Jan. 30, 1968 E. EVANS, JR 3,366,255

COMPACTER FOR REFUSE COLLECTION

Filed Oct. 24, 1965

FIG. 1

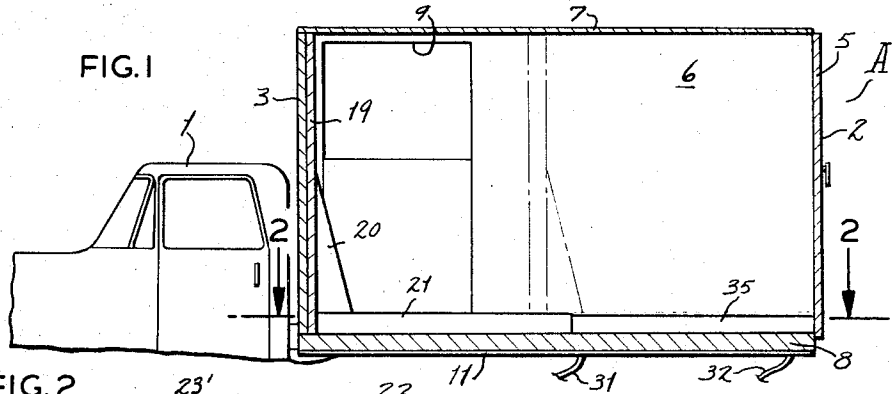


FIG. 2

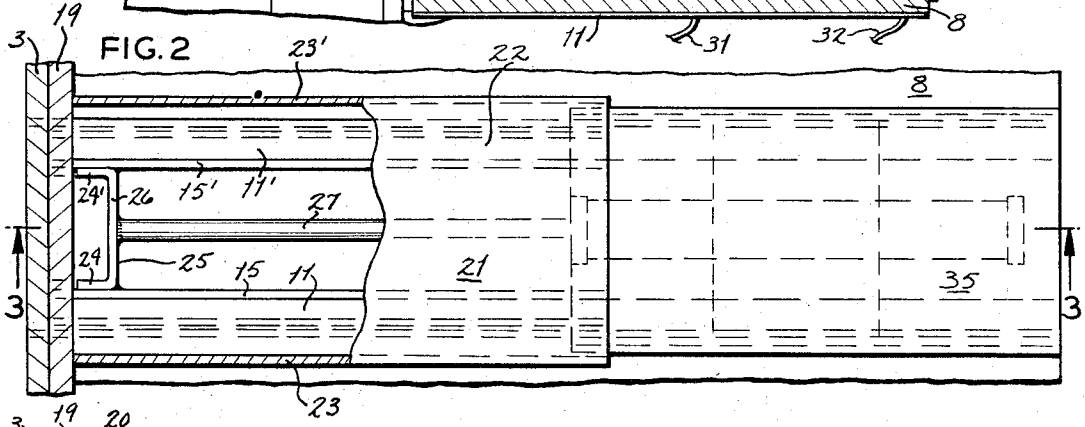
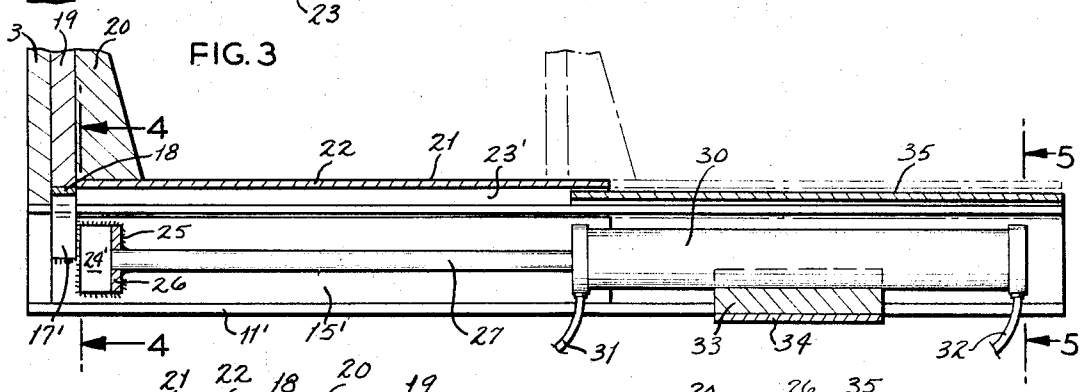


FIG. 3



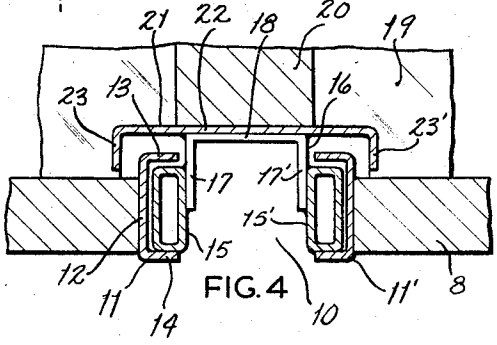


FIG. 4

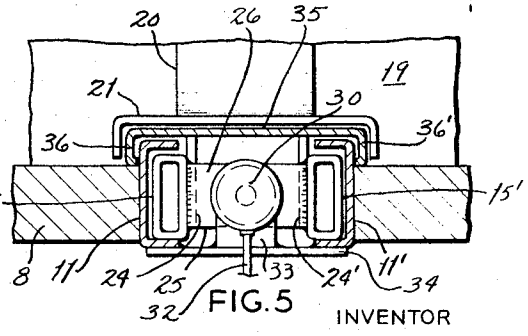


FIG. 5

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COMPACTER FOR REFUSE COLLECTION

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ABSTRACT OF THE DISCLOSURE

A compactor for refuse collection adapted for installation in existing truck bodies and utilizing a packing head which is mounted on a carriage provided within a truck body for reciprocal movement by hydraulic means toward and away from the rearward wall of the refuse compartment.

This invention relates in general to truck constructions and, more particularly, to a compacter for use with refuse collecting vehicles.

The primary object of the present invention is to provide means for compacting refuse and like material as collected by trucks for the purpose of substantially increasing the load in order to lengthen the operating range of the related vehicle.

It is another object of the present invention to provide a compacter for refuse collected by vehicles which adapts the vehicle for increasing its working load, but within the predetermined load-receiving volume so that, as in areas having narrow passageways, a truck with relatively small collecting volume is adapted for greater quantity collection.

It is another object of the present invention to provide a compacter for the condensation of collected materials which is readily adapted for installation in existing truck bodies without requiring extensive modification of the same.

It is a still further object of the present invention to provide a compacter of the character stated which is readily adapted for installation in existing truck bodies without requiring extensive modification of the same.

It is a still further object of the present invention to provide a compacter of the character stated which is readily controllable in operation from a remote location such as in the cab of the vehicle and is fully automatic in usage.

It is a further object of the present invention to provide a compacter of the character stated which may be operated by any suitable means such as fluid or mechanical.

It is another object of the present invention to provide a compacter of the character stated which may be most economically manufactured; may be easily installed as original equipment or in existing structures; which is reliable and durable in usage; and which is comprised of a simplicity of parts being resistant to breakdown.

Other objects and details of the invention are apparent from the following description when read in connection with the accompanying drawing wherein:

FIGURE 1 is a side elevational view in partial section of a vehicle equipped with a compacter constructed in accordance with and embodying the present invention.

FIGURE 2 is an enlarged horizontal sectional view taken along the line 2—2 of FIGURE 1.

FIGURE 3 is a vertical sectional view taken along the line 3—3 of FIGURE 2.

FIGURE 4 is a vertical sectional view taken along the line 4—4 of FIGURE 3.

FIGURE 5 is a vertical sectional view taken along the line 5—5 of FIGURE 3.

Referring now by reference characters to the drawing which illustrates the preferred embodiment of the present invention, A generally designates a truck having a main frame (not shown) upon which is carried a body comprising a cab 1 and an enclosed rear compartment 2; said latter being defined by a forward wall 3, a rearward wall 5, side walls 6, top wall 7 and a floor or bed 8.

Provided in the forward upper portion of each side wall 6 is an opening 9, which may be provided with a slideable closure plate (not shown), if desired.

Vehicle A is provided with conventional means (not shown) for elevating the forward portion of compartment 2 for content-discharge, as in the manner of a dump truck, and with rearward wall 5 having a door or gate (not shown) for opening during unloading operations.

Floor 8 is provided with an elongated opening 10 extending axially and longitudinally thereof from rearward wall 5 to forward wall 3. Provided within opening 10 and suitably secured to the opposed longitudinal sides thereof are guides 11, 11'; said latter being of channel configuration, opening toward each other and being co-extensive with floor opening 10. Each of said guides comprises a web 12 and upper and lower flanges 13, 14 respectively. It is recognized that although the preferred construction shown herein incorporates said channel members 11, 11' within an opening in floor 8, the same could be mounted upon the said floor, but as will be seen hereinbelow with diminution of the volume of compartment 2.

Received within each of said guides 11, 11' for reciprocal movement therealong is an elongated runner or slide 15, 15', respectively, which are preferably of tubular character, being rectangular in cross section for strength producing purposes; said runners 15, 15' are substantially of less length than guides 11, 11' for purposes presently appearing.

At their forward ends, runners 15, 15' are interconnected by a shoe 16 of channel configuration and downwardly opening with its depending side flanges 17, 17' being rigid as by welding, with the adjacent inwardly directed faces of runners 15, 15'; said flanges 17, 17' extending upwardly beyond the upper flange 13 of guides 11, 11' and being interconnected by a flat web 18, the plane of which is parallel to that of floor 8.

Fixed upon the upper face of web 18 of shoe 16 as by welding is the lower end edge of a vertically presented packing plate 19 which is quadrilateral but slightly less dimensionally than the cross section of compartment 2; said packing plate 19 being in planarwise relationship to forward and rearward walls 3, 5 of compartment 2. Fixed to the central lower portion of packing plate 19 for buttressing purposes is a brace member 20 which, on its lower edge, is rigid with the upper face of a movable cover plate 21. Said cover plate 21 comprises an upper flat web 22 which on its forward edge is secured as by welding to the lower portion of packing plate 19 and is of such width as to extend on its sides beyond guides 11, 11'; said web 22 being provided with depending skirts 23, 23', the lower faces of which terminate spacedly above the upper face of floor 8. It will be seen (FIGURES 3, 4) that web 22 of cover plate 21 is slightly elevated above web 18 of shoe 16, there being a relatively substantial spacing between the underface of web 22 and the upper flange 13 of guides 11, 11'. Cover plate 21 has substantially the same length as runners 15, 15' (FIGURE 3). It will be seen that runners 15, 15' and shoe 16 jointly provide a carriage for packing plate 19 and cover plate 21. Cover plate 21 provides protection to guides 11, 11' and related structure transform material such as refuse deposited within compartment 2.

Immediately rearwardly of shoe **16**, there is fixedly secured as by welding to the opposed faces of runners **15**, **15'** the side arms **24**, **24'**, respectively, of a clevis-type bracket **25** having a connecting web **26** extending between said arms **24**, **24'** in normal relationship to the related sides of said runners **15**, **15'**. Rigid with web **26** is the forward end of a piston **27**, the opposite end of which is received within a fluid cylinder **30** which may be either of the hydraulic or pneumatic type. Said cylinder **30** is suitably provided at its ends with fluid conduits **31**, **32** for connection to a source of hydraulic fluid as located at any convenient point upon vehicle A, such as within the cab area wherein control means for operating of the fluid system are provided for ready access. Cylinder **30** is mounted upon a support **33** having a base plate **34** which is affixed to the lower flanges of guide members **11**, **11'** in their rearward portions (FIGURES 3, 5) so that said cylinder **30** is positioned within the rearward section of opening **10**.

In covering relationship to the said rearward portion of guides **11**, **11'** is a fixed cover plate **35** having depending side skirts **36**, **36'**; said plate **35** being of such width as to extend at its sides beyond guides **11**, **11'** and with the lower ends of skirts **36**, **36'** being secured to floor **8** in any suitable manner such as by bolting or the like. Said cover plate **35** extends substantially from rearward wall **5** to a point slightly forwardly of the forward end of fluid cylinder **30** for reception between the web **22** of cover plate **21** and the upper flange **13** of guides **11**, **11'** (FIGURES 3, 5) so that in its forward end portion said cover plate **35** will at all times be in underlying relationship to cover plate **21**; there being sufficient clearance between cover plate **35** and cover plate **21** so that the latter may be moved thereacross during operation of packing plate **19** in a manner to be now described.

In operation packing plate **19** will be normally presented in immediate contiguity to the rearward face of forward wall **3**, as shown in FIGURE 1, with piston **27** at the forward limit of its stroke. Refuse material collected by personnel associated with vehicle A will be charged to compartment **2** through side openings **9**. As the collected refuse within compartment **2** builds up, personnel in cab **1** will operate the controls for the fluid system so as to effect a rearward or retracting movement of piston **27**, causing packing plate **19** to be moved rearwardly within compartment **2** in the direction of rearward wall **5** with runners **15**, **15'** sliding smoothly along guides **11**, **11'** and with plate **21** traveling coveringly above plate **35**. By such operation packing plate **19** will cause the refuse material to be drive toward rearward wall **2** for tight compacting of the same, and to develop space in the forward portion of compartment **2** for reception of subsequent quantities of collected materials. After the compacting operation has been completed, the operator will energize the controls for reverse or return movement of packing plate **19** into initial or starting position adjacent forward wall **3** for further compacting action after additional collection. It will be seen that movable cover plate **21** and fixed cover plate **35** co-operate to completely shield the operating parts of the present system so as to prevent the inadvertent reception therein of particles of refuse material.

The rearwardly directed extent of travel of packing plate **19** is determined by the length of stroke of piston **27**; with the same being in fully withdrawn position with connecting web **26** of bracket **25** being in substantial abutment against the end face of fluid cylinder **30**.

After compartment **2** is in fully loaded state, the discharge of the collected refuse may be accomplished in the usual manner as by the opening of rear door **5** after lifting the forward portion of compartment **2** for gravity impelled dumping action.

By utilization of the present invention, the volume of the particular compartment **2** may be substantially used to its utmost so as to bring about marked economies

in operation and allow for increased working range of the vehicle. Trucks incorporating the present invention are also especially suited for use in metropolitan areas where refuse must be collected in narrow streets or passageways causing reduced width to the truck so that by such relatively smaller compartments, maximum collections may be effected.

The present invention comprises a simplicity of parts which may be easily installed within existing truck bodies, as well as being made original equipment. As indicated above, guides **11**, **11'** together with associated structure may be disposed within an opening or recess within the truck floor **8** or mounted directly upon the upper surface thereof as may be desired.

It should be understood that changes and modifications in the formation, construction, arrangement, and combination of the several parts of the compacter for refuse collection may be made and substituted for these herein shown and described without departing from the nature and principle of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A compactor for use with material-collecting vehicles comprising compartment-forming means provided on said vehicles comprising a floor, side walls, forward wall, a rearward wall, and a top wall, a packing head provided within said compartment-forming means and adapted for movement toward and away from said rearward wall, said packing head being of flat plate character and having an area slightly less than the cross-section area of said compartment-forming means, a fluid cylinder mounted on said floor and extending longitudinally thereof, a piston mounted in said cylinder for movement toward and away from said forward wall, guide members provided on said floor and extending longitudinally thereof in coaxial relationship to said cylinder, runners disposed on said guide means for slideable movement therealong, said runners being connected to said piston at its cylinder-remote end, means inter-connecting said runners and said packing plate for effecting travel of the latter pursuant to operation of said piston, a first cover plate provided in overlying relationship to said guide members and being inter-connected to said packing head for travel therewith and a second cover plate fixedly mounted in overlying relationship to said guide members in the region adjacent said fluid cylinder, said fixed cover plate being presented in downwardly spaced relationship to said first cover plate whereby the latter may lie thereover during travel of said packing plate.

2. A compactor for material-collecting vehicles comprising compartment-forming means provided on said vehicles and comprising a floor, side walls, forward wall, a rearward wall and a top wall, a pair of guide members provided on said floor extending longitudinally therein in axially parallel relationship, a slide member disposed within each of said guide members for slideable movement therealong, a packing head provided within said compartment-forming means and adapted for movement toward and away from said rearward wall, first connecting means interconnecting said slide members and said packing head, said first connecting means comprising a shoe having a web and a pair of flanges, said web being connected to said packing head and said flanges being connected to said slide members, fluid operated means provided within said compartment-forming means, second connecting means operatively engaging said fluid-operated means to said slide members for effecting reciprocal movement of said packing head, said second connecting means comprising a clevis having a web and a pair of flanges, said web being connected to said fluid-operating means and each of said flanges being connected to the respective slide member, means for overlyingly covering said guide members, slide members, first and second connecting means and said fluid operated means.

3. A compactor for material-collecting vehicles comprising compartment-forming means provided on said vehicles and comprising a floor, side walls, forward wall, a rearward wall and a top wall, a pair of guide members provided on said floor extending longitudinally therein in axially parallel relationship, a slide member disposed within each of said guide members for slideable movement therealong, a packing head provided within said compartment-forming means and adapted for movement toward and away from said rearward wall, first connecting means interconnecting said slide members and said packing head, fluid-operated means provided within said compartment-forming means, second connecting means operatively engaging said fluid-operated means to said slide members for effecting reciprocal movement of said packing head, means for overlyingly covering said guide members, slide members, first and second connecting means and said fluid-operated means, said covering means comprising a first cover plate being inter-connected to said packing head for travel therewith and a second cover plate fixedly mounted in the region adjacent said rearward wall, said second cover plate being presented in downwardly spaced relationship to said first cover plate whereby the latter may lie thereover during travel of said packing head.

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