A. F. ELLIS.

STREET SWEEPER.

APPLICATION FILED JULY 3, 1917.

1,255,519.

Patented Feb. 5, 1918.

2 SHEETS—SHEET 1.

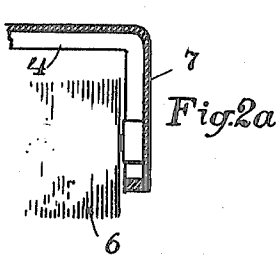
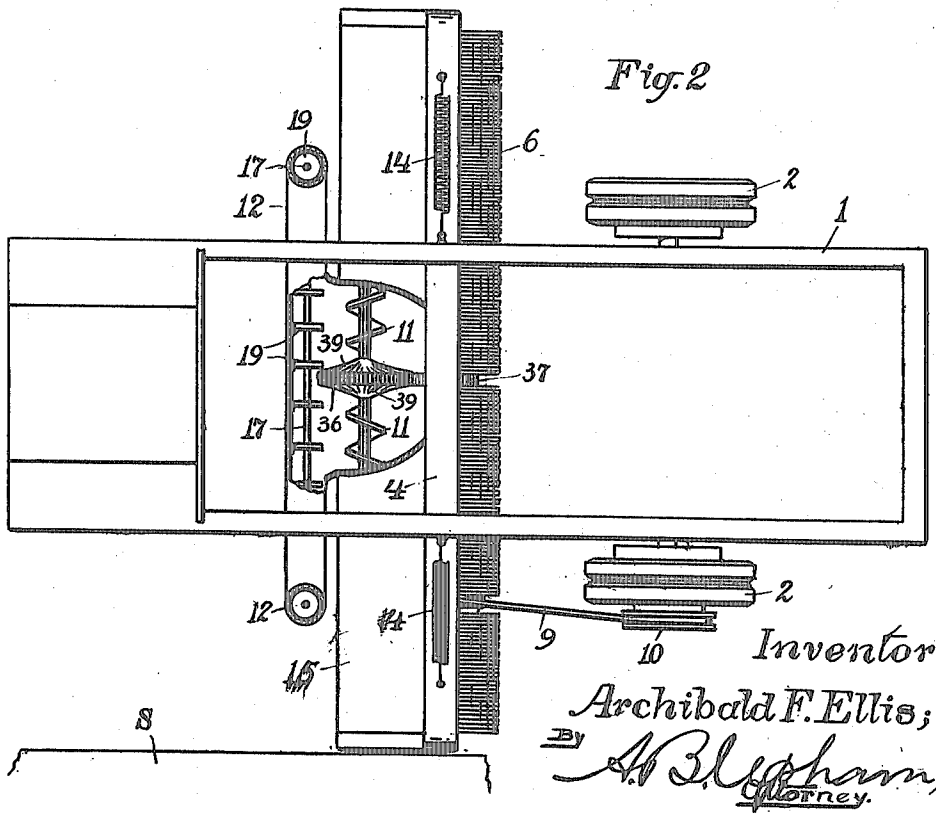


Fig. 2a

Fig. 1

Fig. 2



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2 SHEETS—SHEET 2.

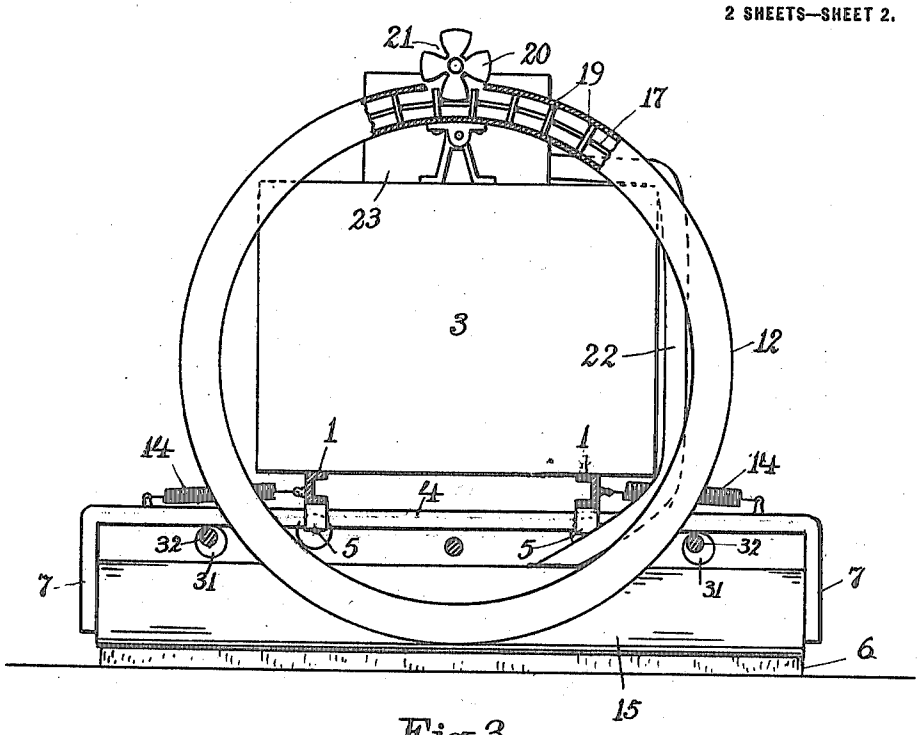


Fig. 3

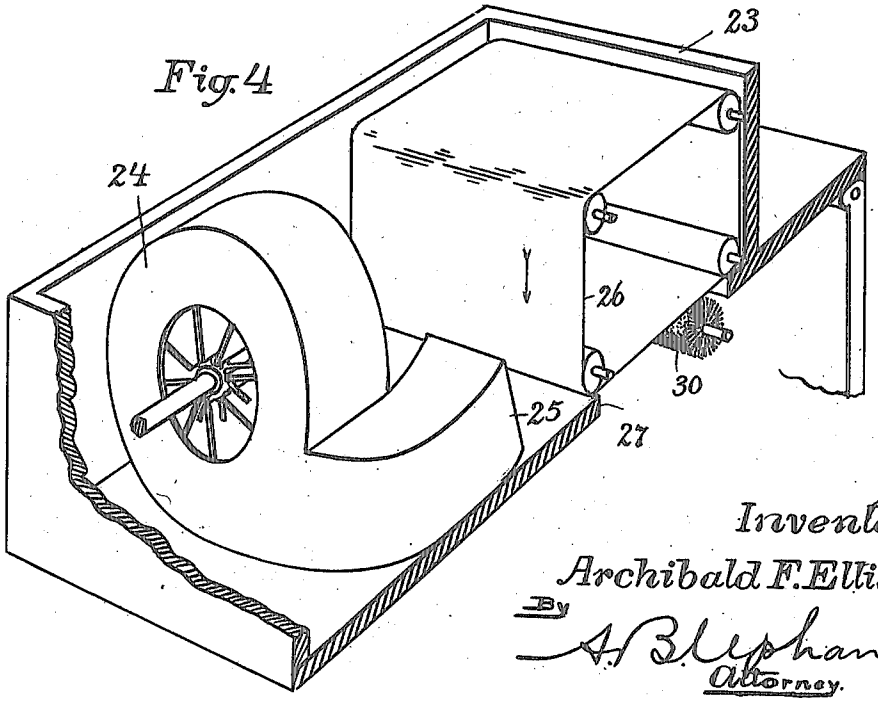


Fig. 4

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UNITED STATES PATENT OFFICE.

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STREET-SWEEPER.

1,255,519. Specification of Letters Patent. Patented Feb. 5, 1918.

Application filed July 3, 1917. Serial No. 178,366.

To all whom it may concern:

Be it known that I, ARCHIBALD F. ELLIS, a citizen of the United States, and a resident of Boston, in the county of Suffolk and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Street-Sweepers, of which the following is a full, clear, and exact specification.

This invention relates to that class of street sweepers wherein the dust and dirt are swept up and conveyed into a receptacle carried by the machine; and it has for its object the effecting of means whereby the sweeping and gathering means may be yieldingly brought alongside the curb without danger of breakage, and thereby to clean the gutter close up to the curbstone; to means for preventing the fine dust aroused by the sweeper brush from escaping to the atmosphere; and to certain improvements in details of construction.

Referring to the drawings forming part of this specification, Figure 1 is a side elevation of a sweeping machine embodying my improvements, parts being represented as broken away. Fig. 2 is a plan view of the chassis and main operative mechanism of the sweeper. Fig. 2ª is a sectional detail view of a portion of the brush supporting arm and bar. Fig. 3 is a vertical transverse section of the machine. Fig. 4 is a perspective view of the dust collecting apparatus.

In Fig. 1, the reference numeral 1 designates the chassis of the auto-truck with which the sweeper is combined; 2, are the drivers; and 3, the dirt receiving bin. The sweeping and collecting means are connected with, and mainly supported by, a bar 4 slidable in ways 5 transversely of the chassis frame 1, the sweeper comprising a rotary brush 6 having its bearings in the arms 7 depending from the ends of the bar, and rotated by means of power taken from one of the drivers 2, preferably by means of a rope drive 9, and a pulley 10 on the driver, and a suitable pulley on the brush shaft.

The dust and dirt swept forward by the brush are received by a worm conveyer 11 feeding toward its longitudinal center, at which point an elevating conveyer 12 takes the same and carries the debris up to a spout or chute 13 by which it is directed into the bin 3.

To normally locate the sweeper and connected parts centrally with respect to the chassis, I provide two tension springs 14 each attached at one end to the chassis frame, and at the other end to the bar 4, so that while said parts can be moved transversely of the chassis, the springs will bring the same back to normal.

I prefer to make the elevator 12 substantially circular, as shown in Fig. 3, although I do not restrict myself to this exact form, and to have its uppermost point pivotally supported by the bin or otherwise, while its lowermost section is attached to the hood 15. This hood is provided for keeping the dust from escaping, and is sufficiently loose to permit the slight rocking motion of the elevator.

The elevator comprises, in addition to the case 12, an endless cable or the like 17 carrying disks 19 by which the dirt is moved, and this cable is preferably actuated by a wheel 20 having notches 21 entered by the disks.

To further keep the dust from escaping into the atmosphere, I provide a flexible tube 22 connected at one end with the apron or hood 15, and at the other end with a box 23. In this box is a suction blower 24 adapted to receive the dust and to discharge it through its outlet 25 against the surface of an endless apron 26 which is kept in constant motion.

The air from the blower passes through one thickness or section of the apron into the hollow square bounded thereby, and thence escapes with its impulse much checked, through the lowermost section and then through an opening 27 in the top of the bin into the bin itself. The air from within the bin escapes from an opening 29 in to forward part of the top. As the air thus escapes, the dust is first collected upon the surface of the apron adjacent the blower, and then as the apron passes down and thence over the opening 27, the dust thus collected is dislodged by the descending air current and deposited in the bin. To aid this, a revolving brush 30 may be employed.

The operation of this cleaning machine is as follows: As the chauffeur guides the machine along a street, the revolving brush 6 gathers up and throws forward the dust and dirt into the path of the worm conveyer. This moves the dirt toward its midlength, where it is received in the elevator 12 and carried up to the conduit or chute 13 from which the dirt descends into the bin.

As already described, what dust is liable to escape from the hood part is drawn up

through the flexible tube 22 and finally delivered into the bin with the dirt carried up by the elevator.

To enable the truck to be speeded up when going from one section of the city to another, I prefer to have the sweeper portion adapted to be raised out of touch with the roadway, as indicated in Fig. 1, suitable means being provided for permitting the chauffeur to raise and lower it. Cams 31 controlled by rockshafts 32 may be employed for the purpose.

I have shown the dust separating box 23 as supported on top of the bin 3, but I do not restrict myself to this location. Thus positioned, the bin is stationary upon the chassis, and has a door 33 at its rear end, and a false front 34 which can be drawn rearward by a handle 35 for emptying the bin.

The illustrated means for revolving the conveyer 11 is by spur gears 36, 37 on the shaft of the conveyer and of the rotary brush respectively, the gear 36 being formed with a conical surface 39 at each side thereof for the purpose of forcing the dirt which reaches the centers, rearwardly to the elevator 12.

When the chauffeur is guiding the sweeper near the curbstone S, as indicated in Fig. 2, and the arm 7 at that side of the machine comes in contact with the curbstone, there is no danger of bending or breaking the parts by such collision, since the arm 4 can slide relative to the chassis for several inches, the spring 14 at the other side yielding to permit such movement. The chauffeur, knowing by the slight scraping sound that the machine is traveling nearer the side walk than necessary, steers the truck slightly farther away until he hears only an occasional scrape of the arm 7 with the curbstone, thereby cleaning the gutter close to the curb without the possibility of injury to the machine.

The purpose in making the elevator endless, as shown in Fig. 3, is to enable the dirt swept up by the sweeping means to be delivered to the top of the bin 3 without interference with the mechanism of the autotruck, as the shaft 40, or with other parts of the truck or the chauffeur himself.

I do not claim in this application the dust separating apparatus, but wish to reserve the same for a subsequent application.

What I claim is:

1. A street sweeper comprising a conveyance, a bar slidably carried by the conveyance to project beyond the sides of the latter, springs acting normally to retain said bar centrally of the conveyance, and a revolving brush carried by said bar.

2. A street sweeper comprising a truck having driving wheels, a bar slidably carried by the conveyance to project beyond the sides of the latter, a rotary brush carried by the said bar having a pulley, a pulley carried by one of the driving wheels, said pulleys having deep grooves, and a rope drive joining the said pulleys.

3. A street sweeper comprising a chassis frame, a channel iron bar extending transversely of the frame and projecting from its sides, the flanges of said bar being beneath, anti-friction rollers suitably supported and fitting between said flanges, springs normally retaining said bar centrally, and a rotary brush supported by said bar.

In testimony that I claim the foregoing invention, I have hereunto set my hand this 30th day of June, 1917.

ARCHIBALD F. ELLIS.