J. BONNER & W. B. WALSH.

STREET SWEEPING MACHINE.

APPLICATION FILED MAR. 18, 1914.

1,149,893.

Patented Aug. 10, 1915.

2 SHEETS—SHEET 1.

Fig. 1.

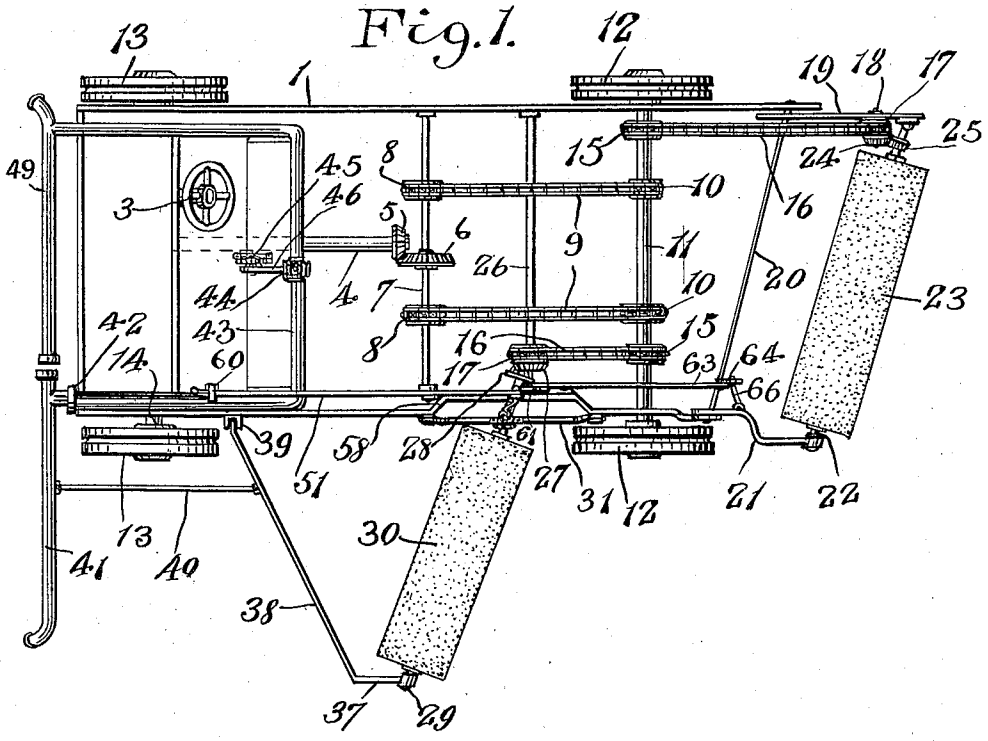
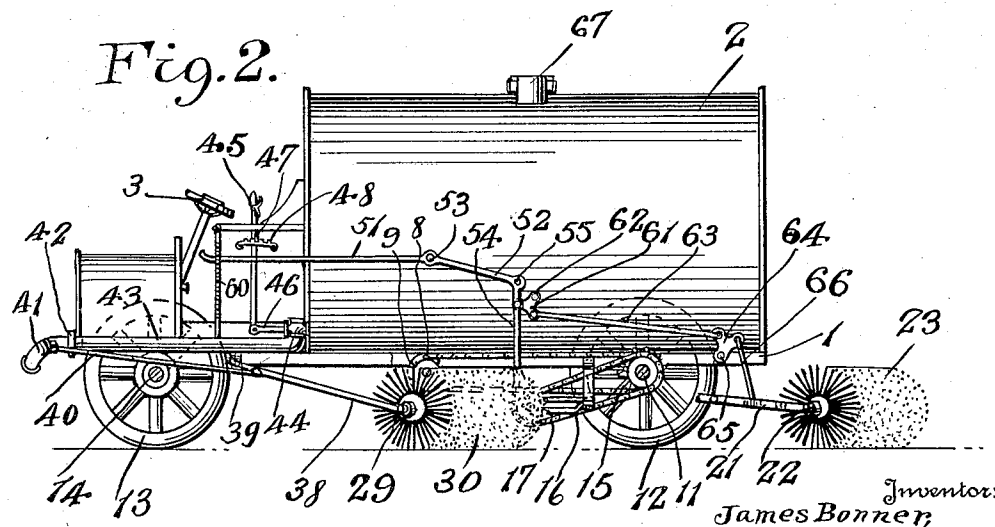


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

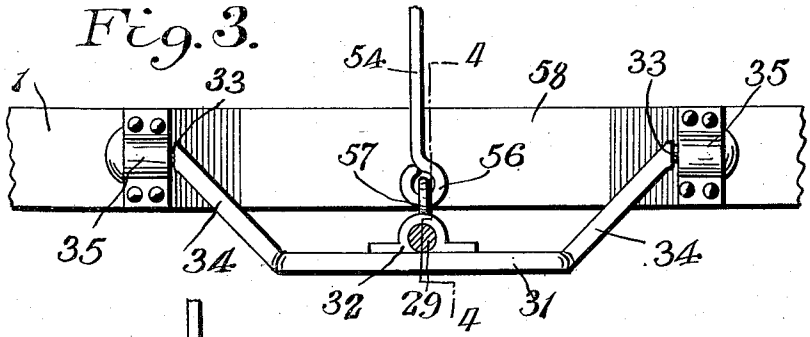


Fig. 5.

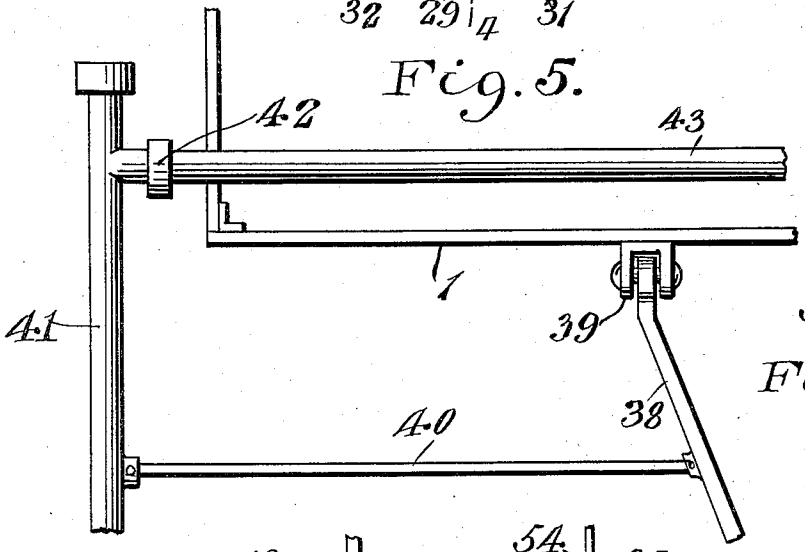


Fig. 7.

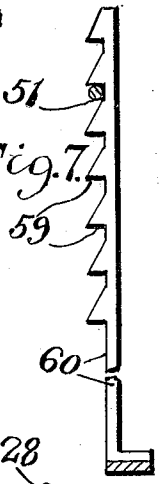


Fig. 6.

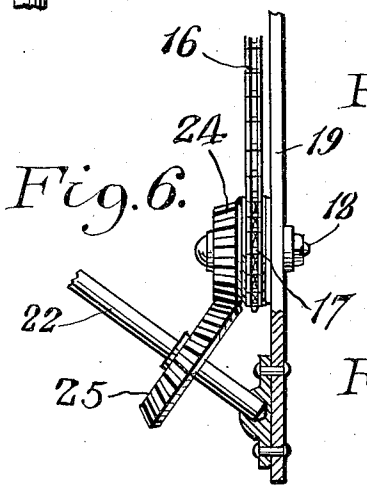


Fig. 4.

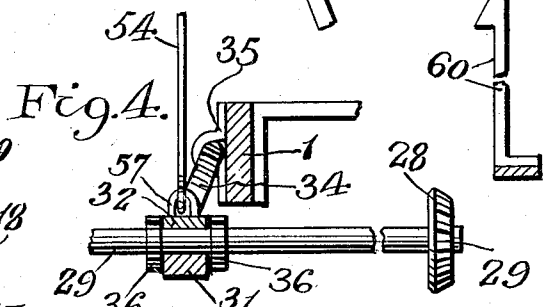
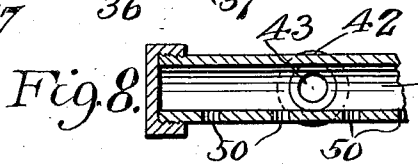


Fig. 8.



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES BONNER, OF BROOKLANDVILLE, AND WILLIAM B. WALSH, OF BALTIMORE, MARYLAND.

STREET-SWEEPING MACHINE.

1,149,893. Specification of Letters Patent. Patented Aug. 10, 1915.

Application filed March 18, 1914. Serial No. 825,567.

To all whom it may concern:

Be it known that we, JAMES BONNER and WILLIAM B. WALSH, citizens of the United States, residing at Brooklandville and Baltimore, in the county and city of Baltimore, respectively, and State of Maryland, have invented certain new and useful Improvements in Street-Sweeping Machines; and we 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 comprehends certain new and useful improvements in street sweeping machines and has for its primary object to provide a device of this character which will be of simple construction and operation and in which the brushes will be mounted in such manner that they may be readily raised by means of a lever within reach of the operator.

Another object is to provide a machine of this character which will be constructed in such manner that the brushes may be mounted in swinging brackets which may be readily raised or lowered to place the brushes in operative position or in inoperative position, as desired, operative connections being formed between the engine for operating the machine and the brushes, whereby said brushes may be operated by the engine.

A further object is to generally improve and simplify the construction and operation of devices of this character and increase the efficiency thereof without materially increasing the cost of the same.

With these and other objects in view as will become more apparent as the description proceeds, the invention consists in certain novel features of construction, combination and arrangement of parts as will be hereinafter more fully described and claimed.

For a complete understanding of our invention, reference is to be had to the following description and accompanying drawings, in which—

Figure 1 is a top plan view of the street sweeping machine. Fig. 2 is a side elevational view thereof. Fig. 3 is an enlarged fragmentary side elevation with the side brush removed and the shaft of the same shown in section, to illustrate the means for supporting the inner end of said shaft. Fig. 4 is a fragmentary detail section on the plane of line 4—4 of Fig. 3. Fig. 5 is an enlarged fragmentary plan view, showing the forward end of the stay rods and one section of the sprinkling pipe rotatably mounted upon the water conveying pipe. Fig. 6 is a fragmentary detail view, showing the connection between the shaft for the rear brush and the operating sprocket chain for the same. Fig. 7 is a fragmentary detail view of the means for locking the operating lever in adjusted position, and Fig. 8 is a fragmentary longitudinal section through one of the sections of the sprinkling pipe.

Referring in detail to the drawings by numerals, 1 designates the frame and 2 the tank of our improved street sweeping machine, the tank 2 being supported upon the frame 1. Any suitable engine, not shown, may be employed for propelling the device and may be mounted in any suitable manner and in any suitable position upon the frame or beneath the same, as desired, the usual form of steering wheels 3 being preferably employed for steering the machine. The frame 1 may be of any form and construction desired, and a shaft 4 leading from the engine, has a beveled gear 5 mounted upon its free end for engagement with the beveled gear 6 mounted upon the transverse shaft 7 carried by the frame 1, and upon which are mounted the sprocket wheels 8 over which the sprocket chains 9 are engaged, said sprocket chains 9 being also engaged over the sprocket wheels 10 upon the rear axle 11. It will be understood that the rear axle 11 has the rear ground wheels 12 mounted upon its opposite ends, while the front ground wheels or forward ground wheels 13 are mounted upon the forward shaft 14. It will be seen, from the foregoing, that we have shown the device applied to a motor vehicle having a rear axle drive and the principal parts of our invention will now be described in detail.

Mounted upon the rear axle 11 are a pair of sprocket wheels 15, over which are en-

gaged the sprocket chains 16 which are also engaged around the sprocket wheels 17. One of the sprocket wheels 17 is mounted upon a stub shaft 18 carried in the swinging frame member 19 which has one end pivotally mounted upon the stationary supporting shaft 20 secured through the main longitudinal members of the frame 1. The pivoted supporting frame member 19 cooperates with a similar pivoted supporting frame member 21 which is pivotally mounted upon the opposite end of the shaft 20 to support the shaft 22 for the rear rotary brush 23 rigidly mounted upon said shaft 22 which latter, as will be understood, is mounted rotatably in the rear free ends of the pivoted supporting frame members 19 and 21. The shaft 22 and brush 23 as well as the stationary shaft 20 are positioned at an oblique angle to the rear axle 11, and the brush shaft 22 and rear brush 23 are rotated by means of a beveled gear 24 formed on the stub shaft 18 and engaged with the beveled gear 25 rigidly mounted upon the rear brush shaft 22, adjacent one end thereof. It will therefore be seen that as the rear axle 11 is rotated during movement of the machine, the rear brush 23 will be rotated in the proper direction to brush foreign substances upon the street toward the body of the machine and to one side of the road or street over which the device is traveling.

The second sprocket wheel 17 is mounted upon a shaft 26 positioned transversely in the main frame 1 and also serving to support the beveled gear 27 which is formed with the sprocket wheel 17 and engaged with the beveled gear 28 mounted upon the side brush shaft 29 when the latter and the side brush 30 carried thereby are in normal position to allow engagement of said brush 30 with the surface over which the machine is traveling, as will presently be clearly apparent.

The inner end of the side brush shaft 29 is rotatably mounted in the swinging bracket member 31, as shown at 32, the main portion of said swinging bracket 31 being offset downwardly from the opposite outwardly directed extremities 33 thereof and connected with the latter by inclined portions 34. The outwardly directed extremities 33 are reduced and rotatably mounted in the bearings 35 positioned upon the outer face of the side longitudinal member of the main frame 1 and adapted to swing in said bearings 35. Longitudinal movement of the side brush shaft 29 is prevented by the collars 36 positioned upon either side of the main portion of the swinging bracket member 31 upon which said shaft 29 is rotatably mounted in a bearing, as shown at 32, and previously stated, and it will be readily seen that when the swinging bracket member 31 is in normal position with the main portion thereof in its lowermost position, the side brush shaft 29 and the side brush 30 will be in substantially horizontal position with the bristles of the brush engaged with the surface, the outer end of the side brush shaft 29 being supported in the outer rearwardly directed extremity 37 of the stay-rod 38. which has its inner or forward end pivoted between the ears 39 projecting outwardly from the longitudinal side member of the frame 1, adjacent the forward end thereof, whereby said stay-rod 38 may readily swing in the ears 39 during the operation of raising and lowering the brushes 23 and 30, as will presently be clearly apparent.

Rigidly connected with the stay-rod 38 is a connecting rod 40, which is also connected with one section 41 of a perforated sprinkling pipe, which section 41 is provided with a lateral extension 42 adjacent its inner end, the free end of which extension is rotatably mounted upon the outer free end of one branch of the divided fluid conducting pipe 43 leading from the tank 1. The water conducting pipe 43 has a cutoff valve 44 secured therein at the connection of its main portion with its branches and which may be operated by means of a lever 45 connected therewith by the connecting rod 46, the lever 45 being of the form having a latch member 47 for engagement in a rack 48 to lock the lever in adjusted position. The end of one branch of the fluid conducting pipe 43 is secured to the stationary section 49 of the water or other fluid distributing and sprinkling pipe, the section 49 being in alinement with the section 41. Both sections 41 and 49 preferably have their free ends closed and curved forwardly and outwardly, while the main portions of said sections are perforated in their undersides, as shown at 50.

Both the rear brush 23 and the side brush 30 may be readily raised by operating the lever 51, the main portion of which is normally in horizontal position, while the rear end 52 of said lever extends downwardly and rearwardly at an oblique angle to the main portion of said lever. The lever 51 is pivoted to the side of the tank 2, as shown at 53, at the point at which the main portion of said lever connects with the downwardly directed portion 52 and the free extremity of this downwardly directed portion 52 is pivotally connected with the depending rod 54, as shown at 55, the lower end of said depending rod 54 being bent in the form of a hook, as shown at 56, and secured through the eye 57 carried by the bearing within which the inner end of the shaft 29 is mounted, whereby upon downward movement of the forward extremity of said lever 51, the latter will be swung upon its pivot 53 and raise the depending rod 54 to swing the pivoted bracket member 31 on its extremities 33, and thereby force the outer end of said shaft 29 and the brush 30 to

swing upwardly while the inner end of said shaft 29 swings downwardly, until the brush 30 and shaft 29 are in substantially vertical positions against the side of the frame and tank, a portion of frame 1 being bent inwardly to make room for the brush 30, as shown at 58. It will be seen that as the brush 30 and shaft 29 swing to vertical positions, the stay-rods 38 will also swing to vertical position, causing the fluid distributing pipe section 41 connected therewith by means of the connecting rod 40, to also swing upwardly, in order that the machine may pass close to a car or other vehicles. The lever 51 may be readily locked in adjusted position by engaging the forward portion thereof in the notch beneath the proper tooth 59 of the rack 60 provided for this purpose and over the teeth of which the solid portion of the lever is compelled to move upon each operation of the same, and it will be understood that any suitable means, not shown, may be provided for preventing disengagement of the lever 51 from the rack 60. It will further be understood that the lever 51, as well as the lever 45, is positioned within convenient reach of the operator.

Upward movement of the depending rod 54 upon proper operation of the lever 51 will cause the bell-crank 61 having one arm connected therewith, to swing upon its pivot 62 and thereby draw forwardly the operating rod 63 connected with the opposite arm of the bell-crank 61 and with one arm of the bell-crank 64. The forward movement of the operating rod 63 will also cause the bell-crank 64 to swing upon its pivot 65 and pull upwardly the operating rod 66 connected with its remaining arm and with the swinging frame supporting member 21. As the pivoted or swinging frame supporting member 21 is rigidly connected with the similar member 19 by means of the rod 20, upward movement of the operating rod 66 will cause the free ends of the members 21 and 19 to move upwardly and thereby raise the rear brush 23 from engagement with the surface over which the machine is traveling. It will therefore be seen that operation of the lever 51 in the proper direction will raise both brushes 30 and 23 as well as the stay-rods 38 and section 41 of the fluid distributing and sprinkling pipe, making it unnecessary to employ a separate lever for each one of these parts.

It will be understood that the tank 2 may be filled through a suitable filling opening 67 and it will also be understood that the section 49 of the fluid distributing and sprinkling pipe is positioned in front of the frame 1 and is of such length that the ends thereof do not project beyond the wheels 13 and sides.

It will be seen that the brushes 23 and 30 are positioned in substantially parallel planes at an oblique angle to the longitudinal center of the frame 1 and the foreign matter swept by the brush 30 will be forced in the path of the rear brush 23 and by the latter, all foreign matter in the path of the same will be forced to the side of the street or road over which the device is traveling, and when crossing a street or turning, both brushes may be readily raised from engagement with the surface. Further, it is not necessary, when using our machine to leave the work and drive out of the way of a car or vehicle when the street is crowded or narrow, as the side brush 30, shown at 38, and pipe section 31, may be readily swung upwardly against the side of the body and tank by the proper operation of the single lever 51 and again lowered to normal position after the car or other vehicle has passed.

While we have shown and described the preferred embodiment of our invention, it will be understood that minor changes in construction, combination and arrangement of parts may be made without departing from the spirit and scope of the invention as claimed.

What is claimed is:—

In a street sweeping machine, a frame, a vertically swinging bracket horizontally pivoted on one side of said frame and extending longitudinally thereof, a shaft supported at one end, a side brush mounted on said shaft, an arm pivoted to said frame, the opposite end of the shaft being mounted in said arm, means connected with said bracket for swinging the same upon its horizontal pivot to throw upwardly the shaft, and means for operating the same.

In testimony whereof we affix our signatures in presence of two witnesses.

JAMES BONNER.
WILLIAM B. WALSH.

Witnesses:
JAS. A. CLARK,
JAMES HEWES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."