

(No Model.)

3 Sheets—Sheet 1.

M. B. ATKINSON.
STREET SWEEPER.

No. 571,183.

Patented Nov. 10, 1896.

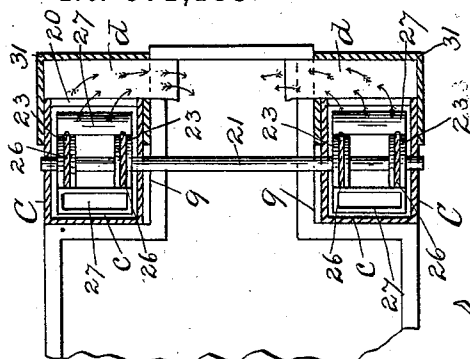


Fig. 4.

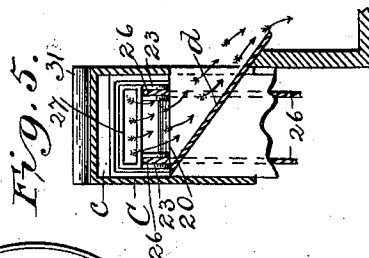
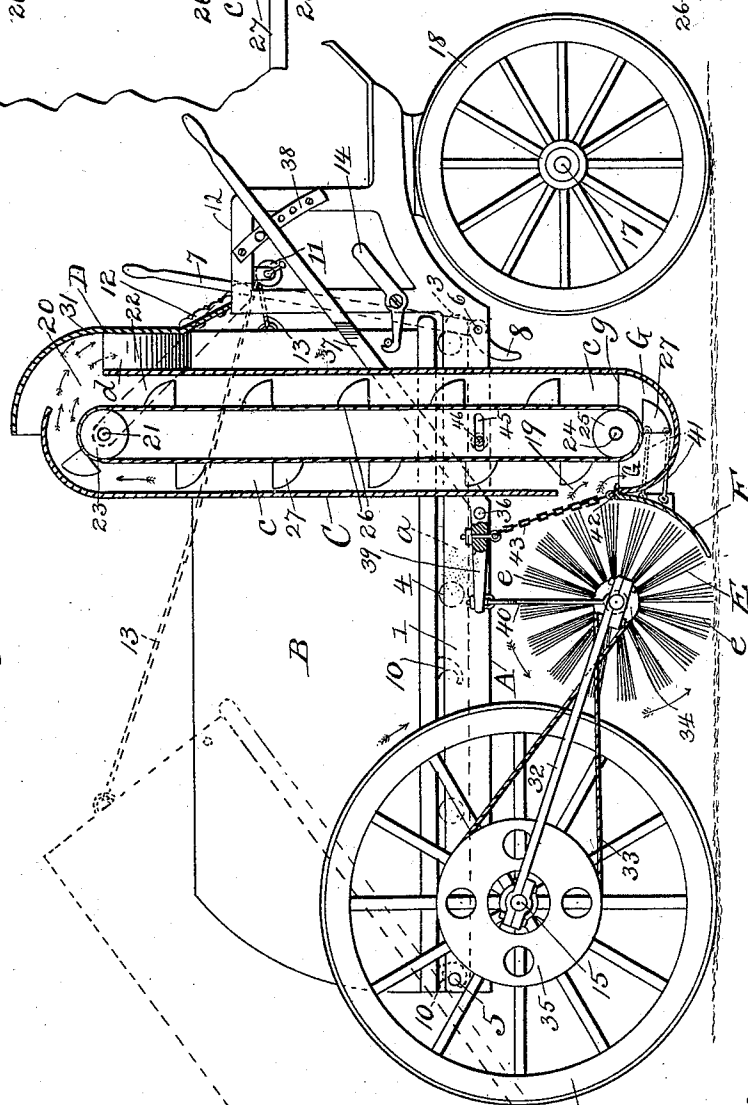


Fig. 5.

Fig. 1.



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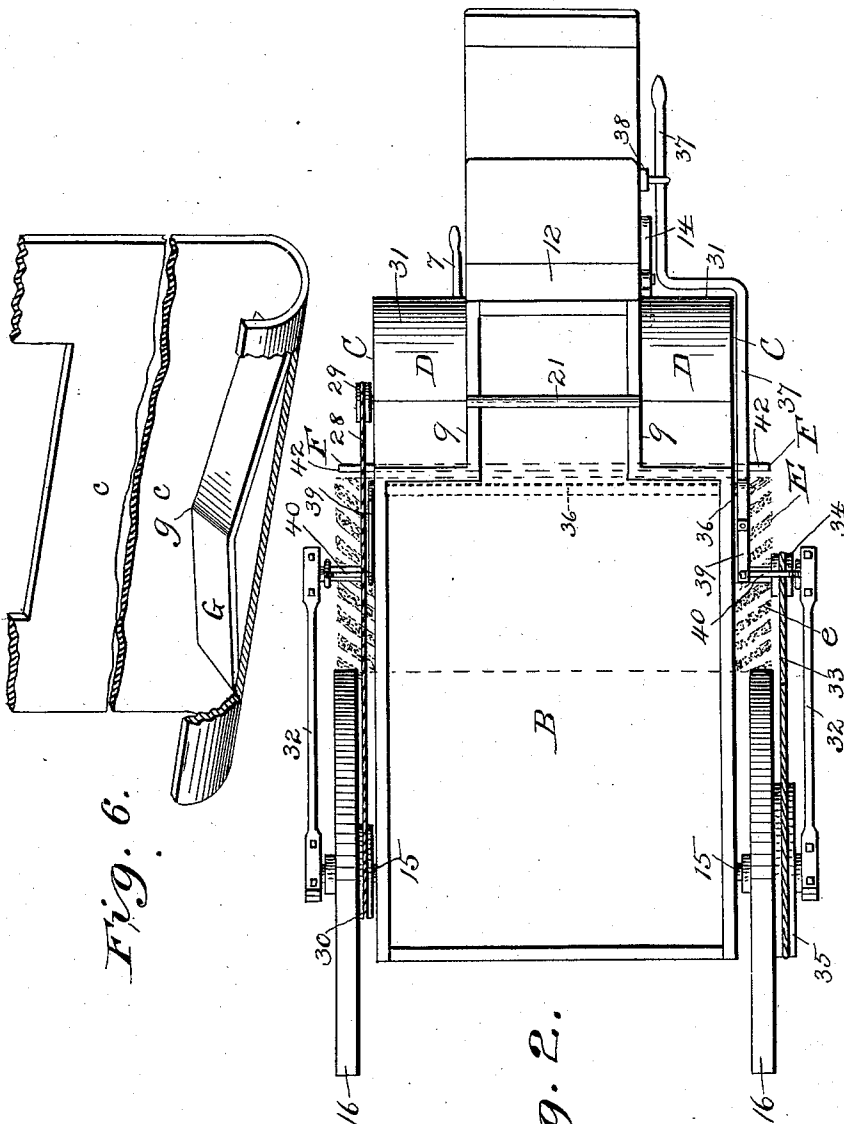


Fig. 6.

Fig. 2.

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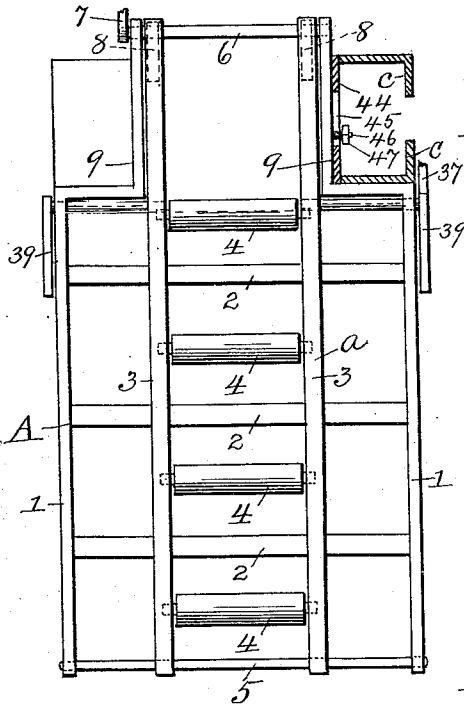


Fig. 3.

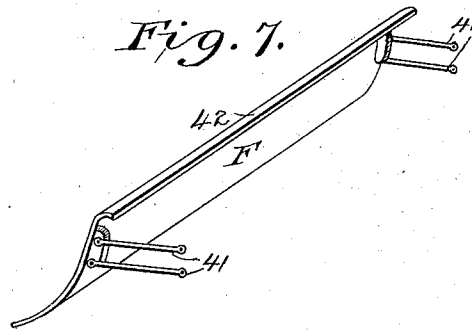
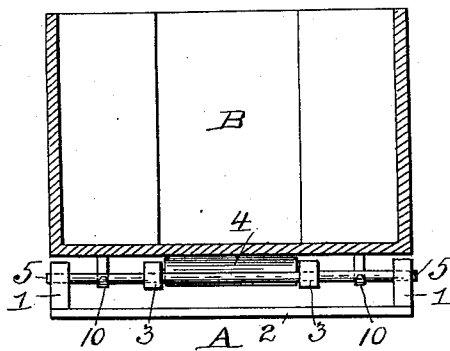


Fig. 7.



Fig. 8.

Fig. 9.



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UNITED STATES PATENT OFFICE.

MAHLON B. ATKINSON, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR
OF TWO-THIRDS TO BERNARD J. COYLE AND JOHN FITZMORRIS, OF
SAME PLACE.

STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 571,183, dated November 10, 1896.

Application filed February 14, 1896. Serial No. 579,300. (No model.)

To all whom it may concern:

Be it known that I, MAHLON B. ATKINSON, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Street-Sweeping Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to an improved street-sweeping machine of that class in which the sweepings gathered by the brush are conveyed to a sweepings-receiver by suitable elevating apparatus.

The invention will first be described in connection with the accompanying drawings, and then pointed out in the claims.

Figure 1 of the drawings is a side elevation of my improved street-sweeping machine, a portion of the elevator-casing being broken away and the dumping position of the receiver being shown in dotted lines. Fig. 2 is a plan view of the machine. Fig. 3 is a plan view of the bed of the machine, showing the roller-bed thereon, the means for operating the latter, a sectional view of one of the elevators in place, and the means permitting the adjustment of the latter. Fig. 4 is a detail plan view, partly in section, showing a portion of the sweepings-receiver, the elevator on each side thereof, and the chute for conveying the sweepings from the elevator-buckets to the receiver. Fig. 5 is a vertical sectional view of the same, but one elevator and chute being shown. Fig. 6 is a detail perspective view of the lower part of the elevator-casing, the latter being partially broken out to show the deflector. Fig. 7 is a detail perspective view of the apron, showing the connecting-rods attached thereto. Fig. 8 is a plan view of the brush. Fig. 9 is a sectional view of the receiver, showing the means for permitting the dumping of the same.

Referring to the drawings, the base or bed A of the machine comprises longitudinal side rails 1, suitably connected by cross-bars 2, the side rails near the front end being turned in at a right angle, then projected forward, thus leaving a recess on each side for the reception of the elevating apparatus, hereinafter

described. Located between the rails 1 and resting normally on the cross-bars 2 is a roller-bed *a*, comprising rails 3 and rollers 4, mounted therein, as shown in Fig. 3. This roller-bed is pivotally connected at the rear end to the side rails 1 by a rod 5. In the forward end of the side rails 1, with its ends journaled therein, is mounted a rock-shaft 6, operated by a lever 7, secured to one end thereof. On this shaft are secured cams 8, each one of which lies directly beneath one of the rails 3 of roller-bed *a*.

B represents the sweepings-receiver, its forward end being narrowed to conform to the shape of bed A, leaving a recess 9 on each side. This receiver rests on the rollers 4 of roller-bed *a*, and on operating lever 7 the cams 8 will raise said roller-bed, when the receiver will slide rearward on rollers 4 until hooks 10, secured on the under side of the receiver, engage the rod 5. The rear end of the receiver will then swing downward into a position to dump its load, as shown in dotted lines in Fig. 1. By means of an ordinary windlass 11, secured beneath a seat 12, rising from the forward end of bed A, and a rope 13 wound thereon and secured at one end to the receiver B, the latter may be drawn back to its normal position after dumping, a hook 14, pivoted to the upright supporting the seat, serving to lock the receiver in its normal position, as shown in full lines in Fig. 1.

The bed A is suitably mounted on a rear axle 15, on which wheels 16 are mounted, and on a front axle 17, carrying wheels 18.

The elevating apparatus comprises two elevators C C, adapted to operate one in each recess 9 of the receiver B, as shown in Fig. 2. A casing *c* envelops each elevator, except on the inner side, this casing on the outer side being cut away from near the upper belt-wheels to the lower belt-wheels, as shown, leaving two box-like chutes in which the elevator-buckets work. From the bottom of the receiver downward the front wall and rear wall of the casing extend entirely across the machine, the latter being formed with a rear longitudinal opening 19, the upper front wall of each casing having a similar opening 20, as clearly shown in the drawings.

100

A shaft 21, extending from the outer wall of one casing to the outer wall of the other and mounted therein near the upper ends, and further supported by braces 22, secured to the seat 12, carries near each end a pair of sprocket-wheels 23. A similar shaft 24 is revolvably mounted in the lower part of the casing and carries similar wheels 25. Over these wheels 23 and 25 pass the elevator-belts 26, on which, at suitable intervals, are secured the elevator-buckets 27. A belt 28, passing over a pulley 29, mounted on the outer end of shaft 21, and over another pulley 30, secured on one of the rear wheels 16, transmits movement to the elevators when the machine is in motion.

D D represent what I term "sweeping-chutes," two in number, each comprising a rearwardly-curved metal strip 31, secured to the seat 12 and rising forward of the front wall of each casing *c* past the opening 20 therein. To this strip is secured a transverse guide *d*, its upper end lying beyond the outer edge of opening 20, the guide then curving downward toward the receiver B, its inner end terminating just above and slightly within the edge of the latter, as shown in Fig. 4. By this construction the sweepings, when projected from the buckets 27 through the openings 20, will be thrown against the strip 31 and drop onto the guide *d*, down which they will slide into the receiver B.

E represents the brush, whose shaft is revolvably mounted in stays 32, projected forward from the rear axle 15. The bristles on the brush are formed in a series of rows *e*, beginning at the center of the brush and extending laterally and rearwardly at an acute angle to the ends thereof. By this construction the sweepings are gathered and brushed toward the center of the machine, as will be evident. Proper motion is transmitted to the brush by a cross-belt 33, which passes over a pulley 34 on the brush-shaft and over a grooved wheel 35, secured on one of the rear wheels 16, the wheel 35 being larger than the pulley 34, whereby proper speed of revolution is attained by the brush when the machine is proceeding at a normal speed.

A shaft 36, revolvably mounted in the side rails 1 of bed A, has secured to one end thereof a bell-crank lever 37, the long arm of which projects forward in reach of the occupant of seat 12, any desired position of this lever being maintained by a notched bar 38, with which the lever engages in any ordinary manner. The short arm 39 of the lever has secured to its outer end a depending rod 40, the lower end of which is loosely secured to the brush-shaft. By this means the vertical adjustment of the brush is readily accomplished, it being understood that the short arm 39 of the lever and the depending rod 40 are duplicated on the other end of shaft 36.

F represents the apron, preferably of metal and curved to conform to the curvature of the brush. To the apron, at each end, are

pivotaly secured two rods 41, each pair of these rods being also pivoted to the outer wall of each casing *c*, the normal position of the rods being on a slight upward incline toward the rear, as shown in Fig. 1. The upper edge of the apron is turned forward, forming a lip 42, which rests normally on the lower edge of opening 19 in casing *c*. Two chains 43 are secured to the apron near each respective end thereof, and also to the arms 39 on shaft 36, near the pivotal point of the latter, to permit the adjustment of the apron and to also permit the automatic upward movement of the latter when passing over an obstruction, such as a brick or the like, the upward movement, owing to the inclined position of rods 41, being away from the brush, thus allowing the apron to pass over the obstruction, at the same time receding from the brush, so as not to interfere with the revolution of the latter, and then drop by gravity to its normal position, when the brush will force the obstruction onto the apron and through the opening 19.

As the brush is peculiarly adapted for gathering sweepings toward the center, and as the elevators are located one on either side of the center, some means must be provided for causing the sweepings thus gathered to be thrown into the path of each respective elevator. For this purpose I employ a deflector G, which is simply an inverted-V-shaped strip of metal secured in the lower end of casing *c* and extending across the same from the front to the rear wall. The apex *g* of this deflector is on a line with the lower edge of opening 19 in the casing, and its ends extend to the inner edge of the respective paths of the elevator-buckets. By this means sweepings gathered by the brush, after being forced up the apron and through the opening 19, will fall onto the deflector G and slide down its inclined sides into the respective paths of the elevator-buckets, the front wall of the casing *c* below the receiver, which, as before stated, extends entirely across the machine, preventing any of the sweepings being thrown over the deflector.

As the brush will in time wear to such an extent as to cause its action to be materially lessened in forcing sweepings into the opening 19 of casing *c*, some means must be provided by which the most efficient position of the elevating apparatus C relative to the brush may be maintained. For this purpose I secure a baton 44 across the inner edge of each casing *c*, in which baton is a longitudinal slot 45, the baton being in a plane parallel with the side rail 1 of bed A. In the side rail is secured a screw-threaded bolt 46, which projects through the slot 45 and is secured by a nut 47, on loosening which the lower portion of the elevating apparatus can be moved toward or away from the brush, as desired, the central open portion of the front wall of each casing *c*, hereinbefore described, permitting access to the adjusting means.

It will be seen from the drawings that the elevator-buckets travel in a direction oppo-

site to the revolution of the brush, by which construction the danger of choking the elevating apparatus will be avoided, as the elevator-buckets meet the incoming sweepings instead of picking them up from a receptacle.

5 Although I have shown the bottom of the receiver as being horizontal it is evident that a rearwardly and downwardly inclined bottom may be used, by the use of which latter
10 the sweepings would gather toward the rear of the receiver.

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

15 1. In a street-sweeping machine, the combination, with a suitable frame, of a brush rev-
olubly secured to the frame and adapted to direct the sweepings toward the center, a de-
flector having a downward inclination from
20 the center toward each end and adapted to receive the sweepings from the brush, a sweep-
ings-receiver mounted above the brush, and
two elevators, one on either side of the re-
ceiver, adapted respectively to take the sweep-
25 ings from the ends of the deflector and deposit
them in the receiver.

2. In a street-sweeping machine, the com-
bination, with a suitable frame, of a brush rev-
olubly secured to the frame and adapted to
30 direct the sweepings toward the center, a de-
flector having a downward inclination from
the center toward each end and adapted to

receive the sweepings from the brush, a sweep-
ings-receiver mounted above the brush, two
elevators, one on either side of the receiver, 35
adapted respectively to take the sweepings
from the ends of the deflector and deposit
them in the receiver, and means carried by
each elevator permitting its independent lat-
40 eral adjustment relative to the brush.

3. In a street-sweeping machine, the com-
bination, with a suitable frame, a brush rev-
olubly secured to the frame and adapted to
direct the sweepings toward the center, a de-
flector having a downward inclination from 45
the center toward each end, a sweepings-re-
ceiver mounted above the brush, and two ele-
vators, one on either side of the receiver, for
conveying the sweepings from the ends of the
deflector to the receiver, of an apron pivotally 50
mounted in front of the brush and adapted
to automatically rise to allow it to pass an
obstruction and then drop by gravity to its
normal position, said apron being so mounted
that in rising to pass an obstruction it will re- 55
cede from the brush to avoid interference with
the revolution of the latter.

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

MAHLON B. ATKINSON.

Witnesses:

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