(No Model.) 3 Sheets—Sheet 1.

G. FOCHT, Jr.

STREET SWEEPER.

No. 464,353. Patented Dec. 1, 1891.

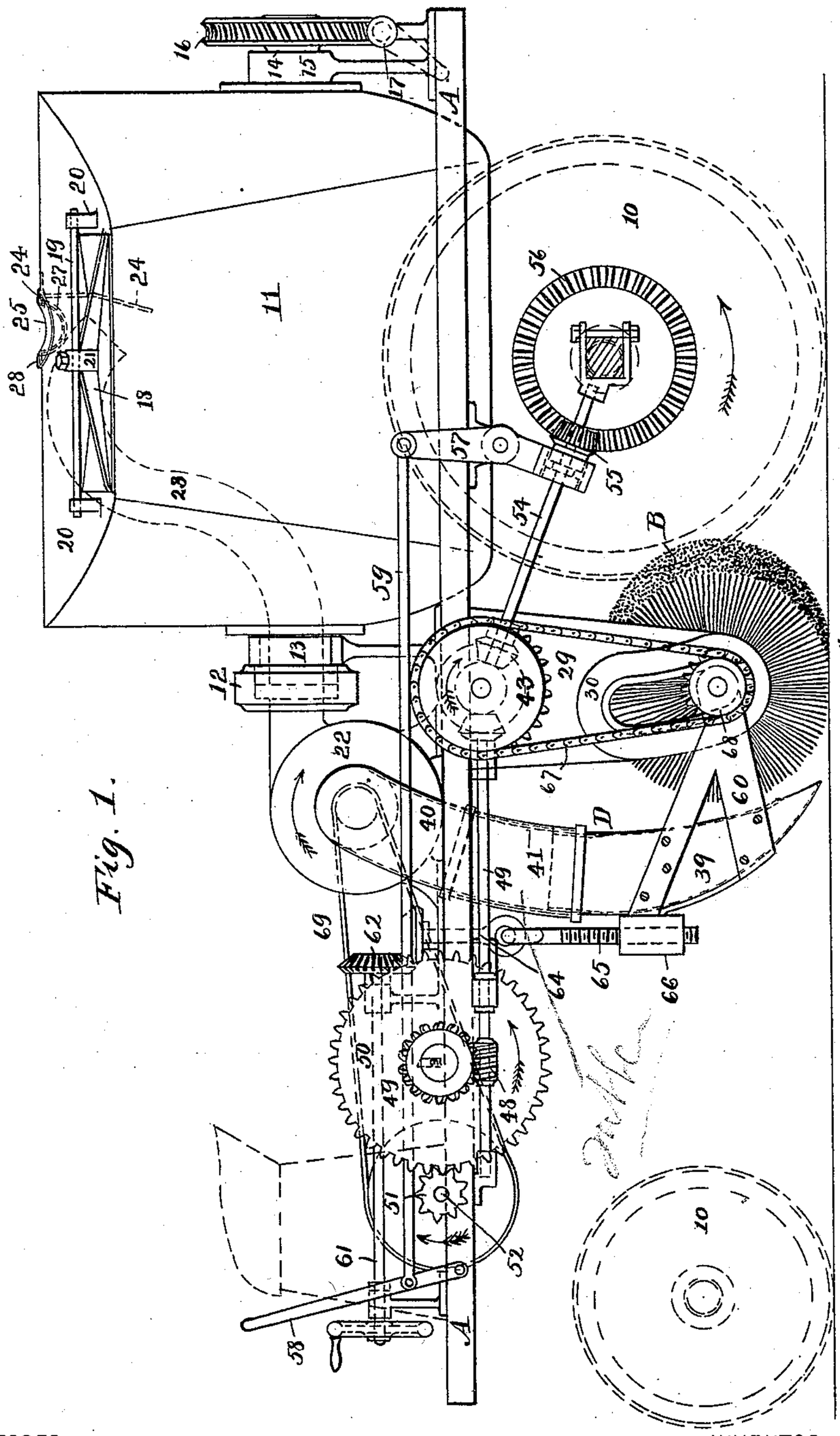

Fig. 1.

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Fig. 2.

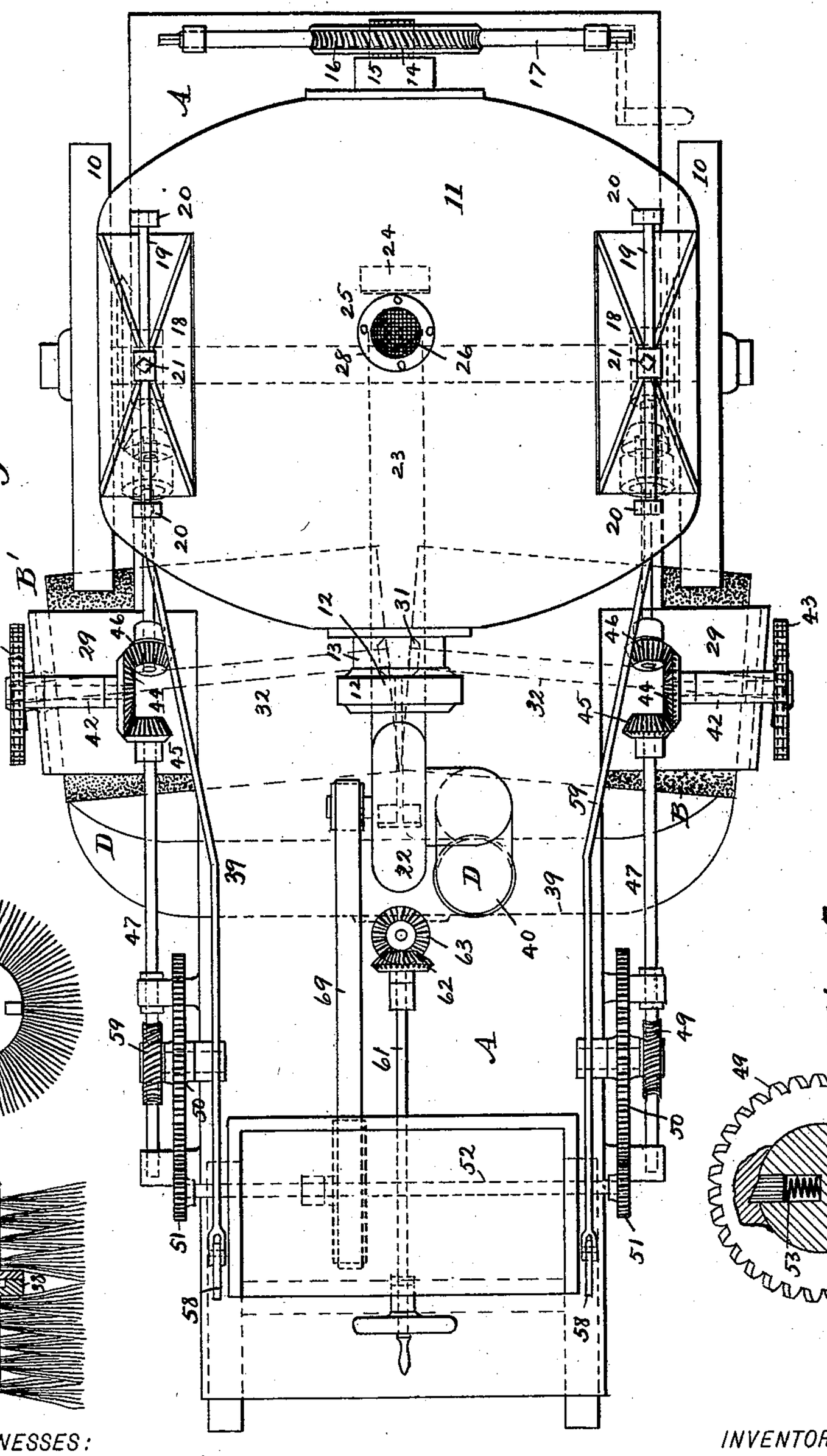


Fig. 4.

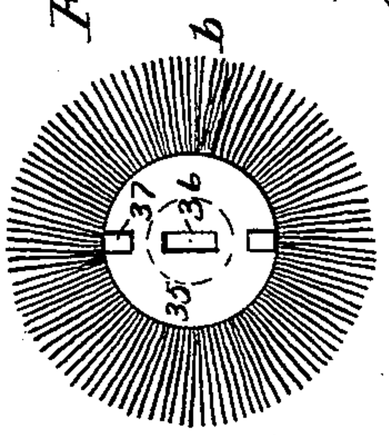


Fig. 3.

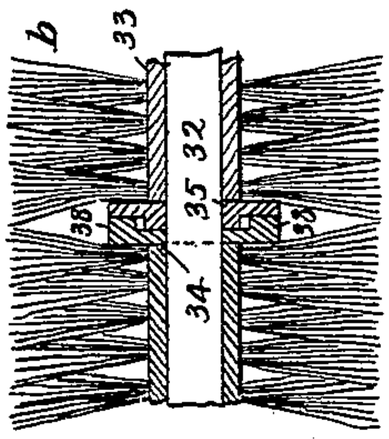
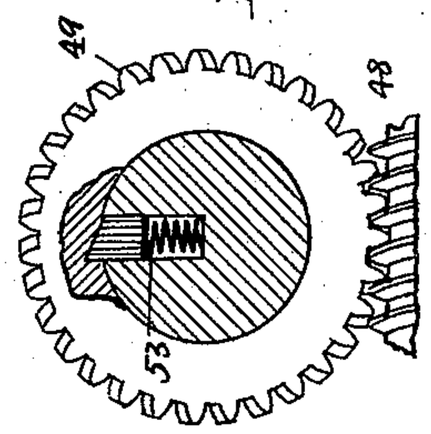


Fig. 5.



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No. 464,353. Patented Dec. 1, 1891.

Fig. 6

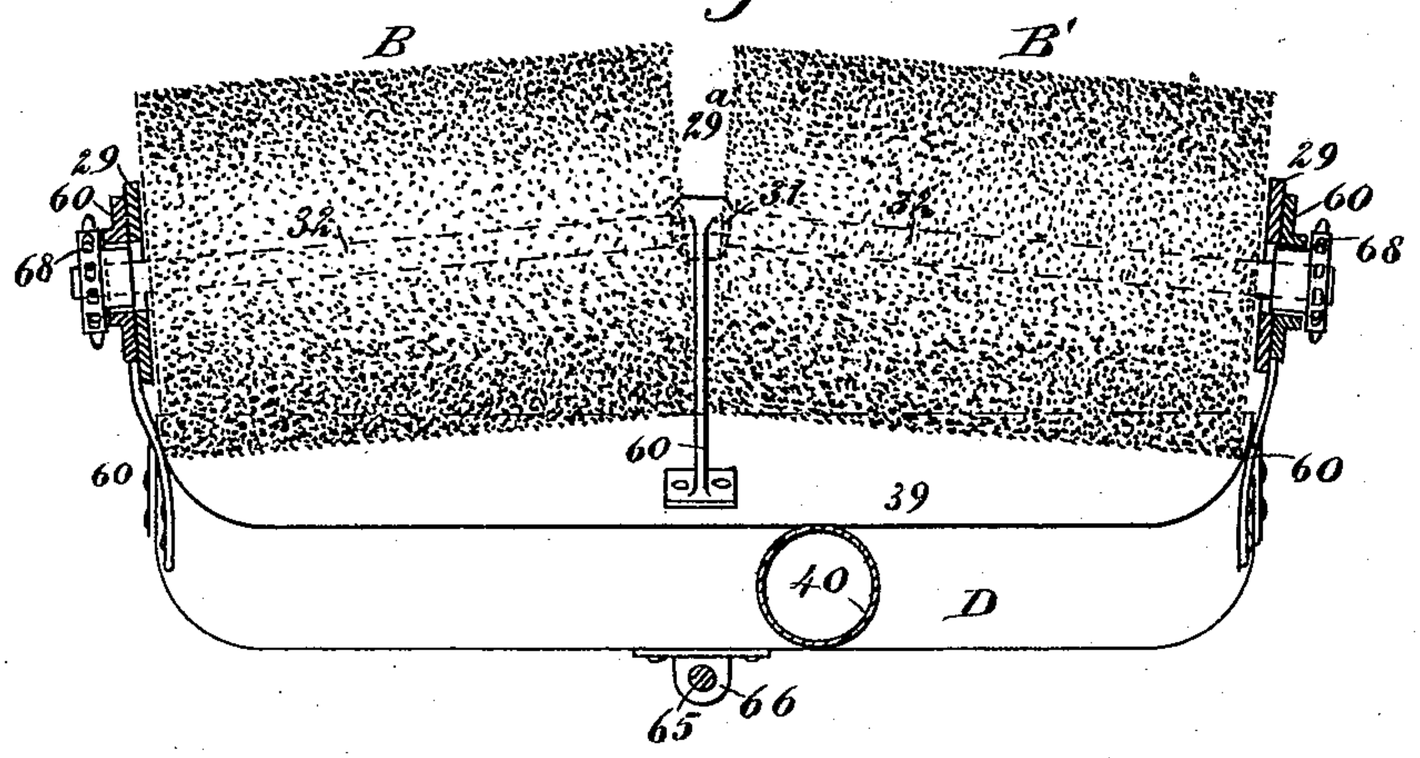


Fig. 8.

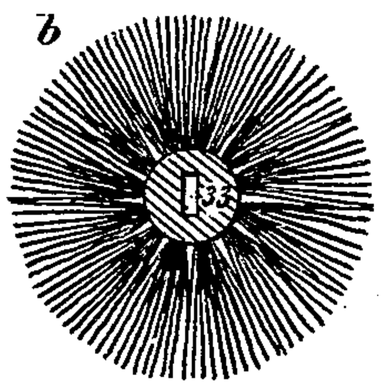


Fig. 7.

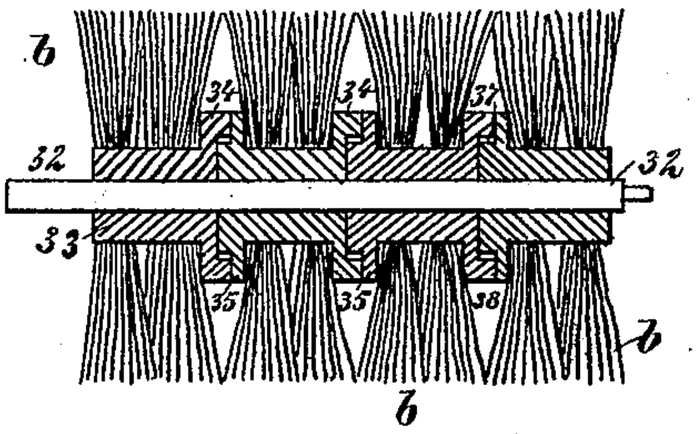


Fig. 9.

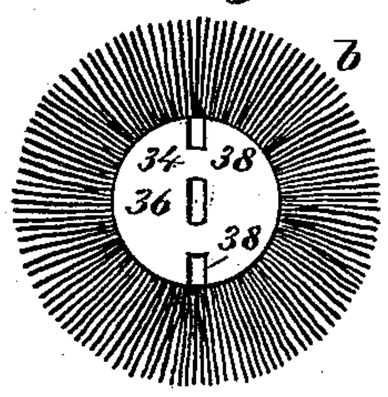
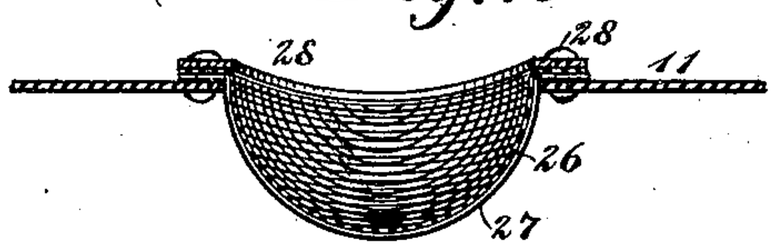


Fig. 10



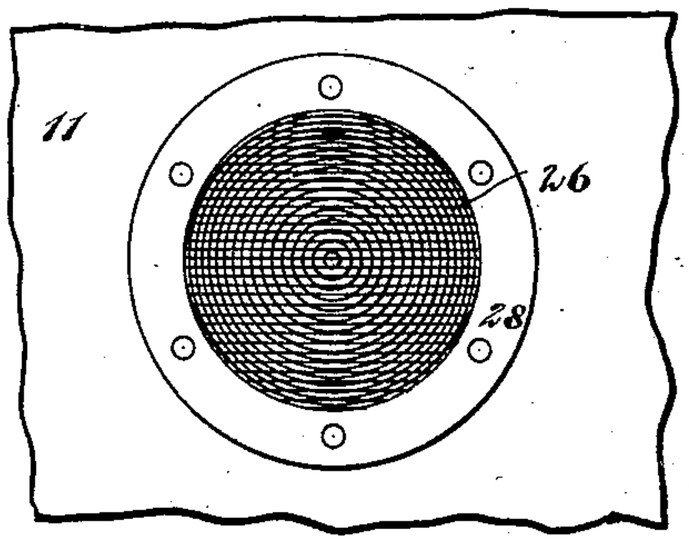


Fig. 11.

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UNITED STATES PATENT OFFICE.

GEORGE FOCHT, JR., OF HOBOKEN, NEW JERSEY.

STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 464,353, dated December 1, 1891.

Application filed February 4, 1891. Serial No. 380,166. (No model.)

To all whom it may concern:

Be it known that I, GEORGE FOCHT, Jr., of Hoboken, in the county of Hudson and State of New Jersey, have invented a new and Improved Street-Sweeper, of which the following is a full, clear, and exact description.

My invention relates to an improved street-sweeper, and has for its object to provide a simple and effective machine which will cleanly gather up the loose particles over which it passes and automatically deliver them to a storage-receptacle, from which they may be dumped when desired.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the machine. Fig. 2 is a plan view thereof. Fig. 3 is a partial longitudinal section through one of the brushes. Fig. 4 is an end view of one of the brush-sections, and Fig. 5 is a detail view illustrating one of the shifting devices. Fig. 6 is a plan view of the brushes and dust-pan, the hangers for the brush-shafts, and the connection between said shafts and the dust-pan being in section. Fig. 7 is a vertical section through a portion of one brush, its shaft being in elevation. Fig. 8 is an end view of one of the brush-sections, and Fig. 9 is a view of the opposite end of the said brush-section. Fig. 10 is a sectional view through the dust-guard of the dirt-storage receptacle, and Fig. 11 is a plan view thereof.

The frame A of the machine consists, preferably, of an essentially rectangular platform wider at the rear than at the forward end. The platform is supported, usually, by four wheels 10, of which the larger rear wheels are utilized as drivers for the dust collecting and discharging mechanism. Upon the rear portion of the frame a storage-receptacle 11 is located, provided at its front and rear sides with trunnions. The forward trunnion 12 is tubular and is journaled in the bearings 13, attached to the platform, and the rear trunnion 14 is solid, being journaled in the bearings 15, also secured to the platform. The platform is preferably provided with an opening, through which the lower portion of the receptacle 11 extends, and the receptacle is dumped by securing upon the rear trunnion 14 a worm-wheel 16, which meshes with a worm upon a shaft 17, journaled transversely at the rear of the machine, said shaft being revolved by a crank or its equivalent.

The receptacle is closed, except at the top at or near its sides, at which points elongated openings are produced, normally closed by covers 18. These covers are removably held in place by rods 19, passed through apertured lugs 20, located upon the receptacle, one at each side of the opening, and smaller lugs 21, located upon the covers, the bars or rods being prevented from slipping by set-screws passed through the cover-lugs. At or near the center of the platform, in front of the receptacle, a fan or blower 22, of any approved construction, is located, and a delivery-tube 23 is carried from the fan-casing through the hollow trunnion of the receptacle into the latter, and is curved upward beneath its top and thence downward over the center of the receptacle, as shown in dotted lines in Fig. 1.

Immediately in front of the inner end of the delivery-tube a deflecting-plate 24 is secured, whereby the particles delivered by the tube are forced to take a downward course after leaving it. An air-vent 25 is made in the top of the receptacle over the tube and between it and the deflecting-plate. The vent is provided with a screen 26, preferably semicircular, which screen extends down into the receptacle and is made of woven wire or equivalent material. The screen is covered upon its inner face with a fabric 27, such as as muslin, so that dust cannot escape from the vent; but the escape of air is not obstructed. The margin of the screen, as well as that of its covering, is secured upon the upper face of the receptacle around the vent by means of a clamping-ring 28.

Hangers 29 are fastened upon the sides of the platform, said hangers being preferably L-shaped or angular, and the upper or horizontal members of the hangers are of sufficient length to extend over and beyond the track of the rear wheels, and the vertical members

have longitudinal slots 30 in their lower ends, as shown in Fig. 1. A sliding box 31 is located in a slotted hanger 29^a, secured to the platform between the hangers 29, and constructed in like manner as the vertical members of the latter. The hanger 29^a, however, is located at a point slightly to the rear of the hanger 29, as is best shown in Figs. 2 and 6. In a bearing or box 31 and the slots of the hangers 29 the shafts 32 of two brushes B B′ are held to revolve, and by reason of the location of the shaft-bearings the brushes stand at an angle to each other, the inclination being in the direction of the rear of the machine.

The brushes are of the circular or cylindrical type and extend over and beyond the track of the rear wheels. The shafts of the brushes are round at their ends only, being rectangular or polygonal in cross-section throughout the remainder of their length. Each brush is made up of a series of removable sections *b*, and said sections consist of a sleeve 33, to which the bristles are secured, and which sleeve fits the flattened portion of the shaft, and disks 34 and 35 at the ends of the sleeve. Each disk is provided with a central opening 36, corresponding to the bore of the sleeve, and one disk has a recess 37 above and below its central opening, while the other is provided with lugs 38, adapted to enter the recesses 37 of the abutting section, as shown in Fig. 3. By means of this construction any sections of the brushes that may become worn may be readily removed and replaced, and all of the sections are tied together and held firmly upon the shafts.

The dust-pan D is constructed with a body-section 39, located in front of the brushes and being made of a length equal to the combined length of the latter, and a tubular stem or shank 40, connected directly with the fan or blower-casing. The body-section of the dust-pan is transversely curved, the concaved side facing the brushes, and the lower portion of this side is open to receive the sweepings from the brushes; otherwise the body is closed except where the shank joins it. The shank is made in two telescopic sections, and the joint is covered by a flexible casing 41, of such material as rubber, leather, or stout canvas. The casing is usually secured to each section of the shank. Thus the body of the dust-pan may be raised or lowered without danger of the dust escaping.

Upon the upper surface of each hanger 29 a short shaft 42 is journaled, having a sprocket-wheel 43 secured to its outer end and a beveled pinion 44 attached to its inner end. Each of the beveled pinions of the shaft 42 mesh with two smaller pinions 45 and 46. The pinion 45, which is nearer the front of the machine, is fast upon a shaft 47, held to revolve in bearings secured to the sides of the frame. The shafts 47 are provided with worms 48, which mesh with worm-wheels 49. Upon the same shafts with the worm-wheels 49 gears 50 are secured, which mesh with pinions 51, located at the extremities of a shaft 52, journaled transversely of the frame near the front thereof. A worm-wheel 49 is keyed to the shaft by inserting a spring-pressed latch 53 in a slot of the shaft and causing the outer end of the latch to enter a recess in the hub of the worm-wheel, as shown in Fig. 5. The upper end of the latch is beveled and likewise the surface of the worm-wheel recess with which it engages.

The pinions 46 are fast upon shafts 54, which extend diagonally downward and rearward, the lower or rear ends of the shafts being preferably journaled in bearings located upon the rear axle of the machine. Upon each shaft 54 a pinion 55 is held to slide; which pinions mesh with gears 56, attached to the rear or drive wheels of the machine, and through the medium of the shafts 54, which are virtually the drive-shafts, motion is communicated to the shafts heretofore described. The pinions 55 are thrown out of gear with the wheels 56 when it is desired to stop the operation of the mechanism of the machine, and this is accomplished through the medium of shifting-levers 57, which are fulcrumed at the sides of the frame and are connected with the hubs of the pinions, as shown in Fig. 1. These shifting-levers are controlled by levers 58, located adjacent to the driver's seat, the hand-levers 58 and their shifting-levers 57 being connected by links 59.

The ends of the body-section of the dust-pan D are connected by plates 60 with the outer ends of the broom-shafts 32, and the central portion of the dust-pan body is connected in like manner with the movable center bearings of the shafts, as shown in dotted lines in Fig. 2. The body of the dust-pan and likewise the brooms are raised and lowered by the manipulation of a horizontal shaft 61, located longitudinally of the frame, preferably at the center, the outer end of which shaft is provided with a hand-wheel or its equivalent, and the inner end with an attached pinion 62, which meshes with a second pinion 63, the latter pinion being secured to the upper end of a short vertical shaft 64, terminating at its lower extremity in an eye, and a screw 65 is linked to the eye of the vertical shaft 64, the threaded end of which screw or bolt passes through a nut 66, located upon the back of the body of the dust-pan at the center thereof. Thus when the shaft 61 is revolved the screw 65 is turned, and, according to the direction in which the shaft is revolved, the nut 66 will travel upward or downward upon the screw, thereby raising or lowering the dust-pan and brushes connected therewith.

The brush-shafts are revolved by chain belts 67, which pass over the sprocket-wheels 43 and sprocket-pinions 68 upon the outer end of the shaft. The fan is revolved by a

belt 69, connecting its pulley with a pulley upon the shaft 52, as shown in Fig. 1.

As the machine is drawn forward in the operation of sweeping, the brushes throw the dirt into the body of the dust-pan, and the sweepings are drawn from the pan by the suction of the fan or blower and forced through the tube 23 into the receptacle 11. When the receptacle has been filled, its covers are removed and the receptacle is dumped in the direction of either side of the machine, as may be required, by the manipulation of the worm-shaft 17. The movements of the operative parts of the machine may be stopped independently by disengaging the shifting pinions 55 from the gears 56 of the rear wheels. When the machine turns a corner, the pivot-wheel naturally moves slightly backward as the opposite wheel advances, and when the pivot-wheel thus moves rearward the worm-wheel 49 upon that side of the machine rides up over the latch 53 and the said worm-wheel will revolve loosely upon its shaft during the backward movement of the machine. Thus the brush at the pivot side of the machine will not revolve, while the brush at the opposite side will be operated in the usual manner, as each brush is driven independently.

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

1. In a street-sweeper, the combination, with a covered receptacle and a fan provided with a tube entering the receptacle, of brushes constructed in interlocking sections and revolving at angles to each other, a dust-pan located in front of the brushes, having direct connection with the fan and open at its lower end, the said dust-pan comprising a body-section facing the brushes and a shank-section connecting the body-section and the fan, a connection between the brushes and the dust-pan, and a lifting mechanism connected with the pan, whereby the brushes and pan are raised and lowered together, substantially as described.

2. In a street-sweeper, the combination, with a covered receptacle and a fan provided with a tube entering the receptacle, of rotary brushes, a dust-pan located in front of the brushes, open at its lower end and comprising a body-section facing the brushes, and a shank-section connecting the body-section and fan, the said shank-section being made in telescopic sections and provided with jackets at the joints, and a connection between the dust-pan and the brush-shafts, an adjusting mechanism connected with the dust-pan, whereby the pan and brushes are raised and lowered together, a dust-guard located in the top of the covered receptacle over the fan-pipe therein, and a deflecting-plate located beneath the dust-guard and in front of the fan-pipe, as and for the purpose set forth.

3. In a street-sweeper, a brush constructed in sections, said sections comprising a sleeve upon which the bristles are secured, and disks at the ends of the sleeves, one disk being provided with oppositely-arranged recesses and the other disk with correspondingly-arranged lugs or projections, as and for the purpose set forth.

4. In a street-sweeper, the combination, with a shaft having a portion thereof polygonal in cross-section, of brush-sections, each comprising a sleeve provided with a polygonal bore to receive the shaft, bristles secured in the sleeves, and disks secured to the ends of the sleeves, each of which disks is provided with a central opening corresponding to the bore of the sleeve, and one disk with oppositely-arranged recesses and the other disk with correspondingly-located lugs, as and for the purpose specified.

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