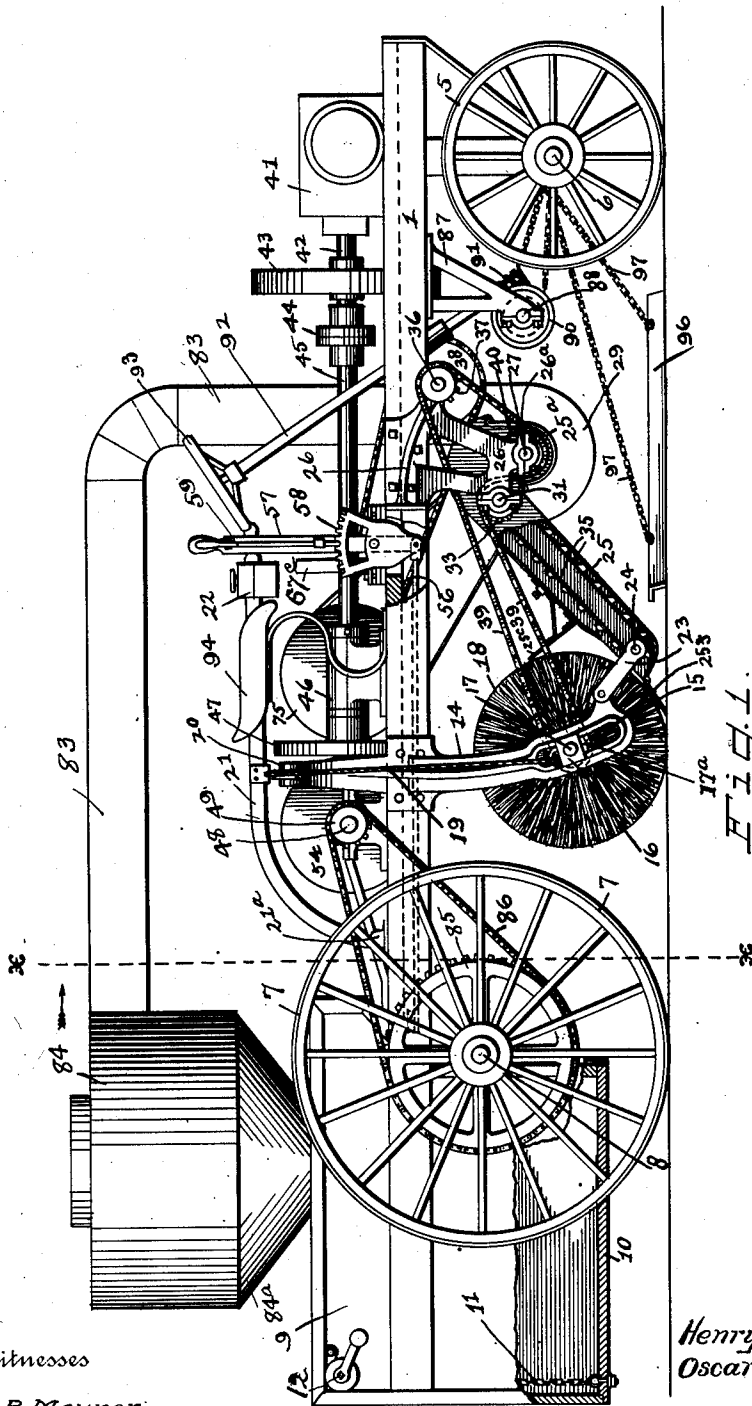


H. R. & O. A. SCHEIDLER.
STREET SWEEPING MACHINE.
APPLICATION FILED JAN. 21, 1910.

983,405.

Patented Feb. 7, 1911.

4 SHEETS—SHEET 1.



Witnesses

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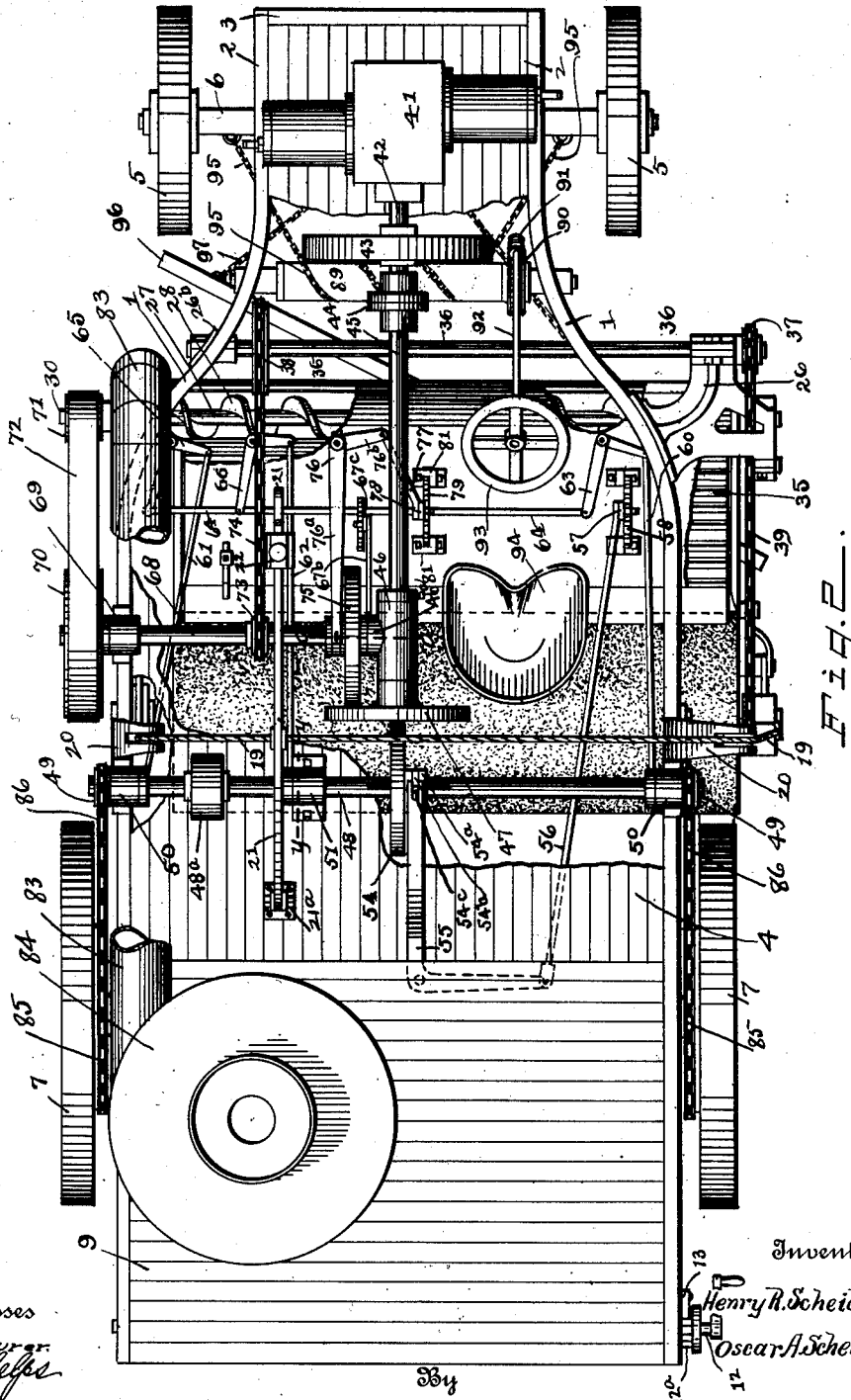


Fig. 2.

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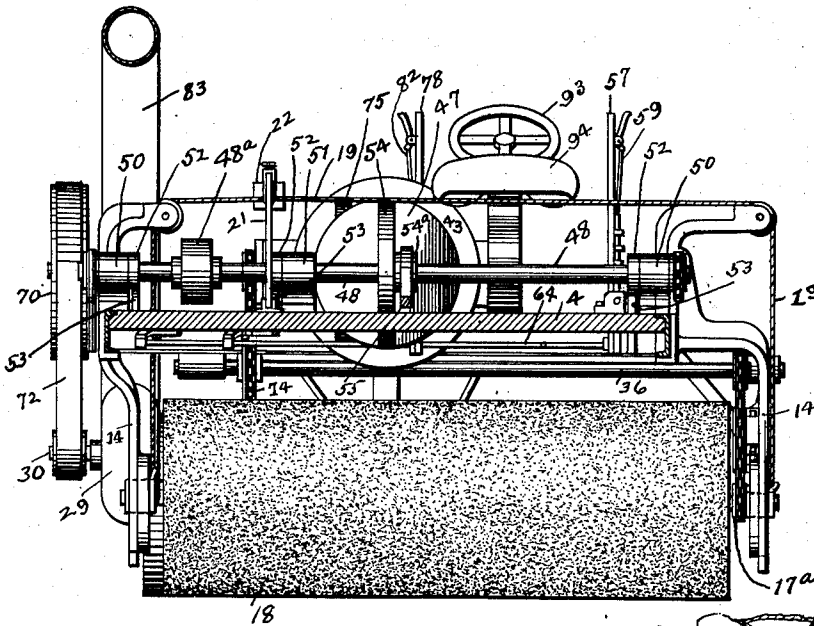


Fig. 3

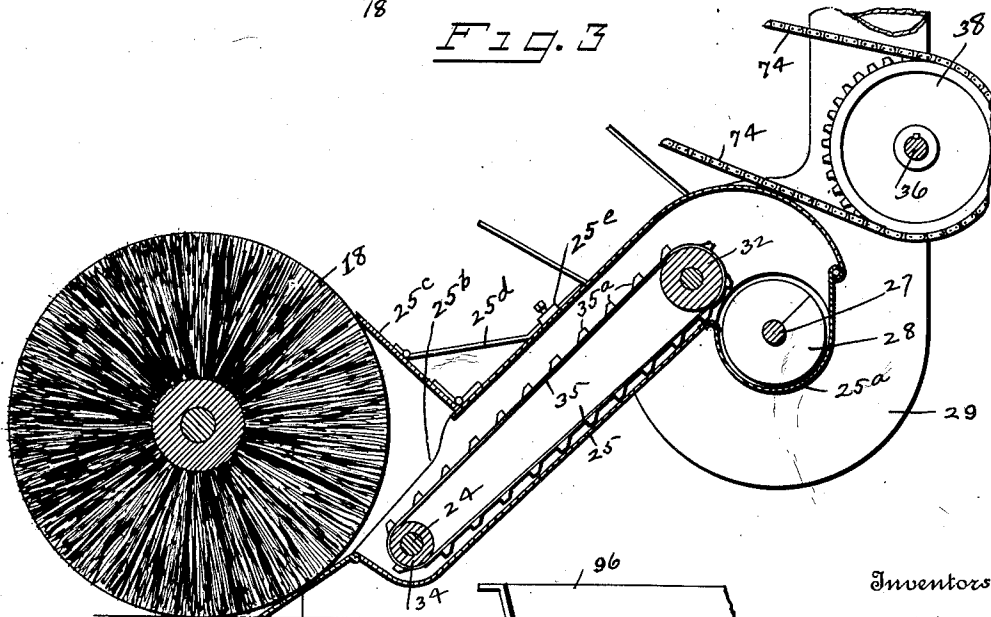


Fig. 4

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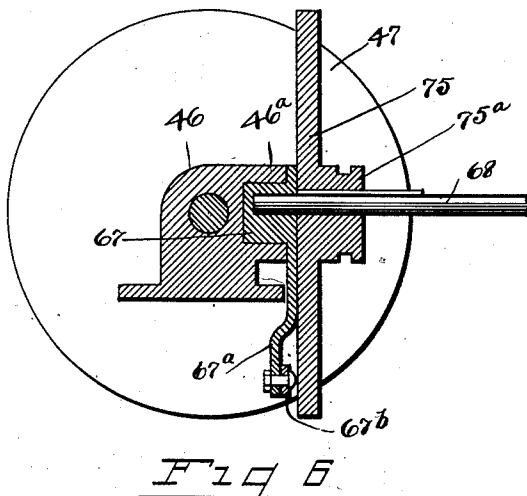
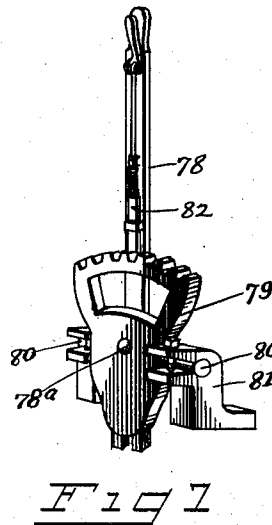
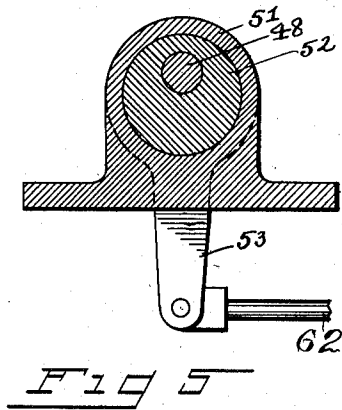
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

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STREET-SWEEPING MACHINE.

983,405.

Specification of Letters Patent.

Patented Feb. 7, 1911.

Application filed January 21, 1910. Serial No. 539,283.

To all whom it may concern:

Be it known that we, HENRY R. SCHEIDLER and OSCAR A. SCHEIDLER, citizens of the United States, residing at Newark, in the county of Licking and State of Ohio, have invented certain new and useful Improvements in Street-Sweeping Machines, of which the following is a specification.

Our invention relates to the improvement of street sweeping machines and the objects of our invention are to provide a machine of this class of improved construction and arrangement of parts wherein is combined means for not only sweeping the loose dirt from a street, but for conveying the dirt from a rotary broom to a receptacle at the rear of the machine; to provide in connection with our machine, improved means for throwing the various moving parts thereof into and out of operation and for increasing and decreasing the speed of the vehicle, fan and broom and to produce other improvements the details of construction and arrangement of which will be more fully pointed out hereinafter. These objects we accomplish in the manner illustrated in the accompanying drawing, in which—

Figure 1 is a side elevation of our improved machine, Fig. 2 is a plan view of the same, with a portion of the flooring of the vehicle broken away for the sake of clearness in illustration, Fig. 3 is a sectional view on line X—X of Fig. 1, Fig. 4 is a detail sectional view in the direction of the length of the machine, the same being taken through the rotary broom or sweeper, the dirt elevator, and horizontal conveyer, other parts being removed for the sake of clearness in illustration, Fig. 5 is an enlarged sectional view on line y—y of Fig. 2, Fig. 6 is a similar sectional view on line a—a of Fig. 2, and, Fig. 7 is a detail view in perspective of an operating lever and its bearings which we employ in the manner herein-
after described.

Similar numerals refer to similar parts throughout the several views.

In carrying out our invention, we employ a vehicle frame, which comprises suitably connected parallel side truck or frame bars 1, the forward portions of which are curved inward toward each other to form a comparatively narrow forward frame exten-

sion 2, the ends of said reduced portion being connected by a forward end bar 3. The framework thus constructed, may be provided with a suitable flooring 4, the greater portion of which is removed in the illustrations of the machine for the sake of clearness.

5 represent the front wheels of the vehicle which are mounted on a front axle 6, the latter being supported from the underside of the vehicle frame in the usual or by any desirable means.

7 represents the rear ground wheels which are carried by a rear axle 8 which is journaled in suitable bearings depending from the underside of the rear portion of the frame. Supported between the rear portions of the side frame bars 1, is a dirt receptacle or box 9, the latter having its lower side covered by a drop door 10 which has one end hinged to the forward end of the box and its remaining end normally closed by chains 11, the lower ends of which are connected with said door and the upper ends of which are adapted to be wound on a shaft 12 which has a transverse bearing in the upper and rear portion of the box or receptacle 9. This shaft 12 is provided on the outer side of the box 9 with a ratchet wheel 12^a with which is adapted to engage a pivoted pawl 13 to prevent reversed rotation of the shaft 12.

From opposite points on the side frame bars 1 near the centers of their lengths, extend downward rigid bearing arms 14 each of said arms having its lower portion formed with a longitudinal slotted opening 15 therein. In each of these slotted openings is slidably mounted a bearing block 16 and in these bearing blocks are journaled the spindled terminations 17 of the horizontal shaft of a rotary street sweeping broom 18. Connected with the bearing blocks 16, are the respective ends of a rope or cable 19 which extends upward from said blocks and over pulleys mounted in bracket arms 20 which extend from the frame members 1 and is connected with the underside of a lever or bar 21 which extends in the direction of the length of the machine and has its rear downturned end pivoted at 21^a to the floor of the machine.

The forwardly extending upper horizon-

tal portion of the lever 21 carries a slidable weight or counterbalance 22. It is obvious that when the weighted lever 21 is depressed, the bearing members 16 which support the
 5 sweeper 18, will be elevated, thus providing for a movement of the sweeper to a position where it will be out of contact with the pavement when desired. The lower and forward portions of the bearing arms 14 are
 10 provided with short forwardly and downwardly extending bars 23, the lower ends of which are connected by a transverse shaft 24, which shaft extends through the lower end portion of an elevator casing 25, the latter
 15 being inclined upwardly and forwardly from the lower portion of the sweeper body 18 and having an enlarged upper end portion formed with a downward rounded extension 25^a. As shown more clearly in Fig.
 20 4 of the drawing, the upper side of the rear portion of the elevator casing 25 is open as indicated at 25^b and in order to facilitate the directing of the dirt from the sweeper body 18 into said opening and on to the elevator to
 25 be hereinafter described, we provide the upper side of the casing 25 at the upper end of the opening 25^b with a hinged guard or baffle plate 25^c which is adapted to be supported at the desired upward incline through
 30 the medium of a brace bar 25^d, one end of which is hinged to the plate 25^c and the remaining horizontal end portion of which is adjustably connected with a suitable keeper 25^e which is carried by the casing 25. As
 35 indicated at 25^f, we also provide the lower end of the casing 25 with a downwardly inclined guide plate, which extends in front of the lower portion of the sweeper body 18 and from which the dirt is directed by the
 40 sweeper into said casing 25.

The lower and rear portion of the casing 25 is supported by inwardly projecting bearing portions of the bars 23 not herein shown, while the upper portion thereof is
 45 supported upon similar bearing projections or hangers 26 which depend from the frame bars 2 on opposite sides of the machine. Each of these hangers 26 is provided with a bearing box 26^a and in said bearing boxes
 50 are journaled the ends of a transverse horizontal conveyer shaft 27, the latter carrying a screw conveyer 28 which is adapted to rotate within the depressed rounded portion of the head of the elevator casing 25,
 55 which forms a horizontal conveyer casing. One end of the screw conveyer and its casing, communicates with a fan casing 29 which is located beneath one side of the machine frame and within which is mounted
 60 on an outwardly extending shaft 30 a suitable fan. Journaled in rearwardly extending arms of the hangers 26 are the spindles 31 of a roller 32 which roller extends through the upper portion of the elevator
 65 casing 25. The spindle 31 carries adjacent

to one of its end bearings a sprocket wheel 33. The shaft 24 also carries a roller 34 (see Fig. 4). The rollers 32 and 34 are connected by an endless elevating apron 35 the
 70 outer face of which is provided with suitable elevating or conveying projections 35^a. 36 represents a transverse shaft which extends beneath the frame members 2 in front of and above the conveyer, said shaft having one of its ends journaled in a forward
 75 extension of one of the hangers 26 and its remaining end journaled in a hanger 26^b which depends from the opposing frame bar 2. On the outer side of its bearing in the arm of the hanger 26, the shaft 36 carries a small
 80 sprocket wheel 37, and said shaft also carries near the opposite side of the machine a sprocket wheel 38.

39 represents an endless chain belt which passes about and connects the sprocket wheel 37 with a sprocket wheel 40 carried on the shaft 27, the sprocket wheel 33 and a sprocket wheel 17^a carried on the spindle 17 on the inner side of one of the blocks 16.

Upon the forward and narrower portion
 90 of the frame of the machine, is suitably mounted a desirable form of motor or power generating engine 41, which has leading rearwardly therefrom the usual motor shaft 42 which carries a fly wheel 43. Through a
 95 coupling 44, the motor shaft 42 is connected with the forward end of a rearwardly extending horizontal shaft 45 which is rotatably mounted in a tubular bearing 46 which is supported from the floor of the machine.
 100 Extending through this bearing 46, the shaft 45 carries on its rear end a friction wheel 47. In rear of the friction wheel 47 is provided a transverse shaft 48 which on its ends carries small sprocket wheels 49. In mounting
 105 the shaft 48, we provide end bearing brackets 50 which rise from the side frame members 1 and a similar intermediate bearing bracket 51 which rises from the floor of the machine. In order to permit of the turning
 110 of the machine to the right or left, we preferably form the shaft 48 in two sections, the sections being connected by suitable differential gear mechanism contained in a casing 48^a. As indicated more clearly in
 115 Fig. 5 of the drawing, each of these bearing brackets 50 and 51 comprises an upwardly projecting tubular body, in which is rotatably mounted a bearing member 52, the latter extending through one end of the bracket
 120 and having a depending rigid arm 53. The shaft 48 is journaled eccentrically in the internal bearing members 52. Carried on the shaft 48 at the center of its length is a friction wheel 54, the periphery of which is
 125 adapted to be caused to frictionally engage the rear face of the wheel 47. The wheel 54 is formed on one side of its center with a hub 54^a on which is provided a band 54^b from the upper and lower sides of which project
 130

pins 54^c. With these pins is engaged the bifurcated end of a bell crank lever 55 the latter being pivoted at the junction of its members beneath the floor of the machine.

8 The rear arm of the lever 55 is pivotally connected with a rod 56 which extending forwardly is pivotally connected with an operating lever 57 which in turn is pivoted to an upright bracket segment 58 which is suitably supported in connection with the floor of the machine. The lever 57 is provided with the usual form of pawl 59 which is adapted to engage the teeth on the upper side of the bracket 58.

15 Pivotally connected with the lower end of the arm 53 of the eccentric bearing member 52 which is mounted in one of the brackets 50 is a rod 60 and connected with the corresponding arm of the eccentric bearing member which is contained in the bearing bracket 20 50 at the opposite side of the machine, is one end of a similar rod 61. The arm 53 of the intermediate eccentric bearing member 52 is likewise connected with a rod 62. These rods 60, 61 and 62 extend forwardly and the rod 60 is pivotally connected with one arm of a bell crank lever 63 which is pivoted to the floor or frame of the machine. The remaining arm of the bell crank 63 is pivotally connected with one end of a transverse rod 64 which extending toward the opposite side of the machine, is pivotally connected with the upper arm of a pivoted bell crank lever 65, the remaining arm of which is pivotally connected with the rod 61. The forward end of the rod 62 is in a like manner pivotally connected with one arm of a pivoted bell crank 66, the remaining arm of which is pivotally connected with the rod 64.

40 The bearing member 46 in which the rod 45 is journaled, as heretofore described is provided on one side with a short socket arm or bearing projection 46^a (see Fig. 6) in which is mounted a rotatable bearing body 45 67, the latter having a downwardly extending arm 67^a. With the lower end of the arm 67^a is connected a forwardly extending bar 67^b, the forward end of said bar being connected with a pivoted upright lever 67^c. In the bearing body 67 is eccentrically mounted one end of a horizontal shaft 68, the outer portion of the latter being supported in a journal box 69 on one of the frame members 1. On its outer end the shaft 55 68 carries a belt wheel 70 which is connected with a small belt wheel 71 carried on the fan shaft 30 through the medium of a belt 72. Upon the shaft 68 is carried a small sprocket wheel 73 which through the medium of a chain belt 74 is connected with the sprocket wheel 38 on the shaft 36. Keyed to slide on the shaft 68 and carried adjacent to the bearing member 67 is a friction wheel 75, the periphery of the latter 65 adapted to be brought into contact with the

forward face of the friction wheel 47. The wheel 75 is provided on one side with a projecting hub 75^a with which is pivotally connected the forwardly extending arm 76^a of a bell crank lever 76. This lever is pivoted 70 at the junction of its arms and has its remaining and shorter arm 76^b pivotally connected with a rod 77, the rear end of which is pivoted to the lower portion of an upright lever 78. This lever is pivoted at 78^a (see 75 Fig. 7) to one face of a segment 79, the latter being provided with opposing laterally extending trunnions 80 which bear in the recesses of rigid bearing brackets 81. The lower end of the segment body 79 has pivotally connected therewith the rod 64 and the upper portion of the lever is provided with the usual or any desirable construction of spring actuated pawl 82 which is adapted to engage the teeth of the upper side of the 85 segment 79.

Leading outward from the fan casing and extending rearwardly therefrom is a pipe 83, said pipe leading into a hopper 84 which is provided with a conical lower portion 84^a 90 which communicates with an opening in the upper side of the receptacle 9. Upon the rear axle or shaft 8 of the machine on the inner side of each of the ground wheels 7, is carried a sprocket wheel 85 and these 95 sprocket wheels are connected by chain belts 86 with the sprocket wheels 49 which are on the ends of the shaft 48.

Journaled in oppositely located downwardly extending brackets 87 which are carried by the forward portions of the frame bars 2 in rear of the front ground wheels 5 are the end spindles 88 of a transverse reel 89. This reel carries near one end a worm wheel 90 with which gears a worm 91 carried 105 on the lower and forward end of a downwardly inclined steering shaft 92 the upper and rear end of which is provided with a suitable steering wheel 93 the latter being arranged in front of a seat 94 which 110 is supported from the floor of the machine. About the reel 89 is wound the central portion of a chain 95 the ends of which are connected with the front pivoted axle 6.

96 represents a scraper bar of the usual 115 form, which is adapted to bear on the ground beneath the forward portion of the machine at an angle with the direction of the length thereof, this scraper bar being connected with the front bolster of the machine in the 120 usual manner by chains 97.

In operation, it will be understood that the movement of the machine over a street to be swept, as well as the other moving parts of our machine, is imparted by the rotation of the motor shaft 42. The rotation 125 of this shaft and the shaft 45 which is connected therewith, imparts a rotary movement to the disk or friction wheel 47 which when in contact with the friction wheel or 130

disk 54 serves to rotate the shaft 48 and the sprocket wheels 49, resulting through the chain belt connections described, in the rotation of the rear ground wheels 7, thereby imparting a traveling movement to the machine. It will be also understood that when the friction wheel 75 is in frictional contact with the forward face of the friction wheel 47, rotary motion will be imparted to the shaft 68 and its belt wheel 70, the belt 72 transmitting motion therefrom to the fan shaft 30. The rotation of the shaft 68 also results through the chain belt connection 74 with the shaft 36, in a rotation of the sprocket wheel 37 and through the chain belt 39 rotary motion is imparted to the sweeper body 18, the elevator carrying shaft 31 and the conveyer 28. It is obvious that the dirt which is removed from the street by the rotation of the sweeper body 18, will be delivered into the elevator casing 25 and carried by the elevator upward into the conveyer casing 25^a where by rotation of the conveyer, the dirt will be carried to the fan casing 29 from which it will be blown outward by the fan through the pipe 83 into the hopper 84 and thence deposited in the receptacle 9. Assuming that the friction wheels 75 and 54 are not in contact with the friction wheel 47, the method of effecting these contacts and thereby throwing the several parts into gear, is substantially as follows: By grasping the lever 78 and swinging the segment body 79 on its trunnions 80, the rod 64 which is pivotally connected with said segment body, is moved in the direction of its length toward one side of the machine, with the result that through the swinging of the bell cranks 63, 66 and 65 the rods 60, 62 and 61 are drawn forward and the forward pull thus imparted to the arms 53 of the eccentric bearing bodies 52, produces a partial rotation of said bearing bodies, which results in the shaft 48 moving forward until the friction disk 54 is in proper frictional contact with the disk 47. It will also be understood that by a proper swinging movement of the lever 67^c and a corresponding movement of the bar 67^b, the eccentric bearing 67 will be moved in the socket member 46^a of the bearing body 46 until the shaft 68 is moved rearwardly sufficiently to result in a frictional contact of the wheel 75 with the wheel 47, thus imparting rotary motion to said shaft 68. In order to facilitate the proper lateral movement of the shaft 68, the outer bearing 69 of said shaft, is preferably pivoted to the frame bar 1 which supports said bearing. In order to increase or decrease the speed of the shaft 68, the lever 78 is moved in the arc of a circle, resulting through the connection of said lever with the bell crank 76 and the connection of one arm thereof, with the hub of the wheel 75, in

moving said hub and wheel outward or inward on the shaft 68, thus changing the points of contact of the wheels 75 and 47. A similar movement is imparted to the wheel 54 in order to increase or decrease the speed of the ground wheels of the machine, by operating the lever 57. It is obvious that the steering of the machine is accomplished by turning the steering wheel 93 and its shaft 92, with the result that the steering chain 95 may be taken up to a greater or less extent at the desired end and the front axle moved accordingly. When the dirt has been conveyed in the manner heretofore described, to the hopper 84 and thence deposited in the receptacle 9, it is evident that the dirt thus deposited may be discharged or dumped from the receptacle by releasing the pawl 13 and permitting a reversed rotation of the shaft 12, thus lowering the bottom of the receptacle.

From the construction and operation which we have described, it will be understood that a sweeping machine is provided, which will not only sweep the dirt from a street or pavement, but that in combination with such sweeping means, we have provided means for conveying the dirt thus swept from the street to a receptacle at the rear of the machine from which it can be discharged at desired intervals. It will readily be seen that by the employment of a rapidly rotating fan within the fan casing, such dust as may be created in the sweeping operation, will be drawn into the fan casing and thence through the pipe 83 to the receptacle, thus providing for the sweeping of a street without the creation of undesirable dust clouds. It will also be observed that simple and effective means are provided for throwing the operating parts of the machine, in and out of gear and for increasing and decreasing the speeds of said operating parts.

From the foregoing description, it will be seen that simple and efficient means are herein provided for accomplishing the objects of the invention, but while the elements shown and described are well adapted to serve the purposes for which they are intended, it is to be understood that the invention is not limited to the precise construction set forth, but includes within its purview such changes as may be made within the scope of the appended claim.

What we claim, is—

In a machine of the character described, the combination with a truck body comprising a framework and ground wheels, a sweeper body journaled in the frame and a motor carried by said frame, of a dirt elevator supported in front of said sweeping body, a fan casing and fan therein, a rotary conveyer leading from said elevator to said fan casing, a dirt receptacle carried by the

machine frame, pipe connections between
said dirt receptacle and fan casing, means
for imparting motion from the motor shaft
to the sweeping body, the elevator, the con-
5 veyer, the fan and the ground wheels of the
machine and independent means for chang-
ing the speed of the ground wheels and the
speed of the fan.

In testimony whereof we affix our signa-
tures in presence of two witnesses.

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