

May 26, 1970

W. M. FELTS

3,513,771

CONTAINER LOADING SYSTEM

Filed Aug. 6, 1968

2 Sheets-Sheet 1

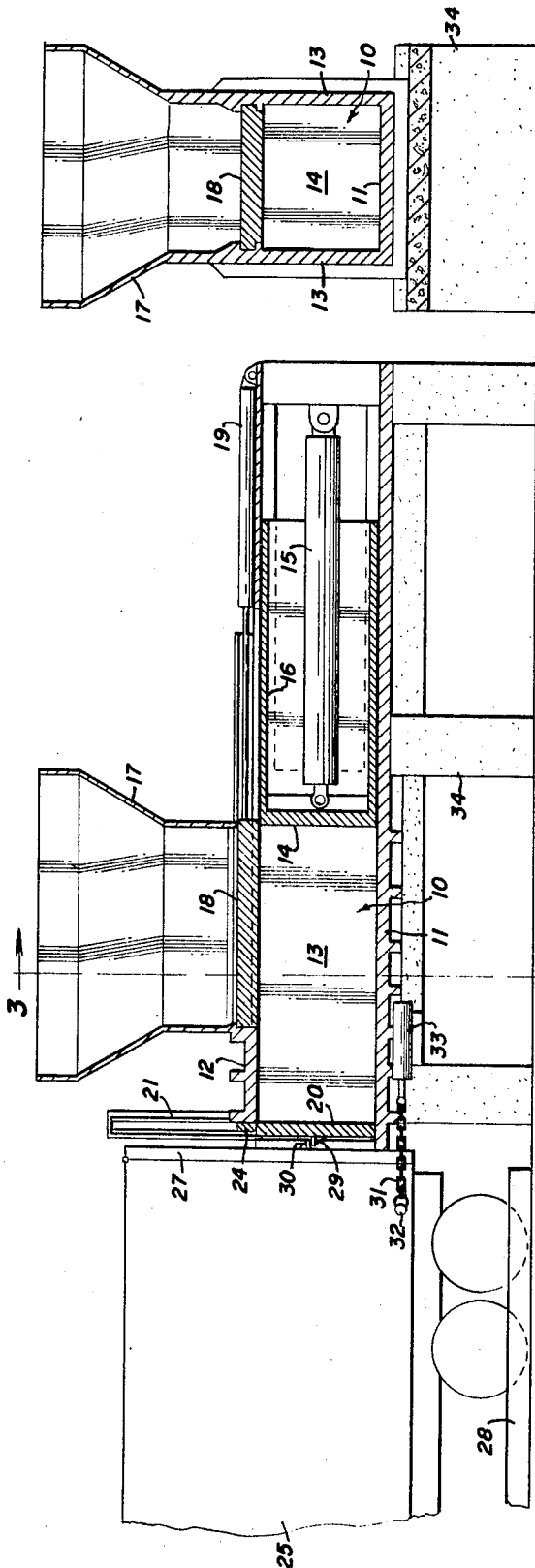


FIG. 1.

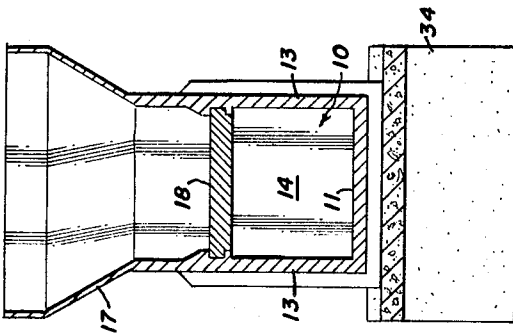


FIG. 3.

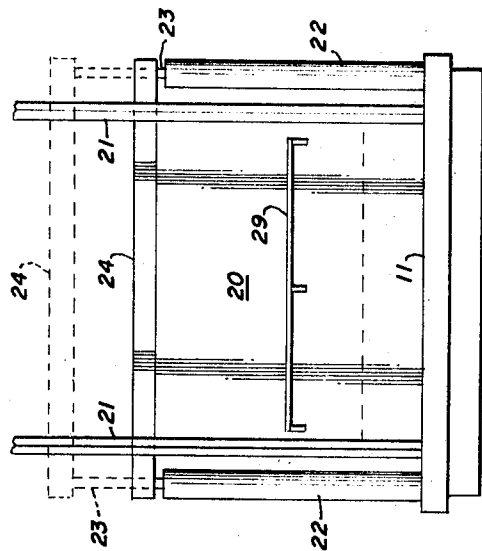


FIG. 2.

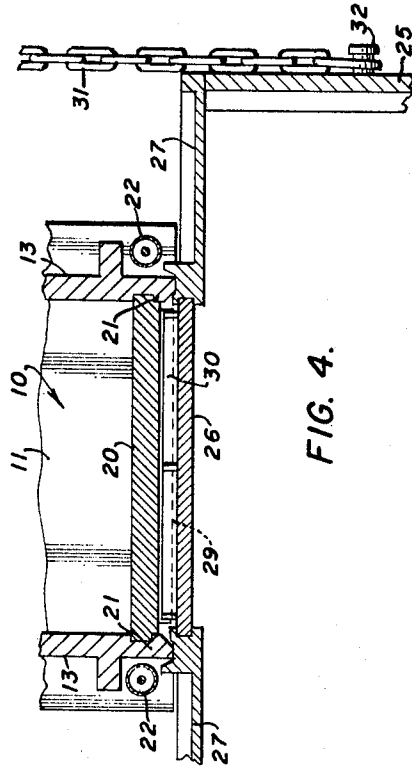


FIG. 4.

WALLACE M. FELTS
INVENTOR.

BY *Herbert J. Brown*
ATTORNEY

May 26, 1970

W. M. FELTS

3,513,771

CONTAINER LOADING SYSTEM

Filed Aug. 6, 1968

2 Sheets-Sheet 2

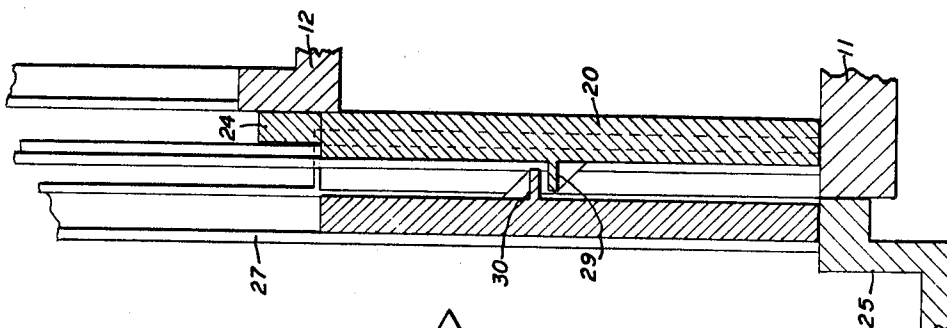


FIG. 5.

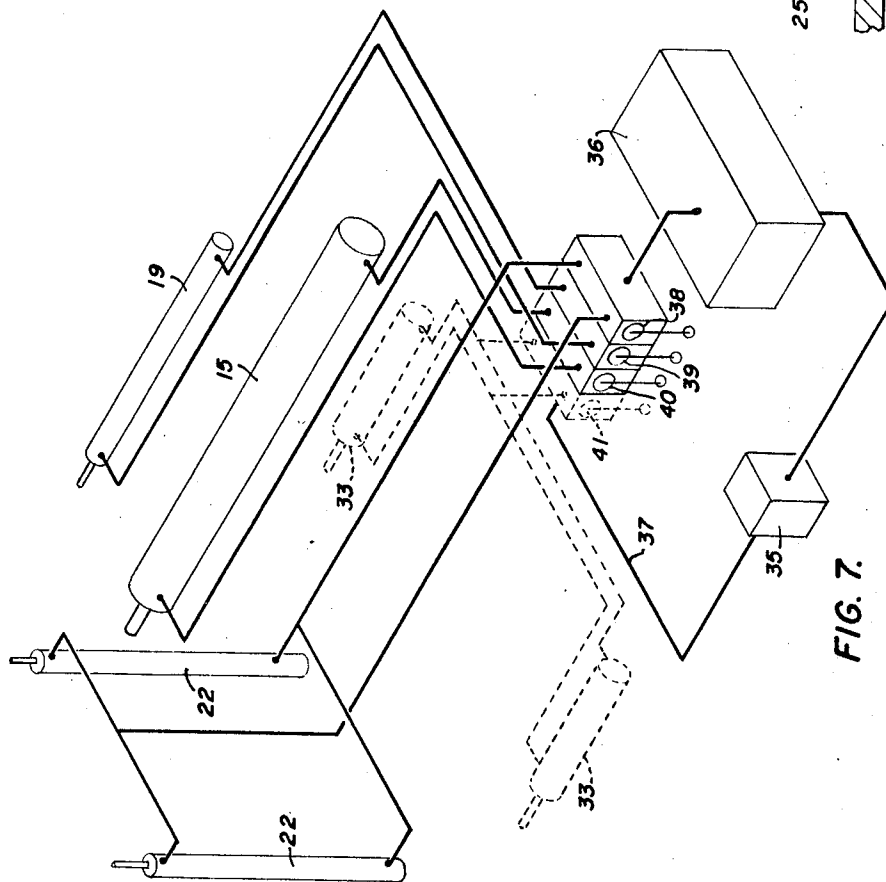


FIG. 7.

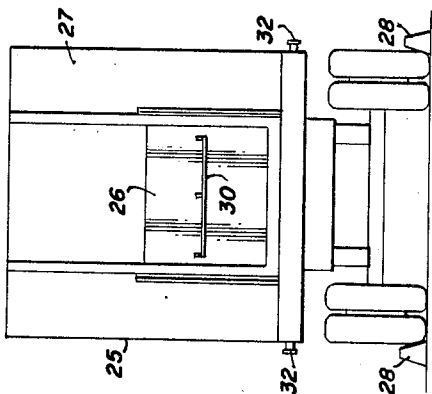


FIG. 6.

WALLACE M. FELTS
INVENTOR.

BY *Herbert J. Brown*
ATTORNEY

1

3,513,771

CONTAINER LOADING SYSTEM

Wallace M. Felts, Fort Worth, Tex., assignor to
Fruehauf Corporation, Detroit, Mich., a corpora-
tion of Michigan

Filed Aug. 6, 1968, Ser. No. 750,555

Int. Cl. B30b 15/32

U.S. Cl. 100—218

1 Claim

ABSTRACT OF THE DISCLOSURE

A refuse handling system including a stationary compressor having a compaction chamber, a hopper thereabove, a ram within the chamber and a movable bulkhead opposite the ram whereby the compressed refuse may be transferred to a movable container.

This invention relates to refuse collecting systems and has reference to a stationary compressor arranged to transfer compressed refuse to a mobile container. The compacted refuse can be ejected directly into the container by a ram, and the ram may be used, if desired, to further compact the refuse already within the container. This is accomplished in part by having the loading door of the container engage a vertical compacting bulkhead of the compressor unit in such a way that when the compacting bulkhead is raised it opens the loading door of the container allowing the refuse to be pushed through the two aligned openings by the compacting ram.

A sliding horizontal plate is positioned between the receiving hopper and the compacting chamber so that a considerable load of loose refuse may be stored awaiting the compacting operation. The horizontal plate or closure in its closed position forms a smooth inner surface for the compacting chamber. Additionally, means are provided for holding the container solidly against the compacting chamber so that as repeated loads of refuse are ejected from the chamber into the container they can be packed solidly in the container by the hydraulic compacting ram.

The means by which these objects are achieved are explained in the following description and the accompanying drawings, in which:

FIG. 1 is a longitudinal vertical sectional view of the combination packer and the loader with a transport container in broken elevation, in place.

FIG. 2 is an end elevational view of the packer and showing the compaction bulkhead.

FIG. 3 is a cross sectional view taken along line 3—3 of FIG. 1.

FIG. 4 is an enlarged broken horizontal sectional view of the compaction bulkhead.

FIG. 5 is a broken vertical sectional view of the compaction bulkhead showing its interaction with the loading door of the transport container.

FIG. 6 is a rear end elevational view of a typical transport container showing a loading door adapted to this invention, and

FIG. 7 is an isometric diagram of a hydraulic system for operating the illustrated construction.

The embodiment illustrated herein consists of a rectangular compaction chamber 10 having a heavily reinforced bottom 11, top 12 and sides 13. A ram 14 is driven within the compaction chamber 10 by a double acting hydraulic cylinder 15 and the ram is provided with rearwardly extending bearing surfaces 16 to prevent misalign-

2

ment and jamming and to prevent any possibility of refuse getting behind the ram.

A collecting hopper 17, which is partly a continuation of the sides 13 of the compaction chamber 10, is located directly above the latter and is separated therefrom by a heavily reinforced horizontal sliding plate or closure 18 operated by a double acting hydraulic cylinder 19. The rearward extending surfaces 16 of the ram 14 are long enough to cover the opening between the hopper 17 and the chamber 10 should the ram be extended to its extreme position while the closure 18 is retracted.

When the closure 18 is retracted, allowing the refuse to fall from the hopper 17 to the chamber 10, the ram is then extended, compacting the refuse against a bulkhead 20, restrained by vertical ways 21 which also allow it to be raised by means of a pair of hydraulic cylinders 22 to allow the refuse to be ejected from the chamber 10. The rods 23 of the cylinders 22 are attached to a cross bar 24 integral with the bulkhead 20.

A transport container 25, which can be a truck trailer as illustrated, or any of several currently available truck loaded containers, is provided with a vertically sliding door 26 built into the usual hinged unloading door 27 with which these containers are provided. The sliding door 26 is the same size and height as the bulkhead 20 and when the transport container 25 is backed up to the refuse packer it is guided by tracks 28 so that the door 26 aligns with the bulkhead 20. A cleat 29 on the bulkhead 20 is arranged to impinge on an opposing cleat 30 on the sliding door 26 so that when the bulkhead 20 is raised by the hydraulic cylinders 22 the sliding door 26 is forced to follow it.

A pair of chains 31 are hooked over lugs 32 on the sides of the container 25 and are drawn up tight by hydraulic cylinders 33 on the chamber 10 to hold the container 25 securely against the pressure of the ram 14, and to prevent leakage of refuse between the loader and the container. Various mechanical means (not shown) of holding the container against the loader could be employed besides the chain hitch illustrated.

In use, the closure 18 can be withdrawn, allowing a load of refuse to fall into the compaction chamber 10, then the closure is closed and the ram 14 compresses the refuse against the bulkhead 20. This process can be repeated until the chamber is filled, then the ram can be backed off enough to relieve the pressure on the bulkhead, which is raised hydraulically, opening the door 26 into the transport container 25. The compacted refuse is then moved into the container by the ram 14. If the refuse is soft and easily compacted and free from large irregular objects that must be broken down, the refuse can be allowed to fall directly into the chamber 10 then shoved directly without pre-packing into the container 25. This process can be repeated until the container is fully packed, the pressure from the ram 14 being used to compact the refuse in the container without preliminary compaction in the chamber 10.

In the form illustrated the entire loading device is anchored to a suitable concrete base 34 which raises it to the correct level to match the transport container 25. FIG. 7 illustrates, diagrammatically, one form of hydraulic system whereby a pump 35 taking fluid from a reservoir 36 delivers hydraulic pressure through a line 37 to a bank of hand operated valves 38, 39, 40 and 41, respectively. The valve 38 raises and lowers the bulkhead 20 by means of the cylinders 22; the valve 39 opens and closes the closure 18 by means of the cylinder 19; and the valve 40 operates the ram 14 by means of the cylinder 15.

3

der 15. The valve 41 and cylinders 33, which tighten the chains 31 to hold the container 25, are shown dotted because they are not necessarily a part of the basic hydraulic system; other means, not shown, of connecting the container 25 being equally advantageous.

What is claimed is:

1. A refuse handling system comprising, in combination, a compaction chamber, a ram within said chamber, a transversely retractable bulkhead closing said chamber at the end opposite said ram, a transport container having a loading door aligned with an opening in said chamber opposite said ram and contact means coacting said door and said bulkhead whereby the bulkhead opens said door.

5

10

4

References Cited

UNITED STATES PATENTS

380,185	3/1888	Chase.	
2,158,745	5/1939	Dalimata	100—190
2,684,802	7/1954	Rothwell.	
3,059,789	10/1962	Bowles	214—41
3,117,513	1/1964	Burnett et al.	100—215
3,135,400	6/1964	Tapp et al.	214—41

BILLY J. WILLHITE, Primary Examiner

U.S. Cl. X.R.

100—229; 214—41