Aug. 25, 1931. J. GOODMAN 1,820,698

AUTOMATIC ASH TRUCK LOADER

Filed March 22, 1930 2 Sheets-Sheet 1

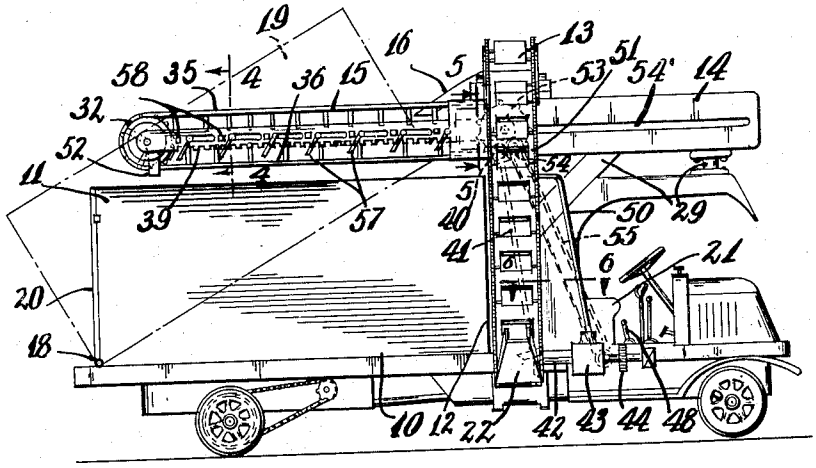


FIG 1

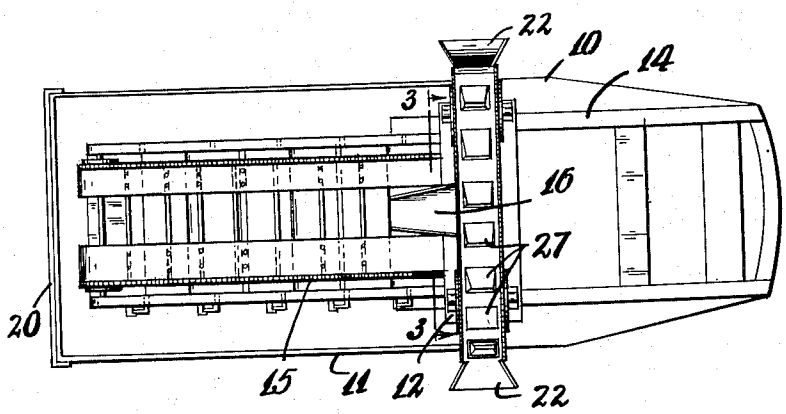


FIG 2

INVENTOR.
Joseph Goodman
BY Gilbert H. Hoschke
ATTORNEY

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AUTOMATIC ASH TRUCK LOADER

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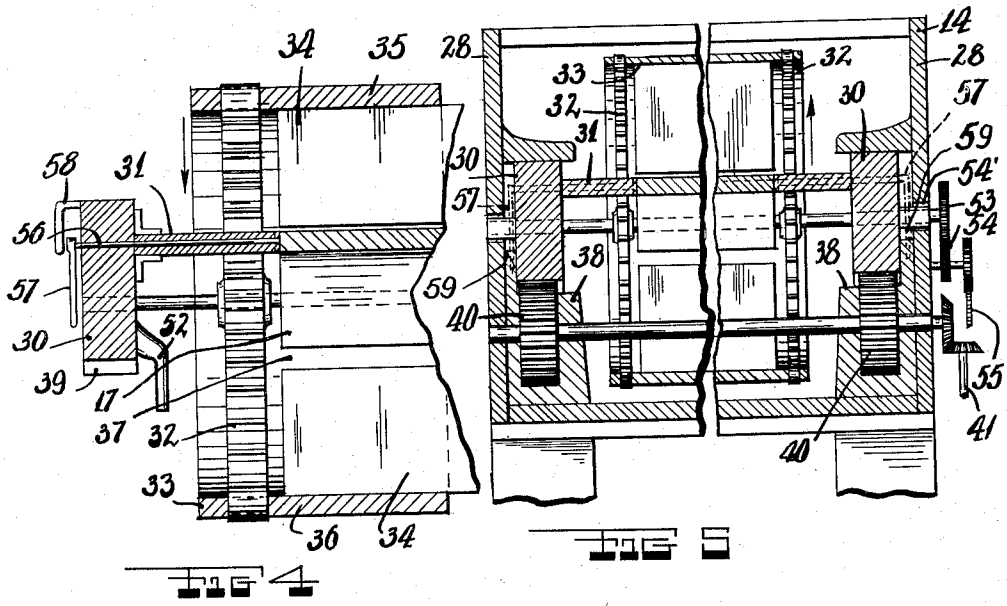


FIG 4 FIG 5

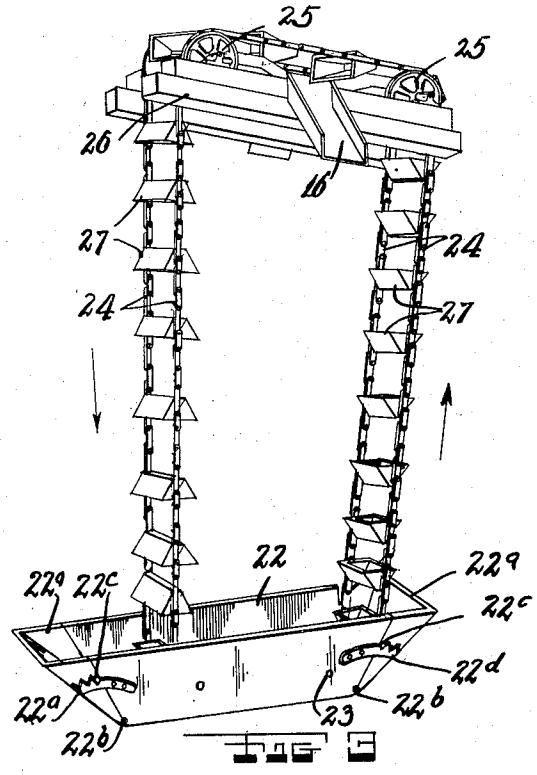


FIG 6

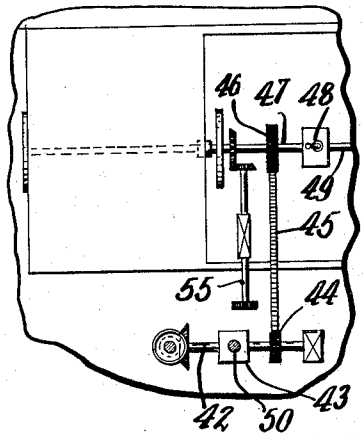


FIG 7

INVENTOR.
Joseph Goodman
BY Zoltan G. Polachek
ATTORNEY

Patented Aug. 25, 1931 1,820,698

UNITED STATES PATENT OFFICE

JOSEPH GOODMAN, OF NEW YORK, N. Y.

AUTOMATIC ASH TRUCK LOADER

Application filed March 22, 1930. Serial No. 438,086.

This invention relates to new and useful improvements in refuse trucks.

The invention has for an object the provision of a device of the class mentioned which is of simple, durable construction, dependable in use and efficient in action, and which can be manufactured and sold at a reasonable cost.

The invention proposes a truck with a load receptacle arranged for tilting upwards so that its contents may be dumped and arranged with a transverse conveyor for transferring refuse from slightly above the street level to a point above said load receptacle, and another conveyor for receiving the lifted refuse and transferring it into the load receptacle.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:—

Fig. 1 is a side elevational view of a device constructed according to this invention.

Fig. 2 is a plan view of Fig. 1.

Fig. 3 is a perspective view of the transverse conveyor, per se.

Fig. 4 is an enlarged fragmentary sectional view taken on the line 4—4 of Fig. 1.

Fig. 5 is an enlarged transverse vertical sectional view taken on the line 5—5 of Fig. 1.

Fig. 6 is a fragmentary horizontal sectional view taken on the line 6—6 of Fig. 1.

The refuse truck consists of a truck body 10 with a load receptacle 11 arranged for tilting upwards at its front end 12 for dumping, a transverse elevator 13 for lifting refuse from the sides of the truck to a point above the load receptacle 11, a stationary frame 14 supported on said truck body 10 above said receptacle 11 and out of its path of motion during tilting, a longitudinal conveyor 15 slidable on said frame 14 for moving over said receptacle 11 and to a retracted position out of the path of motion of tilting of said load receptacle, a chute 16 for transferring refuse from said point of discharge of the transverse conveyor 13 onto said longitudinal conveyor 15, means for moving the longitudinal conveyor to extended and retracted positions, means for operating the longitudinal conveyor in extended position only, said longitudinal conveyor being formed with pivoted doors 17 operable to discharge at various points along its length into the said receptacle 11, and means for closing all of said doors upon motion of the longitudinal conveyor to its retracted position.

The truck body 10 is of conventional design and construction and is shown on a motor driven chassis. The load receptacle 11 is hingedly mounted at 18 to the chassis of the truck so that it may pivot up to a position indicated by the dot and dash lines 19 for accomplishing the dumping. As shown on the drawings, the load receptacle 11 is formed with a removable back 20 so that refuse may slide out of the receptacle when in the tilted position. The instant invention may be applied to any type of truck which is capable of dumping its contents by upward tilting, even though it has no removable back such as element 20.

The transverse elevator conveyor 13 is arranged between the front of the receptacle 11 and the driver seat 21. It is of conventional design and shown to consist of a bottom container 22 supporting a driver shaft 23 carrying wheels guiding chains 24 which are supported at the top as at 25 upon wheels rotatively supported on a framework 26 attached upon the body 10. A plurality of buckets 27 are arranged upon the chains 24 so that upon rotation of the chains in a continuous path, these buckets lift refuse from the container 22 and carry the refuse to the top and there invert for dropping it upon the chute as indicated by reference numeral 16. The dumping of the buckets is automatic. Such constructions are generally known and need not be described here in detail.

The bottom container 22 is arranged slightly above the street level so that it is

convenient for men to dump conventional barrels of refuse therein. It is intended that the truck be slowly driven down a street and the barrels containing the refuse in front of the various houses emptied within the container 22. This eliminates much work when compared with present day systems in which the barrels must be lifted to the top of the load receptacle 11 before they can be dumped. Since the work is reduced the men will be capable of accomplishing more work in a given length of time. The container 22 is provided with lowerable ends 22^a hingedly supported at the bottoms 22^b and adapted to be held in raised positions by pegs 22^c from the ends engageable on serrated arcuate brackets 22^d attached on the main portion of the container 22.

The stationary frame 14 consists of a pair of spaced side-forming members 28 held in spaced positions by attachment upon braces 29 connected with the body of the vehicle. The side-forming members 28 are arranged over the driver's seat and over the motor so as to be out of the path of tilting of the load receptacle 11. The longitudinal conveyor 15 consists of a pair of side-forming members 30 held in spaced positions by a partition 31. End wheels 32 are rotatively supported in the side-forming members 30 and support continuous chains 33 arranged to move in a continuous path. At regularly spaced intervals, blades 34 are attached upon the chains 33 so that when the chains move in their path, these blades move along. The conveyor 15 necessarily has a top arm 35 and a bottom arm 36, and these arms should be so arranged that a space 37 exists therebetween. The conveyor 15 slidably engages in recesses 38 formed in the side-forming members 28 so as to be slidably mounted.

The extended position of the longitudinal conveyor 15 is the position shown in full lines in Fig. 1, that is, the position in which it is over the load receptacle 11. Its retracted position is the position completely within the stationary frame 14 so that it does not extend over the load receptacle and permits a tilting of the latter element. The chute 16 is attached upon a supporting structure 26 of the transverse conveyor 13 so that it is stationary.

The means for moving the longitudinal conveyor 15 to the extended and retracted positions consists of rack teeth 39 formed upon the bottom edge of one of the side-forming members 30. A gear 40 is rotatively supported upon the stationary frame 14 and meshes with the rack teeth 39 and connects with a transmission system 41 to a shaft 42 composed of two sections connected by a gear shift 43. A gear 44 is mounted upon the section of the shaft 42 on the side opposite the transmission 41, and connects with a chain 45 connecting with a gear 46 upon a shaft 47 connected with the shaft 23 and also connected with a hand operated clutch which is arranged for connecting it with a drive shaft 49 receiving its rotation from the motor of the vehicle.

The gear shift 43 is formed with a long control handle 50 extending up into the path of motion of a front lug 51 and a rear lug 52 upon the conveyor 15. The gear shift is of the type which has a neutral position for the handle 50 and when moved in one direction causes the transmission 41 to rotate so as to extend the conveyor 15, and when moved in the other direction to rotate the transmission 41 so as to retract the conveyor 15. As shown in Fig. 1, the lug 51 has just acted against the handle 50 so as to move it into its neutral position. When it is desired that the conveyor 15 move to its retracted position, the handle 50 is manually moved slightly towards the lug 52. This engages the gears of the shift 43 and rotations are then transmitted along the transmission 41 to the gear 40 and the rack teeth 39. When the conveyor 15 is fully retracted the lug 52 acts against the handle 51 for moving it to its neutral position so as to discontinue further retraction of the conveyor.

The means for operating the longitudinal conveyor in the extended position only, consists of a gear 53 fixed upon a shaft supporting the wheels 32 at the front of the conveyor 15. The connection is such that when the gear 53 is rotated the wheels 32 rotate for moving the chains 33 and causing operation of the conveyor. The shaft which supports the gear 53 extends thru a longitudinal slot 54′ in the frame 14 so that the conveyor 15 is free to move to its extended or retracted positions. When the conveyor is in its extended position the gear 53 meshes with a gear 54 rotatively supported upon the frame 14 and connected with a transmission system 55 to the shaft 47.

The pivoted doors 17 of the conveyor 15 constitutes flooring together with said partition 31 so that when the blades 34 of the top conveyor arm 35 pass along this flooring, refuse between the blades is conveyed forwards. When any of the doors are in their open positions, the blades 34 move the refuse forward so that it drops thru the opening and through the opening formed by the conveyor chains 33 and the arms 36 into the receptacle 11. When the doors 17 are closed they are in a flat line with each other so as to produce a continuous surface which constitutes the said flooring. Each of the doors 17 is pivotally supported by trunnions 56 mounted thru the side-forming members 30.

A lever 57 is mounted upon the extended ends of one of the trunnions of each of the doors 17. Catches 58 are arrange upon

the side-forming members 30 and are adapted to hold all of the levers 57 in positions so that the doors are closed. The levers may be manually moved to open the doors 17. The means for closing all of the doors upon motion of the longitudinal conveyor to its retracted position consists of a shoulder 59 formed upon one of the side-forming members 28 of the stationary frame 14 so that when the conveyor 15 is moving to its retracted position, the levers 57 are raised by the shoulder and caught by the catches 58 for maintaining the raised position.

The operation of the device may be traced by assuming the conveyor 15 in the retracted position. The operator first moves the hand clutch 48 so as to transmit rotations to the shaft 47. Rotations from the shaft 47 are transmitted to the gear 54. Next the operator manually moves the handle 50 so as to cause rotations from the shaft 47 to be transmitted to the gear 40 for extending the conveyor 15.

When the conveyor is fully extended the gear 53 meshes with the gear 54 so that rotations are transmitted to the conveyor 15. The shaft 47 is permanently coupled with the shaft 23 so that rotations from the shaft 47 are transmitted to the transverse conveyor 13. Barrels of refuse may now be dumped into the container 22 and this refuse will be lifted and discharged to the chute 16, then upon the conveyor 15. First the outermost door 17 of the conveyor is manually opened so that this refuse empties into the rear end of the load receptacle 11. When the rear end of the load receptacle is full, the next door 17 is opened and so on permitting a regular filling of the entire receptacle. Upon conclusion, the handle 50 is moved so as to cause the retraction of the conveyor 15.

While I have shown and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:—

1. A refuse truck, comprising a truck with a load receptacle arranged for tilting upwards at its front end for dumping, a transverse elevator conveyor for lifting refuse from the sides of the truck to a point above the load receptacle, a stationary frame supported on said truck above said receptacle and out of its path of motion during tilting, a longitudinal conveyor having a longitudinal partition and slidable on said frame for moving over said receptacle and to a retratced position, a chute for transferring refuse from said point of discharge of the transverse conveyor onto said longitudinal conveyor, means for moving the longitudinal conveyor to extended and retracted positions, means for operating the longitudinal conveyor in extended position only, said partition of the longitudinal conveyor being formed with pivoted doors operable to discharge at various points along its length into said receptacle, and means for closing all of said doors upon motion of the longitudinal conveyor to its retracted position.

2. A refuse truck, comprising a truck with a load receptacle arranged for tilting upwards at its front end for dumping, a transverse elevator conveyor for lifting refuse from the sides of the truck to a point above the load receptacle, a stationary frame supported on said truck above said receptacle and out of its path of motion during tilting, a longitudinal conveyor having a longitudinal partition and slidable on said frame for moving over said receptacle and to a retracted position, a chute for transferring refuse from said point of discharge of the transverse conveyor onto said longitudinal conveyor, means for moving the longitudinal conveyor to extended and retracted positions, means for operating the longitudinal conveyor in extended position only, said partition of the longitudinal conveyor being formed with pivoted doors operable to discharge at various points along its length into said receptacle, and means for closing all of said doors upon motion of the longitudinal conveyor to its retracted position, said stationary frame consisting of a pair of spaced side-forming members arranged with recesses for accomplishing the slidable supporting of the longitudinal conveyor.

3. A refuse truck, comprising a truck with a load receptacle arranged for tilting upwards at its front end for dumping, a transverse elevator conveyor for lifting refuse from the sides of the truck to a point above the load receptacle, a stationary frame supported on said truck above said receptacle and out of its path of motion during tilting, a longitudinal conveyor having a longitudinal partition and slidable on said frame for moving over said receptacle and to a retracted position, a chute for transferring refuse from said point of discharge of the transverse conveyor onto said longitudinal conveyor, means for moving the longitudinal conveyor to extended and retracted positions, means for operating the longitudinal conveyor in extended position only, said partition of the longitudinal conveyor being formed with pivoted doors operable to discharge at various points along its length into said receptacle, and means for closing all of said doors upon motion of the longitudinal conveyor to its retracted position, said longitudinal conveyor consisting of an

upper arm and a lower arm arranged with a space therebetween and the said chute discharges between these arms and upon the lower arm.

4. A refuse truck, comprising a truck with a load receptacle arranged for tilting upwards at its front end for dumping, a transverse elevator conveyor for lifting refuse from the sides of the truck to a point above the load receptacle, a stationary frame supported on said truck above said receptacle and out of its path of motion during tilting, a longitudinal conveyor having a longitudinal partition and slidable on said frame for moving over said receptacle and to a retracted position, a chute for transferring refuse from said point of discharge of the transverse conveyor onto said longitudinal conveyor, means for moving the longitudinal conveyor to extended and retracted positions, means for operating the longitudinal conveyor in extended position only, said partition of the longitudinal conveyor being formed with pivoted doors operable to discharge at various points along its length into said receptacle, and means for closing all of said doors upon motion of the longitudinal conveyor to its retracted position, said longitudinal conveyor consisting of an upper arm and a lower arm arranged with a space therebetween and the said chute discharges between these arms and upon the lower arm, said lower arm being provided with the said pivoted doors so that the doors may be opened for dropping refuse into the said load receptacle.

5. A refuse truck, comprising a truck with a load receptacle arranged for tilting upwards at its front end for dumping, a transverse elevator conveyor for lifting refuse from the sides of the truck to a point above the load receptacle, a stationary frame supported on said truck above said receptacle and out of its path of motion during tilting, a longitudinal conveyor having a longitudinal partition and slidable on said frame for moving over said receptacle and to a retracted position, a chute for transferring refuse from said point of discharge of the transverse conveyor onto said longitudinal conveyor, means for moving the longitudinal conveyor to extended and retracted positions, means for operating the longitudinal conveyor in extended position only, said partition of the longitudinal conveyor being formed with pivoted doors operable to discharge at various points along its length into said receptacle, and means for closing all of said doors upon motion of the longitudinal conveyor to its retracted position, said means for moving the longitudinal conveyor into its extended and retracted positions consists of rack teeth formed upon one of the longitudinal members constituting the longitudinal conveyor, a gear meshing with said rack teeth, a transmission system connecting the latter gear with a shaft composed of two sections connected with a gear shift and one of the sections being connected with a driver shaft of the vehicle motor.

6. A refuse truck, comprising a truck with a load receptacle arranged for tilting upwards at its front end for dumping, a transverse elevator conveyor for lifting refuse from the sides of the truck to a point above the load receptacle, a stationary frame supported on said truck above said receptacle and out of its path of motion during tilting, a longitudinal conveyor having a longitudinal partition and slidable on said frame for moving over said receptacle and to a retracted position, a chute for transferring refuse from said point of discharge of the transverse conveyor onto said longitudinal conveyor, means for moving the longitudinal conveyor to extended and retracted positions, means for operating the longitudinal conveyor in extended position only, said partition of the longitudinal conveyor being formed with pivoted doors operable to discharge at various points along its length into said receptacle, and means for closing all of said doors upon motion of the longitudinal conveyor to its retracted position, said means for moving the longitudinal conveyor into its extended and retracted positions consists of rack teeth formed upon one of the longitudinal members contstituting the longitudinal conveyor, a gear meshing with said rack teeth, a transmission system connecting the latter gear with a shaft composed of two sections connected with a gear shift and one of the sections being connected with a driver shaft of the vehicle motor, said gear shift having a handle engaging between a front lug and a rear lug on said longitudinal conveyor so as to automatically be moved to a neutral position upon the fully extended and fully retracted positions of the conveyor.

7. A refuse truck, comprising a truck with a load receptacle arranged for tilting upwards at its front end for dumping, a transverse elevator conveyor for lifting refuse from the sides of the truck to a point above the load receptacle, a stationary frame supported on said truck above said receptacle and out it its path of motion during tilting, a longitudinal conveyor having a longitudinal partition and slidable on said frame for moving over said receptacle and to a retracted position, a chute for transferring refuse from said point of discharge of the transverse conveyor onto said longitudinal conveyor, means for moving the longitudinal conveyor to extended and retracted positions, means for operating the longitudinal conveyor in extended position only, said partition of the longitudinal conveyor being formed with pivoted doors operable to

discharge at various points along its length into said receptacle, and means for closing all of said doors upon motion of the longitudinal conveyor to its retracted position, the means for operating the longitudinal conveyor in the extended position consists of a shaft supporting the driver wheel of the conveyor and extending thru a slot in said stationary frame, a gear on said shaft and engageable in the extended position of the conveyor with a gear connected with a transmission of a driver shaft.

8. A refuse truck, comprising a truck with a load receptacle arranged for tilting upwards at its front end for dumping, a transverse elevator conveyor for lifting refuse from the sides of the truck to a point above the load receptacle, a stationary frame supported on said truck above said receptacle and out of its path of motion during tilting, a longitudinal conveyor having a longitudinal partition and slidable on said frame for moving over said receptacle and to a retracted position, a chute for transferring refuse from said point of discharge of the transverse conveyor onto said longitudinal conveyor, means for moving the longitudinal conveyor to extended and retracted positions, means for operating the longitudinal conveyor in extended position only, said partition of the longitudinal conveyor being formed with pivoted doors operable to discharge at various points along its length into said receptacle, and means for closing all of said doors upon motion of the longitudinal conveyor to its retracted position, said pivoted doors being connected with levers normally held by catches to hold the doors in a closed position, and said stationary frame being formed with a shoulder to move the levers so as to be engaged by the catches when the longitudinal conveyor moves to its retracted position.

In testimony whereof I have affixed my signature.

JOSEPH GOODMAN.