

[54] **TRASH COMPACTOR ATTACHMENT**

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678,965 7/1901 Middleton..... 100/228 X
1,133,048 3/1915 Lundahl..... 100/226
2,332,318 10/1943 Hughes..... 100/293 X

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Attorney—William V. Miller

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100/293, 141/73

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[58] Field of Search..... 141/71, 73, 80;
53/124 B; 100/226, 295, 293, 280, 283, 284,
227, 228

[56] **References Cited**

UNITED STATES PATENTS

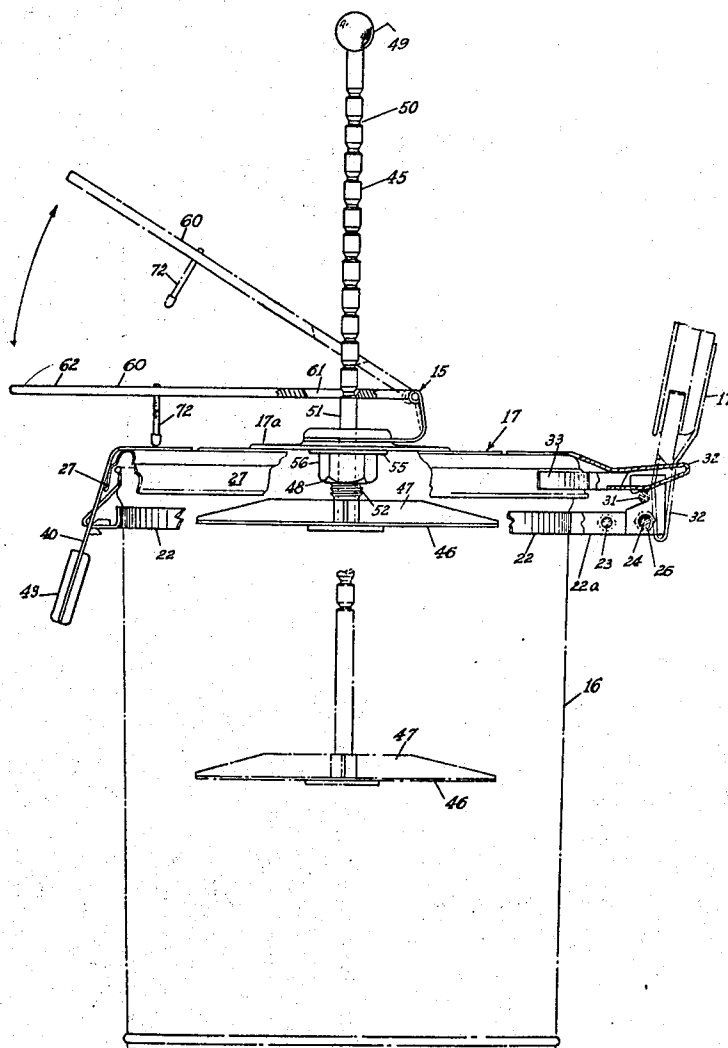
2,533,282 12/1950 Osman..... 100/228 X

[57]

ABSTRACT

A trash compactor for attachment to containers, such as a trash or garbage can, for compacting the trash or garbage deposited therein. The compactor attachment includes a plunger with a head for pressing against the deposited trash and a lever arrangement for applying successive increments of pressure to the plunger to compact the trash or garbage engaged by the head.

9 Claims, 7 Drawing Figures



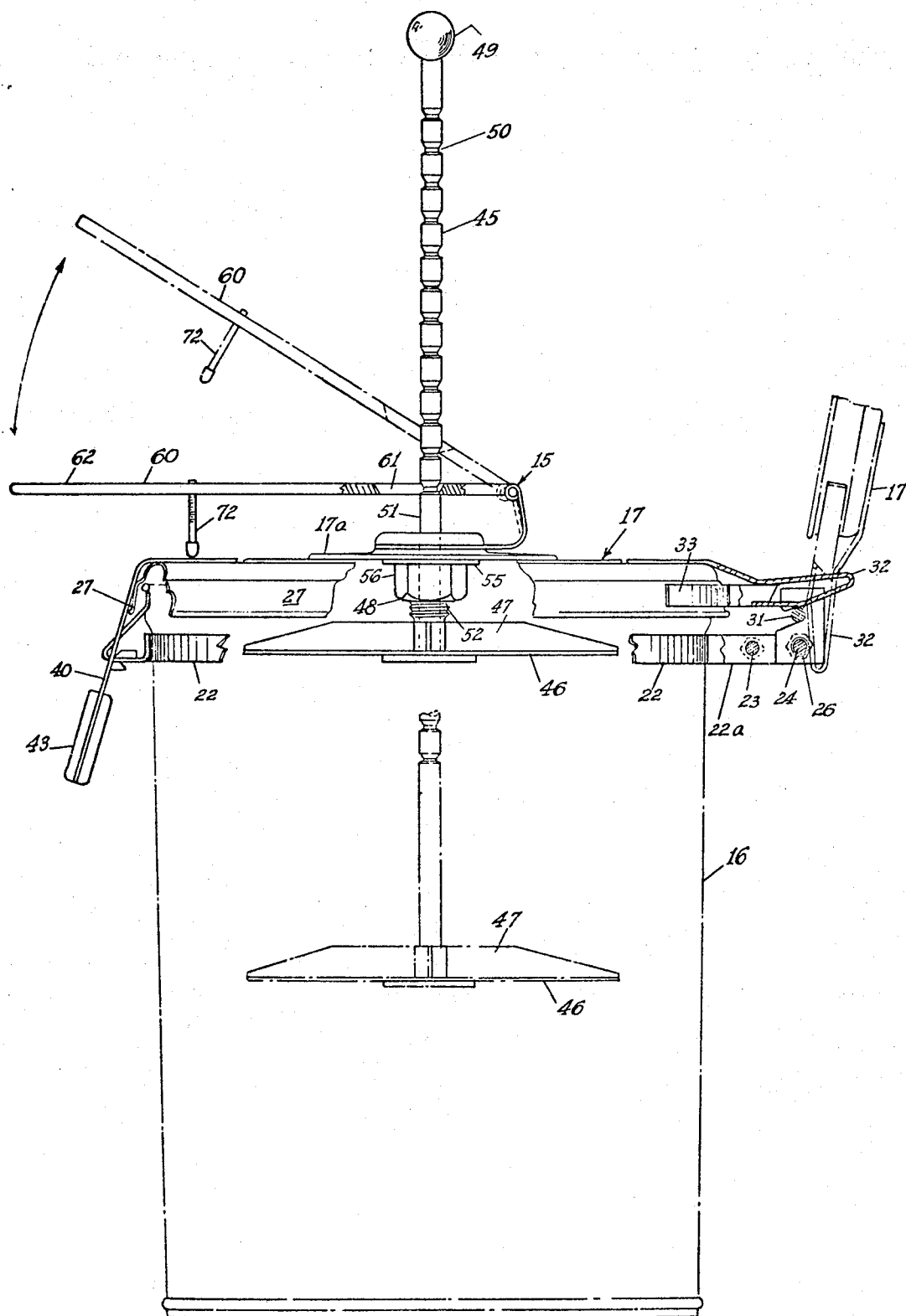
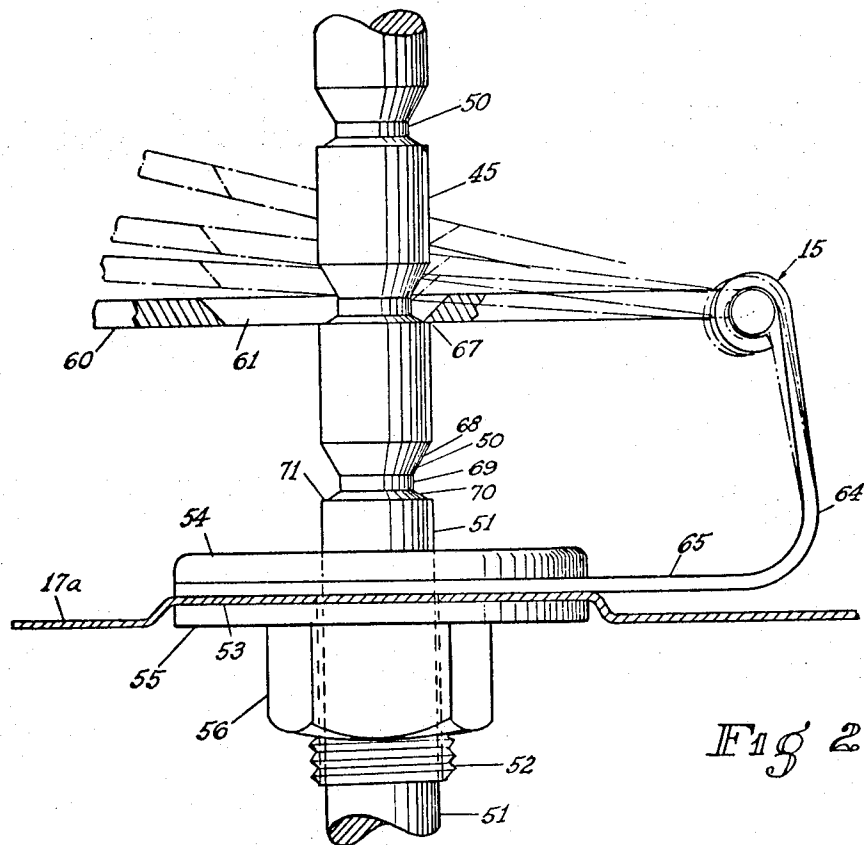
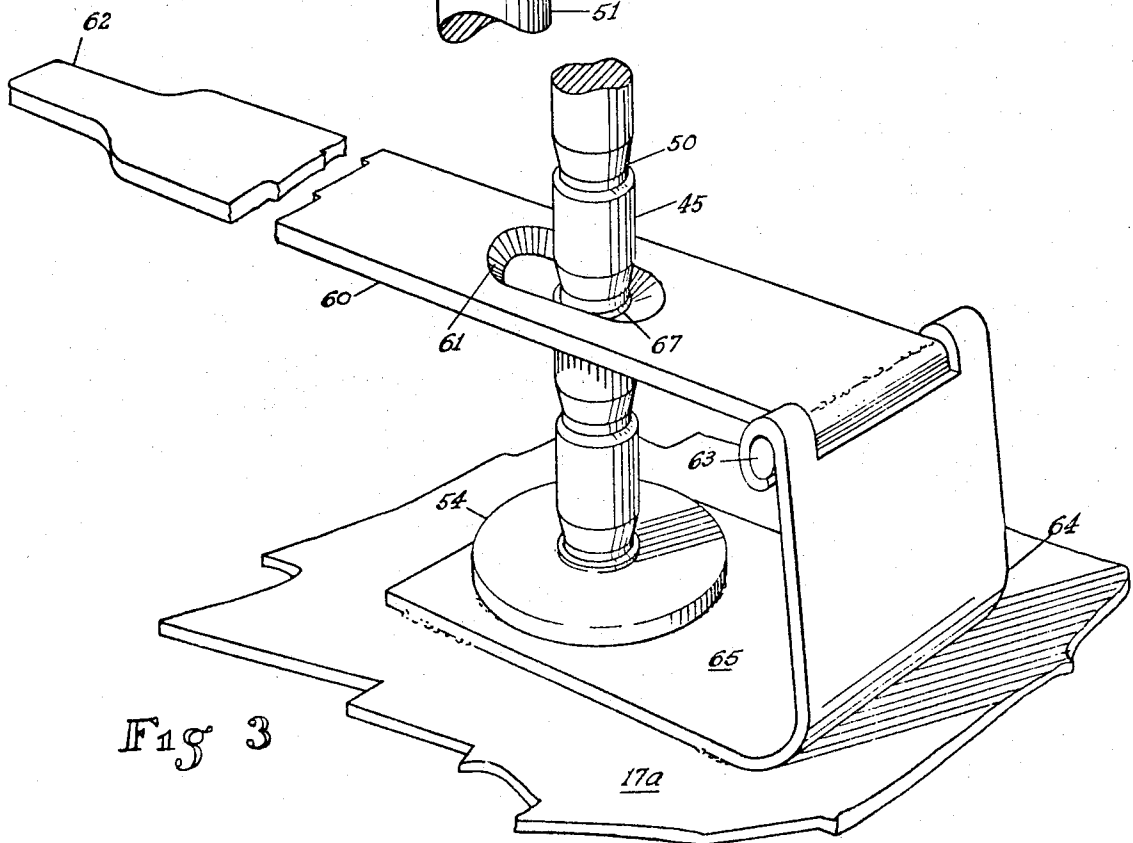


FIG 1

SHEET 2 OF 3



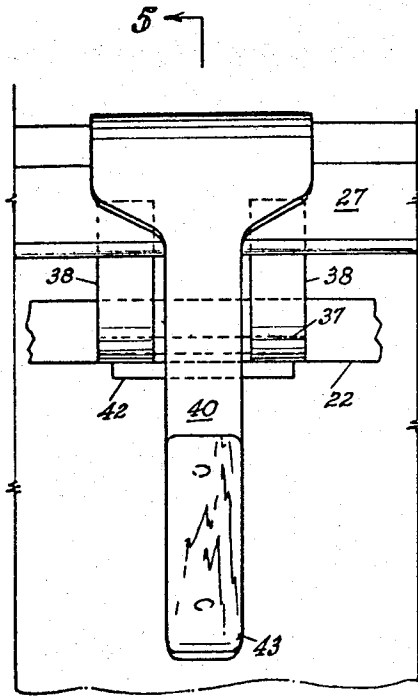


Fig 4

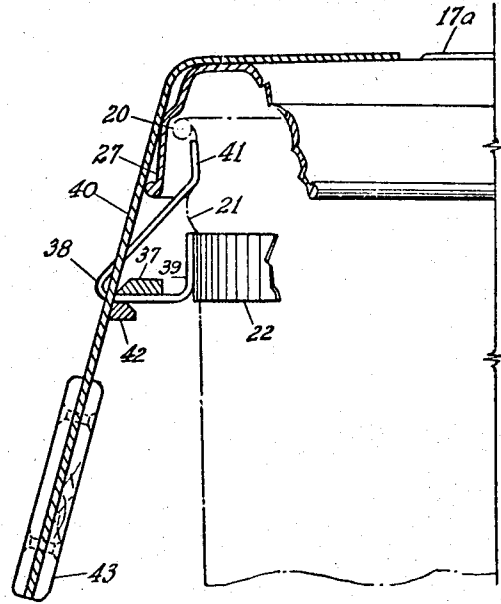


Fig 5

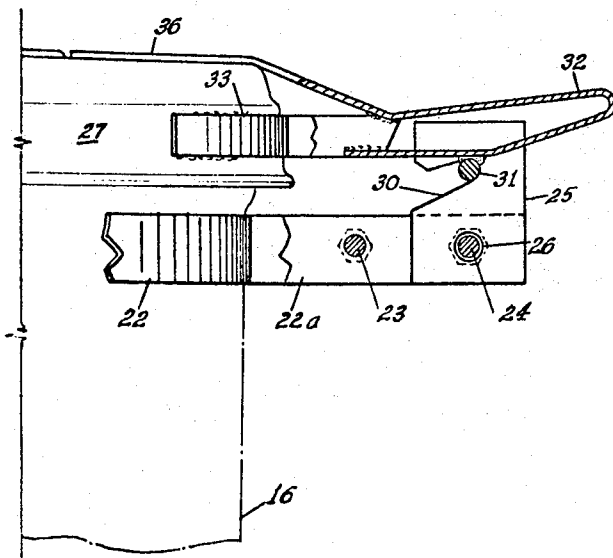


Fig 7

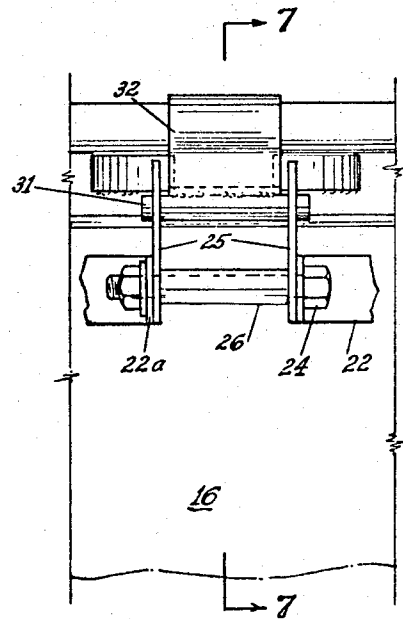


Fig 6

TRASH COMPACTOR ATTACHMENT

In order to increase the capacity of a trash can, it would be desirable to have some means associated therewith to compact the trash after it is deposited therein. The present invention provides a compacting attachment carried by a hinged lid mounted on a trash or garbage can. It includes a plunger which is mounted for slidable vertical movement on the lid and which has a head on its lower end for engaging the trash. Leverage means is provided above the lid and associated with the plunger in such a manner that when the lever is actuated it engages the plunger at successive positions to force it downwardly to move the head downwardly in successive compacting strokes.

The attachment is simple and is of such a nature that it can be manufactured at low cost. It can be applied readily to and removed from a standard trash can. Furthermore, it is of such design and construction and so mounted on the lid that it will not interfere with the opening and reclosing of the lid.

The best mode contemplated in carrying out this invention is illustrated in the accompanying drawings in which:

FIG. 1 is a schematic view, partly in side elevation and partly in section, showing the compactor attachment.

FIG. 2 is an enlarged vertical sectional view showing part of the lever and associated plunger.

FIG. 3 is a perspective view of the parts shown in FIG. 2.

FIG. 4 is an enlarged elevational view of the latch for the lid.

FIG. 5 is a vertical sectional view taken on line 5-5 of FIG. 4.

FIG. 6 is an enlarged elevational view of the hinge for the lid and associated mounting ring connection.

FIG. 7 is a vertical sectional view taken along line 7-7 of FIG. 6.

According to the present invention, there is provided a compactor attachment which is indicated in the drawings generally by the number 15. This attachment can be readily applied to and removed from a container 16, illustrated schematically, which may be a standard garbage or trash can, preferably, although not necessarily, of the metal type. The attachment is mounted on the usual lid 17 which is modified slightly to receive it. The lid is preferably hinged at the upper edge of the can 16 by a suitable retaining ring having an associated hinge and latch. Preferably, the can will be provided with a plastic or other liner before the trash is deposited therein, the edge of the liner extending upwardly and outwardly over a lip 20 on the upper edge of the can.

The lid 17 is removably hinged to the upper edge of the can 16. This type of can is usually provided with the upper lip 20, previously mentioned, and a downwardly spaced annular rib 21. The retaining ring and associated structure includes the metal band 22 which is split and is disposed directly below the rib 21. The split ends are spaced apart, as indicated in FIGS. 5 and 6, and are connected together by means of bolt units 23 and 24. The inner bolt 23 passes through radial extensions 22a of the split ends of the band in order to draw them tightly together. Welded to the outer ends of these extensions are the upstanding lugs or plates 25 which are held in spaced relationship by a spacer 26 carried by the outer bolt 24. When the bolt 23 is adjusted to draw

the ends of the band 22 tightly around the can 16, the band 22 will be tightly clamped around the can 16 below the rib 21 and will be precluded from moving axially upwardly on the can.

The lid 17 is constructed in the usual way with a central disc-like portion 17a and a depending peripheral flange 27 which is adapted to fit down tightly over the annular lip 20 of the can and to frictionally engage therewith so as to seal the can.

The spaced plates 25 have inwardly opening and downwardly directed hinge pin-receiving notches 30, as shown in FIGS. 6 and 7, which are adapted to removably receive a hinge pin 31 extending transversely thereof. This hinge pin 31 is carried at the lower side of a substantially U-shaped bracket 32, produced from a bent metal strip, which has its lower arm welded to an arcuate yoke portion 33 that embraces and is welded to the outer surface of the lid-flange 27. The upper arm of this band extends over and is welded to the upper surface of the disc-like portion 17a of the lid, as indicated at 36. The bracket 32, which is welded to the pin 31, is of less width than the space between the plates or lugs 25 so that in positioning the pin 31 in the slot 30, the bracket can be slipped downwardly between the plates. Obviously, the pin 31 is of sufficient length to project laterally beyond the spaced plates 25. Thus, the lid 17 can be removably hinged to the can by its hinge connection to the band 22.

Diametrically opposite the hinge-structure, a suitable latch arrangement is provided. This latch arrangement is shown in FIGS. 4 and 5. It includes a retaining or catch shoulder 37 which is disposed transversely of and is welded to laterally spaced spring clips 38 which have upstanding lower portions 39 welded to the band 22 and upstanding upper portions 41 resiliently engaging the side of the can 16 beneath the lip 20. A latch strip 40 is rigidly attached to the upper surface of the disc 17a of the lid and extends down between the spring clips 38 carrying a latch portion 42 adapted to engage the keeper-shoulder 37. The spring latch 40 is biased inwardly into latching position, but may be released by outward movement of a handle 43 at its lower end.

Ordinarily, the lid will be hingedly mounted on the can by means of the separable hinge structure which is carried by the band 22 previously mounted on the can 16. The lid 17 may be swung from a closed position in a sealing engagement with the upper end of the can to an open position where it is located outwardly beyond a vertical position, being limited by contact of the U-shaped outward extending portion of the member 32 with the spacer 26, as indicated by broken lines in FIG. 1. The lid can be completely removed by sliding the hinge-pin 31 downwardly and inwardly out of the notches 30 after the lid is swung upwardly slightly into partially opened position.

As indicated previously, and as shown in FIG. 1, the compactor includes a plunger 45 which is preferably formed of a metal rod. This plunger rod has a head 46 mounted on its lower end which may be of any suitable form, but is shown as comprising a disc which is preferably provided with radial extending reinforcing ribs 47. This head 46 is suitably rigidly secured in any suitable manner to the lower end of the plunger rod 45, for example by a collar and nut clamping unit indicated generally at 48. The plunger rod 45 may have a ball-type handle 49 on its upper end. The rod is provided with axially spaced shoulder-forming grooves 50 throughout

the greater portion of its length, but its lower portion 51 may be smooth, and the rod is slidably mounted in a bushing 52. This bushing 52 passes downwardly through an opening in a central-boss section 53 of the lid-disc 17a and is integral with an upper clamping collar 54 through which the rod 45 slidably passes. A second clamping collar 55 is disposed beneath this portion 53 and is clamped thereto by means of a nut 56 threaded on the bushing 52. Thus, the bushing 52 provides a bearing fixed axially to the lid for slidably mounting the plunger rod 45 on the lid 17.

In order to move the rod 45 axially downwardly in a compacting direction, a pressure-applying lever 60 is provided. This lever extends transversely of the rod 45 and is provided with an opening 61 intermediate its ends through which the rod passes, this opening being elongated in the direction of the lower-line or axis of the lever, as shown best in FIG. 3. The lever has a handle portion 62 on its longer end and its shorter end is fulcrumed at a transverse hinge pin 63. This hinge pin is mounted on the upper end of an upwardly extending spring portion 64 carried by a bracket 65 which may be mounted on and clamped to the disc 17a of the lid 17 by the clamping busing arrangement including the bushing 52, it being apparent that this bracket is provided with an opening through which the plunger rod 45 extends.

The inner or end of the opening 61 toward the fulcrum pin 63 is provided with a sharp shoulder 67 which is directed inwardly of the opening towards the plunger rod 45. The spring portion 64 of bracket 65 serves to bias the lever 60 in direction toward rod 45 and normally into engagement therewith. Each of the grooves 50 of rod 45 is of special form having a tapering upper portion 68, an inner vertical annular surface 69 and a lower tapering surface 70 merging into a flat surrounding annular shoulder area 71. The lowermost position of the lever 60 may be limited by means of a bolt 72 depending from its outer end for engaging the latch portion 27 on the upper side of the lid 17. This will prevent the lever from going below a horizontal position.

In the use of this compactor, assuming the lid is mounted on the can 16, the lid is first opened and the trash deposited in the can 16. Then the lid is swung down into closed position and is latched. The plunger rod 45 is then moved downwardly by pushing on the knob handle 49 until the head 46 engages the trash. During this manual sliding movement, the handle 60 will be swung upwardly, as indicated in broken line position in FIG. 1, the rod 45 being moved slightly laterally to disengage shoulder edge 67 from rod shoulder 50, assuming they were previously engaged. To thereafter compact the trash, the lever 60 is swung downwardly about the fulcrum pin 63. This will cause the sharp shoulder edge 67, at the end of the lever opening 61, to move downwardly through the successive positions shown in broken lines in FIG. 2. Because of the biasing effect of the spring 64, the edge will tend to move radially into the groove 50 as far as possible. During its downward movement, it will cam inwardly along the surface 68, downwardly along surface 69, and finally cam outwardly on the surface 70 until it rests on the flat outer annular ledge or shoulder 71. Farther downward movement of the lever will now push the plunger rod 45 downwardly and move the head 46 downwardly to compact the trash. Successive strokes of the lever may be used to apply successive increments

of pressure to the trash. Tapered surface 68 will prevent interference with edge 67 as the lever 60 is swung upwardly. After this compacting operation, the plunger rod 45 may be pulled upwardly by hand, being released by slight upward movement of the lever 60 and lateral movement of rod 45. The head 46 may be moved upwardly to a vertical position which will permit swinging opening of the lid after release by the latch 40. In all cases, the head 46 will be of less diameter than the can so that it will not interfere with swinging opening of the lid when the head is raised to a predetermined level. Also, liquid can pass the head during the compacting action.

It will be apparent from the above that this invention provides a simple and inexpensive attachment for standard garbage or trash cans which can be actuated easily and quickly to compact the trash after it is deposited in the can. This will serve to substantially increase the capacity of the can. The attachment can be readily mounted on a standard trash can and can be readily removed from the can when the can must be replaced because of wear or deterioration. The split clamping ring or band readily permits this. With the band in place on the can, the lid and compactor attachment carried thereby can be removed and replaced due to the separable hinge arrangement. The attachment is so mounted on the lid that when the lid is on the can it will not prevent the opening and closing thereof.

Having thus described this invention, what is claimed is:

1. Apparatus for compacting trash or other material comprising:

a plunger having a pressure-applying compacting head;

means for supporting said plunger for axial movement;

means for moving said plunger axially to move said head in a compacting direction;

said plunger-moving means comprising a lever extending transversely relative to the axis of said plunger and having an opening through which said plunger extends with a plunger-engaging edge;

said lever being fulcrumed adjacent one end at a point spaced laterally from said axis and having an actuating handle portion adjacent its other end and said opening being located intermediate said ends;

said plunger having axially spaced shoulders which may be selectively engaged by the edge of said lever opening upon actuation of said handle portion to move said head axially in a compacting direction;

biasing means cooperating with said fulcrum normally to move said edge of the lever into engagement with said plunger;

said biasing means comprising a spring supporting the end of said lever by means of a hinge for swinging movement in a plane extending in the general direction of said plunger.

2. Apparatus according to claim 1 in which said plunger is a rod of annular cross-section, said shoulders being provided by annular grooves formed therein at axially spaced intervals.

3. Apparatus according to claim 2 in which each of said shoulders is a flat annular shoulder at one side of

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the groove and at the other side of the groove is tapered.

4. Apparatus according to claim 3 in combination with the lid of a trash can or the like, said means for supporting said plunger for axial movement being carried by said lid, said lever being fulcrumed to said lid by a support fixed to said lid.

5. Apparatus according to claim 4 in which said fulcrum support comprises an upstanding spring fixed to said lid and biasing the lever toward said plunger.

6. Apparatus according to claim 5 including means for mounting the lid on a trash can, said means comprising a retaining band for engaging the can, and a hinge structure between the lid and the band for mounting the lid for swinging movement between closed and opened positions.

7. Apparatus according to claim 6 in which the hinge structure is separable to prevent removal of the lid from the band.

8. Apparatus according to claim 7 in which the band is a split clamping band, and adjustable means for connecting its ends together.

9. Apparatus for compacting trash or other material

comprising:

a plunger having a pressure-applying compacting head; means for supporting said plunger for axial movement; means for moving said plunger axially to move said head in a compacting direction;

said plunger-moving means comprising a lever extending transversely relative to the axis of said plunger and having a plunger-engaging means;

said lever being fulcrumed adjacent one end at a point spaced laterally from said axis and having an actuating handle portion adjacent its other end and said plunger-engaging means being located intermediate said ends;

said plunger having axially spaced means which may be selectively engaged by the plunger-engaging means of said fulcrumed lever upon actuation of said handle portion to move said head axially in a compacting direction;

an upstanding spring which carries a fulcrum for said lever, said spring being supported laterally of said axis.

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