(No Model.) 3 Sheets—Sheet 1.

E. L. HAWKS.

STREET SWEEPER.

No. 553,065. Patented Jan. 14, 1896.

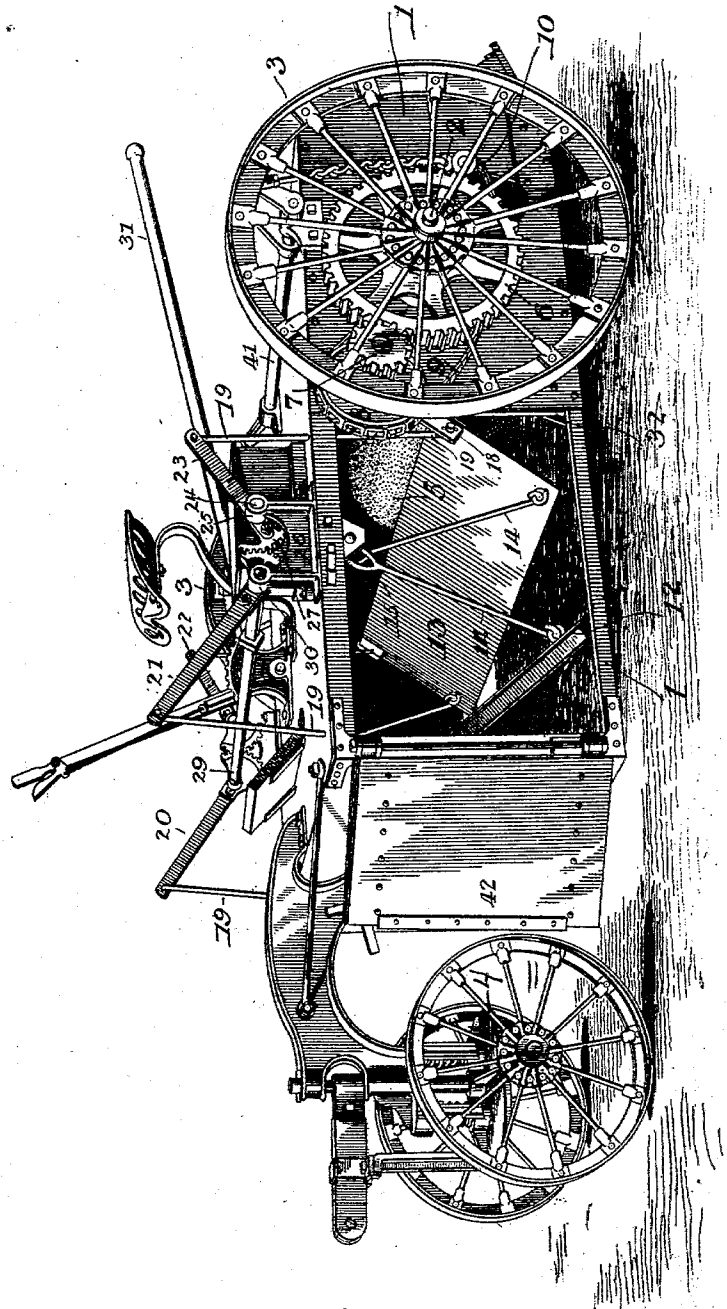

Fig. 1.

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(No Model.) 3 Sheets—Sheet 2.

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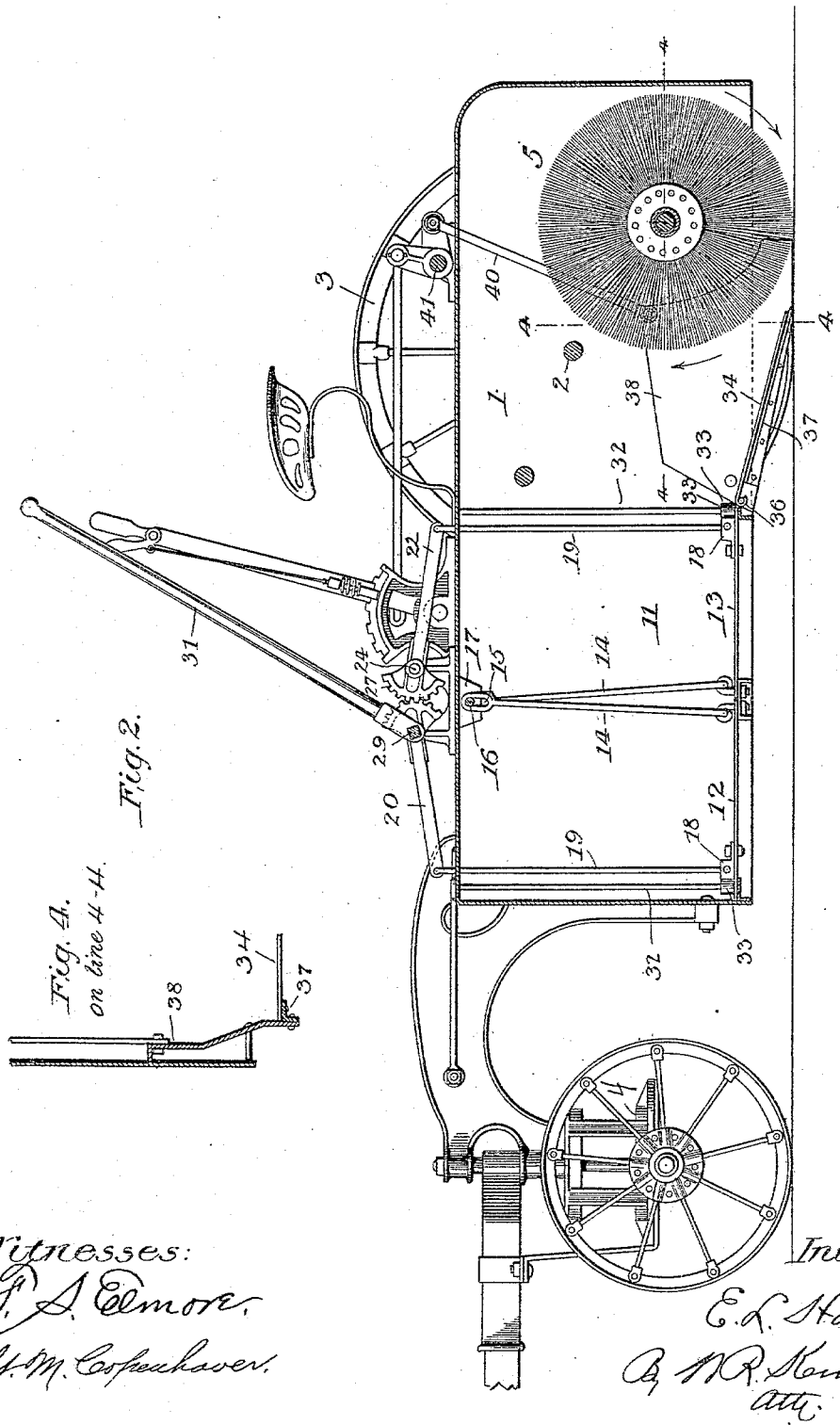

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(No Model.) 3 Sheets—Sheet 3.

E. L. HAWKS.

STREET SWEEPER.

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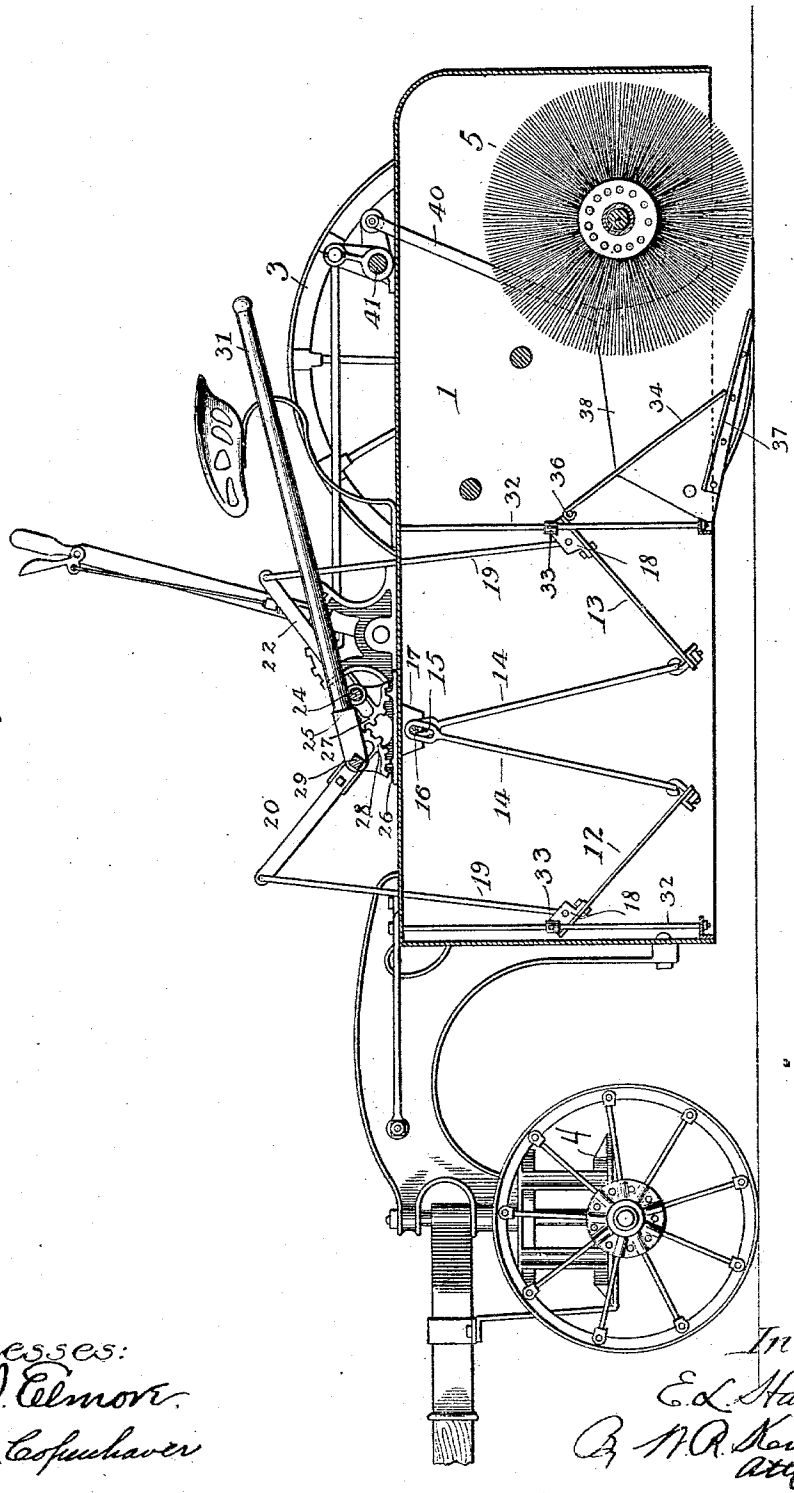

Fig. 3.

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UNITED STATES PATENT OFFICE.

ERASTUS L. HAWKS, OF DAYTON, OHIO, ASSIGNOR TO THE INTERNATIONAL SWEEPING MACHINE COMPANY, OF WEST VIRGINIA.

STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 553,065, dated January 14, 1896.

Application filed March 22, 1895. Serial No. 542,826. (No model.)

To all whom it may concern:

Be it known that I, ERASTUS L. HAWKS, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Sweeping-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has reference to sweeping-machines, and relates more particularly to machines designed for sweeping streets, consisting of a wheeled frame adapted to be drawn over the streets, provided at its rear with a rotary brush and in front of the brush with a receptacle to receive the sweepings.

The present invention consists in constructing the bottom of the dirt-receptacle of sections adapted to be moved apart to dump the contents.

The invention consists also in providing for the shaking or agitation of the sections of the bottom in order to loosen any adhering matters.

The invention also consists in providing for a limited vertical yielding movement of the sections of the bottom, whereby stones or other obstructions may be passed over by the machine without injuring the same.

The invention also consists in the details of construction and combination of parts hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a sweeping-machine having my invention embodied therein. Fig. 2 is a longitudinal central section through the same from front to rear, the bottom of the receptacle being shown as closed. Fig. 3 is a similar view with the bottom open to dump the contents. Fig. 4 is a transverse vertical sectional elevation on the line 4 4 of Fig. 2.

Referring to the drawings, the machine comprises a rectangular casing or frame 1, constructed preferably of sheet metal and closed on all sides except at its rear, where the bottom is open to permit the brush, hereinafter referred to, to act on the surface of the ground. An axle 2 is mounted in bearings on the sides of the casing near its rear end, and on the ends of the axle are journaled two ground-wheels 3. The front end of the casing is supported by a swiveling-truck 4, to which the draft-animals may be attached in any suitable manner. In rear of the axle within the casing is located a horizontal rotary brush 5, which is driven in the direction indicated by the arrow in Fig. 2 by suitable gearing from the ground-wheels. In the present instance one of the wheels is provided with a fixed circular rack 6, engaging a small pinion 7 on the end of a stud extending laterally from the side of the casing. Between the pinion and the casing the stud is provided with a sprocket-wheel 8, which is connected by a chain 9 to a sprocket-wheel 10 on the end of the brush.

By the rotation of the brush as described the dirt and other matters are swept into a receptacle 11, constituting the forward portion of the casing, which receptacle is provided with a suitable bottom to receive and retain the sweepings until a sufficient quantity has accumulated, when the contents of the receptacle may be dumped or discharged.

In order that the dumping of the contents may be effected with convenience and certainty, I form the bottom of the receptacle of two movable sections 12 and 13, consisting of metal plates of a size and shape to jointly close the bottom of the receptacle when they are placed in a horizontal position side by side, as shown in Fig. 2. At their inner adjacent edges at opposite ends these plates are pivoted to the lower ends of links 14, the upper ends of the two links at each side of the machine being formed with slots 15 through which extends a horizontal rod 16 located near the under side of the top of the casing and firmly fixed at its ends in two depending plates 17, securely bolted to the sides of the casing.

From the foregoing construction it will be seen that the inner edges of the two bottom plates are suspended by links from the horizontal rod, the slotted upper ends of the links permitting a limited vertical movement of the plates. The purpose of this is to admit of the passage of the machine over stones or other obstructing matters without causing injuries to the bottom of the receptacle. Near their outer edges at opposite ends the bottom plates are each provided with a bracket 18 bolted or

otherwise firmly secured to the upper side of the plate, and to each bracket is pivoted the lower end of vertical link 19, which link extends upward through the top of the casing, where they are pivoted at their upper ends to the outer ends of four arms 20, 21, 22, and 23. These arms are arranged two at each side of the machine, and at their inner ends the rear arms, 22 and 23, are provided with studs 24, mounted in bearings 25 on the upper ends of brackets or standards 26, rising from the top of the casing at opposite sides of the same. Beyond the bearings the arms are provided with segment-racks 27 which engage similar racks 28 on the ends of the forward arms, 20 and 21, which latter are fixed to the opposite ends of a horizontal rock-shaft 29 mounted in bearings 30 on the two standards before referred to. This shaft is provided with a rearwardly-extending operating-lever 31 fixed thereto, by means of which the shaft may be rocked, which action will rock the two forward arms in vertical planes, and the racks on their inner ends engaging the racks on their rear arms, the four links connected to the arms will be moved up and down vertically, and in this way will elevate or depress the outer edges of the bottom plates to open or close the bottom of the receptacle.

In order that when the outer edges of the plates are raised they will move in truly vertical lines for the purpose of causing the separation of the inner edges to allow the contents of the receptacle to pass to the ground, I provide four fixed vertical guide-rods 32, one at each corner of the receptacle adjacent to the brackets on the bottom plates, and to each of the brackets I pivot on a horizontal transverse axis a vertical sleeve or collar 33, which sleeves encircle and slide upon the guide-rods. As a result of this arrangement, when the links connected to the outer edges of the bottom plates are raised the brackets to which they are pivoted will be caused to move in a truly vertical direction on the guide-rods, and as the edges of the two plates are carried upward the plates will assume inclined positions, as indicated in Fig. 3, their inner edges at the same time separating with a swinging movement on the upper ends of the suspending-links 14 as an axis. The inclination of the plates will cause the contents of the receptacle to quickly fall to the ground, and a quick vibrating movement being given to the operating-lever the plates will be correspondingly vibrated or shaken and any adhering dirt or matters will be loosened. On the release of the lever the weight of the plates will cause them and their connections to resume their former positions, closing the bottom of the receptacle.

To prevent the escape of any matters between the receptacle and the brush, I provide an intermediate apron 34 in the form of a rectangular metal plate, the rear edge of which is arranged beneath the brush, from which point the apron extends forward and upward at a slight inclination to the rear bottom plate, 13, to the edge of which the apron is pivoted on a horizontal transverse axis 36. By thus connecting the front edge of the apron with the rear edge of the bottom plate the apron will be raised to an inclined position when the plate is raised to dump the contents of the receptacle, so that any dirt or other matters on the apron will be caused to pass to the ground. Owing to this connection of the apron with the plate the shaking or vibrating of the former will cause a corresponding shaking of the apron, which will serve to effectually loosen any adhering mud or dirt. The rear edge of the apron is sustained at its opposite ends on two inwardly-extending flanges 37, projecting from the lower edges of two guards or shields 38, located at the sides of the casing at the outer ends of the brush. These guards are formed so that they extend in the path of the brush and compress its active face and also close the space between the ends of the brush and the casing, thereby preventing any dirt from escaping around the brush to the outside. These guards may be fixed to the sides of the casing or sustained in any other suitable manner, but in the present instance I have shown them as being suspended by links 40 from the two crank-arms connected to a horizontal rock-shaft 41.

As the guards and their connections constitute no part of the present invention, it is sufficient to refer to them incidentally only as to their function in giving support to the rear edge of the apron.

To provide for access to the interior of the receptacle from the side, I construct one side of the same in the form of a door 42, consisting of two hinged members, one of which is connected to the side of the casing at its front on a vertical axis. When the receptacle is to be closed the two members of the door are extended in line at the side of the same, in which position they may be locked by any suitable means. When the receptacle is to be opened, in order to gain access to its interior for the purpose of repairs or for other purposes the doors are swung outward on their vertical axes and folded one upon the other, as shown in Fig. 1.

Having thus described my invention, I claim—

1. In a street sweeping machine the combination with the frame, of the receptacle for the sweepings comprising two plates or members, suitable devices for suspending the inner edges of the plates from above and means for elevating and depressing their outer edges, whereby the inner edges of the plates will separate and permit the discharge of the contents of the receptacle.

2. In a street sweeping machine the combination with the frame, of the dirt receptacle provided with a bottom comprising two plates, links jointed at their upper ends to the frame and at their lower ends to the inner edges of

the plates, links pivoted at their lower ends to the outer edges of the plates, rocking arms mounted on the frame and connected to the upper edges of the links last named, and means for rocking the arms.

3. In a street sweeping machine the combination with the frame of a dirt receptacle terminating adjacent to the surface of the ground and provided with a bottom comprising two plates, suspending devices connected at their upper ends to the frame and at their lower ends to the inner edges of the plates and constructed to yield vertically to a limited extent, and means for elevating and depressing the outer edges of the plates.

4. In a street sweeping machine the combination with the frame of a dirt receptacle provided with a bottom comprising two plates, links pivoted at their lower ends to the inner edges of the plates and provided at their upper ends with slots, a fixed supporting bar attached to the frame extending through the slots in the links and means for elevating the outer edges of the plates.

5. In a street sweeping machine the combination of the frame, the dirt receptacle provided with a bottom comprising two plates, means for supporting the inner edges of the plates, vertical links pivoted at their lower ends to the outer edges of the plates, rocking arms mounted on the frame and connected at their outer ends to the upper ends of the links, intermeshing segment racks on the inner ends of the arms, a rock-shaft sustained by the frame for moving the arms and means for rocking the shaft.

6. In a street sweeping machine the combination with the frame of the horizontal rotary brush at the rear thereof, the dirt receptacle at the front provided with a bottom comprising two plates, means for elevating and depressing the outer edges of the plates, supports for the inner edges of the plates and a substantially horizontal apron pivoted at its front edge to the rear edge of the rear bottom plate and sustained at its rear by the frame.

7. In a street sweeping machine the combination with the frame, of the dirt receptacle provided with a bottom comprising two plates or members, supports for the inner edges of said plates, vertical guides at the outer corners of the plates, slides mounted to move on the guides, and connected to the plates and means for elevating and depressing the slides; whereby the outer edges of the plates will be caused to move in a truly vertical direction.

8. In a street sweeping machine the combination with the frame, of the dirt receptacle provided with a bottom comprising two plates, supports for the inner edges of said plates, fixed vertical guide rods at the outer corners of the plates, brackets fixed to the plates, sleeves encircling the guide rods and pivoted to the brackets, vertical links pivoted at their lower ends to the brackets and devices connected to the upper ends of the links for elevating and depressing the same.

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

ERASTUS L. HAWKS.

Witnesses:
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