

(No Model.)

2 Sheets—Sheet 1.

J. B. GATHRIGHT.
STREET SWEEPER.

No. 512,544.

Patented Jan. 9, 1894.

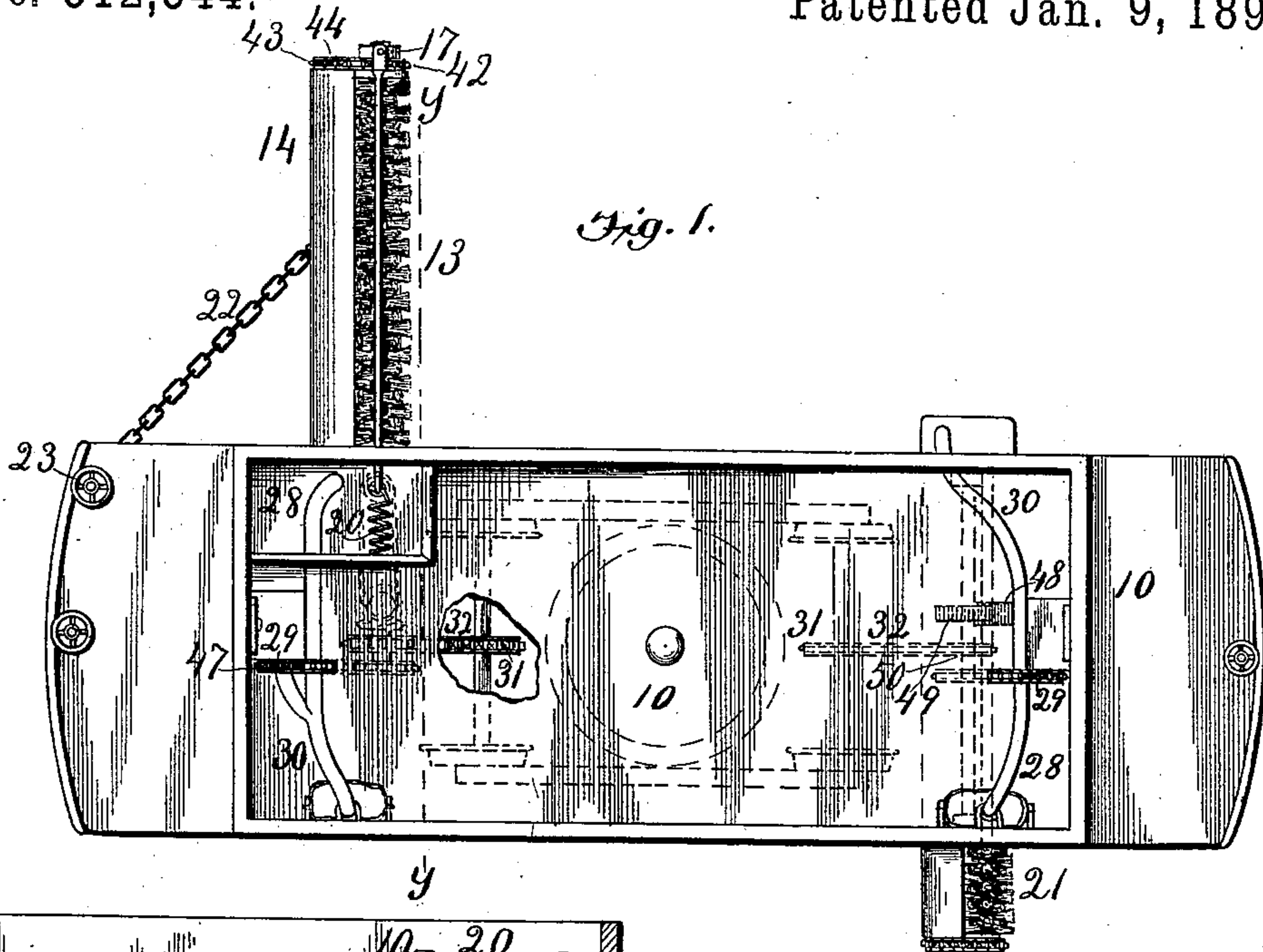


Fig. 1.

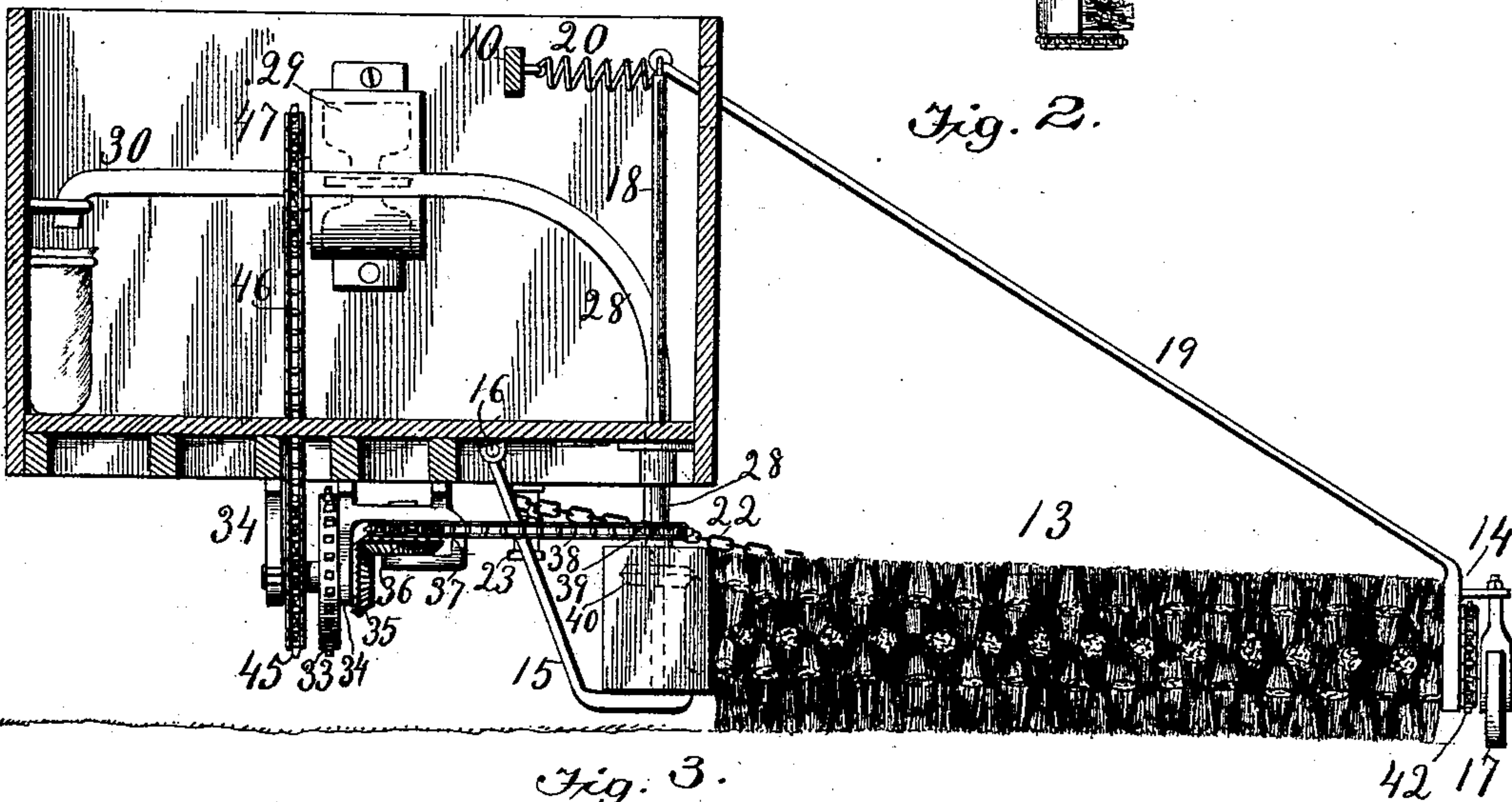


Fig. 2.

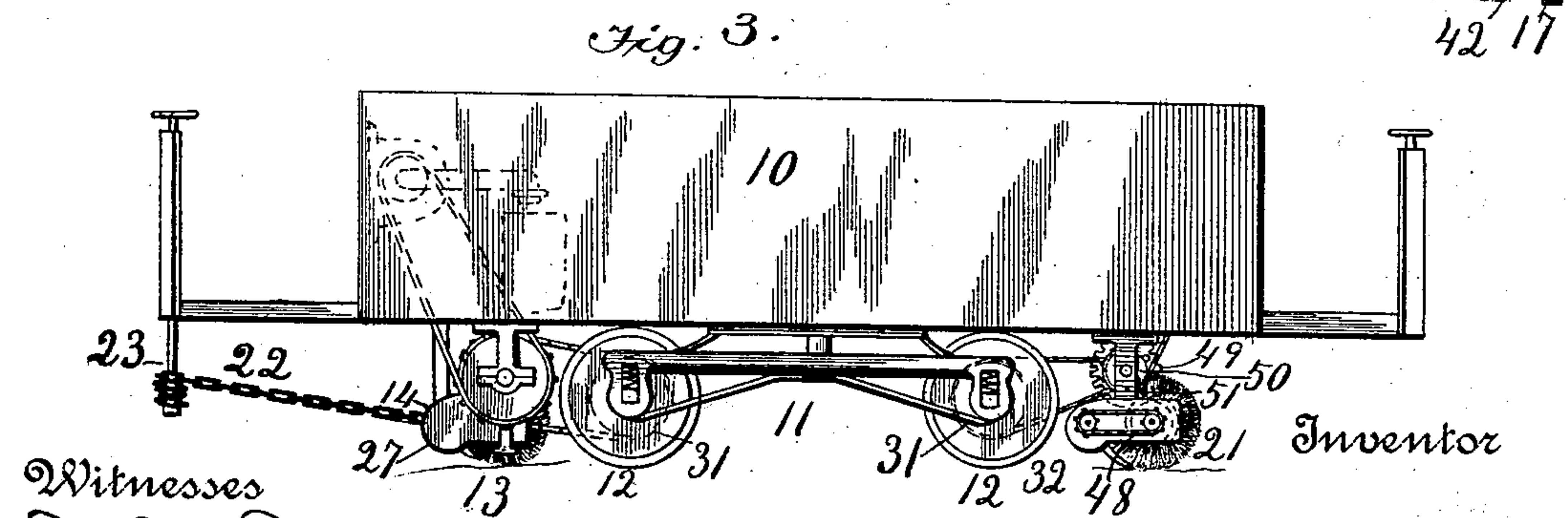


Fig. 3.

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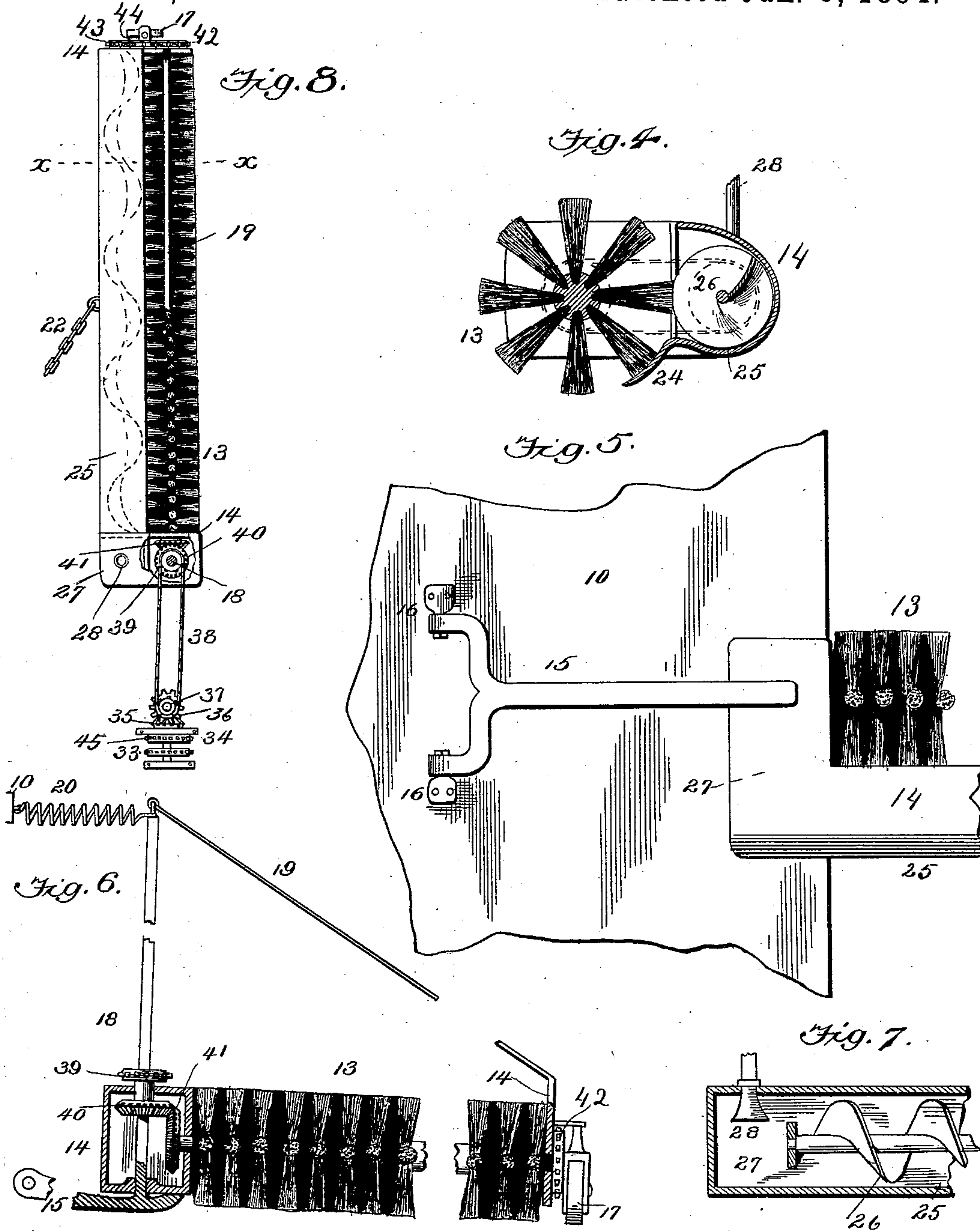
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2 Sheets—Sheet 2.

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Walter Waeker
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UNITED STATES PATENT OFFICE.

JOSIAH B. GATHRIGHT, OF LOUISVILLE, KENTUCKY.

STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 512,544, dated January 9, 1894.

Application filed July 13, 1892. Serial No. 439,942. (No model.)

To all whom it may concern:

Be it known that I, JOSIAH B. GATHRIGHT, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Street-Sweepers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates in general to street sweeping machines, and particularly to that class of street sweepers which gather up the dust into a receptacle and carry it away, and the object of my invention is to adapt a street sweeping machine to be used upon a street railway car to sweep the street directly upon the road of a single track, or between the tracks when there are two tracks, or between the tracks and sidewalk, if the width of different streets, from the car track to the sidewalk, should vary, and to adapt this machine to deliver the dust gathered from the street into sacks handled by an attendant in the car, or into large bins in the car.

To this end my invention consists in the construction and combination of parts forming a "street sweeping machine" hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure I, is a top view of a street sweeping car according to my invention showing some of the interior parts as though the car top were removed. Fig. II, is a transverse vertical section at line *y* of Fig. I. Fig. III, is a rear side elevation of the car. Fig. IV, is a transverse vertical section at the line *x* of Fig. VIII. Fig. V, is an under side or inverted view of the rotary brush and its hangings. Fig. VI, is a fragmentary view showing the hangers of the rotary brush. Fig. VII, is a vertical section longitudinal of a portion of the conveyer-pipe. Fig. VIII is a plan view of the sweeper brush and its immediate connections with a portion of the casing broken away.

10 represents the body of the car which may be mounted upon a truck 11 to revolve end for end thereon for the purpose of turning the car around when the end of the line is reached.

12 represents the wheels for the truck, or the car wheels.

13 represents a brush made in cylindrical form and journaled in bearings of a casing 14, which casing is supported at its inner end upon a vertical shaft 18 that is fixed in an arm 15 which is pivoted to the car upon supporting pins 16 so that the casing and brush may swing up and down to permit the brush to fit itself to the inclination of the street the slant thereof toward the gutter, and the outer end of the brush casing is supported to travel upon a caster wheel 17. The vertical shaft 18 being rigidly fixed in the arm 15, moves up and down therewith, and 19 is a stay rod connecting the outer end of the casing 14 with the top of the shaft 18, to steady and support the sweeper in passing over rough pavement.

20 is a spring connecting the top of the shaft 18 with a portion of the car body 10, the spring being stiff enough to almost lift the outer end of the sweeping device by pulling the shaft toward the car, thus relieving the machinery from the effects of sudden jolts.

The brush casing 14 and its contents which form what is termed the sweeper being journaled upon the vertical shaft 18, may swing backward to shorten its lateral extension so that it will reach only to the curbstone in a narrow street, and 22 is a brace chain connecting it with the windlass 23 situated on the car platform, whereby the driver may wind up or let out the chain to extend or retract the sweeper at will, not only to fit the width of the street but to pass obstacles.

24 is an apron located upon the casing 14, with its edge close to the ground in front of the brush, and leading over into the trough 25 of a conveyer 26 to catch the dust and dirt swept up by the brush and guide it over into the conveyer trough. This conveyer may be like any of those which are in successful service in conveying flour and other light dusty material in mills.

I have here represented a common screw conveyer, and its duty is to work the dirt along in the trough to the receptacle 27 at the inner end thereof where an exhaust pipe 28 sucks the dirt up into the car by the aid of any suitable elevating or exhausting mechanism, such for example, as the rotary fan 29 which is provided with a delivery spout 30 from which the dirt may be discharged into

bags for transportation, or it may be directed to fall into bins in the car. The exhaust pipe 28 may be flexible to accommodate the changes of position of the sweeper, and the delivery pipe 30 may be of any required length and flexible if necessary to reach different bins in the car.

21 represents another sweeper whose mechanical works and means for delivery are like those already described excepting the hangings or attachments which secure it to the car. The sweeper 21 is located across beneath the car and extends beyond it far enough to sweep the space between the two lines of track, and it may be rigidly fixed to the car, because the road-bed is usually at a common even distance from the level of the rails.

The brush, the conveyer and the exhausting device may all be propelled by any usual motive power but I have shown a simple arrangement for communicating motion to them from the car wheels as follows.

Midway upon the axle or brush 21 may be fixed a gear wheel 48 to be engaged by a gear wheel 49 that is journaled in a hanger 51.

50 is a sprocket wheel rigidly fixed upon the same shaft as wheel 49.

31, 31 are sprocket wheels on the car axles, one of them being connected by a chain 32 with a wheel 33 upon a shaft which is journaled in hangers 34, depending from the car body and the other with the wheel 50.

35 is a beveled gear wheel upon the said shaft to run constantly with the wheel 53.

36 is a beveled wheel on a vertical shaft and engaged by the wheel 35.

37 is a sprocket wheel fixed upon the shaft of wheel 36, and 38 is a chain communicating with a sprocket wheel 39, which is mounted to revolve freely upon the shaft 18 and is rigidly fixed to the hub of a beveled wheel 40 to revolve the latter.

41 is a beveled wheel on the brush shaft gearing with the wheel 40 whereby the brush is revolved.

The wheel 40 and the brush casing 14 are both mounted to rotate around the same shaft 15, so that the brush wheel 41 and its driver 40 will remain always in gear, and the brush may be operated at any angle across the street required.

Motion is communicated from the brush to the conveyer by means of wheels 42 and 43 and chain 44, Figs. I and II.

45, Fig. III, is a sprocket-wheel fixed on the shaft of wheel 33 and connected by means of a chain 46 and wheel 47 with the exhaust fan 29 to run the same.

To turn the car around it is only necessary to disconnect the chains 32 from their respective wheels and after the car is turned to reconnect as the wheels 31 are alike at both ends of the truck.

It is evident that if the apron 24 were left off the action of the brush would be merely to sweep up the dirt ahead of it and if the

brush be inclined to the line of travel by means of the brace chain 22 as before described, the tendency will be to work the dirt into a windrow at that end of the brush least advanced, so this windrow may be left either at the outer or inner end of the brush, and if left at the inner end beneath the car the rear brush 21, will necessarily gather it up into the car.

Having thus fully described my invention, what I believe to be new, and desire to secure by Letters Patent, is the following:

1. The combination of a car; a street sweeper brush hung upon a substantially vertical pivot at one side of the car to project at a right angle therefrom and means for swinging the brush forward or backward while the sweeper is in operation, substantially as described.

2. The combination in a street-sweeping machine, of a car; a sweeping brush journaled to revolve in a casing which is hung to the car to revolve upon a vertical shaft; a beveled gear wheel mounted upon the said vertical shaft engaging a gear wheel upon the brush and means upon the car for revolving the first named beveled gear wheel, substantially as described.

3. The combination of a car; a street-sweeping brush freely hung to one side of the car to swing forward and backward, and means whereby a person upon the car may adjust the brush to any required forward or backward angle and so fix it while the car is in operation, substantially as described.

4. The combination of a car; a street-sweeping brush connected therewith; a trough to receive its gatherings; a conveyer operating longitudinally in the trough toward one end thereof; an exhaust pipe leading from the said end into the car, and means for producing an exhaust current in said pipe, substantially as described.

5. The combination of a car; a street-sweeping brush having a frame hung to the car upon a rotary joint; means for supporting the outer end of the brush; a brace chain extending from the brush frame forward; and a windlass upon the car for the said chain, substantially as described.

6. The combination of a car; a vertical shaft hung to the car upon a vertically swinging hinge; a spring between the shaft and the car acting to hold the shaft vertical; a street-sweeping brush having a frame hung upon the said shaft and a stay-rod connecting the frame of the brush with the top of the said vertical shaft, substantially as described.

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

JOSIAH B. GATHRIGHT.

Witnesses:

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R. A. NUNNELLEY.