

L. S. HACKNEY.  
STREET SWEEPER.

APPLICATION FILED FEB. 21, 1911.

Patented Sept. 7, 1915.

3 SHEETS—SHEET 1.

1,152,726.

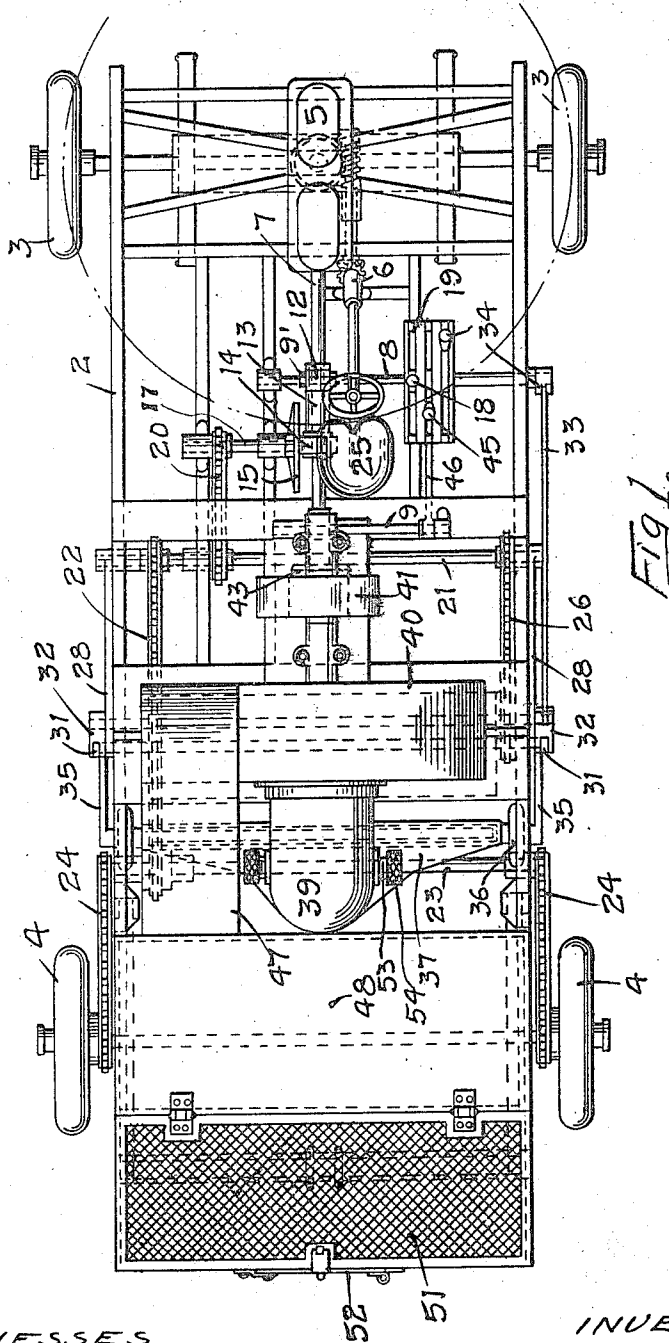


Fig. 1.

WITNESSES

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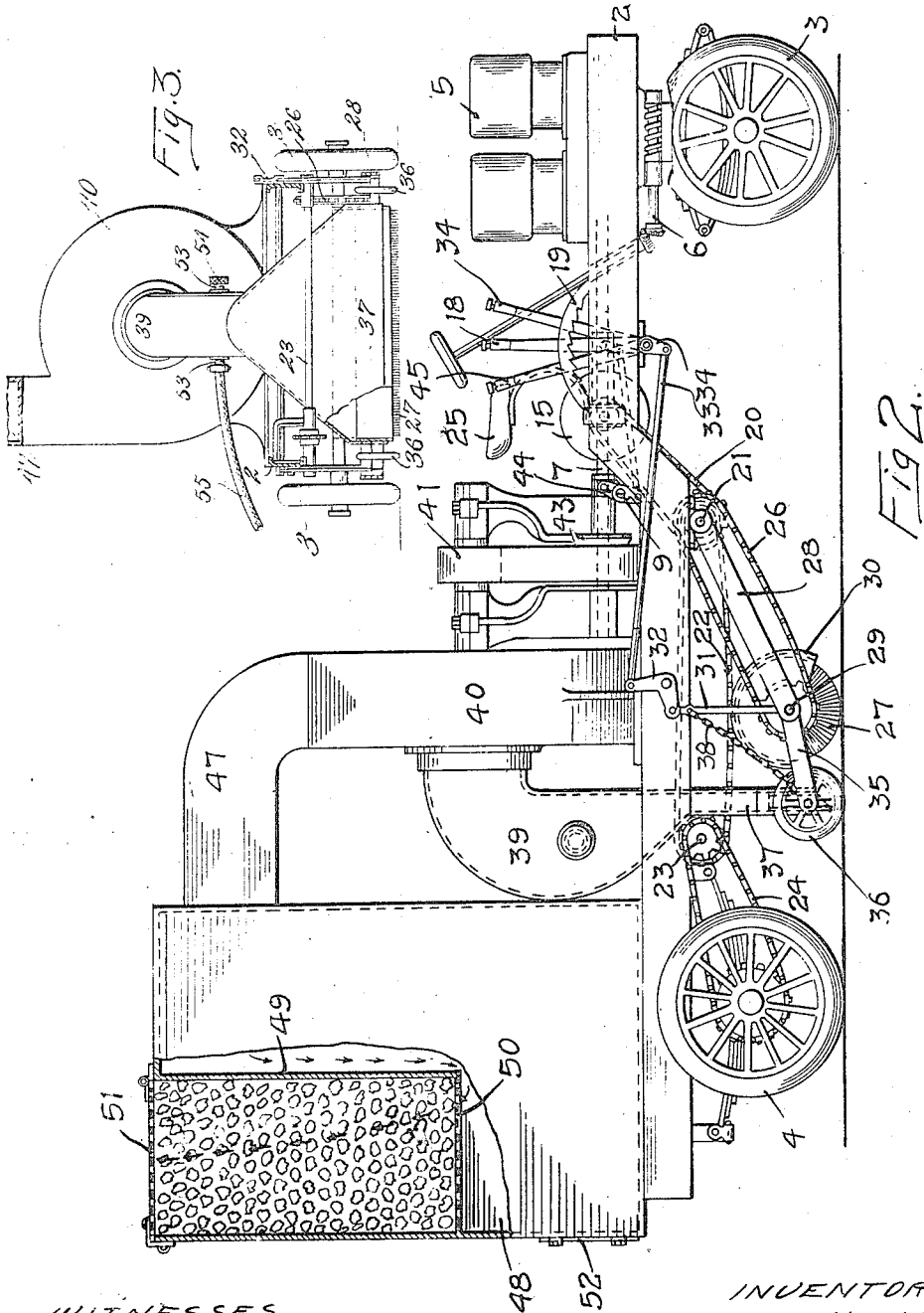
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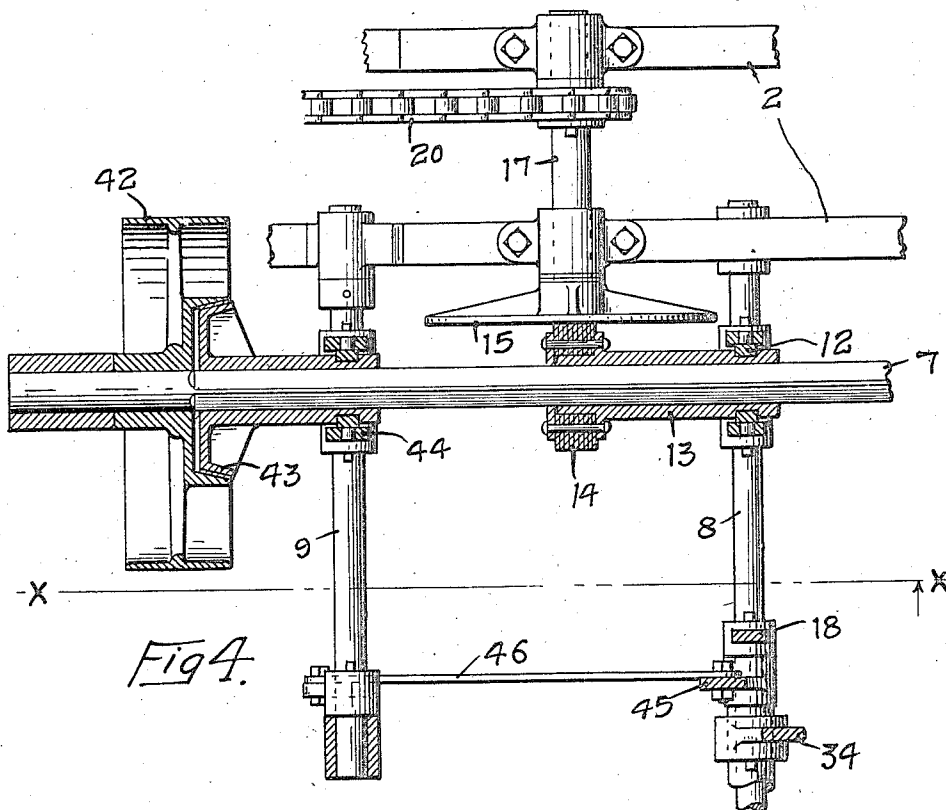


Fig 4.

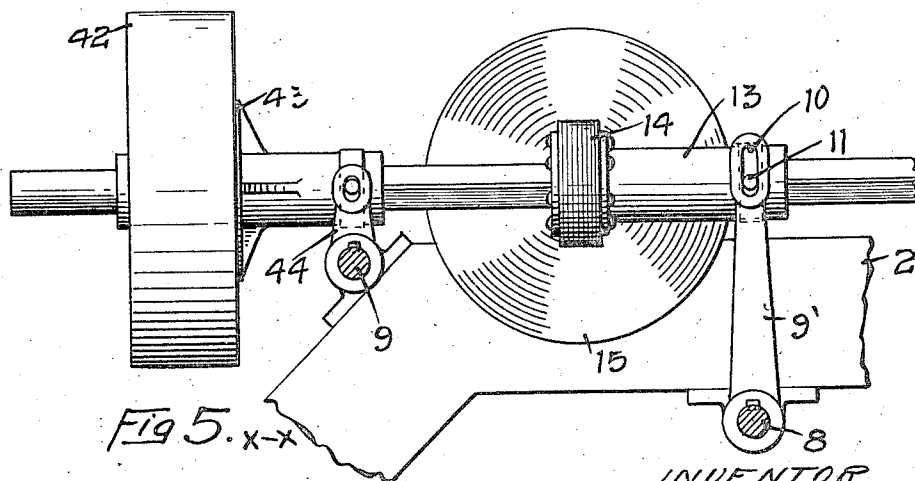


Fig 5. x-x

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# UNITED STATES PATENT OFFICE.

LESLIE S. HACKNEY, OF ST. PAUL, MINNESOTA.

STREET-SWEEPER.

1,152,726.

Specification of Letters Patent.

Patented Sept. 7, 1915.

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*To all whom it may concern:*

Be it known that I, LESLIE S. HACKNEY, of St. Paul, Ramsey county, Minnesota, have invented certain new and useful Improvements in Street-Sweepers, of which the following is a specification.

The object of my invention is to provide a machine for street sweeping purposes which will gather up the dust and dirt and discharge it into a suitable receptacle.

A further object is to provide a street sweeper of light draft, and one which will be very efficient for the purpose designed.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification, Figure 1 is a plan view of a street sweeping machine embodying my invention, Fig. 2 is a side elevation of the same, the dust receptacle being broken away to show its inner construction, Fig. 3 is a transverse sectional view, Fig. 4 is a detail view illustrating the controlling mechanism, Fig. 5 is a sectional view on the line *x-x* of Fig. 4.

In the drawing, 2 represents the frame of a self-propelled vehicle having forward and rear carrying wheels 3 and 4 and a source of motive power 5 mounted on the forward end of the frame and a steering apparatus 6 of ordinary construction by means of which the forward axle and wheels can be oscillated to steer the machine.

I prefer to construct the frame as indicated in Fig. 2, so that the forward wheels will roll back under the frame a sufficient distance to allow a comparatively short turn of the machine.

7 is the driving shaft, extending backwardly from the internal combustion engine, which I prefer to employ as a source of motive power for this machine, said shaft being arranged centrally with respect to the frame of the machine and having suitable bearings thereon.

8 and 9 are rock shafts mounted in bearings transversely of the machine, the shaft 8 having vertically arranged arms 9' secured thereon provided with slots 10 in their upper ends to receive pins 11 on a ring 12 that is loosely mounted on a sleeve 13. This sleeve is splined on the shaft 7 and is provided with a friction wheel 14 which contacts with a friction disk 15 mounted on a

shaft 17 which also has bearings on the frame of the machine. The movement of the friction wheel 14 back and forth, toward or from the center of the disk 15 regulates the speed of the shaft 17, as usual in friction mechanisms of this kind. The shaft 8 is rocked by means of a lever 18 secured on the shaft 8 and movable in a guide frame 19. A driving belt 20 connects the shaft 17 with a transverse shaft 21 and a belt 22 connects the shaft 21 with a shaft 23 which has driving connections at each end through belts 24 with the rear wheels 4. With the foregoing described mechanism I am able to easily and quickly control the speed of the machine from the driver's seat 25. Evidently the direction of movement of the machine is regulated by the position of the friction wheel 14 with respect to the center of the disk. This, however, is ordinary construction in machines which are controlled by a friction drive. The shaft 21 also has a driving connection through a belt 26 with the shaft of a brush 27 of the type usually used for street sweeping purposes, and to hold this brush in its proper position I prefer to provide bars 28 at each end thereof connecting the shaft or spindle 29 of the brush with the shaft 21, the bearings of the bars on the shaft 21 being loose and allowing the free revolution of the shaft. This brush is preferably provided with a hood 30 of sheet metal or other suitable material. It is capable of vertical movement by the following mechanism. A rock shaft extending across the machine carries at its ends arms 32 connected by links 31 with the shaft 29. The rock shaft also has an arm connected by a rod 33 to the lower end of a second lever 34 located near the lever 18 and within convenient reach of the driver. By the operation of this lever the driver can oscillate the bell crank 32 and lift the brush clear of the ground.

A yoke 35 has its arms pivotally connected with the shaft or spindle of the brush and projects rearwardly therefrom and is supported by comparatively small carrying wheels 36. A suction head 37 composed, preferably, of telescoping sections, as shown in Fig. 3, has its lower section supported by the yoke 35 close to the rear of the revolving brush in position to receive the dirt and dust stirred up or loosened by the action of the brush. The yoke has flexible connections 38 leading therefrom to the link 31, so that when the brush is raised the yoke

and the lower section of the head will be lifted also, the sections of the head having sufficiently loose connections to allow a slight oscillation of the head and permit the sections to telescope freely when the brush is raised. The brush and the suction head will generally be lifted in passing over obstructions or when the machine is not in use. The upper portion of the suction head communicates with a trunk 39 leading to a suction fan casing 40, the fan of which casing is driven through a belt 41 from a pulley 42 loosely mounted on the driving shaft and made operative by means of a friction clutch device 43 that is controlled from the rock shaft 9 through arms 44 mounted on said shaft, and connected with the hub of said clutch in the manner heretofore described with respect to the arms 9'. An operating lever 45 is arranged preferably between the levers 18 and 34 and is connected with the rock shaft 9 by a link 46. The shaft 9 is rocked to set or release the clutch 43 and drive the fan by the belt 41 from the shaft 7. The operation of this fan will cause a strong suction in the head 37 and the dirt and refuse material stirred up by the brush will be gathered up and drawn into the suction head and up through the trunk 39 into the fan casing. A discharge spout 47 leads from the fan casing to a receptacle 48 that is mounted on the rear of the frame or chassis of the machine. The spout enters the upper portion of this receptacle and is deflected downwardly by a partition 49. At the bottom of this partition, between it and the wall of the receptacle, is a perforated floor 50 forming, with said partition and the walls of the receptacle, a receiver or filter for the air currents, the top of the filter being open and normally closed by a perforated plate 51. The filter is adapted to contain air cleansing material, such as charcoal, coke, or any other suitable agent which will remove the fine particles of dust from the air that would not be precipitated by gravity to the bottom of the receptacle. The material in the filter may be moistened to assist in purifying the air currents. A large proportion of the material in the receptacle will be separated from the dust laden air currents and deposited in the bottom for removal subsequently through a suitable door 52 at the rear. The plate 51 is preferably hinged so that it may be raised and the filter cleaned and the filtering agent removed whenever necessary.

It is sometimes desirable in an apparatus of this kind to use a portable suction device for cleaning the sidewalks or places where the machine could not be driven. I therefore prefer to provide nipples 53 on each

side of the trunk 39, normally closed by removable caps 54, which permit a hose 55 to be attached to the trunk on either side, said hose having a suitable suction head, not shown, which can be easily moved from place to place and the dust and dirt collected and drawn into the tank or receptacle by the suction of the rapidly revolving fan.

This machine may be made in various sizes and its suction power may be varied according to the size of the brush, the character of the material to be gathered up and the quantity, it being evident that the suction power of the fan may be varied by slight changes in its driving connections as well as in the size of the fan and of the suction head. I do not wish, therefore, to be confined in this application to the particular means employed for accomplishing the result sought, as in various ways the construction may be modified without departing from my invention.

I claim as my invention:—

1. A street sweeper comprising a frame having carrying wheels, a motor mounted on said frame, a revolving brush operatively connected with said motor, bars pivotally connected at their forward ends with said frame and extending downwardly and rearwardly therefrom and having bearings at their rear ends for said brush, a suction fan mounted on said frame, a suction head arranged in the rear of said brush and having carrying wheels and links pivotally connecting it with the pivots of said brush, the walls of said head being connected at its upper end with said fan, said brush and head being free to rise and fall with the inequalities of the ground over which they are moving, the open end of said head being adjacent to said brush for collecting the dust and dirt from said brush.

2. A street sweeper comprising a frame having carrying wheels, a motor mounted on said frame, a revolving brush operatively connected with said motor and having freedom of vertical movement, a suction head composed of telescoping sections arranged in the rear of said brush and having an open lower end, carrying wheels for said head, a suction fan and casing therefor, and a trunk connecting said head with said suction fan, said head being free to rise and fall with the inequalities of the ground over which the brush may be moving.

In witness whereof, I have hereunto set my hand this 13th day of February, 1911.

LESLIE S. HACKNEY.

Witnesses:

B. C. STRANG,  
N. L. BABCOCK.