

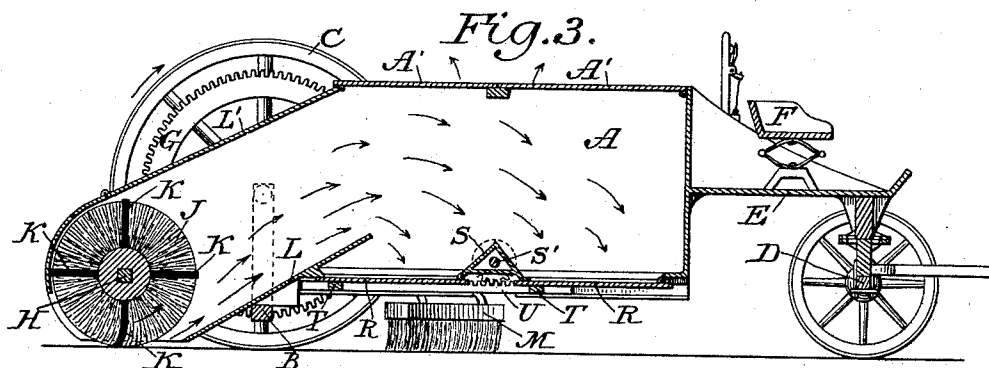
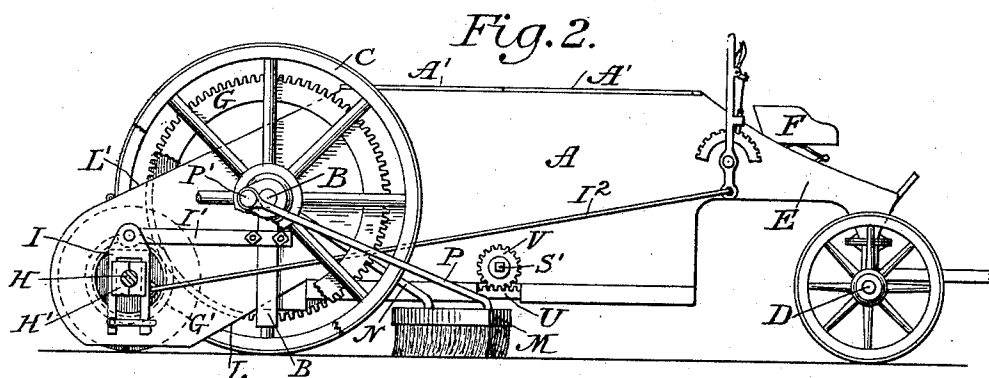
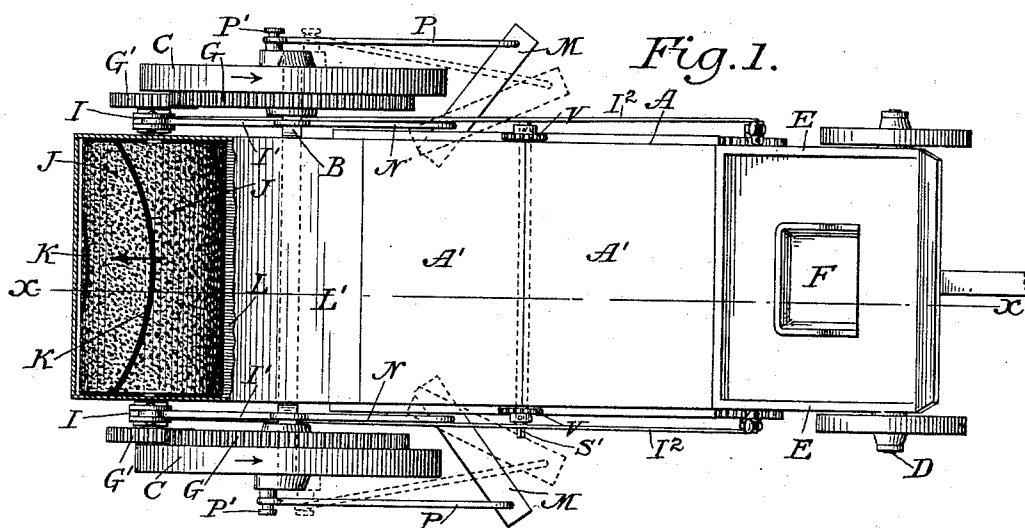
(No Model.)

2 Sheets—Sheet 1.

J. MACKEY.
STREET SWEEPING MACHINE.

No. 467,555.

Patented Jan. 26, 1892.



Attest:
A. S. Jespersen
C. M. Watson

Inventor:
John Mackey
By David A. Burr
Atty.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

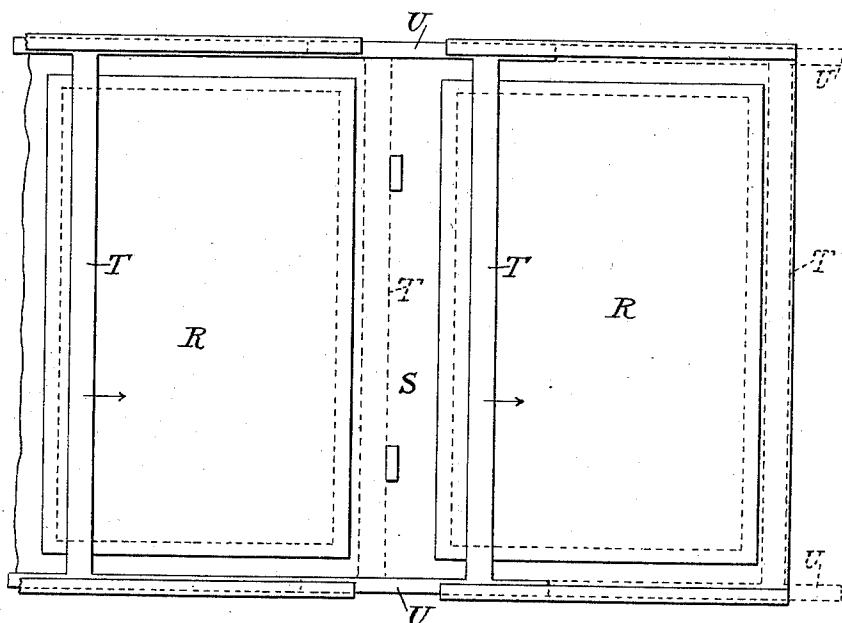
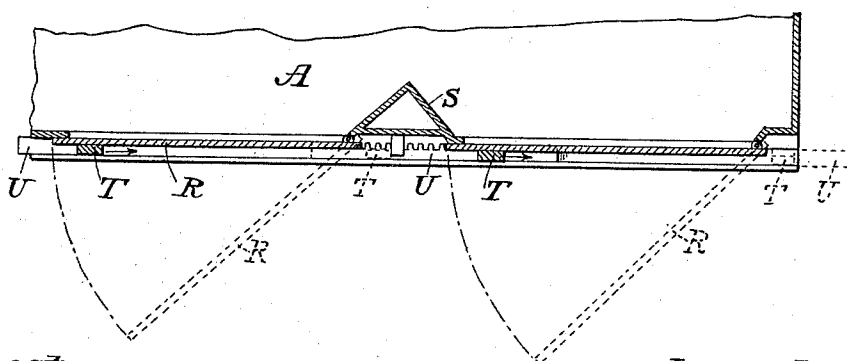


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN MACKEY, OF NEW YORK, N. Y.

STREET-SWEEPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 467,555, dated January 26, 1892.

Application filed February 20, 1891. Serial No. 382,144. (No model.)

To all whom it may concern:

Be it known that I, JOHN MACKEY, of the city, county, and State of New York, have invented certain new and useful Improvements in Street-Sweeping Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention relates to the construction of machines for sweeping the streets, and has for its object to simplify the same, reduce the cost, and increase the efficiency thereof.

It consists in the novel construction, combination, and arrangement of the parts of the machine, substantially as is hereinafter particularly described and claimed.

In the accompanying drawings, Figure 1 is a top or plan view of my improved street-sweeping machine; Fig. 2, a side elevation thereof; Fig. 3, a central longitudinal section in the line *xx* of Fig. 1; Fig. 4, an enlarged bottom view of the body of the machine, illustrating the arrangement of the hinged bottom plates; and Fig. 5, a sectional detail, on an enlarged scale, of the hinged bottom doors and their supports.

Similar letters indicate like parts in all of the figures.

In its general construction my improved street-sweeping machine consists of a body A, adapted to receive the dirt and street-sweepings, provided with a hinged bottom to admit of readily dumping its contents, and which is mounted by means of a suitable frame upon a rear axle B, fitted with large hind wheels C C, and upon a front axle D, connected to the body by hangers E E, which permit the front wheels to turn, with the axle, in a complete circle in front of the body. The driver's seat F is mounted upon the hangers E E or upon the front end of the body.

The hind wheels C C are made to serve as driving-wheels for the revolving broom by means of a toothed flange G, formed or fitted upon the inner side of each wheel concentric with its rim, and which is made to engage a pinion G' on the corresponding end of the broom-shaft H.

In the foregoing particulars the machine

does not differ, essentially, from street-sweeping machines heretofore constructed.

The broom-shaft H is mounted at the rear of the driving-wheels, parallel with the axle, in bearings carried in boxes H', (see Fig. 2,) sliding vertically in brackets I I, which are pivoted to arms I' I', extending rearwardly from the frame-work of the machine, on either side, so that as the broom wears away and the broom-shaft is consequently lowered the contact of the pinions G' G' on the shaft with the toothed flanges G G on the wheels may be maintained. The brackets are swung inward, and the pinions G' thus carried and held in proper engagement with the driving-wheels G by means of lateral rods I² I², extending forward, and whose outer ends are coupled to levers within reach of the driver, said levers, when adjusted, being held by means of a rack and pawl in the customary manner. By throwing back the levers and attached rods I² I² the broom may be thrown out of gear with the driving-wheels when not at work.

In the construction of the revolving broom I attach to the broom-shaft H, at regular intervals about its circumference intermediate the bristles J, which constitute the main body thereof and are secured thereto in the usual manner, longitudinal strips K K of thick rubber or its equivalent—such as heavy sole-leather—stiff enough to resist a bending strain thereon with considerable force and of such elasticity as that they will, when released, spring back with great power to their normal position. These longitudinal strips are secured edgewise to the broom-shaft, preferably in a curve from end to end whose convex side shall lie toward the front of the machine, (see Fig. 1,) and each strip is of a width slightly greater than the length of the bristles J of the broom, so as to project somewhat beyond them, as shown in Fig. 3. An inclined apron L is fixed to extend from in front of the broom, near to the ground, forward to and above the bottom of the body or box A of the machine, and a parallel covering-plate L' is fitted from above the top of the broom to the top of the box, the end openings between the apron and covering-plate being closed in by suitable side pieces forming an extension of the sides of the body. The top of the body

or box A is covered and closed tight by suitable hinged covers A' A'.

To carry the dirt on either side of the machine from in front of the wheels inwardly between them within reach of the revolving broom, lateral brooms M M, consisting of straight heads armed with bristles in the customary manner, are severally attached to the rear axle, each by means of a coupling-rod N, extending from the inner end of the head of the broom to the axle at a point immediately behind the axle-box. Each coupling-rod N is pivoted to the broom, and is also pivoted upon the axle, so that the broom is free to rise and fall with the rod and to swing upon the end of it.

The outer end of each side broom M is coupled by a second rod P to a wrist-pin P' on the outer end of the hub of the wheel, so that the wheel in its revolution operates as a crank to produce a reciprocating movement of the outer end of the broom, causing it to swing in front of the wheel back and forth in the arc of a circle having the end of the inner coupling-bar N as its center, as shown in dotted lines in Fig. 1.

The bottom of the body or box A, which receives the sweepings of the machine, is fitted with double doors R R, (see Figs. 3, 4, and 5,) hinged, respectively, the one at the front of the box to drop from the middle thereof downward and the other to a cross-piece immediately in the rear of the middle to drop from the rear end of the box downward, as shown by the dotted lines in Fig. 5. A low transverse partition S, triangular in cross-section and which is left hollow to inclose a transverse shaft S', Figs. 1, 2, and 3, is formed across the middle of the bottom of the box and serves to deflect the dirt in each direction from the center to the two doors. These dumping-doors are severally upheld, when closed, by cross-bars T T, made to slide edgewise upon suitable ways formed to support them at each end thereof. These bars are attached at their ends to two longitudinally-sliding rack-bars U U, Figs. 4 and 5, whose teeth engage pinions V V (see Figs. 1, 2, and 3) on the transverse shaft S', so that by rotating said shaft by means of a crank applied to either end the cross-bars T T may be moved from under the free edges of the doors toward and beyond the hinges, and thus allow them to drop open and thereby dump the contents of the body or box A in a heap under the machine. When the dumping is accomplished, the doors may be closed again by reversing the crank, and thereby sliding the cross-bars T T back again under the doors, so as to lift them back into their closed position and uphold them when closed.

In the operation of the machine the revolving broom-shaft, actuated by the hind-wheels, carries the outer edge of the curved elastic strips K K into contact with the ground, and

these, by reason of their radial width, will drag upon and over the ground while in contact therewith, as shown in Fig. 3. So soon, however, as in the revolution of the broom they reach a point of release their elasticity, by causing them to straighten out with a quick forcible movement, will operate to throw the dirt collected in front thereof up the inclined plane formed by the apron L into the body or box A. This action of the elastic sweeping-strips K K is supplemented by the intervening bristles J, which serve to collect and sweep up the finer particles.

The escape of dust from the sweeping apparatus is prevented by the inclosure of the broom and apron in manner as described.

The dirt on either side of the machine is swept into place to be gathered up by the revolving broom, as the machine advances, by the reciprocating swinging movement of the side brooms M M, produced by their attachment and connection, as described, to the hind wheels.

I claim as my invention—

1. The combination of a rotary cylindrical broom having a body of radial bristles and a series of continuous elastic strips disposed longitudinally and radially upon the broom-shaft in longitudinally-curved lines and having a radial width greater than the length of said bristles, and means for rotating said broom, substantially as shown and described.

2. The combination, in a street-sweeping machine, with its hind wheels, a revolving broom mounted back of said wheels, and a lateral broom placed in front of each wheel, of a coupling-rod pivoted to the axle inside of the hind wheel and to the inner end of the broom, and a second coupling-rod pivoted to a wrist-pin on the hub of said wheel and to the outer end of the broom, substantially in the manner and for the purpose herein set forth.

3. The combination, in a street-sweeping machine, with the dirt-receptacle mounted thereon, of the hinged bottom doors for the receptacle made to open both in the same direction upon transverse pivotal axes, cross-bars adapted to slide from under the free edge of each door toward and beyond its hinges, longitudinally-sliding racks secured to each bar at a right angle therewith, a crank-shaft mounted parallel with said bars, and pinions fixed on said shaft to engage said racks, substantially in the manner and for the purpose herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN MACKEY.

Witnesses:

A. N. JESBERA,
E. M. WATSON.