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Fair et al.

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[45] **May 7, 1974**

[54] **TRASH COMPACTOR**

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[73] Assignee: **said Griswold, by said Fair**

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[21] Appl. No.: **278,424**

[52] **U.S. Cl.** ..... **100/221**, 100/52, 100/53, 100/218, 100/226, 100/229 A, 100/255, 100/269 R, 100/295, 220/4 B

[51] **Int. Cl.** **B30b 15/16**

[58] **Field of Search** ..... 100/53, 215, 221, 229 A, 100/224, 218, 295, 226, 255, 52, 26, 269 R; 220/4 B

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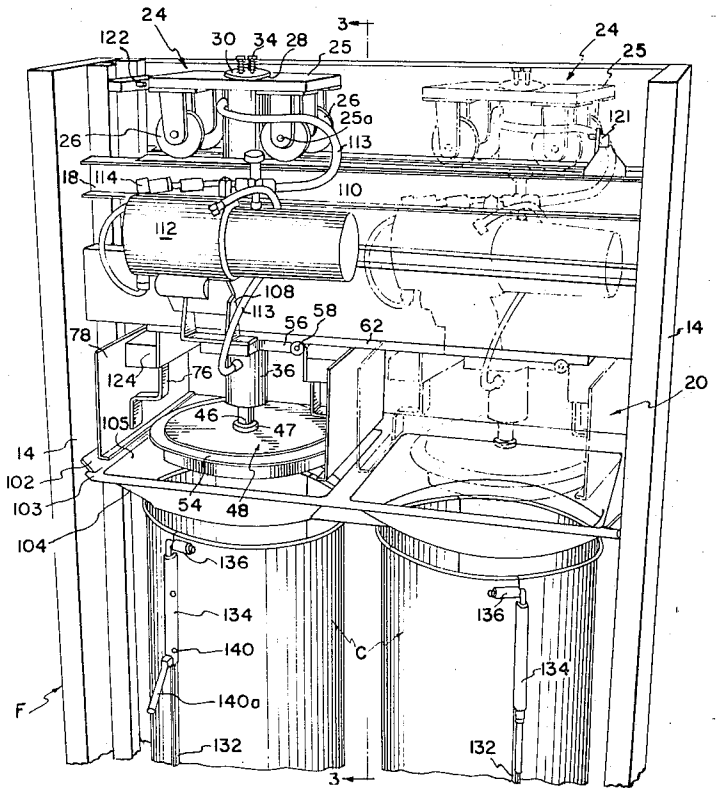
Primary Examiner—Billy J. Wilhite

Attorney, Agent, or Firm—Learman & McCulloch

[57] **ABSTRACT**

A two-station trash compactor including a frame supported carriage movable in a longitudinal path of travel between a pair of longitudinally spaced, trash compacting stations, homing apparatus for guiding the carriage to the trash compacting station, a compacting ram vertically movable on the carriage between a raised position and a lowered trash compacting position for selectively compacting trash in either of a pair of longitudinally spaced, partible trash containers at the trash compacting stations, and ram driving apparatus on the carriage for moving the compacting ram in a to-and-fro vertical path of travel to compact the trash a predetermined amount and then automatically returning the compacting ram to a removed position.

8 Claims, 8 Drawing Figures



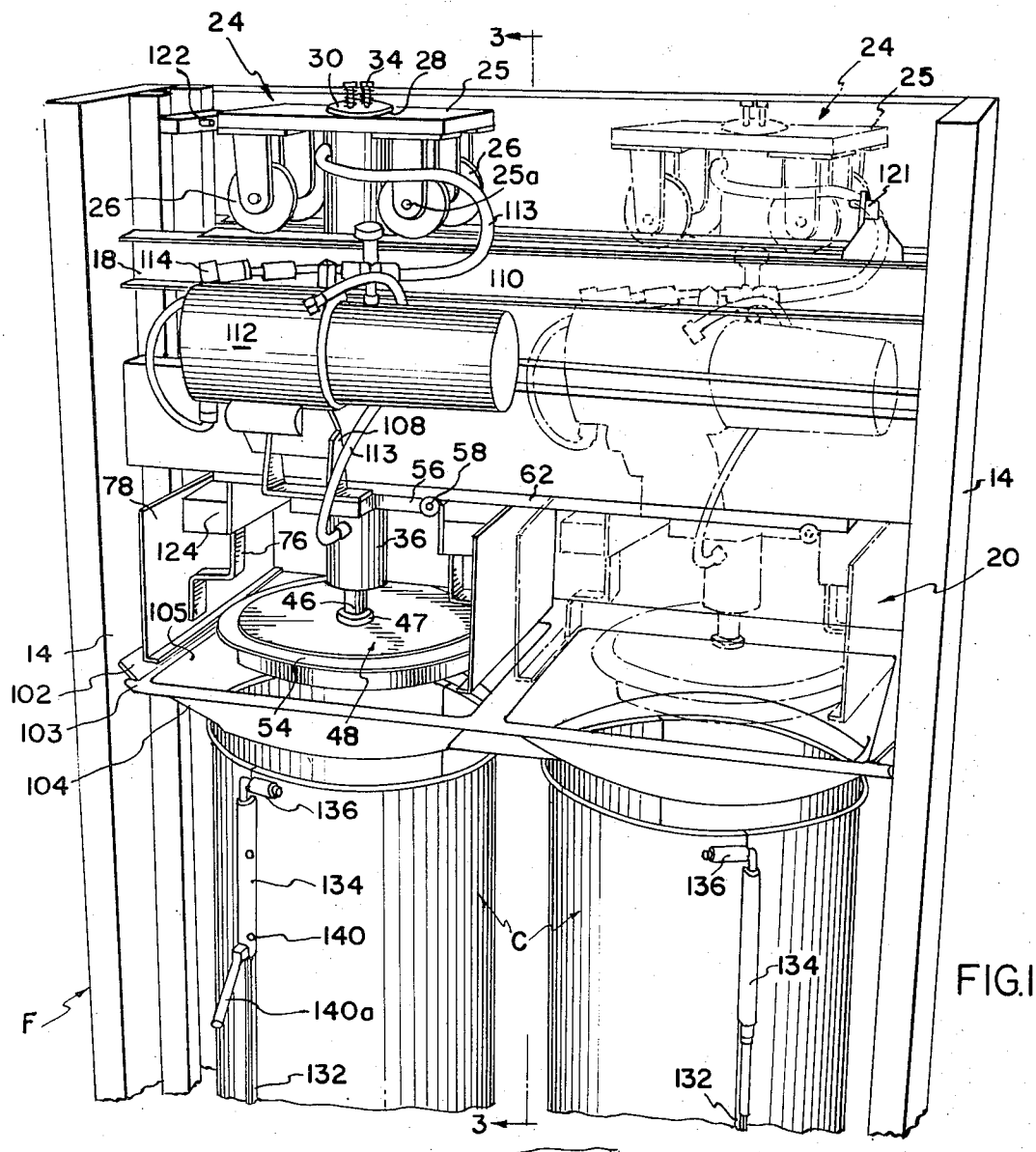

24
122
30
34
28
25
3
24
25
26
25a
121
26
113
18
114
110
112
108
113
56
58
62
78
14
124
76
36
20
105
46
47
14
102
103
54
48
104
136
134
136
140
C
134
F
140a
132
132
3

FIG.1

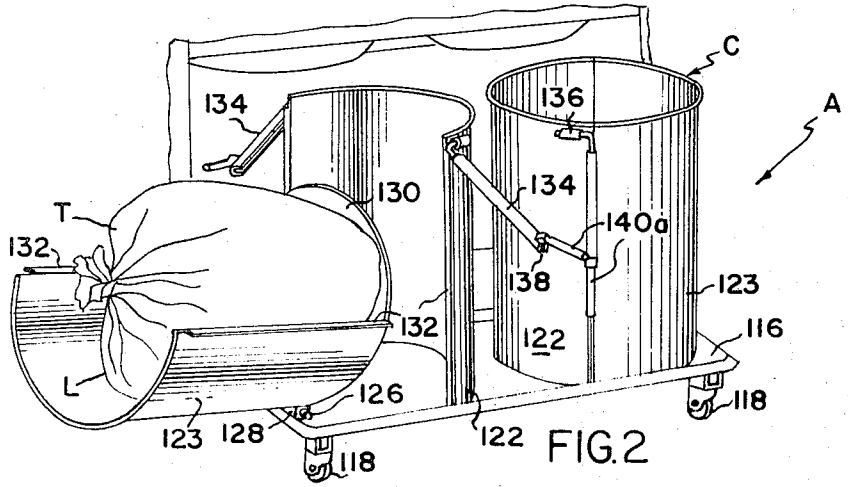

C
A
134
136
130
134
T
140a
132
138
123
132
122
116
L
126
118
123
128
122
118

FIG.2

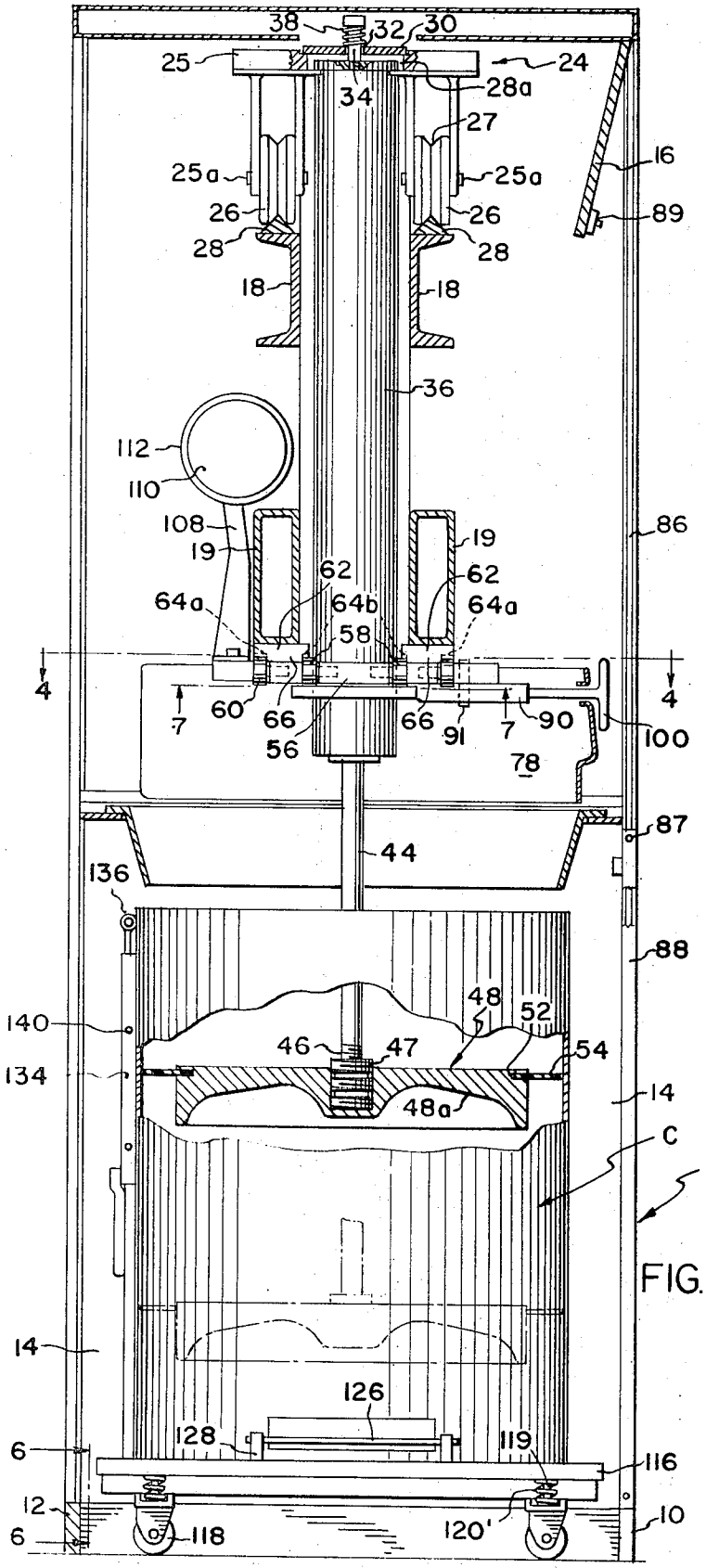

38
32
30
25
24
34
28a
27
16
25a
25a
89
26
26
28
28
18
18
36
112
110
108
19
19
86
62
62
64a
64b
64a
58
4
4
7
60
66
66
91
7
90
100
56
78
87
44
136
88
48
52
140
46
47
54
134
14
48a
C
F
14
126
128
119
116
6
12
6
118
120'
10

FIG.3

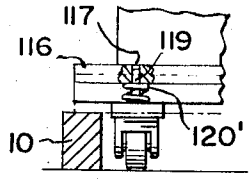

117
116
119
10
120'

FIG.6

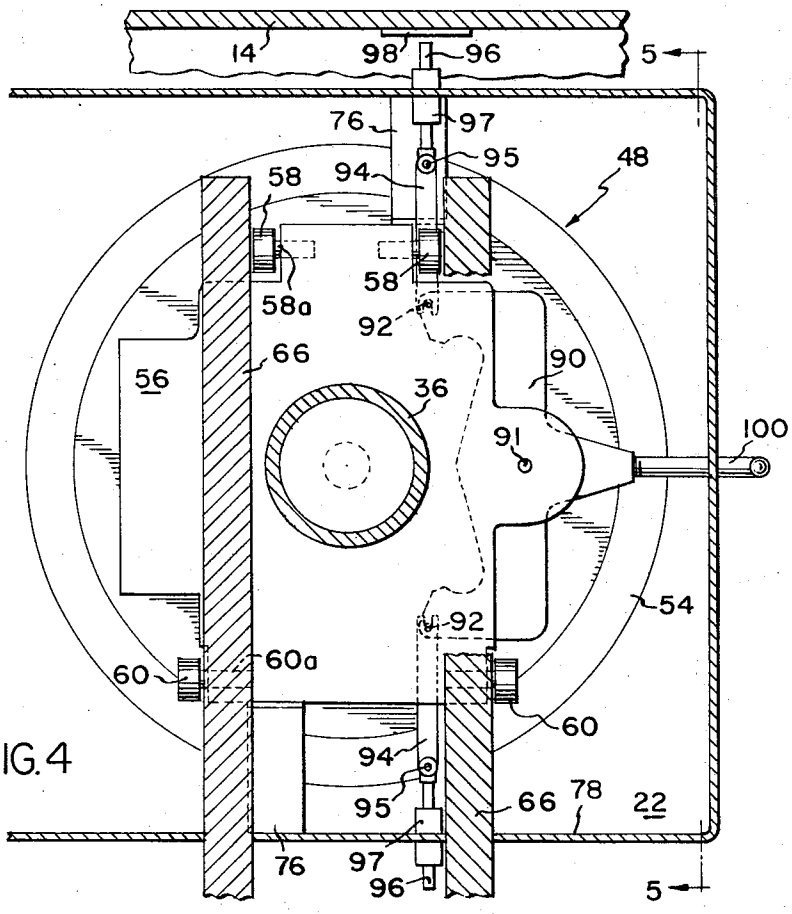

14
98
96
5
76
97
95
48
58
94
58a
58
92
66
90
56
36
91
100
54
92
60a
60
60
94
95
66
78
22
97
76
96
5

FIG.4

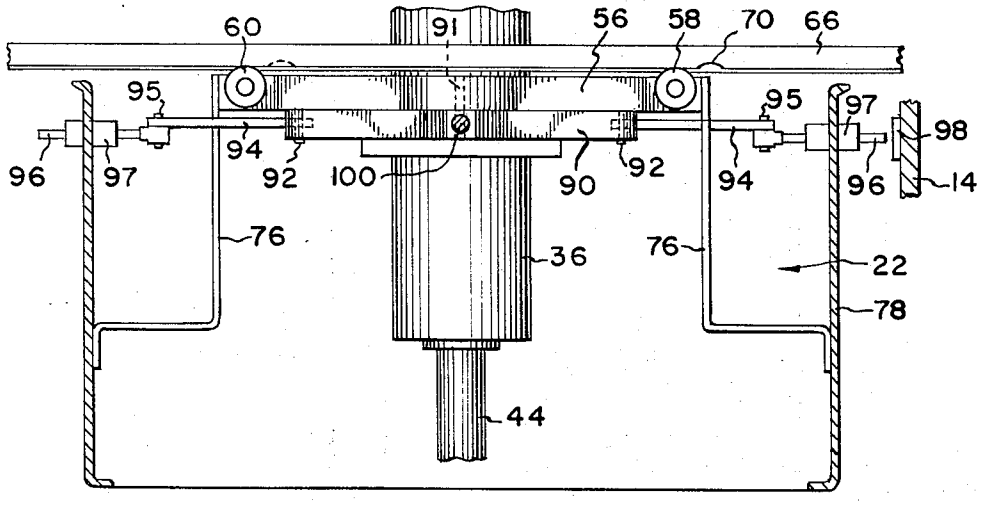

60
91
56
58
70
66
95
95
97
98
96
97
94
92
100
90
92
94
96
14
76
36
76
22
78
44

FIG.5

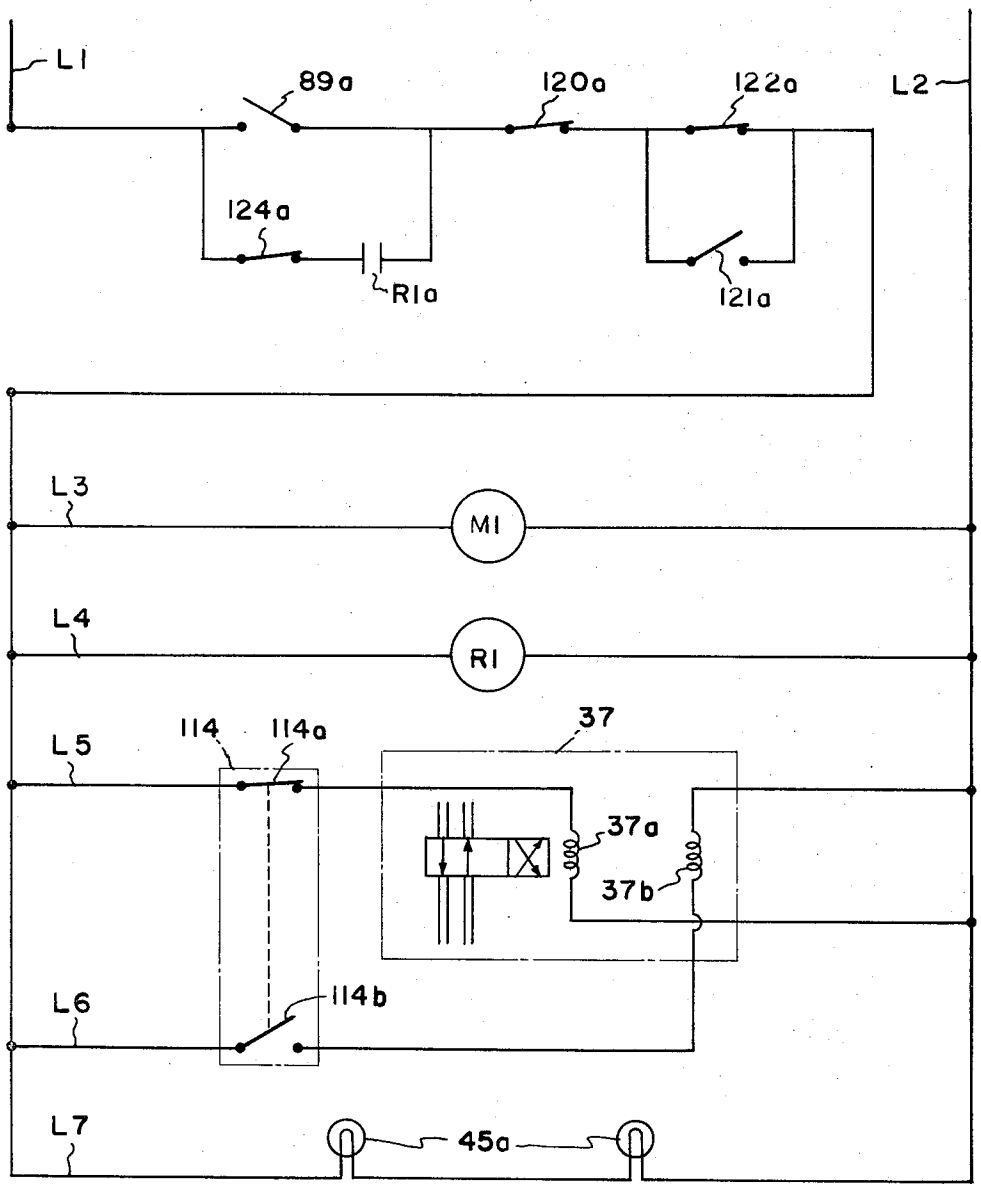

L1
89a
120a
122a
L2
124a
R1a
121a
L3
M1
L4
R1
L5
114
114a
37
37a
37b
L6
114b
L7
45a

FIG.8

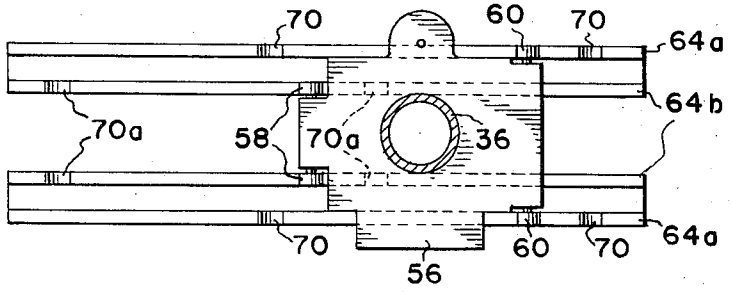

70
60
70
64a
64b
70a
58
70a
36
70
60
70
64a
56

FIG.7

TRASH COMPACTOR

FIELD OF THE INVENTION

This invention relates to trash compactors and more particularly to two-station trash compacting apparatus having a manually movable carriage carrying a trash compacting ram which compacts trash in partible containers.

BACKGROUND OF THE INVENTION

The disposal of trash from commercial establishments such as restaurants, hotels, and hospitals, is expensive because of the large volume of trash which must normally be removed from these facilities. If bulky trash is permitted to accumulate, it utilizes valuable floor space. Accordingly, it is an object of the present invention to provide new and improved apparatus for compacting trash into a small volume.

It is important that a trash compacting machine be economical to operate, and require minimum maintenance. Accordingly, it is another object of the present invention to provide trash compacting apparatus which is more economical to manufacture, operate, and maintain than known trash compactors of the same general capacity.

If trash is compacted at only one station, the operation must be interrupted until the trash container, which has been filled with compacted trash, is emptied. An advantage of a two-station compactor is that twice as much trash can be packed before any trash containers need be emptied and as trash is being packed into a container at one station, the other container can be simultaneously filled. A two-station compactor which merely doubles the equipment of a single station compactor would appreciably increase the cost of the compactor. Accordingly, it is still another object of the present invention to provide a two-station trash compactor including a carriage mounted compacting ram which is manually movable between two trash compacting stations, and homing apparatus for guiding the carriage along a portion of its path to the stations and for releasably retaining resisting movement of the carriage from the stations.

In some cases it may be desirable to pack trash in a flexible, heavy duty compactor bag and in other cases it may be desirable to compact the trash in rigid garbage cans. Accordingly, yet another object of the present invention is to provide a trash compactor which can selectively pack trash in either a flexible bag or a rigid container.

As sometimes occurs, liquid is included in the trash and will splash outwardly of the trash container during compaction. Accordingly, a further object of the present invention is to provide trash compacting ram apparatus including a resilient splash ring to inhibit such liquid from splashing out of the trash containers.

If in operation the trash compacting ram engages non-compressible material near its outer extremity, the ram will tend to undesirably cant. Accordingly, a still further object of the present invention is to provide a rotatable funnel-shaped trash compacting ram which will cam non-compressible objects toward the center of the ram and prevent them from causing the ram to cant.

In a two-station compactor, workers can be filling one container while the trash in the other is being compacted. Since the containers are closely spaced, it is important that the workers not be injured by the moving ram. Accordingly, it is an object of the present invention to provide a two-station trash compactor incorporating adequate shrouds, shields, and housings to prevent an operator from inadvertently placing a part of his body under the compacting ram.

When trash is compacted in a container, the compacted trash is relatively heavy and packed in place, and thus not easily removed from the container. Accordingly it is yet another object of the present invention to provide a partible trash container which is designed to facilitate removal of the compacted material. Other objects and advantages of the present invention will become apparent as the description thereof proceeds.

THE SUMMARY OF THE INVENTION

Apparatus for compacting trash in trash containers comprising a frame, a transfer carriage longitudinally movable on the frame between first and second longitudinally spaced trash compacting stations, ram means on the carriage reciprocably movable in a to-and-fro path between inoperative and operative positions to compress the trash in the containers, and homing means for guiding the carriage to the first and second trash compacting stations.

The present invention may more readily be described by reference to the accompanying drawings in which:

FIG. 1 is a fragmentary, rear perspective view of trash compacting apparatus constructed according to the present invention;

FIG. 2 is a front perspective view particularly illustrating the trash container carriage assembly;

FIG. 3 is a vertical sectional view taken along the line 3—3 of FIG. 1, the side wall of the container being broken away to more clearly illustrate the compacting ram;

FIG. 4 is a sectional top plan view taken along the line 4—4 of FIG. 3;

FIG. 5 is a fragmentary sectional front view taken along the line 5—5 of FIG. 4 and particularly illustrating the apparatus for forcing the carriage out of the home positions;

FIG. 6 is a fragmentary sectional rear view taken along the line 6—6 of FIG. 3 and particularly illustrating the relation between the lower portion of the frame and the container dolly assembly;

FIG. 7 is an under plan view of the homing carriage and tracks, taken along the line 7—7 of FIG. 3; and

FIG. 8 is a schematic diagram of an electrical control circuit for operating the apparatus illustrated in FIGS. 1–7.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Apparatus constructed according to the present invention is mounted on a framework or housing, generally designated F, including a pair of longitudinally spaced apart base frame members **10** which support a pair of vertical end wall members **14** and are spanned by a rear, lower cross frame member. A partial, upper, front wall section **16**, a pair of longitudinal channel members **18**, (FIG. 3), and a lower pair of longitudinal rails **19** span the end walls **14**.

Supported on the channels 18, for movement between a pair of trash compacting stations, generally designated 20 and 22, is a carriage, generally designated 24, which includes a platform 25 mounting a plurality of axles or pivot pins 25*a* journaling a plurality of casters 26 having annular V-grooves 27 received on laterally spaced V-shaped tracks 28 which are fixed to the top sides of the channel members 18. The carriage 24 moves on the rollers 26, between the solid line position, illustrated in FIG. 1, and the chain line position, illustrated in FIG. 1, at the stations 22 and 20, respectively.

An aperture 28*a* is provided in the carriage platform 25 and is spanned by a plate 30 having holes 32 therein receiving mounting pins 34 which are connected to the base of a double-acting, fluid operated cylinder 36. A pair of compression springs 38 surround the mounting pins 34 and react between the plate 30 and the heads of the pins 34 for biasing the cylinder 36 upwardly to the raised position, illustrated in solid lines in FIG. 3, but permitting movement of the cylinder 36 to a lowered position, in a manner and for a purpose which will be more particularly described hereinafter.

The cylinder 36 includes a piston rod 44 rotatable about its axis and having an end 46 threadedly connected to an internally threaded steel insert 47 centrally provided in a trash compacting ram, generally designated 48, which may be constructed of a lightweight aluminum alloy, for example. The compacting ram 48, which is circular in plan, has an annular groove 52 in the side wall thereof receiving an annular, resilient splash rail or ring 54. The outside diameter of the splash rail 54 is slightly larger than the outside diameter of the ram 48 but is slightly less than the inside diameter of either of a pair of trash containers, generally designated C, in which trash T is compacted.

The ram 48 is provided with an upwardly convergent trash compacting lower face 48*a* which tends to direct radially outwardly disposed non-compressible objects radially inwardly toward the axis of the cylinder rod 44 when the trash is being compacted. The face 48*a* is sharply inclined to a plane perpendicular to the axis of piston rod 44.

Fixed to the ram actuating cylinder 36 and underlying the support rails 19 is a homing or locator platform 56 having longitudinally spaced apart pairs of wheels 58 and 60 journaled on suitable shafts 58*a* at 60*a*, respectively, fixed to opposite ends of the platform 56. Fixed to the underside of each of the longitudinal frame rails 19 is a track member 62 including longitudinally extending, vertically recessed, downwardly opening, run portions 64*a* and 64*b* along the laterally opposite sides thereof separated by a longitudinal guide rib 66. The rollers 58 and 60 are biased upwardly against the underside of the track 62 by the biasing springs 38 which react between the pins 34 at the upper side of the cylinder 36 and the carriage supported crosspiece 30. The laterally outer run portions 64*a* each includes a pair of downwardly opening, homing recesses 70 so that the rollers 60 are received in the recesses 70 when the carriage 24 is at either of the stations 20 and 22. The laterally inner run portions 64*b* each includes a pair of downwardly opening homing recesses 70*a* so that the rollers 58 are received in the recesses 70*a* when the carriage 24 is at either of the compacting stations 20 or 22. When the rollers 58 and 60 are received in the recesses 70*a* and 70, they are, of course, moved upwardly from the chain line position illustrated in FIG. 3 to the solid line position also illustrated in FIG. 3. Because the rollers 58 and 60 ride along separate runs 64*a* and 64*b*, respectively, the rollers 58 will not be received in the recesses 70 and the rollers 60 will not be received in the recesses 70*a*. Also, since the rollers 60 and 58 will only enter one of the recesses as the carriage moves in its longitudinal path, the transition of the carriage 24 between the stations 20 and 22 is smooth once the rollers 58 and 60 have been removed from their associated recesses 70*a* and 70. The recesses 70*a* and 70 are positioned that the rollers 58 and 60 riding on each track 62 will be simultaneously received in its associated recess 70*a* and 70, respectively. When the rollers 58 and 60 are received in their respective recesses, the biasing springs 38 atop the cylinder 36 yieldably urge the rollers 58 and 60 to remain in their homing recesses 70*a* and 70, respectively. After the rollers 60 and 58 engaging the tracks 62 are longitudinally moved out of their respective homing, or locator, recesses 70 and 70*a*, at one of the stations 20 and 22 in a manner to be particularly described hereinafter, the carriage 24 will be smoothly and easily transferred to the other of the stations 20 and 22 where the rollers 60 and 58 are received in the other pair of homing recesses 70 and 70*a*. Fixed to opposite ends of the homing platform 56 are mounting and guide brackets 76 (FIG. 5) which mount a protective shroud or shield 78 that is U-shaped in plan and travels with the carriage 24 to provide a barrier which prevents the operator from inadvertently placing his hand under the compacting ram 48 at the station while placing trash in the compactor at the other station.

A front half-door 88 covers the lower half of the machine and includes horizontal hinge or guide pins 87 received in a pair of vertical tracks provided along the forward edge of the end walls 14. The half-door 88 may be moved upwardly from the position illustrated in FIG. 1 to a raised position covering a start switch 89 mounted on the upper front wall section 16 so that the containers C can be removed, emptied and replaced, without any danger of inadvertently activating switch 89.

Lever apparatus for longitudinally forcing the carriage 24 out of either of its "home" positions at the stations 20 and 22 is provided, and includes a handle 100 fixed to a yoke 90 which is pivotally mounted on the underside of the homing bracket 56 by a fulcrum or pivot pin 91. Opposite ends of the yoke 90 are pivotally connected by a pair of pivot pins 92, to a pair of links 94 which are also pivotally connected by pivot pins 95, to horizontal reaction bars 96 slidably mounted in sleeves 97 fixed to opposite legs of the U-shaped ram covering shroud 78.

A pair of wear plates 98, which are engageable by the bars 96 as the yoke 90 is swung about the fulcrum 91, is fixed to the side walls 14. The handle 100 and the yoke 90 constitute a lever swingable about the fulcrum 91 so as to axially move the bars 96 into engagement with their associated plates 98 and force the rollers 60 and 58 out of their respective recesses 70 and 70*a* so that the carriage 24 can move away from one of the stations 20 and 22 towards the other station. The bars 96 react with the plates 98 and apply a longitudinal force which causes the rollers 58 and 60 to be cammed out of the homing recesses 70 and 70*a* against the vertical biasing force of springs 38. When the rollers 58 and 60

are moved a predetermined distance so as to be removed from the recesses **70** and **70***a*, the carriage **24** can be longitudinally moved between the stations **20** and **22**, with relatively little manual force on the handle **100** since the rollers **58** and **60** roll on the smooth track portions **64***a* and **64***b* and the carriage rollers **26** freely roll along the V-tracks **28**.

A horizontal track **102** is provided along the midportion of each end wall **14** for receiving the flange **103** of a trash apron **104** having funnel members **105** which direct trash into the containers C. The shroud **104** is removable from the track **102** to enhance the cleaning thereof.

Also fixed to the homing platform **56** is a bracket **108** mounting a continuously operated electric motor **110** driving a fluid pump **112** also supported on the bracket **108** and connected with a pair of fluid conduits **113** which supply fluid through a solenoid actuated, spring returned, 4-way, 2-position valve **37** to opposite ends of the ram actuating cylinder **36**. The cylinder **36** may suitably develop 10,000 pounds of force to be used with a 15-inch diameter ram **48** to create a trash compacting pressure of approximately 50 pounds per square inch. A pressure sensing switch **114** is connected in the line **113** to sense the pressure of the fluid therein and may suitably comprise a "Static-O-Ring" type pressure switch manufactured by Mechiniarts Associates, **401** Wyandott, Kansas City, Missouri. The purpose of the switch **114** will become apparent when the operation is described.

THE CONTAINER ASSEMBLY

The container assembly apparatus, generally designated A, includes a carriage platform **116** supported by a plurality of casters **118** having vertical swivel pins **119** slidably and rotatably received in apertures **117** provided in the platform **116** for permitting the platform **116** to move vertically relative to the casters **118** between the upper and lower positions, illustrated in solid and chain lines, respectively, in FIG. **6**, against the force of biasing springs **120'** which react between the pins **119** and the platform **116** to bias the platform **116** to the raised position illustrated in solid lines in FIG. **7**. When the compacting ram **48** compresses trash in the containers C, the platform **116** is moved downwardly to engage and be supported by the side frame members **10**.

The containers C, which may each suitably be of a 30-gallon capacity, each includes a fixed half-container side wall **122** fixed to the platform **116**, and a movable half-container side wall **123** fixed to a horizontal pivot pin **126** (FIG. **3**), journaled by a pair of ears **128** fixed to the platform **116** for swinging movement about the horizontal axis of the shaft **126** from a position adjacent the fixed half-container side wall **122** to the removed position, illustrated in FIG. **2**. Fixed to the movable container side wall **123** is the bottom wall **130** of the container C which lifts the compacted trash T from a position adjacent the platform **116** to a raised position away from the fixed half-container side wall **122** when it is swung vertically so that it may be more easily removed by a pick-up man.

The container half walls **122** and **123** include confronting flanges **132** which are locked together by a U-shaped arm member, generally designated **134**, pivotally mounted on a bracket **136** fixed to the half-container side wall **123** for movement between a locking position illustrated in FIG. **1** and an unlocked position illustrated in FIG. **2**. In the locked position, the U-shaped arm **134** is received over the abutting flanges **132** and a pin **140** is passed through aligned apertures provided in the abutting flanges **132** and the U-shaped portion **138** to lock the arm **134** in position. A handle **140***a* is fixed to the U-shaped arm **134** to facilitate movement thereof. If desired, a liner bag L (FIG. **2**) may be inserted into the containers C to receive the garbage collected. The bag can later be tied and removed.

THE CIRCUIT

Referring now more particularly to FIG. **8**, a pair of lines L1 and L2 are connected across a suitable source of power such as 110 volt, 60 cycle alternating current. Connected in series in line L1 are the contacts **89***a* of the start switch **89**, which is mounted on the front wall **16** of the machine, the normally closed door contacts **120***a* of a switch which is mounted on one of the sidewalls **14** and which is actuated by the door **88** being moved to the raised position to open the contacts **120***a*, and a parallel circuit including sets of contacts **122***a* and **121***a* which are respectively closed when the switches **122** and **121**, mounted on opposite ends of the frame, are engaged by the carriage **24** being moved to the stations **22** and **20**, respectively.

Connected in parallel across the lines L1 and L2 in line L3 is the fluid pump drive motor M1. A control relay R1 is connected in line L4 across the lines L1 and L2 and includes holding contacts R1*a* connected in series with the normally closed contacts **124***a* which open when the switch **124** (FIG. **1**) is actuated as the ram **48** is returned to the raised inoperative position. Connected across the lines L1 and L2 in line L5 are the normally closed contacts **114***a* of the fluid pressure switch **114** located in fluid conduit **113** and the advance solenoid **37***a* of a spring returned, solenoid actuated valve **37** which, when energized, will direct fluid to the ram advance cylinder **36** so as to move the compacting ram **48** downwardly to compress the trash. Connected across the lines L1 and L2 in line L6 are the normally open contacts **114***b* of the fluid pressure switch **114** and the retract solenoid **37***b*, which when energized, will actuate the ram control valve **37** so as to direct fluid to the ram cylinder **36** in such a manner as to return the ram **48** upwardly to the raised position illustrated in FIG. **1**. Anti-bacterial lights **45***a* are provided at the compacting stations **20** and **22** for eliminating any bacteria in or about the containers C. The lights **45***a* are serially connected in line L7 across the lines L1 and L2 and may suitably comprise ozone producing lights such as that manufactured by the General Electric Company, Cleveland, Ohio as Model FG1119-E2.

THE OPERATION

In order for the machine to operate, the door **88** must be moved to the lower position to actuate the switch mounted on the sidewall **14** and close contacts **120***a* (line L1), and the carriage **24** must be at either of the trash compacting stations **20** or **22** so that one of the homing switches **121** or **122** is actuated to close one of the sets of contacts **121***a* and **122***a*. After a suitable amount of trash has been dropped in one of the trash containers C, the container at station **22**, for example, the start switch **89** is acutated to close the contacts **89***a*

(line L1) to energize relay R1 (line L4) to close the holding contacts R1*a* connected in parallel with the start switch contacts 89*a*. The fluid pump driving motor M1 is connected across the lines L1 and L2 in line L3 and is continuously energized. When the switch contacts 89*a* are closed, the advance solenoid 37*a* is energized and operates the ram control valve 37 so that fluid is directed to the ram control cylinder 36 in such a manner as to advance the compacting ram 48 axially into the container C at station 22. As the ram engages the trash, the compacting force is transmitted to the platform 116 which is driven downwardly against the force of the caster supported springs 120' so that the platform 116 engages and is braced by the frame braces 10, and the trash T and the container C will be tightly clamped between the frame braces 10 and the compacting ram 48. If the springs 120' were not provided, the caster wheels would be crushed and the entire frame would merely raise off the floor as the compacting ram pressed against the trash. As the trash is being compacted, the splash ring 54 inhibits liquid, and other fluid garbage included with the trash, from being expelled out of the container C.

If the ram 48, while being lowered, encounters a radially outwardly disposed non-compressible object, the non-compressible object will be cammed radially inwardly toward the axis of the piston rod 44 by the tapering surface face 48*a* of the compacting ram.

When the trash T has been compacted to a predetermined amount, the pressure in fluid line 113 communicating fluid to the advance side of ram control cylinder 36 will build until the pressure switch 114 is actuated to open the normally closed contacts 114*a* (line L5) to deenergize the advance solenoid 37*a* and close the contacts 114*b* (line L6) to energize the retract solenoid 37*b* to raise the ram 43.

After the container at station 22 is filled, the carriage shifting handle 100 is grasped and turned counterclockwisely, as illustrated in FIG. 5, to slide the bar 96 adjacent station 22, into engagement with the adjacent wear plate 98. The bar 96 reacts with the plate 98 to cam the rollers 58 and 60 riding on one of the tracks 62 longitudinally and vertically out of their respective homing recesses 70*a* and 70.

After the rollers 58 and 60 are out of their respective recesses 70*a* and 70 at the station 22, the carriage 25 may then roll freely toward the chain line position at station 20 where the pair of rollers 58 and 60 will be received by their respective homing recesses 70 and 70*a* at station 20 to halt the carriage 24 in the second home position 20. The start switch is again energized to repeat the cycle.

When a trash container C is full, the door 88 is raised to a position covering the start switch 89 and the trash container assembly A is removed from underneath the apron 104. The loaded trash container C is emptied by removing the pin 140 and swinging the handle 134 about the axis of the handle member 136 to free the confronting flanges 132. The movable container half portion 123 is then swung about the horizontal axis 126 to lift the trash T to the position illustrated in FIG. 2 and the trash T is then removed. The container-half 123 and handle member 136 are returned to the positions shown in FIG. 1 and the container assembly is returned to a position underneath the apron 104. The door 88 is returned to its original position covering the lower half of the door. The container at station 20 can now be filled and the operation repeated.

It is to be understood that the drawings and descriptive matter are in all cases to be interpreted as merely illustrative of the principles of the invention rather than as limiting the same in any way since it is contemplated that various changes may be made in various elements to achieve like results without departing from the spirit of the invention or the scope of the appended claims.

We claim:

1. A two-station trash compactor comprising:
a frame;
a transfer carriage longitudinally movable on said frame between first and second longitudinally spaced trash compacting stations;
ram means movable on said carriage in a to-and-fro path of travel for selectively compacting trash at said first and second stations; and
locator means including means resisting movement of said carriage from each station until said carriage is moved a predetermined distance from said station and then permitting said carriage to freely move toward the other of said stations.

2. The apparatus of claim 1 wherein said locator means includes roller means on one of said frame and said carriage and cooperating socket means on the other of said frame and carriage for receiving said roller means, said socket means being positioned such that said roller means moves vertically to be received thereby.

3. The trash compactor of claim 1 wherein said ram means comprises a convergent axial end compressing face for camming relatively radially disposed trash toward the axis of said compacting ram means as said ram means moves axially forwardly to compress said trash.

4. The apparatus set forth in claim 1 including:
trash container means for receiving trash to be compressed; and
a dolly supporting said trash container means and being movable between a position remote from said frame and a frame engaging position in response to trash being compacted.

5. The apparatus of claim 4 wherein said trash container means includes a platform, first and second partible container side wall portions relatively movable between abutting trash receiving positions and spread apart trash emptying positions, said first side wall portion being mounted on said platform for swinging movement about a horizontal axis to relatively move said side wall portions between said abutting and spread positions.

6. The compactor as set forth in claim 1 wherein said frame includes longitudinal track means having longitudinally spaced apart, socket means at said first and second stations, said carriage including laterally spaced rollers on said track means receivable in said socket means when said carriage is moved to said first and second stations;
said locator means including means yieldably urging said carriage toward said track to resist movement of said rollers out of said socket means.

7. The apparatus set forth in claim 6 including means reactable between said carriage and said frame for longitudinally moving said carriage out of said homing po-

sition at said first and second stations against the force of said yieldable means.

8. The apparatus set forth in claim **6** wherein said track means comprises at least one pair of laterally spaced longitudinal tracks, said socket means comprising at least one socket in one of said tracks adjacent said first station and at least another socket in the other track adjacent said other station; said roller means including at least one pair of rollers on said compacting ram means and positioned such that one roller is in longitudinal alignment with said one track and receivable in the socket at said first station when the carriage is at said first station and a second roller in longitudinal alignment with said second track and receivable in the socket at said second station when said carriage is at said second station.

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