

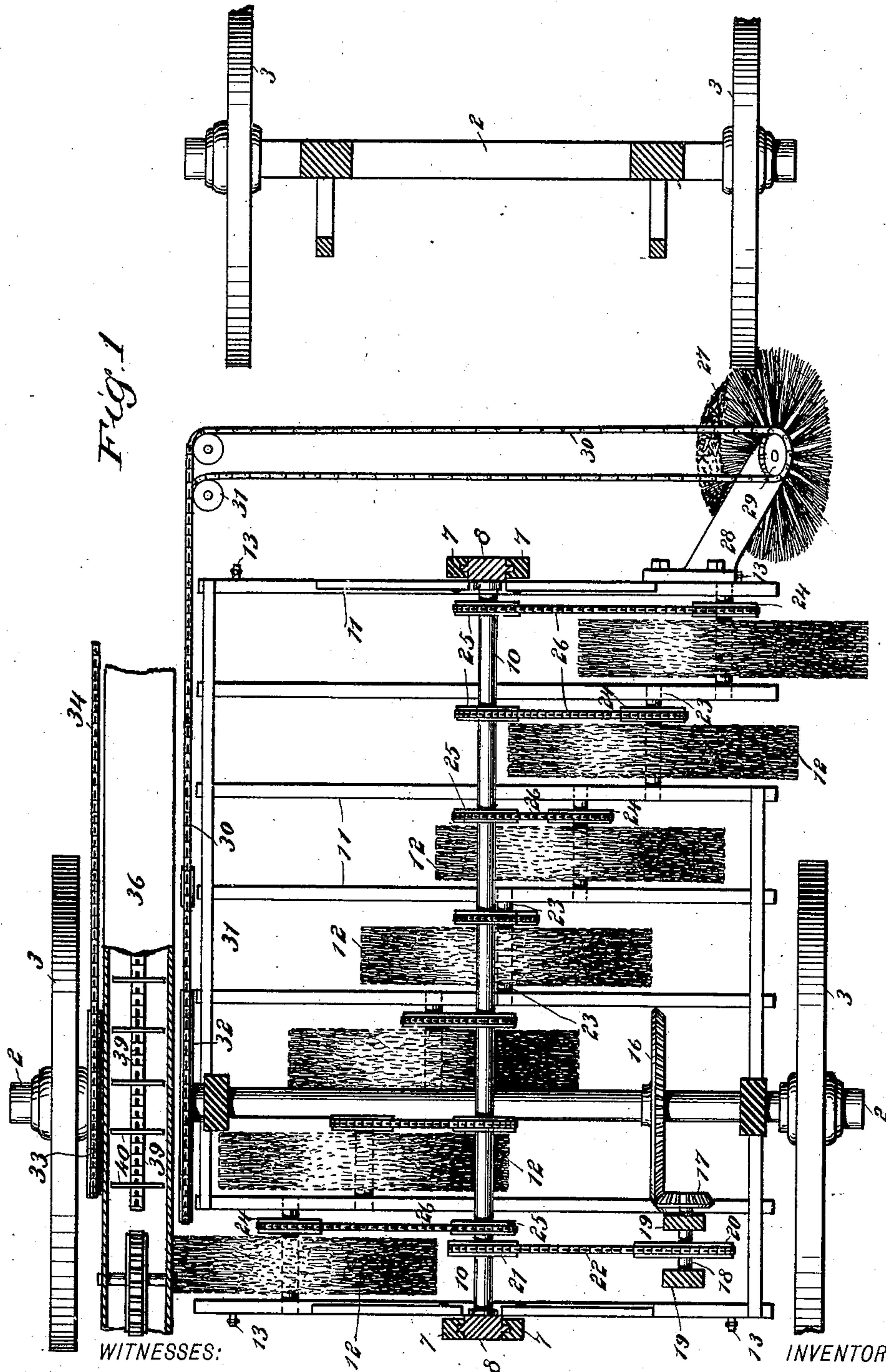
(No Model.)

3 Sheets—Sheet 1.

W. S. KINDLE.  
STREET SWEEPER.

No. 548,066.

Patented Oct. 15, 1895.



WITNESSES:

John Bengtson  
H. Caplinger

INVENTOR

W. S. Kindle

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Munn & Co.  
ATTORNEYS.

(No Model.)

3 Sheets—Sheet 2.

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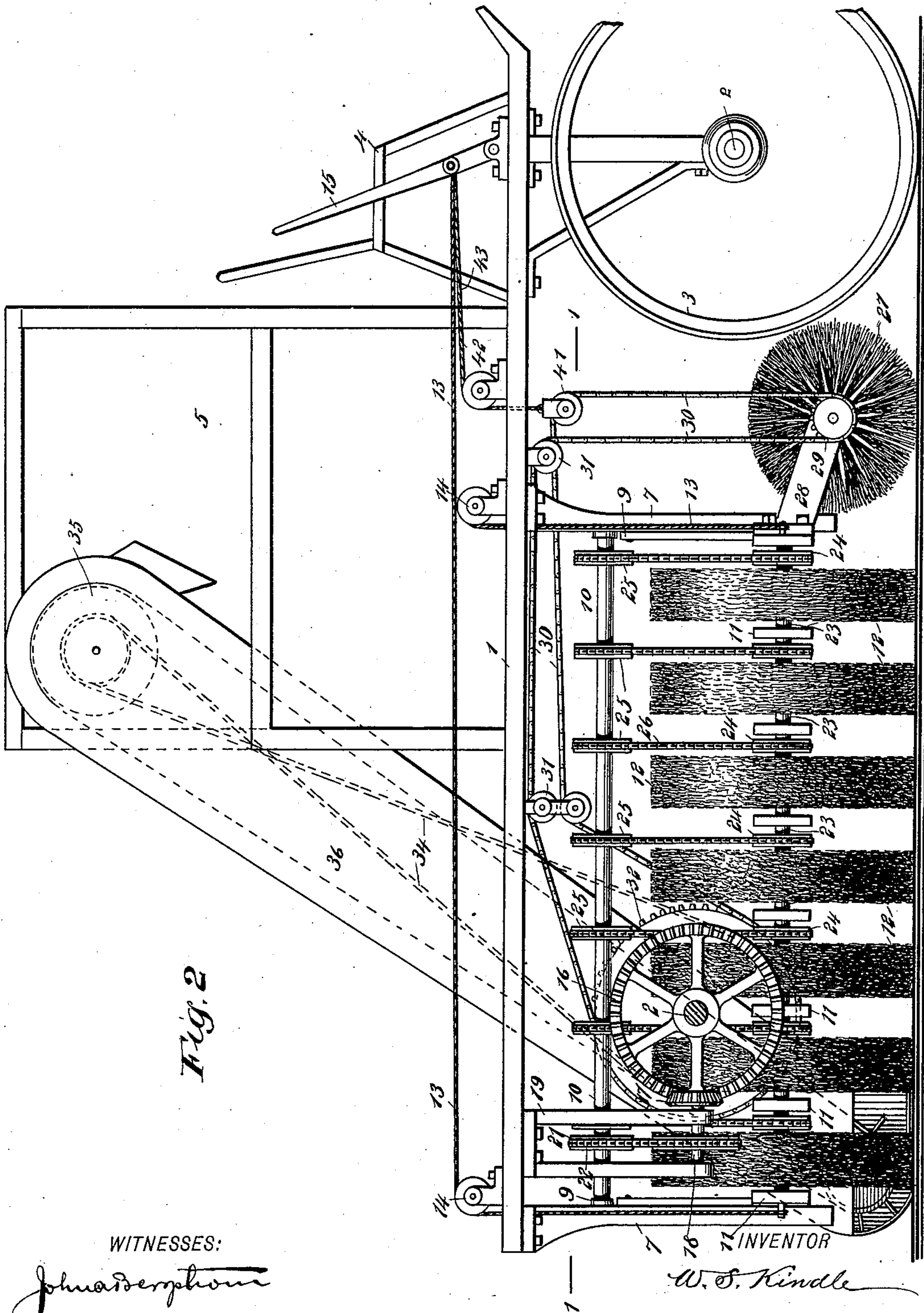


Fig. 2

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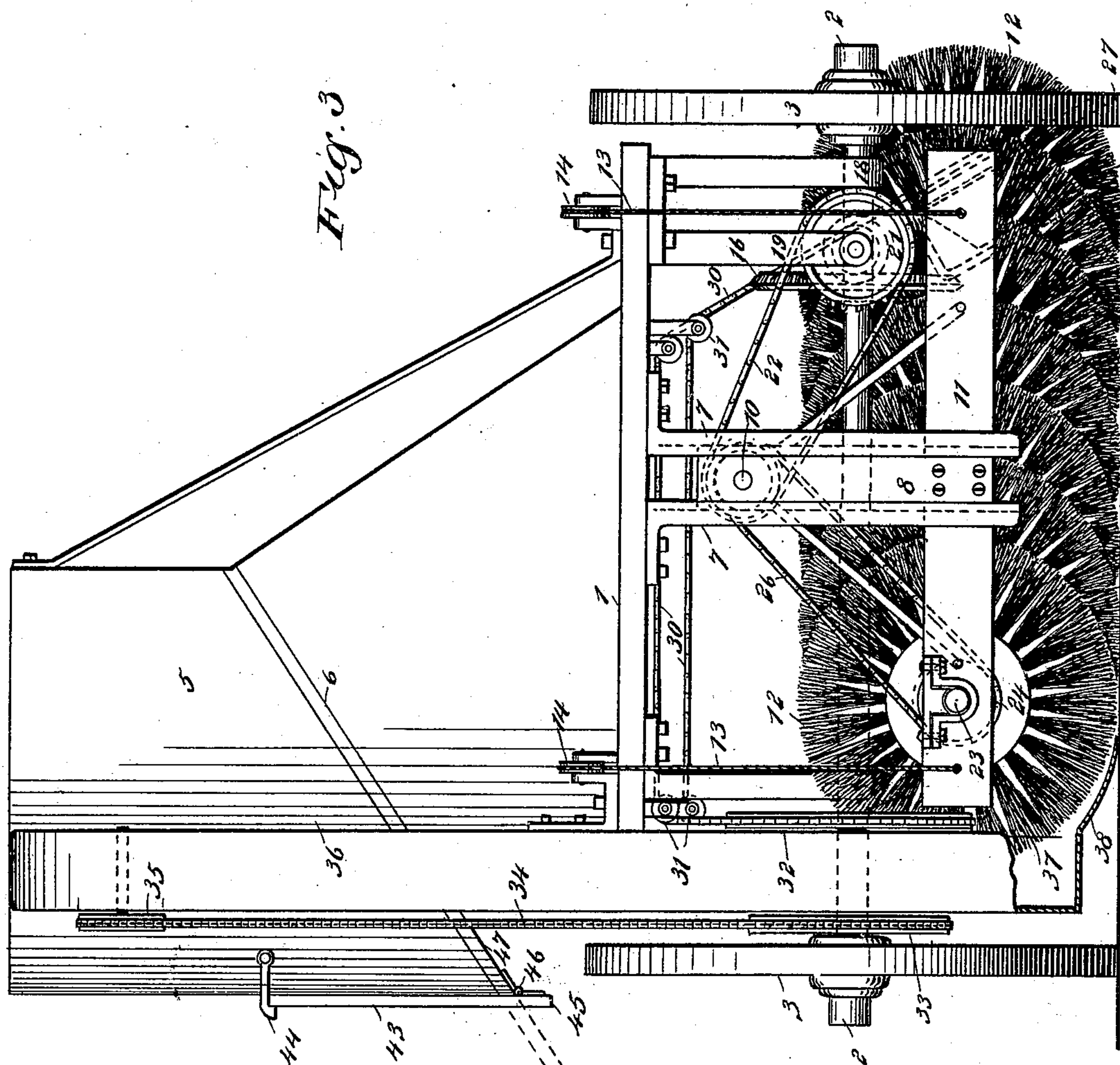
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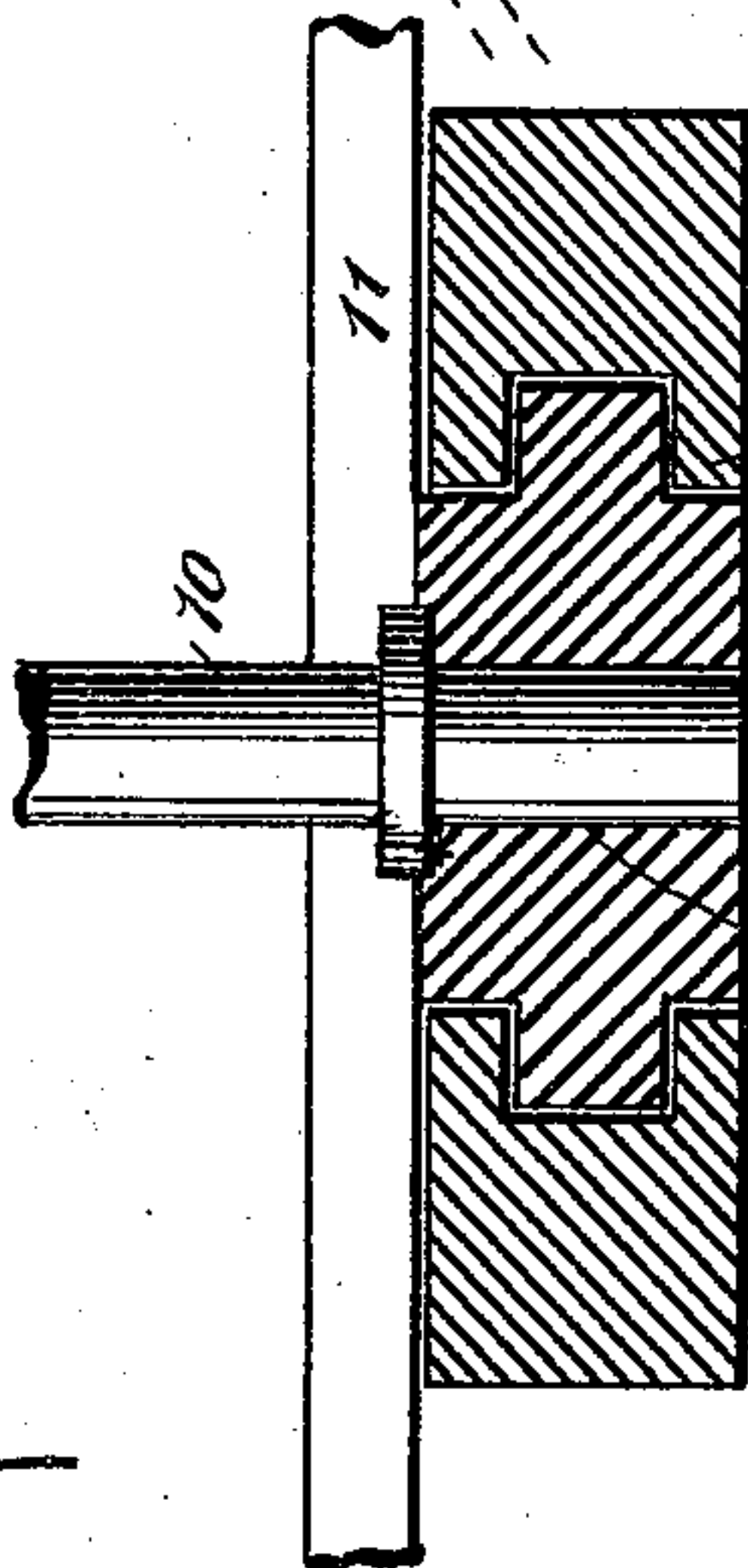
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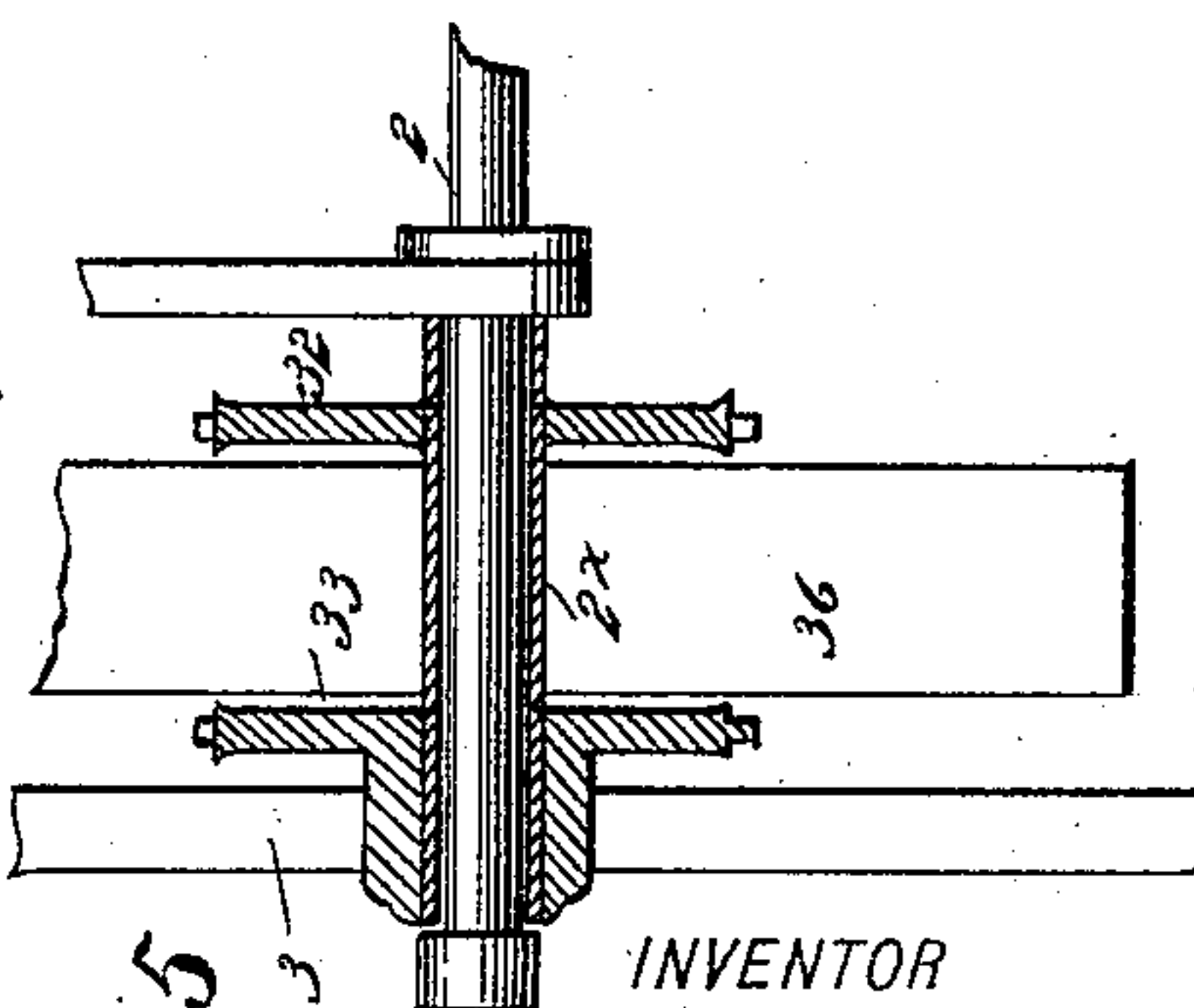
*Fig. 4.*



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*Fig. 5.*



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# UNITED STATES PATENT OFFICE.

WILLIAM S. KINDLE, OF PHILADELPHIA, PENNSYLVANIA.

## STREET-SWEEPER.

**SPECIFICATION** forming part of Letters Patent No. 548,066, dated October 15, 1895.

Application filed April 4, 1895. Serial No. 544,456. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM S. KINDLE, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and Improved Street-Sweeping Machine, of which the following is a full, clear, and exact description.

This invention relates to certain improvements in street-sweeping machines wherein a series of brooms is supported on and adapted to be driven from the wheels of the vehicle in such a manner as to sweep the dirt and dust obliquely across the path of the vehicle and into the boot of an elevator, also carried on and driven from the wheeled vehicle, whereby the dirt and dust are carried upward and discharged into a collecting-chamber.

The invention consists in a sweeping-machine of this general character, presenting certain features of novelty and advantages for use over other similar machines heretofore devised, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

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

Figure 1 is a sectional plan view taken in the plane of line 1 1 in Fig. 2. Fig. 2 is a side elevation of the sweeper embodying my improvements. Fig. 3 is a rear end elevation of the machine constructed according to my invention, the elevator-boot being shown in section. Fig. 4 is a sectional view taken through one of the slide-bars of the broom-frame and its slideway, and Fig. 5 is a sectional detail view showing the means for driving the elevator and gutter-broom.

In the drawings, 1 represents the frame of the sweeper, whereon are mounted the axles 2 and wheels 3, said frame having at its forward part a seat 4 for the driver of the machine, as clearly seen in Fig. 2, and being provided behind said seat with a dust-chamber 5, having an inclined false bottom 6, as will be hereinafter more fully described.

At its central part the frame 1 has secured to and depending below its under side vertical slideways aligned with each other, as seen

in Figs. 1 and 3, said slideways being each formed of two parallel vertical frames 7 7, having their inner sides grooved, as clearly seen in Fig. 4, which is a detail of this part; and in said slideways are arranged to move the slides 8, having at their upper ends bearings 9 for the counter-shaft 10, the lower ends of the slides being connected, as seen in Fig. 3, with the vertically-movable broom-frame. The slides 8 are thus braced at their upper parts by the counter-shaft 10 and at their lower ends by the said broom-frame, as will be readily understood.

The broom-frame is composed of a series of transverse beams 11, connected together in any preferred manner, and spaced apart, as seen in Figs. 1 and 2, in such a manner as to form supports for the brooms 12, which are rotatively mounted between them.

Chains or other flexible connectors 13 are connected to the broom-frame at opposite sides of its opposite ends, and said chains pass over pulleys 14, journaled at suitable points on the frame 1, and extend forward toward the seat 4, being secured to a lever 15, arranged adjacent to said seat in such a way that, when desired, the broom-frame may be elevated by the driver so as to raise the brooms clear of the surface of the street, the slides 8 moving vertically in the slideways on the frame 1.

The rear axle 2 of the machine is provided at one side with a crown bevel gear-wheel 16, meshing with a bevel-pinion 17, mounted on a shaft 18, journaled in a hanger 19, depending from the frame 1, as seen in Fig. 2, and the shaft 18 is provided with a sprocket-wheel 20, aligned with a similar sprocket-wheel 21, fixed on the shaft 10 above referred to, and the movement of the shaft 18 is transmitted to the shaft 10 by means of a chain belt or similar driving connection 22, having sufficient looseness to permit of the vertical movement of said shaft 10 when the broom-frame is raised to elevate the brooms 12.

The brooms 12 are each mounted on a short shaft 23, journaled in bearings in the transverse beams 11 of the broom-frame, and on each of said shafts 23 is fixed a sprocket-wheel 24, aligned with a similar wheel 25 on



the shaft 10, said wheels 24 and 25 being connected by chain belts 26, as clearly shown in Figs. 1, 2, and 3.

The brooms 12 are arranged in echelon, as indicated in Fig. 1, the broom at one side of the machine being adapted to sweep the dust and dirt into the path of that next adjacent, as clearly seen, in such a way that the dust passes obliquely rearward across the path of the machine, and in order to sweep the dirt from the gutter a gutter-broom 27 is provided, said broom being mounted on an inclined shaft journaled in a bracket 28, secured to the forward beam 11 of the broom-frame. The periphery of the broom 27 is inclined to the shaft in such a way that said periphery is parallel to the surface to be swept, and on the shaft of said broom 27 is arranged a sprocket-wheel 29, driven by a chain 30, passing over idlers 31 on the frame 1, and also over a sprocket-wheel 32, fixed on a sleeve 2<sup>x</sup>, mounted on the rear axle 2 of the machine at the side of the machine opposite the wheel 16, as seen in Figs. 1 and 3, said sleeve being made to turn loosely on the axle and having the adjacent wheel 3 fixed on it, as seen in Fig. 5, the other wheel 3 being fixed on the axle 2.

Adjacent to the sprocket-wheel 32 a similar wheel 33 is secured on the sleeve 2<sup>x</sup>, over which wheel 33 passes, a chain belt 34 extending over a sprocket-wheel 35, mounted on a shaft journaled at the upper part of an inclined elevator-casing 36, arranged to discharge at its upper end into the dust-receptacle 5, and provided at its lower end with a boot 37, having an inclined bottom plate 38 (see Fig. 3) so arranged as to receive the dust and dirt acted on by the last broom 12.

An endless apron 39 is arranged in the casing 36, being provided with flights 40, (see Fig. 1,) and the casing 36 is inclined upward and forward, as seen in Fig. 2.

In order to prevent the chain belt 30 from slacking and falling off its sprocket-wheels when the broom-frame is raised, said chain 30 runs over an idler 41, hung on a chain 42, connected to the lever 15 in such a way that when the lever 15 is moved forward to raise the broom-frame the idler 41 will be raised similarly to keep the chain belt 30 taut.

In operation the broom 27 sweeps the gutter, being driven from the rear axle by gearing at one side of the machine, the dirt being swept by said broom out of the gutter into the path of the first or forward broom 12, arranged just behind the broom 27. Since the broom 12 is circular and sweeps at right angles to the curb-stone, it is essential to set the gutter-broom so as to sweep parallel to the path of the machine, in order to insure the cleaning of the surfaces next the curb, which are not reached by the broom 12. Said gutter-broom 27, being arranged with its axis inclined downward toward the center of the machine, causes the dirt and dust therefrom

to be thrown outward from the curb into the path of the first broom 12. The latter broom 12 sweeps in a direction transversely of the street in such a manner as to carry the dirt and dust from between the paving stones over into the path of the following broom 12. In this way the dirt is swept diagonally across the path of the machine, being swept by the last broom 12 into the elevator-boot, whence it is carried up by the endless apron and discharged into the receptacle 5, which is provided, as above stated, with an inclined bottom 6 and an outlet covered by a hinged door 43, held in place by a catch 44. The lower part 45 of the door 43 is arranged to project beyond the hinges 46 thereof, so that when the door is opened said lower part 45 thereof will engage under a projecting portion 47, formed on one side of the receptacle 5, whereby the door is held in an inclined position, as indicated in dotted lines in Fig. 3. When in this position, the door 43 serves as a chute to deliver the dust from the receptacle into a cart or the like.

By the arrangement of the brooms 12 in independent bearings in the beams 11 it becomes possible to readily and quickly remove a damaged broom and replace it by another without the necessity of taking the machine to the repair-shop.

It is evident that considerable alteration may be made in the machine above described, without material departure from the principles of the invention, and for this reason I do not wish to be understood as limiting myself to the exact form and arrangement shown herein.

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

1. In a sweeping machine, the combination of a frame having vertical aligned guideways at opposite sides, aligned slide bars vertically movable in the guideways, a broom frame secured at its ends to the lower ends of said slide bars, a shaft journaled at its ends in the upper part of the respective slide bars, driving mechanism for said shaft, means for moving said slide bars and the broom frame carried thereon vertically in said guideways, a series of brooms rotatively mounted on the lower part of the broom frame beneath the said shaft and gearing between said shaft and the respective brooms, substantially as set forth.

2. In a sweeping machine the combination of a frame, having vertical guideways at opposite sides, slide bars movable vertically in said guideways, a shaft journaled at its ends in the upper part of the respective slide bars, a broom frame comprising a series of beams extending parallel to each other and transversely of the frame of the machine, brooms journaled between the adjacent beams in said series and arranged in echelon and adapted to sweep transversely of the path of the ma-



chine, gearing between the respective brooms and the said shaft, and means for raising and lowering said frame, substantially as set forth.

5 3. A sweeping machine having a frame, a movable broom frame thereon, a broom carried thereby, a roller carried on the frame, chain gearing for driving said broom comprising a chain belt passing over said roller and

geared to said broom and means for driving said chain belt, a lever carried on the frame 10 and a connection between the lever and roller, substantially as set forth.

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Witnesses:

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SAML. T. KERR.