

1,405,952.

2 SHEETS—SHEET 1.



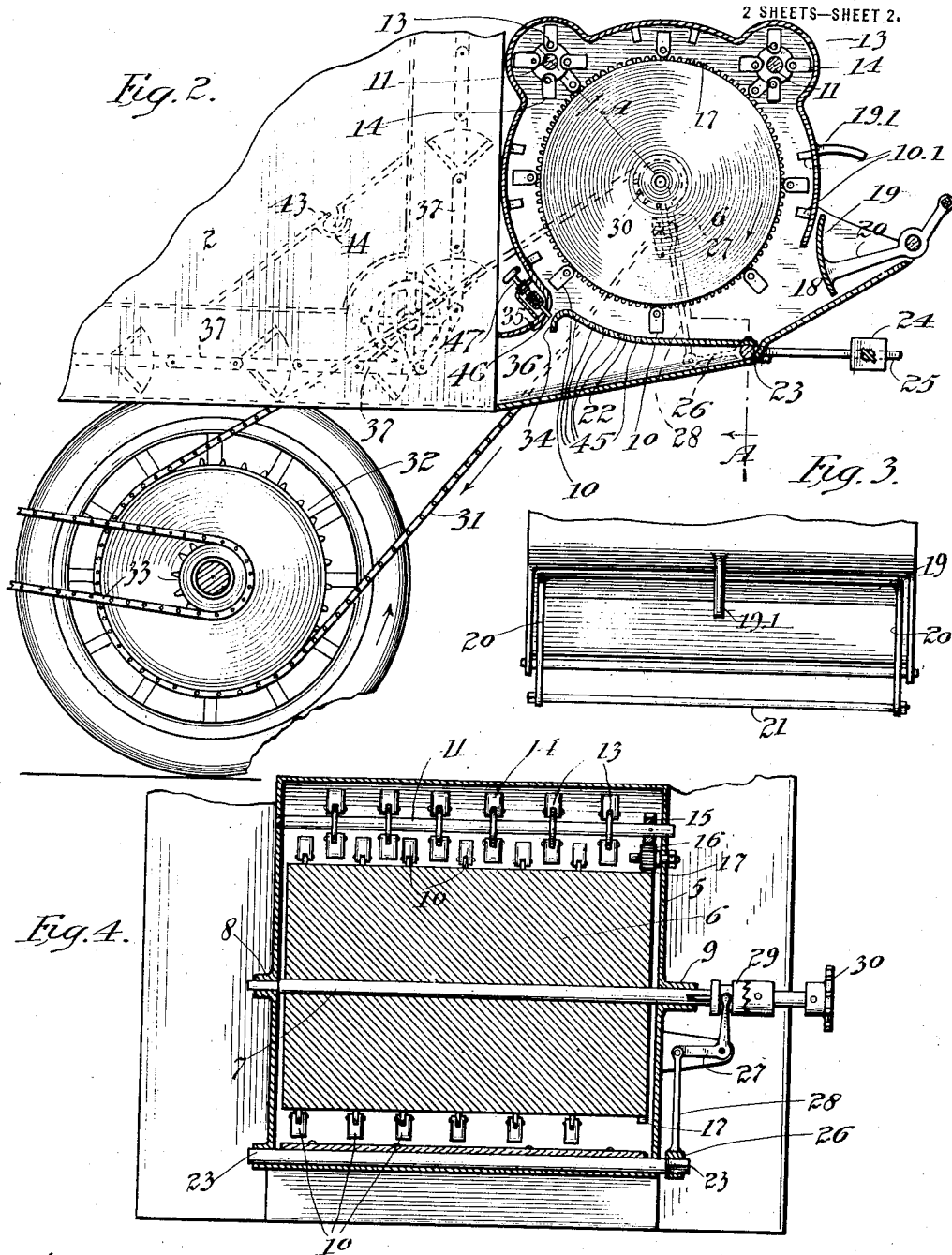
Inventor:
Edwards B. Stuart,
By Hummel & Hummel. Attys.

E. B. STUART.
METHOD OF COLLECTING AND TRUCKING GARBAGE.
APPLICATION FILED AUG. 24, 1916.

1,405,952.

Patented Feb. 7, 1922.

2 SHEETS—SHEET 2.



Witnesses:
W. J. Smith
H. E. Hann

Inventor:
E. B. Stuart,
By Hummel & Hummel, Attys.

UNITED STATES PATENT OFFICE.

EDWARDS B. STUART, OF CHICAGO, ILLINOIS.

METHOD OF COLLECTING AND TRUCKING GARBAGE.

1,405,952.

Specification of Letters Patent.

Patented Feb. 7, 1922.

Application filed August 24, 1916. Serial No. 116,725.

To all whom it may concern:

Be it known that I, EDWARDS B. STUART, a citizen of the United States of America, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Methods of Collecting and Trucking Garbage, of which the following is a specification.

The main object of this invention is to provide an improved method of treating and handling refuse material during the collection thereof from a number of successive stations. The improved device by which this method is to be carried out involves the use of improved means for treating garbage and the like at the time of collecting the same, so that no offensive odors will emanate from it while being hauled to the disposal station; improved means for crushing or grinding the garbage into fine particles so as to facilitate oxidation; improved means for drying the comminuted garbage as it is being stored in the collecting vehicle; and an improved crushing device which during the breaking up of the garbage will thoroughly mix the fine and pulverized particles of garbage with a current of air in such a manner that the garbage will be oxidized to such a degree as to retard decomposition and prevent fermentation except under extreme conditions.

An illustrative embodiment of the device by which this method is followed out is shown in the accompanying drawings, in which—

Fig. 1 is a side elevation partly in section of the improved vehicle, the front end thereof being broken away.

Fig. 2 is a sectional elevation of the garbage crushing device and a part of the lower rear end of the vehicle body.

Fig. 3 is a top plan of the garbage receiving chute and garbage can rest.

Fig. 4 is a section taken on the line A—A of Fig. 2.

The improved vehicle constituting the subject-matter of this application is of the same general character as that shown in my copending application, Serial No. 94,689. With the improved vehicle, the garbage may be collected at a plurality of successive stations and during its transportation from one to another station be crushed into finely divided particles and accumulated in a storage compartment, whereby oxidation readily

takes place, eliminating the offensive odors, and making it possible for a comparatively large amount of garbage to be collected and transported to the disposal station in one of these vehicles.

In the construction shown in the drawings, the motor vehicle 1 is provided with a body 2 which forms a storage compartment 3 for the garbage.

A garbage crushing device 4 is mounted at the lower rear end of the body 2 and comprises a casing 5 within which a cylinder 6 mounted on a shaft 7 is journaled in suitable bearings 8 and 9.

A plurality of hammers 10 are swingably mounted in rows upon the outer surface of the cylinder 6 and cooperate with inwardly extending teeth 10.1 mounted on the interior of the casing 5, for crushing the garbage. The hammers 10 are of the usual type used in garbage crushing machines and are mounted so as to have a flailing action on the material with which they come in contact.

A pair of shafts 11 and 12 are journaled at their opposite ends respectively in suitable bearings on the casing 5, parallel to the shaft 7 which carries the cylinder 6. A plurality of disks 13 are rigidly mounted on each of the shafts 11 and 12, said disks being located so as to be between the rows of cylinder hammers. Hammers 14, similar to the cylinder hammers 10, are swingably mounted on the disks 13 and are spaced away slightly from the peripheral surface of the cylinder 6.

Rotation is imparted to the shafts 11 and 12 by means of gears 15 rigidly mounted on said shafts and which mesh with pinions 16 which in turn mesh with a large gear 17 mounted on the cylinder 6. The cylinder 6 is adapted to be rotated in a clockwise direction, (Fig. 2) and by means of intermediate pinions 16, the disks 13 carrying hammers 14 also rotate in a clockwise direction.

The rapidity and direction of rotation of hammers 14 with respect to the rotation of cylinder 6 results in an air circulation around the cylinder opposite to the direction of travel of the garbage.

A receiving chute 18 is provided for receiving the garbage as it is being collected, and means for normally closing the outer end of the chute are provided and comprise a closure gate 19 rigidly mounted on the in-

ner ends of a pair of arms 20, the outer ends of which are connected together by a transverse rod 21 which serves as a garbage can rest. The arms 20 are pivotally mounted intermediate their ends so that when a garbage can is placed upon the can rest 21 for the purpose of emptying the contents into the chute, the weight of the can shifts the can rest 21 downward, thereby raising the closure gate upward and uncovering the end of the receiving chute so that the garbage from the can may enter the chute which communicates with the crushing device. Upward movement of the gate is limited by a stop 19.1 mounted on the casing 5.

A member 22 is disposed along the floor of the garbage receiving chute substantially underneath the cylinder 6 and is mounted at its rear end on a transverse shaft 23. The shaft 23 is mounted to rock so as to carry the member 22 downward away from the cylinder 6, but the member 22 is normally retained in close proximity to the cylinder by means of a counterweight 24 slidably mounted on an arm 25 secured to the shaft 23.

The shaft 23 extends out through the casing 5 and has an arm 26 secured to its outwardly extending end which is connected to one arm of a bell crank lever 27 by means of a connecting link 28. The other arm of the bell crank lever 27 is connected to a clutch 29 mounted on the cylinder shaft 7 and through which the cylinder is driven by means of sprocket wheel 30 over which runs a sprocket chain 31. The sprocket chain 31 is driven by a relatively large sprocket wheel 32 rotatably mounted on the rear axle of the motor vehicle, which in turn is driven by suitable means 33 which have connection with the motor of the vehicle.

The free end of the rockable member 22 is provided with a plurality of small apertures 45 which are adapted to act as outlets for the pulverized garbage, and the extreme end of the member 22 is bent downwardly at 34 and is spaced slightly away from the wall 35 of a chute 36 which communicates with a conveyer 37 which surrounds the storage compartment 3. Suitable means are provided for adjusting the size of the opening between the end 34 and wall 35 and comprise a gate 46 slidably mounted in the wall 35 and provided with a hand-screw 47 for adjusting the same.

The conveyer 37 is of the type more fully shown and described in my aforesaid co-pending application, and is driven by suitable connections as shown and described in my aforesaid application. The conveyer 37 is housed within a passageway 38, and said passageway is provided with a pivoted door 39 at a point above the garbage crushing device, so that material such as ashes, which it is not desired to pass through the crushing device, may be poured directly into the con-

veyer passageway and carried up to the trap doors 40 through which the garbage and other material is dropped.

The exhaust pipe 41 from the motor of the vehicle extends back underneath the storage compartment 3, and the end 42 thereof extends upward and opens into the compartment 3 so that material which is being dumped into the compartment is subjected to the hot gases of the motor and thereby dried.

The motor gases exhausted into the compartment 3 come in contact with the walls of the compartment and are thereby condensed so that the oil therein trickles down the sides of the compartment and passes into vents 43 which have troughs 44 disposed thereunder for catching the oil and carrying it away to a suitable receptacle.

In the operation of the device, the garbage can, as it is being emptied, is rested upon the bar 21, thereby forcing the bar down and raising the gate 19 which uncovers the end of the chute. The stop 19.1 limits the upward movement of the gate and when the can is removed from the can rest, the gate will resume its normal position by gravity, thereby closing the gate of the chute so as to prevent the escape of the obnoxious odors of the garbage.

The cylinder is driven by the motor of the vehicle through the chain and sprocket 33, sprocket 32, chain 31, sprocket 30 and clutch 29, said clutch being normally in engagement. As the garbage goes down the chute 18, it is subjected to the blows of the hammers 10 on the cylinder 6 and is broken up into finely divided particles by the action of these hammers cooperating with the inwardly extending teeth 10.1, which are mounted on the interior surface of the casing 5. As the material is carried around the cylinder, it is also subject to the powerful blows of the hammers 14 driven by the shafts 11 and 12. The hammers 14 are rotating in the opposite direction from that in which the garbage material is moving, and thereby strikes the garbage with extraordinary power.

Should any material be mixed with the garbage which cannot be broken up by the crushing device, such material forces the rockable member 22 downwardly away from the cylinder and thereby actuates the bell crank lever 27 through the arm 26 and link 28 so as to disengage the clutch 29 and thereby stop the rotation of the cylinder 6. This automatic disconnecting of the clutch 29, when material which cannot be crushed is fed into the device, prevents the breaking or straining of the apparatus.

The garbage which is broken up into fine particles drops down into the chute 36 through the space between the end 34 of member 22 and the gate 46, and part of the

pulverized garbage escapes through the apertures 45 into the chute 36. It is there picked up by the conveyer 37, carried up the passageway 38 and dumped down through the trap doors 40. As it drops down through the doors 40 into the compartment 3, it is subjected to the hot gases from the motor and dried to such an extent that a large quantity of garbage can be stored in the vehicle.

The size of the outlet between the gate 46 and the end 34 of member 22 may be adjusted to varying sizes by means of the hand-screw 47.

The counterweight 24 may be adjusted along the arm 25 so as to determine the weight necessary to rock the member 22 downwardly to unclutch the cylinder.

Although but one specific form of device for carrying out this method has been herein shown and described, it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention as defined by the following claims.

I claim:—

1. The improved method of collecting and trucking garbage, which consists in collecting the garbage at a plurality of residences, conveying the collected garbage from one residence to another in succession, and auto-

matically comminuting and accumulating said garbage while being conveyed from one residence to another.

2. The improved method of collecting and trucking garbage by means of a vehicle, which consists in collecting the garbage at a plurality of successive residences, transporting the collected garbage from one residence to another in succession, and automatically comminuting and accumulating said garbage on the vehicle while being transported from one residence to another.

3. The improved method of collecting and trucking garbage, which consists in collecting the garbage at a plurality of successive residences, conveying the collected garbage from one residence to another in succession, and automatically comminuting, drying and accumulating said garbage while being conveyed from one residence to another.

4. The improved method of collecting and trucking garbage, which consists in collecting the garbage at a plurality of successive residences, conveying the garbage from one residence to another in succession, and automatically comminuting, oxidizing, drying and accumulating said garbage while being conveyed from one residence to another.

Signed at Chicago this 19th day of Aug., 1916.

EDWARDS B. STUART.