

[54] **WASTE COMPACTOR WITH PROTECTIVE SHIELD**

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[51] Int. Cl. **B30b 15/28**

[58] Field of Search **100/53, 229 A, 229 R, 100/255, 215, 100, 269 R, 295; 241/99**

[56] **References Cited**

UNITED STATES PATENTS

3,460,463 8/1969 Jernstrom 100/52
3,613,568 10/1971 Bottas et al. 100/229

OTHER PUBLICATIONS

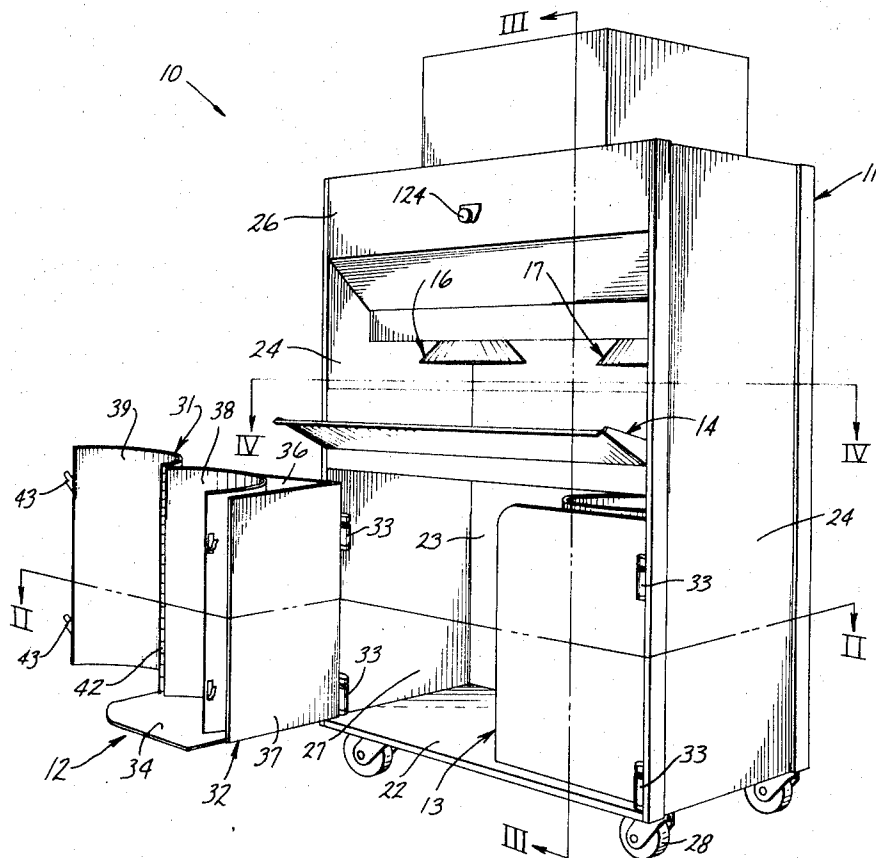
"Seco" Pamphlet, June 23, 1971

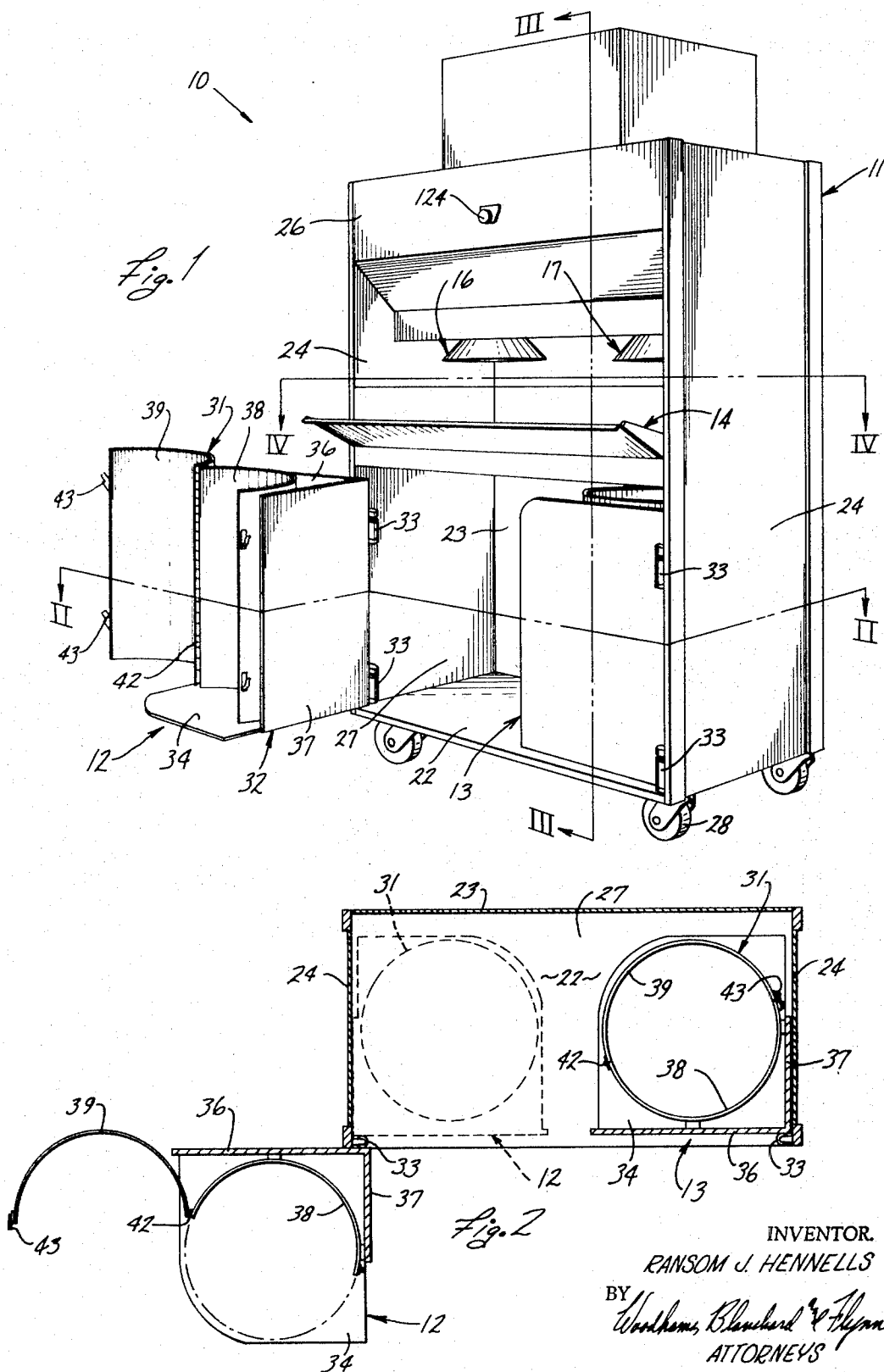
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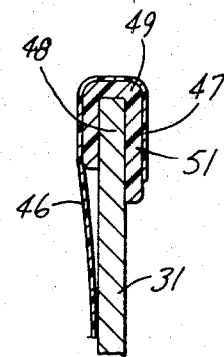
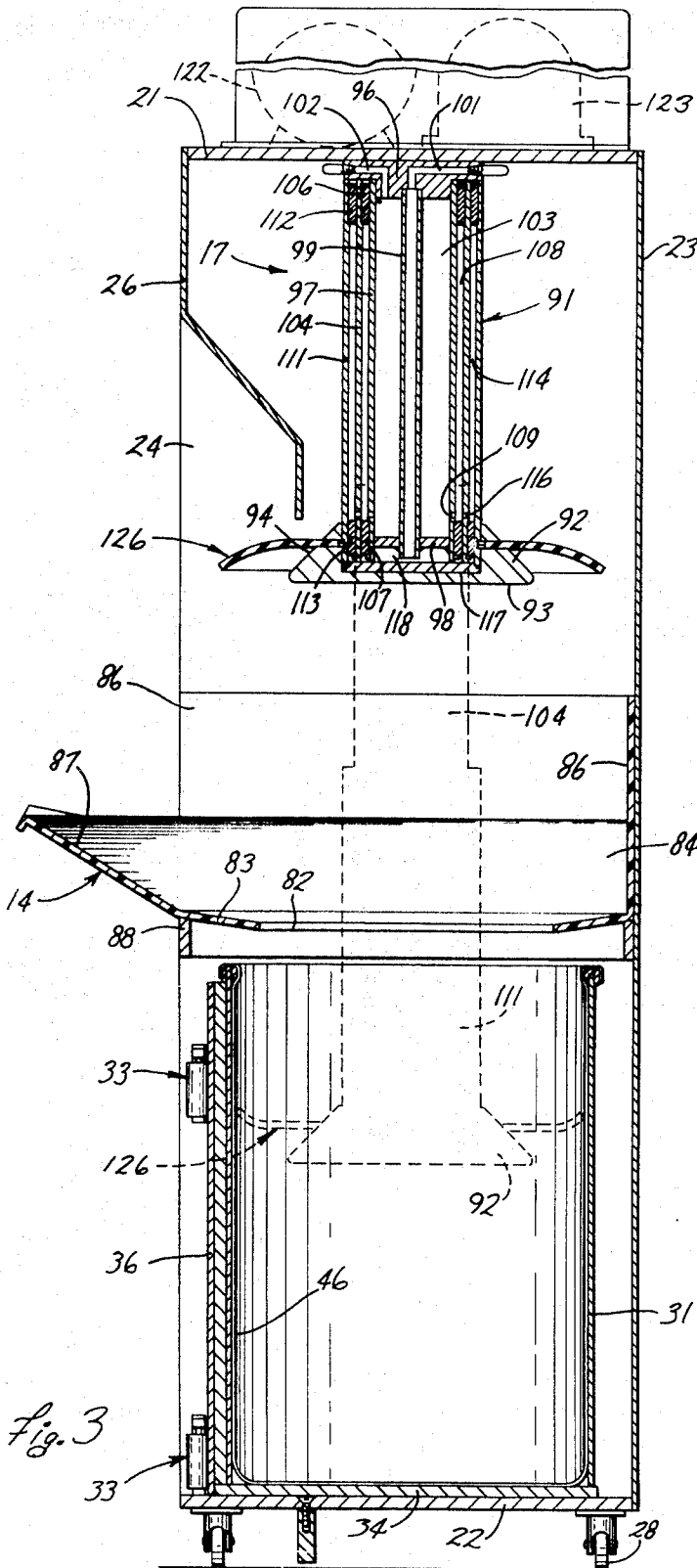
[57] **ABSTRACT**

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 portion fixed to the swingable platform and a second portion hingedly connected to the fixed portion. The ram assembly includes a fluid pressure cylinder having a compacting shoe on the lower end thereof. A shield device coacts between the ram assembly and the receptacle for substantially closing the open end of the receptacle to prevent the waste within the receptacle, such as glass, plastic and the like, from being accidentally discharged through the open end of the receptacle during the compacting stroke.

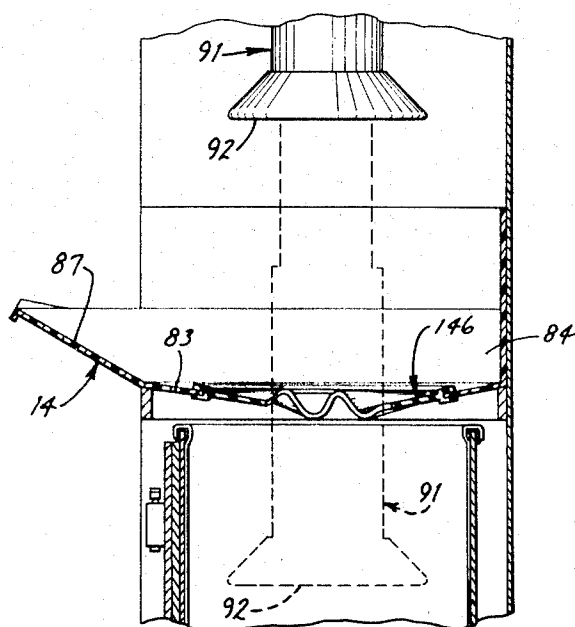
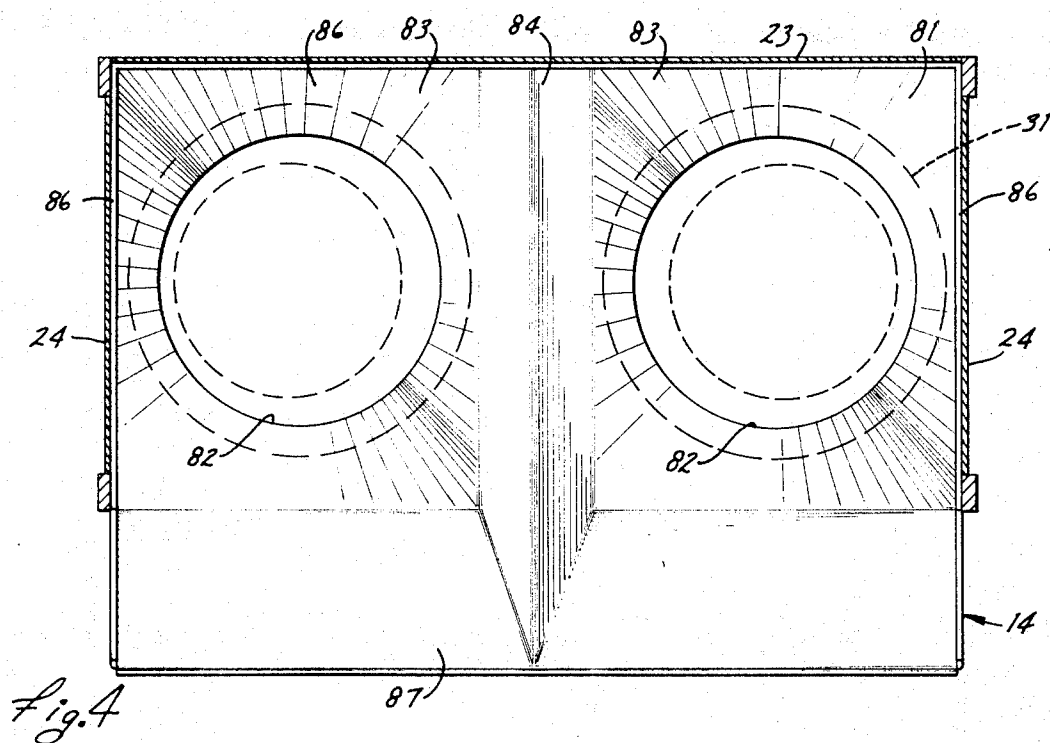
11 Claims, 9 Drawing Figures



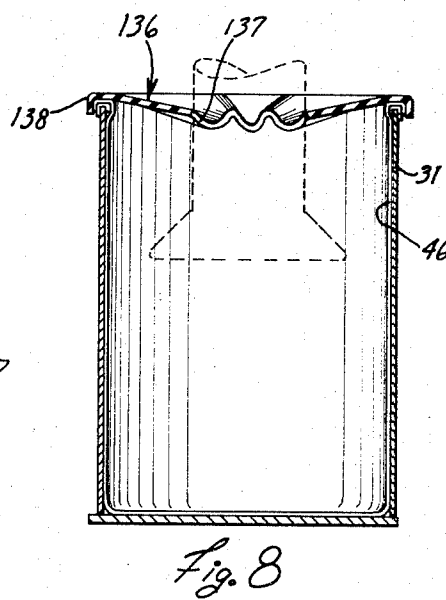
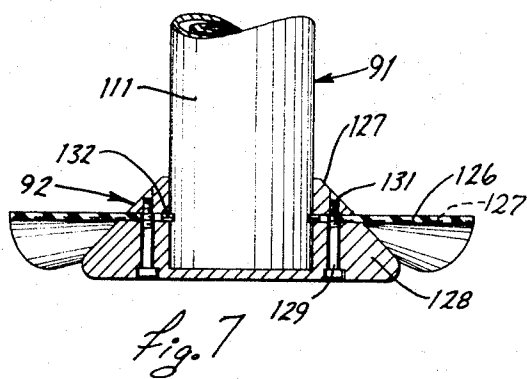
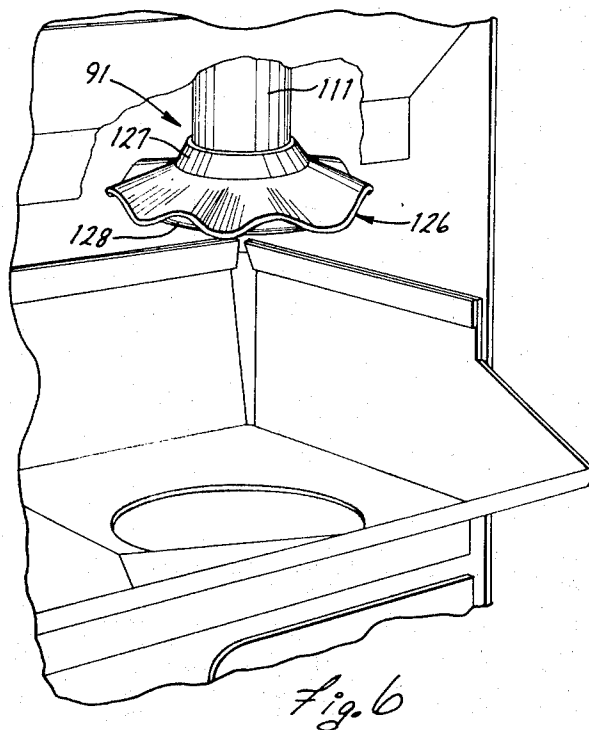




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CROSS REFERENCE TO RELATED APPLICATIONS

This application is related to my copending application Ser. No. 874 940, filed Nov. 7, 1969, and entitled "Waste Disposal System".

FIELD OF THE INVENTION

This invention relates to a waste compactor for compacting waste products into a disposable bag or container supported within a receptacle and, in particular, to a waste compactor having a protective shield disposed for coaction between the compacting ram and the receptacle for preventing waste products, such as glass and plastic, from being accidentally discharged or thrown from the open end of the receptacle during the compacting operation.

BACKGROUND OF THE INVENTION

This invention relates to an improvement in the compacting device disclosed in my copending application Ser. No. 874,940, filed Nov. 7, 1969. While the compacting device of the present invention possesses all of the structural and operational advantages of the machine disclosed in my copending application, nevertheless the present invention possesses still further operational advantages which result in the machine operating in a more desirable manner.

My copending application discloses therein a small, lightweight waste compacting device which is particularly suitable for restaurants, cafeterias, schools, factories, office buildings, hospitals, 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. My prior compacting device specifically includes a separable drum-like receptacle adapted to have a suitable container, such as a disposable plastic bag, supported therein with the receptacle being positionable under a reciprocating ram assembly for permitting the waste to be compacted into the bag.

The compacting device disclosed in my prior application, as briefly described above, has proven very successful but, in a continuing effort to improve same, certain additional features have been developed which provide substantially improved operation under certain operating conditions.

Particularly, in some use situations the compacting device is utilized for compacting waste which is capable of shattering, such as glass or plastic bottles, jars and the like. Such articles tend to burst or shatter into numerous pieces when compressed. While this generally produces no harmful effect, nevertheless it is possible that some of the pieces may fly out of the open end of the receptacle, which flying pieces of glass or plastic may strike a person standing near the receptacle and cause injury. This possibility of flying glass or plastic is most probable when the disposable bag is substantially full of waste.

Accordingly, the present invention relates to an improved compacting device which is provided with a safety shield thereon which substantially eliminates the possibility of waste flying out of the receptacle during the compacting operation, which safety shield does not

interfere with the depositing of waste into the receptacle or with the free reciprocation of the ram assembly.

Thus, it is an object of the present invention to provide:

5 1. An improved compacting device particularly suitable for compacting waste into disposable containers or bags and having a safety device disposed to coact between the ram and the receptacle for preventing the waste or trash from accidentally flying out of the receptacle.

10 2. A device, as aforesaid, wherein the safety device is flexible and, in a relaxed condition, hangs downwardly toward the receptacle so as to not interfere with the depositing of waste or trash into the receptacle.

15 3. A device, as aforesaid, wherein the safety device, at least in the relaxed condition, hangs downwardly to prevent trash or waste from collecting on the upper side thereof.

20 4. A device, as aforesaid, wherein the safety device makes the compacting device particularly suitable for use in compacting articles, such as plastic or glass containers, which shatter upon compression.

25 5. A device, as aforesaid, wherein the safety device comprises a disc-like shield secured to the compacting ram and disposed for substantially closing the open end of the receptacle when the ram is extended into the receptacle.

30 6. A device, as aforesaid, wherein the disc-like shield is constructed of a flexible material, such as rubber or the like, and has an outer diameter substantially equal to, and preferably slightly larger than, the diameter of the receptacle for substantially totally closing the open end of the receptacle while not interfering with the proper compaction of the trash within the receptacle.

35 7. A device, as aforesaid, wherein the safety shield comprises a flexible ring-like sheet of material which at its outer edge is fixedly secured to either the upper edge of the receptacle or the edge of the hopper and is disposed for coaction with the ram when the ram is extended into the receptacle.

40 8. A device, as aforesaid, wherein the safety shield is easily and economically replaced in the event of damage thereto.

45 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.

50 BRIEF DESCRIPTION OF THE DRAWINGS

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

55 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.

60 FIG. 5 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. 6 is an enlarged fragmentary perspective view illustrating therein the lower end of the ram assembly having a safety shield secured thereto.

FIG. 7 is a fragmentary cross-sectional view of the structure illustrated in FIG. 6.

FIG. 8 is a fragmentary sectional view of the upper end of the receptacle and illustrating therein a modified safety shield adapted to be removably secured to the upper end of the receptacle.

FIG. 9 is a fragmentary sectional view of still a further modification wherein the safety shield is adapted to be attached to the hopper.

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 having a compacting shoe thereon. 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 mounted on the cabinet for horizontal swinging movement between a filling position disposed directly below the ram assembly and an unloading position wherein the platform is 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.

A safety shield is disposed for substantially closing the open end of the receptacle, at least during the compacting stroke, for preventing pieces or fragments of trash from accidentally flying out of the receptacle, such as due to the shattering of plastic or glass bottles or the like. The safety shield in the preferred embodiment comprises a thin disc fixedly secured to the compacting shoe and extending radially outwardly therefrom for slidably extending into the receptacle to substantially totally close the open end thereof. The disc is preferably constructed from a resilient flexible material, such as rubber, to normally deflect downwardly at various circumferentially disposed portions of the periphery thereof to prevent trash from collecting on the upper surface thereof. However, the flexible disc contacts the edge of the receptacle when the ram is moved downwardly so that the disc then substantially flattens to totally occupy and snugly engage the walls of the receptacle. Alternately, the safety shield may comprise a disc, also preferably constructed of a resilient flexible material, fixedly secured to either the upper edge of the receptacle or the edge of the feed opening formed in the hopper, whereupon the disc then extends inwardly into closed surrounding relationship with the ram when the ram is extended downwardly into the receptacle.

DETAILED DESCRIPTION

FIG. 1 illustrates therein a two-station compacting device 10 which includes a housing or cabinet 11 hav-

ing a pair of waste receptacle assemblies 12 and 13 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 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. 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 cabinet is also preferably provided with manually adjustable leveling legs (not shown) for permitting the device to be properly positioned in a level orientation.

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 assembly 12 is hingedly connected to the left sidewall whereas assembly 13 is hingedly connected to the right sidewall of the cabinet. Thus, only the receptacle assembly 12 will be described in detail.

As illustrated in FIGS. 1-3, the receptacle assembly 12 comprises a vertically extending cylindrical bag holder or receptacle 31 mounted on a swingable platform 32. Platform 32 is connected to the left sidewall 24 by 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. The bag holder 31 is mounted on the platform 32 and comprises a pair of arcuate, preferably substantially semicylindrical, sections 38 and 39 pivotally connected by an elongated hinge 42. The section 39 is horizontally swingably, whereas the section 38 is fixedly secured to the platform 32 by any suitable means. Latching devices 43 are provided for fixedly connecting the sections 38 and 39 in opposed abutting relationship.

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 (FIG. 5) of the bag being folded outwardly over the upper edge 48 of the receptacle 31. The upper edge 48 of the receptacle 31 is preferably provided with a channel-shaped bag gripping member 49 (FIG. 5) 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 is roughened or provided with serrations so that the free upper edge 47 of the bag 46, when folded over into contact with the surface 51, will be tightly gripped to hold the main body of the bag 46 securely suspended within the interior of the receptacle 31.

The hinge structure 33, as explained in detail in my copending application Ser. No. 874 940, includes cam means (not shown) for causing the swingable platform 32, when swung away from its closed position, to be moved slightly upwardly away from the cabinet floor 22, thereby creating a small clearance space which permits free swinging movement of the platform 32 into its outermost position. The cam structure formed on the hinge assembly 33 thus maintains the platform 32 in its closed position since the platform 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.

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 rectangular hopper portion 81 is provided with a pair of discharge openings 82 which are disposed directly over the individual receptacles 31. 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 to act as a funnel whereby waste deposited into the hopper will tend to slide downwardly toward the 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 backslash 86 which extends upwardly from the sides and rear of the rectangular portion 81. A tapered chute 87 extends outwardly from the forward edge of the rectangular portion 81 whereby waste deposited thereon slides downwardly toward the discharge openings 82.

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

The ram assembly 17 includes a double acting, telescoping fluid pressure cylinder 91. 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 compacting shoe 92 has a maximum diameter, as defined by the lower surface 93, which is substantially less than the internal diameter of the receptacle 31.

The telescoping power cylinder 91 has a head plate 96 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, being provided with a lower end plate 98 fixedly secured therein. A conduit 99 is positioned within inner sleeve 97 and extends between and is fixedly secured to the head plate

96 and the end plate 98. A first port 101 communicates with the upper end of the conduit 99, and a second port 102 communicates with an annular chamber 103 which surrounds the conduit 99. The ports 101 and 102 are connected to a suitable fluid control circuit.

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

A further outer sleeve 111 surrounds and is slideably supported on 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 outer sleeve 111, whereas the bushing 113 is fixedly secured to the lower end of intermediate sleeve 104. An annular chamber 114 is formed between the intermediate and outer sleeves, which chamber 114 communicates with chamber 108 by means of port 116. The lower end of outer sleeve 111 is closed by an end cap 117 which 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 fluid for actuation of the power cylinder 91 is provided by a fluid control system which may be either of the pneumatic or hydraulic type. The type of fluid control system utilized may vary widely in accordance with the desired use situation and one typical fluid control system is illustrated in my above-mentioned copending application. The fluid control system, however, does include therein a motor 123 and a compressor or pump 122 drivingly connected to the motor, which pump 122 is used for supplying pressure fluid to the telescoping ram assemblies. The motor 123 is preferably automatically actuated by means of a pressure switch for permitting the telescoping ram assemblies to be automatically extended and retracted, with the pair of ram assemblies preferably being energized alternately.

The structural and operational details of the compacting device 10, as described above, is described in greater detail in my above-mentioned copending application. Accordingly, further detailed description thereof is not believed necessary.

The improved compactor device 10 constructed according to the present invention is preferably provided with a safety shield thereon, a preferred embodiment of which is illustrated in FIGS. 3, 6 and 7. The safety shield in this illustrated embodiment comprises an annular ring-like disc 126 fixedly secured to the compacting shoe 92. The disc 126 is substantially larger than the shoe 92 and is designed to substantially totally occupy the interior cross-section of the receptacle 31 when the ram 17 is extended to thereby substantially close the open upper end of the receptacle 31. The inner periphery of the disc 126 is preferably clamped between the upper and lower portions 127 and 128, respectively, of the compacting shoe 92, which upper and lower portions are fixedly secured by screws 129. The screws 129 preferably extend through suitable openings 131 formed in the disc 126 for assisting in holding

same on the compacting shoe 92. The upper portion 127 is, as illustrated in FIG. 7, axially retained on the outer sleeve 111 by means of suitable retaining rings 132. The disc 126 is preferably provided with an outer diameter which is slightly greater than the internal diameter of the receptacle 31 so that the outer edge of the disc 126 will slidably engage the inner surface of the bag as contained in the receptacle when the ram extends into the receptacle (as illustrated by dotted lines in FIG. 3).

The disc 126 is preferably constructed from a thin sheet of rubber-like material, and inasmuch as the outer edge of the disc 126 is unsupported when the ram is retracted from the receptacle (as illustrated by solid lines in FIG. 3), the outer edge of the disc 126 will tend to deflect downwardly due to its own weight. However, the configuration of the disc, in conjunction with its stiffness, prevents the complete outer edge from drooping downwardly, whereupon the disc thus assumes an approximate sinusoidal configuration when viewed from the periphery thereof. That is, the outer edge of the disc at several circumferentially spaced locations will deflect axially downwardly, whereas the outer edge of the disc at the intermediate locations will be spaced upwardly in close proximity to the horizontal plane defined by the inner periphery of the disc. This wavy configuration of the disc, as illustrated in FIG. 6, is highly desirable since it permits any waste or trash which comes into contact with the upper side of the disc to freely slide off the disc into the receptacle. Further, the uppermost portion of the outer periphery of the disc is positioned for engagement with the upper end of the receptacle 31 when the ram is extended downwardly into the receptacle, which engagement causes the disc 126 to substantially straighten out into the position illustrated by dotted lines in FIG. 3. However, when the ram is withdrawn from the receptacle, the disc 126 will again assume the wavy position illustrated in FIG. 6, whereupon any trash which is accidentally deposited on the upper side of the disc 126 will freely slide off the disc in the receptacle. While the disc 126 may be constructed from rubber or the like, it is preferably constructed from a thin sheet of rubber-like material having a fabric mesh, such as cotton or nylon mesh, embedded therein whereupon the disc 126 thus possesses greater resistance to tearing or cutting. In a practical embodiment of the invention, the disc 126 can have a thickness of approximately one-eighth inch. Also, in a practical embodiment of the invention, the receptacle 31 has an internal diameter of approximately 19 inches, and the disc 126 has an external diameter of approximately 20 inches, whereupon the outer edge of the disc will slidably engage the receptacle when the ram is lowered thereinto.

While the use of a resilient or flexible disc 126 is preferred, the disc 126 could be constructed from a thin sheet of relatively rigid material, such as sheet metal, nylon, plastic or the like. If a rigid material is utilized for the disc 126, then the disc is preferably provided with a maximum outside diameter which is substantially equal to but slightly less than the internal diameter of the receptacle 31. Further, the disc in this situation is preferably positioned upwardly from the lowermost end of the ram, as defined by the face 94, to prevent the shield or disc from being damaged.

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, 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.

An operator will then deposit substantial quantities of waste or trash into the hopper 14, which trash will 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 manually actuate the start button 124, whereby pressurized fluid will be supplied from the pump 122 to the extendible ram assemblies 16 and 17, which ram assemblies will be alternately actuated.

Assuming that the ram assembly 17 (FIG. 3) is first actuated, the telescoping cylinder 91 thereof will be extended to move the compacting shoe 92 downwardly whereby the shoe passes through the respective discharge opening 82. As the shoe passes through the opening 82, a part of the outer edge of the disc 126 will contact the edge of the wall 83 surrounding the opening 82, which contact will cause the disc 126 to be deflected upwardly out of its sinusoidal form, whereupon the central portion of the disc 26 will assume a substantially flat condition. Continued downward movement of shoe 92 will cause the flexible disc 126 to pass through the opening 82 into the interior of the receptacle 31, whereupon the disc 126 will maintain its substantially planar condition (as illustrated by dotted lines in FIG. 3), in which condition the outer periphery of the disc is deflected slightly upwardly and is disposed in slidably engagement with the interior of the bag 46, which bag is in turn held in engagement with the inner wall of the receptacle 31. The disc 126 thus substantially closes the open upper end of the receptacle 31 during that portion of the cycle when the ram is disposed within and moving downwardly into receptacle to cause compressing of the waste therein. When the ram assembly 17 reaches its fully extended position, or its downward movement is stopped due to the compaction of the waste, then a suitable pressure switch will cause a reversal of the fluid flow to the cylinder 91 so that fluid will then be supplied through the port opening 102 to cause the ram assembly to be retracted upwardly. When the ram is retracted upwardly, the flexible disc 126 will again return to its freely suspended condition wherein the outer edge thereof assumes a substantially sinusoidal form as illustrated in FIG. 6. In this condition, the disc is inclined downwardly at several circumferentially spaced locations, whereupon any waste which has been accidentally deposited on top of the disc 126 will freely slide thereoff and thus remain within or fall into the receptacle 31.

Thus, the disc 126 effectively totally closes the upper open end of the receptacle when the ram is being moved into the receptacle for compacting of the waste therein. If the compression of the waste by the ram should cause any of the waste to fly about, such as might be caused by the shattering of a plastic or glass article, then the flying waste will be prevented from fly-

ing out the open end of the receptacle due to the presence of the protective shield 126. Further, the shield 126, by being constructed from a flexible elastic rubber-like material, can substantially totally enclose the receptacle since the edge of the shield 126 can be disposed in sliding engagement with the bag 46 without causing tearing or damage to the bag.

Attaching a shield 126 to the ram in the manner illustrated in FIGS. 6 and 7 is also highly desirable since, when the ram is in its uppermost retracted position, the shield does not interfere with the depositing of trash into the bags 46. Use of the shields 126 thus provide increased safety for the user of the device, particularly when the device is being utilized for crushing frangible materials, such as glass, plastic and the like, while at the same time the shield does not interfere with the efficient operation of the compacting device.

MODIFICATIONS

FIG. 8 illustrates therein a modification of the present invention and, in particular, relates to an alternate positioning of the safety shield. In this embodiment, the upper edge of the receptacle 31 when in the closed position is provided with a removable shield 136, which shield is used in place of the shield 126 illustrated in FIGS. 6 and 7. The shield 136 again comprises an annular ring-like member provided with an opening 137 in the center thereof and having a suitable flange 138 adapted to extend over the upper edge of the receptacle 31. The shield 136 is positioned over the upper edge of the receptacle 31 after the bag 46 has been suspended therein and, like the shield 126, is preferably constructed from a thin sheet of rubber-like material so that the shield will resiliently deflect or deform when the compacting shoe 92 passes through the opening 137. The opening 137 can be provided with a diameter approximately equal to the diameter of the face 93 to permit the shoe 92 to pass therethrough. This relationship thus minimizes the clearance between the shield 136 and the outer sleeve 111 when the shoe 92 is disposed within the receptacle 31. The shield 136, due to its being mounted on the upper end of the receptacle 31, must necessarily be manually removed from the receptacle when it is desired to remove a filled bag 46 from the receptacle. The shield 136 is repositioned on the upper edge of the receptacle 31 after the receptacle has been closed and a new empty bag 46 suspended therein.

While the shield illustrated in FIG. 8 is preferably constructed of a resilient rubber-like material, nevertheless it could be constructed of a more rigid material, such as sheet metal or the like. However, this would necessarily require that the opening 137 have a diameter slightly larger than the maximum diameter of the shoe 92. This would obviously increase the clearance between the shield and the sleeve 111, and thus increase the possibility of trash being ejected through the clearance space.

FIG. 9 illustrates therein still a further modification of the present invention wherein the protective shield 146 is mounted on the hopper 14. Particularly, rather than utilizing either the shield 126 or the shield 136, the hopper 14 can be provided with a shield 146 thereon secured to the wall 83 in surrounding relationship to the opening 82. The shield 146 can be provided with a suitable channel-shaped outer periphery adapted to extend over the edge of the wall 83 for releasably se-

curing the shield to the hopper. The shield 146 is again preferably constructed from a thin sheet of rubber-like material and is of an annular ring-like configuration, the shield having a central opening 147 therein through which passes the compacting shoe 92. The opening 147 also preferably has a diameter approximately equal to the diameter of the shoe 92, whereupon the resilient shield 146 thus substantially functions in the same manner as the shield 136. However, the shield 146 has the added advantage that it does not have to be removed when a filled bag is being replaced with an empty bag.

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 an exclusive property or privilege is claimed are defined as follows:

1. A waste compactor, comprising:
housing means;

receptacle means coacting with said housing means for holding a removable 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;

connecting means coacting between said receptacle means and said housing means when said receptacle means is disposed in a first position wherein said disposable container is fillable with waste, said connecting means permitting said receptacle means to be moved relative to said housing means to a second position permitting removal of a filled 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 alignment with said receptacle means when said receptacle means is in said first position, said ram means having a maximum cross sectional area adjacent the lower end thereof substantially less than the cross sectional area of said receptacle means, whereby a substantial annular clearance space exists between said ram means and said receptacle means when the ram means is disposed within the receptacle means; and

shield means substantially axially aligned with said annular clearance space and positioned to at least partially axially overlap same to prevent waste material as deposited within said receptacle means from flying upwardly out of said receptacle means during compaction of the waste by said ram means; said shield means comprising a disc-like member constructed from a thin sheet of flexible rubber-like material, said disc-like member being fixedly secured to said ram means adjacent the lower end thereof and having a maximum transverse dimension substantially greater than the maximum transverse dimension of the lower end of said ram means, said disc-like member having sufficient flexibility so as to droop downwardly when said ram means is in its retracted position.

2. A waste compactor according to claim 1, wherein said disc member has a fabric mesh embedded within said thin sheet of rubber-like material.

3. A waste compactor according to claim 1, wherein said receptacle member is substantially cylindrical and said opening formed therein is substantially circular, and said disc-like member having an annular configuration and having a diameter at least slightly greater than the internal diameter of the receptacle member.

4. A waste compactor according to claim 1, wherein the outer edge of said disc-like member droops downwardly in a substantially sinusoidal manner when said ram means is in its retracted position.

5. A waste compactor according to claim 1, wherein said ram means includes a vertically extendible member having an enlarged compacting shoe fixedly secured to the lower end thereof, said compacting shoe having a maximum transverse dimension substantially less than the maximum cross sectional dimension of the opening formed in said receptacle member, and said disc-like member being fixedly secured to and surrounding said compacting shoe and being movable therewith.

6. A waste compactor according to claim 5, wherein said compacting shoe has a substantially flat bottom face to compact the waste deposited in the disposable container, said compacting shoe having side surface means which slope outwardly and downwardly relative to said receptacle member and said disc-like member being fixedly secured to said compacting shoe at a location spaced upwardly a substantial distance from the bottom face thereof.

7. A waste compactor, comprising:

housing means;

receptacle means coacting with said housing means for holding a removable 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;

connecting means coacting between said receptacle means and said housing means when said receptacle means is disposed in a first position wherein said disposable container is fillable with waste, said connecting means permitting said receptacle means to be moved relative to said housing means to a second position permitting removal of a filled 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 alignment with said receptacle means when said receptacle means is in said first position, said ram means having a maximum cross sectional area adjacent the lower end thereof substantially less than the cross sectional area of said receptacle means, whereby a substantial annular clearance space exists between said ram means and said receptacle means when the ram means is disposed within the receptacle means; and

shield means substantially axially aligned with said annular clearance space and positioned to at least partially axially overlap same to prevent waste material as deposited within said receptacle means from flying upwardly out of said receptacle means during compaction of the waste by said ram means, said shield means comprising a ring-like disc member releasably mounted on the upper end of said receptacle member.

8. A waste compactor according to claim 7, wherein said ring-like disc member is constructed from a thin sheet of rubber-like material.

9. A waste compactor, comprising:

housing means;

receptacle means coacting with said housing means for holding a removable 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;

connecting means coacting between said receptacle means and said housing means when said receptacle means is disposed in a first position wherein said disposable container is fillable with waste, said connecting means permitting said receptacle means to be moved relative to said housing means to a second position permitting removal of a filled 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 alignment with said receptacle means when said receptacle means is in said first position, said ram means having a maximum cross sectional area adjacent the lower end thereof substantially less than the cross sectional area of said receptacle means, whereby a substantial annular clearance space exists between said ram means and said receptacle means when the ram means is disposed within the receptacle means;

hopper means mounted on said housing means, said hopper means being positioned adjacent the upper end of said receptacle means and having an opening therein disclosed directly above and substantially aligned with the opening in said receptacle means when said receptacle means is in said first position; and

shield means substantially axially aligned with said annular clearance space and positioned to at least partially axially overlap same to prevent waste material as deposited within said receptacle means from flying upwardly out of said receptacle means during compaction of the waste by said ram means, said shield means comprising a ring-like disc member constructed of a rubber-like material and secured to said hopper means substantially concentric with and partially overlapping the opening therein.

10. A waste compactor, comprising:

housing means;

receptacle means coacting with said housing means for holding a removable 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;

connecting means coacting between said receptacle means and said housing means when said receptacle means is disposed in a first position wherein said disposable container is fillable with waste, said connecting means permitting said receptacle means to be moved relative to said housing means to a second position permitting removal of a filled disposable container;

said receptacle member including a pair of separable arcuate sections which when disposed adjacent one

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another define a substantially cylindrical opening in which is positioned said disposable container, said separable sections being interconnected for permitting relative movement therebetween when said receptacle means is in said second position for permitting removal of a filled disposable bag; 5
 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 receptacle means is in said first position, said ram means having a maximum cross sectional area adjacent the lower end thereof substantially less than the cross sectional area of said receptacle means, whereby a substantial annular 10
 clearance space exists between said ram means and said receptacle means when the ram means is disposed within the receptacle means;
 said ram means comprising an extendible fluid pressure cylinder having a compacting shoe fixedly secured to the lower end thereof, said compacting shoe having a maximum diametrical dimension substantially less than the internal diameter of said 15
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receptacle means; and
 shield means substantially axially aligned with said annular clearance space and positioned to at least partially axially overlap same to prevent waste material as deposited within said receptacle means from flying upwardly out of said receptacle means during compaction of the waste by said ram means;
 said shield means comprising a thin annular member fixedly secured to said compacting shoe and extending radially outwardly therefrom in surrounding relationship thereto, said thin annular member having a diameter at least substantially equal to the internal diameter of said receptacle means and being fixedly secured to said compacting shoe at a location spaced slightly axially upwardly from the lowermost point thereof.
 11. A waste compactor according to claim 10, wherein said thin annular member is constructed from a flexible rubber-like material and has a diameter slightly greater than the internal diameter of said receptacle means. 25

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