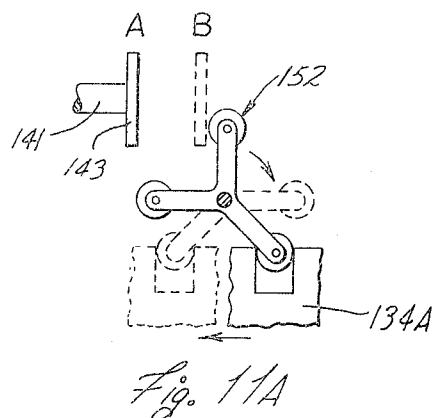


Fig. 7

Fig. 8

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WASTE DISPOSAL SYSTEM

FIELD OF THE INVENTION

This invention relates to a waste disposal device and, in particular, relates to a waste compacter for compacting paper and related compressible waste products into a disposable bag or container supported within a receptacle, the receptacle being horizontally swingable into an unloading position with the receptacle being separable to facilitate removal of the filled bag.

BACKGROUND OF THE INVENTION

In large buildings, factories and the like, it is conventional to bale trash, such as waste paper and the like, in baling presses in order to compact the large volume thereof, and permit easier handling and removal. Such conventional baling presses require considerable space and are relatively expensive, thereby making these devices totally uneconomical for use in handling smaller volumes of trash, such as produced in hospitals, restaurants, cafeterias, schools, apartments, and other associated municipal industrial or commercial buildings and factories.

In addition, the conventional baling presses produce relatively large and heavy bales which frequently require large handling machinery for picking up and moving the bales. Provision of such handling machinery, and the handling of such large and heavy bales, is totally impractical and/or highly undesirable in many situations, particularly where conventional garbage pick-up methods are used for disposing of trash.

To overcome the disadvantages associated with conventional large baling presses, several small waste compacting devices have been developed which are more suitable for use in situations wherein the volume of trash or waste does not justify the use of large baling equipment and/or wherein large baling presses and the large and heavy bales produced thereby cannot be handled or accommodated. However, these known waste compacters have several structural and/or operational limitations which make their use inefficient and/or undesirable.

One of the primary disadvantages of the known compacting devices is the inability to easily and efficiently remove the filled bags of compacted waste. The known devices generally require that the filled bags be at least partially lifted upwardly in order to remove same from the compacter. This required lifting of the filled bags is undesirable since the filled bags are relatively heavy and bulky, thereby making handling of same extremely difficult. The necessity of having to lift or pull the filled bags upwardly to remove same from the compacting device also often results in tearing or breaking of the bag, especially when bags of relatively light weight plastic are utilized.

A further disadvantage of the known compacting devices is their limited mobility. Many of these known compacting devices utilize fluid pressure actuated rams for compacting trash within a container or bag. All of these devices, to the best of my knowledge, utilize a fluid pressure source which is fixedly positioned adjacent to but separate from the compacting device. These devices thus cannot be readily moved about to various locations wherever needed, thereby preventing the most optimum and efficient use thereof.

A still further disadvantage of the known compacting devices, particularly those utilizing hydraulic or pneu-

matic cylinders, is the limited clearance space between the waste hopper and the lower end of the compacting ram. All of the prior known devices have, to the best of my knowledge, utilized conventional power cylinders for actuating the compacting ram, which cylinders must be of substantially long stroke to accommodate and permit compacting of waste into the receptacle. Such long stroke cylinders are of substantial length which, in combination with the overall length of the receptacle, results in the overall compacting device being of undesirable height, which height is minimized by positioning the lower end of the compacting ram, when retracted, closely adjacent the waste hopper. While this spatial arrangement minimizes the overall height of the device, it necessarily restricts the clearance space between the ram and the hopper, thereby interfering with and restricting the free flow of waste from the hopper into the receptacle.

Accordingly, it is an object of the present invention to provide a small, light weight waste compacting device particularly suitable for restaurants, cafeterias, schools, factories, office buildings, apartment buildings and the like, which device is able to easily and efficiently compact waste, such as paper and other compressible products, into disposable containers or bags, and which compacting device overcomes the disadvantages associated with the prior known devices.

More particularly, it is an object of this invention to provide:

1. An improved compacting device of relatively small size and light weight, and particularly suitable for compacting waste into disposable containers or bags.

2. A device, as aforesaid, having receptacle means which facilitates the removal of filled bags of compacted waste without requiring lifting thereof.

3. A device, as aforesaid, having receptacle means which is horizontally swingable from a position disposed underneath a compacting ram to a position disposed outwardly of the ram to facilitate unloading of the filled bag.

4. A device, as aforesaid, wherein the receptacle means includes a swingable platform having a cylindrical receptacle thereon, at least one arcuate portion of which is movable relative to the remainder of the receptacle to permit lateral removal of a filled bag of compacted waste.

5. A device, as aforesaid, wherein the receptacle comprises a pair of substantially semicylindrical sections hingedly connected together.

6. A device, as aforesaid, wherein cammed hinge means pivotally mount the swingable platform to the cabinet of the device for enabling the platform to be seated on the floor of the cabinet when the receptacle is positioned beneath the compacting ram, the cammed hinge means causing the platform to be moved upwardly from the floor as it is initially swung laterally outwardly from beneath the ram.

7. A device, as aforesaid, having increased movability for permitting selective use thereof at different locations.

8. A device, as aforesaid, having a self-contained fluid pressure system for actuating the compacting ram.

9. A device, as aforesaid, wherein the self-contained fluid pressure system includes a motor and a compressor mounted directly on the cabinet of the device to increase the mobility thereof.

10. A device, as aforesaid, having increased clearance space between the waste hopper and the lower end of the compacting ram.

11. A device, as aforesaid, wherein the compacting ram utilizes a telescopic fluid pressure cylinder, thereby minimizing the overall height of the device.

12. A device, as aforesaid, wherein a compacting shoe is provided on the lower end of the ram, which compacting shoe is provided with a downwardly and outwardly sloped upper surface to prevent collection of waste thereon.

13. A device, as aforesaid, having a removable one-piece waste hopper for supplying waste to the receptacle, the one-piece hopper having an integral chute and back-splash with the hopper being readily removable from the device for cleaning.

14. A device, as aforesaid, which is simple and inexpensive to manufacture, and which is dependable and efficient in operation.

Other objects and purposes of this invention will be apparent to persons acquainted with apparatus of this general type upon reading the following specification and inspecting the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a double or two-station waste compacter constructed according to the present invention.

FIG. 2 is a horizontal cross-sectional view taken along the line II—II of FIG. 1.

FIG. 3 is an elevational cross-sectional view taken along the line III—III of FIG. 1.

FIG. 4 is a horizontal cross-sectional view taken along the line IV—IV of FIG. 1.

FIG. 5 is an enlarged fragmentary view illustrating the cammed hinged structure.

FIG. 6 is a view similar to FIG. 5 but illustrating the front receptacle panel swung outwardly 90° from the position illustrated in FIG. 5.

FIG. 7 is a bottom view of one of the hinge members taken substantially along the line VII—VII of FIG. 5.

FIG. 8 is a side elevational view taken along the line VIII—VIII of FIG. 5.

FIG. 9 is an enlarged fragmentary sectional view of the top edge of the receptacle and illustrating the manner in which a bag is held thereon.

FIG. 10 is an enlarged fragmentary sectional view similar to FIG. 9 and illustrating a modified structure for holding a disposable bag.

FIG. 11 is a circuit diagram for the fluid pressure system utilized on the device illustrated in FIG. 1.

FIG. 11A is a schematic representation of the operation of one of the control valves.

FIG. 12 is a perspective view of a single compacting device constructed in accordance with the present invention.

Certain terminology will be used in the following description for convenience in reference only and will not be limiting. The words "upwardly," "downwardly," "rightwardly" and "leftwardly" will designate directions in the drawings to which reference is made. The words "inwardly" and "outwardly" will refer to directions toward and away from, respectively, the geometric center of the device and designated parts thereof. Said terminology will include the words above specifically mentioned, derivatives thereof and words of similar import.

SUMMARY OF THE INVENTION

In general, the objects and purposes of the invention are met by providing a compacting device having a cabinet which supports adjacent the bottom thereof a receptacle or bag-holding device, which receptacle is positioned below a reciprocable ram assembly. The receptacle preferably comprises a pair of pivotally connected arcuate sections which form a cylindrical bag holder, one of the arcuate sections being fixedly secured to a platform which is mounted on the cabinet for horizontal swinging movement between a filling position disposed directly below the ram and an unloading position wherein the platform is horizontally angularly displaced outwardly from beneath the ram assembly. When in the unloading position, the movable section of the receptacle is swingable outwardly away from the fixed section to permit a disposable bag containing compacted waste therein to be removed from the receptacle.

The swingable receptacle platform is preferably connected to the cabinet by a cammed hinged structure which causes the platform to be cammed upwardly away from the bottom of the cabinet as the platform is initially swung outwardly from the filling position. Similarly, when the platform is swung back to the filling position, the cammed hinge structure permits the platform to move downwardly against the bottom of the cabinet whereupon compression loads imposed on the receptacle by the ram are transferred directly to the bottom of the cabinet.

The present invention further preferably utilizes a ram assembly which incorporates a telescopic fluid pressure cylinder therein, which telescopic cylinder minimizes overall height of the device while enabling a maximum clearance space to exist between the waste hopper and the lower end of the ram. The lower end of the ram is preferably provided with a compacting shoe thereon, the upper surface of which slopes outwardly and downwardly so as to be self-cleaning. The extension and retraction of the compacting ram is controlled by a self-contained fluid pressure system which includes a motor and a compressor mounted directly on the cabinet. The cabinet is preferably mounted on casters to permit complete mobility of the compacting device.

The compacting device according to the present invention, as briefly described above, may be provided with either one or two receptacle assemblies positioned adjacent the lower portion thereof. When two receptacle assemblies are provided, then the device is also provided with two ram assemblies, each ram assembly being positioned directly above and aligned with one of the receptacle assemblies. The double receptacle device is preferably provided with a fluid pressure circuit which causes the two ram assemblies to be automatically and alternately actuated.

DETAILED DESCRIPTION

FIG. 1 illustrates therein a double or two-station compacting device 10 constructed according to the present invention, which device includes a housing or cabinet 11 having a pair of waste receptacle assemblies 12 and 13 disposed adjacent the bottom of the cabinet and positionable in side-by-side relation. A waste receiving hopper 14 is mounted on the cabinet 11 directly above the receptacle assemblies 12 and 13. A

pair of extendible ram assemblies 16 and 17 are mounted adjacent the upper end of the cabinet 11 in substantial alignment with the receptacle assemblies 12 and 13, respectively, for compressing the waste into suitable bags or containers positioned within the receptacle assemblies 12 and 13. A self-contained fluid pressure actuating system is mounted adjacent the upper end of the cabinet 11 for causing downward extension of the ram assemblies 16 and 17. While FIGS. 1 and 2 illustrate the receptacle assembly 12 positioned in an outward unloading position, the assembly 12 is normally positioned inwardly within the cabinet (as illustrated in dotted lines in FIG. 2) directly beneath the ram assembly 16.

Considering first the cabinet 11 (FIGS. 1-3), same comprises a top wall 21, a bottom wall or floor 22, a rear wall 23 and opposed sidewalls 24. The front of the cabinet is substantially open except for a front panel 26 disposed adjacent the top of the cabinet 11. The cabinet 11 is preferably provided with casters 28 thereon to permit the compactor 10 to be selectively positioned or moved about as desired.

The bottom of the cabinet 11 defines a forwardly opening storage space 27 adapted to receive therein the movable receptacle assemblies 12 and 13. The receptacle assemblies 12 and 13 are structurally identical except that they are mirror images of one another since the assembly 12 is hingedly connected to the left sidewall of the cabinet, whereas the assembly 13 is hingedly connected to the right sidewall of the cabinet. Thus, only the receptacle assembly 12 will be described in detail, it being recognized that the structural components of the assemblies 12 and 13 are mirror images of one another, and that the opening and closing movements of the assembly 12 are functionally identical to the opening and closing movements of the assembly 13 but occur in the opposite direction.

As illustrated in FIGS. 1-3, the receptacle assembly 12 comprises a vertically extending cylindrical bag holder or receptacle 31 which is mounted on a swingable platform 32, which platform is connected to the left sidewall 24 by a pair of hinge assemblies 33 for permitting the platform 32 to be horizontally swingably moved from a closed filling position (indicated in dotted lines in FIG. 2) to an open unloading position (indicated in solid lines in FIG. 2). The platform 32 is movable through an angle of approximately 180° in moving between its open and closed positions.

The swingable platform 32 specifically includes a bottom wall 34, a front panel or door 36, and a side panel 37, all of which are fixedly interconnected and are substantially perpendicular to one another. The bag holder 31 is mounted on the swingable platform 32 and comprises a pair of arcuate, preferably substantially semicylindrical, sections 38 and 39 pivotally interconnected along one axial edge thereof by an elongated hinge 42. The section 39 is thus horizontally swingably movable relative to the section 38 about the longitudinal axis of the hinge 42, the section 38 being fixedly secured to the platform 32 by any suitable means. In the illustrated embodiment, a pair of elongated rib members 41 (FIG. 2) are provided between the arcuate section 38 and the panels 36 and 37 the section 38 and the ribs 41 and the panels 36 and 37 being fixedly interconnected by means of screws. Latching or locking devices 43 are provided adjacent the free axial edges of the sections 38 and 39 for fixedly connecting the arcuate sec-

tion 39 to the arcuate section 38 when the sections 38 and 39 are disposed in opposed abutting relationship. The latches 43 may comprise any conventional catch or locking structure, such as a sash-type latch.

As illustrated in FIG. 3, a disposable waste receiving container, such as a vertically elongated, flexible plastic bag 46, is preferably positioned within the receptacle 31, the free upper edge 47 (FIGS. 9 and 10) of the bag being folded outwardly over the upper edge 48 of the receptacle 31 so as to suspend the main body of the bag 46 within the interior of the receptacle.

To maintain the bag 46 freely suspended from the upper edge of the receptacle during the compacting operation, the upper edge 48 of the receptacle 31 is preferably provided with a channel-shaped bag gripping member 49 (FIG. 9) thereon, which gripping member 49 is preferably constructed of a nonmetallic material such as plastic or rubber. The gripping member 49 is provided with an outer surface 51, which surface 51 may be roughened or provided with serrations if desired, whereupon the free upper edge 47 of the bag 46, when folded over into contact with the surface 51, will be tightly gripped so as to hold the main body of the bag 46 securely suspended within the interior of the receptacle 31. Use of the gripping member 49 is particularly desirable when the bag 46 is dimensioned to have a relatively snug fit with the gripping member when the free upper edge 47 of the bag is folded over in the manner illustrated in FIG. 9.

An alternate method for suspending the bag 46 within the receptacle 31 is illustrated in FIG. 10. The bag 46 is again positioned within the receptacle 31 and suspended therefrom by means of the free upper end 47 of the bag being folded over the upper edge 48. The bag is then secured to the upper edge of the receptacle 31 by means of an annular, removable holding ring 52, which ring slips over the upper edge of the receptacle 31 so as to clamp the free edge 47 of the bag therebetween. The holding ring 52 comprises inner and outer annular flanges 53 and 54 which are interconnected by an annular top wall 56. The flanges 53 and 54, and particularly the inner flange 53, resiliently grip the peripheral surfaces of the receptacle 31 for tightly clamping and holding the upper edge of the bag therebetween, thereby securely suspending the bag within the receptacle. The outer annular flange 54 can be omitted if desired, with the complete holding function being performed solely by means of the resilient inner annular flange 53 and the annular top wall 56.

Considering now the hinge assembly 33 (FIGS. 5-8), same comprises a first hinge member 61 fixedly secured to the sidewall 24, the hinge member 61 having a pair of spaced ears 62 having aligned openings 63 therethrough. A second hinge member 64 is fixedly secured to the front surface of the front panel 36, the second hinge member 64 also having an opening 66 extending therethrough. The second member 64 is positioned between the pair of ears 62 such that the openings 63 and 66 are aligned, whereupon a conventional headed pivot pin 67 extends therethrough for permitting relative pivotable movement between the hinge members 61 and 64. The hinge structure 33, as described above, is conventional and thus permits the receptacle assemblies 12 and 13 to horizontally swingably move between the closed filling position and the open unloading position.

The hinge structure 33 further includes cam means for causing the swingable platform 32, when in or adjacent to the closed position, to vertically move relative to the cabinet floor 22. The above-mentioned cam means includes a narrow rib 68 which extends downwardly beyond the bottom end wall 69 of the hinge member 64, the rib 68 extending through an angle of at least approximately 180°. The rib 68 is interconnected to the bottom end wall 69 by means of a ram-like cam 71. When the platform 32 and its associated receptacle 31 is disposed in the closed filling position, the floor 34 of the platform is disposed in bearing or seating engagement with the upper surface of the cabinet floor 22 substantially as illustrated in FIGS. 5 and 8. When in this position, the bottom end wall 69 of the hinge member 64 is disposed adjacent and substantially in contact with the upper surface 72 of the lower ear 62. When the platform 32 is swung outwardly away from the closed position, the initial horizontal angular displacement of the platform (as illustrated by dotted lines in FIG. 7) causes the lower ear 62 to contact the cam 71 which thus forces the hinge member 64 upwardly, whereby further swinging movement causes the upper surface 72 of the lower ear 62 to move into bearing engagement with the end wall 73 of the rib 68 (FIG. 6). This upward camming of the hinge member 64 relative to the hinge member 61 causes the platform 32 to be moved slightly upwardly away from the cabinet floor 22, thereby creating a small clearance space 74 therebetween. The clearance space 74 thus permits free swinging movement of the platform 32 into its open or outermost position.

The cam structure formed on the hinge assembly 33 additionally functions as a detent mechanism in that it tends to maintain the platform 32 in its closed or inward position since the platform 32 can be swung to its open outer position only by first camming same upwardly in opposition to the weight of the platform 32 and the receptacle 31 mounted thereon. This thus prevents accidental outward swinging movement of the platform 32 in the event that the compacter 10 is not disposed on a perfectly level support surface.

Disposed directly above the upper ends of the receptacles 31 is the waste hopper 14, which hopper includes a rectangular portion 81 (FIG. 4) positioned within the cabinet and extending between the sidewalls 24 thereof. The hopper 14 is supported on the cabinet 11 by means of a shoulder 88 (FIG. 3) which extends around the interior of the cabinet, the hopper being readily removable from the cabinet for cleaning purposes.

The rectangular hopper portion 81 is provided with a pair of discharge openings 82 therein, which openings 82 are disposed directly over the individual receptacles 31. The openings 82 are preferably slightly smaller in diameter than the receptacles 31 to insure that all waste which passes therethrough will be deposited into the bags 46. The walls 83 (FIG. 3) surrounding the discharge openings 82 are tapered downwardly and inwardly toward the individual openings 82 so as to act as a funnel whereby the waste deposited into the hopper will tend to slide downwardly toward the discharge openings 82. A tapered rib 84 extends upwardly from the midportion of the hopper to divide same into two separate hopper-like compartments.

The hopper 14 is further provided with a backplash 86 which extends upwardly from the sides and rear of

the rectangular portion 81, the backplash 86 extending upwardly for a substantial distance along the opposite sidewalls 24 and the rear wall 23 of the cabinet 11. A tapered chute 87 extends outwardly from the forward edge of the rectangular portion 81, the chute 87 tapering inwardly and downwardly so as to cause waste deposited thereon to slide downwardly toward the discharge openings 82.

The hopper 14, including the rectangular portion 81, the backplash 86, and the chute 87, are preferably integrally molded in one-piece from a thermosetting plastic. This thus results in the hopper 14 possessing the necessary durability for handling purposes while still being relatively light weight so as to enable it to be easily removed from the cabinet 11 for cleaning.

Considering now the extendible ram assemblies 16 and 17, these assemblies are identical and thus only the assembly 17 (as illustrated in FIG. 3) will be described in detail.

The ram assembly 17 includes a telescoping fluid pressure cylinder 91, which cylinder is preferably a pneumatically actuated, double acting cylinder. A compacting shoe 92 is fixedly secured on the lower end of the cylinder 91, the shoe 92 being provided with a lower planar compacting surface 93 and an upper surface 94 which slopes outwardly and downwardly to prevent waste from becoming trapped thereon. The upper surface 94 thus functions substantially as a self-cleaning surface. The surface 94 preferably slopes at any angle of approximately 45°.

The telescoping power cylinder 91 is provided at its upper end with a head plate 96 which is fixedly secured to the top wall 21 of the cabinet. An inner sleeve 97 is fixedly secured to the head plate 96 and extends downwardly therefrom, the lower end of the inner sleeve 97 being provided with an end plate 98 fixedly secured therein. A conduit 99 is positioned within the inner sleeve 97 and extends between and is fixedly secured to the head plate 96 and the end plate 98. A first port 101 is formed in the head plate 96 and communicates with the upper end of the conduit 99. A second port 102 is formed in the head plate 96 and communicates with the annular chamber 103 which surrounds the conduit 99. The ports 101 and 102 are connected to a fluid control circuit which is explained hereinafter.

The cylinder 91 also includes an intermediate sleeve 104 in surrounding relationship to the inner sleeve 97, the intermediate sleeve 104 being slideably supported on the inner sleeve 97 by means of bushings 106 and 107. The bushing 106 is fixedly secured to the upper end of the intermediate sleeve 104, whereas the bushing 107 is fixedly secured to the lower end of the inner sleeve 97. The bushings 106 and 107, each of which contains suitable resilient seals or O-rings therein, result in the formation of an annular chamber 108 between the inner and intermediate sleeves 97 and 104, respectively, which annular chamber 108 communicates with the annular chamber 103 by means of the port 109.

A further outer sleeve 111 surrounds and is slideably supported on the intermediate sleeve 104 by means of bushings 112 and 113, both of which contain suitable O-rings therein. The bushing 112 is fixedly secured to the upper end of the outer sleeve 111, whereas the bushing 113 is fixedly secured to the lower end of the intermediate sleeve 104. An annular chamber 114 is formed between the intermediate and outer sleeves 104

and 111, respectively, which annular chamber 114 communicates with the annular chamber 108 by means of the port 116.

The lower end of the outer sleeve 111 is closed by means of an end cap 117, which end cap 117 is disposed opposite the end plate 98 whereby an end chamber 118 is formed therebetween. The end chamber 118 is in communication with the lower end of the conduit 99.

Pressurized air for actuation of the power cylinder 91 is provided by a compressor 122 which is drivingly connected to a motor 123. The motor 123 and compressor 122 are fixedly mounted on the upper surface of the top wall 21 of the cabinet 11, the compressor and motor being suitably covered and enclosed by means of a removable protective shield 124. The motor 123 is preferably automatically operated by means of a pressure switch 181 (FIG. 11) sensitive to and operated by the pressurized fluid within an accumulator or storage tank 127.

A suitable manual control valve 126 (FIGS. 1 and 11) is provided for controlling the operation of the compacting device 10. The control valve 126 is preferably of the "pull-push" type so as to control the on-off condition of the compacter. The control valve 126 is preferably centrally mounted on the front panel 26 for permitting easy access thereto by the operator of the compacting device.

When the valve 126 is pulled outwardly to actuate the compacter, compressed air within tank 127, which tank is mounted within the upper portion of the cabinet directly below the top wall thereof, is supplied to the power cylinders 91 for controlling the extension and retraction thereof, the supply of air to the cylinders being controlled by means of the pneumatic circuit 128 illustrated in FIG. 11.

The pneumatic circuit 128 permits the power cylinders 91 of the ram assemblies 16 and 17 to be alternately actuated, the one cylinder being completely returned to its retracted position before the other cylinder is extended. The power cylinders have been designated 91(L) and 91(R) in FIG. 11 for convenience in reference.

As illustrated in FIG. 11, the cylinders 91(L) and 91(R) are individually controlled by means of four-way control valves 131 and 132, respectively, the position of the valves 131 and 132 being controlled by four-way detent pilot valves 134 and 133, respectively. A further pair of four-way mechanical pilot valves 136 and 137 are provided for controlling the position of a four-way control valve 138, which valve 138 regulates the movement of the control cylinder 139.

The control cylinder 139 includes an elongated plunger 141 extending therethrough, which plunger is provided with contact shoes 142 and 143 on its opposite ends. The contact shoes 142 and 143 are adapted to contact mechanical stops 146 and 147, respectively, when each of the shoes is in its outermost extended position, thereby causing shifting of the mechanical pilot valves 136 and 137, respectively, in opposition to the springs 148 and 149. The shoes 142 and 143 are also adapted to contact and actuate mechanical arms 151 and 152, respectively, when the individual contact shoes are closely adjacent their innermost positions, the arms 151 and 152 in turn causing a shifting movement of the pilot valves 133 and 134, respectively, the individual valves 133 and 134 being maintained within

their shifted position by means of a detent device which coacts between the valve housing and the valve spool.

The position of the control valves 131, 132, and 138 is controlled by means of the fluid actuated pilot devices P1 through P6, which pilot devices include fluid actuated pistons interconnected to their respective valve spool for shifting of same. The pistons for the pilots P2, P3 and P6 are larger than the pistons of the pilots P1, P4 and P5, respectively, so that the valves 131, 132 and 138 will be shifted into the position illustrated in FIG. 11 even when pressurized fluid is supplied to the pilot devices at each end of the respective valves. The flow of fluid to the pilots P2, P3 and P6 is controlled by means of shuttle valves 153, 154 and 155, which shuttle valves include two inlet ports and a single outlet port whereby pressurized fluid supplied to one of the inlet ports causes the shuttle valve to close the other inlet port so that the pressurized fluid flows from said one inlet port into the outlet port, the outlet port being connected to one of the pilot devices.

The operation of the pneumatic circuit 128 will be described in greater detail hereinbelow.

OPERATION

The operation of the device embodying the invention will be described in detail hereinbelow for a better understanding thereof.

To utilize the compacting device 10, the receptacle assemblies 12 and 13 will be disposed in their closed filling position, such as illustrated in FIGS. 1 and 2 by the solid line position of the receptacle assembly 13.

Each of the receptacle assemblies will have a disposable container, such as a plastic bag 46 suspended therein, the bags being supported on the individual receptacles 31 either by the gripping member 49 (FIG. 9) or by the removable clamping ring 52 (FIG. 10). When in this condition, the waste compacting device 10 is ready for operation.

An operator will then deposit substantial quantities of waste or trash into the hopper 14, which trash will slide downwardly along the chute 87 and along the tapered walls 83 so as to fall through one or both of the discharge openings 82 into the bags 46. After sufficient waste has been deposited into the hopper to substantially but loosely fill the individual bags 46, the operator will then pull out the control valve 126, whereby pressurized air will be supplied from tank 127 to the extendible ram assemblies 16 and 17, which ram assemblies will be alternately actuated.

Assuming that the ram assembly 16 is first actuated, the telescoping cylinder 91 thereof will be extended to move its compacting shoe 92 downwardly whereby the shoe passes through the respective discharge opening 82 into the interior of the bag 46, causing the loose trash and waste to be compacted or pressed downwardly toward the bottom of the bag 46. Circuitry 128 will then cause a reversal in the flow of fluid to the cylinder 91, whereupon the shoe 92 of the ram assembly 16 will be moved upwardly into its retracted position. Any waste material which has been deposited on the sloped upper surface 94 of the shoe will automatically slide off the shoe as it is retracted upwardly.

After the ram assembly 16 has completed its extension and retraction stroke, then the ram assembly 17 will be energized to cause its cylinder 91 to be extended whereupon the shoe 92 of the ram assembly 17 will be moved downwardly to compress the waste disposed in

the receptacle assembly 13. The ram assemblies 16 and 17 will thus automatically and alternately perform repeated compressing steps until the operator pushes the valve 126 inwardly to the "off" position.

The extension and retraction of the cylinder 91, which is initially in its upward retracted condition as illustrated in FIG. 3, will now be considered in detail. When the compacting device 10 is turned on by actuation of the control valve 126, pressurized fluid is initially supplied to the port 101 whereupon the fluid flows through conduit 99 into the end chamber 118, whereupon the fluid reacts against the end plate 117 causing the outer sleeve 111 to move downwardly. The outer sleeve 111 moves downwardly until the bushing 112 contacts a stop positioned adjacent the lower bushing 113, thereby preventing any further relative movement between the intermediate sleeve 104 and the outer sleeve 111. However, since the pressurized fluid continues to exert a force against the end cap 117, the outer sleeve 111 continues to move downwardly, thereby pulling with it the intermediate sleeve 104. The intermediate sleeve 104 thus moves downwardly relative to the inner sleeve 97, the intermediate sleeve 104 moving downwardly until its upper bushing 106 contacts a stop positioned adjacent the lower bushing 107. When in this condition, the cylinder 91 is fully extended as illustrated by the dotted lines in FIG. 3.

After the cylinder has undergone its extension stroke as described above, the appropriate valves in the circuit 128 cause the port 101 to be connected to the low pressure side of the fluid system, such as to the atmosphere, while the port 102 is now connected to the accumulator 127. Pressurized fluid is then supplied through port 102 into annular chamber 103, which fluid then flows through port 109 into the annular chamber 108. The fluid within the annular chamber 108 acts against the bushing 106, thereby causing the intermediate sleeve 104 to be slideably moved upwardly until its upper end contacts the head plate 96, the upward movement of the intermediate sleeve 104 also carrying with it the outer sleeve 111. As the intermediate sleeve 104 reaches its uppermost position, the port 116 passes over the bushing 107 and becomes uncovered, whereupon pressurized fluid then flows through the port 116 into the annular chamber 114. The pressurized fluid in chamber 114 then acting against the bushing 112 whereupon the outer sleeve 111 is also urged upwardly until its upper end contacts the head plate 96. In this position the telescopic cylinder 91 is again in its initial fully retracted position, the extendible ram assembly thus having undergone a complete cycle of operation.

After the bags 46 have been filled with compacted waste or trash, the operator will push the control valve 126 inwardly to shut off the compacter, whereupon the extendible rams 17 and 18 will automatically return to their uppermost retracted positions. To remove the filled bag from the receptacle assembly 12, the operator will first manually grasp the receptacle assembly 12, as by grasping the front panel or door 36, and horizontally swing the assembly 12 outwardly away from the cabinet 11 (clockwise in FIG. 2). The initial outward swinging of the receptacle assembly 12 away from its closed position (its dotted line position in FIG. 2) causes the CAM 71 to contact the lower ear 62 of the hinge member 61, whereupon the hinge member 64 is cammed upwardly, which in turn causes the complete

receptacle assembly 12 to be moved vertically upwardly a small distance, thereby moving the bottom wall 34 of the platform 32 out of engagement with the cabinet bottom wall 22. This disengagement of the swingable platform 32 from the bottom wall 22 thus permits the operator to freely pivotally swing the receptacle assembly 12 into its open position (as illustrated in solid lines in FIG. 2).

After the receptacle assembly 12 has been swung into its open position, the latches 43 are manually released, whereupon the semicylindrical section 39 is then swung outwardly away from the fixed semicylindrical section 38 (clockwise in FIG. 2 from the dash-dot to the solid line position). The filled bag 46 can then be easily laterally removed from the platform 32, the upper edge of the bag having been suitably tied or secured in any conventional manner prior to being removed from the receptacle. As is readily apparent from the above description, the bag 46, when filled with compacted waste, need not be lifted upwardly to remove same from the device, but rather can be removed merely by pulling same laterally off the platform 32, whereupon the bag can be deposited onto any suitable cart or other device for transporting to an incinerator or other suitable disposal or storage locations.

After the filled bag has been removed, the movable receptacle section 39 is again pivotally swung into its closed position, the latching devices 43 again being engaged to fixedly interconnect the arcuate sections 38 and 39. An empty bag 46 is then suspended into the interior of the receptacle 31 with the free upper edge 47 of the bag being folded over the upper edge 48 of the receptacle, the upper edge being secured to the receptacle either by the gripping ring 49 or the removable holding ring 52. With the bag securely suspended within the receptacle 31, the receptacle assembly 12 is again swung inwardly (counterclockwise in FIG. 2) toward its closed position.

As the receptacle assembly 12 approaches its closed position (as illustrated by dotted lines in FIG. 2), the cam 71 slides down the lower ear 62, permitting the hinge member 64 and the platform 32 to drop downwardly until the lower surface of the platform bottom wall 34 engages the upper surface of the cabinet bottom wall 22. This thus securely seats the platform on the bottom wall of the cabinet, whereby the force imposed on the receptacle during the compression stroke of the ram assembly is transferred directly from the receptacle through the platform to the cabinet. The compression forces are thus not transferred through the hinge assemblies 33. Seating of the platform 32 on the floor 22 of the cabinet 11 also securely maintains the platform within the cabinet, thereby preventing accidental outward swinging movement thereof.

The compacting device as described above is able to accommodate relatively large quantities of waste since use of the telescopic cylinders 91, which cylinders have a working stroke substantially in excess of their overall closed length, results in a maximum clearance space between the compacting shoe 92 and the discharge opening 82. This clearance space permits large quantities of waste to be deposited into the hopper 14, which waste freely falls through the openings 82 without interfering or becoming entangled with the shoes 92. Also, inasmuch as the motor 123 and compressor 122 are mounted on and form an integral part of the compacting device 10, the device 10 can be easily moved

to many different locations wherever the need for same arises, the mobility of the device being dependent only on the availability of suitable electric power for operation of the motor 123.

CONTROL CIRCUIT OPERATION

FIG. 11 illustrates the pneumatic circuit 128 when the compacting device is in a stopped condition, that is, the control valve 126 is in its innermost position. In this position, pressurized fluid from tank 127 flows through line 157 and through valve 126 into the lines 158, 159, 161 and 162, the fluid then flowing through the shuttle valves 153, 154 and 155 into the pilots P2, P3 and P6 for maintaining the valves 131, 132 and 138 in the positions illustrated in FIG. 11. In these positions, pressurized fluid from tank 127 flows through line 156 into lines 172 and 179, the fluid thus flowing into the lower ends of the cylinders 91 for maintaining the ram assemblies 16 and 17 in their uppermost retracted positions.

When the control valve 126 is manually moved outwardly (downwardly in FIG. 11) to initiate operation, pressurized fluid flows from tank 127 through lines 156 and 157 to the valve 126, whereupon the fluid flows therethrough into the line 163. Pressurized fluid then flows from line 163 through the valve 134 into the line 164 whereby pilot P1 causes the valve 131 to shift rightwardly. Pressurized fluid then flows from line 156 through valve 131 into line 166, causing the cylinder 91(L) to extend downwardly.

Simultaneous with the above operation, pressurized fluid also flows from line 163 through valve 136 into line 167 whereupon pilot P5 causes control valve 138 to shift rightwardly, thus permitting pressurized fluid to flow from line 156 through valve 138 into line 168. Fluid in line 168 flows through the valve 169 (which includes a restriction device and a one-way check valve) into the leftward end of control cylinder 139, thus causing the plunger 141 to begin to move rightwardly. The initial rightward movement of plunger 141 causes shoe 142 to move rightwardly away from position D, whereby shoe 142 moves out of engagement with mechanical stop 146, whereupon spring 148 shifts valve 136 rightwardly, thereby exhausting or depressurizing line 167. Rightward movement of plunger 141 also causes shoe 143 to move from position A to position B, whereupon shoe 143 contacts the actuating arm 152 (FIG. 11A) causing it to pivot through an angle of approximately 90° (clockwise in FIG. 11A), which pivoting movement of arm 152 causes a shifting of the actuator 134A, which actuator is interconnected to the spool of the valve 134 whereupon the spool of the valve 134 is shifted (leftwardly in FIG. 11) from one operational position to its other operational position, the spool being maintained in its shifted position by means of a detent device.

The shifting of valve 134 permits pressurized fluid in line 163 to pass through the valve 134 into the line 171, the pressurized fluid in line 171 passing through shuttle valve 153 into the pilot P2, thereby causing valve 131 to be shifted back to its leftward position. This thus connects the line 166 to an exhaust port while line 172 is again connected to the pressurized line 156 so as to permit pressurized fluid to be supplied to the lower end of the cylinder 91(L), thereby retracting the ram assembly 16 to its uppermost position.

During the retraction of the ram assembly 16 as described above, the plunger 141 continues to move

rightwardly. However, the ram assembly 16 is fully retracted prior to the shoe 142 reaching position E. When shoe 142 reaches position E, it contacts an actuating arm 151 (which is similar to the actuating arm 152 illustrated in FIG. 11A), which actuating arm 151 causes valve 133 to be shifted (leftwardly in FIG. 11). This shifting of valve 133 permits pressurized fluid to flow from line 163 through valve 133 into line 173, which pressurized fluid in line 173 is imposed on pilot P4 so as to cause valve 132 to be shifted (leftwardly in FIG. 11). This thus permits pressurized fluid in line 156 to flow through valve 132 into line 174, whereupon the fluid flows into the upper end of the cylinder 91(R) for causing the ram assembly 17 to be extended downwardly.

As the ram assembly 17 is being extended downwardly, plunger 141 continues to move rightwardly toward positions C and F, whereupon the shoe 143 contacts mechanical stop 147 causing valve 137 to be shifted rightwardly in opposition to spring 149. This thus permits the pressurized fluid in line 163 to flow through valve 137 into line 176, which fluid then flows through shuttle valve 155 into pilot P6, causing the control valve 138 to again be shifted back to its leftwardmost position (as illustrated in FIG. 11).

Shifting of valve 138 then permits pressurized fluid in line 156 to flow through valve 138 into line 177 and into the opposite end of the control cylinder 139 (rightward end in FIG. 11), thereby causing the plunger 141 to reverse its motion and begin to move leftwardly away from positions C and F.

As the contact shoe 142 moves leftwardly away from position F and approaches position E, it contacts the actuating arm 151 and causes same to be angularly displaced, causing a corresponding shifting of the valve 133 back to its rightwardmost position (as illustrated in FIG. 11). This shifting of valve 133 again permits fluid to flow from line 163 into line 178, whereupon the fluid flows through the shuttle valve 154 into the pilot P3, causing valve 132 to be shifted rightwardly so as to permit pressurized fluid to flow from line 156 into line 179, thereby causing the ram assembly 17 to be retracted upwardly to its original position.

As the plunger 141 continues to move leftwardly, and after the ram assembly 17 has been retracted to its uppermost position, the shoe 143 again approaches position B, whereupon the shoe contacts the actuating arm 152 causing it to be angularly displaced (counterclockwise in FIG. 11A) so as to cause a corresponding shifting of the valve 134 back into its rightwardmost position (as illustrated in FIG. 11). Movement of valve 134 back to its rightward position permits pressurized fluid to flow from line 163 into line 171, whereupon pilot P2 is again energized to cause valve 131 to be shifted back to its leftwardmost position. This again permits pressurized fluid to flow from line 156 into line 166, thereby causing the ram assembly 16 to again be extended downwardly, thus initiating a new cycle of operation.

The above operational sequence is automatically repeated so as to cause first an extension and retraction of the cylinder 91(L), and then an extension and retraction of the cylinder 91(R). The cylinders are thus extended and retracted alternately and automatically until the control valve 126 is again pushed inwardly to exhaust the line 163 and pressurize the lines 158, 159, 161 and 162. Pressurized fluid in these lines flows through valves 153, 154 and 155 so as to energize pilots

P2, P3 and P6, thereby causing valves 131, 132 and 138 to be shifted into the positions illustrated in FIG. 11. Cylinders 91(L) and 91(R) are thus automatically returned to and maintained in their uppermost retracted positions.

MODIFICATION

FIG. 12 illustrates therein a compacting device 10' which is identical to the compacting device 10 described above except that it is a single compacting device, rather than a double compacting device as described above. The single compacting device 10' also contains therein a swingable receptacle assembly 12' and an extendible ram assembly 16', which assemblies are identical to the receptacle assembly 12 and ram assembly 16, respectively, as described in detail above. The cabinet 11' and hopper 14' are also substantially identical to the cabinet 11 and hopper 14, respectively, as described above except that the cabinet 11' and hopper 14' are obviously of a narrower width since the device 10' has only a single swingable receptacle assembly and a single extendible ram assembly. While FIG. 12 discloses the receptacle assembly 12' pivotally interconnected to the left sidewall of the cabinet 11', the device 10' can, if desired, be provided with the receptacle assembly pivotally mounted on the right sidewall of the cabinet in a manner similar to the assembly 13 as illustrated in FIG. 1. The compacter 10' also contains a motor and a compressor mounted on the top wall thereof, whereby the compacter 10' comprises a substantially self-contained unit which can be suitably positioned and operated at any desired location.

Although a particular preferred embodiment of the invention has been disclosed in detail for illustrative purposes, it will be recognized that variations or modifications of the disclosed apparatus, including the rearrangement of parts, lie within the scope of the present invention.

The embodiments of the invention in which I claim an exclusive property or privilege are defined as follows:

1. a waste compacter, comprising:
housing means;

receptacle means coacting with said housing means and including a vertically elongated receptacle member having an upwardly directed opening therein, said receptacle member being adapted to have a disposable container positioned substantially concentric therewith,

said receptacle member including two separable receptacle sections which, when positioned adjacent one another, define said upwardly directed opening, and means connecting said receptacle sections together for permitting said receptacle sections to be relatively separated from one another to permit a filled disposable container to be relatively removal from said receptacle member without requiring that the entire filled container be vertically lifted above the uppermost edge of the receptacle member;

hopper means mounted on said housing means and positioned above said receptacle means, said hopper means having a discharge opening in substantial alignment with the opening of said receptacle member whereby waste deposited into said hopper means passes through said discharge opening into said disposable container;

extendible ram means mounted on said housing means for compacting waste within said disposable container, said ram means being disposed above and in substantial vertical alignment with the opening formed in said receptacle member, said ram means including a fluid pressure cylinder having a vertically extendible ram adapted to extend downwardly into the interior of said disposable container for compacting the waste therein;

pressure means fixedly mounted directly on said housing means and interconnected to said cylinder for supplying pressurized fluid thereto; and motor means fixedly mounted directly on said housing means and drivingly interconnected to said pressure means for driving same.

2. A waste compacter according to claim 1, wherein said housing means comprises a cabinet having rigidly interconnected top, bottom, side and rear walls, the front of said cabinet being substantially open, roller means interconnected to said cabinet adjacent the bottom wall thereof for rollingly supporting said cabinet on a support surface, said receptacle means being disposed within the lower portion of said cabinet and said ram means being disposed within the upper portion of said cabinet, and said motor means and said pressure means being fixedly mounted adjacent the top wall of said cabinet.

3. A waste compacter, comprising:

housing means;

receptacle means coacting with said housing means for holding a disposable container adapted to have waste deposited and compacted therein, said receptacle means including a substantially vertically extending receptacle member having an upwardly directed opening therein;

means coacting with said receptacle means for enabling said receptacle member to be substantially horizontally displaced relative to said housing means between a first position wherein said disposable container is fillable with waste and a second position permitting removal of a filled disposable container;

said receptacle member including two separable receptacle sections which, when positioned adjacent one another, define said upwardly directed opening, and means connecting said receptacle sections together for permitting said receptacle sections to be relatively moved outwardly away from one another when said compacter is in said second position to permit removal of a filled disposable container from said compacter without requiring that the entire filled container be vertically lifted above the upper most edge of the receptacle member, the filled disposable container being removable from said compacter by movement of the filled container in a lateral horizontal direction; and extendible ram means mounted on said housing means for compacting waste within said disposable container when said receptacle member is in said first position.

4. A waste compacter according to claim 3, wherein one of said receptacle sections is swingably movable outwardly away from the other receptacle section when said receptacle member is in said second position.

5. A waste compacter according to claim 4, wherein said receptacle sections are horizontally swingable relative to one another.

6. A waste compacter, comprising:
housing means;

receptacle means coacting with said housing means for holding a disposable container adapted to have waste deposited and compacted therein, said receptacle means including a substantially vertically extending receptacle member having two horizontally separable receptacle sections which, when positioned adjacent one another, define an upwardly directed opening;

connecting means interconnected to said receptacle means for permitting substantially horizontal movement of at least a portion of said receptacle means relative to said housing means between a first position wherein said disposable container is fillable with waste and a second position permitting removal of a filled disposable container;

said connecting means hingedly interconnecting adjacent vertical edges of said receptacle sections for permitting relative horizontal swinging movement between said sections whereby one of said section can be swung outwardly away from the other section to permit removal of a filled disposable container;

means coacting with said housing means and said receptacle means for permitting waste to be deposited in the disposable container when said portion of said receptacle means is in said first position; and

extendible ram means mounted on said housing means for compacting waste within said disposable container, said ram means being disposed above and in substantial alignment with said receptacle means when said portion of said receptacle means is in said first position.

7. A waste compacter according to claim 6, wherein each of said receptacle sections comprises a substantially semicylindrical shell, said connecting means pivotally interconnecting said shells along one vertical edge of each, and locking means disposed adjacent the other vertical edges of said shells for permitting said shells when positioned adjacent one another to be fixedly interconnected.

8. A waste compacter according to claim 6, wherein said connecting means permits substantially horizontal swinging movement of said complete receptacle member between said first position wherein said receptacle member is disposed substantially directly beneath said ram means and said second position wherein said complete receptacle member is laterally displaced outwardly from beneath said ram means.

9. A waste compacter according to claim 6, wherein said housing means includes stationary support means disposed below said receptacle means when said receptacle means is in said first position, and displacement means coacting between said housing means and said receptacle means for permitting limited vertical displacement of said receptacle means relative to said support means, said displacement means permitting said receptacle means to be seated on said support means when said receptacle means is in said first position whereby the force exerted on said receptacle means during extension of said ram means is transferred directly to said support means.

10. A waste compacter according to claim 9, wherein said displacement means comprises cam means coacting between said receptacle means and said housing

means, said cam means causing said receptacle means to be positively seated against said support means when said receptacle means is in said first position, said cam means causing said receptacle means to be cammed upwardly away from said support means in response to horizontal swinging movement of said receptacle means away from said first position.

11. A waste compacter according to claim 6, wherein said ram means includes a fluid pressure telescopic cylinder means having a working stroke substantially in excess of the overall retracted length of the cylinder means, said cylinder means including first and second vertically elongated members each movable vertically relative to said housing means and also being vertically movable relative to one another.

12. A waste compacter according to claim 6, further including hopper means mounted on said housing means for receiving waste therein and for depositing said waste into said disposable container, said hopper means including sloped wall means defining a discharge opening located adjacent to and in substantial alignment with the opening formed in said receptacle member, said extendible ram means being positioned above said hopper means in substantial vertical alignment with said discharge opening.

13. A waste compacter according to claim 6, wherein said extendible ram means includes a compacting shoe disposed on the lower end thereof, said compacting shoe being adapted to extend into the disposable container for compacting the waste therein, said compacting shoe having an upper surface which slopes downwardly and outwardly for preventing waste from collecting thereon.

14. A waste compacter according to claim 6, wherein the disposable container comprises a vertically elongated bag adapted to be disposed within said receptacle member and suspended from the upper edge thereof by having the free end of the bag folded over the upper edge of the receptacle member, and said receptacle member having a nonmetallic holding member secured to the upper edge thereof, said holding member having a roughened surface disposed for engagement with the free end of said bag for securely suspending said bag within said receptacle member.

15. A waste compacter, comprising:
housing means;

receptacle means coacting with said housing means for holding a disposable container adapted to have waste deposited and compacted therein, said receptacle means including a substantially vertically extending receptacle member having an upwardly directed opening therein;

said receptacle member including two vertically elongated receptacle sections which, when positioned adjacent one another, define said upwardly directed opening for reception of said disposable container, and means coacting with said receptacle sections for holding said two sections adjacent one another while also permitting movement of one of said sections relative to the other of said sections whereby a filled disposable container can be laterally horizontally removed from said receptacle member;

extendible ram means mounted on said housing means for compacting waste within said disposable container, said ram means being disposed above and in substantial alignment with said receptacle

member when said receptacle member is in a first position;

connecting means interconnected to said receptacle means for permitting substantially horizontal swinging movement of said complete receptacle means relative to said housing means between said first position wherein said disposable container is fillable with waste and a second position wherein said complete receptacle member is laterally displaced outwardly from beneath said ram means for permitting removal of a filled disposable container; and

said connecting means including pivot means interconnecting one of said sections to said housing means for permitting said one section to be horizontally swingably displaced between said first and second positions, and hinge means pivotally interconnecting said other section to said one section for permitting said other section to be relatively pivotally swung away from said one section.

16. A waste compacter according to claim 15, wherein said housing means includes support means disposed below and in supporting engagement with said receptacle means when said receptacle means is in said first position, said pivot means including first and second pivot members fixedly secured to said housing means and said one receptacle section, respectively, and pin means pivotally connecting the first and second pivot members, said pivot means further including cam means coacting between said first and second pivot members for causing said receptacle means to be lifted vertically upwardly out of engagement with said support means in response to horizontal swinging movement of said second pivot member relative to said first pivot member.

17. A waste compacter, comprising:
housing means;

first receptacle means coacting with said housing means for holding a first disposable container adapted to have waste deposited and compacted therein, said receptacle means including a first substantially vertically extending receptacle member having an upwardly directed opening therein;

first connecting means interconnected to said first receptacle means for permitting substantially horizontal movement of at least a portion of said first receptacle means relative to said housing means between a first position wherein said first disposable container is fillable with waste and a second position permitting removal of a filled disposable container;

first extendible ram means mounted on said housing means for compacting waste within said first disposable container, said first ram means being disposed above and in substantial alignment with said first receptacle means when said portion of said first receptacle means is in said first position;

second receptacle means coacting with said housing means and positioned substantially adjacent said first receptacle means, said second receptacle means including a second receptacle member having a vertically directed opening therein for reception of a second disposable container;

second connecting means interconnected to said second receptacle means for permitting substantially horizontal movement of at least a portion of said

second receptacle means relative to said housing means;

second extendible ram means mounted on said housing means for compacting waste within said second disposable container, said second ram means being disposed above and in substantial alignment with said second receptacle member; and

said first ram means and said second ram means each including a fluid pressure cylinder having a vertically extendible ram member.

18. A waste compactor, comprising:
housing means;

receptacle means coacting with said housing means for holding a disposable container adapted to have waste deposited and compacted therein, said receptacle means including a substantially vertically extending, tubular receptacle member having an upwardly directed opening therein;

extendible ram means mounted on said housing means for compacting waste within said disposable container, said ram means being disposed above and in substantial alignment with said receptacle member when said receptacle member is in a first position wherein it is disposed substantially directly beneath said ram means; and

connecting means interconnected between said housing means and said receptacle means for permitting substantially horizontal swinging movement of said complete tubular receptacle member relative to said housing means between said first position wherein said receptacle member is disposed substantially directly beneath said ram assembly for permitting said disposable container to be filled with waste and a second position wherein said complete receptacle member is laterally displaced outwardly from beneath said ram means for permitting removal of a filled disposable container;

said receptacle member including two vertically elongated receptacle sections which, when positioned adjacent one another define said upwardly directed opening for reception of said disposable container, and means coacting with said receptacle sections for holding said two sections adjacent one another while also permitting movement of one of said sections relative to the other of said sections when said receptacle member is in said second position whereby a filled disposable container can be laterally horizontally removed from said receptacle member.

19. A waste compacter according to claim 18, wherein said ram means includes a fluid pressure telescopic cylinder means having a working stroke substantially greater than the overall retracted length of said cylinder means, said cylinder means including first and second vertically elongated slide members each mounted for vertical sliding movement relative to said housing means and for vertical sliding movement relative to one another.

20. A waste compacter comprising:
housing means;

first receptacle means coacting with said housing means and including a first vertically elongated receptacle member having an upwardly directed opening therein;

second receptacle means coacting with said housing means and including a second vertically elongated receptacle member having an upwardly directed

opening therein, said second receptacle member being positioned adjacent but horizontally spaced from said first receptacle member;

first extendible ram means mounted on said housing means for compacting waste within said first receptacle member, said first ram means being disposed above and in substantial vertical alignment with the opening formed in said first receptacle member, said first ram means including a first fluid pressure cylinder having a vertically extendible ram adapted to extend downwardly into the interior of said first receptacle member for compacting waste therein; second extendible ram means mounted on said housing for compacting waste within said second receptacle member, said second ram means being disposed above and in substantial vertical alignment with the opening formed in said second receptacle member, said second ram means including a second fluid pressure cylinder horizontally spaced from and positioned substantially parallel to said first fluid pressure cylinder and having a vertically extendible ram adapted to extend downwardly into the interior of said second receptacle member for compacting waste therein; and

control means coacting with said first and second cylinder means for permitting said first and second cylinder means to be automatically alternately extended for compacting waste within said first and second receptacle members, respectively, while preventing simultaneous extension of both said cylinder means.

21. A waste compactor useable with a disposable baglike receptacle, comprising:

cabinet means including substantially parallel top and bottom walls interconnected by opposite side walls;

horizontally swingable door means pivotally connected to said cabinet means adjacent the lower end thereof, said door means being normally disposed substantially flush with the front side of said cabinet means for at least partially closing the lower part of the front side of said cabinet means, said door means being swingable away from said front side to permit a disposable receptacle to be loaded into and unloaded from said cabinet means;

support means movably mounted on said cabinet means for suspending a disposable flexible baglike receptacle in a vertical position wherein the mouth of the receptacle opens upwardly, said support means being positionable in a first position wherein said support means and the receptacle suspended thereon is disposed in the interior of said cabinet between said side walls and directly behind said door means for permitting trash to be deposited and compacted within said disposable receptacle,

said door means being swingable to an open position for permitting said support means to be moved outwardly of said cabinet means to a second position wherein said support means is disposed at least partially in front of said cabinet means for permitting a disposable receptacle to be mounted on or removed therefrom, said support means including a ringlike support member adapted to have the mouth of the flexible and disposable baglike receptacle folded thereover;

inclined chute means mounted on said cabinet means at an elevation between the upper and lower ends thereof for permitting trash to be deposited into said disposable receptacle when same is disposed in said first position, said inclined chute means being disposed above said door means and being positioned to extend outwardly and upwardly relative to the front side of said cabinet for permitting trash to be deposited therein;

extendable ram means mounted on said cabinet means adjacent the upper end thereof for compacting waste within said receptacle when said receptacle is disposed in said first position, said ram means being disposed above and in substantial alignment with the interior of said receptacle when said receptacle is supported on said support means and is disposed in said first position;

said ram means including a fluid pressure telescopic cylinder means having a working stroke substantially greater than the overall retracted length thereof, said cylinder means including a first vertically elongated member having the upper end thereof fixedly and stationarily interconnected to said cabinet means and a second vertically elongated member vertically slideably supported on said first member whereby said second member is vertically movable downwardly toward said receptacle, said cylinder means including a third vertically elongated member slideably supported relatively to said first member and relative to said second member for downward vertical extension toward receptacle;

said ram means further including an enlarged compacting shoe fixedly mounted on the lower end of said third member, said compacting shoe having an upper surface which slopes downwardly and outwardly for preventing waste from collecting thereon;

pressure means mounted on said cabinet means and interconnected to said cylinder means for supplying pressurized fluid thereto; and

motor means fixedly mounted on said cabinet means and drivingly interconnected to said pressure means for driving same.

* * * * *

CERTIFICATE OF CORRECTION

Patent No. 3 734 006 Dated May 22, 1973

Inventor(s) Ransom J. Hennells

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 21, lines 25 and 26; change "cylinder means" to ---cylinders---.

line 27; change "cylinder means" to ---cylinders---.

lines 30 and 31; change "cylinder means" to ---cylinders---.

line 52; after "cabinet" insert ---means---.

Column 22, line 42; before "receptacle" insert ---said---.

Signed and sealed this 27th day of November 1973.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR.
Attesting Officer

RENE D. TEGTMEYER
Acting Commissioner of Patents