No. 652,399. Patented June 26, 1900.

W. H. H. MILLER.

HAND STREET SWEEPER.

(Application filed Apr. 23, 1900.)

(No Model.)

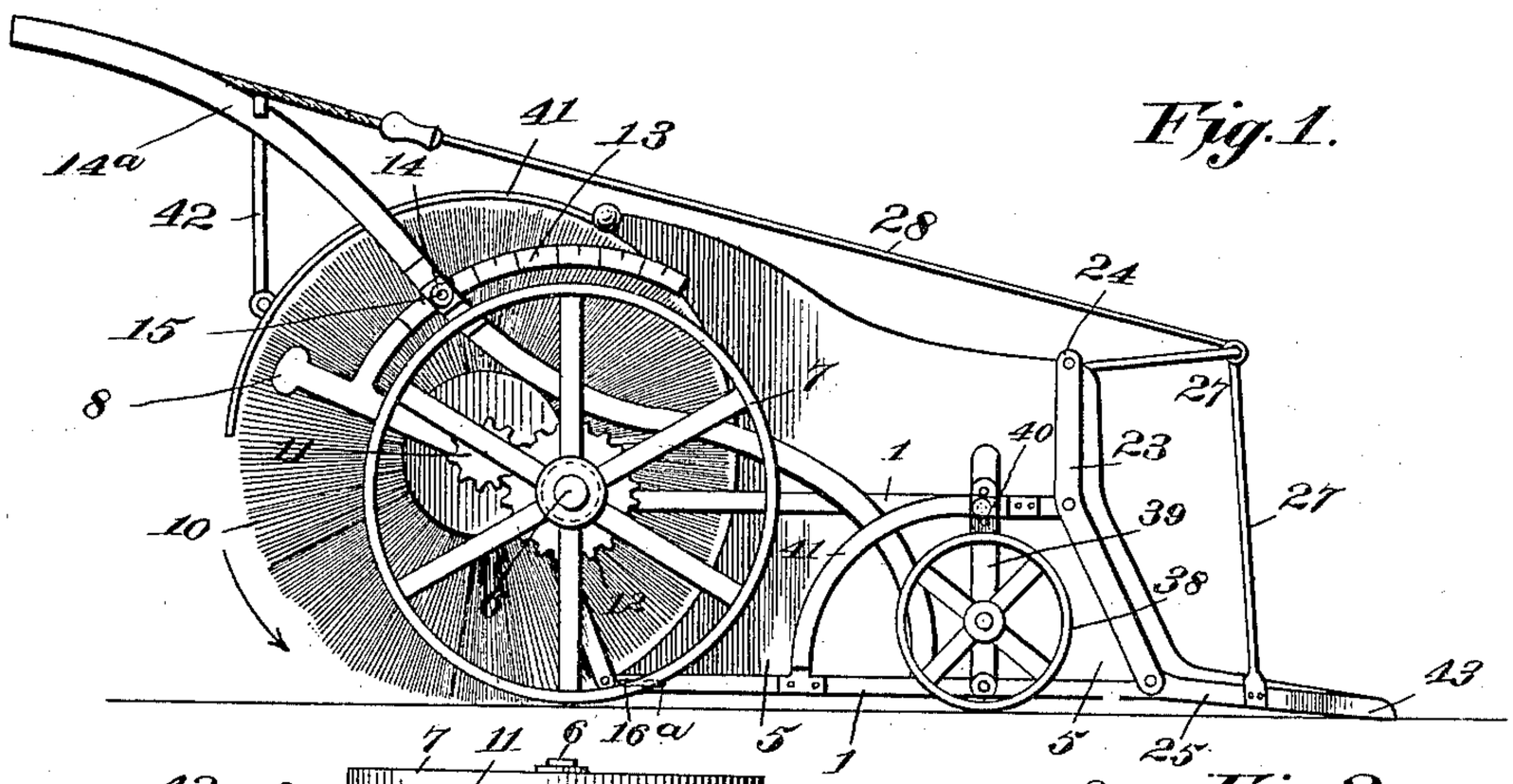


Fig. 1.

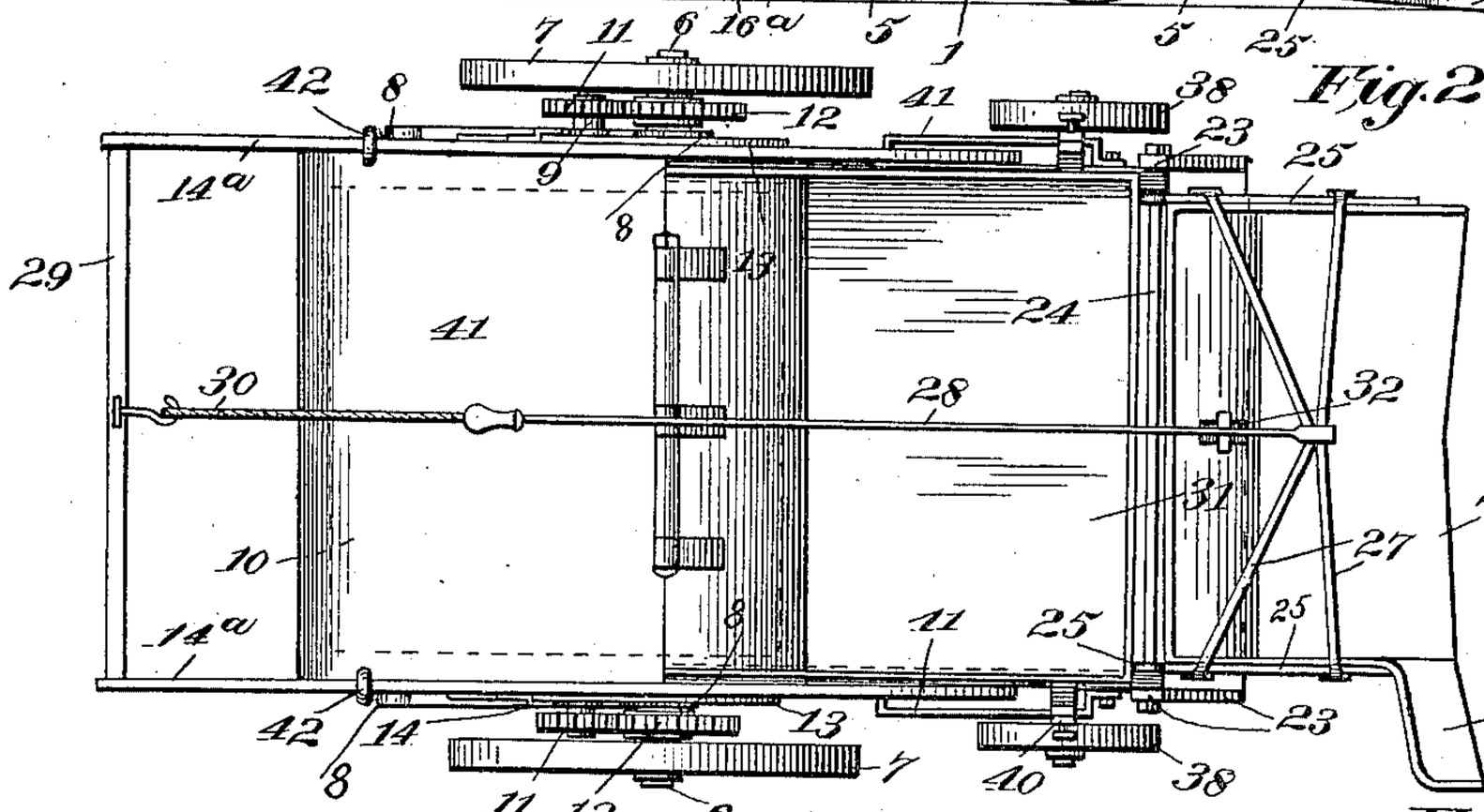


Fig. 2.

Fig. 3.

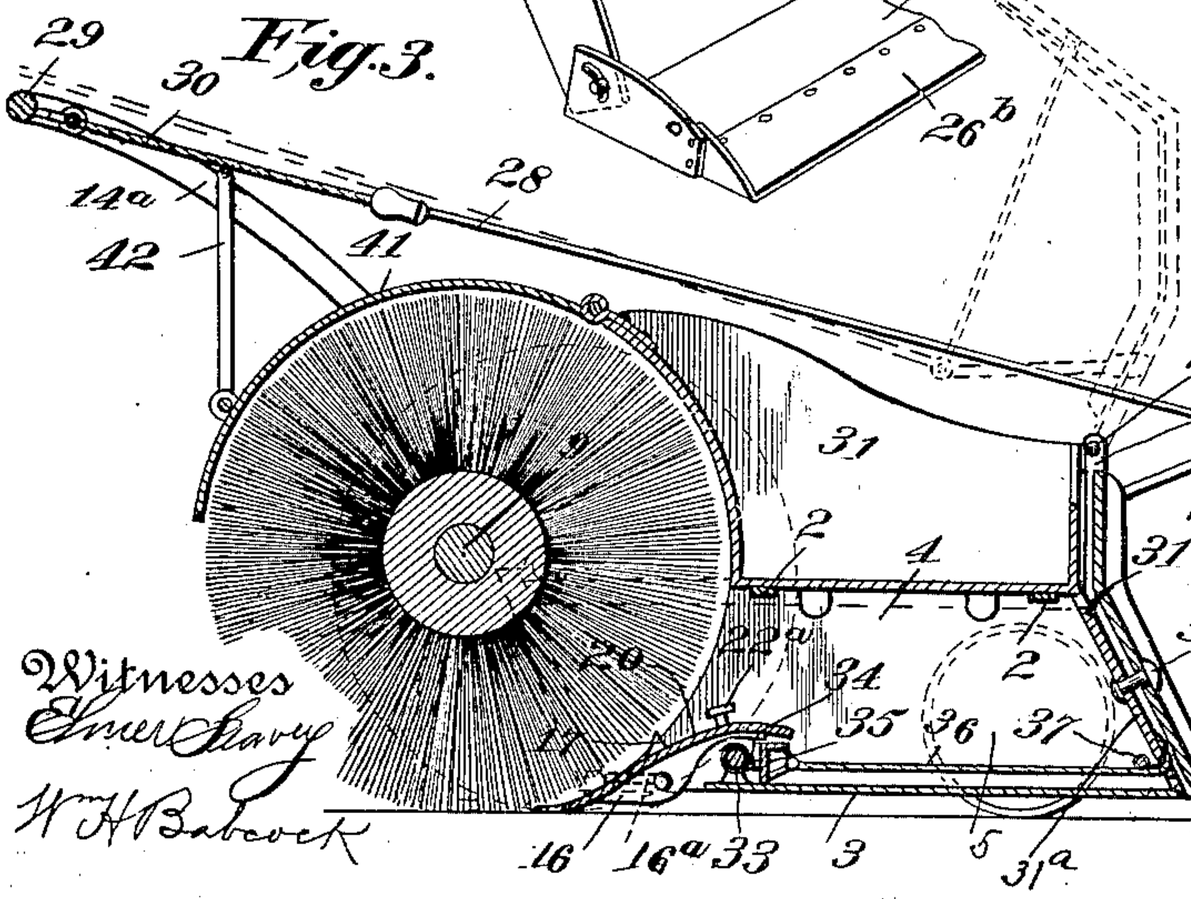
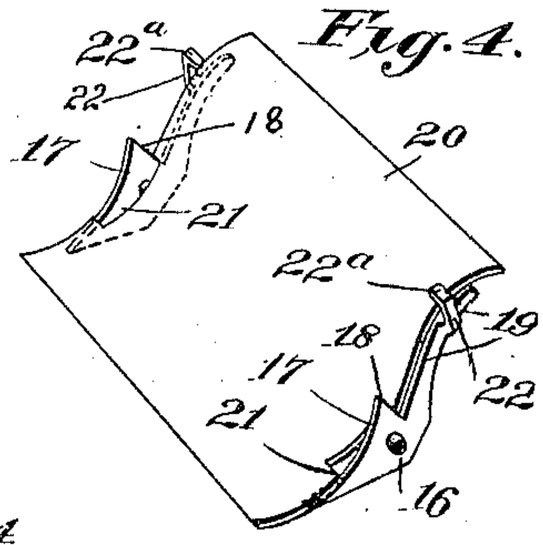


Fig. 5.

Fig. 4.



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HAND STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 652,399, dated June 26, 1900.

Application filed April 23, 1900. Serial No. 13,948. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. H. MILLER, a citizen of the United States, residing at Williamsport, county of Lycoming, and State of Pennsylvania, have invented certain new and useful Improvements in Hand Street-Sweepers, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 is a side elevation; Fig. 2, a plan view; Fig. 3, a longitudinal vertical sectional view; Fig. 4, a detail perspective view of the slidable apron of the dust-pan; and Fig. 5, a detail of a portion of the scoop, showing a modification thereof.

The object of the invention is to produce a light machine of simple construction designed to be hand-operated, by which the larger material littering the street may be picked up in a scoop and then deposited in a main dirt-receptacle carried on the machine, and the lighter material be gathered by a rotary brush into a dust-pan as the machine is moved forward, from which dust-pan it may be removed, when desired, by a suitable scraper operated from the rear of the machine.

Referring to the various parts by numerals, 1 designates the side frames of the machine, which are connected together at their upper edges by the transverse bars 2 and at their lower edges by the bottom 3 of the dust-pan. The sides 5 of this pan are secured to the frames 1. The side frames 1 extend rearward beyond the dust-pan and on the top bar of each frame, near its rear end, is secured in a suitable journal-box an outwardly-extending stub-axle 6, on which is mounted a large transporting and brush-driving wheel 7. On each of these axles, outside of the adjacent frame 1, is pivoted a rearwardly and upwardly extending brush-supporting bar 8, the axle 9 of the rotary brush 10 extending entirely across the machine and being journaled at its ends in these bars 8. Secured on each of the ends of this axle 9 is a small gear 11, which meshes with a larger gear 12, secured to the adjacent wheel 7, whereby when the machine is forced forward the brush will rotate in the direction indicated by the arrow in Fig. 1 and throw the sweepings into the dust-pan or sweepings-box. Each brush-supporting bar 8 is provided with a forwardly and upwardly extending segmental bar 13, which passes through a keeper 14, secured to the side of the adjacent handle-bar 14^a, and is securely held in position by a set-screw 15, mounted in said keeper. By means of these devices the brush may be raised or lowered, as desired, to properly perform its work and to compensate for wear, the segmental bars 13 being provided with suitable corresponding scale-marks to enable the operator to easily maintain its axle in a horizontal line.

To the lower rear corner of each side of the dust-pan is rigidly secured an apron guide and support 16, which is formed on its upper edge with two cam-surfaces, one of which, 17, extends rearward and downward and is nearly concentric with the brush 10, its lower end extending close to the ground, while its upper end extends above the bottom of the dust-pan a suitable distance and is closer to the surface of the brush than the lower end. At the upper end of the cam-surface 17 the edge of the support is inclined downward and forward to form the shoulder 18, and from the lower end of this shoulder the cam-surface 19 curves upward and forward. Loosely mounted on these supports, so as to freely slide thereon, is the apron 20 of the dust-pan, said apron being formed with the recesses 21 at its side edges, the upper edges of said recesses resting against the lower ends of the shoulders 18 of the apron-supports and the lower edges of said recesses resting on the lower ends of the cam-surfaces 17 of said supports. Formed on each of the apron-supports, near its upper end, is an upward-extending guide-lug 22, having an inward-extending head 22^a, which limits the upward movement of the apron. The rear part of the apron is substantially concentric with the brush and curves downward and rearward, its rear edge resting on the pavement to receive the material swept up by the brush, and its forward part is reversely curved and extends upward and forward to deliver the sweepings into the dust-pan. In its normal position the apron is supported on the pavement and on the cam-surfaces 17 and 19, its rearward movement being limited by the upper edges of the recesses 21, resting against the shoulders 18. The object of this structure is to permit the

apron to readily rise and pass over any small permanent obstruction in the path of the machine and to then fall back into position. Should its rear edge come into contact with an obstruction while the machine is being drawn backward, the apron will slide up the cam-surfaces 17 and 19 until it is released and will then fall back into place. The upward movement of the apron will be limited by the brush-surface and by the headed guide-lugs 22ª, the cam-surfaces 17 being so curved that their upper ends will direct the apron against the brush before it could pass off the cam-surfaces. In order to adjust the apron to the brush to secure the proper operative position and to compensate for the wear of the brush, the apron-supports are adjustably mounted in slots 16ª in the side frames.

Upward-extending posts 23 are secured to the front end of the machine, and these posts are connected by a rod 24, on which are pivoted depending scoop-carrying arms 25, to which is secured the forward-extending scoop 26, which is substantially equal in width to the dust-pan. Secured to this scoop by means of the arms 27 is the operating-rod 28, which extends rearward and is detachably connected to the handle 29 by a cord 30. By pulling rearward on the rod 28 the scoop may be swung upward to the position shown in dotted lines in Fig. 3 to empty its contents into the removable main dirt-receptacle 31, which is supported on the frames 1 and the cross-bars 2 connecting them.

The forward part of the scoop 26 is preferably formed of sheet metal, as shown in Fig. 5. In this construction the front lower section 26ᶜ is formed by bending the metal on the transverse line 26ª until the said section has the proper inclination, the portion of the metal which is to be turned up to form the flanges being cut on the line of the fold. When turned up, said flanges overlap at their upper edges, and these overlapping portions are slotted and are secured together by bolts. To the front edge of the section is removably bolted a wearing-section 26ᵇ, which may be removed when it is nearly worn away and a new section secured in its place. The slots in the side flanges permit the section 26ᶜ of the scoop to be slightly depressed or sprung downward at its front edge to compensate for the wear of the front edge of the section 26ᵇ.

To facilitate the removal of the sweepings from the dust-pan, the front 31ª thereof is made removable and is provided with a turn-button 32, which is adapted to pass through a slot in the scoop and to secure said removable front to the scoop when the button is turned transverse of the slot. Mounted in suitable bearings at the rear end of the dust-pan under the apron 20 is a spring shade-roller 33, and wound on this roller is a cord 34, which is attached at its forward end to a scraper 35, which rests on the bottom of the dust-pan under the apron 20 and in the rear of the forward edge thereof, so that the sweepings in falling from said apron drop in front of the scraper. Connected to the scraper is a cord 36, which passes forward and around a pulley 37, secured to the sides of the dust-pan, at the front thereof, and is secured to the front 31ª of the dust-pan. When it is desired to clear the dust-pan, the front 31ª is attached to the scoop and the scoop swung upward. This will draw the scraper forward and clear all the sweepings from the dust-pan. When the scoop is returned to its normal position, the cord 34 will be rewound on the roller 33 and the scraper returned to its normal position. The rearward strain on cord 36, exerted by the spring-roller 33, will hold the front 31ª of the dust-pan in position when it is detached from the scoop.

To support the front end of the machine and to regulate the height of the front edge of the scoop, small transporting-wheels 38 are mounted on bars 39, which are pivoted at their lower ends to the lower bars of the side frames, one of said bars being on each side of the machine, near the forward end thereof. Secured to each bar 39, near its upper end, is a keeper 40, through which extends a segmental bar 41, secured to the frame, a set-screw being threaded in the keeper to clamp the bars 39 to the segmental bar at any desired point. When transporting the machine, the bars 39 are moved rearward and downward sufficiently to lift the scoop considerably above the ground. The operator may then lift the rear wheels clear of the ground and roll the machine entirely on the front wheels. If desired, however, the brush may also be raised sufficiently to prevent it disturbing the dirt on the ground and the machine transported on both sets of wheels.

Pivotally attached to the rear upper end of the dirt-receptacle is a dust-guard 41, which curves rearward and downward partially around the brush and serves to confine the flying dust caused by the rapid revolution of the brush, said dust-guard being suitably hung from the handle-bars by a hook or hooks 42. If desired, I may attach to or form on one or both front corners of the scoop a projection 43, as shown in Fig. 2, which projects laterally in front of the wheels and serves to gather the dirt that may lie directly in front of the wheels and to one side of the main part of the scoop. This projection or extension preferably extends to a point equal to or a little beyond the width of the machine, so that it will be especially serviceable in gathering the dirt that may lie between the main body of the machine and the street-curb, as is evident.

It will be readily seen that I provide a practical machine by means of which the larger particles and masses of dirt in the street may be picked up by the scoop and thrown into a main dirt-box and then the finer dirt and dust be swept into a dust-pan.

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

1. In a hand street-sweeper, the combination of a supporting-frame, a dust-pan carried thereby, transporting-wheels mounted on the frame, a rotary brush, driving means connecting the brush and the transporting-wheels, and a slidably-mounted apron between the brush and the dust-pan to direct the sweepings into the dust-pan.

2. The combination of a supporting-frame, a dust-pan, transporting-wheels, a rotary brush, driving means connecting the brush and the transporting-wheels, an apron loosely supported between the brush and the dust-pan to direct the sweepings into the pan and adapted to move freely upward and forward, and means for limiting the upward movement of the apron.

3. The combination of a supporting-frame, transporting-wheels, a rotary brush driven by the transporting-wheels, a dust-pan, apron-supports secured to the dust-pan, an apron loosely resting on said supports between the brush and the dust-pan and adapted to slide upward and forward on said supports.

4. The combination of a supporting-frame, transporting-wheels, a rotary brush driven by the transporting-wheels, a dust-pan, a main dirt-receptacle, a pivoted scoop adapted to turn on its pivots to discharge its contents into the main dirt-receptacle.

5. A supporting-frame, transporting-wheels, a rotary brush driven from said wheels, a dust-pan to receive the sweepings from said brush, a scraper in said pan to remove the sweepings therefrom, and means connected to said scraper and extending without the dust-pan to operate said scraper.

6. A supporting-frame, transporting-wheels, a rotary brush driven from said wheels, a dust-pan, a scraper therein, a scoop in front of the dust-pan, means for swinging said scoop upward, and means for detachably connecting the scraper to said scoop, whereby when the scoop is swung upward the scraper will be moved forward.

7. A supporting-frame, transporting-wheels, a rotary brush driven from said wheels, a dust-pan, a scraper therein, means for normally holding the scraper at the rear end of the dust-pan, a scoop pivoted in front of the dust-pan and adapted to be swung upward, and means for detachably connecting the scraper to said scoop, whereby when the scoop is swung upward the scraper will be drawn forward.

8. A supporting-frame, transporting-wheels, a rotary brush driven from said wheels, a dust-pan, a movable front to said pan, a scraper in said pan, means for normally holding said scraper at the rear of the dust-pan, means for connecting the scraper to the movable front of the pan, a scoop pivoted to the frame in front of the pan, means for detachably connecting the dust-pan front to the scoop, and means for swinging the scoop upward.

9. A supporting-frame, transporting-wheels, brush-carrying arms, pivotally mounted on the axles of said wheels, a rotary brush journaled in said arms, means for driving the brush from the transporting-wheels, a scale-bar carried by the brush-carrying arms, clamping means to engage said bar to secure it in various positions to adjust the height of the brush, and a dust-pan to receive the sweepings from the brush.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 19th day of April, 1900.

WILLIAM H. H. MILLER.

Witnesses:

OTHO N. MILLER,

FRANK P. CUMMINGS.