

E. W. LIBERTY & W. J. McELROY.

STREET SWEEPER.

APPLICATION FILED JUNE 5, 1908.

935,798.

Patented Oct. 5, 1909.

3 SHEETS-SHEET 1.

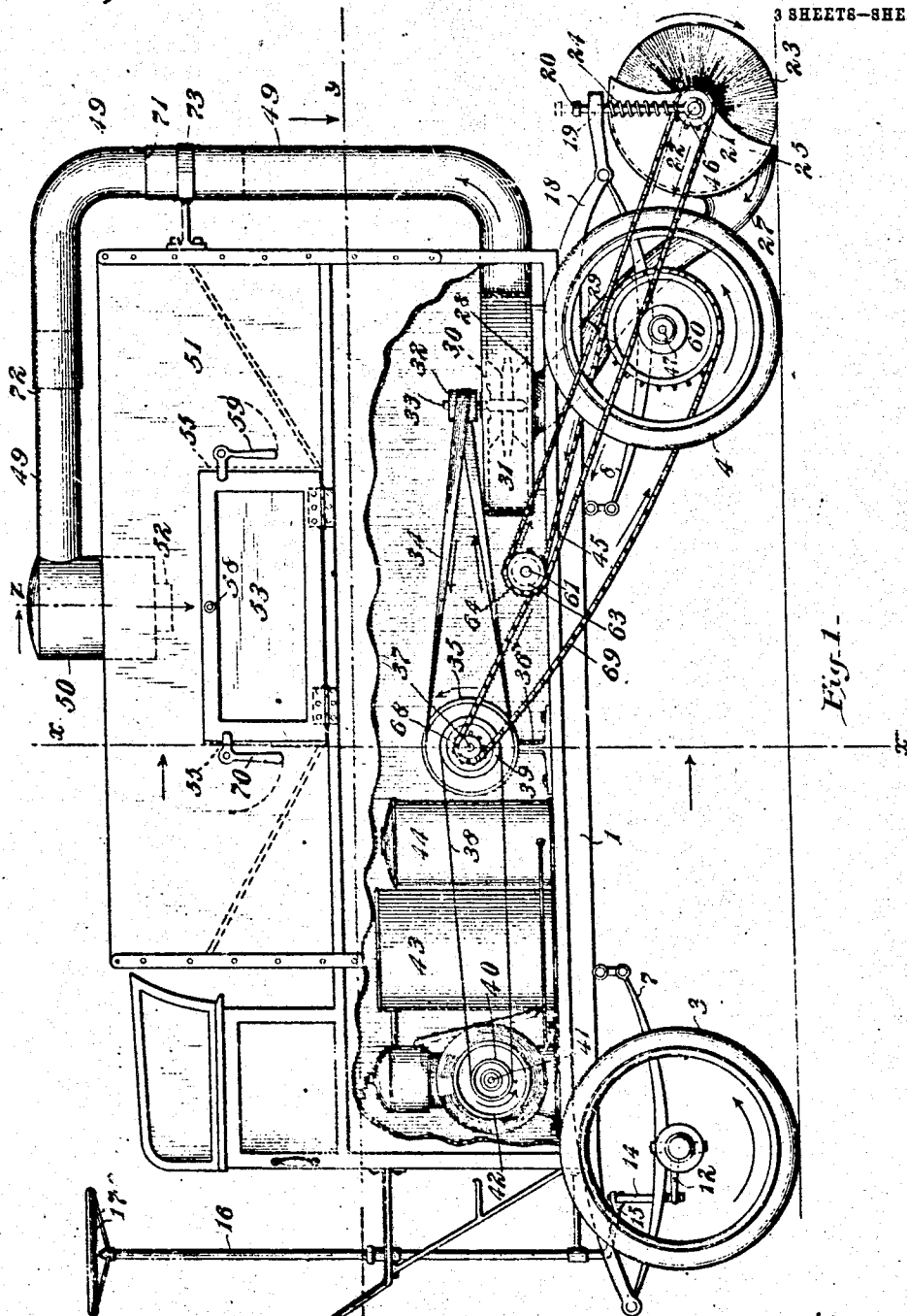


Fig. 1-

Witnesses:

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A. A. Olson

Inventors:

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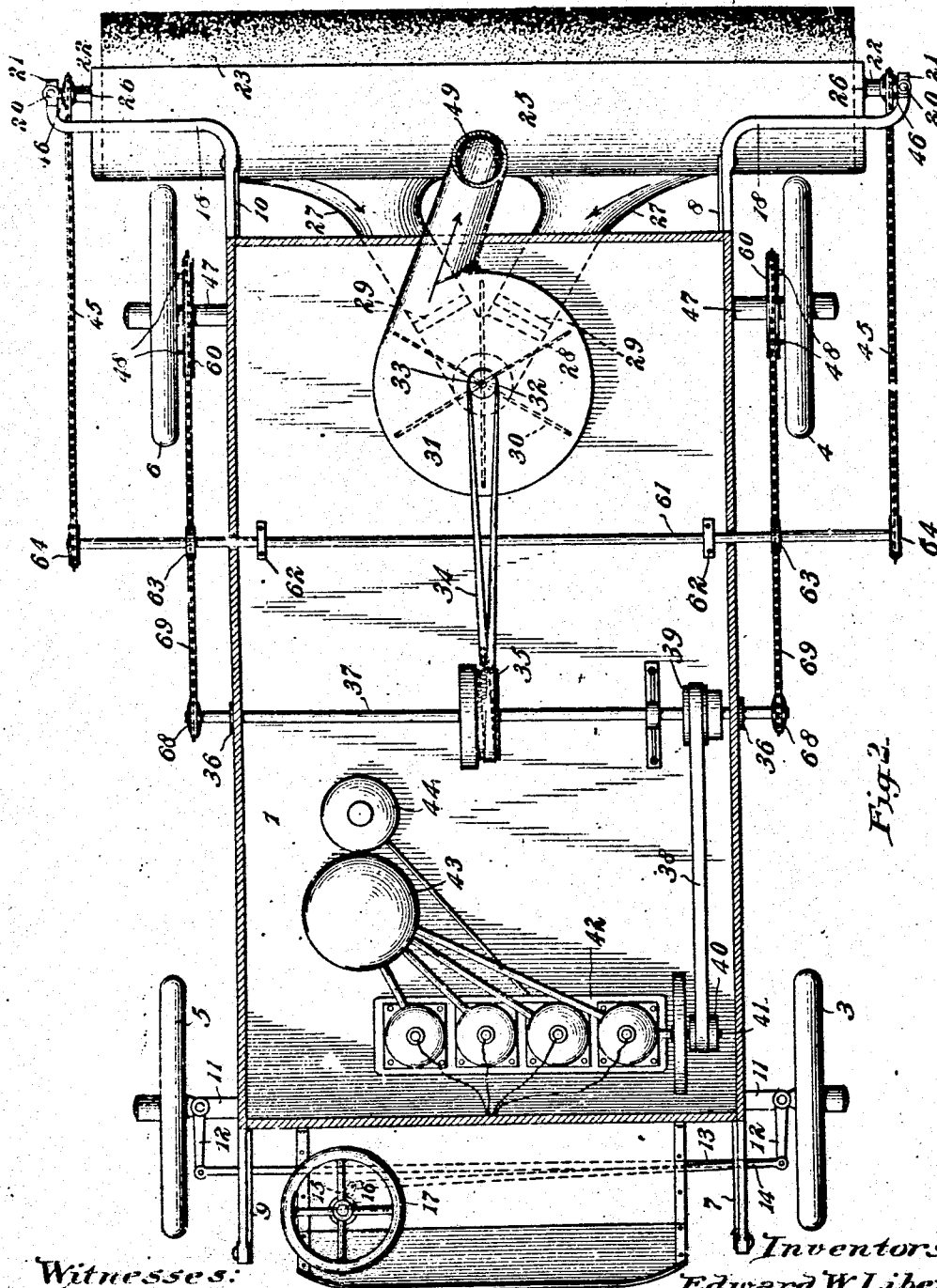


Fig. 2.

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3 SHEETS—SHEET 3.

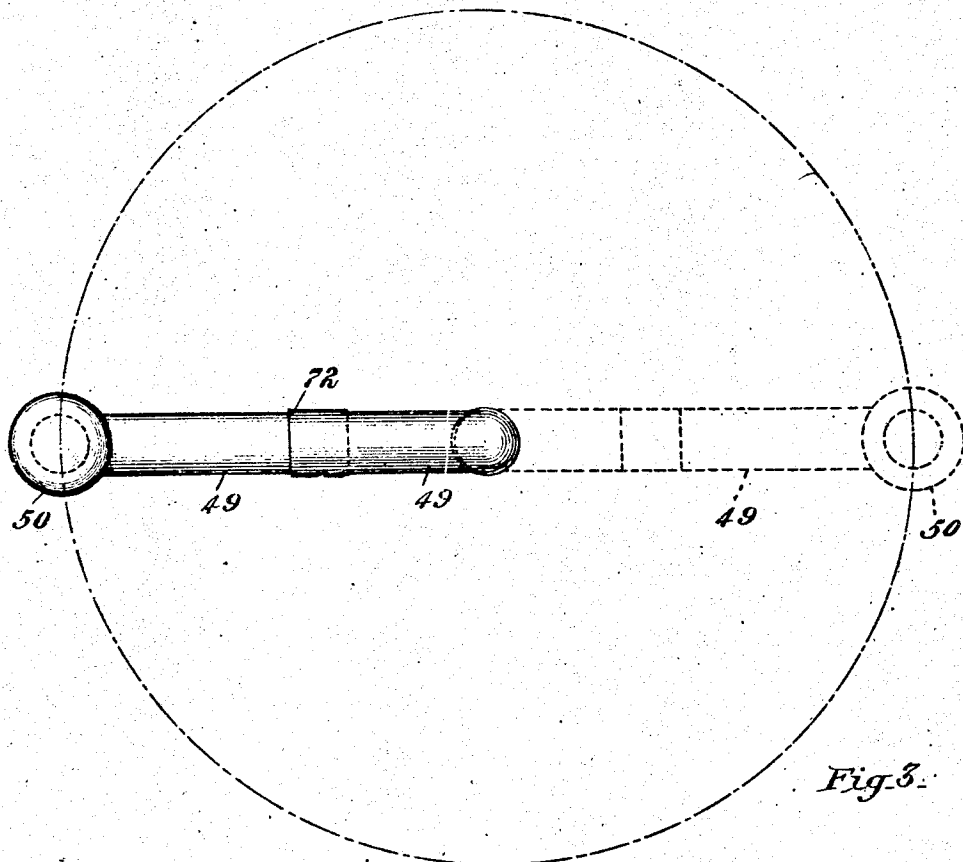


Fig. 3.

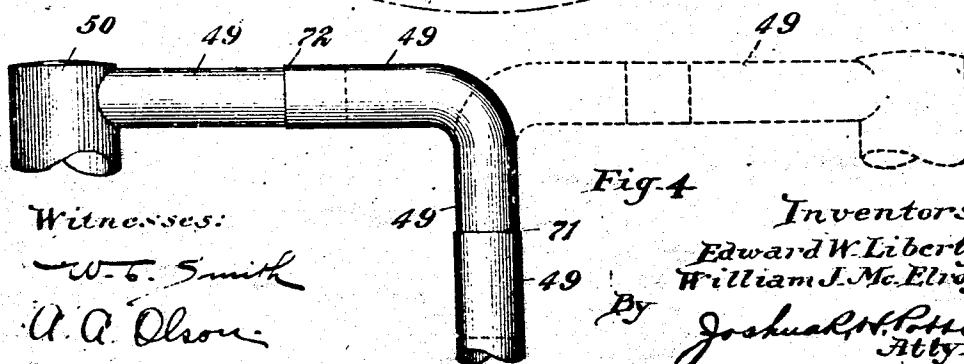


Fig. 4

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UNITED STATES PATENT OFFICE.

EDWARD W. LIBERTY, OF CHICAGO, AND WILLIAM J. McELROY, OF DOWNERS GROVE, ILLINOIS.

STREET-SWEEPER.

935,798.

Specification of Letters Patent.

Patented Oct. 5, 1909.

Application filed June 5, 1908. Serial No. 436,814.

To all whom it may concern:

Be it known that we, EDWARD W. LIBERTY and WILLIAM J. McELROY, citizens of the United States, residing at Chicago, county of Cook, and State of Illinois, and Downers Grove, county of Dupage, and State of Illinois, respectively, have invented certain new and useful Improvements in Street-Sweepers, of which the following is a specification.

Our invention relates to improvements in street-sweepers, and more particularly to the motor-propelled type.

The object of our invention is to provide means whereby a street-sweeping machine may not only perform its ordinary function of sweeping, but to convey the dust automatically to a suitable receptacle in the machine.

Our invention consists in providing an exhaust fan and pipe system in a street-sweeper arranged in such a manner that the dust may be conveyed automatically to a receptacle also provided in the machine, and also consists in a power plant installed in the machine adapted to furnish power for the exhaust fan and for propelling the machine.

Our invention further consists in details of construction which will be hereinafter clearly set forth.

The preferred form of our invention is illustrated in the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a side elevation. Fig. 2 is a horizontal section taken substantially on the line $y-y$ of Fig. 1, the steering wheel being shown in elevation, Fig. 3 is a detail top elevation, and Fig. 4 is a detail side elevation.

The sweeper is preferred to be power-driven as shown but with slight modifications it may be horse-drawn if desired.

Referring to the drawings 1 indicates a body preferably of sheet metal construction mounted on the wheels 3, 4, 5 and 6 by means of the springs 7, 8, 9 and 10. Steering wheels 3 and 5 are pivoted to the front axle 11 by means of the steering knuckles 12, which knuckles are pivoted to the connecting rod 13. The rod 14 is pivoted at one end to a steering knuckle 12 and at the other to the lever 15.

16 and 17 are respectively the steering wheel shaft and the steering wheel.

At the rear of the body 1 are rearwardly

and outwardly extending arms 18 provided with vertically disposed eyes 19 in which the downwardly extending members 20 are adapted to reciprocate. The lower extremities of the members 20 are provided with bearings 21 adapted to receive the brush shaft 22.

23 is the cylindrical brush which together with its shaft 22 is adapted to rotate. The spiral springs 24 surrounding the members 20 and interposed between the arms 18 and the bearings 21 form a yielding connection whereby the brush 23 may adapt itself to uneven conditions of the roadbed. A brush housing 25 journaled to the shaft 22 at the points 26 is adapted to partially inclose the brush 23 and is provided with two pipes 27 extending obliquely from the lower front portion thereof which pipes meet at the point 28. In the pipes 27 a flexible joint 29 is provided which consists in the end of one portion being loosely thrust into the end of the other portion of the pipe, this provision being necessary in order that the housing 25 may move vertically with the brush 23. A centrifugal fan 30 is rotatably mounted in the fan housing 31 to which the pipes 27 lead. A pulley 32 secured to the shaft 33 of the fan is adapted to be driven by the belt 34, which belt is driven by the pulley 35.

Rotatably and transversely mounted in the bearings 36 is the shaft 37 carrying the pulley 35 and adapted to be driven by the belt 38 by means of the pulley 39 secured to the shaft 37. The belt 38 is adapted to be driven by the pulley 40 secured to the motor-shaft 41. The motor 42 is provided with water and fuel tanks 43 and 44 respectively, and the usual engine accessories. The shaft 37 is provided with chain sprockets 68 adapted to drive chains 69. The chains 69 are adapted to drive the sprockets 60 which are rigidly secured to the propelling wheels 4 and 5. The shaft 61 is arranged transversely and rotatably mounted in the bearings 62. Sprockets 63 are secured to the shaft 61 and are adapted to drive same by engagement with the chains 69. The upper portions of the chains 69 are in constant tension when the vehicle is moving forward and consequently form a positive drive for the shaft 61 by engaging with the lower portion of the sprockets 63. The sprockets 64 are rigidly fixed to the extremities of the shaft 61 and are adapted to drive chains 45 which in turn

drive the brush shaft sprockets 46. The propelling wheels 4 and 5 are rotatably mounted on the rear axle 47, and the sprockets 60 are secured to said wheel through the medium of members 48.

The operation of the machine is as follows: The motor 42 is obviously adapted to propel the machine and to drive the fan 30. The fan 30 creates a suction which draws the dust from the roadbed and conveys it through pipes 27, the fan housing 31 and the pipe 49, to the cyclone 50. The function of the cyclone 50 is to dissipate the force of the draft, and consequently to permit the dust to fall into the receptacle 51. The cyclone 50 is clearly shown in Fig. 1, consisting of an annular chamber surrounding the central tube 52. As the dust enters the cyclone in a direction tangent to the annular space, a spiral motion is produced effecting the desired dissipation of draft.

The side door 53 is provided for the purpose of unloading the dust from the receptacle 51 and is hinged and adapted to swing downwardly on a horizontal axis.

58 is a door handle and 59 and 70 are respectively right and left locking members whose action is indicated by dotted lines.

The pipe 49 is provided with telescopic joints 71 and 72 in its vertical and horizontal portions respectively. The joint 71 is adapted to permit the horizontal portion on the pipe 49 to be raised to clear the cyclone 50 from the cover 57 and to swing horizontally to a rearward position as shown by dotted lines in Figs. 3 and 4, in order that the cyclone 50 may connect with a separate carriage or trailer containing a dust receptacle if desired.

73 is a bracket adapted to support the pipe 49.

Having described our invention what we claim as new, and desire to secure by Letters Patent, is:

1. In a street sweeper, in combination with a wheeled vehicle, a motor suitably mounted in said vehicle, means for steering said vehicle, a suitable power transmission

means connecting said motor and the vehicle propelling wheel, rearwardly and outwardly extending arms on said vehicle, eyes at the terminals of said arms, members adapted to reciprocate vertically through said eyes, means exerting yielding resistance to the upward movement of said members in said eyes, a cylindrical brush rotatably mounted in said members, and power transmission means from said motor to said brush, substantially as described.

2. In a street sweeper, in combination with a wheeled vehicle, a motor, suitably mounted in said vehicle rearwardly and outwardly extending arms on said vehicle, eyes at the ends of said arms, members adapted to reciprocate vertically through said eyes, a brush rotatably mounted in said members, means for yieldingly holding said brush in contact with the ground, power transmission means from said motor to said brush, a fan in said vehicle for drawing the sweepings upwardly and depositing them in the vehicle a brush housing and a flexible conduit from said housing to said fan, substantially as described.

3. In a street sweeper, a wheeled vehicle and a rotary brush mounted thereon means for rotating said brush, a fan and fan housing, a conduit leading from adjacent said brush to said fan housing, a receptacle for the sweepings arranged in the upper part of said vehicle, and a conduit leading from said housing to said receptacle, said conduit comprising a vertically extending portion and a horizontally disposed upper portion, said vertically disposed portion being provided with a telescopic and swiveled joint and said upper portion being provided with a telescopic joint, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

EDWARD W. LIBERTY.
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Witnesses:

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