

[54] TRASH COMPACTOR RAM

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[57] **ABSTRACT**

A trash compactor employs a vertically descending ram operated by a single, centrally disposed motor driven screw swivelly attached to the ram to accommodate tilting of the latter during compacting. The head of the ram is removable and of a scalloped shape for better compaction of cans and bottles. The ram engages trash deposited in a round, bucket-like container supported on springs carried on a slide-out mount from which the container is removable, compaction causing the container to descend against its supporting springs until it seats on the base of the compactor. The container incorporates a liner, a disposable bag and several shield plates to protect the container and the bag. An electrical control circuit is included, together with several safety interlocks, for actuating the ram and automatically reversing it.

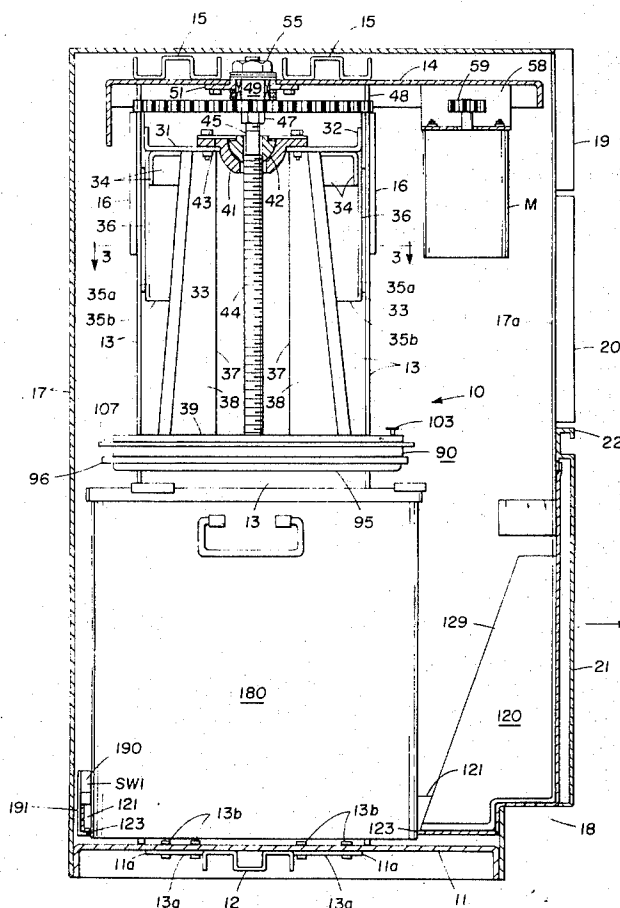
7 Claims, 14 Drawing Figures

FIG 1

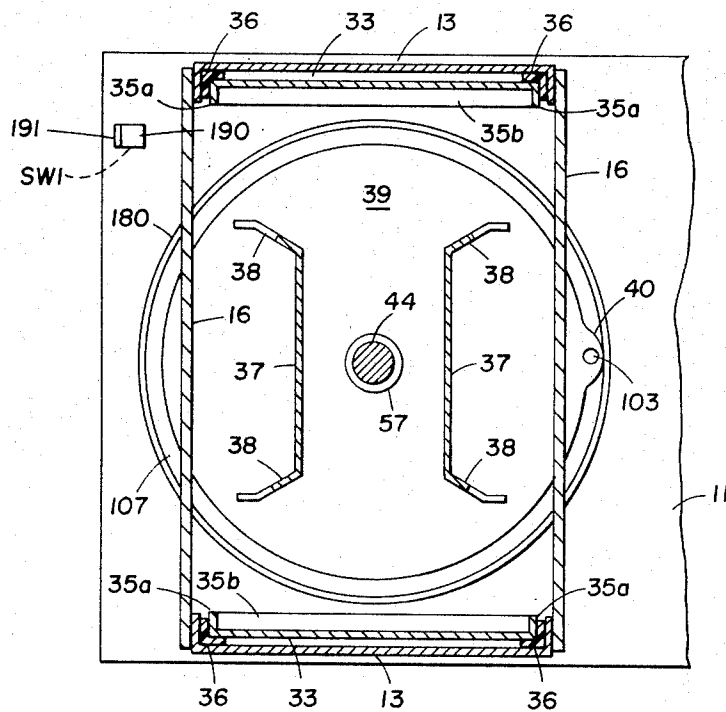
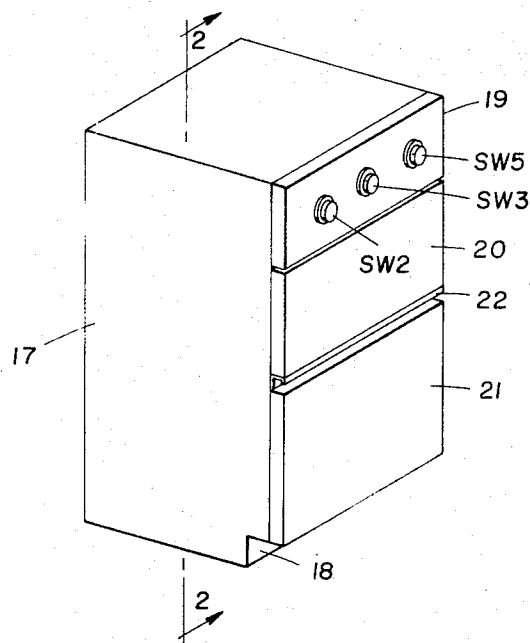


FIG 3

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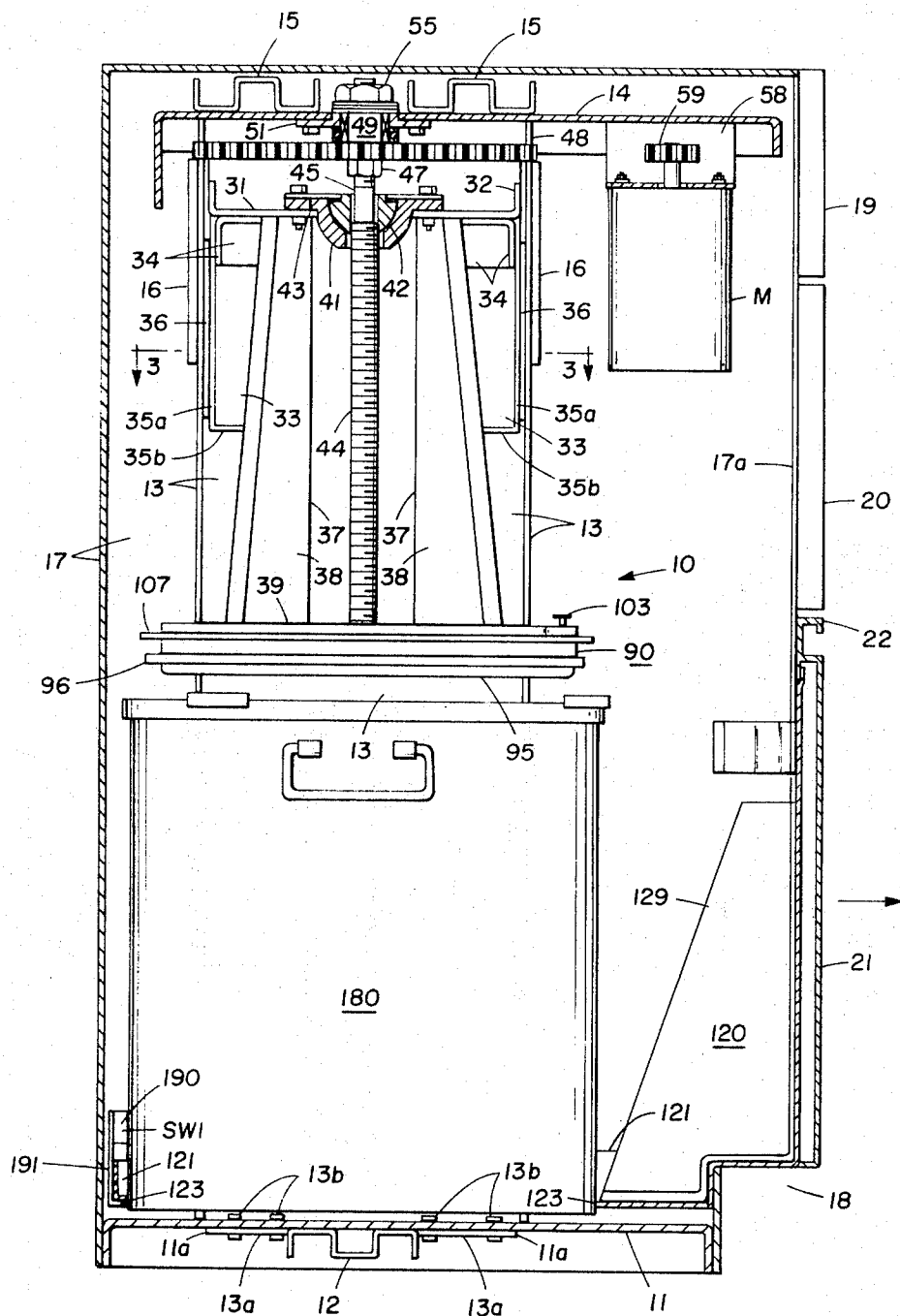


FIG 2

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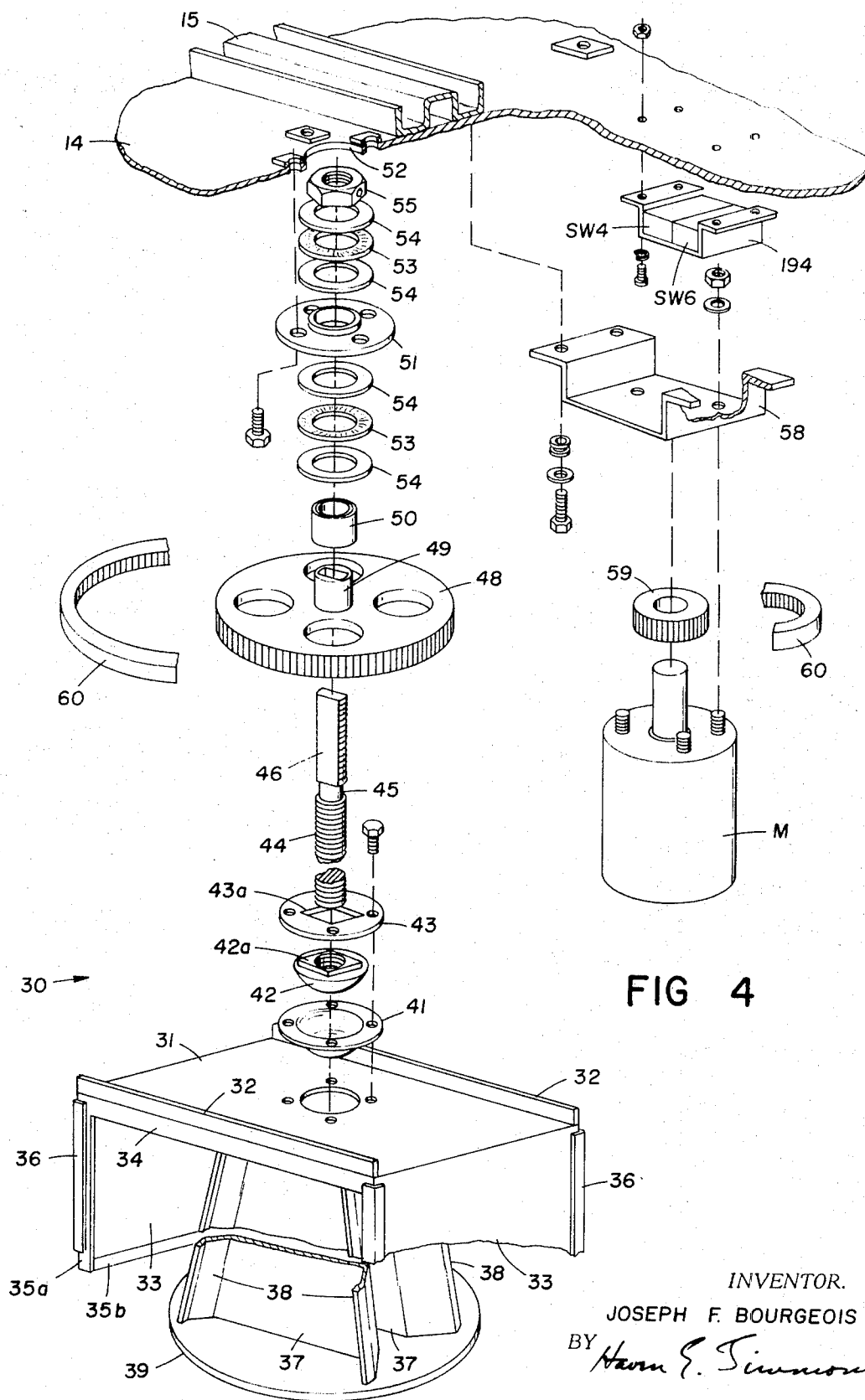


FIG 4

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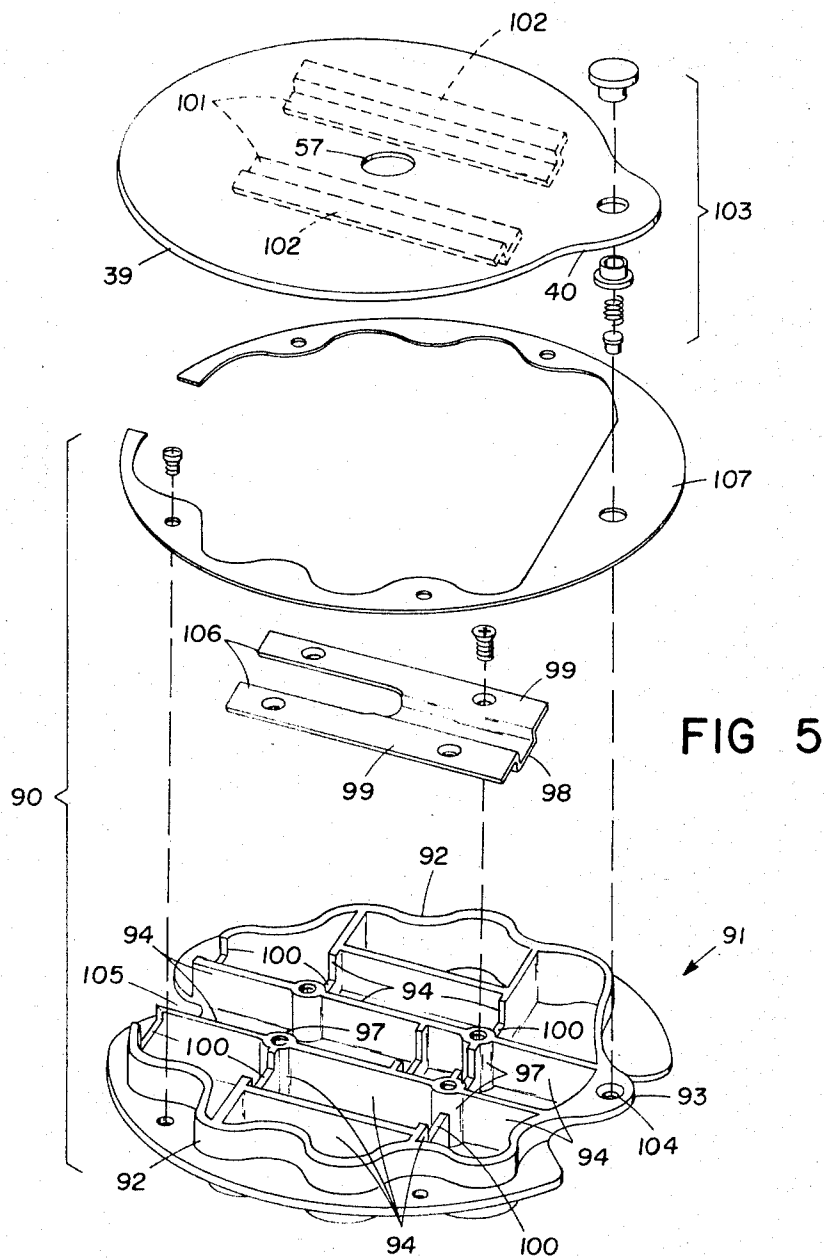


FIG 5

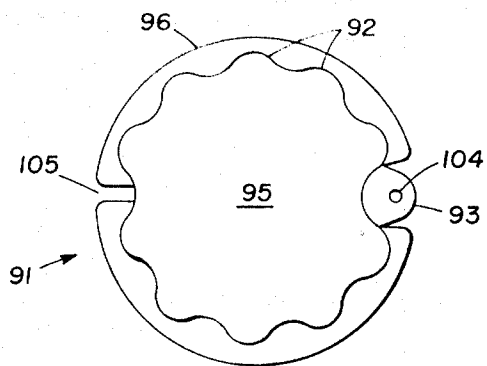


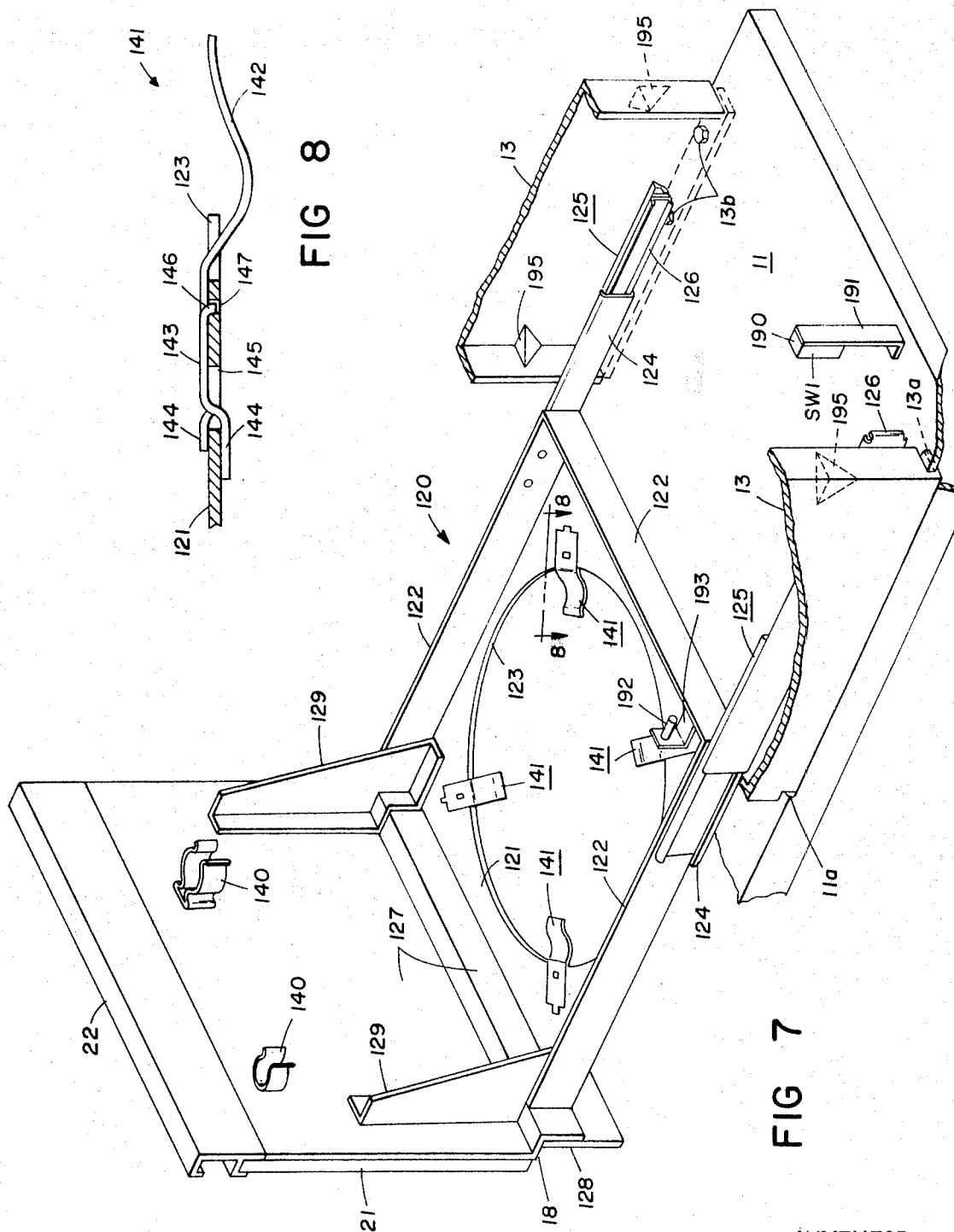
FIG 6

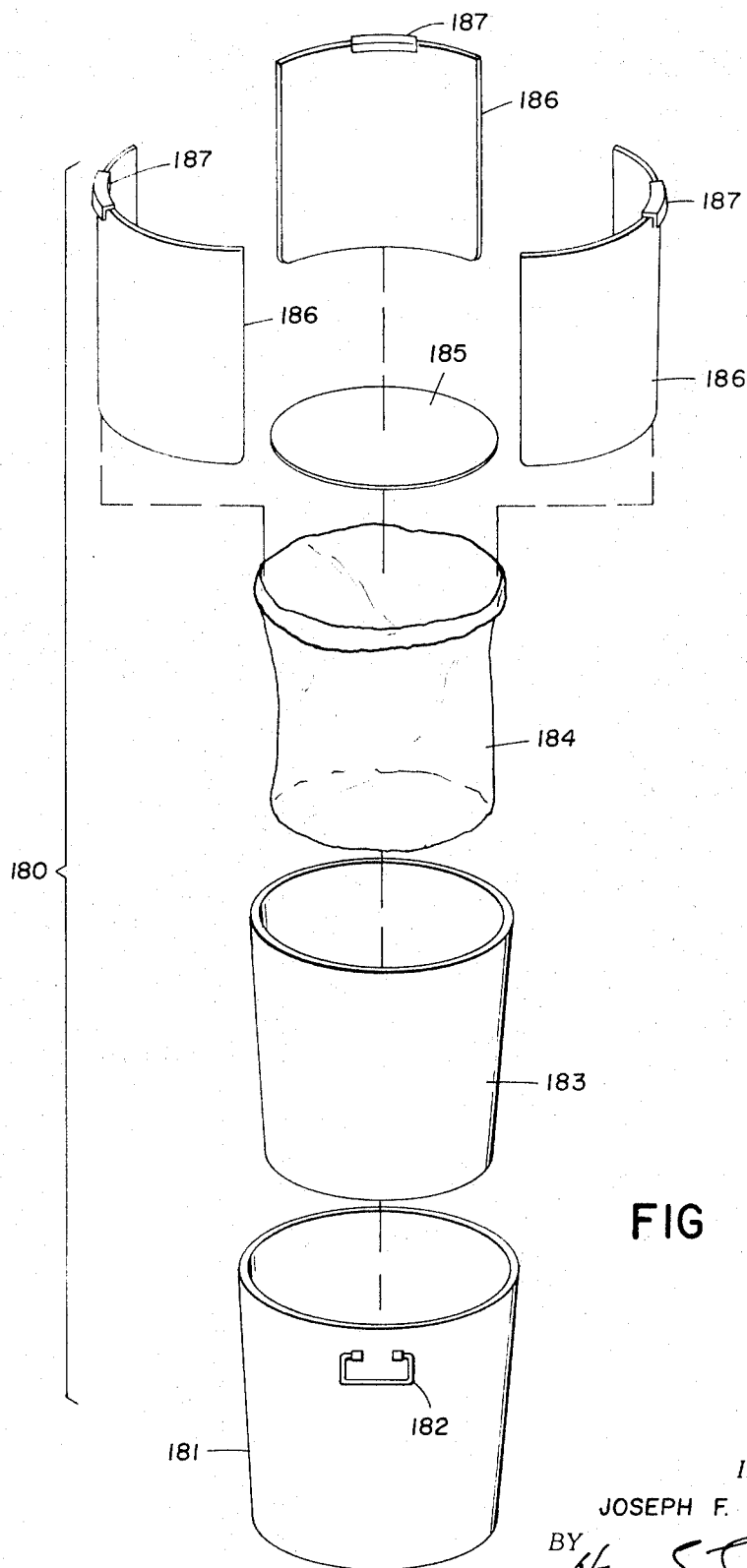
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FIG 10A

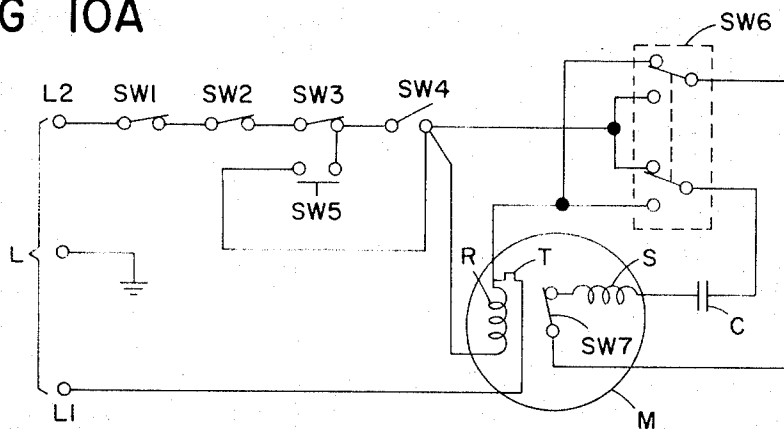


FIG 10B

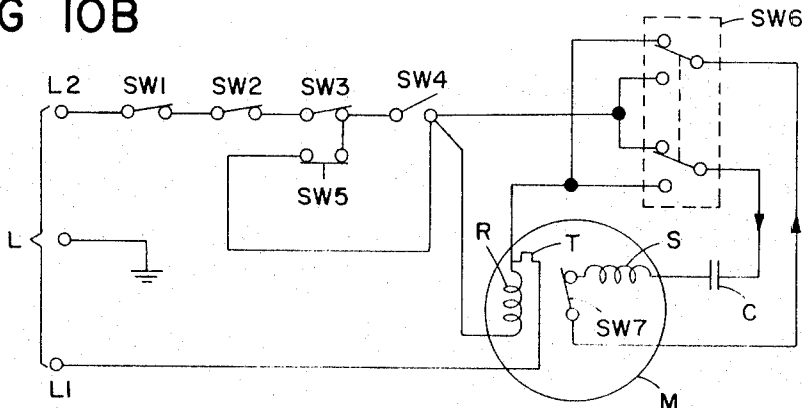
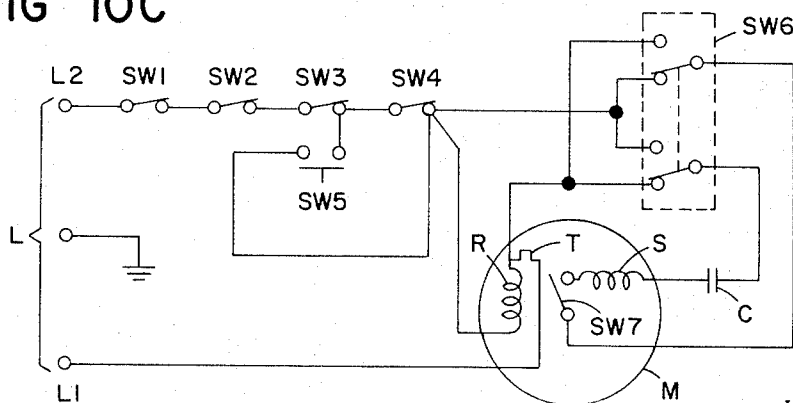


FIG 10C



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FIG 10D

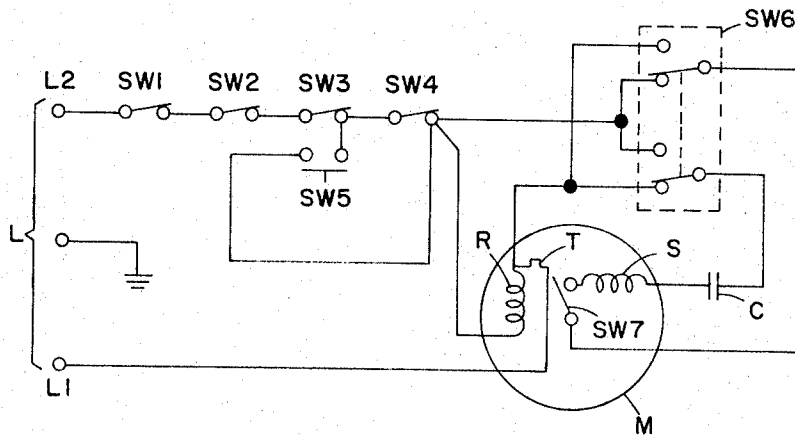
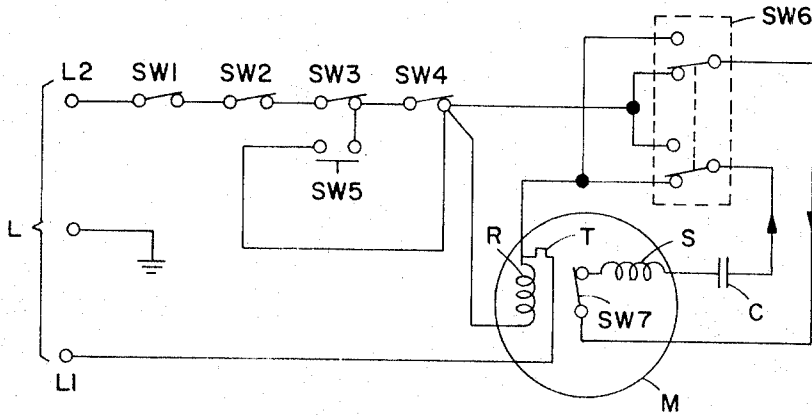


FIG 10E

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TRASH COMPACTOR RAM

BACKGROUND OF THE INVENTION

Previous designs of trash compactors, especially for domestic use, typically use two or more screws to drive the ram, thus increasing the complexity and cost of the unit but not materially its efficiency. For instance, the compactor in U. S. Pat. No. 3,353,478 employs three such screws equally spaced about a cylindrical ram head, while that in U. S. Pat. No. 3,537,390 uses two such screws disposed on opposite sides of a rectangular ram head. The trash to be compacted is typically a mixture of hard and soft items, such as cans and bottles on the one hand and paper and plastic on the other. Consequently, the ram tends to cock at an angle when one portion of its head engages paper while another portion engages a bottle, for instance. The use of multiple screws in compactors of the type concerned is an effort to accommodate these diverse conditions, but as noted, at the price of increased cost and complexity because of the additional screws and drive components needed.

Another unfavorable aspect of prior trash compactors is the ram head itself. These are typically integral with the ram and cannot easily be removed for cleaning or replacement. Problems with them have also been incurred on account of the size and shape of their compacting faces. Clearance between the ram head and the container is important, especially when a tapered container is used in order more easily to remove the compacted trash. If the clearance is too little, then articles can jam between the ram head and the container; if it is too much, then smaller articles will be missed or also jam. On the other hand, the area of the ram head should be as small as possible in order to provide maximum pressure on the trash with respect to the overall force applied to the ram. These competing considerations have not been too well accommodated in present trash compactors of the kind concerned.

The shape and construction of the container in which the trash is compacted are still other deficiencies of the prior art. A non-round, such as a rectangular-shaped, container is rather unsatisfactory because a hard object, such as a round bottle, can lie along one wall of the container so that the ram when it descends contacts the bottle in a manner tending to urge it against the container wall rather than against the container floor, whence the container is pushed aside, sometimes even enough to injure or halt the machine. A round container, on the other hand, is much freer of that vice. Moreover, both round and non-round containers previously employed lack protection for the disposable bag with which the container is customarily lined in order for the compacted trash to be removed. During the compacting stroke the bag is often torn by sharp objects, such as cans and bottles, thus soiling the interior of the container and perhaps even rendering the bag ineffective for disposing of the trash, or in any event making it impossible to seal against emission of odors.

Customarily, of course, some sort of electrical control circuit is also employed for operating compactors of the kind concerned. Typically, these provide for automatic reversal of the ram at the bottom of its compacting stroke and include various safety interlocks. However, such circuits have tended to be rather complex and expensive, using current sensitive relays or other devices to sense when the ram has encountered a predetermined amount of resistance from the trash in

order to reverse the ram's direction. Some prior compactors even limit the compacting stroke to a fixed distance above the bottom of the trash container regardless, thus limiting or reducing the amount of compaction irrespective of the nature or amount of the trash in the container. All of this is unnecessary, and simpler, less costly and more efficient circuits and components are obviously desirable from commercial and performance standpoints.

SUMMARY OF THE INVENTION

The present invention here summarized and later claimed is confined to the ram and its drive, although other inventive features of the trash compactor are also shown in the drawings and disclosed in the more detailed description which follows this summary.

The ram itself is constructed essentially from a broad, horizontal upper plate of rectangular shape having a pair of deep skirt plates whose four corners are provided with nylon glides which travel in respective corners of a pair of broad, vertical channels fixed at their ends to top and floor plates forming the chassis of the compactor. Below the ram upper plate a pair of spaced trapezoidal members extend downwardly and are fitted with a horizontal ram bottom plate below which a removable ram head is attached. The upper plate of the ram is centrally fitted with a swivel nut held captive thereon which receives in turn a long vertical Acme drive screw passing downwardly between the trapezoidal members. The top of the screw above the upper ram plate is fitted with a large cogged driven gear about which passes a cogged drive belt, being driven by a smaller cogged drive gear fixed to the upper end of the drive shaft of an appropriate electric motor vertically suspended beneath the chassis top plate.

Accordingly, the four corners of the skirt plates, since they are disposed substantial distances from the axis of the screw, provide eight widely spaced and extensive vertical guide surfaces and effectively restrain cocking of the ram during compaction of trash, thus enabling a single drive screw to be employed rather than several. The swivel nut accommodates what twisting of the ram may occur to prevent binding and wear of the screw and the nut.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an isometric view of the exterior of a trash compactor according to the present invention illustrating the outer cabinet.

FIG. 2 is a vertical elevation of the interior of the compactor taken generally along the line 2—2 of FIG. 1, certain portions of the chassis, the ram and its drive and the trash container mount being additionally sectioned to illustrate their details.

FIG. 3 is a sectional view taken along the line 3—3 of FIG. 2 but with the trash container mount omitted for more clarity.

FIG. 4 is an exploded isometric view of the ram and its drive.

FIG. 5 is an exploded isometric view of the removable ram head.

FIG. 6 is a bottom plan view of the removable ram head.

FIG. 7 is an enlarged isometric view of the slide-out mount for the removable container in which the trash is compacted.

FIG. 8 is a detail view taken along the line 8—8 of FIG. 7.

FIG. 9 is an exploded view of the trash container itself illustrating its components.

FIGS. 10A, B, C, D and E schematically illustrate the electrical control circuit and its operating sequence during a compacting cycle.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The trash compactor consists of a chassis 10 formed essentially of a heavy, downwardly flanged rectangular floor plate 11 reinforced beneath by a transverse channel assembly 12. Just inboard of and along the side edges of the floor plate 11 are located two broad, shallow vertical channels 13 disposed in facing relation to each other as illustrated in FIGS. 2 and 3. The lower ends of the channels 13 are provided with horizontal tongues 13a which pass through slots 11a along the side flanges of the floor plate 11 and engage its under face, being secured thereto by bolts 13b (see FIGS. 2 and 7). The channels 13 extend nearly to the top of the compactor and are capped by a heavy, downwardly flanged top plate 14, also reinforced above by a pair of transverse channel assemblies 15. The respective opposite flanges of the channels 13 are connected by heavy crossplates 16 just beneath the top plate 14, all to form in effect a heavy, cage-like structure in which the ram operates. Over the chassis 10 is slipped an open front, rectangular sheet metal cabinet 17 whose forward edges are flanged at 17a and provided with a toe space 18. The front of the cabinet is closed by three panels, 19, 20 and 21 against the cabinet flanges 17a, the upper edge of the panel 21 being provided with a hand grip 22 for purposes to be later described. The cabinet 17 is secured only to the rear and side edges of the floor plate 11, being otherwise spaced from the chassis 10 in order to minimize transmission of vibration, and the floor and top plates 11 and 14 extend forward to just behind the toe space 18 and the panel 19, respectively, (see FIGS. 1 and 2).

The ram assembly, generally indicated at 30 (see FIGS. 2, 3 and 4), consists of an upper horizontal plate 31 of rectangular shape generally spanning the area bounded by the four inner corners of the channels 13 and provided with transverse upwardly turned flanges 32. From the side edges of the plate 31 depend a pair of deep skirt plates 33, reinforced by angle braces 34 about the four edges of the plate 31 and by flanges 35a and 35b along their four vertical and two bottom edges. Over the four corners formed by the skirt plates 33 and their flanges 35a are secured nylon glides 36 which slidably bear against the inner corners of the channels 13. Beneath the upper plate 31 are welded the upper ends of a pair of trapezoidal shaped supports 37 braced by flanges 38 along their upright edges and disposed in spaced, back-to-back relation centrally of the plate 31. Welded to the lower ends of the supports 37 is the upper face of a circular bottom plate 39 having a forward tab 40 for purposes to be later described and centrally disposed with respect to the upper ram plate 31. The latter is centrally bored between the supports 37 to receive a flanged swivel seat 41 for a swivel nut 42 having a squared upper boss 42a, the seat 41 and nut 42 being retained by a flange plate 43 bolted through the plate 31, the plate 43 having a squared aperture 43a receiving the boss 42a and so preventing rotation of the

nut 42. Through the latter is threaded a long, Acme type vertical screw 44, its threads being interrupted at 45 toward its upper end and provided thereabove with a pair of opposite flats 46 on which is threaded a nut 47 (see FIG. 2). The latter supports a large, cogged driven gear 48 whose hub 49 fits the flats 46 to fix the gear 48 relative to the screw 44. On the hub 49 is placed a sleeve needle bearing 50 which is received in a flanged bushing 51 seated in an aperture 52 in the chassis top plate 14 and bolted thereto between the channel assemblies 15. Above and below the bushing 51 are interposed a pair of washer-type needle thrust bearings 53, each sandwiched between a pair of flat washers 54. Through the bushing 51 extends the upper end of the screw 44, the latter and thus the entire ram assembly 30 being suspended from the bushing 51 by means of a nut 55 bearing against the upper-most washer 54. In order to prevent whipping of the screw 44, its lower end is extended down through an aperture 57 in the ram bottom plate 39 (see FIG. 5). Forward of the ram assembly 30 a hat-shaped bracket 58 is bolted to the under face of the chassis top plate 14 from which is vertically suspended an appropriate electric motor M, the upper end of its drive shaft carrying a small cogged drive gear 59, the gears 48 and 59 being connected by a cogged drive belt 60.

Accordingly, as the screw 44 is driven in the appropriate direction, the entire ram assembly 30 moves downwardly owing to the swivel nut 42. The four nylon glides 36, which in effect provide a total of eight bearing faces, fit tightly against the inner corners of the chassis channels 13 and are heavily greased. The screw 44, which provides a single axis of thrust centrally disposed with respect to the ram assembly 30 and parallel to the glides 36, absorbs most of the resistance encountered by the ram assembly 30 as it descends. Any tendency for it to cock or twist is effectively resisted and accommodated by the strength of the ram assembly 30, the extensive length of the eight surfaces of the nylon glides 36 and the substantial lateral spacing of the latter from the axis of the screw 44. The interrupted thread portion 45 of the screw 44 prevents over-travel of the ram 30 upon its upward movement. The driven gear 48, which may be of powdered metal or cast from aluminum or iron, is provided with 84 cogs while the drive gear 59 has 10 to 13 cogs, the motor M being a standard 1/8 hp, 115 VAC unit of 1,725 rpm.

The removable ram head assembly 90, which is of generally circular shape, consists essentially of an integral casting 91 having a side wall formed by peripheral ribbing 92 which undulates radially with respect to a circle circumscribed thereabout, the ribbing 92 being extended to provide a forward tab 93 similar to tab 40 of the ram bottom plate 39. The ribbing 92 is reinforced by reticular ribbing 94 therebetween, the upper ends of the ribbing 92 and 94 and the upper face of the tab 93 providing faces mating with the lower face of the ram bottom plate 39. The lower ends of the ribbing 92 and 94 are closed by an end wall whose leading face provides a flat, compacting surface 95 whose peripheral contour is the same as that of the ribbing 92 and centrally disposed with respect to the axis of thrust of the ram drive screw 44. Midway between the top and bottom of the periphery of the ribbing 92 is formed a laterally extending, generally circular flange 96 below the level of the tab 93 of substantially the same overall diameter as the ram bottom plate 39 and concentric

therewith. The intersections between selected ones of the ribbing 94 are enlarged to provide four rectangularly spaced bolsters 97, centrally disposed with respect to the head assembly 90, to which is screwed an inverted hat section plate 98, diametrically aligned with the tab 93. Beneath the leaves 99 of the plate 98 the respective ribbings 92 and 94 are relieved, as indicated at 100, in order to permit the leaves 99 slidably to engage a pair of flat spaced ways 101 formed from a pair of reversely bent metal strips 102 welded to the bottom face of the ram bottom plate 39 to each side of a diametrical line through the tab 40 in order to attach the ram head assembly 90 to the plate 39. The two are releasably retained by a spring loaded bayonet catch assembly 103 mounted in the tab 40 and engaging a hole 104 in the tab 93 therebelow. In order to provide clearance for the lower end of the screw 44 as the head assembly 90 is slid on and off the way 101, the ribbing 92 and the flange 96 opposite the tab 93 are relieved at 105, as is the transverse ribbing 94 between the adjacent most pair of bolsters 97 and the corresponding portion 106 of the plate 98. Finally, to the upper face of the flange 96 is screwed a neoprene gasket 107 having a circular perimeter of a diameter somewhat greater than that of the flange 96, all for purposes to be described. Accordingly, by releasing the catch 103 the ram head assembly 90 can be slid forwardly and readily removed for cleaning or replacement.

The slide-out mount 120 for the trash container (see FIGS. 2 and 7) is formed by a rectangular floor pan 121 having shallow side and rear end walls 122 and a large centrally located, circular aperture 123 therein normally axially aligned with the ram head 90 and somewhat larger in diameter. To the exterior of the side walls 122 along the floor pan 121 are affixed the outer members 124 of a pair of three-piece, ball bearing full extension glides 125, of conventional type, whose stationary members 126 are secured across the flanges of the chassis channels 13 just above the floor plate 11. The floor pan 121 is also provided with a front wall 127, extending the full width of the cabinet 17, which is forwardly stepped to form the cabinet toe space 18 and carries a toe plate 128. A pair of upright, trapezoidal braces 129 welded to the floor pan 121 and the inner faces of the side and front walls 122 and 127 secure the front wall 127 to the floor pan 121 and the cabinet front panel 21, carrying the hand grip 22, is secured in turn to the front wall 127 above the toe plate 128. Two different sized spring clips 140 are fastened to the inner face of the front wall 127 for purposes to be described. Inwardly of the corners of the floor pan 121 four flat, container supporting springs 141 extend radially into the aperture 123. Each spring 141 consists of a cantilevered arm 142 and a shank 143 terminating in vertically split tongues 144 formed in the opposite end of the shank 143. The latter lies atop the floor pan 121 while the tongues 144 engage the upper and lower faces of the floor pan 121 through a hole 145 through the latter in order to locate the spring 141, its lateral movement being restrained by a downset tang 146 formed in the shank 143 and engaging another hole 147 in the floor pan 121 (see FIG. 8).

The springs 141 support a trash container assembly 180 consisting of an outer bucket 181 equipped with handles 182 (or cut-outs) and fitting the aperture 123 in the floor pan 121. The container assembly 180 is normally supported on the spring arms 142 above the

chassis floor plate 11 in which position it is just below and axially aligned with the lower face 95 of the ram head 90 when fully retracted (see FIG. 2). Within the bucket 181 are nested first a polyethylene liner 183 and then a disposable plastic bag 184, folded over the top of the bucket 181 and liner 183, having a circular, corrugated paperboard insert 185 forming a protective cushion for the bottom of the bag 184. The latter is protected by three arcuate, overlapping metal shield plates 186 having handles 187 which fit over the rims of the bucket 181, liner 183 and bag 184 (see FIGS. 2 and 9) in order to retain the bag 184 and shield plates 186 against the wall of the liner 183. The bucket 181 and liner 183 taper from top to bottom, the interior diameter of the container 180 at its bottom being substantially equal to the diameter of the flange 96 of the ram head 90, while its interior diameter at the top is substantially equal to that of the gasket 107. As a practical working example, the bucket 181 may be formed from 16 gage galvanized steel with top and bottom outside diameters of 14-½ inches and 14 inches respectively and a height of about 15 inches. The shield plates 186 may be of similar material while the wall thickness of the liner 183 can be about 0.002-0.005 inch. The diameter of the flange 96 of the ram head plate 81 may be about 13 inches while the edge of the scalloped perimeter of the ram head face 95 undulates between three-eighths inch and 1-½ inches from the edge of the flange 96, the step between the latter and the face 95 being about three-eighths inch. The clearance between the edge of the flange 96 and the shield plates 186 is thus about five-sixteenth inch at the top and three-sixteenth inch at the bottom of the container 180, insuring adequate but not too much clearance so as neither to jam nor to miss small objects.

When the ram 30 is in its fully retracted position as shown in FIG. 2, the container 180 can be pulled forwardly out of the cabinet 17 on its mount 120, as indicated by the arrow in FIG. 2, by the hand grip 22 in order for trash to be deposited. When the container 180 is full, the ram 30 is activated and descends to compress the trash at which time the springs 141 deflect allowing the container 180 to sink through the aperture 123 until its bottom sits firmly upon the chassis floor plate 11. The scalloped perimeter of the lower face 95 of the ram head plate 91 not only reduces the area and thus increases the pressure applied by the face 95 but also tends, together with the step between the face 95 and the flange 96 above, to apply a multitude of random, downwardly directed forces on bottles and the like lying about the wall of the container 180 in order to provide effective breakage and to reduce or eliminate lateral forces on the side wall of the container 180. At the same time, the flange 96 avoids missing small objects and yet minimizes clearance between the ram head plate 91 and the wall of the container 180. The arcuate shield plates 186 protect the sides of the disposable bag 184 from tearing during the compacting stroke, the bags 184 being readily available standard items so that no specially formed or shaped bags are necessary; most any bag which generally fits within the container 180 will do the job. When the shield plates 185 are withdrawn, the bag 184 with the trash compressed therein can be readily removed from the liner 183 owing both to the absence of the shield plates 186 and the overall taper of the container 180. The polyethylene liner 183 is preferably included to insure cleanli-

ness of the interior of the bucket 181 since the latter is necessarily quite heavy to lift out for cleaning. In addition, the liner 183 also serves to protect the walls of the bucket 181 should the shield plates 186 not be used for some reason. In that case, too, should the bag 184 tear or the liner 183 become damaged, the latter can be much more readily cleaned or replaced than the heavy bucket 181. The ram head gasket 107, which bears against the shield plates 186, acts as a splash shield, while the clips 140 on the container mount 120 are for different sized spray cans of deodorant or disinfectant to be used on trash deposited in the container 180 or after its compaction and removal.

Turning now to FIGS. 10A - E, the electrical control circuit for the compactor will now be described. One side L1 of the 115 VAC power supply line L is connected directly to one end of the run windings R of the motor M through a typical thermal overload switch T within the motor M. The other side L2 is connected in series with four s.p.s.t. switches SW1, SW2, SW3 and SW4, themselves also connected in series. SW1 is a safety interlock switch biased normally open and located in a box 190 supported by a bracket 191 at the extreme rear of the chassis floor plate 11 adjacent its right hand corner (as viewed from the front) so that the box 190 is elevated above the rear wall 122 of the slide-out mount 120 (see FIGS. 2, 3 and 7). SW1 is operated by a horizontal pin 192 projecting rearwardly from an upstanding bracket 193 (see FIG. 7) secured to the rear wall 122 of the slide-out mount 120 which passes through a hole in the front face of the box 190 and closes SW1 only when the mount 120 is pushed fully in. SW2 is a key operated safety switch and SW3 a manually operated ram stop switch, both mounted on the front control panel 19. SW4 is a ram top limit switch biased normally closed and located under the chassis top plate 14 on a bracket 194 (see FIG. 4) in one of its forward corners to be opened by the forward flange 32 of the upper ram plate 31 when the ram 30 is in its uppermost position. A s.p.s.t. momentary start switch SW5 is wired in parallel with SW4 and also located on the control panel 19. The downstream side of SW4 is connected to the other end of the run windings R and to one of each pair of the alternate contacts of a d.p.d.t. ram directional switch SW6 located beside SW4 on the bracket 194 and operated in the same manner, the two circuit-making members of SW6 being moved by the flange 32 of the upper ram plate 31 to the position shown in FIG. 10A and biased to the position shown in FIG. 10B. The other of each pair of alternate contacts of SW6 are both connected to the line L1 at the run windings R. One of the circuit making members of SW6 is connected in series with one end of the start windings S of the motor M through a start capacitor C and the other circuit making member of SW6 to the other end of the start windings S through a centrifugal s.p.s.t. switch SW7 within the motor M and normally closed when the motor M is below a predetermined run speed. The operating sequence of the compactor is then as follows:

As shown in FIG. 10A, the ram 30 is at rest at the top of its stroke and the container mount 120 pushed fully in, whereby the safety interlock switch SW1 is closed, the top limit switch SW4 is open and the ram directional switch SW6 is in the position illustrated; the key switch SW2, the manual stop switch SW3 and the centrifugal switch SW7 are all closed. To activate the ram

30, the momentary start switch SW5 is first closed, as shown in FIG. 10B, completing the circuit from L2 to the run windings R and to the start windings S through SW6, the direction of current flow through the latter windings being indicated by the arrows in FIG. 10B. The ram 30 thus starts to descend, permitting the top limit switch SW4 to close and maintain the circuit to the start windings S of the motor M, whereupon SW5 can be released, all as shown in FIG. 10C. After the motor M is up to speed the centrifugal switch SW7 opens the circuit through the start windings S, the motor M thereafter being operated by the run windings R only, and as the ram 30 further descends the directional switch SW6 moves to its alternate position preparatory for reversing the direction of current flow through the start windings S. When the ram 30 has compressed the trash in the container 180 to a point where its resistance slows the motor M sufficiently, at which point the ram 30 is exerting about 3,200 lbs. of force upon the trash, the centrifugal switch SW7 recloses to re-energize the start windings S, through which the current flows in the reverse direction as shown by the arrows in FIG. 10D owing to the previous movement of the directional switch SW6, thus reversing the motor M and starting the ram 30 upward. As the motor M gets up to speed, the centrifugal switch SW7 reopens, as shown in FIG. 10E, and the ram 30 continues to rise until the flange 32 of the upper ram plate 31 opens the top limit switch SW4, thus breaking the circuit to the motor M and halting the ram 30. At the same time, the directional switch SW6 is returned to its original position and the centrifugal switch SW7 recloses, whereby the circuit is restored to the condition shown in FIG. 10A, ready for another compacting cycle. Travel of the ram 30 up or down can be halted by opening the manual stop switch SW3 which breaks the circuit from L2 to the motor M under all conditions. Reclosing SW3 will cause the ram 30 to return to its initial, upper position, regardless of in which direction it had been going, owing to the fact that in either event SW6 is in the motor reversing position shown in FIGS. 10C-10E. The key safety switch SW2 is incorporated so that the compactor can be locked up to protect children or to avoid unauthorized use inasmuch, as is apparent, the compactor is inoperative until SW2 is closed. The safety interlock switch SW1 prevents any operation of the ram 30 unless the container mount 120 is fully pushed in.

Should there be no trash in the container 180, or even should the latter have been entirely removed for some reason, the compactor can still be operated so long as the container mount 120 is pushed in. In theory, the ram 30 could simply descend until it contacts the bottom of the container 180 or the chassis floor plate 11, as the case may be, and then reverse in the foregoing manner, all without harm. Hence, it is theoretically unnecessary to employ any device for measuring the resistance encountered by the ram 30 in order to reverse it or to limit the compacting stroke to a predetermined distance above the bottom of the container 180. In practice, however, in order to keep the length of the ram drive screw 44 such that the overall height of the cabinet 17 permits it to be built-in under a typical kitchen counter or the like, the length of the stroke of the ram 30 must often be restricted so that it does not "run-off" the screw 44 before it would otherwise contact the chassis base plate 11 or the bottom of the con-

tainer 180, as the case might be. This is required in the case of the embodiment shown, and for that purpose four stops 195 (see FIG. 7) are welded in the corners of the channels 13 which engage the flanges 35b of the ram 30 when the compacting face 95 of the ram head 90 has descended to a position equivalent to about 1-½ inches from the bottom of the container 180, thus halting the ram 30 and causing it to reverse in the manner explained above regardless of whether the container 180 is empty or is removed from its mount 120. Even so, the degree of compaction is still uniform and for all practical purposes independent of the amount of trash in the container 180.

Though the present invention has been described in terms of a particular embodiment, being the best mode known of carrying out the invention, it is not limited to that embodiment alone. Instead, the following claims are to be read as encompassing all modifications and adaptations of the invention falling within its spirit and scope.

I claim:

1. In a trash compactor having a ram assembly movable in a substantially vertical path; a container in trash compacting position beneath said ram assembly and movable therefrom for emptying; power operated means for moving said ram assembly in a compacting stroke downwardly into said container substantially its full effective depth and then upwardly along said path so that said container can be removed for emptying, said power operated means exerting force upon said ram assembly in a single axis of thrust normally parallel to said path and including a single screw and threaded means carried by said ram assembly permitting swivel movement of said assembly relative to said axis; and a plurality of stationary guides for said ram assembly extending parallel to said thrust axis and spaced remotely from and about said axis and screw outboard of the exterior of said container, the improvement in said ram assembly comprising: a substantially horizontal top member carrying said threaded means and centrally disposed with respect to said axis; opposite skirt members depending extensively from said top member, said skirt members slidably engaging said stationary guides during movement of said assembly and spaced from and about said thrust axis to pass outboard of the exterior of said container during the compacting stroke of said ram assembly; a ram head beneath said top member having a compacting face normal to said path and centrally disposed with respect to said thrust axis, said ram head being fittingly received in said container during said compacting stroke, the perimeter of said ram head being inboard of said skirt members; and means

connecting said ram head to said top member and spacing said compacting face therebelow a distance substantially equal to the full effective depth of said container, the outer confines of said connecting means lying inboard of the perimeter of said ram head, said connecting means and said top and skirt members together being effective to resist tilting of said ram head during said compacting stroke.

2. The compactor of claim 1 wherein said top member comprises a rectangular top plate and said skirt members a pair of rectangular plates depending therefrom having vertical angular corner portions with friction reducing material disposed thereover and slidably engaging said stationary guides, said stationary guides comprising a plurality of angular channels.

3. The compactor of claim 2 wherein said threaded means includes an internally threaded nut mounted to said top plate against rotation relative thereto and said screw is rotably driven, said mounting also preventing movement of said threaded member relative to said assembly in either direction along said thrust axis.

4. The compactor of claim 2 wherein the outer confines of said connecting means extend convergently upwardly from closely adjacent the perimeter of said ram head and are attached to the underside of said top plate closely adjacent and about said thrust axis and said threaded means.

5. The compactor of claim 4 wherein said connecting means comprise a pair of formed plate members, each of said members including a central trapezoidal portion having its converging edges extending upwards from said ram head to said top plate, said trapezoidal portions being disposed in spaced facing relation on opposite sides of said screw, each of said trapezoidal portions having reinforcing portions along their entire converging edges, said reinforcing portions being angled with respect to said trapezoidal portions outwardly toward the perimeter of said ram head and secured to said top plate and said ram head.

6. The compactor of claim 5 including a cabinet having a front face, and wherein said top plate includes a first pair of opposite edges normal to said face and spaced apart a greater distance than a second pair of opposite edges of said plate parallel to said face, said skirt plates depending from said first pair of edges.

7. The compactor of claim 5 wherein said trapezoidal portions are disposed generally parallel to said second pair of said top plate edges, said reinforcing portions being angled outwardly toward said last-named pair of plate edges.

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