

United States Patent [19]

McKinney

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[54] GARBAGE COMPACTOR

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[30] Foreign Application Priority Data

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[52] U.S. Cl. **100/229 A**, 53/124 B, 100/52, 100/256, 100/289, 141/73, 141/390, 141/316, 220/1 T, 220/6 S
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[58] Field of Search..... 100/229 A, 256, 289, 100/52; 141/390, 259, 261, 262, 71, 73, 316, 312; 220/65, 1 T; 53/124 B

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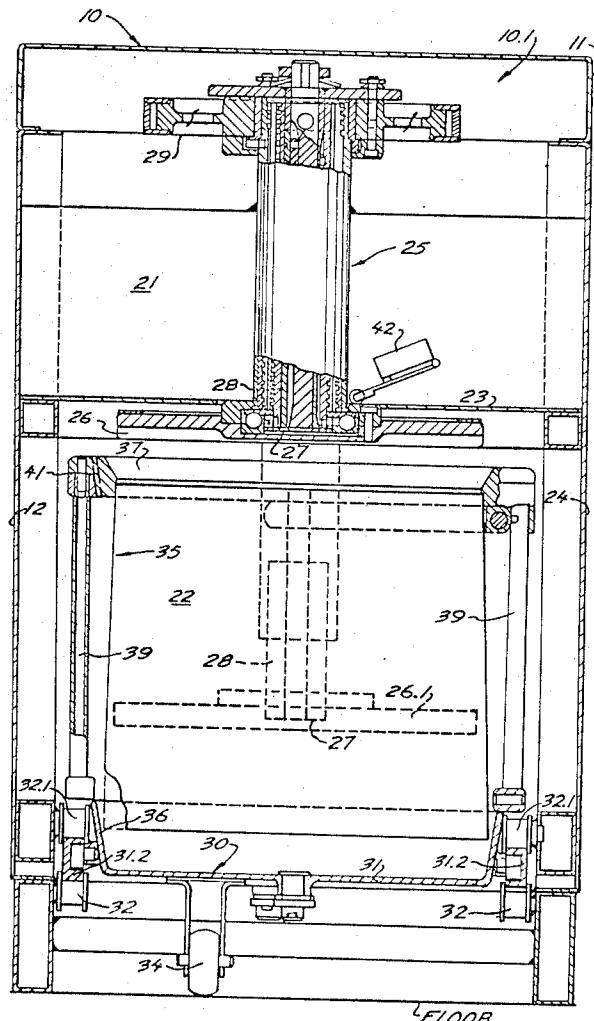
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[57]

ABSTRACT

A garbage compactor having an upwardly tapered stainless steel garbage receiving sleeve on which a garbage bag can be slidably fitted and a pressure plate movable axially of the sleeve for compressing garbage against the garbage bag bottom which is supported by a platform located below the sleeve. The sleeve protects sides of the bag from damage which, otherwise, might rip in compacting sharp cornered objects.

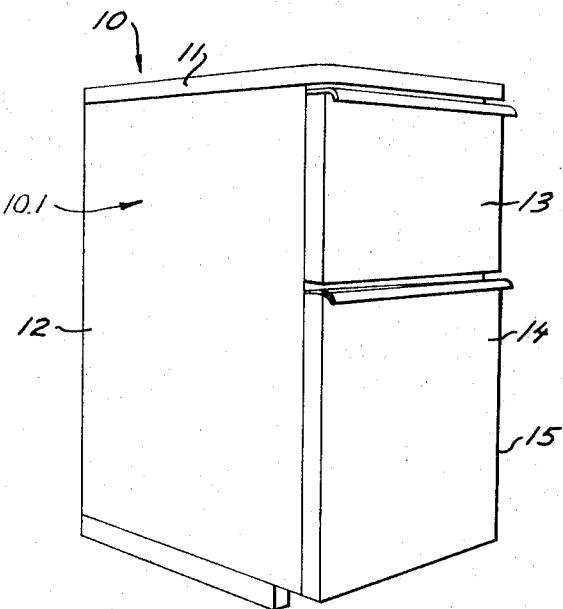
3 Claims, 6 Drawing Figures



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-Fig. 1-

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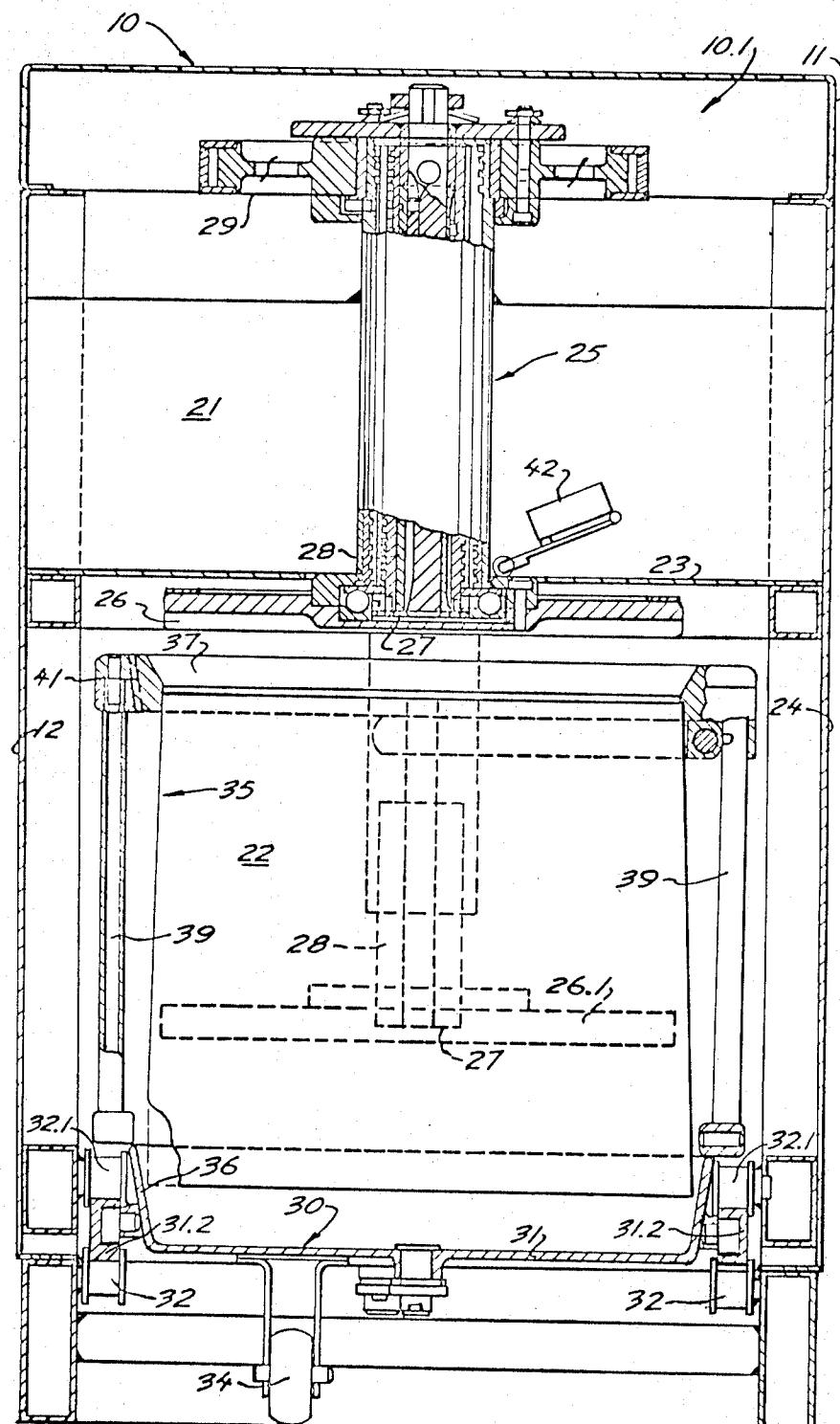
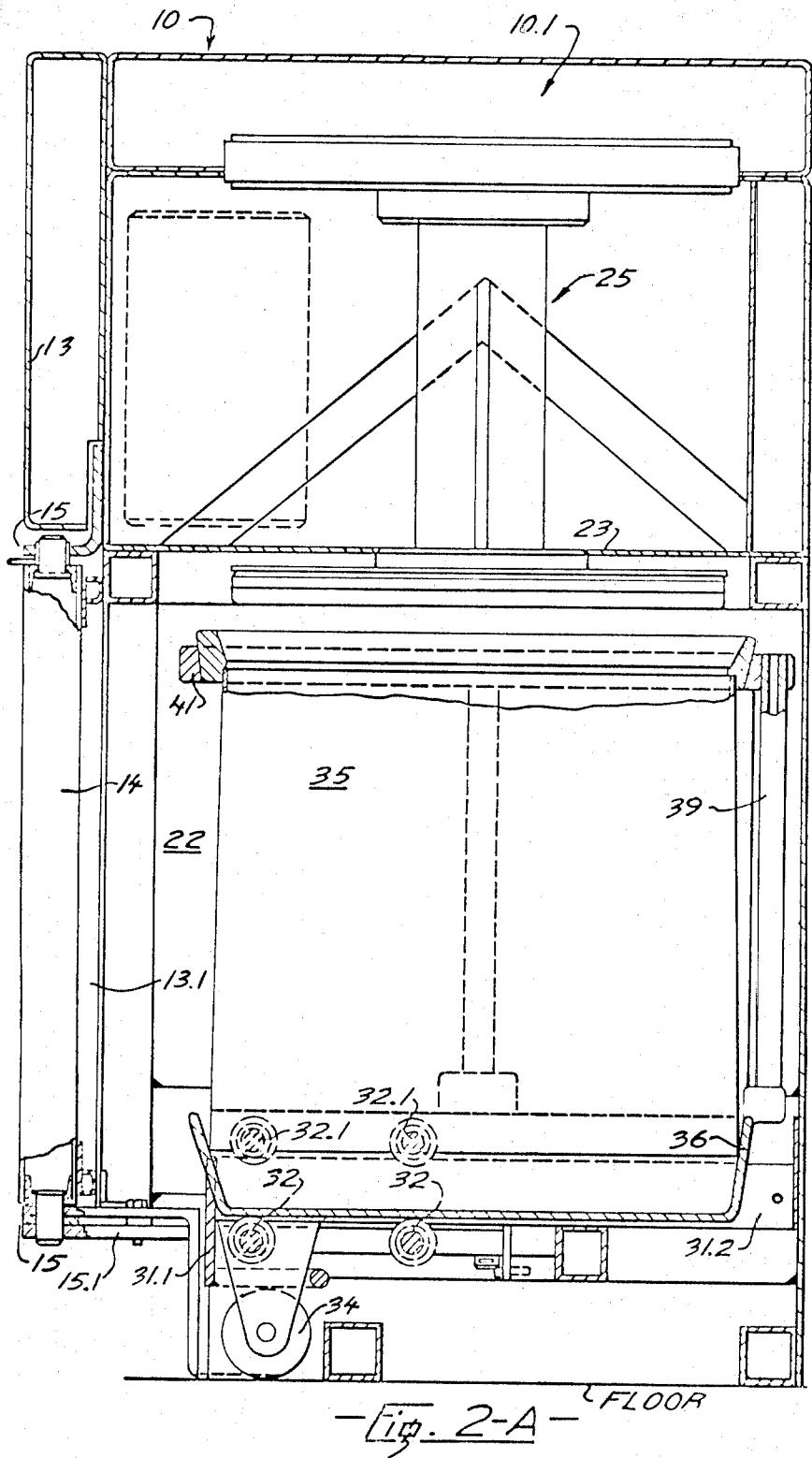


Fig. 2

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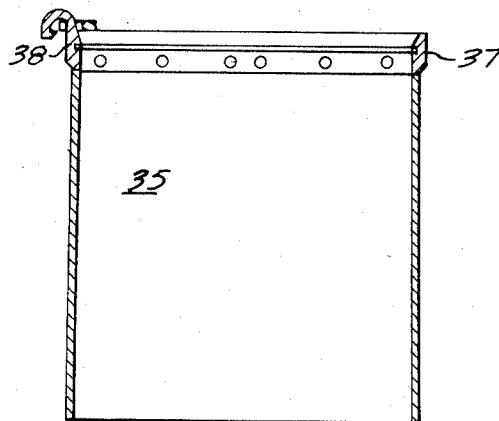
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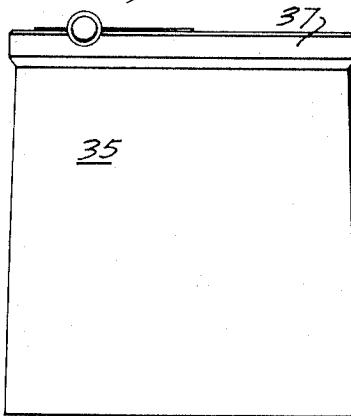
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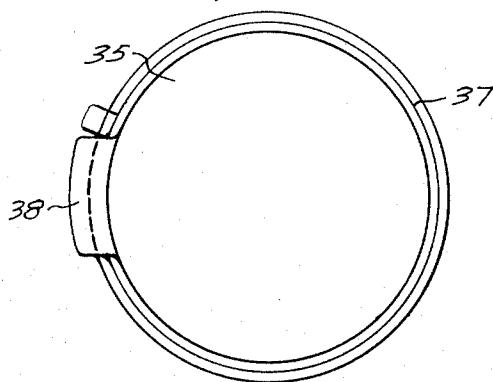
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-Fig. 3-



-Fig. 4-



-Fig. 5-

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GARBAGE COMPACTOR**BACKGROUND OF THE INVENTION****1. Field of the Invention**

The invention relates to a garbage compactor unit suitable for domestic and commercial use.

2. Prior Art

Known garbage compactors include a hollow container adapted to receive an inner plastic bag. A charge of garbage to be compacted having been placed within the bag, a piston like pressure plate is urged downwards against the charge with force sufficient to compact the garbage to, say, one-quarter to one-sixth its original bulk. A double extension ram moves the pressure plate downwards with force of about 3,000 pounds, which is adequate for the required compaction.

Such units are housed in a cabinet with a front opening door so that, the pressure plate having been retracted clear of the container, the container can be withdrawn for charging, suitable support being provided, and for removing the bag of compacted garbage. Since a charge placed in the bag is compacted to a fraction of its original bulk, several charges are required to fill it.

The container and bag are commonly rectangular in section.

With growing interest in environmental pollution, garbage compactors are coming into general use, since garbage so compacted can be handled and disposed of more readily than bulk garbage, and with less aesthetic and other pollution.

A difficulty with prior art constructions known to the present inventor is that the plastic bag is prone to damage from for instance, broken glass from glassware being compacted.

SUMMARY OF THE INVENTION

In the present invention, a tapered sleeve open at each end has the bag drawn over it, then the sleeve and a bag of circular section are placed within the container. Compaction is carried out generally as above, with the pressure plate, travelling downwards within the sleeve, effecting compaction. It is seen that, in this way, damage to side walls of the bag is avoided since the sleeve, which for optimum results is stainless steel, avoids damage from causes such as the above.

The sleeve is tapered upwards, thus facilitating withdrawal from the compacted garbage and leaving the plastic bag — without side wall damage — containing the compacted garbage. Both in the prior art units and in the present unit, damage to the bottom of the bag can ordinarily be prevented by applying several layers of folded newspaper to the bottom before the first charge.

A detail description following, related to drawings, gives exemplification of the invention which, however, can be expressed in structure and mechanism other than particularly described and illustrated herein below.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective of a garbage compactor unit according to the present invention.

FIG. 2 is a central vertical section on a plane parallel to a front wall of the unit, some parts not being shown in section,

FIG. 2A is a central vertical section on a plane parallel to a side wall of the unit, some parts not being shown in section,

FIG. 3 is a central vertical section of a tapered sleeve,

FIG. 4 is a front elevation of the sleeve,

FIG. 5 is a plan view of the sleeve, particularly showing a flange.

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DETAIL DESCRIPTION**FIGS. 1 and 2A**

As seen in perspective in FIG. 1, a garbage compactor unit according to the present invention is designated generally 10, having a top 11, a side wall 12, and an opposite side wall FIG. 2A not seen. A front wall 13 has an opening 13.1 closed by a door 14 extending somewhat over halfway up the front wall and being vertically hinged at 15 on side bracket structure, generally 15.1, which is clear of the opening.

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The unit illustrated in FIG. 1 is generally rectangular in section being about 2 by 2 feet, and is some 40 inches high.

FIGS. 2 and 2A

FIG. 2 is a central section on a vertical plane parallel to the front wall, some parts not being shown in section, FIG. 2A is a central vertical section on a plane parallel to the side walls, some parts not being shown in section.

The interior is divided into an upper compartment 21 and a lower compartment 22 by a transverse portion

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23 extending from the side wall 12 to an opposite side wall 24, the lower compartment being about twice as deep as the upper compartment.

The upper compartment contains a double centrally located extension screw ram means 25 with a circular pressure plate 26 secured to a lower end 27 of a double extension shaft 28. Travel of the ram is about twice the retracted height.

The ram is actuated by a pulley 29 driven by electric motor means not shown. Rotation of the pulley causes the pressure plate to move downwards from the full outline position shown to a broken outline extended position 26.1, the full line portion being referred to as a retracted position.

A base assembly generally 30 at the bottom of the lower compartment 22 has a dished circular base element 31 mounted in a frame having a front member 31.1 and side members 31.2, the latter being supported on spaced roll pairs 32, 32.1, as shown secured to side walls. The base element also has roll 34 in contact with the floor so that, with the door open, the base assembly can be pulled out from the unit for charging and unloading.

A lower end of a hollow tapered stainless steel sleeve 35 extends just below and inside of a flange 36 of the base element 31.

FIGS. 3, 4, 5, with further reference to FIG. 2

FIGS. 3, 4 and 5 are, respectively, a right section, a plan, and a side elevation of the tapered sleeve 35.

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The hollow sleeve 35 tapers upwards, an upper end being secured in a circular flange 37 having a handle 38. Referring now to FIG. 2 it is seen that an outer hollow cylindrical member 39 has an upper flanged end 41 a lower end being supported on the base assembly. The upper end 41 accepts the circular flange 37 so that the hollow tapered sleeve 35 is suspended therewithin as seen in FIG. 2 with its lower end just inside of the flange 36 of the dished element 31.

3 OPERATION

The unit being empty and the door closed, open the door, pull out the base assembly, and remove the tapered tubular sleeve by lifting the flange 37.

Plastic bags of suitable size and configuration are supplied with the unit, and are commonly available from ordinary trade sources. Pull a bag over the tapered sleeve 35 so that the bottom of the sleeve rests on the bottom of the bag with the top of the bag pulled upwards somewhat beyond the flange. The sleeve with the bag surrounding it as above, is now replaced, the upper end of the bag being secured between flange and the upper end 41 of the cylindrical member 39.

Before charging, a number of sheets of folded newspapers are placed in the bottom of the bag for protection. Refuse, tin cans, bottles, or whatever material is to be compacted, is now placed in the bag, the base assembly is pushed in and the door closed. The circular pressure plate 26 being in the retracted position, the motor is started and the pressure plate travels downwards compacting the material. Force exerted by the ram, viz about 3,000 pounds, is such as, ordinarily, to compact to about one-sixth of the loose depth — which figure of course varies with the nature of the refuse being compacted. The pressure plate retracts automatically, as is later explained and upon reaching the retracted position a micro-switch 42 FIG. 2 is opened stopping the motor.

Damage to the plastic bag by, for instance, bottles broken as they are being compacted, is avoided because of the sleeve 35.

When more garbage is to be compacted, the door is opened and the base assembly pulled out for further charging as before described.

When the last charge has been compacted, open the door and pull out the assembly. The sleeve 35 tapers upwards, and, the flange 37 and, with it, the sleeve 35 can be removed, removal being facilitated by the taper.

This leaves the bag full of compacted material ready for removal.

MATERIALS, AND ALTERNATE CONSTRUCTION

Good results are obtained when the tapered sleeve is stainless steel since this has a smooth finish, is strong, and it is found that a stainless steel sleeve has virtually indefinite life not ordinarily being damaged by materi-

als being compacted. The sleeve can be galvanized iron, or plastic.

Other materials used in the construction are as known in the art.

5 A double extension screw ram has been exemplified, with drive from an electric motor.

A self reversing motor of a type used in garbage disposal units, i.e., automatically reversible at a predetermined applied load, is utilized for the drive.

10 When this is done, at a particular determinant maximum compression the motor reverses so retracting the pressure plate. When the plate is fully retracted, the micro-switch opens stopping the motor as explained.

CHARGE

The bag is ordinarily filled with compacted material only to such depth that the weight can conveniently be handled — and the partially filled bag is usually closed with a common tie.

I claim:

1. A garbage compactor including:

a. a sleeve open at each end for receiving garbage to be compacted and being adapted slidably to fit inside a garbage bag against a bottom of the latter, b. an exterior flange at an upper end of the sleeve, c. a base assembly adapted to receive the sleeve and garbage bag, the assembly having:

a base plate for supporting the bag bottom, an upper flanged end engaging the sleeve flange for supporting the sleeve centrally over and spaced above the base plate,

a peripheral flange on the base plate extending upwards outside a lower end of the sleeve,

d. a pressure plate slidably insertable into the sleeve, e. means to move the pressure plate axially of the sleeve so as to compact garbage therein,

the sleeve being removable from the bags so as to leave the bag filled with compacted garbage.

2. A garbage compactor as claimed in claim 1 in which the sleeve tapers upwards.

3. A garbage compactor as claimed in claim 1 including rollers for supporting the base assembly for movement between a position beneath the pressure plate and the position spaced therefrom.

45 3. A garbage compactor as claimed in claim 1 including rollers for supporting the base assembly for movement between a position beneath the pressure plate and the position spaced therefrom.

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