F. A. BISHOP.

STREET SWEEPER.

APPLICATION FILED DEC. 14, 1907.

913,460.

Patented Feb. 23, 1909.

3 SHEETS—SHEET 1.

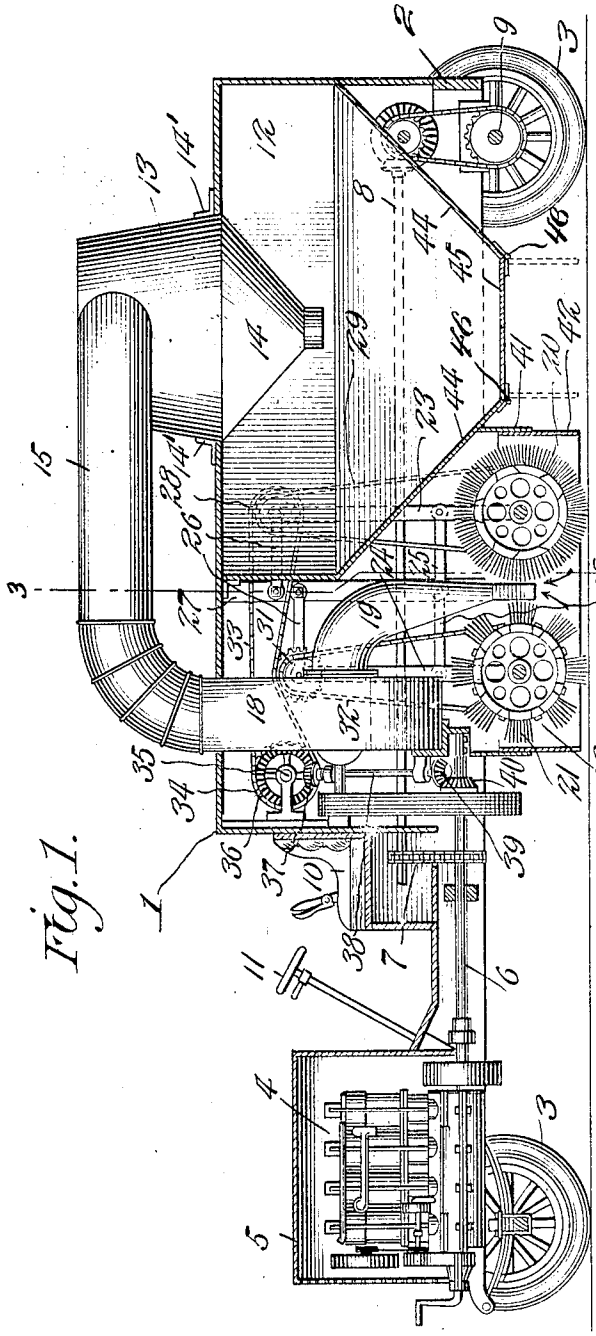


Fig. 1.

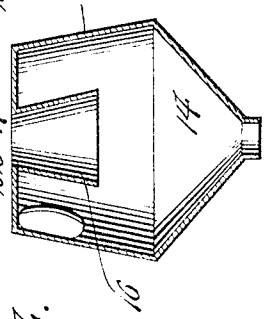


Fig. 4.

Witnesses

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3 SHEETS—SHEET 2.

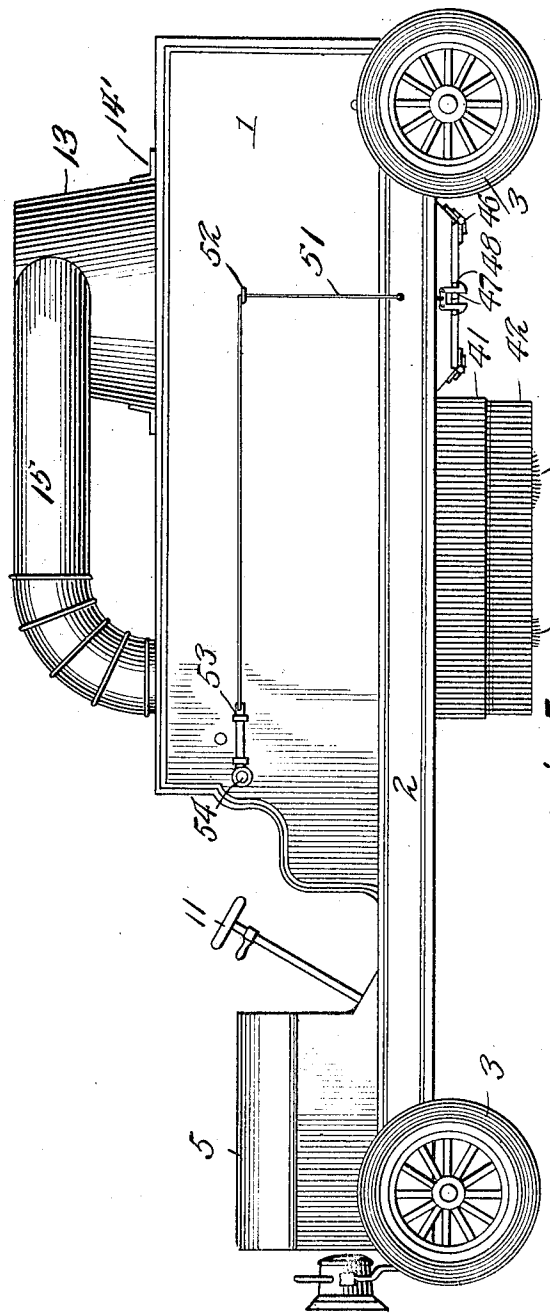


Fig. 2.

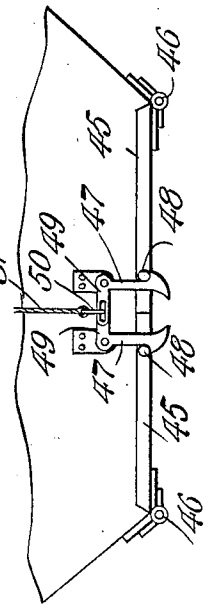


Fig. 5.

Witnesses

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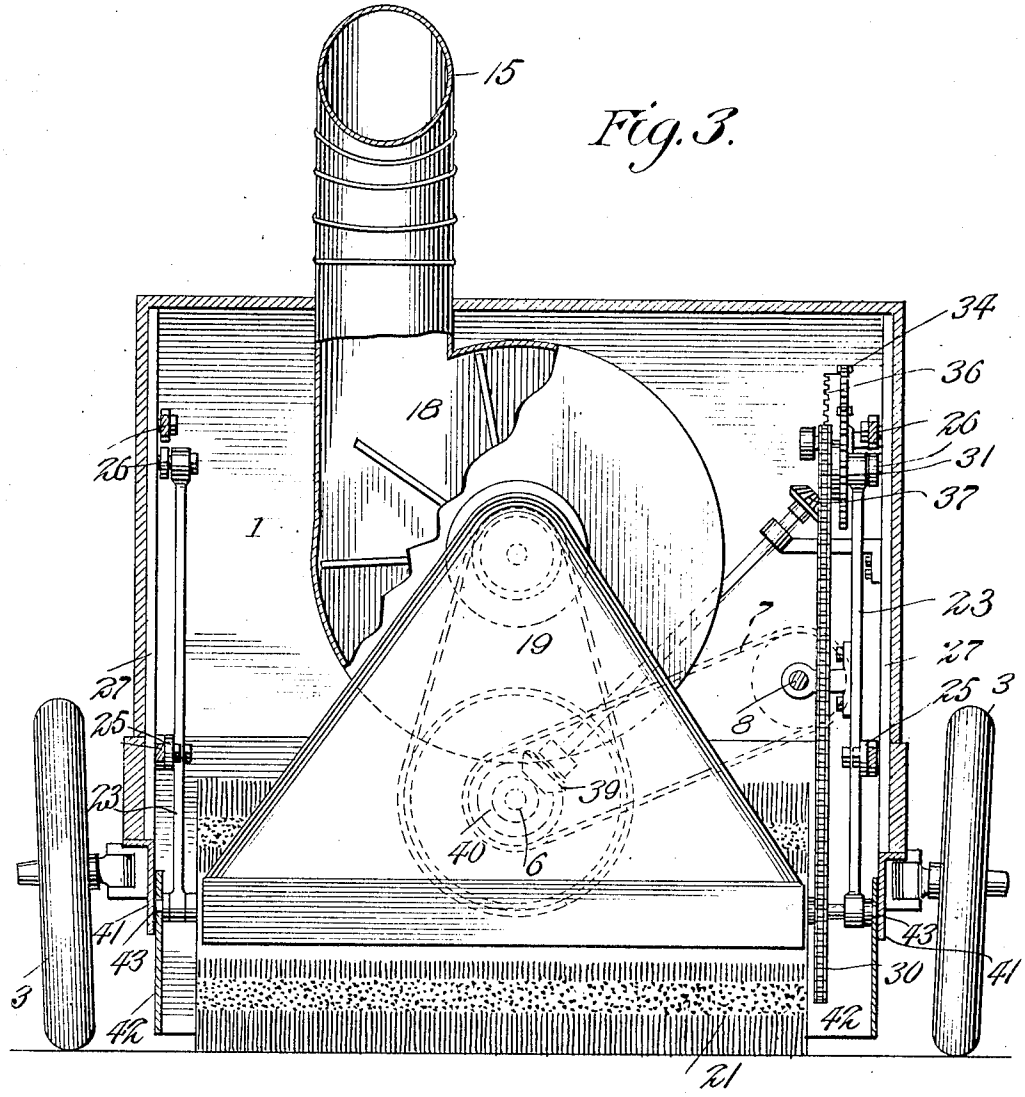
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3 SHEETS—SHEET 3.

Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

FREDERICK A. BISHOP, OF ATLANTA, GEORGIA, ASSIGNOR OF ONE-FOURTH TO JOHN R. JONES, OF ATLANTA, GEORGIA.

STREET-SWEEPER.

No. 913,460. Specification of Letters Patent. Patented Feb. 23, 1909.

Application filed December 14, 1907. Serial No. 406,463.

To all whom it may concern:

Be it known that I, FREDERICK A. BISHOP, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented new and useful Improvements in Street-Sweepers, of which the following is a specification.

This invention relates to street sweeping machines and has for its object to provide a machine of the class referred to of simplified and improved construction, embodying a motor and sweeping mechanism which is so mounted and organized with relation to the motor that the latter is adapted to propel the machine along the roadway and also drive the sweeping mechanism, including the suction apparatus, while permitting the sweeping mechanism to adjust itself readily to the surface being operated upon.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists in the novel construction, combination and arrangement of parts herein fully described, illustrated and claimed.

In the accompanying drawings:—Figure 1 is a sectional elevation of a street sweeping machine embodying the present invention. Fig. 2 is a side elevation thereof. Fig. 3 is an enlarged vertical cross section through the machine on the line 3—3 of Fig. 1. Fig. 4 is a vertical sectional view of the separator. Fig. 5 is a detail side elevation of the lower portion of the trash box, showing the door holding and releasing mechanism.

The machine comprises a suitable body 1 mounted upon a truck or wheel frame 2 supported upon carrying wheels 3, motion being imparted to the machine for propelling the same by an engine 4 mounted in a suitable hood 5 at the front of the machine and geared by means of a drive shaft 6, chain 7 and counter-shaft 8 to the rear axle 9, the driving mechanism thus far described being similar to that now employed on automobiles.

10 designates the operator's seat and 11 the steering wheel by which the machine is controlled.

At the rear of the machine is arranged a trash box 12 into which empties a separator 13 having a conical lower portion 14 which sets into the upper part of the trash box 12 and is secured thereon by means of a flange or brackets 14'. The separator has communicating therewith a dust and trash conveyer 15 consisting of a pipe of suitable size while within the separator is a deflector 16 against which the material is thrown by the action of the fan blast, the trash passing downward through the separator into the trash box 12 while the air passes out through a central opening 17 in the top of the separator as shown in Fig. 16, the deflector being of frusto-conical shape and serving as a guard for the opening 17. In advance of the trash box 12, the pipe 15 communicates with a fan casing 18 in which is mounted a rotary fan that sucks the air in centrally through a suction head 19. The upper end of this suction head is round or substantially so where it communicates with the fan casing, and from said point downward, the head expands in width as shown in Fig. 3 until the lower end thereof is practically the full width of the machine and quite narrow as illustrated in Fig. 1 so as to lie between a pair of sweeping brushes 20 and 21. The brushes 20 and 21 operate on opposite sides of the lower end of the suction head 19 as clearly shown in Fig. 1 and while one of said brushes is provided with a continuous covering of bristles, the other brush 21 is preferably provided with pockets or intervening spaces 22 between the several groups of bristles, said brushes rotating in opposite directions as indicated by the arrows in Fig. 1.

The brush 20 is journaled in bearings in the lower ends of a pair of oppositely arranged hangers 23 while the other brush 21 is journaled in the lower ends of another pair of oppositely arranged hangers 24. The hangers 23 and 24 are connected by pivotal arms or links 25 and 26 to common supports 27 whereby said hangers 23 and 24 are adapted to move up and down while providing bearings for the axles of the brushes 20 and 21. One of the arms 26 carries a sprocket wheel 28 around which passes a sprocket chain 29 that rotates around another sprocket wheel 30 on the shaft of the brush 20. The other arm 26 carries a sprocket wheel 31 around which runs a chain 32 that passes around another sprocket wheel on the brush 21 corresponding with the sprocket wheel 30 on the brush

20. The wheels 28 and 31 are driven in opposite directions by a sprocket chain 33 which extends forward and passes around a driving sprocket wheel 34 fast on a shaft 35 extending transversely of the machine, the shaft 35 also carrying a crown gear wheel 36 which is driven by a bevel pinion 37 on one end of a shaft 38 having at its opposite end another bevel pinion 39 which meshes and is driven by a bevel pinion 40 on the driving shaft 6 of the machine. By means of the driving connections just hereinabove described, rotary motion is imparted to the brushes 20 and 21 and they are simultaneously driven in opposite directions so as to gather up the trash and subject the same to the suction of the fan, causing such trash to be drawn into the suction head 19 and propelled by the fan through the conveyer 15 into the separator 13 and finally into the trash box 12.

The brushes 20 and 21 are housed in a suitable protecting hood comprising a stationary or fixed section 41 and a movable telescopic lower section 42 adapted to slide up and down within the fixed section 41. The movable section 42 is supported and carried by the axles of the brushes 20 and 21, the extremities of said axles, after passing through the hangers 23 and 24, being journaled in openings in the hood section 42 as shown at 43. Thus, as the brushes rise and fall automatically, the movable hood section 42 is correspondingly raised and lowered, thus keeping the lower edge of the hood at the proper distance from the surface on which the machine is operated.

The trash box 12 has reversely inclined sloping walls 44 while the bottom 45 is composed of a pair of drop doors meeting at the center and hinged at their opposite edges as shown at 46 so as to adapt said doors to drop downward as indicated in dotted lines in Fig. 1 to empty the trash box. The doors 45 are upheld by a pair of L-shaped catches 47 as shown in Fig. 5, which catches engage pins 48 on the doors. These catches are provided with inwardly extending overlapping slotted arms 49 connected by an eye or ring 50 to which is attached a flexible connection 51 which leads upward and forward passing through suitable guides 52 and 53, said connection being attached at its forward end to a handle 54 within reach of the driver on the seat 10 who by pulling on the handle 54, operates the catches 47, releasing the drop doors 45 and discharging the trash in a pile on the road-way.

I claim:—

1. A street sweeping machine comprising a frame, opposed rotary brushes mounted on axles adapted to rise and fall, hangers in which said axles are journaled, pivotal links connecting the hangers with the frame and permitting said hangers to rise and fall, and means for actuating said brushes including a motor which is geared to the machine wheels and adapted to simultaneously propel the machine and rotate the brushes, irrespective of the rising and falling movement of the brushes.

2. A street sweeping machine comprising opposed rotary brushes, swinging-link supported hangers in which said brushes are journaled, sprocket driving mechanism for said brushes carried by the hangers and movable up and down therewith while in operation, and a motor geared to the driving mechanism of the brushes.

3. A street sweeping machine comprising opposed rotary brushes, swinging-link supported hangers in which said brushes are journaled, sprocket driving mechanism for said brushes carried by the hangers and movable up and down therewith while in operation, a motor geared to the driving mechanism of the brushes, and a telescopic inclosing hood for said brushes embodying a movable section which is connected with the brushes and adapted to rise and fall therewith.

4. A street sweeping machine comprising opposed rotary brushes, link-supported hangers by which said brushes are carried and rendered movable up and down, a suction head having a laterally extended lower extremity which lies between the brushes, a suction fan communicating with said head, a trash box, a conveyer pipe leading from the fan to the trash box, means including a motor for simultaneously driving the brushes and fan sprocket wheels carried by said hangers, and sprocket chains for transmitting motion to the brushes through said sprocket wheels.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK A. BISHOP.

Witnesses:
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JOHN W. JONES.