(No Model.)

3 Sheets—Sheet 1.

A. BROWN.

STREET SWEEPER.

No. 605,385. Patented June 7, 1898.

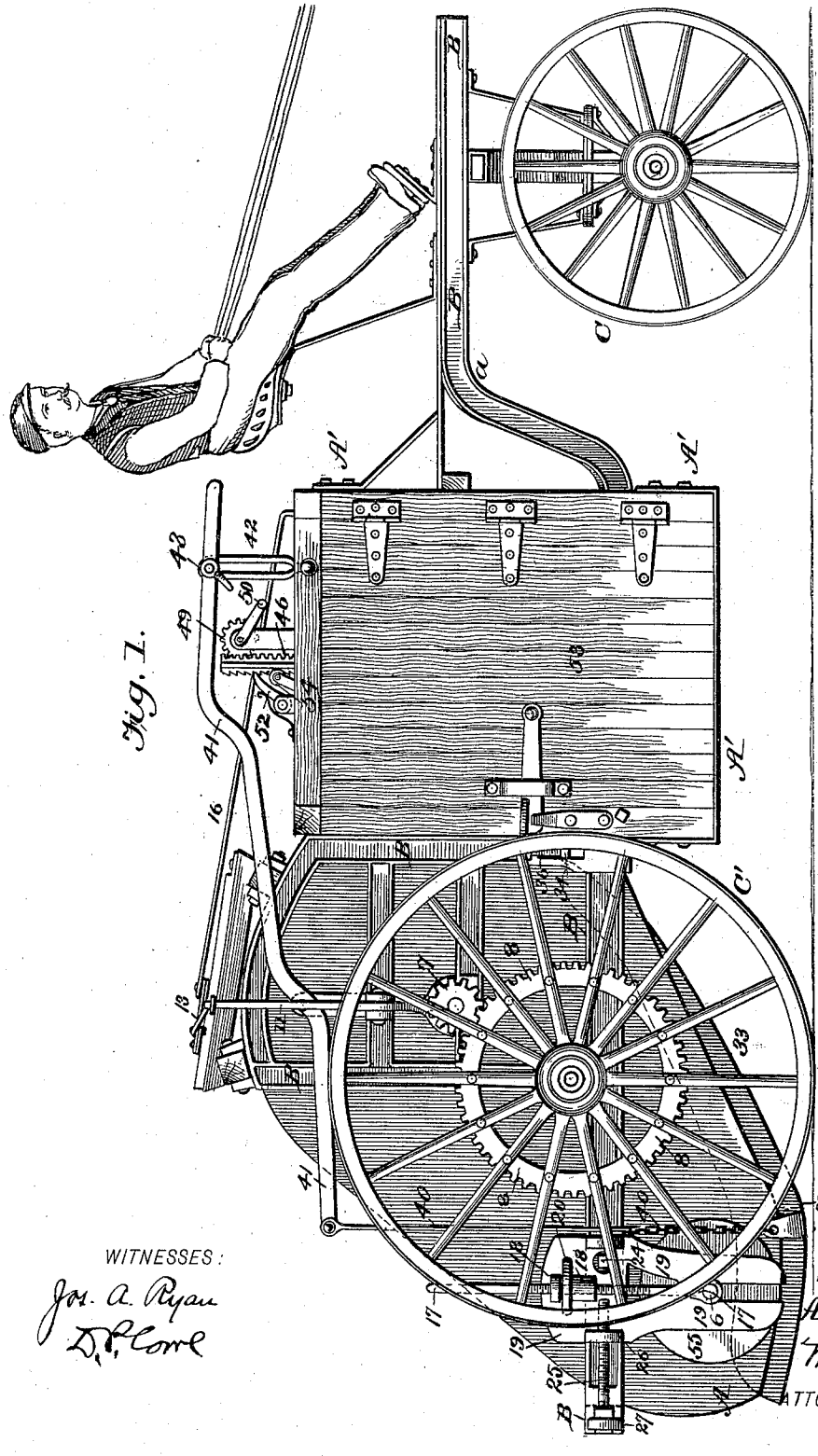


Fig. 1.

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Fig. 8.

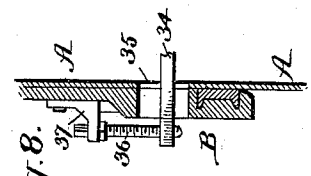


Fig. 7.

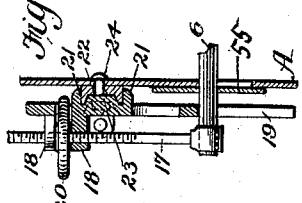


Fig. 2.

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Fig. 3.

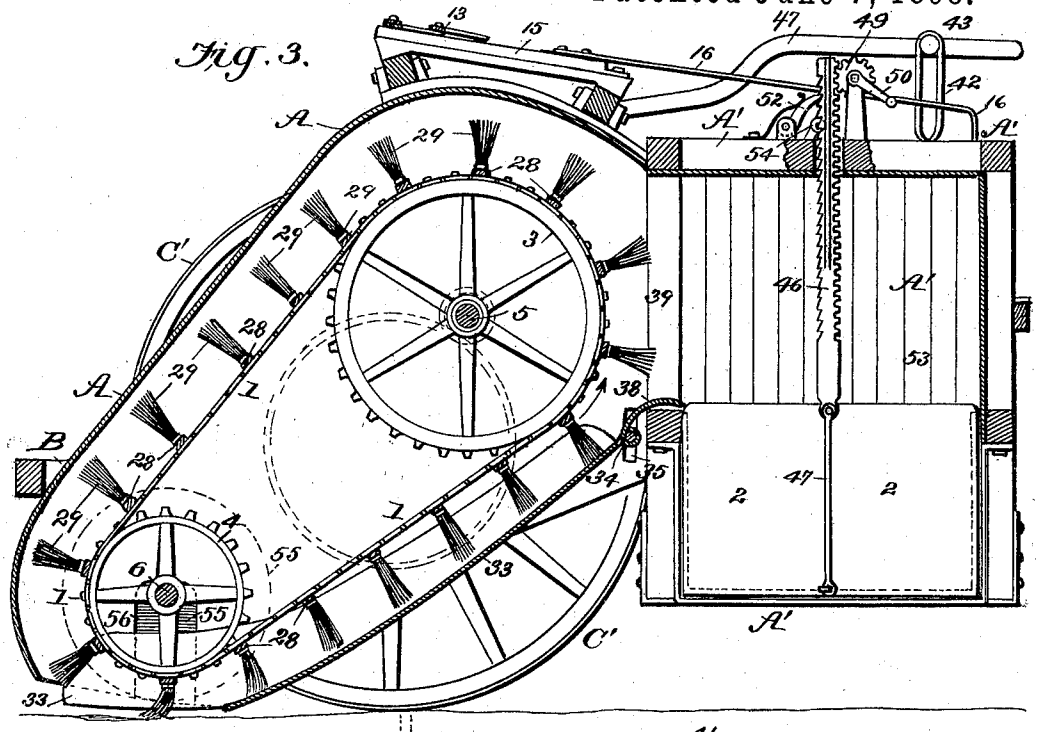


Fig. 4.

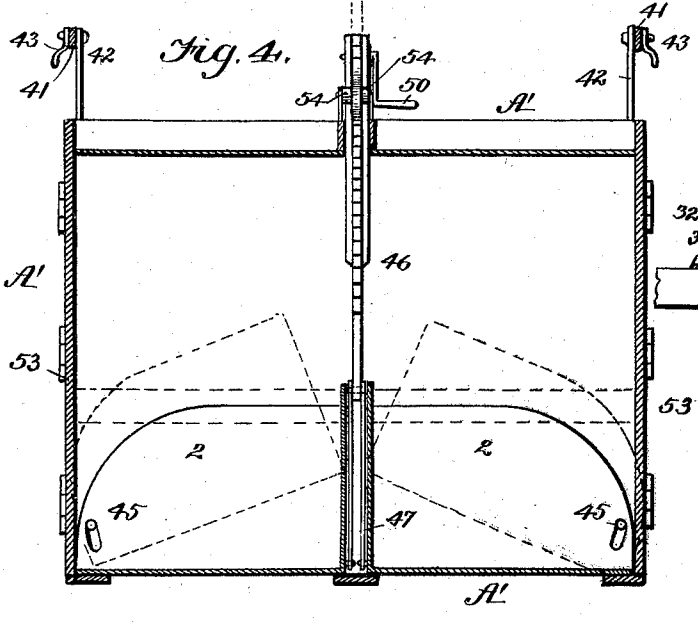


Fig. 5.

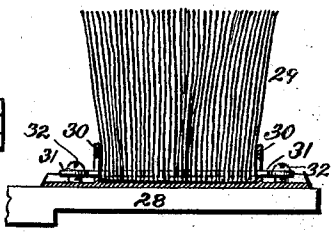
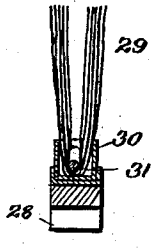


Fig. 6.



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UNITED STATES PATENT OFFICE.

ALVIN BROWN, OF AURORA, ILLINOIS.

STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 605,385, dated June 7, 1898.

Application filed November 17, 1897. Serial No. 658,821. (No model.)

To all whom it may concern:

Be it known that I, ALVIN BROWN, of Aurora, in the county of Kane and State of Illinois, have invented a new and Improved Street-Sweeper, of which the following is a specification.

I have devised an improvement in street-sweepers for which I have received Letters Patent of the United States No. 589,692.

My present invention is a further improvement in the same line and includes the several novel features hereinafter described and claimed.

In the accompanying drawings, three sheets, Figure 1 is a side view of the machine. Fig. 2 is a plan view of the machine. Fig. 3 is a longitudinal section. Fig. 4 is a transverse vertical section on line 4 4, Fig. 2. Fig. 5 is a sectional view showing one of the brush-tufts secured to a cross-bar. Fig. 6 is a cross-section of such brush. Fig. 7 is a detail vertical section illustrating the parts for adjusting the lower brush-shaft. Fig. 8 is a vertical section of parts for adjusting the dirt-pan.

The casing of the machine includes a rear portion A and front portion A′, which are supported by a skeleton iron frame B. The latter is in turn mounted on axles having the usual transporting-wheels C and C′, as shown in Fig. 1. The casing A incloses the endless traveling brush 1, while the casing A′ incloses the tilting dirt-receptacles 2. The brush 1 runs on pulleys 3 and 4, which are keyed on shafts 5 and 6, respectively, and it is so arranged that the lower run of the brush travels at about an angle of forty-five degrees. The rear wheels C′ are mounted on journals fixed in the iron frame B, which is bolted to the outer side of the casing A. The upper brush-shaft 5 (see Figs. 1 and 2) carries on its outer ends pinions 7, which mesh with annular gears 8, attached to the rear transporting-wheels C′. Each pinion 7 has a half-clutch 9, which is adapted to engage a similar clutch 10. The latter is adapted to slide on the shaft 5, but has a spline connection therewith, so that both rotate together. It is apparent that when such clutch 10 is slid into engagement with clutch 9 the shaft 5 will be rotated, and thereby drive the brush in a direction indicated by the arrows in Fig. 3.

The means for shifting the clutch 10 are as follows: A lever 11 is pivoted vertically and connected at its upper end with a rod 12, which in turn connects with the longer arm of a lazy-tongs 13, which is arranged on the top of the casing A, as shown in Fig. 2. The shorter arms of the lazy-tongs are pivoted at their inner ends to a slide 14, that works in the longitudinal guide 15. A rod 16 extends forward from such slide into suitable proximity to the driver, who by pulling the same expands the lazy-tongs and thereby shifts the lever 11 and forces the clutches 9 into engagement with the pinion-clutches 10, as before stated. Contrariwise by pushing on said rod 16 the lazy-tongs will be collapsed and the clutches 9 thereby removed from engagement with the pinion-clutches and the travel of the brush 1 thereby arrested.

The lower end of the brush may be adjusted higher or lower and the tension of the brush may also be regulated by the following means: The lower brush-shaft 6 extends through slots in the side of the casing A and is supported in hangers 17, consisting of screw-threaded rods which work through lugs 18, formed integrally with brackets 19. A hand-nut 20 is applied to such rods 17 between the said lugs 18, (see Fig. 7,) and by rotating the same it is apparent the rod will be adjusted vertically. By this means the brush may be raised out of contact with the ground-surface or lowered into the working position shown in Fig. 3. It will be observed in Fig. 7 that the enlarged and milled rim of the aforesaid nut works through a slot in the bracket 19. The latter has parallel horizontal flanges or lips 21, that engage the upper and lower sides of the frame-bar 22, and it also has a central projection 23, that works in the groove or channel of said bar. Bolts 24 secure the bracket 19 to the bar 22 and are adapted to slide horizontally in slots formed in the latter. A threaded screw-rod 25 (see Figs. 1 and 2) serves as a means for adjusting the bracket 19, and thereby regulating the tension of the brush 2. Said screw works in the threaded lug 26, formed on the bracket 19, and is adapted to rotate, but not slide in the fixed lug 27, formed integrally with the frame-bar 22.

The brush 1 is formed of two or more endless belts or chains, which are arranged parallel and connected by transverse bars 28.

The brush-tufts 29 (see Figs. 5 and 6) are held in metal sockets 30, attached to said bar 28 by means of rods 31, having eyes formed on their outer ends to receive the screws 32. The said rod 31 passes through the brush-tuft proper, 29, and also through the slots formed in the ends of the sockets 30. It is apparent that by this construction and combination of parts the tufts are held firmly in their sockets, but may be readily detached when worn out and new ones substituted therefor with convenience and despatch.

Beneath the brush (see Fig. 3) is arranged an inclined chute or pan 33 for receiving the dust, dirt, or other loose material on the pavement or other surface. Such pan or chute is slightly curved longitudinally and arranged in general parallelism to the lower run of the brush. Its upper end is hinged on a transverse rod or shaft 34, whose ends project through slots 35 in the casing A, as shown in Fig. 8, and are supported by threaded rods or short screws 36, that work in fixed lugs 37, attached to the side of the frame. It is apparent that by rotating such screws 36 the rods 34 may be raised or lowered, as required, to adjust the pan to the brush 1. A sheet-metal apron 38, Fig. 3, is attached to the rod 34 and projects over the adjacent edge of the slot 39 in the front casing A′ to facilitate passage of the dirt from pan 33 into the receptacles 2. It will be observed that this apron 38 is self-adjusting to its working position, whatever be the adjustment of the pan 33. The lower end of the latter is supported and adjusted by the following means: Rods and chains 40, Figs. 1 and 2, connect the pan with horizontal pivoted levers 41, that extend forward into suitable proximity to the driver, who by adjusting the same higher or lower may raise or lower the pan 33, as required. As a means for securing the levers in any adjustment I employ the pivoted links 42, Fig. 1, and clamp-nuts 43, whose operation is obvious.

As shown in Figs. 1 and 3, the rear end of the pan or chute 33 is extended beyond the point of attachment of the suspending-chains 40, and its vertical sides work within the casing A, so as to prevent escape of dirt or dust laterally.

The dirt-receptacles 2, Figs. 3 and 4, are sheet-metal boxes open at the top and one end. They are arranged horizontally in the casing A′, with their closed ends opposite and contiguous, their open ends being outward and adjacent to the hinged side doors 44, Fig. 1, of said casings A′. The receptacles 2 are pivoted at their outer ends and allowed due adjustment by means of pins 45, projecting from the sides of the casing A′ and working in slots in the receptacles 2.

The means for hoisting and tilting the receptacles 2 are as follows: A rack-bar 46, Fig. 3, is arranged vertically and connected by rods 47 with the inner ends of the receptacles 2 at the bottom, and extends through a slot 48 in the top casing A′. A gear 49, having a crank 50, engages the rack-bar 46, and the latter is provided on its rear side with ratchet-teeth to provide for engagement of a fixed pawl 52 therewith. By rotating the crank 50 the rack-bar 46 may be raised and the receptacles 2 thereby tilted to cause discharge of their contents laterally or at the side of the casing A′, whose hinged side doors 53 are first opened for the purpose. The hinged and spring-pressed pawl 52 follows the ratchet and automatically locks the rack-bar at any point to which it may be raised.

To provide a lateral resistance-guide for the rack-bar, I employ antifriction-rollers 54, Fig. 3, which are journaled in a bracket secured to the top of casing A′ between the pawl and rack-bar and work in contact with lateral flanges of the latter.

As shown in Figs. 1 and 3, a disk 55 covers the slot 56 in the casing A where the brush shaft 6 passes through, and thus prevents escape of dust. The disk is mounted on the said shaft so as to move with it.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a street-sweeping machine, the combination with the rear casing, a rotary brush arranged within it and a dirt-receptacle in the front casing, of a dirt-pan arranged under said rear casing and brush, a hinged apron at the front end of the pan, a transverse support for the apron and pan, vertical slots in the casing through which said supports project, and means for clamping the support in any vertical adjustment, as specified.

2. In a street-sweeping machine, the combination with the casing, an endless traveling brush-belt, front and rear sprocket-wheels, on which such belt runs, the shaft of such front wheels projecting through the slotted sides of the casing, frame-bars extending along the sides of the latter and having a lengthwise slot, brackets connected with the shaft ends and having a projecting portion or rib that slides in the slots of said bars, a screw-bolt working horizontally in a threaded lug on such bars, and connected with the aforesaid bracket, for adjusting the latter as described, for the purpose of regulating the tension of the belt, as specified.

3. In a street-sweeping machine, the combination with the casing, frame, endless brush, and front and rear brush-shafts, of the means for adjusting the rear shaft vertically, which consists of vertical hangers or threaded rods, fixed perforated lugs to receive said rods and nuts applied to the latter and arranged in the space between said lugs, as shown and described.

4. In a street-sweeping machine, the combination with carrier-chains and cross-bars attached thereto, of brush-sockets brush-tufts and brush-holding wires or rods passing

through said sockets and means for securing the ends of such rods to the aforesaid bars, substantially as shown and described.

5. In a street-sweeping machine, the combination with parallel carrier-chains, transverse bars which connect them as shown, a series of brush-sockets attached to said bars, and having end slots, and tufts of wires or rods passing through said slots and the brushes proper and having eyes at their extremities, and screws passing through the said eyes, for securing the rod and brushes, as specified.

6. In a street-sweeping machine, the combination, with a casing having sides adapted to open as desired, of two trays arranged transversely therein and hinged at their outer ends, their closed inner ends abutting as shown, and a hoisting device connected with such inner ends for tilting and discharging both trays simultaneously, in opposite directions laterally, as shown and described.

7. In a street-sweeping machine, the combination with a casing and brush and tray-like dirt-receptacles arranged within said casing and hinged at their open outer ends, the rack-bar arranged vertically and connected with the closed inner ends of the receptacle, a pinion provided with a crank-shaft and arranged on top of the casing, and meshing with the rack-bar, and a locking-pawl and rollers for resisting lateral thrust of the rack-bar, as shown and described.

ALVIN BROWN.

Witnesses:
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C. H. HITCHCOCK.