A. C. WOLLENSAK.

STREET CLEANING MACHINE.

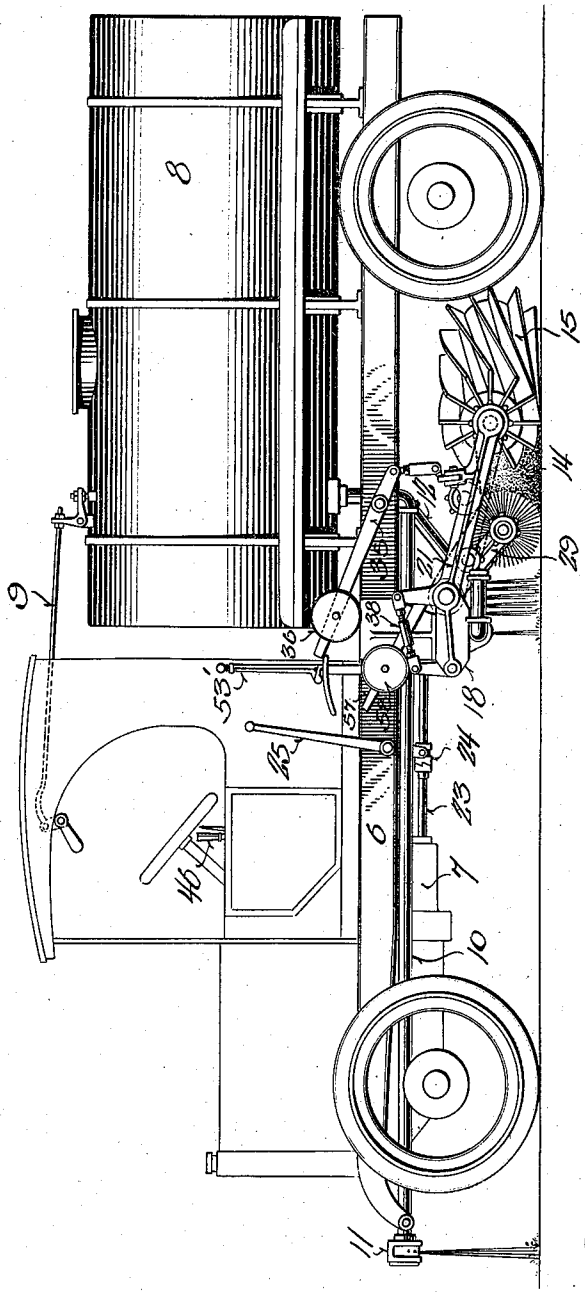
APPLICATION FILED MAR. 26, 1917.

1,247,054.

Patented Nov. 20, 1917.

3 SHEETS—SHEET 1.

Fig. 1.



Witness:

Inventor

Arthur C. Wollensak

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3 SHEETS—SHEET 2.

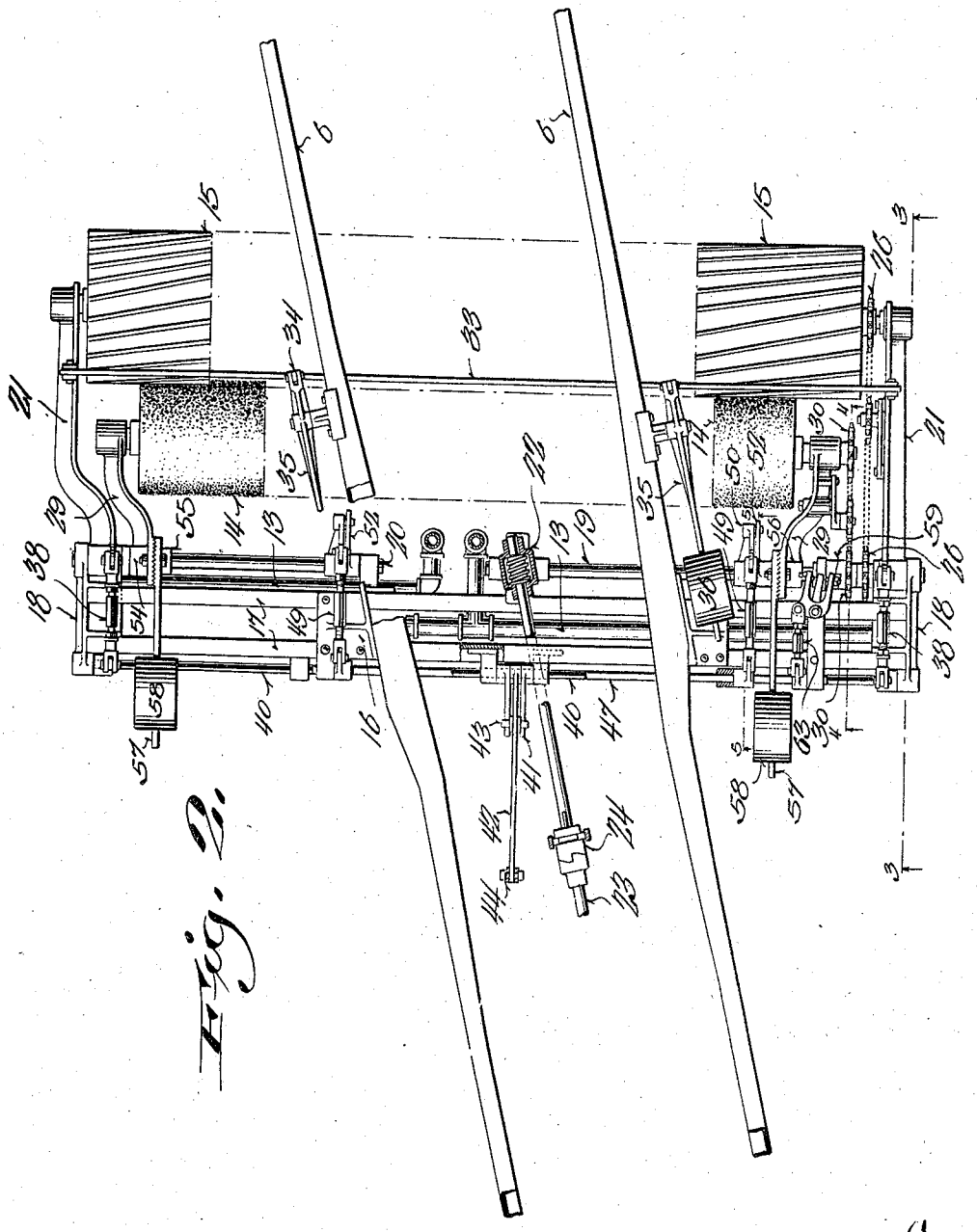


Fig. 2.

Witness:

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3 SHEETS—SHEET 3.

Fig. 3.

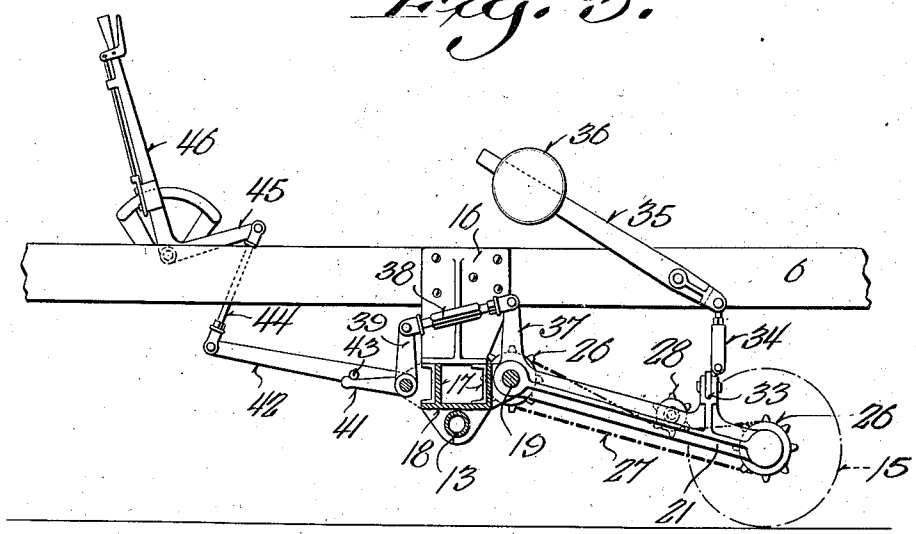


Fig. 4.

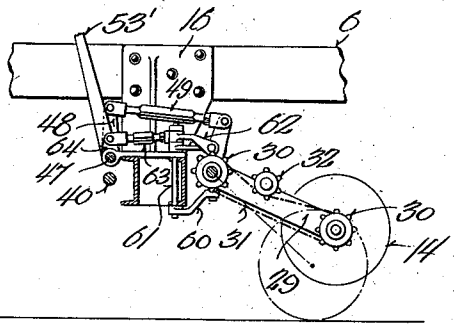
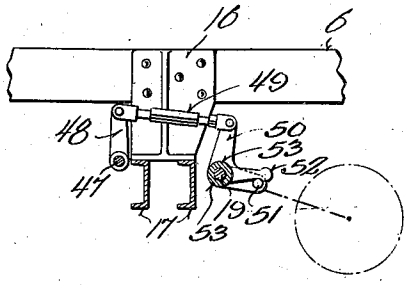


Fig. 5.



Witness:

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UNITED STATES PATENT OFFICE.

ARTHUR C. WOLLENSAK, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO STERLING MOTOR TRUCK COMPANY, OF MILWAUKEE, WISCONSIN.

STREET-CLEANING MACHINE.

1,247,054. Specification of Letters Patent. Patented Nov. 20, 1917.

Application filed March 26, 1917. Serial No. 157,363.

To all whom it may concern:

Be it known that I, ARTHUR C. WOLLENSAK, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Street-Cleaning Machines; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to new and useful improvements in street cleaners, more particularly of that type including a sprinkling means and a squeegee.

It is in general the object of my invention to improve the structure and the efficiency of machines of this charcter, and it is more particularly an object to procure an arrangement whereby the dirt on the street is loosened to a maximum degree before its engagement by the squeegee roller.

I contemplate the provision of a brush roller in advance of the squeegee roller, to procure a loosening of the dirt, and a further object of the invention resides in the provision of a drive means for both rollers embodying an arrangement whereby the brush roller may be independently moved from ground engaging position, and wherein the rotation of said brush roller is automatically stopped upon such movement.

A still further object resides in the provision of means for procuring lifting movement of the brush and squeegee rollers, which means is connected therewith in such manner as to permit free independent vertical movement of the rollers with respect to said lifting means due to their possible engagement with obstructions on the ground.

With the above and other objects and advantages in view, the invention resides more particularly in the novel combination, formation and arrangement of parts hereinafter described and pointed out in the appended claims.

In the drawings:

Figure 1 is a side elevational view of a motor driven street cleaning machine constructed in accordance with the present invention.

Fig. 2 is a plan view of the frame of the truck and the cleaning mechanism disposed thereunder.

Fig. 3 is a transverse sectional view through the cleaning mechanism on the line 3—3 of Fig. 1 and showing the drive and lifting means for the squeegee roller, the brush roller and its associated structure being not shown in this view.

Fig. 4 is a transverse sectional view on the line 4—4 of Fig. 2 showing the drive means and release clutch for the brush roller.

Fig. 5 is a detail sectional view on the line 5—5 of Fig. 2 showing the lifting means for the brush roller.

Referring now more particularly to the accompanying drawing, the present embodiment of my invention includes a motor truck including the chassis 6, and engine 7, and this chassis supports the supply tank 8 of the sprinkler, the valves of this tank being controlled by the usual link means 9 extending forwardly to the driver's seat of the truck. Extending from the tank to the forward end of the truck is a pipe 10 terminating in a transverse spray head 11 in advance of the truck. Extending also from the tank are a pair of depending pipes 12 terminating in lateral spray heads 13 which extend transversely of the truck at the intermediate portions thereof, and immediately in advance of the brush roller 14, these spray heads being inclined at an acute angle to the chassis to correspond to the inclination of the brush roller, and of the squeegee roller 15 which is disposed immediately therebehind.

For supporting the brush and squeegee rollers, brackets 16 depend from the intermediate portions of the side sills of the chassis 6, and carry a pair of obliquely extending channel beams 17 connected at their outer ends by end blocks 18. Journaled rearwardly of the channel beams 17 at one side thereof is a main drive and supporting shaft 19, which is axially alined with a second rearwardly disposed shaft 20, and journaled at the outer ends of these shafts are the ends of rearwardly extending arms 21 in rear bearing heads of which is journaled the squeegee roller 15. The shaft 19 is connect-

ed by a worm drive 22 with a shaft 23 extending within the engine casing, and driven from the engine, and this shaft 23 is preferably formed in sections connected by a clutch 24, whereby the driving means for both rollers may be disconnected, this clutch being operated by a lever 25 upstanding adjacent the driver's seat. Sprocket wheels 26 are fixed on the outer end of the shaft 19 and the adjacent end of the squeegee roller 15, and trained about these shafts is a chain 27, the tension of which is controlled by an idle sprocket wheel 28 adjustably carried on the adjacent arm 21. The brush roller 14 is journaled in the end heads of arms 29 carried on the shafts 19 and 20, and for driving this roller, sprocket wheels 30 are mounted on the outer portion of the shaft 19 and the adjacent end of the brush roller and have trained there about a chain 31 the tension of which is controlled by an idle sprocket wheel 32 adjustably carried by the adjacent arm 29, the sprocket wheel 30 of the shaft 19 being loose thereon and adapted to be locked to the shaft by a clutch hereinafter described.

For counterbalancing the squeegee roller 15, the rear ends of the arms 21 are connected by a bar 33, and pivoted to this bar at the sides of the chassis 6 are links 34 preferably conventionally adjustable in length and pivoted in turn to the short ends of levers 35 intermediately pivoted to the side sills of the chassis. The other ends of these levers carry weight blocks 36 and it is noted that by applying the counter-balancing force adjacent the outer ends of the pivot arms 21, a considerable compactness and economy of structure is procured.

For raising the squeegee roller 15, the pivot arms 21 thereof are provided with upstanding projections 37 at their forward ends to which are pivoted preferably extensible links 38 pivoted in turn to upstanding arms 39 of a shaft 40 extending longitudinally of the roller structure. Extending horizontally from the central portion of the shaft are relatively rigid arms 41, and pivoted on the shaft between the arms is a forwardly extending lever 42 provided with pins 43 adapted to abuttingly engage the arms 41. This lever is connected at its forward end by a link 43 with the rearwardly extending arm 45 of a grip controlled lever 46 disposed adjacent the driver's seat of the truck. Thus by rocking said lever rearwardly, the lever 42 will consequently depress the arms 41 and raise the squeegee roller. By reason of the pin and arm connections between the grip controlled lever 46 and the squeegee roller, it will however be appreciated that independent lifting movement of the roller due to unevenness of the ground is freely permitted.

For raising and lowering the brush roller, and simultaneously controlling the rotation thereof, a shaft 47 of lesser length than the shaft 40 is journaled thereabove, and upstanding on this shaft at the outer sides of the chassis sills are relatively rigid arms 48 to which are pivoted the forward ends of links 49 having their rear ends pivoted to the upstanding arms of angle levers 50 which are pivotally mounted on the shafts 19 and 20 and which have their other arms extended rearwardly and carrying pins 51 abuttingly engageable with the under sides of arms 52 projecting rearwardly from sleeves 53 on said shafts 19 and 20. An upstanding lever arm 53′ is fixed on the shaft 47 and extends upwardly at one side of the driver's seat of the truck.

For adjusting the elevation at which the brush roller may be normally held, the pivoted arm 29 thereof adjacent the shaft 20 is carried by a sleeve 54 loose on said shaft and having a radially toothed peripheral flange engageable with a similarly toothed flange on a sleeve 55 fixed on the shaft. The pivot arm 29 adjacent the shaft 19 is carried by a sleeve 56 loose on said shaft 19 and provided with a radially toothed flange engageable with a similar flange of the aforementioned sleeve 53 on the shaft 19. Thus by rotatably adjusting said flanges the elevation of the brush roller may be adjusted, to compensate for wear, or to procure a firmer engagement of the roller with the ground. The rigid sleeve 55 of the shaft 20, and the sleeve 53 of the shaft 19 preferably carry upwardly and forwardly extending arms 57 on which are mounted weight blocks 58 to counterbalance the brush roller, although such arms and weight blocks may if desired be dispensed with.

For simultaneously controlling the rotation of the brush roller with respect to vertical movement thereof, a clutch sleeve 59 is splined on the shaft 19 and engageable as aforementioned with the brush roller driving sprocket 30 of said shaft. This clutch is controlled by spanner carrying arms 60 disposed above and below the clutch and fixed on a vertically journaled shaft 61 forwardly thereof.

Journaled on the upper portion of the shaft 51 is the bight of a horizontally disposed U-shaped member 62 which has the free ends of its rearwardly extending arms downwardly inclined and carrying adjustable abutments engageable with the upper spanner arm 60. The bight of this U-shaped member is connected at one side of its pivot by a link 63 with an upstanding arm 64 on the shaft 47. Thus rocking movement of the shaft to raise the brush roller 14 will automatically move the clutch 59 to inoperative position whereby to stop the rotation of the

brush, and rocking movement of the shaft to lower the brush will reëngage the clutch to again procure rotation thereof.

From the foregoing description it is seen that a comparatively simple operating mechanism has been procured which is efficient in operation and which may be readily manipulated entirely from the driver's seat.

By the provision of the brush roller immediately in advance of the squeegee roller, the dirt is loosened and placed in suspension in the water discharged by the spray heads 13 in such manner as to procure a most efficient action of the squeegee roller 15. The spray head 11 at the front of the machine serves merely to wet and soften the dirt, in the interim before the dirt is engaged by the rollers, and the spray heads 13 serve to flush the street immediately in advance of the rollers to provide a fluid vehicle for the dirt as it is agitated and loosened from the street by the brush roller 14. By this arrangement an exceeding economy of water, as well as a most efficient cleaning action is procured.

What is claimed is:

1. A street cleaning machine including a body truck, a transverse shaft carried thereby, a roller carrying arm pivoted on the shaft, a roller having one end journaled in the end of the arm, means for rotatably supporting the other end of the roller, and means for raising the roller comprising an arm connected with the roller carrying arm, a lever disposed adjacent said last named arm, a loose connection between said lever and last named arm consisting of a pin carried by one and engageable by the other, and an operating handle connected with the lever for actuating the same.

2. A street cleaning machine including a body truck, a transverse shaft carried thereby, a sleeve on the shaft, a roller carrying arm pivoted on the shaft and connected with the sleeve, a roller having one end journaled in the end of the arm, means for rotatably supporting the other end of the roller, and means for raising the roller comprising an arm extending from said sleeve, an angle lever pivoted on the shaft, a pin extending laterally from the lever for loose engagement with the last named arm, a second shaft, a linked connection between the second shaft and lever, and an operating handle connected with the second shaft to rock the same for elevating the roller.

3. A street cleaning machine including a body truck, a transverse shaft carried thereby, a roller carrying arm pivoted on the shaft, a roller having one end journaled in the end of the arm, means for rotatably supporting the other end of the roller, a projection extending from the roller carrying arm, a second shaft, an arm fixed on the shaft, a linked connection between the last named arm and the projection, a second arm fixed to the second shaft, a lever pivoted on the second shaft adjacent the second arm, a pin projecting laterally from the lever to loosely engage the second arm, and an operating handle for actuating the lever to elevate the roller.

4. A street cleaning machine including a body truck, a rotary transverse shaft carried thereby, a roller carrying arm pivoted on the shaft, a roller having one end journaled in the end of the arm, a gear loose on said shaft, a shiftable clutch for locking the gear to the shaft, a connection between the gear and roller, means for shifting the clutch and simultaneously raising the roller comprising an arm extending from the clutch, a U-shaped member fulcrumed to the body truck and having its arms disposed on each side of the arms of the clutch for engagement therewith, a second shaft, an arm fixed to said second shaft, a link pivoted to the last mentioned arm and the U-shaped member at one side of its fulcrum, a link connection between the second shaft and the roller carrying arm, and an operating handle fixed to the second shaft to rock the same.

5. A street cleaning machine including a body truck, a transverse shaft carried thereby, a sleeve loose on the shaft and having a radially toothed peripheral flange, a roller carrying arm fixed to and extending from the sleeve, a roller having one end journaled in the arm, means for rotatably supporting the other end of the roller, a second sleeve fixed on said shaft and having a radially toothed peripheral flange, means for holding said flanges together in adjustable relation, a counter-balance weight carried by the fixed sleeve, and means for revolving the roller.

6. A street cleaning machine including a body truck, a rotary shaft, a second shaft, means for rotating the first named shaft, a sleeve loosely mounted on each of said shafts, roller carrying arms extending from and fixed to the sleeves, a roller having its opposite ends journaled in the ends of its arms, a connection between the rotary shaft and roller for revolving the latter, a second sleeve fixed to the other shaft, radially toothed coacting flanges on the sleeves of the second shaft, and means for holding the flanges in adjustable relation.

7. A street cleaning machine including a body truck having a pair of side sills, a bracket depending from each of said sills, a pair of parallel beams extending obliquely to said sills and secured to said brackets, end blocks secured to the end of the beams, a main drive and supporting shaft journaled parallel to and rearwardly of the beams and to one side thereof, a second shaft disposed rearwardly of and parallel to the beams

at the other side thereof, said shafts being axially alined, a roller carrying arm pivoted on each of said shafts, a roller having its opposite ends journaled in said arms, a connection between the drive shaft and the roller, and means mounted on the beams for raising the roller.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

ARTHUR C. WOLLENSAK.

Witnesses:
VICTOR L. BROWN,
FRANK LINCK.