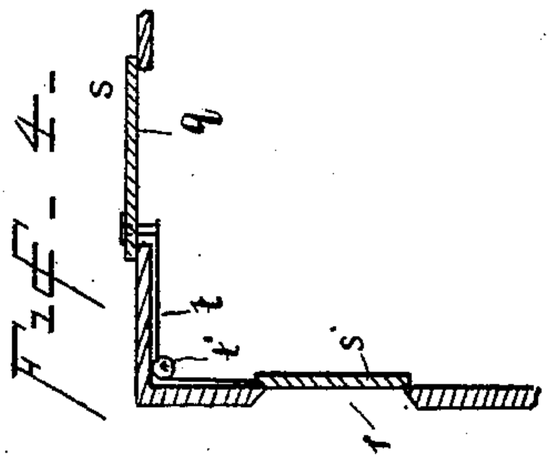
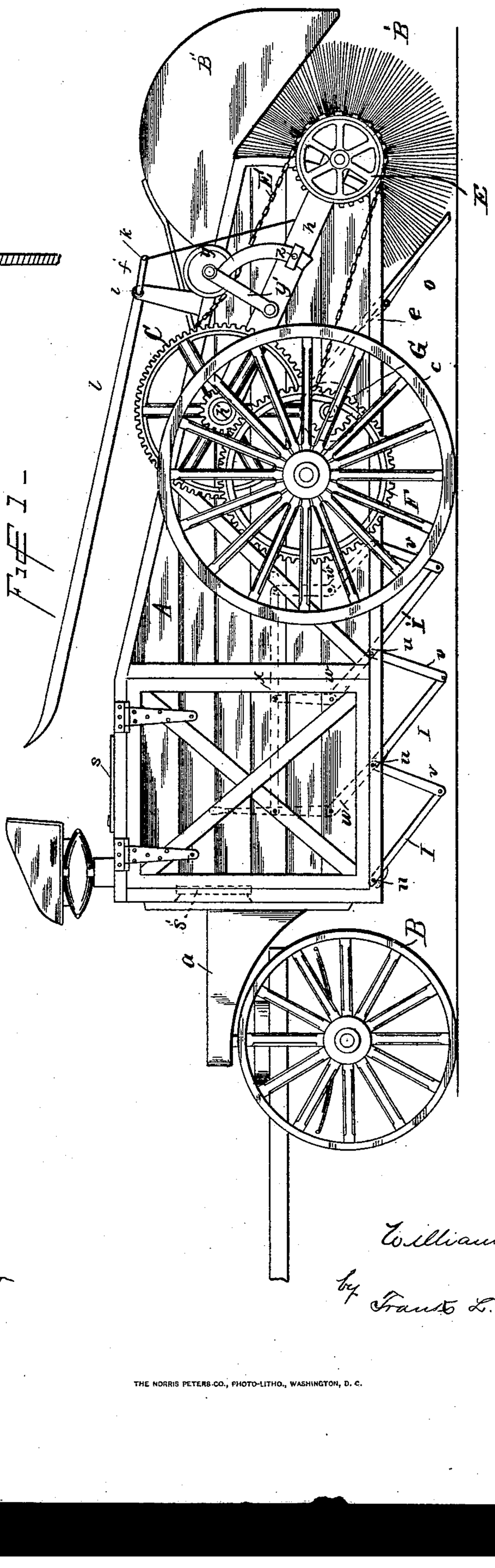
(No Model.) 2 Sheets—Sheet 1.

W. H. STERLING.

STREET SWEEPER.

No. 454,144. Patented June 16, 1891.





WITNESSES

Arthur A. Erb.

Wellington Kingler

INVENTOR

William H. Sterling

by Frank L. Dyer

(No Model.) 2 Sheets—Sheet 2.

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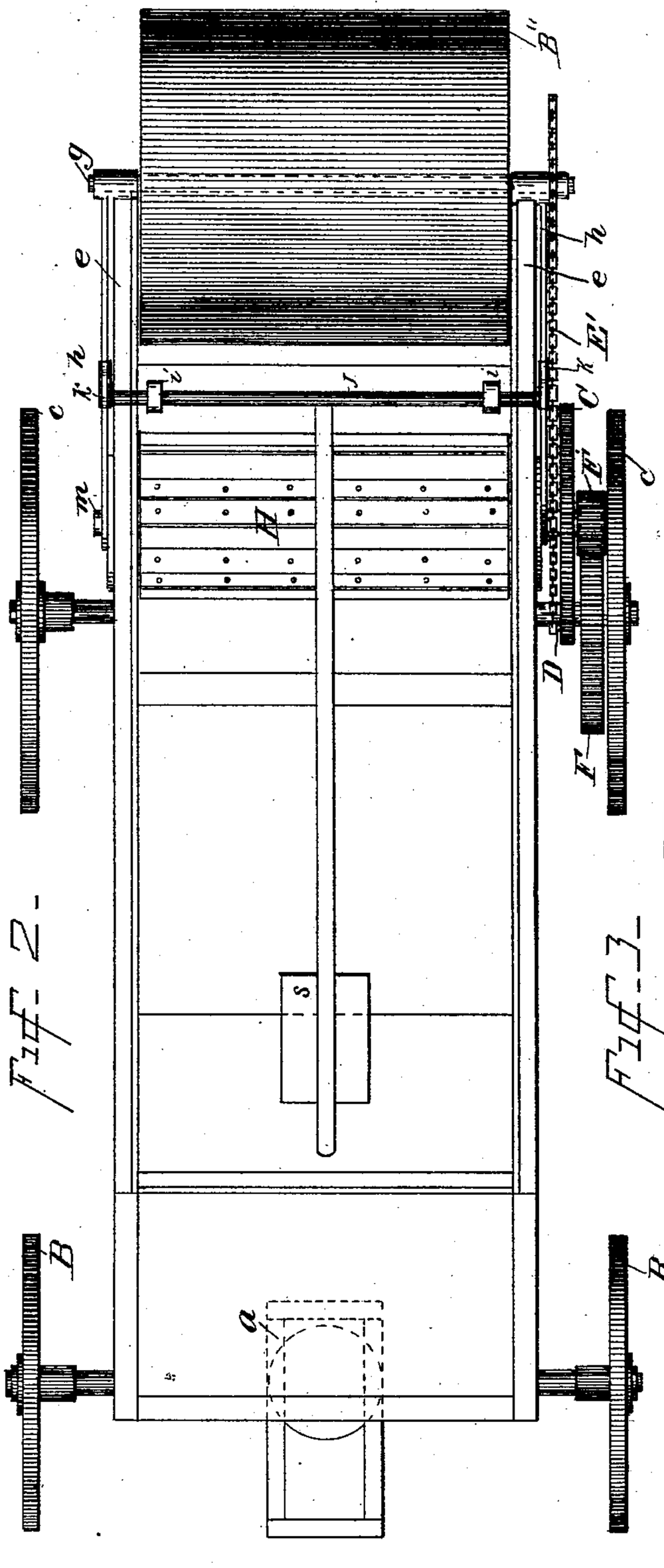

Fig. 2.

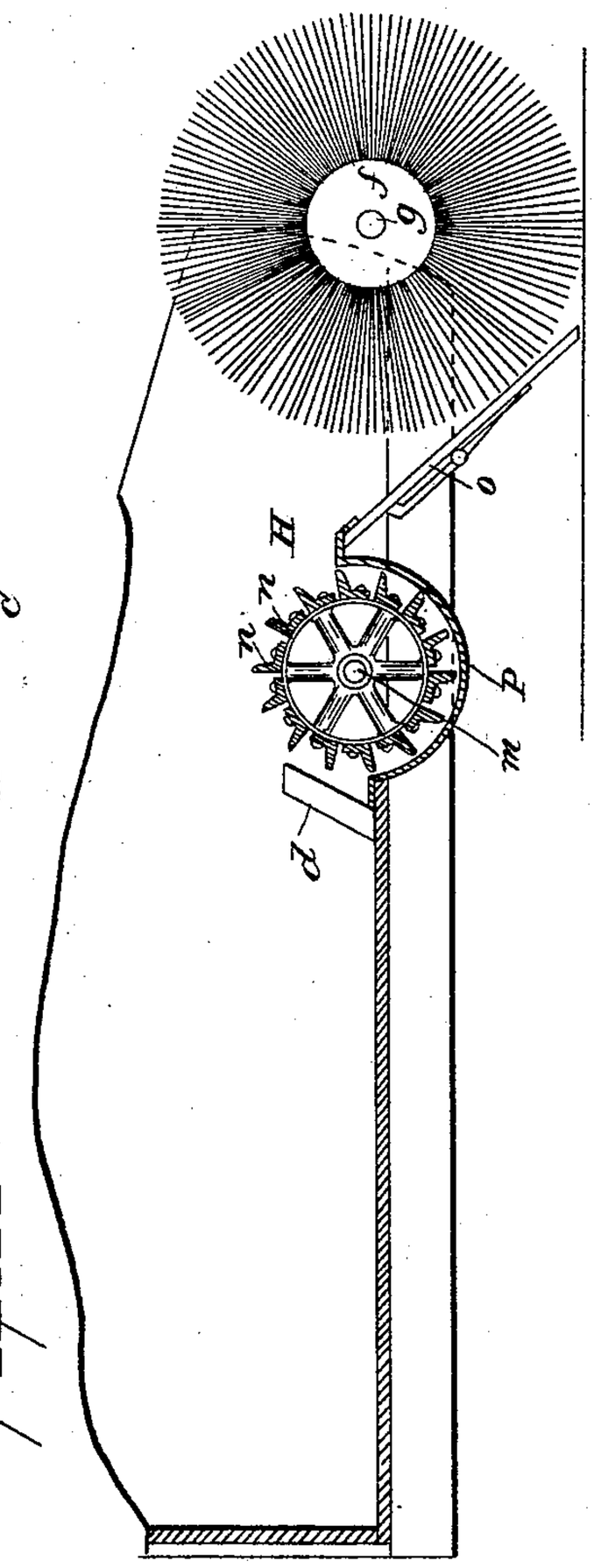

Fig. 3.

Witnesses.
Arthur A. Erb.
Wellington Kingler

Inventor
William H. Sterling.
By his Attorney
Frank L. Dyer.

UNITED STATES PATENT OFFICE.

WILLIAM HAMILTON STERLING, OF BROOKLYN, NEW YORK.

STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 454,144, dated June 16, 1891.

Application filed February 24, 1890. Serial No. 341,480. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HAMILTON STERLING, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Street-Sweepers; and I do hereby declare the following to be full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to various new and useful improvements in street-sweepers, consisting generally of a wheeled vehicle adapted to be drawn by horses and provided with a dust box or receptacle at its forward end, a brush-wheel mounted at the rear of said vehicle and receiving movement from the vehicle-wheels, a movable incline directly in front of said brush-wheel and onto which the dust and dirt from said brush-wheel are swept, and a rapidly-rotating fan mounted at the top of said incline and adapted to throw the dust therefrom into the dust box or receptacle, as well as in other but less important details of construction, all as will be described hereinafter.

For a better comprehension of my invention attention is invited to the accompanying drawings, forming a part thereof, in which—

Figure 1 is a side elevation of the entire machine; Fig. 2, an enlarged sectional view of a portion of the machine; Fig. 3, a top elevation of the entire device with a portion of the top in section; and Fig. 4, an enlarged sectional view of the dust box or receptacle, illustrating the means whereby the driver may determine when the said box is full.

In all of the above views corresponding parts are designated by the same letters of reference.

A represents the body of the sweeper, made preferably of wood, so as to be light as possible. This body A is provided at its forward end with an extension-frame *a*, to which the fore wheels B B are pivoted in the usual manner. In order to allow these fore wheels to run as smoothly as possible it is desirable to mount them upon springs, as shown. The rear wheels *c c* are attached to the body in any suitable way, but preferably to a bent axle passing down under the body, so as to strengthen the same, although this axle may pass directly through the body A, if desired.

The body part proper of the sweeper comprises the space in advance of a partition *d*, secured firmly in place between the sides and which forms the dust box or receptacle.

The continuation *e* of the sides in the rear of the dust-box forms a very rigid and convenient support for the brush-wheel B′. This brush-wheel is made by preference of wire or reed brushes, as heretofore, radially secured to a roll *f*, preferably of wood, and which is in turn immovably mounted upon a metallic axle *g*. The axle *g* has its bearings on each side in a heavy beam *h h*, made either of metal or of wood, and pivoted or hinged at its forward end to the axle *h′* of the cog-wheel C. By this means it will be seen that the brush-wheel by being mounted in the beams *h h* may be elevated from the ground by simply elevating the said beams. This may be done in any well-known and usual way; but I prefer to accomplish that result by means of the mechanism illustrated in Fig. 1, and which will now be described. Mounted upon the vehicle-body in suitable standards *i i* is a shaft *j*, having two short integral lever-arms *k k* near each end. These lever-arms connect at any suitable point with the pivoting-beams *h h*. By means of a hand-lever *l*, placed within convenient reach of the operator and made integral with the shaft *j*, the said shaft may be partially rotated, so as to elevate the lever-arms *k k* and the beams *h h*, and in this way the brush-wheel may be raised off of the ground when it is desired. The cog-wheel C is provided on its inside with a sprocket-wheel D, from which motion is transmitted to a smaller sprocket-wheel E on the axle *g* by means of a chain belt E′, whereby the brush-wheel is rotated. By pivoting the supporting-beams *h h* to the axle *h′* of the cog-wheel C the said beams may be elevated and lowered without affecting the operation of the sprocket-wheels and chain, as will be evident. The cog-wheel C derives its motion from one of the rear supporting-wheels *c* through the instrumen-

tality of a large gear-wheel F, secured to said rear wheel and engaging with a smaller gear-wheel F′ on the axle *h′*, so that the cog-wheel C will rotate rapidly. The teeth on the cog-wheel C engage with a small gear-wheel G, rigidly mounted on a shaft *m*, passing entirely through the body of the vehicle.

Within the body of the device, upon the shaft *m*, is mounted a fan H, which I have before referred to. This fan does not perform the functions usually attributed to a fan—viz., to induce a circulation of air—but is used instead to throw the dirt into the dust box or receptacle. It consists of a flat hollow metallic roller rigidly secured to the shaft *m* and provided upon its periphery with a number of radial lugs *n n*, removably secured thereto. The fan H is mounted directly in the rear of the partition *d*, so that all dirt can be thrown easily over said partition by the fan. Directly in the rear of the fan H is an inclined platform *o*, extending down to a point near the ground and directly in advance of the brush-wheel.

From the above description it will be seen that the operation of the moving parts of the device will be as follows: The device being drawn along the street, the rear wheel *c* in rotating will cause the brush-wheel to revolve rapidly in the opposite direction, and all dust and dirt will be brushed up the inclined platform *o* onto the rapidly-revolving fan H, by which it will be thrown into the dust box or chamber. In this way all the dirt and dust will be brushed into the machine, and the necessity of following the sweeper with carts to collect the dirt, as now practiced, is overcome. It is advisable to hinge the inclined platform *o* at the bottom of the vehicle-body, as shown, so that the platform will pass easily over any obstructions in the street.

In order that any dirt which may not be thrown into the dust-box by the fan H may be prevented from dropping down into the street, I provide the said fan with a metallic casing *p* beneath the same. When this casing is used, any dust that may accumulate therein will be thrown out therefrom into the dust-box by the fan.

In order that the driver may determine with certainty the amount of dirt in the dust-box, I make use of the arrangement of shutters illustrated in Fig. 4, and which will now be described. An opening *q* is made in the top of the dust-box directly behind the driver's seat, and a corresponding opening *r* is formed in one side of the dust-box in line with the opening *q*. The opening *q* is provided with a sliding shutter *s* above the same working between the guides in the usual way, and the opening *r* is provided with a similar shutter *s′*, placed on the interior of the dust-box and also working in suitable guides. These two shutters are connected together by means of a cord, chain, or wire *t*, passing over a small pulley *t′* near the dust-box, so that when the outer shutter *s* is moved to one side the shutter *s′* will be elevated. When this is done, the interior of the dust-box will be lighted through the opening in the side, and the driver can easily ascertain the amount of dirt in the dust-box through the opening in the top thereof.

For convenience and to enable the interior of the machine to be cleaned when desired it is advisable to provide the dust-box with a large hinged door at its side, which may be opened and access given to the interior of the machine.

In order that the dirt that is in the dust-box may be readily removed when desired, I make the bottom of the same of a number of hinged sections I I I, as shown in Fig. 1. Each of these sections is pivotally mounted at its forward end on a rod *u*, extending across the machine, and each is connected at its lower end by means of a connecting-rod *v* to a right-angled lever *w*. The forward one of these right-angled levers is provided with an extension-handle, which will come within easy reach of the driver. This forward lever is connected with the others of the series by means of a connecting-rod *x*, so that when the handle of the forward lever is moved toward the front of the vehicle the section-body will be moved on their respective hinges, so as to form a dust-tight floor for the body. When in this position, the sections of the body will be securely locked in place by any suitable means.

In order that the requisite tension may be imposed on the sprocket-chain, the tension-applying device illustrated in Fig. 1 is made use of. This consists simply of a face-wheel *y*, mounted at the end of a short rod *y′*, pivoted to the beam *h*, and provided with a quadrant-arm extending out therefrom. This quadrant-arm passes beneath a flat staple, also secured to the arm *h* and provided with a set-screw *z*. By means of this device the face-wheel *x* may be forced down on the sprocket-chain, so that any desired tension may be obtained, and it may then be locked in position by means of the screw-bolt Z^3, engaging with the quadrant-arm.

To prevent any dust or dirt from flying out from the brush-wheel above the machine, I provide the same with a light sheet-metal shield B, mounted directly above the brush-wheel.

In order that the machine may be enabled to work effectually in contact with the curb, the brush-wheel is elongated at the sides of the vehicle opposite from the cog and gear wheels, so as to be in line with the wheel *c*.

Although I deem the arrangement I have above described as preferable, still it will be evident that several changes might be advantageously arranged therein.

Having now described my invention, what

I claim as new therein, and desire to secure by Letters Patent, is as follows:

A street-sweeper embracing the following elements: a wheeled vehicle, a dust-box on the same, an opening on the top of said box, an opening on the side of the same, shutters covering these openings, and means for simultaneously opening and closing said shutters, substantially as set forth.

WILLIAM HAMILTON STERLING.

In presence of—
JOSEPH A. SEAVER,
WM. H. DEMAREST, Jr.