(No Model.) 2 Sheets—Sheet 1.

J. H. WINSPEAR, F. R. SMITH & S. Y. SANSOM.

STREET SWEEPER.

No. 590,288. Patented Sept. 21, 1897.

Fig. 1.

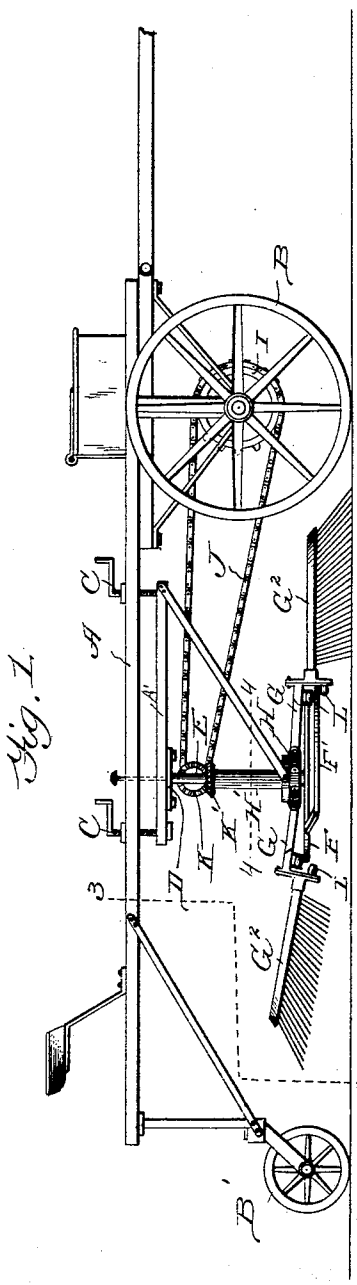
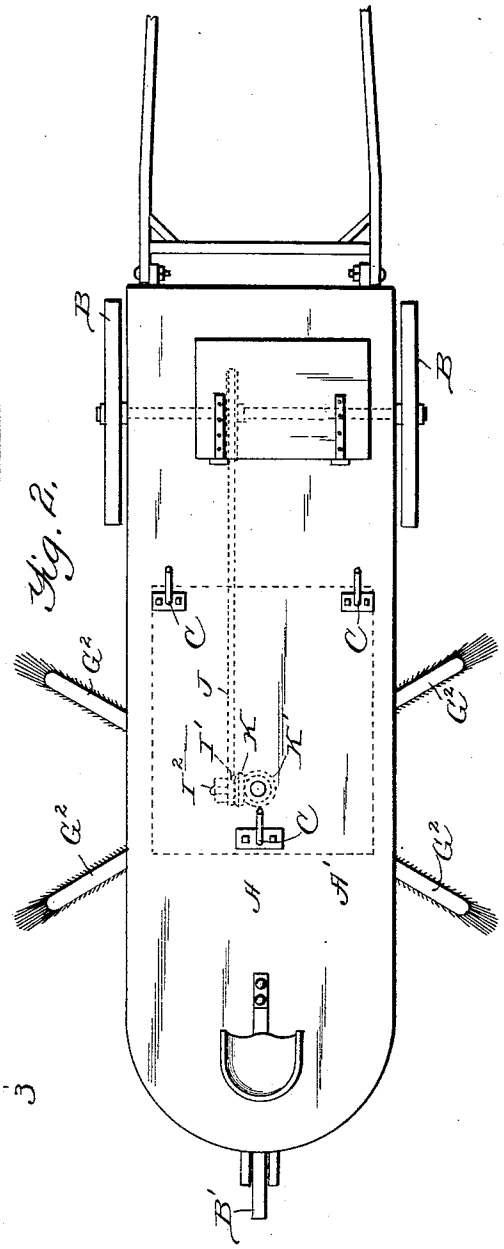


Fig. 2.



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Fig. 3.

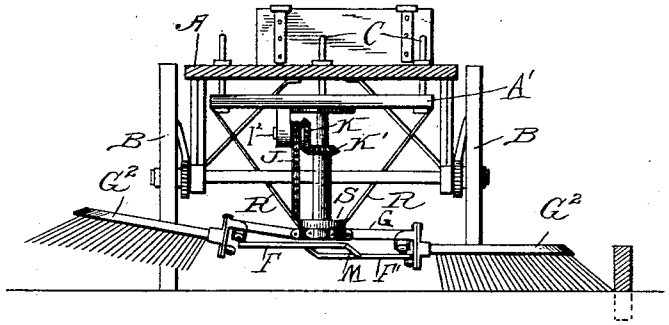


Fig. 4.

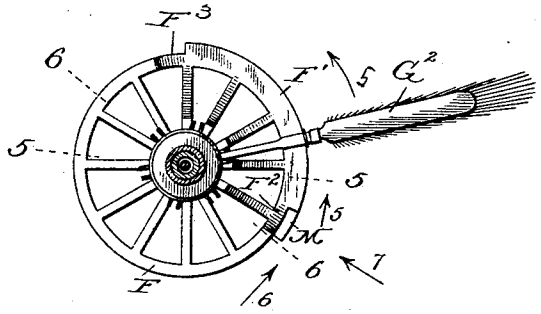


Fig. 5.

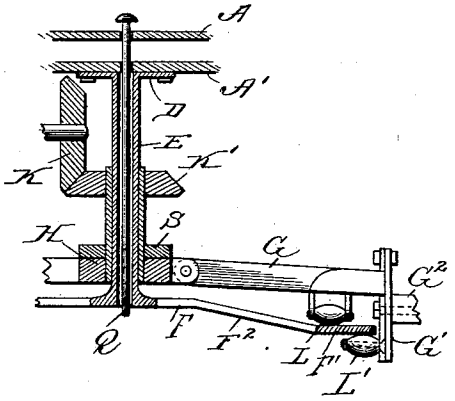


Fig. 7.

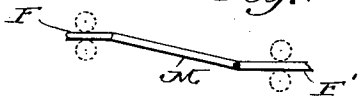


Fig. 8.

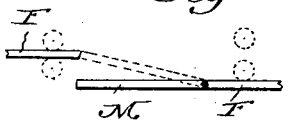
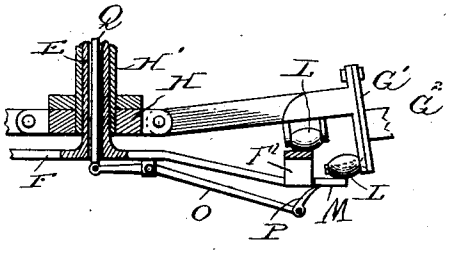


Fig. 6.



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UNITED STATES PATENT OFFICE.

JAMES H. WINSPEAR, FRED R. SMITH, AND SAMUEL Y. SANSOM, OF OMAHA, NEBRASKA, ASSIGNORS TO THE CYCLONE STREET CLEANER, OF SAME PLACE.

STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 590,288, dated September 21, 1897.

Application filed January 7, 1896. Serial No. 574,656. (No model.)

To all whom it may concern:

Be it known that we, JAMES H. WINSPEAR, FRED RANDALL SMITH, and SAMUEL Y. SANSOM, residing at Omaha, county of Douglas and State of Nebraska, have invented certain useful Improvements in Street-Sweepers, more particularly adapted to clean gutters; and we do hereby declare that the following is 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, reference being had to the accompanying drawings, which form a part of this specification.

The object of the invention is to provide a simple, durable, and inexpensive machine adapted to rapidly sweep all accumulations of solid material from the gutters of streets, effectually cleaning even the angle at the curbstone.

In the accompanying drawings, Figure 1 is a side elevation of the machine. Fig. 2 is a plan view of the same. Fig. 3 is a rear sectional view, section being on the line 3 3 of Fig. 1. Fig. 4 is a section at 4 4, Fig. 1, looking downward, only one brush being shown, the positions of five others being indicated. Figs. 5 and 6 are partial vertical axial sections, the planes of section cutting the part shown in Fig. 4 at 5 5 and 6 6, respectively, and the direction of view being as suggested by the arrows 5 and 6. Figs. 7 and 8 are views looking in the direction of the arrow 7 of Fig. 4, certain parts being seen in their different positions.

In the figures, A is a suitable platform supported in front by a pair of wheels B and in the rear, preferably, by a single caster-wheel B'. Centrally below the frame or platform just mentioned is a second platform A', supported by screw-threaded rods C C C, provided with cranks at their upper ends and working in the platform A or threaded plates fixed thereto. By turning the rods the lower platform may be leveled or raised and lowered at will. To the under side of the lower platform is fixed a plate D, rigidly joined to a central dependent hollow shaft E, itself rigidly connected with a horizontal wheel-like structure F, whose rim serves as a guide or track for certain angularly-equidistant radial brush-carrying arms G. These arms may vary in number, but six are suggested in the illustrations. The arms are hinged to a hub H upon a sleeve-like shaft H' upon the lower portion of the fixed shaft E, rotated from the front axle of the machine through a sprocket-wheel I, chain J, sprocket-wheel I' upon a shaft I^2, gear K upon the same shaft, and gear K' upon the shaft H'. The arms are hinged to swing in a vertical plane only, and each is provided upon its lower side with a roller L, which, as the arms rotate with the hub, runs upon the track before mentioned. A segment F' of the track is depressed below the plane of the remainder but connected therewith by short inclined portions F^2 F^3, which make the track continuous. The depressed segment is widened outward beyond the path of the rollers L, and each of the arms is provided with a rigid downwardly-extending portion G', which as the hub rotates passes along the outer margin of the widened segment.

To each portion G' is detachably fixed a radial brush G^2, preferably having its working portion made up of steel wires or the like having progressively-greater inclination in passing toward the free end of the brush, so that they project far beyond the end of the brush back or part in which they are set. Upon the inner face of each part G' a roller L' is mounted in position to rest against the outer portion of the lower face of the segment F' when the roller L rests upon the inner portion of its upper face. Thus the brush is temporarily held against vertical movement and the parts are so proportioned and arranged that when so held it is normally pressed firmly against the ground. That the lower roller L' may always pass beneath the segment F' under normal conditions the latter has, at the end which the brush always approaches, a hinged section M, which normally lies in the plane of the inclined portion F^2 of the remaining narrow portion of the track. The advancing roller L', which does not extend beneath the narrow segment, strikes this inclined section M and is by it compelled to pass down beneath the broad segment, from which it cannot escape until it reaches the other end of that segment. Just as the upper roller

reaches the other inclined section F^3 and begins to rise thereon the roller L′ passes from beneath the corresponding end of the broad segment, and thus ceases to offer resistance to the elevation of the brush. It is plain, then, that as the arms rotate they are carried down and held positively while passing through the angular space measured by the depressed segment, and that they then rise and remain elevated while passing through the remainder of the revolution. The parts are so proportioned that when the arms are depressed the brushes forcibly sweep the ground over which they are passing. As shown, the depressed portion of the track is upon the right side of the machine and extends from the longitudinal medial plane of the machine in front of the axis rearward through some one hundred and thirty-five degrees, but obviously these details are not invariable.

It is sometimes desirable to prevent the sweeping action of the brushes without interfering with their rotation, and to this end the section M is hinged, so that it may swing from the inclined plane of the portion F^2 to or a little below the plane of the segment F′, in which position the advancing roller L′ passes over instead of beneath it, and in resting upon it prevents the descent of the arms, so that the brush makes the whole circuit substantially as though no portion of the track were depressed. The normal operation is illustrated in Fig. 7 and the operation when the hinged section is depressed is suggested in Fig. 8. The hinged section is swung by means of a centrally-pivoted lever O, pivotally connected to an arm P, fixed to the hinged section outside the path of the roller L′ and operated by a rod Q, extending from its inner end upward through the hollow shaft E and both platforms.

As the arms are differently inclined in different portions of their path the rollers L L′ would not work properly if cylindrical, and they are therefore made barrel-shaped or gradually decreasing in diameter in passing from the middle. When of this form, they rest properly upon the track no matter what the inclination, and they cannot bind if the arms be inclined by bending or otherwise.

What we claim is—

1. The combination with a wheel-supported platform, of a second platform supported from the first by devices permitting universal adjustment of its plane with reference to the plane of the first, brush mechanism dependent from the second platform and arranged for rotation about a vertical axis, and means for imparting rotary movement to said mechanism.

2. The combination with a wheel-supported platform, of a second, normally stationary platform adjustably supported from the first by screw-threaded rods not in the same straight line, an approximately vertical dependent shaft rigidly fixed to the second platform, a brush-supporting, approximately horizontal track fixed to the lower end of said shaft, a series of radial brush-arms resting upon said track, and means for carrying the brush-arms bodily about said shaft.

3. The combination with a central rotary shaft, of a series of radial brush-arms rotating with the shaft and hinged to swing in vertical planes only, an approximately circular track arranged to support the hinged arms and provided with a segment depressed below the remainder and projecting beyond the general line of the circumference, rollers fixed to the arms, respectively, in position to run upon said track, rollers mounted upon said arms in position to pass over or under the widened segment only of the track, and means for at will guiding the rollers last named upon or under said widened portion.

4. The combination with a suitable wheel-supported platform, of a rotary vertical shaft supported thereby, brush-arms rotating with said shaft and hinged for vertical motion only, a track supporting said arms and having a depressed segment extending beyond the general peripheral line, rollers mounted upon said arms, respectively in position to run upon said track, rollers borne by said arms in position to pass along the projecting portion of the depressed segment, a section hinged to the end of said segment, and means for swinging the section into and out of the path of the rollers last named to guide them above or below said projecting portion.

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

JAMES H. WINSPEAR.
FRED R. SMITH.
SAMUEL Y. SANSOM.

Witnesses:
R. W. GIBSON,
A. C. POWERS.