

No. 711,683.

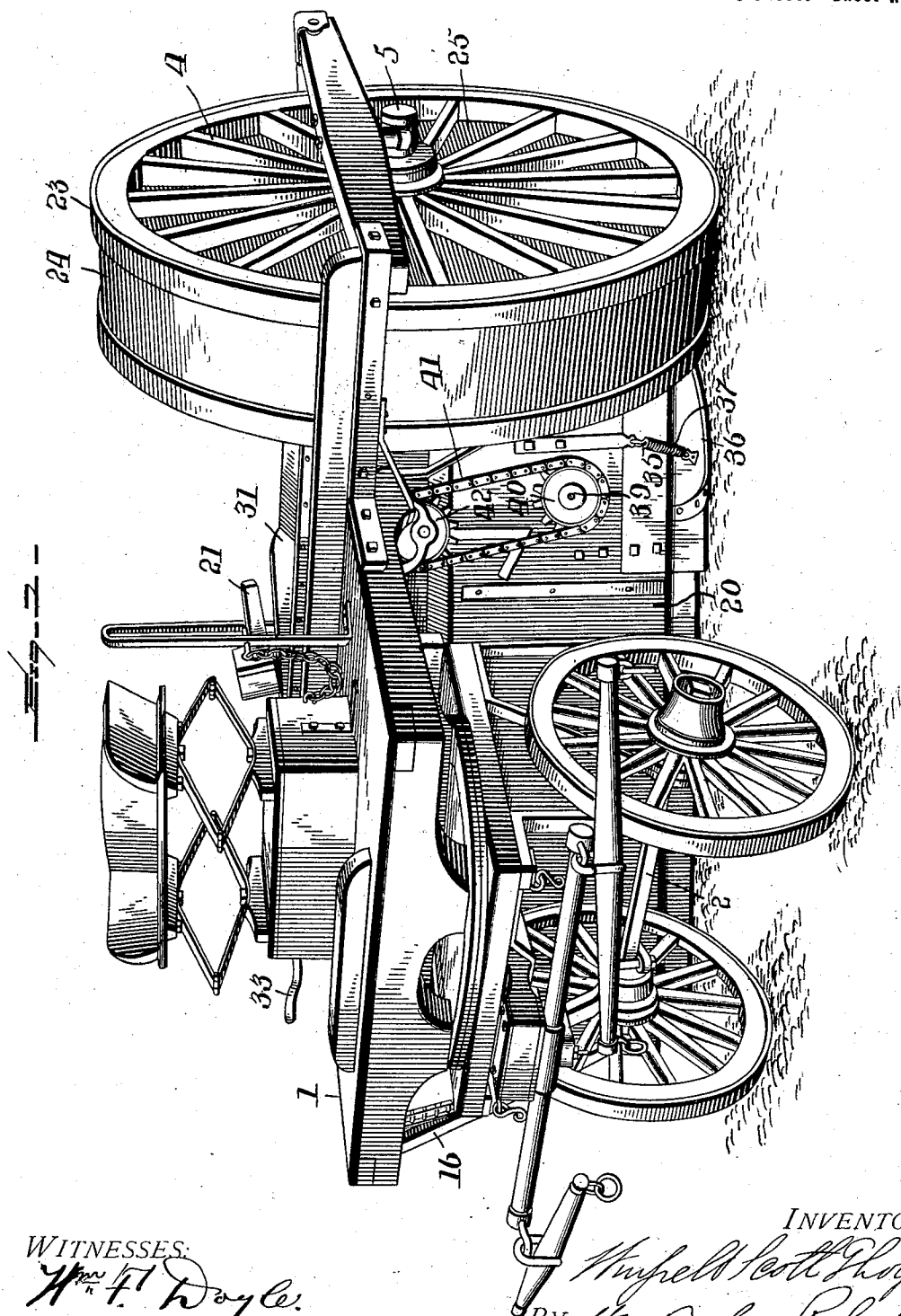
Patented Oct. 21, 1902.

W. S. THORP.
STREET SWEEPER.

(Application filed Nov. 5, 1901.)

(No Model.)

5 Sheets—Sheet 1.



WITNESSES:

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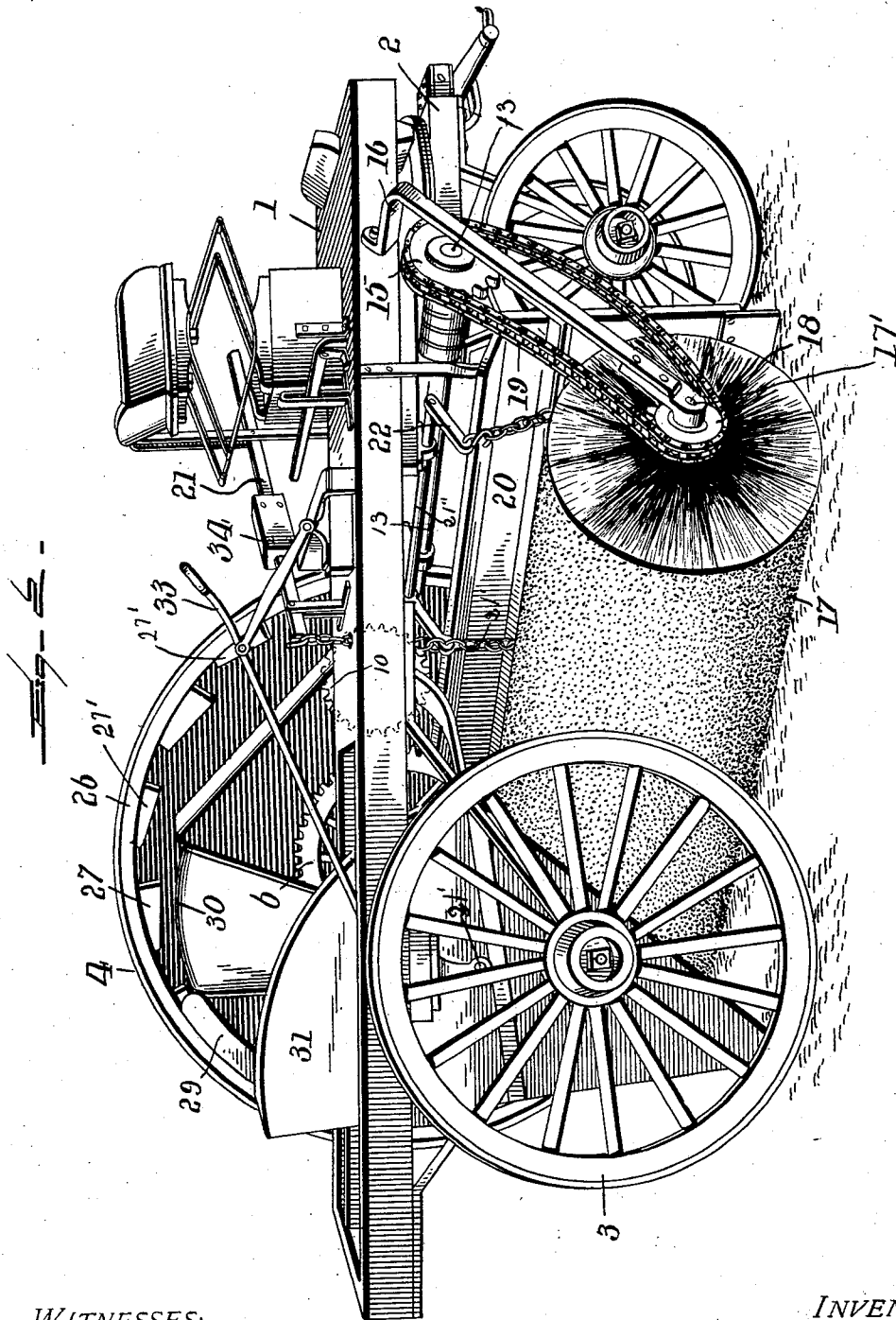
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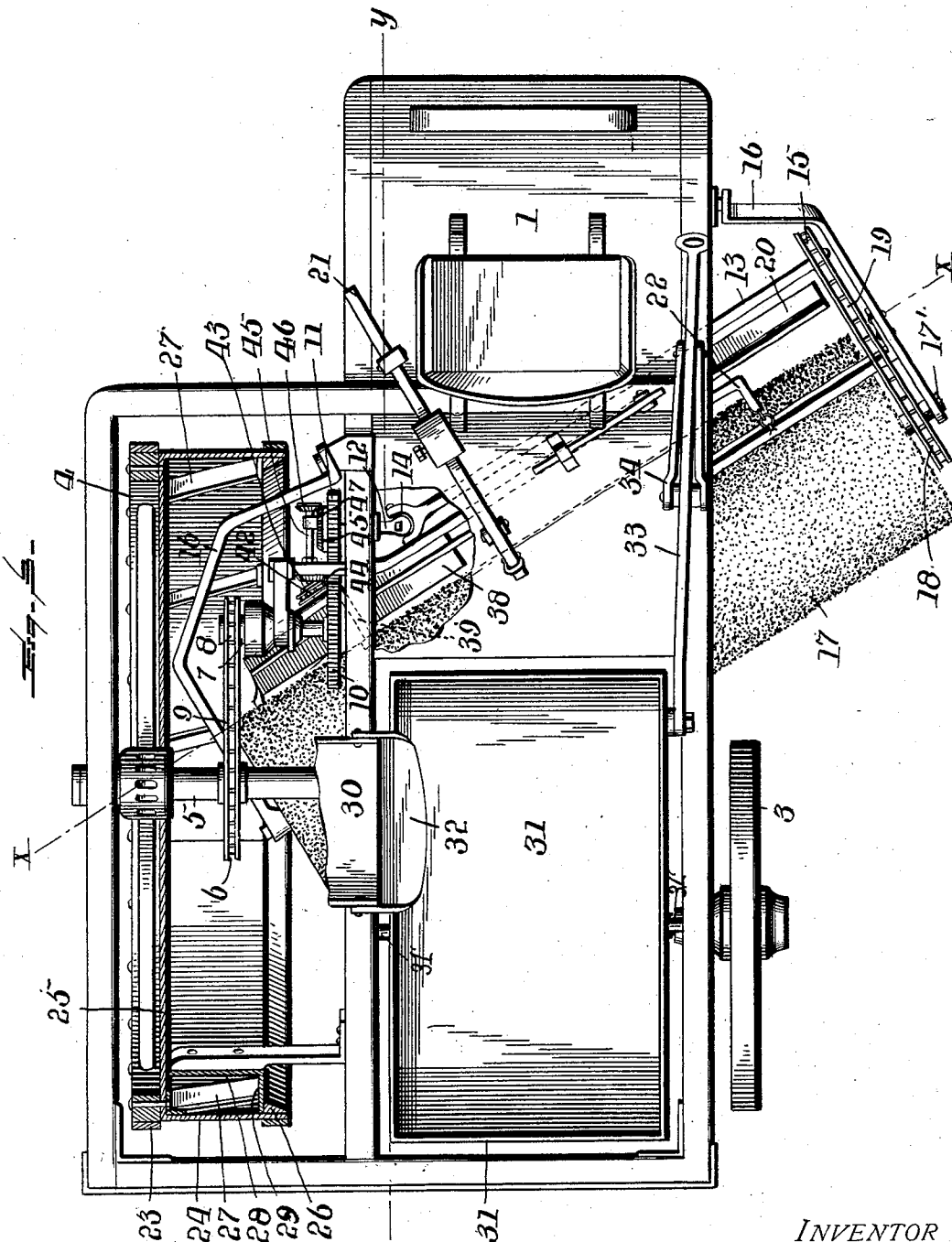
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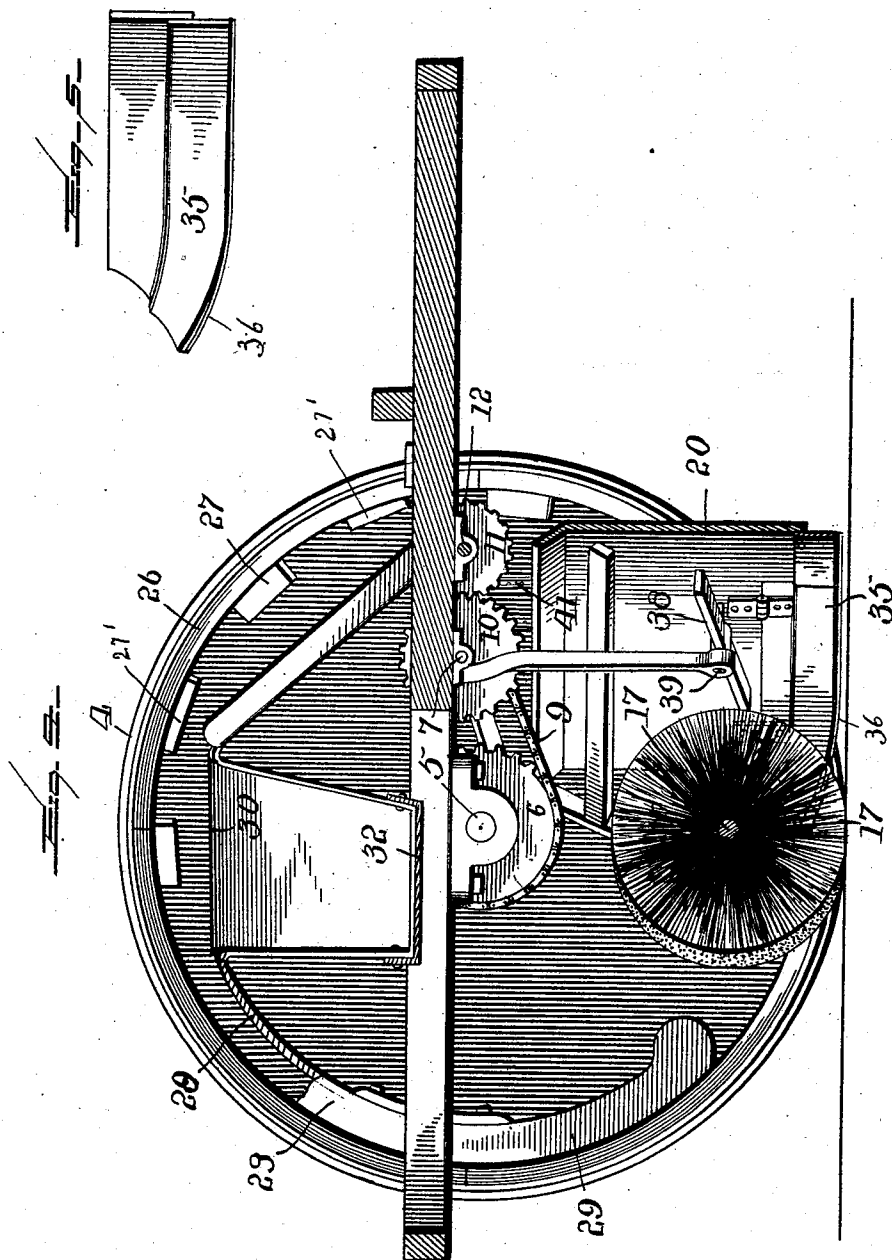
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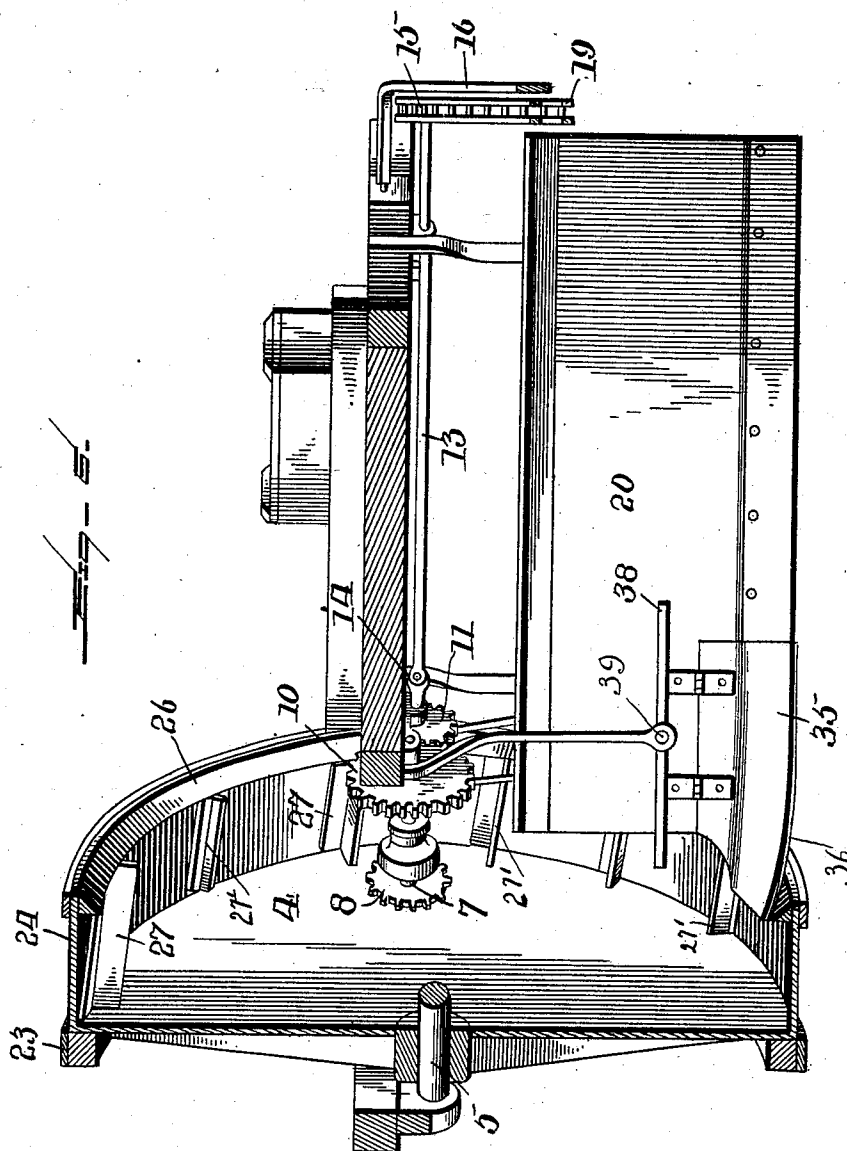
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5 Sheets—Sheet 5.



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UNITED STATES PATENT OFFICE.

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TO THE IMPROVED SWEEPER AND LIFTER COMPANY, OF PHILADELPHIA,
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STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 711,683, dated October 21, 1902.

Application filed November 5, 1901. Serial No. 81,233. (No model.)

To all whom it may concern:

Be it known that I, WINFIELD SCOTT THORP, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Street-Sweepers, of which the following is a specification.

My invention has relation to street-sweepers; and it consists in the novel construction and arrangement of its parts, as hereinafter described.

The object of my invention is to provide a street-sweeping machine of the type having a hollow bucketed wheel adapted to take up the sweepings from the surface of the street and deposit them in a suitable receptacle carried by the machine.

The further object of the invention is to provide a hollow bucketed wheel of a special and substantial construction adapted to stand the rough usage that it is necessarily subjected to.

A further object of the invention is to provide a shoe of a special construction adapted to facilitate the introduction of the sweepings from the surface of the street into the hollow interior of the bucketed wheel.

A further object of my invention is to provide an elevator adapted to be operated by power transmitted from a traction-wheel and adapted to assist in forcing the sweepings along the above-mentioned shoe into the hollow interior of the bucketed wheel.

In the accompanying drawings, Figure 1 is a perspective view of the sweeper as viewed from the front. Fig. 2 is a perspective view of the sweeper, taken from the side opposite the traction-wheel. Fig. 3 is a top plan view of the sweeper. Fig. 4 is a sectional view of the sweeper cut on the line *y y* of Fig. 3. Fig. 5 is a perspective view of the shoe, and Fig. 6 is a sectional view of the sweeper cut on the line *X X* of Fig. 3.

The sweeper consists of a platform 1, which is mounted at its forward end on an ordinary truck 2 and on its right-hand rear end upon the independently-revolving wheel 3. On the opposite side and at an intermediate point the platform is supported by a hollow bucketed wheel 4, said wheel 4 being of special

construction, as will be hereinafter explained.

The axle 5 of the wheel 4 is made to revolve with the same and is suitably journaled in the framework, said axle being provided with a sprocket-wheel 6. A short shaft 7 is journaled in the framework of the sweeper, said shaft 7 being parallel to the axle 5. A sprocket-wheel 8 is fixed to one end of said shaft 7, and the sprocket-chain 9 passes around the sprocket-wheels 6 and 8. A gear-wheel 10 is fixed to the opposite end of the shaft 7, said gear-wheel 10 meshing with the gear-wheel 11, which is mounted on the shaft 12, which in turn is journaled to the frame of the sweeper. The shaft 13 is connected by means of the universal joint 14 to the shaft 12, the said shaft 13 extending at an angle to the shaft 12. To the outer end of the shaft 13 is fixed a sprocket-wheel 15. The arms 16 are pivoted at their upper ends to the framework of the sweeper, and the shaft of the broom 17' is journaled between the lower ends of the said arms 16. The shaft of the broom 17' is provided at one end with a sprocket-wheel 18, and the sprocket-chain 19 passes around the sprocket-wheels 15 and 18.

By tracing out the motion transmitted from the traction-wheel 4 to the broom 17 through the mechanism above described it will be seen that as the traction-wheel 4 revolves in one direction the broom 17 revolves in the opposite direction. In front of the broom 17 and supported by the arms 16 is the dash-board 20, which extends from above the broom to within a few inches of the ground. A lever 21 is fulcrumed on the platform 1, the power end of said lever being connected with the bell-crank lever 22, fulcrumed under the platform 1 by means of the chain 21' and the arm 21'', as shown in Fig. 2. The ends of the bell-crank lever 22 being connected with the pivoted arms 16, it will thus be seen that by manipulating the lever 21 the broom 17 and its attachments may be raised or lowered.

Referring to the traction-wheel 4, which is technically known as a "hollow bucketed" wheel, the same consists of the outer rim 23, with the inwardly-extending concentric flange 24 attached thereto. The spaces between the spokes of the said wheel 4 are closed by a

suitable plate 25. To the inner edges of the flange 24 is attached the metallic annular ring 26, said ring being made up of a number of sections suitably secured together at their ends. The ring is thickest at its inner edge and is beveled or tapers toward its outer edge, thus forming a flange in the interior of the flange 24. The angle-irons 27 and 27' are diagonally placed against the inner surface of the flange 24, the said angle-irons being about twelve inches apart. Each alternate angle-iron 27 is about two inches in depth, while the other irons 27' are about four inches in depth. The function of the angle-irons of different depths is that in removing the bulky articles from the surface of the street—such as tin cans, bricks, &c.—should the matter being removed completely fill the space in the rim the surplus will be forced over the edge of the smaller irons and will be deposited in the adjoining space in the wheel-rim on the opposite side of the said angle-irons. Thus it is impossible for the material to choke in the wheel-rim and interfere with the operation of the sweeper. The guide 28 enters the hollow interior of the wheel 4 and is located in the rear part thereof, said guide 28 being stationary and suitably supported by the framework of the sweeper, the said guide in its length describing the arc of a circle. The inner face of the said guide is approximately four inches from the inner surface of the flange 24, said guide having at its edge the rectangular flange 29, which extends behind the inner edge of the ring 26, the upper end of the said guide 28 terminating over the upper end of the chute 30, the said chute 30 extending from the upper interior of the wheel 4 at an incline toward the pivoted hopper 31. The hopper 31 is pivoted in the trunnions 31'. The said hopper 31 is pivoted to the framework of the sweeper, the lower end of the chute 30 having a hinged lip 32, which extends over the edge of the hopper 31. A rod 33 is pivoted at one end to the side of the hopper 31 and at an intermediate point to a yoke 34, which in turn is pivoted to the framework of the sweeper. The forward end of said rod 33 is fashioned into a handle. The shoe 35 is attached to the outer end of the dash 20 and extends up into the hollow interior of the wheel 4. The said shoe 35 is of peculiar shape and is protected along the surface that comes in contact with the street by a steel strip 36, which is about two inches wide and suitably fastened to the said shoe. The end of the broom 17 rests upon the shoe 35. The said shoe is hinged to the dash 20 and is adapted to swing back when it comes in contact with any unevenness in the street or an obstruction, the said shoe being held in its normal position by means of the spring 37.

Near the inner end of the dash 20 an elevator 38 is located, said elevator consisting, preferably, of a paddle fixed at an intermediate

point to the shaft 39. The sprocket-wheel 40 is attached to the outer end of said shaft and is connected by means of the sprocket-chain 41 with the sprocket-wheel 42. The sprocket-wheel 42 is provided with a bevel-gear 43, which meshes with the bevel-gear 44. The said gear-wheel 44 is attached to one end of the shaft 45, and at its other end the said shaft 45 is provided with a bevel-gear 46, which meshes with a bevel-gear 47, attached to the face of the gear-wheel 11. It will be observed that the broom 17 extends longitudinally at a diagonal to the transverse axis of the wheel 4.

In operation the sweeper works as follows: As it is drawn along the street the wheel 4 revolves, which, as above described, causes the broom 17 to revolve in the opposite direction. The broom coming in contact with the surface of the street brushes the refuse behind the dash 20 toward the wheel 4. As the refuse is landed upon the shoe 35 it is conveyed into the hollow interior of the wheel 4 and is carried around by the angle-irons 27 under the guide 8 and is elevated and deposited in the chute 30, from whence it falls into the hopper 31. At suitable points by manipulating the rod 33 the said hopper 31 may be tilted on its pivoted supports and the contents thereof dumped in a pile. While the broom 17 is revolving the elevator 38 is also revolving on its shaft and is fanning and forcing the refuse into the hollow interior of the wheel 4.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a street-sweeping machine, a hollow wheel adapted to receive the sweepings, a broom adapted to force the sweepings toward the hollow wheel, an elevator located in front of the broom and adapted to force the sweepings into the hollow interior of the wheel.

2. In a street-sweeping machine, a hollow wheel adapted to receive the sweepings, a broom adapted to force the sweepings toward the hollow wheel, an elevator consisting of a revolving paddle located in front of the broom and adapted to force the sweepings into the hollow interior of the wheel.

3. In a street-sweeping machine, a hollow wheel adapted to receive the sweepings, a broom adapted to force the sweepings toward the hollow wheel, a shoe passing under one end of the broom and entering the hollow interior of the wheel and an elevator located above the shoe and in front of the broom and adapted to force the sweepings into the hollow interior of the wheel.

In testimony whereof I affix my signature in presence of two witnesses.

WINFIELD SCOTT THORP.

Witnesses:

CHAS. H. IDE,

SARAH NITTENBERGER.