April 14, 1931. R. C. EVANS 1,800,824

STREET SWEEPER CONSTRUCTION

Filed April 23, 1926 2 Sheets-Sheet 1

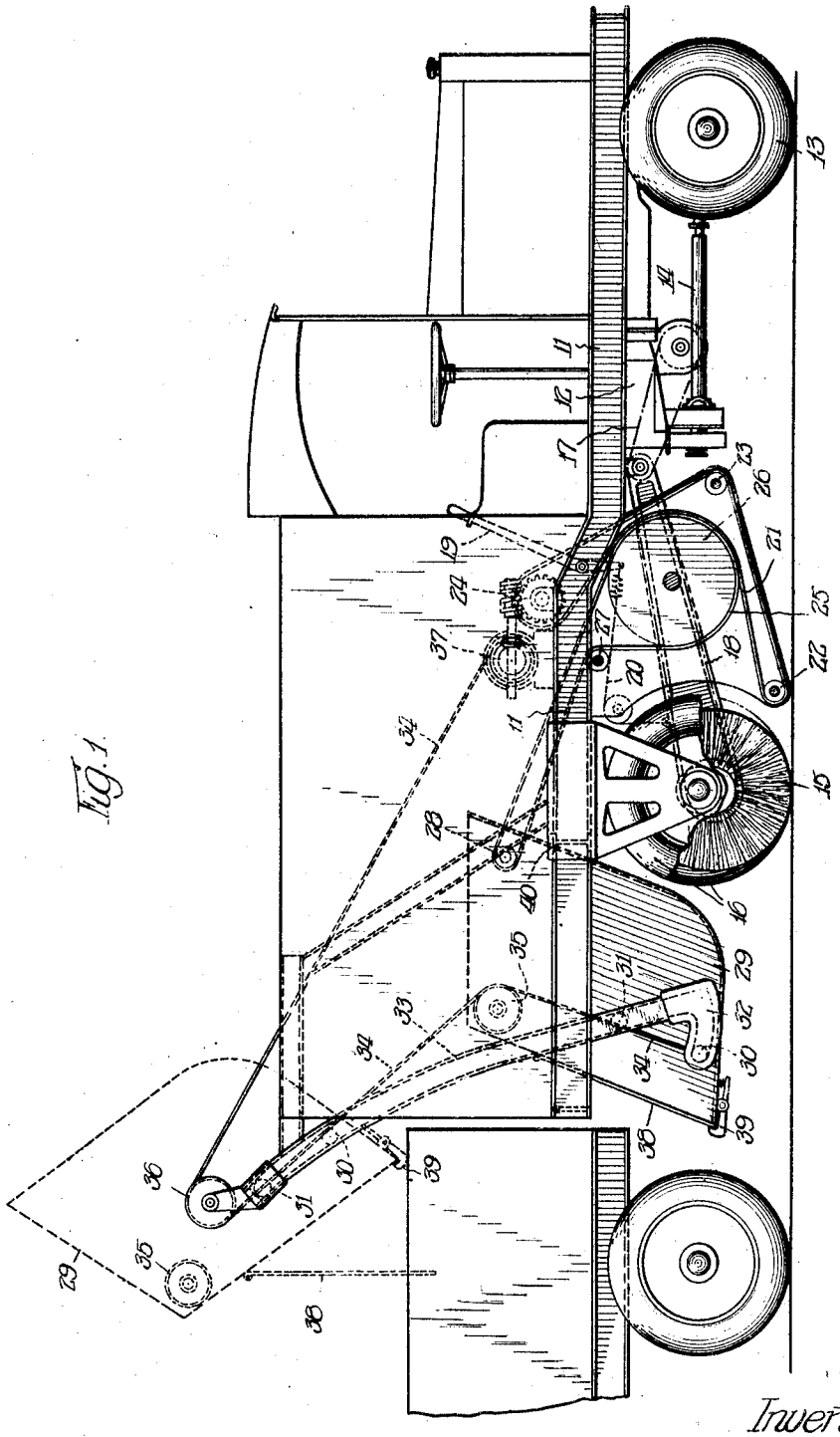


Fig. 1.

Witness:
R. Burkhardt

Inventor:
Ronald C. Evans,
By Wilkinson Huxley Byron & Knight
Attys.

April 14, 1931. R. C. EVANS 1,800,824

STREET SWEEPER CONSTRUCTION

Filed April 23, 1926 2 Sheets-Sheet 2

Fig. 3.

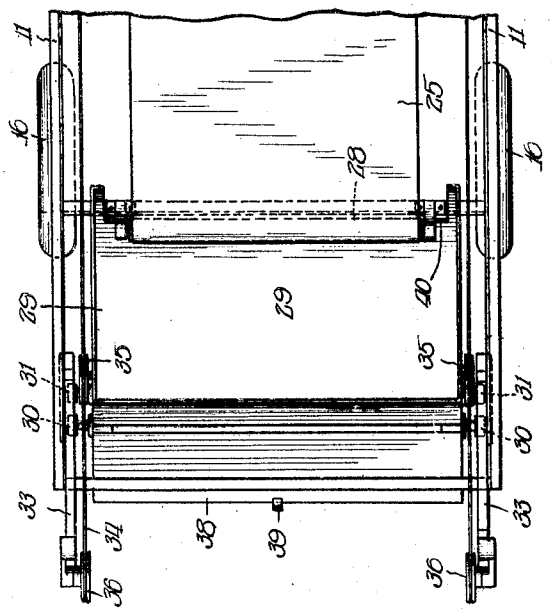
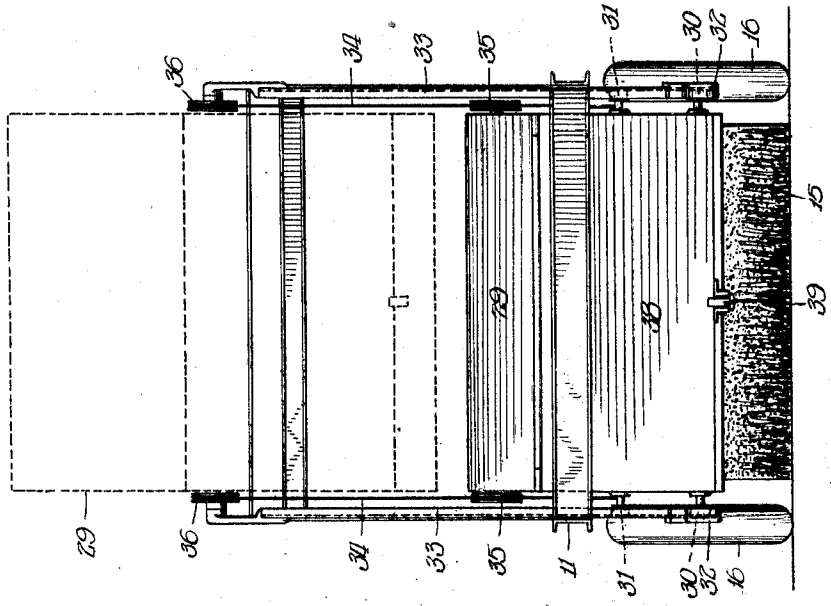



Fig 2.




Witness:
A. Burkhardt

Inventor:
Ronald C. Evans,
By Wilkinson Huxley Byron & Knight
Attys.

Patented Apr. 14, 1931 1,800,824

# UNITED STATES PATENT OFFICE

RONALD C. EVANS, OF OAK PARK, ILLINOIS

## STREET-SWEEPER CONSTRUCTION

Application filed April 23, 1926. Serial No. 104,011.

This invention relates to a new and improved street sweeper construction, and more particularly to a construction for elevating and dumping the refuse receptacle carried by such sweepers.

The present invention relates to a type of sweeper which is power propelled and provided with means for placing the refuse swept from the street into a receptacle carried by the vehicle. With such types of sweepers it is desirable to provide means for dumping the collected material into a truck or trailer by which it can be carried to the desired point of deposit. Such a method of handling eliminates dead time in the use of the sweeper and avoids any rehandling of the material, such as is required when the material is simply dumped in piles in the street.

It is an object of the present invention to provide a sweeper construction of this character in which the material may be rapidly dumped by power means into another vehicle.

It is a further object to provide a construction of this character in which the refuse receptacle is lifted to such a height as to permit its gravity deposit into truck bodies.

It is an additional object to provide a construction which is simple and certain in its action, and which requires but few parts and a relatively small amount of power for its operation.

Other and further objects will appear as the description proceeds.

I have illustrated a preferred embodiment of my invention in the accompanying drawings, in which

Figure 1 is a side elevation of the sweeper equipped with my invention;

Figure 2 is a view of Figure 1 as seen from the left; and

Figure 3 is a plan view of the rear portion of the sweeper.

The truck shown is of the front drive type and is provided with the frame 11 carrying the power unit 12 driving the forward wheels 13 through the power shaft 14. The brush 15 located between the rear wheels 16, is driven through the chains diagrammatically indicated at 17 and 18. The lever 19 is provided with a connection 20 for raising and lowering the brush. The refuse is swept by the brush on to the conveyor or belt 21, which is carried about rollers 22, 23 and 24, being driven by the roller 24. The conveying belt 25 is carried by the drum 26, rollers 27 and 28, and is driven by its contact with the belt 21. The construction so far described in itself forms no part of the present invention. This form of sweeper, however, is one which is particularly adapted for use in connection with my improved refuse receptacle construction.

The receptacle 29 formed of sheet metal, is so located that the end of the belt 25 extends over the front edge of the receptacle, which is cut away at 40, as best shown in Figure 3. The rollers 30 and 31 are carried upon studs secured to the opposite sides of the receptacle, and serve to support it from the curved tracks 32 and the inclined elevating tracks 33. The cables 34 pass around the pulleys 35 secured to the upper rear corners of the receptacle 29. The cables 34 then extend around the pulleys 36 carried at the upper ends of the tracks 33 and thence extend down to the hoisting drum 37 supported from the vehicle frame 11. The receptacle 29 is provided with a swinging door 38 retained in place by the spring pressed latch 39.

In the operation of the sweeper the vehicle moves forward and in the sweeping operation the brush 15 is driven in contact with the ground, the brush rotating in the counter clockwise direction. The material is swept by the brush on to the conveyor belt 21 and this belt moves on the supporting pulleys in the counter clockwise direction. The material is carried by the belt 21 until it is engaged by the belt 25, which is pressed against the belt 21 by the drum 26. The material is thus held between the two belts, and by this means carried around to the upper side of the drum 26. The belts separate at this point and the material is carried by the upper run of the belt 25 and discharged from this belt as it turns down over the rollers 28.

When the receptacle 29 becomes filled with refuse it is necessary to dump this receptacle so as to provide room for further refuse collected. This dumping is accomplished by a

rotation of the drum 37 in the counter clockwise direction which winds up the cables 34. As these cables are wound up they tend to straighten out the portions of the cables between the pulleys 36 and the rollers 30 adjacent which the lower ends of the cables are secured. This tension on the cables swings the receptacle in the counter clockwise direction about the rollers 31 as pivots. This movement is imparted by the bearing of the cables 34 against the pulleys 35.

During this tilting movement of the receptacle the rollers 30 roll downwardly along the path formed by tracks 32. As they reach the ends of the tracks 32 they are located under the inclined tracks 33 and further winding up of the cables 34 pulls the receptacle upwardly, the two sets of rollers, 30 and 32, both riding in the tracks 33 and maintaining the receptacle against tilting. The cables 34 leave the pulleys 35, and due to the low point of attachment of the cables, the receptacle is raised with its upper portion above the pulleys 36. The latch 39 is operated to release the door and the material is dumped into the trailer or truck or other receptacle provided. The receptacle 29 is restored to receiving position by slacking away upon the cables 34 when the rollers 30 reach the bottom of the tracks 33. The eccentric load of the receptacle itself causes the receptacle to tilt to the right and forces the rollers 30 to the left limit of the curved tracks 32.

It will be noted that the tracks 33 are somewhat curved. This has the function of presenting the receptacle for dumping at such an angle that it will dump clean and all of the material will readily slide by gravity off the bottom of the receptacle. It has the additional function that it facilitates the initial tilting of the receptacle before it starts upwardly to dumping position. This is accomplished by the fact that the pulleys 35 and the point of attachment of the cables 34 adjacent the rollers 30 are so related that it is not necessary for the cables to be fully straightened out between the point of attachment and the pulleys 36 to bring the rollers 30 under the lower end of the tracks 33. Thus this tilting is accomplished without undue tension on the cables and without any strain on the parts due to any tendency of the receptacle to lift before it is tilted to lifting position.

It will be noted that the front face of the receptacle 29 is cut away on the line 40 so as to clear the end of the belt 25 and the roller 28. As the first movement of the receptacle is a tilting one the receptacle is swung to bring the edge 40 clear of the roller 28 before it starts to rise.

While I have illustrated my invention in connection with one form of street sweeper apparatus, it is obviously capable of use in connection with other forms of such apparatus. It is to be understood that I contemplate such changes and modifications to meet varying conditions as may come within the spirit and scope of the appended claims.

I claim:

1. In combination with a conveyor, a refuse receptacle so located as to underlie the end of the conveyor to receive refuse carried by the conveyor, and means adapted to successively tilt the receptacle to clear the conveyor and to elevate the receptacle above the conveyor.

2. In combination with a conveyor, a refuse receptacle so located as to underlie the end of the conveyor to receive refuse carried by the conveyor, a pair of tracks, one on either side of the receptacle, the lower portions of the two tracks being offset in parallel relation, rollers carried by the receptacle and adapted to run on said track, a pulley adjacent the upper end of the track, a cable connected to the receptacle and passing over the pulley, and means to pull on the cable to tilt the receptacle clear of the conveyor and to draw the receptacle up said track past the conveyor.

3. In combination, a receptacle, a pair of vertically spaced rollers on either side of the receptacle, a track on either side of the receptacle adapted to receive the rollers, said tracks having a lower arcuate portion and an upwardly extending portion, the lower rollers being normally held by gravity in the arcuate track portions, and means to tilt the receptacle about the upper rollers to bring the lower rollers into the upwardly extending portion and to elevate the receptacle with both said sets of rollers in the upwardly extending portion of the track.

4. In combination, a receptacle, a pair of vertically spaced rollers on either side of the receptacle, a track on either side of the receptacle adapted to receive the rollers, said tracks having a lower arcuate portion and an upwardly extending portion, the lower rollers being normally located in the arcuate track portions, and the major portion of the weight of the receptacle being located on the opposite side of the track from the arcuate portion so as to cause the lower rollers to move to the limit of the arcuate track away from the upwardly extending track portion.

5. In combination, a receptacle, a pair of vertically spaced rollers on either side of the receptacle, tracks adapted to receive the rollers, said tracks having a lower arcuate portion and an upwardly extending portion, the lower rollers being normally located in the arcuate track portions, the major portion of the weight of the receptacle being located on the opposite side of the track from the arcuate portion so as to cause the lower rollers to move to the limit of the arcuate track away from the upwardly extending track portion, and means adapted to swing the receptacle

about the upper rollers as pivots to bring the lower rollers into the lower end of the upwardly extending track.

6. In combination, a receptacle, a pair of vertically spaced rollers on either side of the receptacle, a track on either side of the receptacle adapted to receive the rollers, said tracks having a lower arcuate portion and an upwardly extending portion, the lower rollers being normally located in the arcuate track portions, and cables connected to the receptacle to cooperate with the receptacle one one side of the upwardly extending track to swing the receptacle to bring the lower rollers into the upwardly extending track portions.

7. In combination, a receptacle, a pair of vertically spaced rollers on either side of the receptacle, a track on either side of the receptacle adapted to receive the rollers, said tracks having a lower arcuate portion and an upwardly extending portion, the lower rollers being normally located in the arcuate track portions, and cables connected to the receptacle to cooperate with the receptacle on one side of the upwardly extending track to swing the receptacle to bring the lower rollers into the upwardly extending track portions, said cables passing over elevated pulleys whereby the cables also serve to elevate the receptacle.

Signed at Oak Park, Illinois, this 17th day of April, 1926.

R. C. EVANS.