

(No Model.)

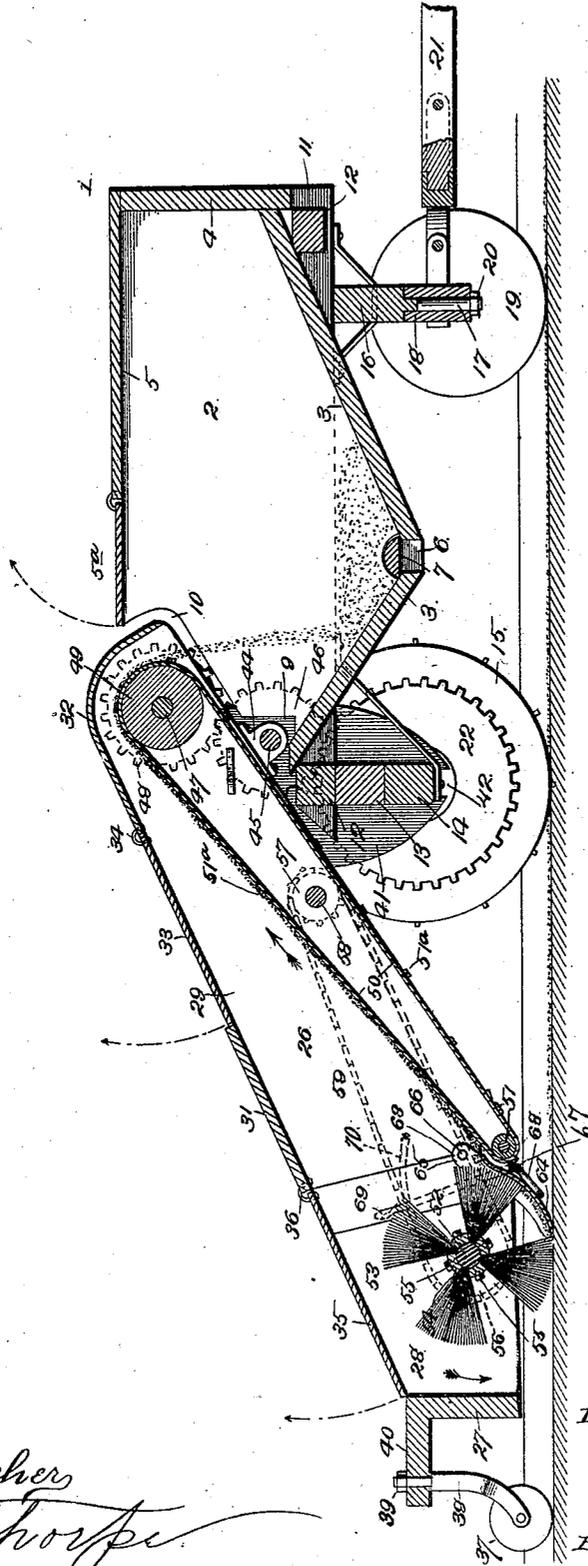
2 Sheets—Sheet 1.

T. J. ROBERTSON. STREET SWEEPER.

No. 554,732.

Patented Feb. 18, 1896.

Fig. 1.



Witnesses:

F. G. Fischer
W. J. Thorpe

Inventor:

T. J. Robertson

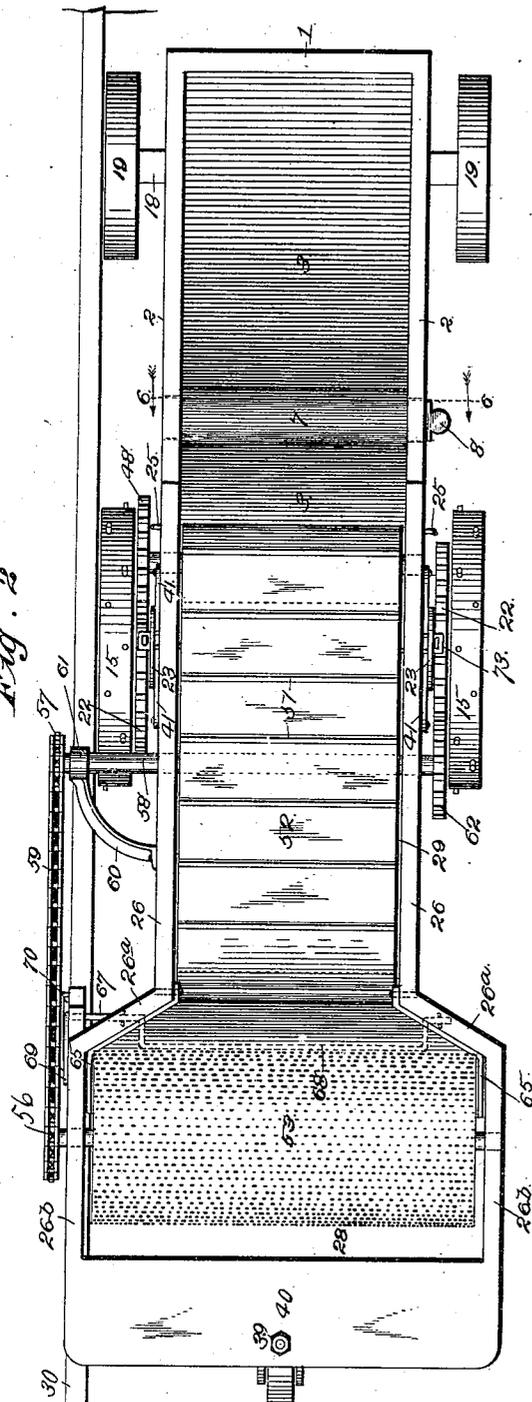
By *Higdon & Higdon*
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Patented Feb. 18, 1896.

Fig. 2



Witnesses:

H. G. Fisher
W. H. Smith

Fig. 6



Fig. 5

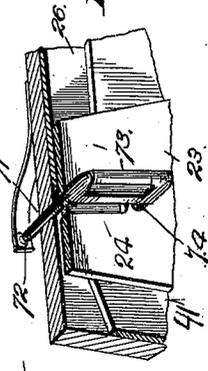


Fig. 4

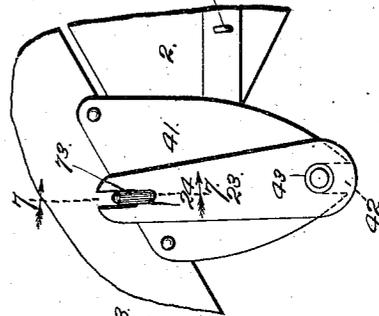


Fig. 7

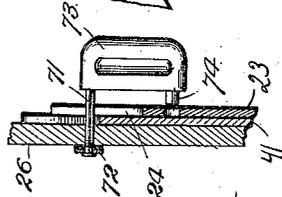
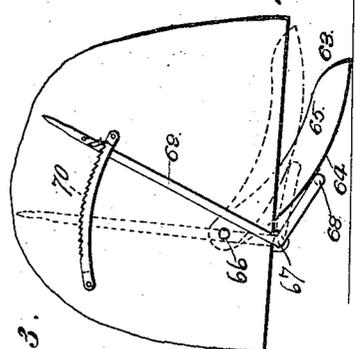


Fig. 3



Inventor:

T. J. Robertson

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UNITED STATES PATENT OFFICE.

THOMAS J. ROBERTSON, OF GOLDEN, MISSOURI.

STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 554,732, dated February 18, 1896.

Application filed May 8, 1895. Serial No. 548,569. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. ROBERTSON, of Golden, Barry county, Missouri, have invented certain new and useful Improvements in Street-Sweeping Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to street-sweeping machines, and my object is to produce a machine which will automatically gather up dust and dirt from the street and deposit it in a suitable receptacle forming a part of the machine.

A further object is to provide a street-sweeping machine which is entirely automatic and positive and reliable in its action, and is strong and durable and comparatively inexpensive of construction.

With these objects in view the invention consists in certain novel and peculiar features of construction and combinations of parts, as will be hereinafter described and claimed.

In order that the invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 represents a vertical longitudinal section of a street-sweeping and dirt-removing machine embodying my invention. Fig. 2 is a top plan view of the same, with the upper portion of the framework removed to disclose more clearly the internal construction. Fig. 3 is a side view of a part of the machine, and also shows a pivoted dirt-receiver and mechanism for raising the same or permitting it to descend. Fig. 4 is a view in side elevation of parts of the casing proper, of the sweeper and of the dirt-receptacle at their junction-point. Fig. 5 is a sectional perspective view, showing the device or mechanism which locks the sweeper-casing and the dirt-receptacle together. Fig. 6 is a cross-sectional view on the line 6 6 of Fig. 2. Fig. 7 is a vertical section, enlarged, taken on the line 7 7 of Fig. 4.

In the said drawings, 1 designates a dirt-receptacle, which is preferably of rectangular shape in plan view, and comprises the sides 2, the approximately V-shaped bottom 3, the front end 4, and the top 5, which extends rear-

wardly from the front end to a point about vertically above the apex of the V-shaped bottom. At the apex of the bottom it is provided with a transverse slot 6, which is normally closed by a slide-valve 7, which is approximately semicircular in cross-section and has its rounded surface presented upwardly that it may be easily withdrawn from position by grasping the handle 8 at its end when it is desired to discharge the collected dirt from the receptacle. The rear end of said receptacle is open, and the side walls at such end are cut away to form approximately V-shaped notches 9 and 10. The object of these notches will hereinafter appear. The receptacle just described is mounted upon a framework comprising longitudinal bars 11 and cross-bars 12, and the cross-bar at the rear end is mounted upon the bolster 13, secured upon the axle 14 of the drive-wheels 15 in the usual or any preferred manner. The bolster 16, secured to the under side of said frame near its front end, is provided with a depending stem 17. Said stem projects as a king-bolt through the center of the axle 18 of a pair of wheels 19 and is secured in operative position by the clamping-nut 20.

Operatively connected to the axle in the manner shown, or in any other suitable or preferred manner, is a tongue 21, to which the draft-animals may be attached. Mounted upon the axle in such manner as to turn with the wheels 15, or secured directly to said wheels, are the drive cog-wheels 22, and mounted pivotally at their lower ends upon said axle adjacent to the inner faces of said cog-wheels are the link-plates 23, which are provided with longitudinal slots 24 in their upper ends, and projecting outwardly from the sides of said receptacle at a suitable point are the upwardly-disposed hooks 25, the object of which will be hereinafter referred to.

The sweeper-frame proper comprises the vertical side portions 26, which in distance apart correspond to the width of the dirt-receptacle hereinbefore described. At a suitable point said sides diverge outwardly, as shown at 26^a, and then continue rearwardly and parallel with each other, as shown at 26^b, and are connected at their rear ends by the

end wall 27. The distance between the inner or opposing faces of the portions 26^b of the sides slightly exceeds the distance between the external or outer faces of the drive-wheels, so that the sweeper-framework comprises, essentially, a wide chamber 28 and a passage 29 communicating therewith and with the dirt-receptacle. This construction is provided so that the lower margins of the side portions 26^b, which extend approximately in a horizontal plane, may overhang the curbing at the side of the street, as shown at 30. The lower margin of the side portions 26 extend upwardly and forwardly approximately in the plane of and contiguous to the lower side or bottom of the notches 10, as shown clearly in Fig. 1. The side portions 26 are connected at their rear ends by the top portion 31 and at their front and upper ends by the top portion 32, which is segmental in cross-section and forms practically a hood, which causes the street-sweepings to properly enter the dirt-receptacle by way of its open rear end. Between the top portions 31 and 32 the sides are connected by the door 33, which is hinged as shown at 34, or otherwise, to the hood 32. The chamber 28 is also normally closed by a door 35, which is hinged as shown at 36, or in any other suitable manner, to the top portion 31. The portions 31, 32, 33 and 35 form practically a top for the sweeper-casing proper.

The rear end of the sweeper is supported upon a caster 37, the stem 38 of which is swiveled and secured by a nut 39 in the horizontal portion 40 projecting rearwardly from the upper edge of the wall 27 of the sweeper-casing, while at its opposite end it is supported by means of a pair of depending rigid plates 41, said plates being provided with vertical notches 42 in their lower ends, which embrace cylindrical portions 43 of the axle 14. Said plates 41, in operative position, fit snugly between the links 23 of the dirt-receptacle.

Journalled in a pair of bearing-brackets 44, depending from the lower edge of the portion 26 of the sides of the sweeper-casing, which bearing-brackets fit pretty snugly in the notches 9, hereinbefore referred to, of the dirt-receptacle, is the transversely-extending shaft 45, and mounted upon one end of the same is a cog-wheel 46, of diameter suitably less than the cog-wheel 22, with which it meshes. A second transverse shaft 47 is journalled near its opposite ends in the side portions 26 of the sweeper-casing and axially of the segmental hood 32, and mounted rigidly upon one end of said shaft is a cog-wheel 48, which engages the cog-wheel 46, and upon said shaft internally of the casing is the roller 49, which is connected by an endless elevator-apron 50 with a small roller 51, mounted in said casing at the rear lower corner of the passage 29 formed by the sides 26. Said apron is provided with the usual transverse cleats or strips 51^a to more positively and ef-

fectively convey the dirt from the point of supply to the point of discharge. At a suitable point rearward of the roller 51 the shaft 52 is journalled in the side portions 26^b, and mounted rigidly upon said shaft is the rotatable brush or sweeper 53. This brush I preferably construct of steel wires, which are clamped in position by means of quarter-sections, which together form practically the cylindrical sleeve or collar 54, embracing the shaft 52. Said quarter-sections are preferably clamped in place by means of the set-screws 55. It is to be understood, however, that I do not wish to confine myself to the particular construction of brush shown, or to the particular manner of securing it in position, as any of the ordinary street-sweeping brushes may be used successfully in lieu thereof.

Mounted upon one end of the shaft 52 is a sprocket-wheel 56, and connecting said sprocket-wheel with a small sprocket-wheel 57, mounted upon a shaft 58 journalled in the side portions 26, is an endless sprocket-chain 59. As the shaft 58 necessarily projects some distance beyond one side of the sweeper-casing, I preferably secure thereto a bracket-casting 60, in the free end of which, as at 61, the shaft 58 also finds a bearing. Mounted rigidly upon the opposite end of said shaft is a cog-wheel 62, which meshes with one of the draft cog-wheels 22 of the dirt-receptacle, so that it is evident as the said draft cog-wheels 22 rotate that they cause the brush to rotate and the apron or elevator to travel in the direction indicated by their respective or contiguous arrows. (See Fig. 1.) In order, however, that the dirt swept up by the brush may be properly deposited upon the elevator, I interpose between said brush and the lower end of the elevator the receiver 63. Said receiver preferably comprises the segmental bottom 64 and the upwardly-projecting side flanges 65, and it is mounted pivotally at its upper end, as shown at 66, a suitable distance above the lower end of the elevator. The lower or free end of said dirt-receiver normally drags along the surface of the street so that it may respond to any irregularities in the surface thereof and always maintain its proper position relative to the brush. It is obvious that said receiver must be pivoted; otherwise it would prevent the machine being backed in case of necessity.

In order that the machine may be backed when desirable or necessary, I journal a rock-shaft 67 to the lower edges of the sides between the roller 51 and the receiver 63, in such manner that the crank 68 of said shaft shall project rearwardly and against the under side of said receiver, and secure rigidly upon one end of the shaft the lower end of the lever 69, which is guided in its swinging movement in the longitudinal slot 70, formed by securing a bracket to the sweeper-casing. Devices,

(not shown,) such as a pawl and ratchet of the ordinary construction, may be employed to lock said lever at any required point in its adjustment. By properly operating said lever it is obvious that the rock-shaft causes the free end of the pivoted receiver to rise above the surface of the street, so that the machine may be backed as required. Owing to the construction and relation of the sweeper-casing and the dirt-receptacle to each other it is obvious that either one or the other may rise or fall, to a limited extent, in passing over rough streets, without affecting or interrupting the operation of the machine. In order, however, to prevent any possible chance of dislocation occurring between the sweeper-casing and the said receptacle, I preferably employ a pair of locking devices for securing them together, one of them being located at each side of the machine. A description of one of said devices will suffice for both.

The device is constructed as follows: A pin 71 is mounted to rock and to slide in one side portion 26 of the sweeper-casing. (See Fig. 5.) At its inner end said pin is swiveled to the free end of a spring 72, which is secured at its opposite end internally to said side portion and tends always to pull said pin inwardly. The outer end of said pin registers with and, when the sweeper and dirt-receptacle are coupled together, projects through the slot 24 of the link 23, hereinbefore referred to, and carries a grip or handle 73 upon its outer end, and projecting inwardly from the opposite end of said grip or handle 73 is a pin 74, which engages, when in operative position, a hole or aperture in the link 23. As long as the locking devices maintain the position described it is obvious that the sweeper-casing and the dirt-receptacle cannot become disengaged. When, however, it is desired to disconnect them, the grip or handle 73 is grasped and pulled outwardly against the resistance of the spring 72, until the pin 74 is entirely disengaged from said hole or aperture. It is then swung slightly to one side, so that it shall not register with the hole or aperture in the link, that the sweeper-casing and the dirt-receptacle may be free to be disconnected from each other. This is accomplished by raising the upper end of the sweeper-casing sufficiently high to disengage the notched plates 41 from the axle and then moving the dirt-receptacle forward from beneath said elevated end of the sweeper-frame. To prevent the pivot-links 23 of the receptacle swinging downward and striking the ground they are moved pivotally forward until they are supported upon the hooks 25, projecting from the sides of the said dirt-receptacle. To reconnect the sweeper-casing and said dirt-receptacle the operation just described is reversed. The hinged doors 33 and 35 serve as a means of access to the interior of the sweeper-cas-

ing, while the hinged door 5^a, interposed between the top 5 of the dirt-receptacle and the contiguous end of the sweeper-frame, serves as a means of access to the interior of the dirt-receptacle when desirable or necessary.

In operation it is apparent, owing to the fact that the brush may travel against the vertical face of the curbing, that all of the dirt in the street may be acted upon by the sweeper and caused to pass into and be discharged from the receiver upon the upwardly-traveling elevator-apron, which discharges it in a continuous stream into the dirt-receptacle 2, as shown clearly in Fig. 1.

From the above description it will be apparent that I have produced a sweeping-machine which can be relied upon to effectively gather up all of the dirt and practically all of the dust from the streets, of comparatively simple and inexpensive construction and having its parts all so disposed that they are easily accessible in case repairs are necessary.

While I have illustrated and described a particular construction of street-sweeper for the purpose of making clear my preferred mode of construction and arrangement of parts, it is to be understood that such changes as come within the skill of a mechanic and the substitution of equivalents will not be a departure from the spirit and scope or sacrifice any of the advantages of my invention.

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

1. A street-sweeping machine, comprising a sweeper-frame proper, and a receptacle connected thereto, said sweeper-frame and receptacle being mounted upon wheels, an endless elevator within the sweeper-casing and having its upper or discharge end communicating with said receptacle, a rotating brush contiguous to the lower or receiving end of said elevator, a pivoted dirt-receiver interposed between and underlapping said rotating brush and overlapping the lower end of said elevator, a rock-shaft journaled at the underside of the sweeper-frame, and provided with a crank bearing against the under side of said dirt-receiver, and with a lever at one end, whereby said rock-shaft is operated to raise said receiver or to permit it to descend, substantially as set forth.

2. In a street-sweeping machine, the combination of a wheel-supported dirt-receptacle, a framework containing dirt sweeping, receiving and elevating devices, a pair of plates depending from the latter framework and slotted or notched to loosely embrace the cylindrical portions of the rear axle of the dirt-receptacle, a swiveled caster-wheel supporting the rear end of the dirt sweeping, receiving and elevating framework, a pair of links pivotally mounted on the rear axle of the dirt-receptacle and notched or apertured at their upper ends, and locking devices for se-

5 curesly connecting said sweeper-casing and said dirt-receptacle, consisting of spring-actuated and swiveled pins projecting through the sweeper-casing and through the slots or notches in the upper end of the contiguous links, handles or grips secured at their upper ends to the outer ends of said pins, and pins projecting from the opposite ends of said handles or grips and engaging the holes or

apertures in said contiguous links when the sweeper-frame and the dirt-receptacle are connected together, substantially as set forth. 10

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

THOMAS J. ROBERTSON.

Witnesses:

WILLIAM McCULLOCH,

R. G. SALYER.