United States Patent

Price et al.

[15] **3,638,561**

[45] **Feb. 1, 1972**

[54] REFUSE COMPACTOR

[72] Inventors: **Howard Price**, Kings Point, N.Y.; **Seymour Wallick**, Clifton, N.J.; **Irwin Math**, Beechhurst, N.Y.

[73] Assignee: **International Patents & Development**, Kings Point, N.Y.

[22] Filed: **Feb. 24, 1970**

[21] Appl. No.: **13,705**

[52] **U.S. Cl.** .....**100/215**, 100/45, 100/50, 100/75, 100/245, 100/250, 100/256, 100/266, 100/269 R, 100/295, 248/145

[51] **Int. Cl.** **B30b 15/30**, B30b 15/32

[58] **Field of Search** .....100/218, 215, 229, 245, 229 A, 100/250, 266, 269, 295, 45, 50, 52, 73, 74, 75, 256, 99, 137, 138, 139, 141, 142, 143; 248/131, 145

[56] **References Cited**

UNITED STATES PATENTS

3,274,922	9/1966	Hefner	100/218 X
3,527,160	9/1970	Vollmer	100/218
3,467,001	9/1969	Balbi	100/218 X
3,481,268	12/1969	Price et al.	100/218 X
2,522,036	9/1950	Haake	248/145
1,515,078	11/1924	Shee	248/145
3,065,586	11/1962	Ghiringhelli	100/229 UX

OTHER PUBLICATIONS

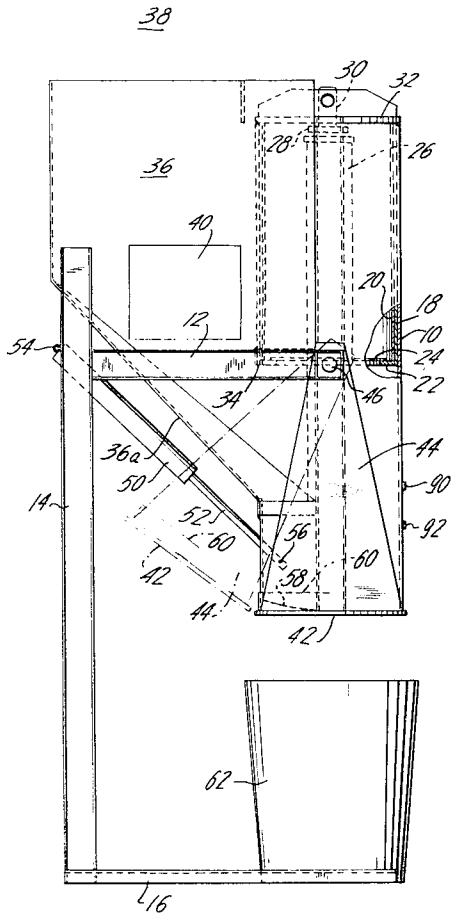
" Research-Cottrell Pamphlet" Dec. 1968 5 pp.

Primary Examiner—Billy J. Wilhite
Attorney—Sparrow and Sparrow

[57] **ABSTRACT**

A vertical refuse compactor in which the ramming piston used to compact the refuse also ejects the refuse from the compactor after it has been compressed into a reduced bale. A vertical tubular housing is held in place through structural members and contains the hydraulically operated ramming piston. Refuse enters the ramming chamber from a hopper and through an opening below the piston when retracted. A door at the bottom of the tubular cylinder serves simultaneously as the ejecting door and the base upon which the refuse is compacted. The door is pivotally mounted and operated through hydraulic cylinders supported by the structural members. A refuse receiving can or container located beneath the ejecting door receives the compacted bales of refuse after the door has been swung open through actuation of the respective hydraulic cylinders.

13 Claims, 7 Drawing Figures



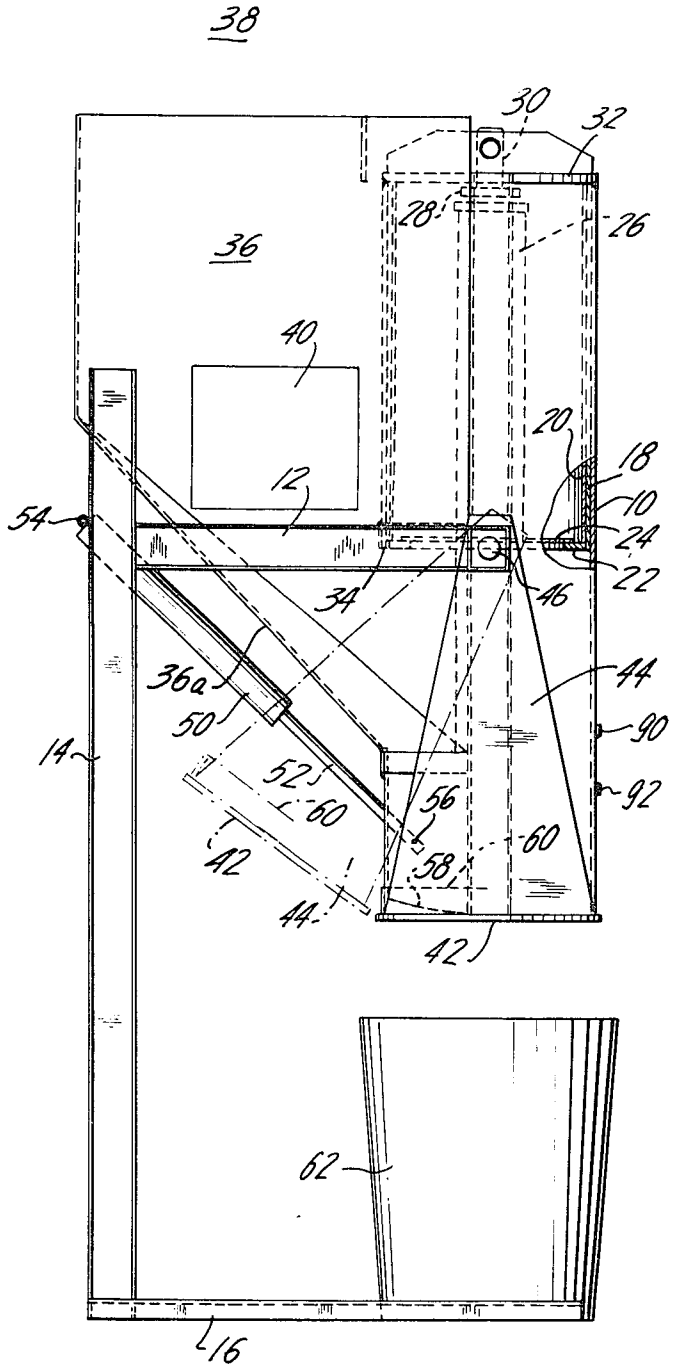
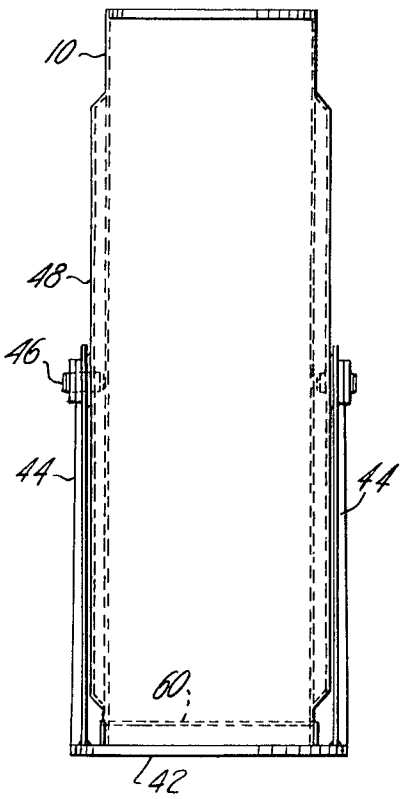


FIG. 1

FIG. 2



INVENTORS.
HOWARD PRICE
SEYMOR WALLICK
BY IRWIN MATH
SPARROW AND SPARROW
ATTORNEYS

FIG. 3

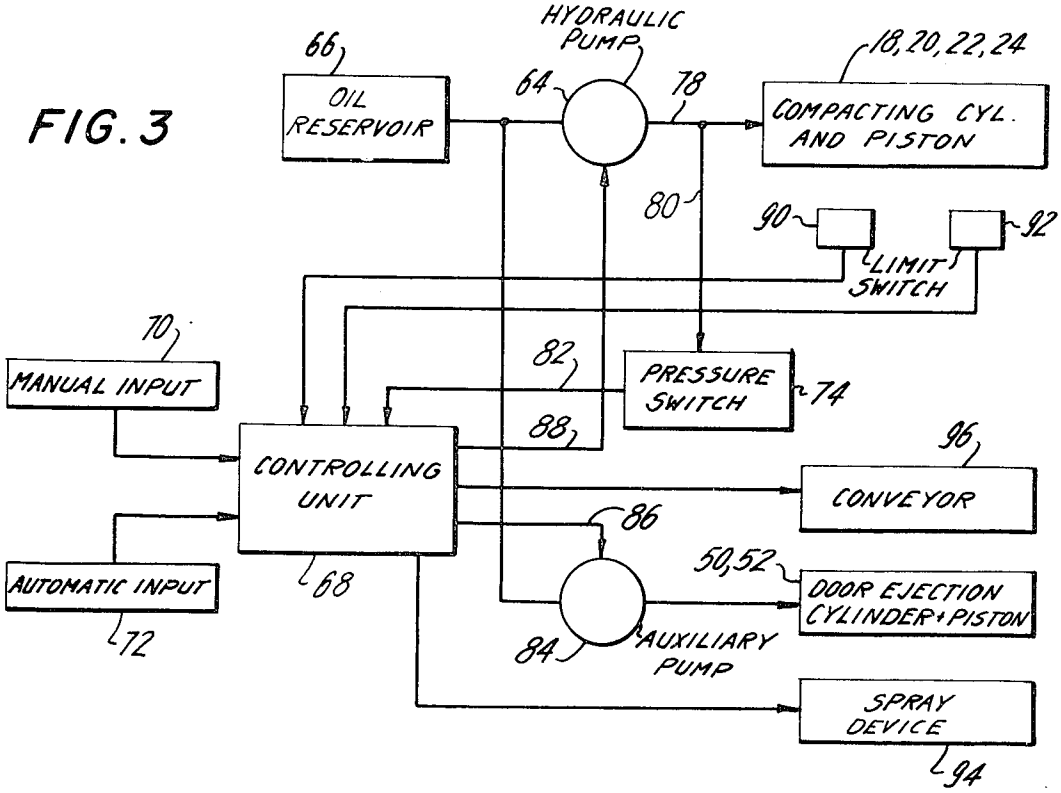
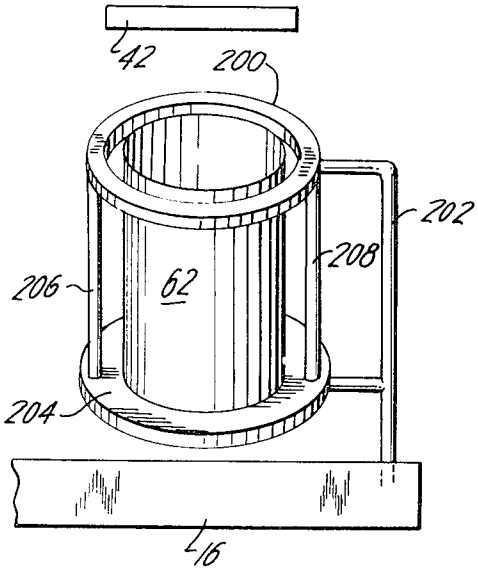
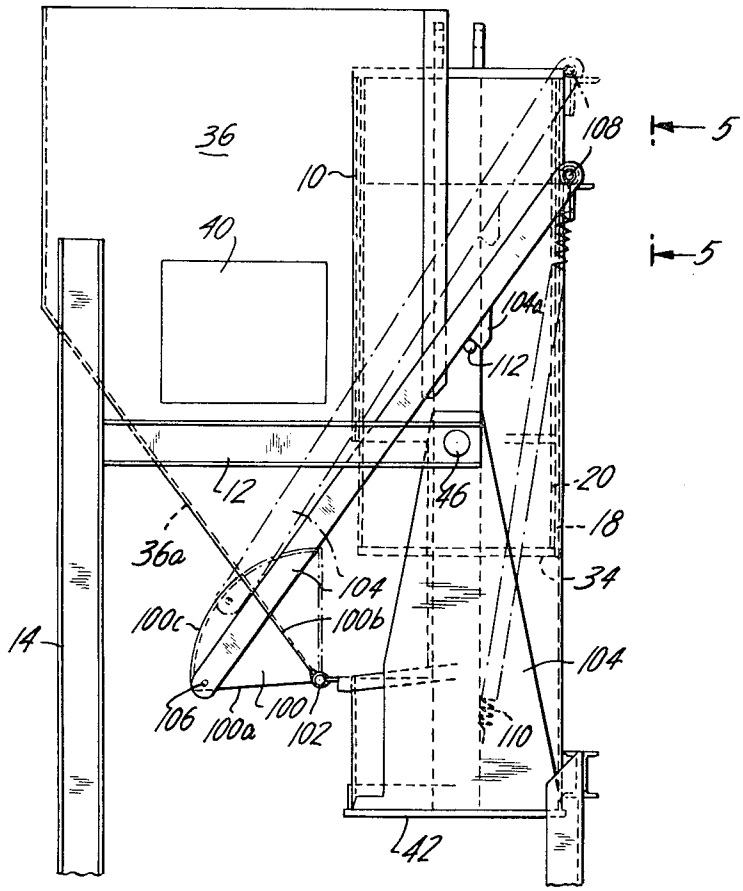


FIG. 6



INVENTORS.
HOWARD PRICE
SEYMOR WALLICK
BY IRWIN MATH
SPARROW AND SPARROW
ATTORNEYS

FIG. 4



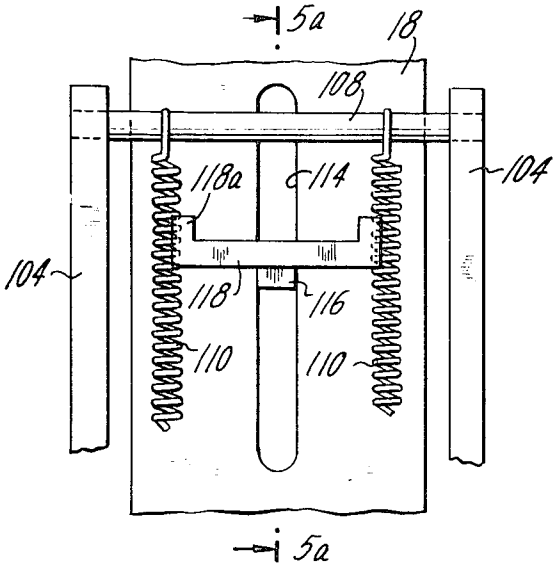


FIG. 5

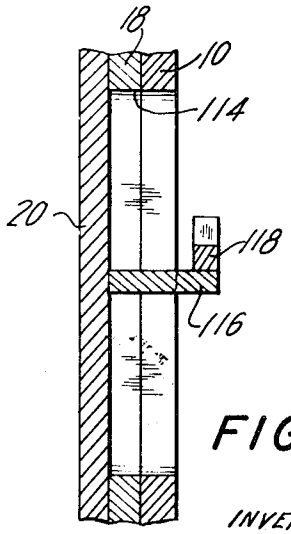


FIG. 5a

INVENTORS.
HOWARD PRICE
SEYMOR WALLICK
BY IRWIN MATH
SPARROW AND SPARROW
ATTORNEYS

REFUSE COMPACTOR

BACKGROUND OF THE INVENTION

The removal of refuse and garbage from populated areas has become a pressing problem. One solution to this problem resides in the procedure of reducing the refuse to compacted masses or bales and then to transport these compacted masses to locations at which the refuse is either destroyed or used for land fills, for example.

In reducing the refuse to compacted bales or compressed masses, it is desirable to have available a low cost compacting unit which may be readily installed in homes and apartment houses, for example, and which does not occupy a large amount of space. It is also desirable that such a compactor be operable in conjunction with existing flues which were previously used for conveying the refuse downward for incineration purposes. Whereas incinerators were previously used extensively to destroy the refuse, this method of discarding the refuse has been found to contaminate the atmosphere and environment to the extent that it may interfere with the human respiratory function and general health. As a result, various densely populated areas have outlawed the destruction of refuse through private incineration.

Accordingly, it is an object of the present invention to provide a refuse compactor which is low in cost, may be readily fabricated, and occupies substantially little space.

It is also an object of the present invention to provide a refuse compactor which may be easily installed in existing homes and buildings.

It is a further object of the present invention to provide a refuse compactor of the aforementioned character, which is operable in conjunction with existing incinerator flues in buildings.

It is a particular object of the present invention to provide a compactor which may be either manually or automatically operated and controlled.

SUMMARY OF THE INVENTION

A refuse compactor in which a vertical tubular shell contains a hydraulic piston and cylinder for ramming refuse admitted into the cylinder through an opening beneath the piston head when retracted. The opening for admitting the refuse into the compactor, communicates with the hopper which, in turn, leads to the flue of an existing incinerator within a building. The vertical tubular shell is supported through structural frame members, and possesses a bottom door which is pivotally suspended from substantially the central portion of the cylinder. The door is swung away from beneath the bottom opening of the vertical cylinder when the compacted mass is to be ejected. At the same time, this door also serves as a base upon which the refuse is rammed to result in compacted blades. Upon pushing of a control button or switch, the compacting ram is reciprocated within the vertical cylinder for a period of time established through a timing device. When the refuse has become compacted within this period of time, hydraulic cylinders are further operated to swing the bottom door from the base of the vertical cylinder and to permit, thereby, the ejection of the compacted mass by the ramming cylinder. The ejection process is accomplished by fully extending the vertical ramming piston. A series of limit switches or a pressure switch determines the instant at which ejection of the compacted mass is to be carried out. A refuse can or container in the form of a disposable bag, for example, is located beneath the bottom door of the vertically held cylinder, and is used for the removal of the refuse from the compactor.

Various further and more specific purposes, features and advantages will clearly appear from the detailed description given below, taken in connection with the accompanying drawings which form part of this specification and illustrate merely by way of examples, embodiments of the device of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

In the following description and in the claims, parts will be identified by specific names for convenience, but such names are intended to be as generic in their application to similar parts as the art will permit. Like reference characters denote like parts in the several figures of the drawings, in which

FIG. **1** is a front elevational view of the compactor installed with feed hopper, in accordance with the present invention;

FIG. **2** is a side view of the compactor of FIG. **1**;

FIG. **3** is a schematic diagram of the control arrangement for operating the compactor of FIG. **1**;

FIG. **4** is an elevational front view of a feeder unit for feeding refuse into the compactor from a hopper;

FIG. **5** is a partial side view taken along line **5**—**5** in FIG. **4**;

FIG. **5***a* is a partial sectional view taken along line **5***a*—**5***a* in FIG. **5**;

FIG. **6** is an isometric view of a swivable container holding device for the refuse compactor in FIG. **1**.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawing and in particular to FIG. **1**, the outer shell casing or housing **10** of the compactor is supported by structural frame members **12**, **14**, and **16**. The supporting structural frame members may be of standard steel structural cross sections in the form of I or H beam or column sections, for example. The horizontal supporting member **12** may be welded to the vertical member **14** which, in turn, may be secured through weldments to the base frame member **16**.

Within the outer shell or casing **10** of the compactor, resides a stationary cylinder **18** into which a movable cylinder **20** is telescoped. The cylinder **18** serves as a bushing for the movable cylinder **20** which moves slidingly within the cylinders **18** along the longitudinal axis thereof. At the lower rim of the cylinder **20**, is secured thereto a ring-shaped member **22**. The ring-shaped member **22** moves with the cylinder **20**, since the member **22** is secured to this cylinder. A circular cap-shaped member **24** covers the opening of the ring-shaped member **22**. The cap-shaped member **24** also moves with the cylinder **20**. The combination of the internal movable cylinder **20**, ring-shaped member **22** and cap **24** constitutes the compacting as well as ejecting piston. Thus, the inner movable cylinder **20** slides along the internal walls of the stationary cylinder **18** which, in turn, resides against the outer shell or housing **10** of the compactor.

When in the position of FIG. **1**, the compacting and ejecting piston **20**–**24** is in the retracted state in which case it occupies substantially half the internal volume of the compactor. To facilitate extension of the piston, a two-stage telescopic hydraulic mechanism is provided internal to the movable cylinder **20**. This telescopic and hydraulic actuating mechanism consists of an outer sliding cylinder **26** which slides, in turn, on the outer wall of an inner cylinder **28**. When in the retracted state of the compacting piston, the inner cylinder **28** resides within the interior of the cylinder **26**. In view of the telescopic arrangement of these cylinders **25** and **28**, the cylinder **26** will slide downward upon the outer wall of the cylinder **28** when extending the compacting piston, and the cylinder **28** will, in turn, slide downward on a still further inner cylinder **30**. Thus, the cylinders, **26**, **28**, and **30** form a telescopic hydraulically operated cylinder arrangement. This telescopic arrangement of the ramming and ejecting actuating mechanism, permits the compactor in accordance with the present invention, to be constructed as a substantially small unit which may be readily installed within homes and apartment houses, for example.

The top of the outer shell or housing **10** is closed through a cap member **32** which is welded on to the top rim of the housing. For the purposes of admitting refuse within the confines of the compactor, the latter has an opening **34** which forms the entrance from a hopper **36** through which refuse is fed to the compactor. The hopper **36** is installed to communicate, in

turn, with an existing flue which was previously used, for example, as an incinerator flue or duct. Thus, in a practical installation the hopper **36** is installed directly at the lower end of the flue **38**. The flue **38** is of the conventional type used to convey refuse downward for purposes of destruction through incineration. Accordingly, this same flue **38** is used, in accordance with the present invention, to convey the refuse or garbage downward into the hopper **36** from which the refuse is fed into he lower chamber of the compactor through opening **34**. A hopper door **40** provides for access into the interior of the hopper by operating personnel in the event of blockages which may occur, for example, as a result of refuse having constituents of unusually large dimensions. The hopper **36** includes an inclined base **36***a* for the purpose of facilitating the transfer of the refuse from the hopper into the compactor, through the action of gravity.

To provide a base against which the refuse may be rammed through the compacting piston **20–24**, a bottom door **42** is pivotally suspended at the bottom rim of the outer shell or housing **10**. The bottom door **42** is suspended through substantially triangular brackets **44** which are pivotally held on pivoting shafts **46** secured to the outer shell **10** by means of the structural support **48**. By rotating the brackets **44** to the left, in the drawing, for example, the bottom door **42** may be swung away from the lower opening of the casing **10** of the compactor. For the purpose of carrying out such movement of the bottom door **42**, a hydraulic cylinder and piston **50** and **52**, respectively, are provided. The hydraulic cylinder **50** is pivotally secured at its back end through the pivot structure **54**. The end of the piston **52**, on the other hand, is pinned to the bracket **44** through the pin **56**. Thus, when retracting the piston **52** within the cylinder **50**, the bracket **44** is rotated so as to swing the door away from the bottom of the compactor and thereby permit refuse to be ejected therefrom.

For stable and reliable operation of the bottom door **42**, two brackets **44** are provided, and both are pivoted from two pivoting pins **46** situated diametrically opposite each other with respect to the central axis of the housing or casing **10**. In conjunction with the two brackets **44**, two hydraulic cylinders and pistons **50**, and **52** are provided for cooperating with the two brackets **44**. When the piston **52** retracts into the cylinder **50** and thereby produces rotation of the bracket **44**, the end of the piston **52** at the pin **56**, executes rotational motion. In order to permit such rotational motion to take place freely and allow the door **42** to be moved into open position through rotation of the brackets **44**, the rear end of the cylinder **50** is pivoted through the pivoting arrangement **54**. Consequently, with the inclusion of the pivot **54**, the pinned end of the piston **52** is free to rotate with rotation of the bracket **44** so as to result in the swinging away of the bottom door **42** from the bottom opening of the housing or casing **10**.

With the removal of the bottom door **42** in this manner, the compacted mass or refuse may be freely ejected through downward motion of the compacting and ejecting piston composed of elements **20, 22, 24**. The kinematic requirements for motion of the bottom door **42**, furthermore, necessitates the removal or cutout of the base of the housing **10** along half of its bottom circumference and along the line **58**. Thus, to permit rotation of the bottom door **42** about the pivot **46**, through the brackets **44**, the base of the housing or casing **10** of the compactor must be cut away along the line **58** in order to prevent interference between the housing and the swinging door. When the door **42** is in closed position, however, it is undesirable to have the cutaway portion of the base of the housing **10** exposed, since refuse would be squeezed out through such cutaway opening during the compacting process.

To prevent the emergence of such refuse through the cutaway portion of the housing at the bottom thereof, a covering rim portion **60** is secured to the base door **42**, for the purpose of covering up the cutaway portions when the door **42** is in closed position. Thus, the rim portion **60** is a member surrounding the outer housing or casing **10** and moves with the door **42** as it is secured thereto. When, accordingly, the door is swung away into open position, the cutaway portion of the bottom of the housing **10** is exposed, but this is of no consequence since at that time the mass has been compacted and is being ejected. When the bottom door **42** is in closed position preparatory to the compacting of the refuse, the cutaway portion is covered through the covering member **60** which extends over and envelopes the cutaway portion, so that no refuse can be squeezed therethrough as a result of the compacting process.

When the refuse has been compacted into a mass or bale of predetermined size or density, and the bottom door **42** is in open position, the refuse may be ejected into a container or can **62** beneath the bottom opening of the housing or casing **10**. The container **62** and be, for example, in the form of a waste can of a disposable plastic bag into which the compacted refuse is dropped. When using a disposable bag for the container, it may be desirable to use in conjunction with the bag, a metal type of can or container which supports the bag while being filled. In that event, the supporting container is continuously reused, and the disposable bag serves as a lining for the container which is removed when the bag is filled. The container **62**, furthermore, may be manually placed in position beneath the opening of the housing **10** and manually removed after the container has been filled with refuse. At the same time, an automatic arrangement may be provided whereby a plurality of containers **62** are mounted or positioned on a circular conveyor, for example, and this conveyor is indexed as required so as to place an empty container beneath the compactor bottom opening and to remove the container therefrom after having been filled with compacted refuse.

The operation of the refuse compactor, in accordance with the present invention, may be carried out through the arrangement shown in schematic form in FIG. **3**. The compacting cylinder and piston **18, 20, 22, 24** are actuated through a hydraulic pump **64** which draws operating oil from a reservoir **66**. The hydraulic pump is set into functional operation through a controlling unit **68** which may be actuated through either a manual input **70** or an automatic input **72**. When manual operation of the compactor is to be carried out and the controlling unit **68** is actuated through the manual input **70**, the hydraulic pump **64** is set into motion and the compacting piston is reciprocated for a time interval established by the controlling unit **68**. After the expiration of such a predetermined time interval, the compacting piston is stopped from further operation and is held in raised position. This time interval for operating the compacting piston is selected so as to reciprocate the compacting ram or piston for a sufficiently long time to assure that the refuse introduced into the compacting space through the opening **34**, has been properly processed and compacted.

To determine when a compacted bale or mass of refuse has been completed so that the ejection cycle may be initiated, a pressure switch **74** communicates with the hydraulic line **78** between the hydraulic pump **64** and the compacting cylinder and piston. Thus, when the compacting pressure attains a predetermined level, the refuse under compaction has attained a predetermined density, and when this density corresponds to that of the desired completed bale or compacted mass, the pressure switch **74** is actuated through the communicating line **80** which transmits the hydraulic pressure, applied to the compacting cylinder and piston, to the switch **74**. When the pressure within the line **80** has attained the predetermined level at which the refuse has been compacted to the desired density, the pressure switch **74** transmits a signal to the controlling unit **68** along the path **82**.

Upon the transmission of this signal along the path **82**, the ejection door operating cylinder and piston, **50** and **52** are set into functional operation so as to remove the door **42** into open position. An auxiliary pump **84** may be actuated for this purpose of operating the cylinder and piston **50, 52** as a result of a signal transmitted from the controlling unit **68** along the path **86**. The pump **84** also draws operating oil or fluid from

the reservoir 66. In lieu of the auxiliary pump 84, it is also possible to have only one pump 64 and to operate the different cylinders and piston in the arrangement through the actuation of electromagnetically controlled fluid valves. Once the ejection door 42 has been removed from beneath the bottom opening of the compactor housing 10, the controlling unit applies a signal along the path 88 to the hydraulic pump 64 for the purposes of extending the compacting piston into an ejecting stroke. Upon ejection of the compacted mass, in this manner, the compacting piston is again retracted and the ejection door 42 is closed through a sequence of operations established by controlling unit 68.

The completion of the compacted mass or bale corresponding to a predetermined compacted size or volume, may also be established through the use of limit switches 90 and 92. These two limit switches are mounted spaced from each other along the vertical travel of the compacting piston. The locations of the two limit switches are selected so that when a compacted mass or bale of refuse has been completed, the limit switch 92 lies beneath the top surface of the compacted bale, whereas the limit switch 90 lies above the top surface of the bale. Accordingly, when the compacting piston is reciprocatingly moved in the performance of the compacting process, and the amount of accumulated refuse is not sufficient to form a compacted mass of the predetermined size for ejection, both switches 90 and 92 will become actuated during the travel of the compacting piston. When, on the other hand, the amount of refuse is sufficient to form a complete compacted bale, only the limit switch 90 will become actuated, and the limit switch 92 will remain unactuated since the compacting piston will no longer extend downward to the level at which this switch 92 is located. Consequently, by transmitting the signals from the two limit switches 90 and 92 to the controlling unit 62, it is possible to determine when a compacted bale of the desired size has been completed. When both limit switches 90 and 92 become successively operated and transmit signals to the controlling unit, this designation of the two signals prevailing in sequence is used as the designation that the compacted mass has not yet attained the desired size. When, on the other hand, the limit switch 90 only transmits a signal and the switch 92 does not thereafter transmit a signal as well, this situation is designated as the one in which the compacted mass has been completed, whereupon the ejection cycle can be initiated.

For sanitary purposes, a spraying unit 94 can be actuated from the controlling unit 68 to spray disinfectant into the accumulated refuse within the compactor whenever the piston has been retracted or is in raised position. The controlling unit 68 may also be used to operate and control a conveyor 96 which is indexed to place an empty container 62 beneath the bottom opening of the compactor housing, and to remove the container afterward when it has been filled with compacted refuse. The operation of such an indexed conveyor, for example, is realized through the application of controlling signals from the unit 68. In conjunction with the operation of such a conveyor 96, the system is set to automatic operation through actuation of the automatic input 72.

To facilitate transfer of the refuse within the hopper 36 and into the compactor beneath the piston, through the opening 34, the arrangement of FIG. 4 is used. This refuse feeding arrangement includes a shovel member 100 rotatable about a pivot 102. The shovel member 100 is an enclosed unit having surfaces in the form of plates 100*a*, 100*b* and 100*c*. The plates 100*a* and 100*b* are angularly spaced from each other, and the plate 100*c* is curved along an arc of a circle drawn about the pivot 102. The shovel member 100 is pinned to one end of a connecting rod 104, through the pin arrangement 106. The other end of the connecting rod 104 is pinned to a bar member 108. The bar member 108 is situated outside of the outer housing 10.

When the rod member 108 is raised, the connecting rod 104 is substantially also raised in position and thereby pulls on the pin 106. Through this force and motion exerted upon the pin 106, the shovel member 100 is rotated about the pivot 102, so that the shovel member moves into the interior of the hopper and towards the opening 34 of the compactor. In executing this rotational motion, the shovel member 100 forces refuse through the opening 34, by means of the plate 100*b*.

To maintain adequate closure between the plate member 100*c* and the lower surface 36*a* of the hopper, the plate 100*c* is curved along a cylindrical surface with axis through the pivot 102. Through such curvature of the plate 100*c*, the refuse within the hopper 36 cannot pass through the space between the hopper surface 36*a* and the exterior surface of the plate 100*c*. Consequently, through such designs of the shovel member 100 with curved plate 100*c*, the shovel member may freely move to feed refuse into the compactor, without refuse spilling out of the hopper, as a result of this feed motion.

For the purpose of obtaining a symmetrically balanced unit, two such connecting rods 104 are provided at each end of the shovel member 100. This arrangement is shown in FIG. 5. Both of these connecting rods 104 are pinned to the rod member 108. Extension or tension springs 110 act on the rod member 108 and urge this rod member in a downward direction. Two such springs 110 are provided for symmetrical purposes, and to obtain smooth operation of the feed arrangement.

To limit the downward motion of the connecting rod 104 due to the forces applied by the springs 110, a stop 112 is provided for each one of the connecting rods. This stop 112 allows the connecting rod to come to rest at a predetermined level or position along the height of the compactor. When the connecting rod 104 rests against the pin 112, the plate 100*b* of the shovel member 100 lies planar with the lower hopper wall 36*a*. The connecting rod 104 is provided with a projecting portion 104*a* through which the connecting rod is positively and firmly seated upon the stop 112 when pulled downward by the spring 110. Consequently, in the nonoperative position of the feed arrangement, the plate 100*b* of the shovel member 100 lies along the lower wall 36*a*, and provides a continuous surface for the hopper.

The cylinder 18 is slotted through an elongated slot 114 extended along the vertical axis of the compactor. Through this slot 114 shown in FIG. 5, passes a guide block member 116 which is secured to the wall 20 of the piston. The arrangement is such that as the piston 20 moves up and down, the guide block member 116 moves correspondingly up and down through the slot 114. The guide block member 116 supports an actuating bracket 118 with projecting ends 118*a*. The bracket 118 is secured to the guide block 116 and moves, thereby, in an upward and downward direction directly along with the guide block which projects through the slot 114.

When the piston 20 moves in an upward direction, the bracket 118 is brought into contact with the rod member 108 through the projecting portions 118*a*. With the raising of the piston towards its uppermost position, the bracket 118 forces the rod member 108 in the upward direction also. This upward motion of the rod member 108 results in the lifting of the connecting rod 104 and thereby rotation of the shovel member 100. With such motion of the shovel member, the refuse is fed into the compactor below the piston through the opening 34.

When the piston has finally attained its uppermost position, the springs 110 will be extended corresponding to that position of the piston and hence the position of the connecting rod 104. Consequently, when the piston descends subsequently for the purpose of compacting the refuse which has been fed into the compacting chamber beneath the piston, the springs 110 force the connecting rods 104 back to their downward position where they come to rest on the stops 112. When the connecting rods finally reach this lowermost position, the shovel member 100 is aligned, through its plate member 100*b*, with the lower wall 36*a* of the hopper. The feed arrangement, in accordance with the present invention, therefore operated in a manner whereby the shovel member 100 forces refuse into the compactor whenever the piston 20 moves upward, whereas the shovel member 100 returns to its nonoperative position, when the piston moves in a downward ramming or ejection stroke.

To facilitate removal of the refuse from the container **62**, the construction of FIG. **6** is used. In this design, a circular ring **200** is supported or suspended by a vertical rotatable shaft member **202**. This shaft member **202** also supports a lower circular plate **204**. Vertical rods **206** and **208** serve to connect the ring member **200** and plate member **204**, in the assembly, and provide the necessary structural rigidity. Thus, the combination of the elements **200** to **208** constitute a container holder which is pivoted through the shaft member **202**. By gripping the ring member **200**, for example, it is possible to rotate the latter together with the container **62** about the axis of the shaft member **202**. Through such rotation of the container holder and container **62** therein, it is possible to conveniently move the container **62** away from beneath the bottom door **34** for the purpose of removing the container and transporting it away. In swinging the container **62** through its holding assembly away from beneath the bottom door or ejection door **42**, it is possible to perform this swinging motion to either side of the compactor, so that the container **62** may be conveniently exposed to the operator at either his left- or right-hand side.

While the invention has been described and illustrated with respect to a certain preferred embodiment, it will be understood by those skilled in the art after understanding the principle of the invention, that various changes and modifications may be made without departing from the spirit and scope of the invention.

What is claimed is:

1. Refuse compacting apparatus comprising in combination, a vertical substantially tubular housing having a first opening at the lower end thereof; feed means adjacent to said housing for feeding refuse into the interior of said housing through a second opening in said housing above said first opening; a telescopic piston and cylinder arranged vertically within said housing and reciprocatingly movable along a vertical path within said housing for compacting said refuse fed into the interior of said housing and ejecting the compacted mass from said housing through said first opening; door means covering said first opening when in closed position and supporting said refuse while being compacted by said telescopic piston and cylinder; suspension means for suspending said door means beneath said first opening when in closed position; and door operating means for moving automatically said door means from said first opening after said refuse has been compacted for ejection of said compacted mass by said telescopic piston and cylinder returning said door means beneath said first opening for covering said first opening after said compacted mass has been ejected.

2. The refuse compacting apparatus as defined in claim **1** wherein said door means is pivotally suspended by said suspension means.

3. The refuse compacting apparatus as defined in claim **2** wherein said suspension means comprises pivot means and bracket means secured to said door means and pivotally rotatable about said pivot means.

4. The refuse compacting apparatus as defined in claim **3** wherein said pivot means is mounted substantially above said door means and in proximity of the central portion along the vertical height of said tubular housing.

5. The refuse compacting apparatus as defined in claim **3** wherein said door operating means comprises hydraulic cylinder and piston means.

6. The refuse compacting apparatus as defined in claim **1** wherein said piston comprises two telescopic members.

7. The refuse compacting apparatus as defined in claim **1** wherein said feed means comprises hopper means adjacent to said tubular housing.

8. The refuse compacting apparatus as defined in claim **7** including access door means on said hopper means for providing access to the interior of said hopper means.

9. The refuse compacting apparatus as defined in claim **1** including container means beneath said first opening for receiving said compacted mass of refuse upon ejection from said tubular housing.

10. The refuse compacting apparatus as defined in claim **9** including conveyor means for supporting said container means and conveying said container means to and from beneath said first opening of said tubular housing.

11. The apparatus as defined in claim **1** including container means beneath said door means for receiving said compacted mass of refuse after ejection through said door means; and rotatable container holding means for holding said container and being swivable away from beneath said door means.

12. The apparatus as defined in claim **11** wherein said container holder means comprises a vertical rotatable shaft member; and a supporting base member secured to said rotatable shaft member for supporting said container, said container being swivable away from beneath said door means through rotation of said rotatable shaft member.

13. The apparatus as defined in claim **12** including a ring-shaped member above said supporting base member and secured to said rotatable shaft member for retaining said container in predetermined position in said container holding means.

* * * * *