Oct. 14, 1969 W. M. FELTS 3,472,399

EXTENDED HOPPER ASSEMBLY WITH EJECTOR PLATE

Filed Sept. 28, 1967 2 Sheets-Sheet 1

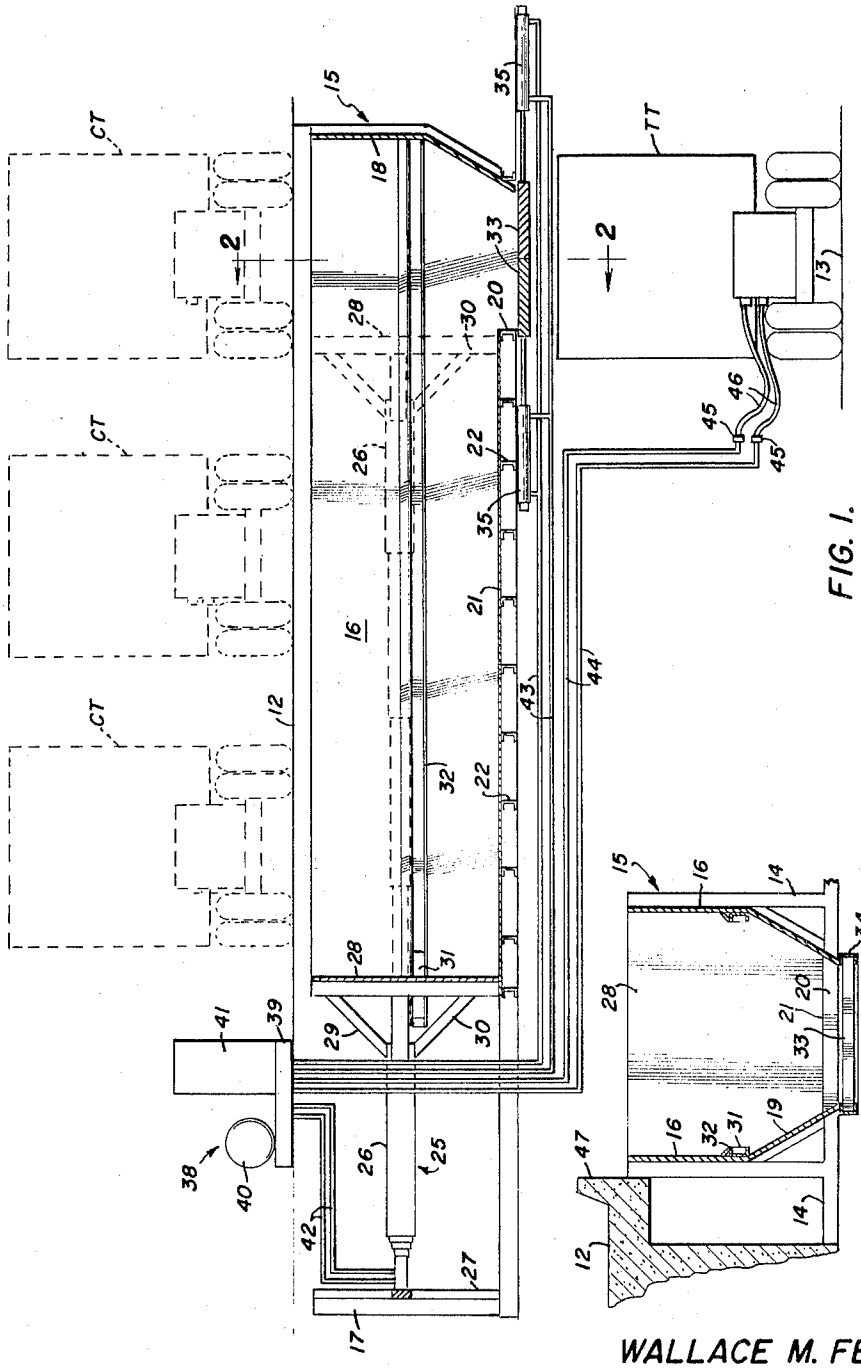


FIG. 1.

FIG. 2.

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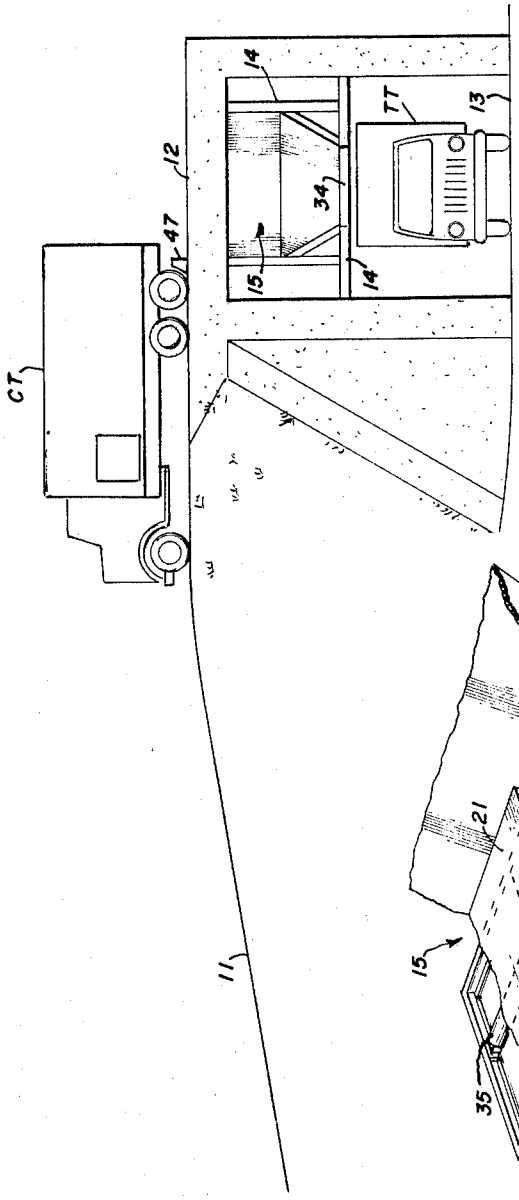


FIG. 4.

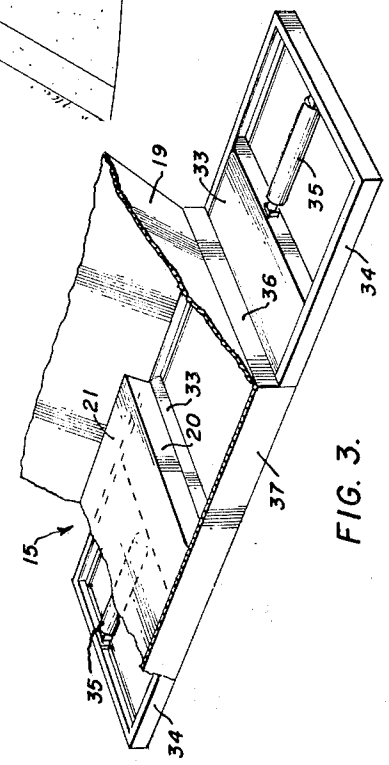


FIG. 3.

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EXTENDED HOPPER ASSEMBLY WITH EJECTOR PLATE

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Int. Cl. B65g 67/04
U.S. Cl. 214—41 3 Claims

ABSTRACT OF THE DISCLOSURE

An elongate refuse receiving hopper having a discharge opening in the bottom and at least one vertical ejector plate moving refuse to the discharge opening. A ramp on at least one side of the hopper provides means for dumping refuse in the hopper, and a driveway beneath the discharge opening provides means for transferring refuse to larger vehicles.

This invention has reference to handling refuse such as trash and garbage and relates to my copending application, Ser. No. 590,885, filed Oct. 31, 1966 now Patent No. 3,417,883, which issued Dec. 24, 1968. The copending application is directed to a transfer station having upper and lower levels accommodating trash collecting vehicles on the upper level and larger transfer vehicles on the lower level. The refuse is dumped from the collecting vehicles into hoppers where it is held until transfer vehicles are available. Thus, the collecting vehicles do not have to stay off of their routes during those periods of time when they would otherwise be traveling to and from city dumps or incinerators. Each hopper of the copending application accommodates one truck at a time and each hopper has a movable bottom closure which retains the refuse until ready to be transferred.

The primary object of the present invention is to provide, in a refuse transfer station, an extended hopper assembly for storing large volumes of refuse, together with ejection means for moving and dumping the refuse into transfer vehicles.

Another object is to provide an elongate hopper in a refuse transfer station whereby several collector vehicles may empty their contents into the hopper at the same time.

These and other objects of the invention will become apparent from the following description and the accompanying drawings, in which:

FIGURE 1 is a horizontal sectional view, shown partly in elevation, of a hopper according to the invention. The hydraulic power unit and connecting lines are schematically shown.

FIGURE 2 is a vertical sectional view taken on line 2—2 of FIGURE 1.

FIGURE 3 is a broken perspective view of the closure mechanism at the discharge end of the hopper, and

FIGURE 4 is an elevational view of a typical refuse transfer station according to the invention.

The transfer station shown in FIGURE 4 includes an open concrete structure **10** having a wide inclined vehicle ramp **11** extending to its top **12** and has a lower driveway **13** therethrough. The top **12** of the structure and the driveway **13** are also herein referred to as the upper and lower levels of the transfer station. Supported by a steel frame **14** within the upper portion of the structure **10** there is an elongate open top hopper **15** having side walls **16**, a cylinder supporting end wall **17** and a hopper end wall **18**. The side and end walls **16** and **18** have downwardly and inwardly inclined baffles **19** along their lower edges. Except for the length of a cylinder and ejector plate assembly to be described and a discharge

opening **20** adjacent the end wall **18**, there is a floor **21** within the hopper **15** supported on cross members **22**, the ends of which are connected with the hopper supporting frame **14**.

As referred to, there is a cylinder and ejector plate assembly **25** in that end of the hopper including the cylinder supporting wall **17**. The cylinder **26** is hydraulically operated and is of the telescoping type. The small end of the cylinder **26** is mounted on a frame **27** on the inner face of the wall **17** and a vertical ejector plate **28** is mounted on the large end of the cylinder by angular braces **29** which extend to stiffeners **30** on the face of the plate. As shown in FIGURE 2, the ejector plate **28** is shaped to conform to the hopper's side walls **16** and baffles **19**. On the sides of the plate **28**, and located near the baffles **19**, there are guide shoes **31** which slide in channel shaped horizontal tracks **32** on the inner surfaces of the hopper walls **16**.

Horizontal bulkheads **33** are provided beneath the discharge opening **20** and serve as a closure. The bulkheads **33** are slidably mounted in a frame **34**, of channel stock, best shown in FIGURE 3, and are operated by opposing hydraulic cylinders **35** in the ends of the frame. It is to be noted that one end portion of the frame **34** extends outwardly of the end of the hopper **15** and that the remaining end portion extends under the hopper floor **21**. There is a depending skirt **36** along the lower edge of the end baffle **19**, which skirt extends to the top of the frame **34**. Similarly, there are depending skirts **37** along the lower edges of the side baffles **19** which extend to the lower side edges of the frame.

As shown only in FIGURE 1, there is a hydraulic power unit **38** on the upper level **12** of the structure **10** and, as shown, includes a base **39**, a pump **40** and a control panel **41**, all in the usual manner. Hydraulic lines **42** extend to the ejector plate operating cylinder **26**, other lines **43** extend to the cylinders **35** which operate the bulkheads **33** and additional lines **44** extend to quick disconnect couplings **45** near the lower level **13**. The quick disconnect couplings **45**, in turn, are connected with flexible lines **46** for operating packer blades (not shown) in a transfer trailer TT when the latter is stopped beneath the hopper discharge opening **20**. It is to be understood that the transfer vehicle need not be a trailer TT, and that the transfer vehicle may have a self contained hydraulic system, in which case the last referred to additional hydraulic lines **44** are not used.

In operation, collecting trucks CT are backed on the ramp **11** to the top of the structure **10** and the contents of the trucks are dumped into the hopper **15**. An elongate curb or stop **47** on the upper level **12** prevents the collecting trucks CT from backing too far. After a transfer trailer TT is positioned beneath the hopper discharge opening **20** the bulkheads **33** are separated and the collected refuse is pushed through the opening by the ejector blade **28**. Thus, in view of the described construction and operation, large volumes of refuse may be rapidly collected and stored in the hopper **11** at a location convenient to several refuse collecting routes. The collected refuse is then carried to a dumping ground by a single transfer vehicle.

What is claimed is:

1. In a refuse transfer station having upper and lower levels and vehicle supporting means on each, an elongate hopper within the upper portion of said station and having a discharge opening in the bottom thereof, said opening being located over the lower vehicle supporting means, said hopper including side walls extending the length thereof, at least one vertical transverse ejector plate within said hopper and mounted for movement along at least a portion of the length thereof toward said opening, the height of said ejector plate being substantially equal to

the height of said side walls, and means selectively moving said ejector plate.

2. In a refuse transfer station as defined in claim 1, the construction including a movable bulkhead covering said discharge opening.

3. In a refuse transfer station as defined in claim 1, the construction wherein the length of said hopper and the width of the upper vehicle supporting means are sufficient to accommodate at least two refuse collecting vehicles in side by side relation.

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