

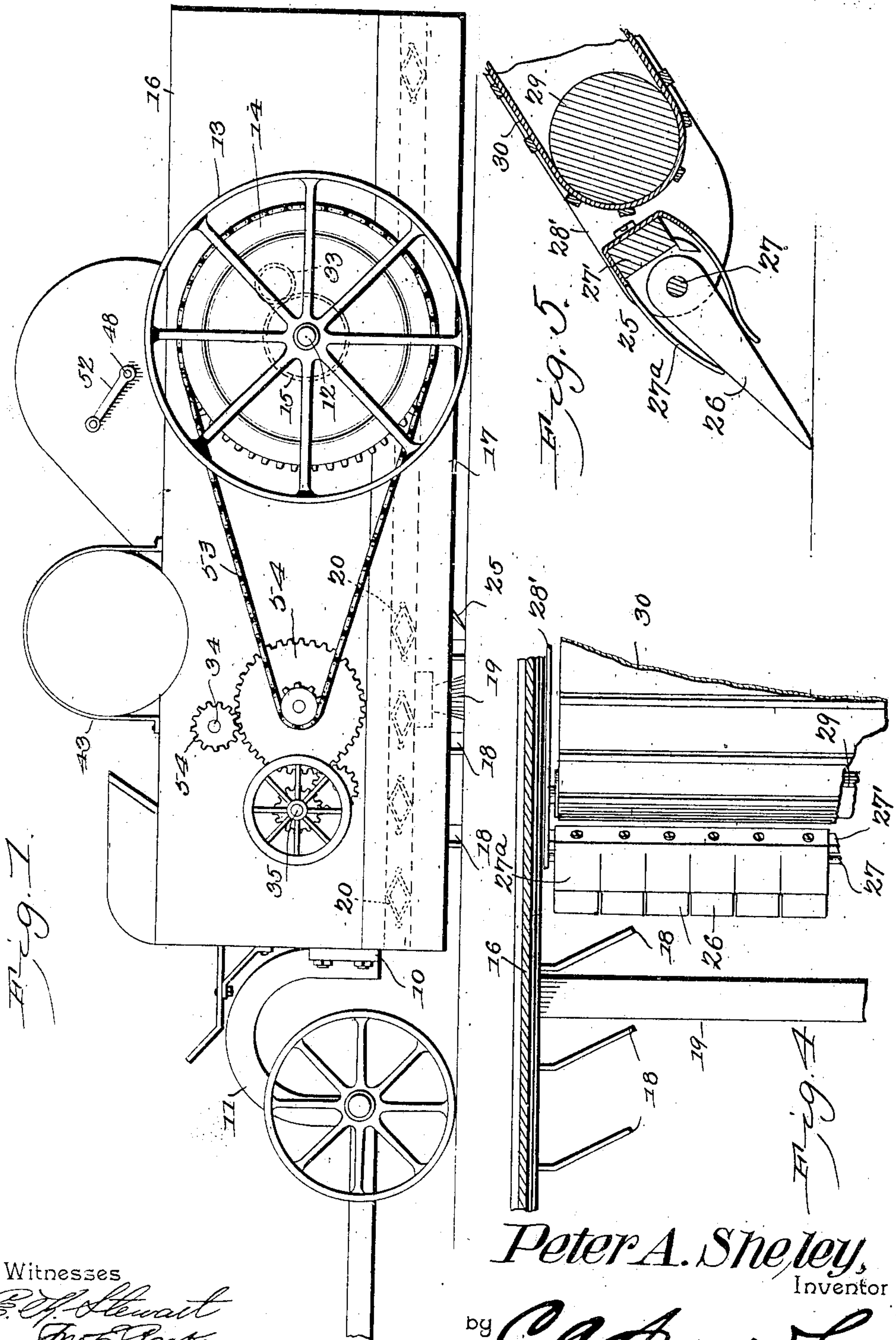
No. 819,178.

PATENTED MAY 1, 1906.

P. A. SHELEY.  
STREET SWEEPER.

APPLICATION FILED OCT. 20, 1904.

2 SHEETS—SHEET 1.



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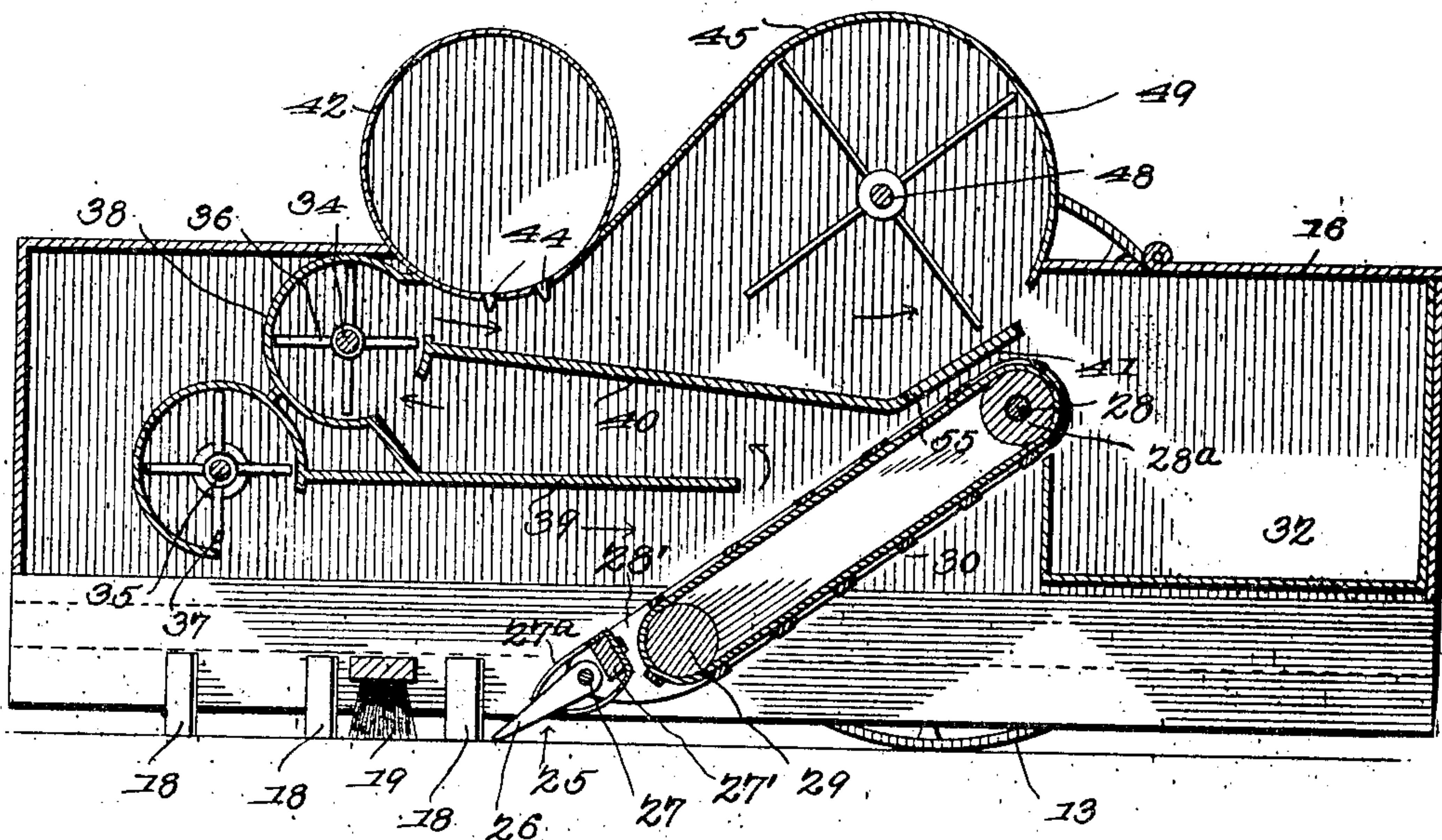
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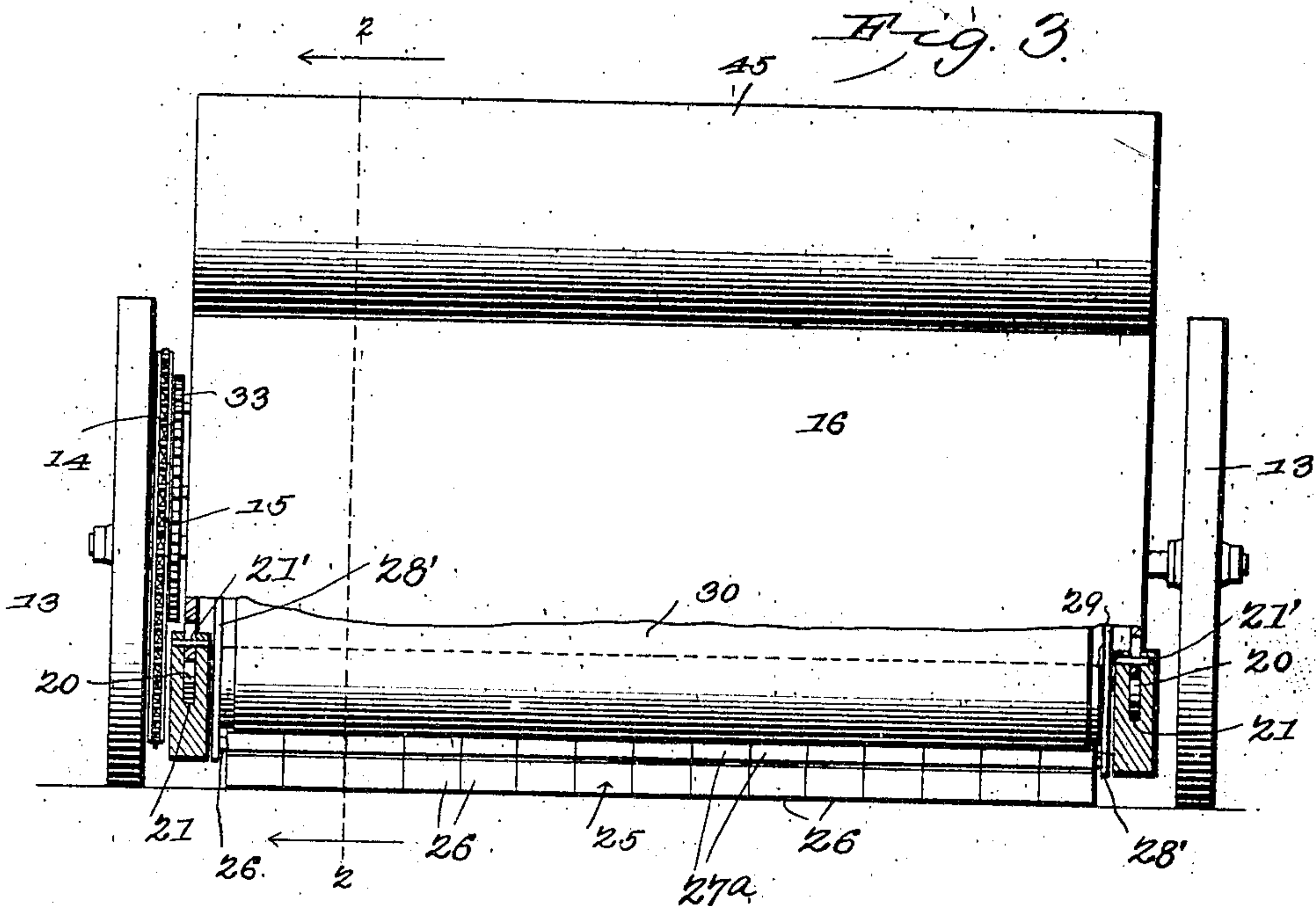
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2 SHEETS—SHEET 2.

*Fig. 2.*



*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

PETER A. SHELEY, OF LOUISVILLE, KENTUCKY.

## STREET-SWEEPER.

No. 819,178.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed October 20, 1904. Serial No. 229,304.

*To all whom it may concern:*

Be it known that I, PETER A. SHELEY, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented a new and useful Street-Sweeper, of which the following is a specification.

This invention relates to street-cleaning machines, and has for its principal object to provide a novel form of machine in which the dust and dirt accumulating on streets and other surfaces may be gathered rapidly and efficiently and deposited in a suitable dirt-receptacle carried by the machine.

A further object of the invention is to provide a dirt-gathering machine in which the dirt and dust are taken up by a traveling conveyor or endless belt from which the lighter particles of dust are removed as the belt travels, the latter delivering stones and other heavier particles to a suitable receptacle.

A still further object of the invention is to provide a dust-gathering device formed of a number of independently-yieldable sections, so arranged as to permit of their freely passing over any immovable obstruction which may be encountered, without injury to the machine.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a side elevation of a street-cleaning machine constructed in accordance with the invention. Fig. 2 is a longitudinal sectional elevation of the same on the line 2 2 of Fig. 3. Fig. 3 is a rear elevation of the machine, parts being broken away in order to more clearly illustrate the construction. Fig. 4 is a sectional plan view of a portion of the machine. Fig. 5 is a detail sectional view of the lower portion of the dust-gathering device.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The working parts of the apparatus are mounted on a wheeled frame 10, that prefer-

ably is formed of iron or steel, the front of the frame being reduced in width and having a gooseneck 11, under which the front wheels may in part pass when the machine is being turned. On the rigid axle 12 is loosely mounted a pair of wheels 13 of comparatively large diameter, and to one of them is secured a large sprocket-wheel 14 and a gear-wheel 15, from which movement is transmitted to the various working parts of the mechanism.

The front, sides, and rear of the machine are inclosed by a casing 16, the lower portion 17 of which extends down close to the surface of the ground in order to prevent as far as possible the escape of dust. Projecting inward from the inner faces of the side portions 17 of the casings are scrapers 18, which act to direct the dirt inward toward the center of the machine. These scrapers are formed of any suitable material, and when acting on smooth-surfaced streets—such, for instance, as those formed of asphalt—they will act as scrapers. Extending transversely across the casing at a point adjacent to the scrapers is a brush 19, which may be formed of any suitable material and preferably is held down in contact with the surface to be cleaned by means of suitable springs. In this connection it is to be noted that the supporting-bars for the brushes and scrapers form the lower part of the casing and are connected to the upper part thereof by suitable springs 20 of any desired character, these springs being preferably seated in recesses 21, formed in the side bars of the frame, as illustrated in Fig. 3. These recesses extend for the full length of the frame members and receive the lower edges of the upper portion of the casing, so as to form a telescopic joint through which little or no dust can escape. Excessive movement is prevented by pins 21'.

At a point to the rear of the brush and scrapers is arranged a dirt-gathering element 25 in the form of a pivotally-mounted blade, said blade being formed of a plurality of independently-movable sections 26, that may yield to conform to irregularities of the surface being cleaned. All of the sections are mounted on a transversely-disposed bar 27, to the rear of which is a bar 27', carrying an approximately U-shaped blade 27<sup>a</sup>, formed of spring metal, that serves normally to force the sections downward into contact with the surface. The spring 27<sup>a</sup> is approximately U shape in form, and its opposite edge portions are arranged, respectively, above and



below the movable sections 26 of the dirt-gathering blade, while the central portion of the spring is secured to the bar 27'. The edge portions of the spring are provided with slits arranged approximately in alignment with the division-lines of the blades 26, so that each blade may be properly held down in contact with the surface to be cleaned. Both edges of the spring, however, bear on the sections 26, and should any section meet an immovable obstruction that will cause it to yield backward instead of riding up the section will turn on the pivot 27, slightly raising the pivot-bar and permitting the section to ride over the obstacle, after which the under side of the spring 27<sup>a</sup> will serve to restore the section to its initial position.

The frame is provided with bearings for the support of a transversely-extending shaft 28, to which are pivoted two side bars 28', that carry at their lower ends the cross-bar 27. On the shaft 28 is secured a roller 28<sup>a</sup>, and at the lower portion of the side bars are arranged bearings for the support of a roller 29, an endless carrier 30 passing over said rollers and carrying the heavier particles of dirt up to a receptacle 32.

The endless conveyer is operated from the gear-wheel 15, the latter intermeshing with a pinion 33, extending from the shaft 28.

In the upper front portion of the casing are bearings for the support of a pair of transversely-extending shafts 34 and 35, carrying, respectively, a suction-fan 36 and a blast-fan 37 of any description. These fans are arranged within casings 38, that are separated from each other by a horizontal partition 39, that extends to a point close to the upper run of the conveyer. Above the partition 39 is a second partition 40, arranged on a line slightly inclined from the horizontal and disposed on a line substantially radial from the shaft 34, so that it divides the casing of the suction-fan into an intake and an outlet, the latter being above the partition 40. The rear end of this partition is inclined upward, forming a shelf 41, that is disposed approximately parallel with the upper run of the conveyer.

At a point above the partition 40 is a water-tank 42, held in position by straps 43, and in the lower portion of the tank are small jet-nozzles 44, through which minute jets of water are discharged onto the partition 40. From the rear portion of the water-tank extends a curved hood 45. Under the hood is a transversely-disposed shaft 48, from which radiate wings 49. The shaft 48 is extended out through one end of the casing and is provided with a crank-handle 52 in order to permit turning of the shaft and blades by hand.

In the operation of the device the machine is drawn along the street by horse or other power, and the dust and dirt are engaged by the scrapers 18 and moved forward toward

the center. As the machine moves along the dirt is loosened and disturbed by the brush 19 and is gathered up by the collecting-blade 20, and delivered to the endless belt 30, the heavier particles traveling up over the top roller 28 and being deposited in the receiver 32.

The fans 36 and 37 are revolved from the sprocket-wheel 14 by a chain or link belt 53 and gearing 54, arranged at one side of the frame. The blast-fan 37 directs a blast of air downward and rearward to that space between the partition 39 and the surface being swept and in advance of the conveyer, and the collected dust is driven upward in the direction of the arrow, but after passing beyond the rear end of the partition 39 is drawn inward in the direction of the arrow by the suction-fan 36, and thence is directed over the partition toward the fan. While passing under the nozzles 44, the dust is moistened and is blown in this moistened condition against the vanes 49, any excess of moisture passing through perforations 55 and falling on the conveyer-belt.

The vanes may be revolved from time to time as occasion requires by turning the crank 52 and the accumulated dirt forced through over the top of the partition 41.

Accumulation of dirt on the apron or conveyer is prevented by the edge of the dirt-receptacle, which serves as a scraper for removing adhering particles.

Having thus described the invention, what is claimed is—

1. In a street-sweeper, a casing, a dirt-receptacle, an endless conveyer for carrying dirt upward to the receptacle, means for directing dirt onto the conveyer, partitions arranged within the casing in front of the conveyer and forming in connection with the latter an air and dust passage, and means for directing currents of air through such passage to remove from the conveyer the lighter particles of dust and dirt in advance of the dumping-point of said conveyer.

2. In a street-sweeper, a casing having a dust-passage, a conveyer forming one wall of said passage, means for directing the dirt onto the conveyer, a series of partitions disposed at angles oblique to the plane of the passage, and fans or blowers for directing currents of air through the passage into contact with the carrying-surface of the conveyer, and for withdrawing the dust-laden air at a point in advance of the dumping-point of the conveyer.

3. In a street-sweeper, a casing having a dirt-receptacle, a conveyer for carrying the heavier particles of dirt and dust to said receptacle, means for directing dirt onto the conveyer, means for removing the lighter particles of dust and dirt from said conveyer in advance of the dumping-point of the latter,



and for directing the same into the receptacle, and means for moistening the lighter particles of dust and dirt in advance of the deposit of the latter in said receptacle.

5 4. In a street-sweeping machine, a frame, a casing supported thereby and telescopically connected with the frame, springs between the frame and casing, dust disturbing and collecting devices carried by the frame, and  
10 means within the casing for directing the course of currents of dust-laden air.

5. The combination with a pivotally-mounted conveyer-frame, of a conveyer, a pivot-bar at the bottom of the conveyer-

frame, a plurality of independently-yieldable 15 blade - sections mounted on the pivot - bar, springs for holding said blades in operative position, said springs being approximately U-shaped in form and bearing on both top 20 and bottom of each section.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

PETER A. SHELEY.

Witnesses:

J. H. JOCHUM, Jr.,

ARCHIBALD BULLOCH.