

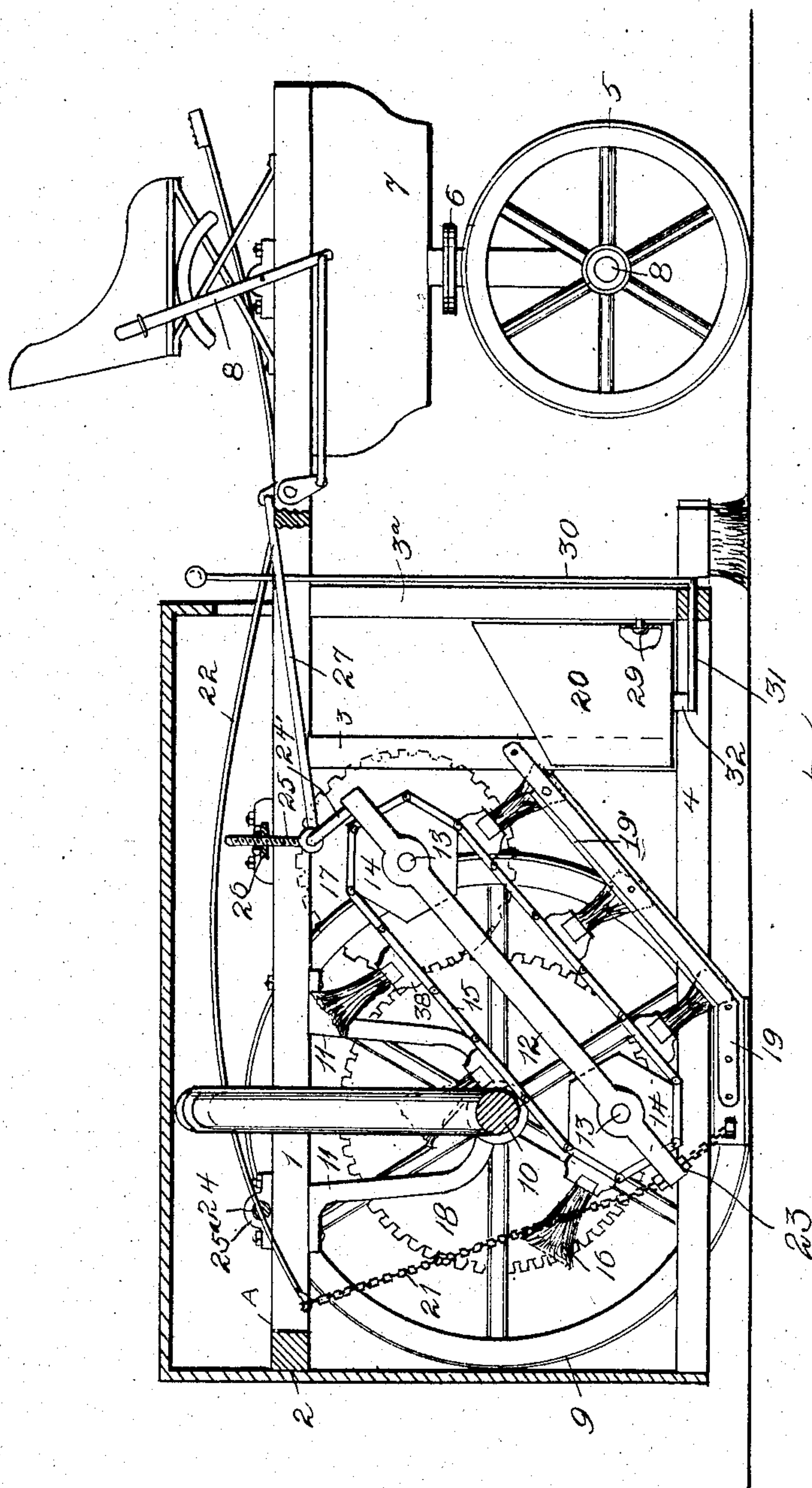
No. 780,669.

PATENTED JAN. 24, 1905.

B. KRAPP.
STREET SWEEPING MACHINE.

APPLICATION FILED AUG. 31, 1903.

2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

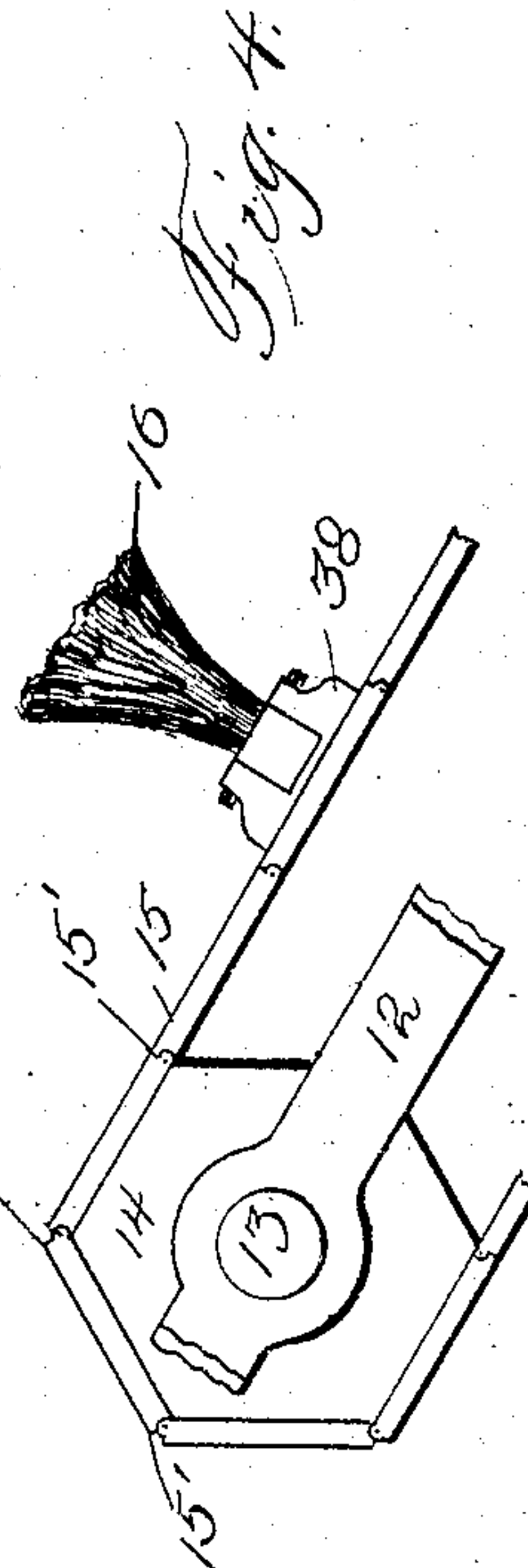
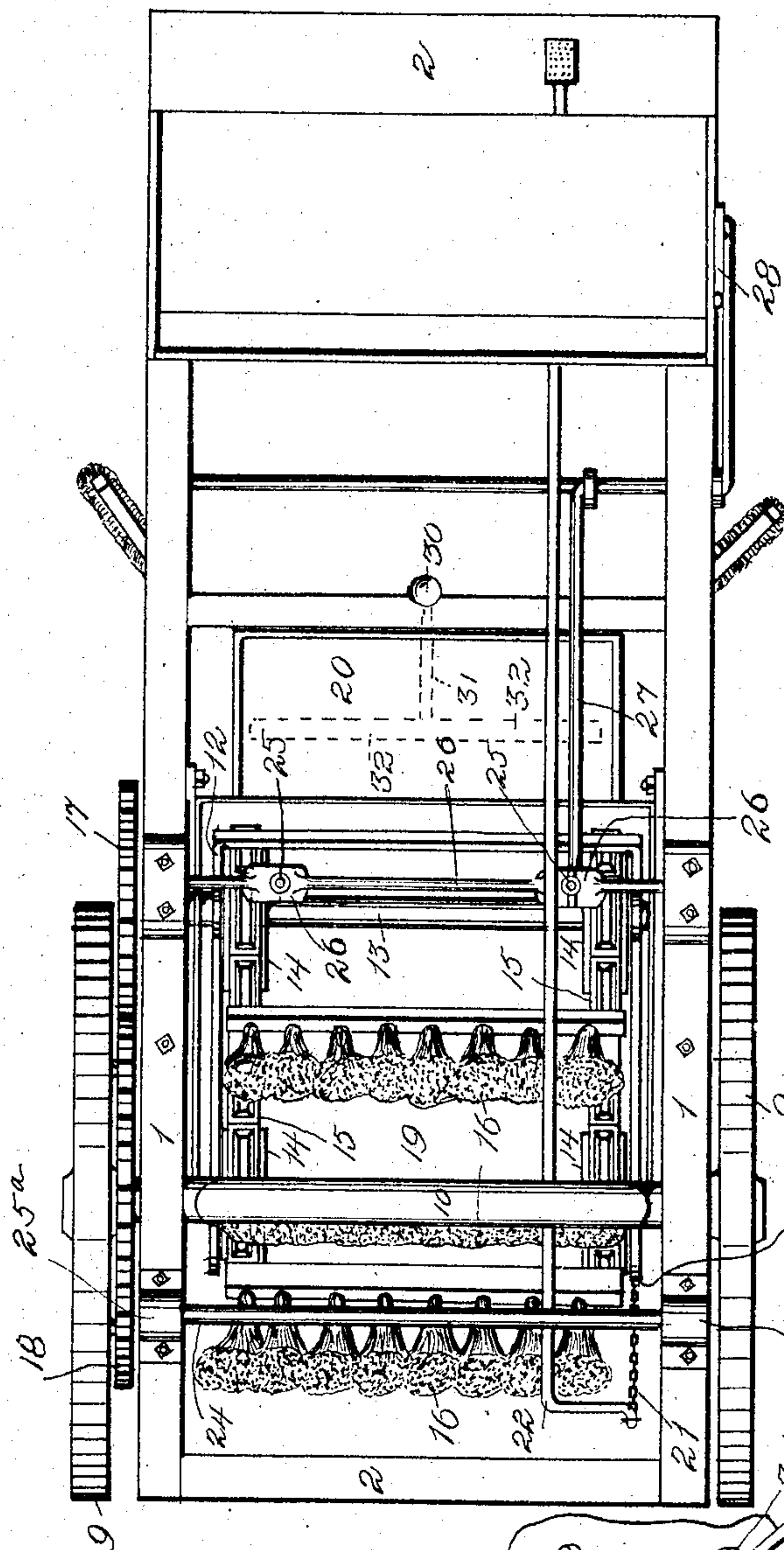
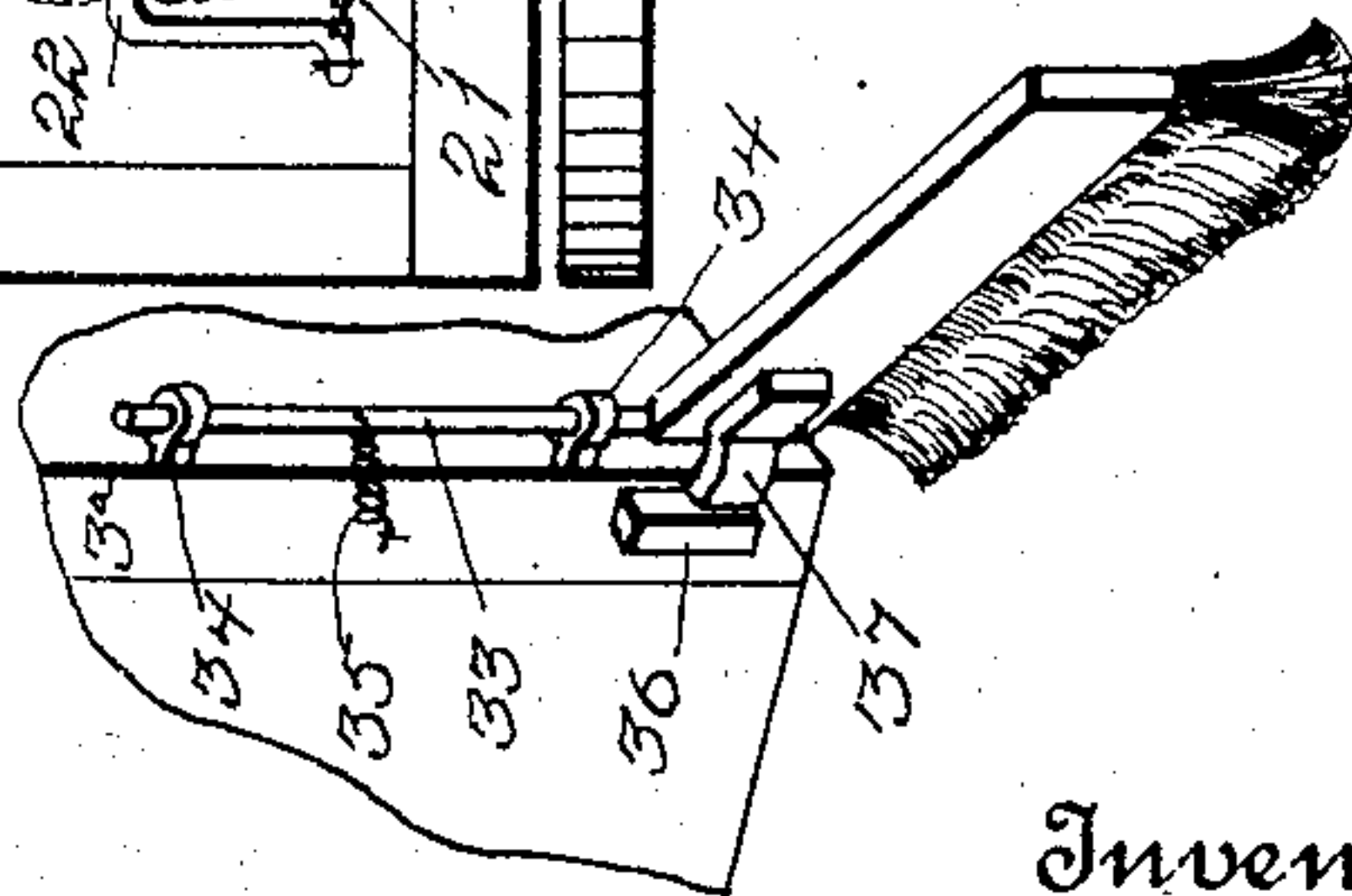


Fig. 3.



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UNITED STATES PATENT OFFICE.

BERNHARD KRAPF, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS TO WILLIAM HESS, OF PHILADELPHIA, PENNSYLVANIA.

STREET-SWEEPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 780,669, dated January 24, 1905.

Application filed August 31, 1903. Serial No. 171,397.

To all whom it may concern:

Be it known that I, BERNHARD KRAPF, a citizen of the United States of America, and a resident of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Street-Sweeping Machines, of which the following is a specification.

The present invention relates to certain new and useful improvements in street-sweeping machines of the type in which a plurality of brushes adapted to successively come in contact with the street-surface are employed; and the primary object thereof is to provide a machine of this type which will effectually perform the functions assigned to it without the necessity of the employment of any irrigating apparatus.

A further object is to provide means whereby the sweepers can be readily thrown into and out of operation and, further, to provide means for simultaneously elevating the brushes and the underlying shovel when this is desired.

Broadly, the invention consists in providing brushes arranged in endless formation, the same being operated from the rear traction-wheels of the machine, and as they successively contact with the pavement and throw the refuse forwardly the latter is received on an inclined shovel or chute and conveyed up the same by said brushes and deposited in a receptacle, from which it can be readily dumped by means more fully set forth in the following.

Other objects and advantages will be set forth more fully in the following description, and those points or features which I claim as novel will be particularly referred to and claimed in the appended claims.

In the accompanying drawings, in which like characters of reference indicate like parts throughout the several views, Figure 1 is a view in side elevation of the present invention, parts being broken away to more clearly illustrate the working parts thereof, the casing being shown in dotted lines. Fig. 2 is a top plan view thereof. Fig. 3 is a detail fragmentary view of a portion of one of the machine-frame uprights with the adjacent gutter-

sweeper mounted thereon. Fig. 4 is a similar view of a portion of one of the endless chains, the same illustrating more clearly the detail construction of the links and the means for attaching the brushes thereto.

In the drawings I have illustrated the machine-frame as being of a very simple and well-known construction, the same being adapted and will, as I have found, conveniently support the various mechanisms and the means for operating the same. This particular construction, however, is not absolutely essential and does not enter into the present invention.

The frame A comprises the top, side and end rails 1 and 2, respectively, and the underlying uprights 3 3^a, to which is secured the base 4. The uprights 3^a are positioned approximately centrally of the top rails of the frame, and each is adapted to support, in addition to the aforementioned base, a forward sweeper, which normally assumes an inclined position with respect to the sides of the frame, as will be referred to hereinafter.

The base 4 is preferably open or can be constructed in a fashion similar to the upper portion, so as to present an open frame, so as to permit the shovel and sweepers or brushes to extend therethrough.

5 indicates the forward wheels, 6 the fifth-wheel, and 7 the forward bolster, to which the upper member of the fifth-wheel is secured, as are also the forward ends of the side rails 1 and the adjacent end rail. The lower member of the fifth-wheel is carried by the axle 8 in the usual manner. This construction I have diagrammatically shown, inasmuch as equivalent constructions can be readily employed without departing from the spirit of the invention.

9 indicates the rear wheels, which are journaled on the projecting ends of the axle 10, the same having its intermediate portions bowed upwardly to straddle the endless chains and the brushes connected thereto. This axle is secured in position by the brackets 11, which depend from the side rails 1.

12 indicates a frame having portions adjacent its opposite ends enlarged and formed

with openings to form bearings for the shafts 13, the latter carrying the hexagonal chain-receiving members or sprockets 14, over which pass the chains 15, carrying the brushes 5 16. The upper shaft 13 carries a fixed gear 17, which meshes with a larger gear-wheel 18, carried by the adjacent rear wheel 9. Thus it will be apparent that as the machine is propelled, the gear-wheel 18 meshing with the 10 wheel 17, the power will be transmitted to the endless chain, thereby operating the brushes and causing them to brush refuse and the like up the chute 19 into the receptacle 20. The chute 19 is pivoted at its forward end to the 15 uprights 3, one being at each side of the machine, and has its lower end connected by a chain 21 to a lever 22, which extends the entire length of the machine, whereby it can be readily operated from the forward portion 20 thereof. The said chute 19 is provided with two flanges 19', attached to the sides thereof to prevent the dirt from going to the sides. The chain 21 is further connected to the frame 12, as indicated at 23, whereby as the forward 25 end of the lever 22 is depressed, the said lever being fixedly secured to the rock-shaft 24, journaled in the boxes 25^a, the chute and sweepers will be simultaneously elevated. The upper end of the frame 12 is connected, 30 through the medium of the rods 24', disposed upon opposite sides of the frame, to swinging eyebolts 25, and thereby supported. These rods have their forward ends eccentrically connected to the rock-shaft 26, which when 35 oscillated, through the medium of the link 27 and the lever 28, will swing the frame 12 forwardly, and thereby separate the two normally meshing gear-wheels 17 and 18. When it is desired to dump the box or refuse-receiving receptacle 20, which latter is pivoted at 40 29, (see Fig. 1,) the lever 30 is swung laterally, so as to impart an oscillatory movement to the shaft 31, carrying the branch arms 32, on which the box rests, and the box will thus 45 be swung on its pivot, so as to assume a tilted position.

As heretofore noted, I provide in front of the endless sweepers a pair of gutter-sweepers, the same being fixedly secured to rods 33, 50 loosely mounted in brackets 34, carried by the uprights 3^a. This particular means for mounting the brushes permits the same to have an upward play in the event of the same striking an obstruction, and should the curbstone 55 be encountered the brushes will swing inwardly toward the machine, and thereby prevent injury thereto. The brushes are returned to their normal positions by springs 35, and the outward movement thereof is limited by 60 stops 36, which are engaged by the curved arms 37, carried on the framework of the brushes.

The chains are constructed in a novel manner, as shown in Fig. 4. The links 15 are formed with squared portions 15' near their 65 outer faces, which butt when the links are alined, thus preventing the chain from sagging. It is evident that, the links being held in alinement and extending in the same plane, the brushes when occupying the position be- 70 tween the sprockets will travel in alinement and that the support afforded by the chains will be rigid, thereby causing the brushes to bear with equal pressure. To rigidly secure the brushes to the endless chains, I provide the keepers 38, in which the body portion 75 or back of the brushes are received and secured therein by suitable means, as illustrated.

In view of the foregoing it will be apparent that the various levers are so positioned with 80 relation to the driver's seat that they can be readily operated without causing the driver or operator to move therefrom.

While I have shown what I believe at the present time to be a practical embodiment of 85 my invention, it will be obvious that slight changes in construction with reference to the details can be made without departing from the spirit of the invention.

Having thus fully described my invention, 90 what I claim as new and useful, and desire to secure by Letters Patent, is—

1. A street-sweeping machine embodying a frame comprising side and end rails, a base, and uprights connected to said base and side 95 rails, a laterally-extending rock-shaft, a plurality of brushes arranged in an endless series and projecting through said base, a swinging frame for supporting said brushes, rods secured to opposite sides of said swinging 100 frame, eyebolts secured in said rock-shaft and being connected to said rods, means for oscillating said rock-shaft, and means for operating the brushes comprising cooperating gears, one of which is carried by the swinging frame. 105

2. In a street-sweeping machine, the combination with frame-uprights, spaced-apart brackets secured to said uprights, vertically-disposed rods loosely mounted in said brackets whereby the rods are free to swing or be 110 raised and lowered, gutter-sweepers fixedly secured to the lower portions of said rods, stops secured to the uprights, curved arms carried by said brushes adapted to engage said stops and thereby normally hold said brushes 115 at acute angles to the forward portions of the sides of the frame, and springs connected to said uprights and rods.

Signed at Philadelphia this 19th day of August, 1903.

BERNHARD KRAPF.

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