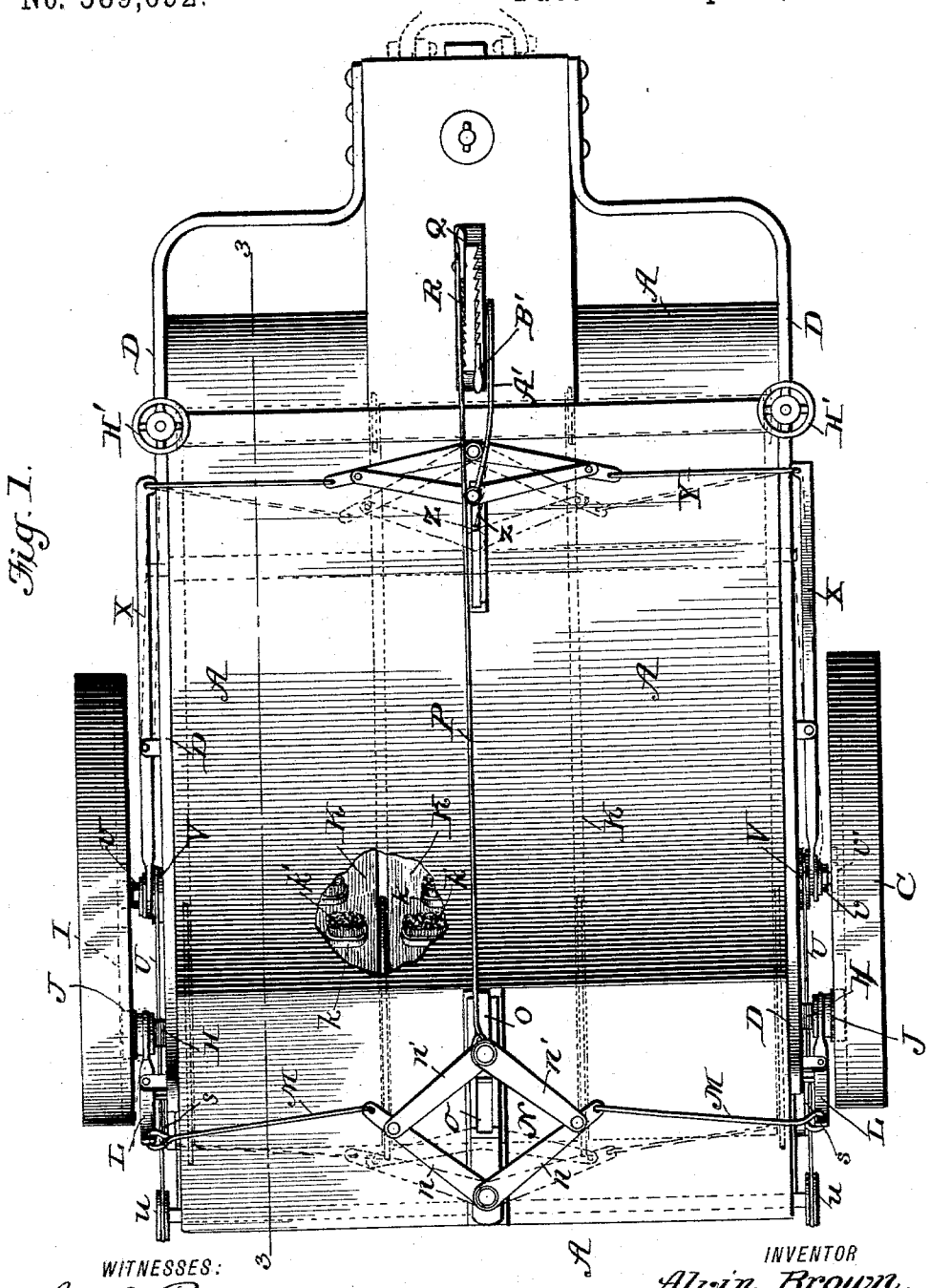
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A. BROWN.

STREET SWEEPER.

No. 589,692. Patented Sept. 7, 1897.

Fig. 1.



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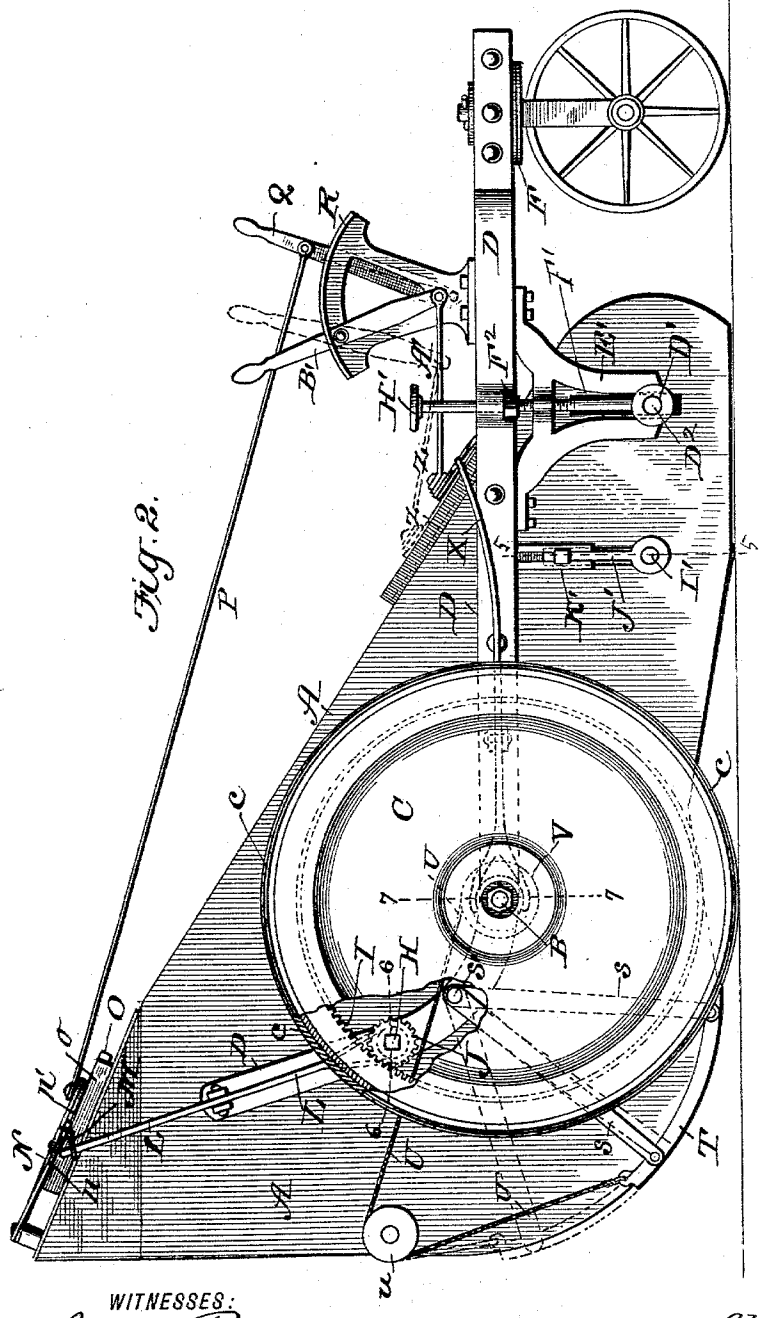


Fig. 2.

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Fig. 3.

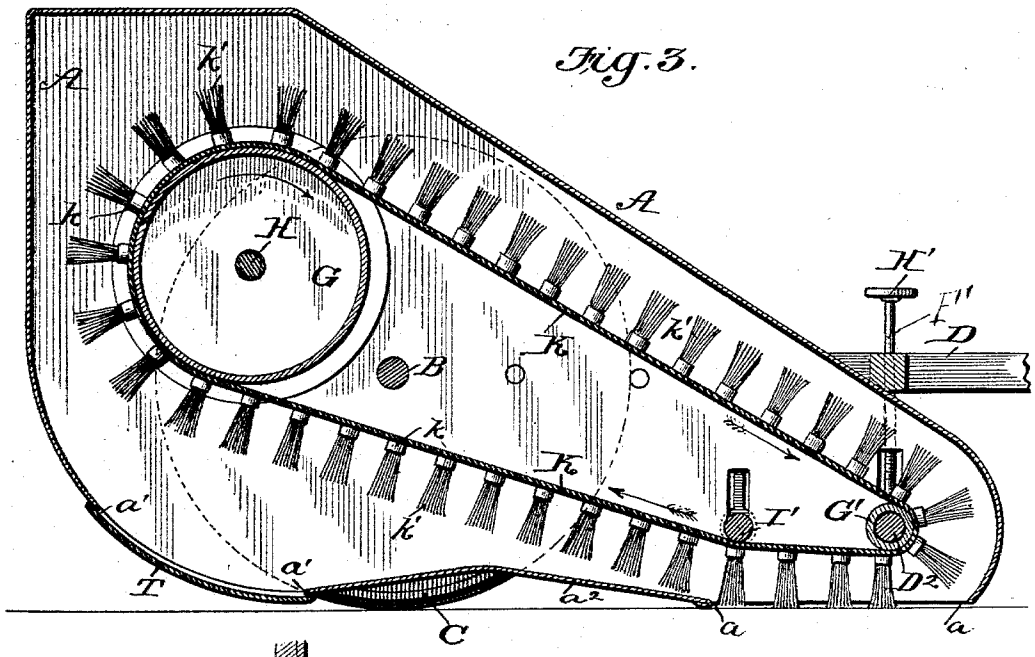


Fig. 4.

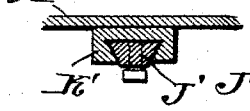


Fig. 5.

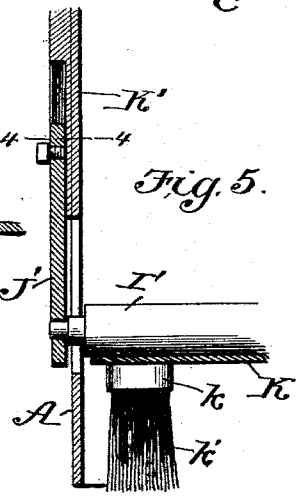


Fig. 6.

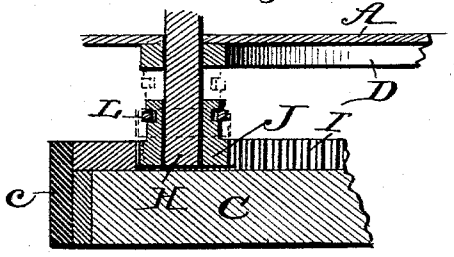


Fig. 7.

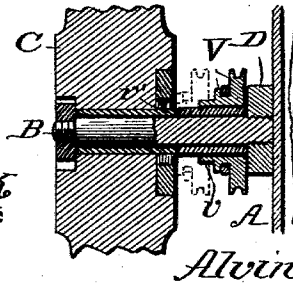


Fig. 8.

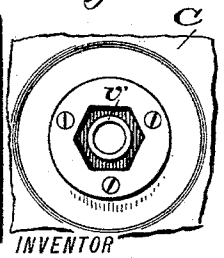
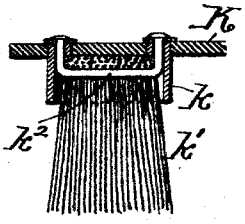


Fig. 9.



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UNITED STATES PATENT OFFICE.

ALVIN BROWN, OF AURORA, ILLINOIS.

STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 589,692, dated September 7, 1897.

Application filed January 29, 1897. Serial No. 621,169. (No model.)

To all whom it may concern:

Be it known that I, ALVIN BROWN, of Aurora, in the county of Kane and State of Illinois, have invented a new and Improved Street-Sweeper, of which the following is a specification.

My invention is an improvement in that class of street-sweepers which are provided with rotary brushes and a casing or receptacle in which the dirt or refuse swept up by the brushes is temporarily held and from which it may be automatically dumped as required.

I have devised and adopted various improvements in the different portions of the machine, as hereinafter set forth.

In the accompanying drawings, (three sheets,) Figure 1 is a plan view of the machine. Fig. 2 is a side view. Fig. 3 is a longitudinal section on line 3 3 of Fig. 1. Fig. 4 is a cross-section on line 4 4 of Fig. 5. Fig. 5 is a vertical section on line 5 5 of Fig. 2. Fig. 6 is an enlarged detail section on line 6 6 of Fig. 2. Fig. 7 is an enlarged detail section on line 7 7 of Fig. 2. Fig. 8 is an enlarged view of the inner end of the hub of one of the transporting and driving wheels. Fig. 9 is an enlarged detail section illustrating the attachment of one of the brushes to a belt.

The box or casing A of the sweeper is supported upon the axle B of rear transporting-wheels C and provided with lateral iron or steel frame-bars D, which are bolted to said casing, their forward ends, Fig. 2, being bent inward and secured to a fifth-wheel or a wheeled fore axle F, to which the team is in practice attached. The rear wheels C are provided with rubber tires *c*, Fig. 2, to enable them to run noiselessly and also have due friction with the pavement, so that they may serve as drivers for the brush-drum G, arranged transversely within the enlarged rear portion of the casing A. I employ gear and lever mechanism for throwing the said wheels into and out of connection with the brush drum-shaft H. For this purpose an annular internal gear I, Fig. 1, is secured to their inner sides, and I mount pinions J on the ends of the drum-shaft H, and adapt them to slide thereon, so that they may be easily and quickly thrown into and out of engagement with the aforesaid annular gears I, when required, by lever mechanism, which will be presently described. It is apparent that when so engaged with the wheels C the drum G will be rotated, and thereby cause the endless brush-belts K, Fig. 3, that run on it, and a counter-drum G′, arranged in the front end of casing A, to travel in the direction of the arrows.

Levers L are loosely coupled with the pinions J and arranged and pivoted vertically on the sides of the casing A. Their upper ends are connected by rods M with the pivoted lever-arms *n* of a lazy-tongs N, arranged on the rear portion of the casing. The links *n*′, forming part of said lazy-tongs, are connected with a slide O, that works in a fixed guideway *o*, and also with a rod P, that extends forward to a vertical hand-lever Q, pivoted to a rack-stand R, secured on the driver's platform. The latter extends over the fifth-wheel F. It is apparent that by setting the hand-lever Q forward in the position shown by full lines, Fig. 1, the lazy-tongs N will be opened and the levers L caused to throw the pinions J outward into engagement with the annular gears I of wheels C, whereby the brush-belts K are set in motion, and, on the other hand, by setting said lever Q back the lazy-tongs N are contracted or closed, as shown by dotted lines, Fig. 1, and the brush-belts K thrown out of action.

It is necessary that the pinions J may act independently, since otherwise the sweeper could not operate when deviating from a straight line or in any case when one transporting-wheel C rotates faster or slower than the other. To enable this to be done, the drum-shaft and drum are divided transversely in the center of their length. Thus the pinions J may work together or independently in rotating the drum G and driving the brush-belts K. The bottom of the casing A has an opening *a*, Fig. 3, at the front for admission of dirt, &c., and another opening *a*′ at the rear end for discharging or dumping the same. The brushes proper of the belts K run in contact with the rear edge of such front opening *a*, so as to sweep the loose dirt or refuse into the casing, wherein it is gradually forced up the incline a^2, Fig. 3, and thus backward into the reservoir or receptacle provided in the rear end of the casing

A. The discharge-opening a' of such receptacle is provided with a swinging door or shutter T, which is pivoted, by means of supporting-arms s, at points s' on the frame-bars D. This door or shutter will close automatically and is also held normally closed by its own gravity, but may be opened by swinging it upward and backward, as shown by dotted lines, Fig. 2.

The means for raising the shutter T when it is desired to discharge a load from the sweeper comprise wires, small chains, or ropes U, attached to the shutter and passed over sheaves u, journaled on the sides of the casing A at or near its rear end and then extended forward to pulleys or small grooved clutch-wheels V, Figs. 1 and 7, that are mounted slidably on the non-rotatable axle B of transporting-wheels C. Said pulleys have a polygonal projection v on their outer sides, which form a half-clutch and are adapted to engage corresponding sockets v' in the hubs of wheels C. (See Fig. 8.) The means for throwing these pulley half-clutches V into and out of engagement with the wheels C are similar to those before described for operating the pinions J—that is to say, levers X are loosely connected with said pulley-clutches and pivoted horizontally to the frame-bars D, their forward ends being connected by transverse rods Y with a lazy-tongs Z, whose slide z is in turn connected by a rod A' with a hand-lever B', pivoted in a rack-stand R. By throwing such hand-lever forward, so as to open the lazy-tongs Z, it is obvious the pulleys V will be thrown into clutch with wheels C and thereby rotated along with the latter, thus winding on the wires U and raising the shutter T, so as to permit automatic dumping of the sweepings carried in the casing A, and, contrariwise, upon pulling the hand-lever B' back the pulleys V will be freed from wheels C and the shutter T released and allowed to close automatically.

As shown in Fig. 1, a series of narrow brush-belts arranged side by side is employed in preference to a single broad belt, since this facilitates repair or substitution when requisite. The body of the belts may be leather or any other suitable material. Metal sockets k, in which the brushes k' proper are fastened, are secured to such body portion, and by preference the sockets are so constructed as to enable flat brushes to be used.

The tufts of brush material are held in the sockets k by a staple k^2, as shown in Figs. 5 and 9, the ends of the staples passing through the belt K and being riveted on washers on the inner side of the same. The material forming the brushes is doubled at the middle of its length over the body of the staple and thus held drawn up into the sockets k.

The front ends of the several brush-belts K require to be lowered when for use and raised when not in use, and for this purpose the journal-bearings D' of the front drum-shaft D^2 are adapted to slide vertically in slotted guides or brackets E', bolted to the frame-bars D, and as a means of adjustment for the same screw-threaded rods F' pass through and work in screw-threaded portions F^2 of the bars D and are attached at their lower ends to the bearings D'. Hand-wheels H' are applied to said rods F' for rotating them to produce the desired vertical adjustment of the bearings D'.

It is necessary to hold the brush-belts K down at the point where they pass over the rear or scraper edge of the opening a, and to this end I employ a roller I', Figs. 2, 3, and 5, that extends transversely across the casing over the lower run of the belts and is journaled in bars J', adapted to slide vertically in grooved guideways K', fixed on the sides of the casing A and provided with screws for clamping them in any desired adjustment.

What I claim is—

1. In a street-sweeper, the combination, with a casing, and transporting-wheels having annular internal gears affixed thereto, pinions engaging said gears, and levers for sliding them into and out of engagement with said gears, of a lazy-tongs arranged on the casing, a slide, a hand-lever arranged on the driver's platform, rods connecting the lazy-tongs and slide with the pinion-levers and hand-levers, and endless traveling brush-belts which are within the casing and driven by the pinion-shaft, as shown and described.

2. In a street-sweeper, the combination, with the casing, having a bottom discharge-opening, of a shutter pivoted by arms arranged on the sides of the casing and adapted to close by gravity, clutch-pulleys mounted slidably on the axle, and transporting-wheels with which they are adapted to engage; shutter-hoisting chains attached to said pulleys and adapted to wind thereon; pivoted levers for sliding the pulleys; a lazy-tongs arranged on the casing and connected with the pivoted levers; and rods and a hand-lever for operating the lazy-tongs, as shown and described for the purpose specified.

3. In a street-sweeper, the combination, with the casing, having a discharge-opening, a self-closing gravity-shutter, pivoted by arms to the casing, transporting-wheels, and clutches or clutch-wheels, chains connecting the latter with the shutter, levers for operating the clutches, a lazy-tongs arranged on the casing; a slide working in guideways: a hand-lever on the driver's platform, and rods connecting said lazy-tongs with the respective levers, as shown and described.

ALVIN BROWN.

Witnesses:
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WM. FOWLER.