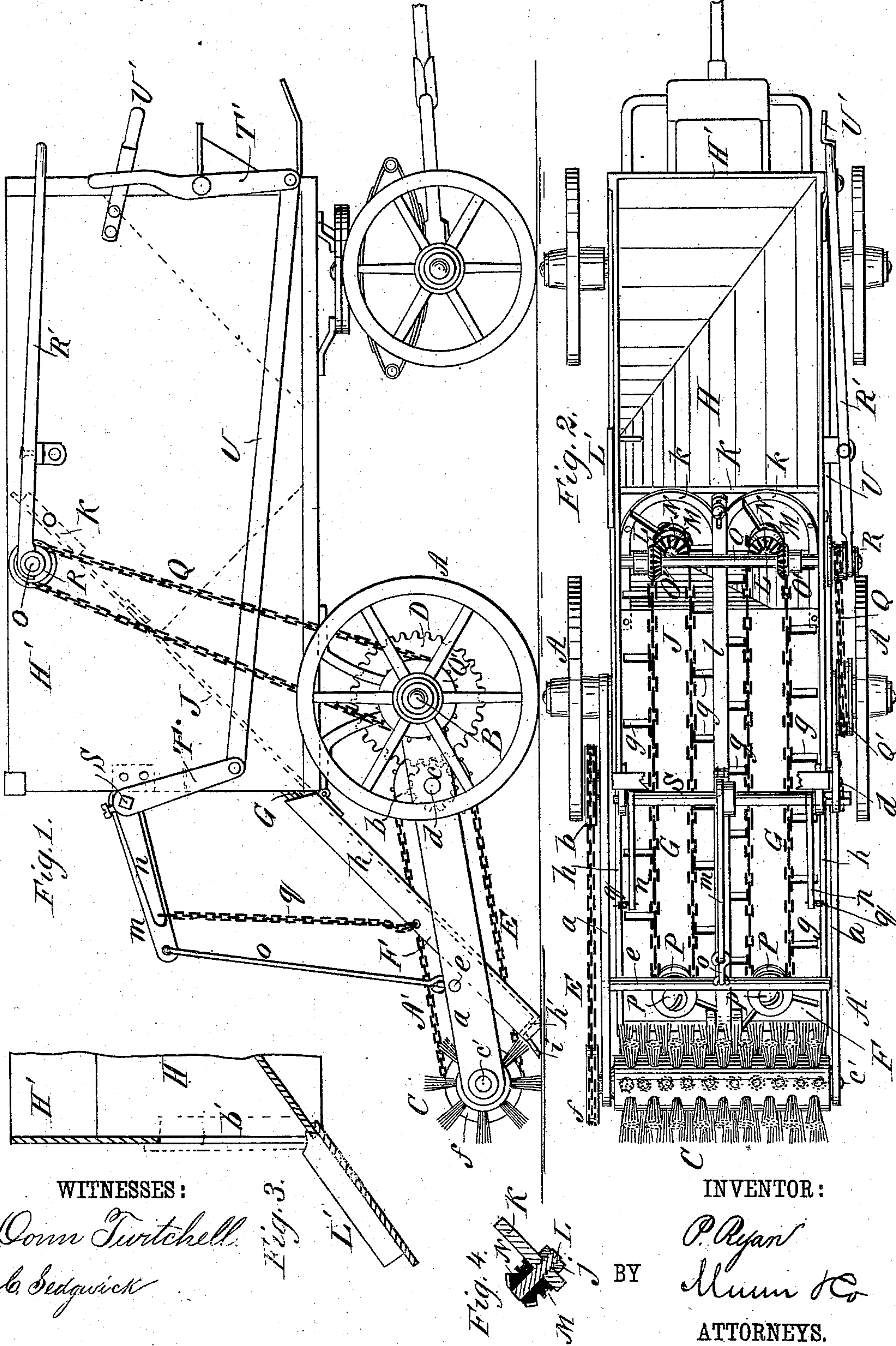


(No Model.)

P. RYAN.
STREET SWEEPING MACHINE.

No. 271,993.

Patented Feb. 6, 1883.



WITNESSES:

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PATRICK RYAN, OF NEW YORK, N. Y., ASSIGNOR OF TWO-THIRDS TO WILLIAM H. KELLY AND RICHARD J. MORRISON, BOTH OF SAME PLACE.

STREET-SWEEPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 271,993, dated February 6, 1883.

Application filed August 5, 1882. (No model.)

To all whom it may concern:

Be it known that I, PATRICK RYAN, of the city, county, and State of New York, have invented a new and Improved Street-Sweeping Machine, of which the following is a full, clear, and exact description.

My invention relates to that class of street-sweeping machines which elevate the sweepings into a receiver forming part of the machine, from which they are to be dumped at intervals into piles; and it consists of the construction, arrangement, and combination of the parts of the machine, whereby the same is made efficient and practical for its purpose, all as hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my new and improved street-sweeping machine. Fig. 2 is a plan view of the same. Fig. 3 is a detailed sectional elevation, showing the means for dumping the sweepings from the box or receptacle of the machine, and Fig. 4 is a detailed sectional elevation, showing the method of attaching to the cross-piece the upper beveled cog and sprocket wheels of the elevator.

The side plates or bars, *a a*, are placed loosely upon the rear axle, *B*, near the hubs of the rear wheels, *A A*, and are tied together with the tie-rod *e*. These plates thus tied together constitute the vertically swinging sweep-frame *A'*, and in the free or outer end of this frame is journaled the brush *C*. Near to and parallel with the rear axle, *B*, is journaled in this swinging sweep-frame *A* the shaft *d*, which is provided outside of the said frame with the sprocket-wheel *b* and inside of the said frame with the small cog-wheel *c*, which meshes with the larger cog-wheel *D*, that is fixed upon the axle *B*. Leading over this sprocket-wheel *b* and over the sprocket-wheel *f*, secured to the end of the shaft *c'* of the brush *C*, is the chain *E*, which communicates the rotating motion of the axle *B* and shaft *d* to the brush *C*, which, when the machine is in action, will sweep the dirt from the pavement upon or into the lower end of the dust pan or apron *F*, from whence it will be elevated by means of the plates or

buckets *g g* of the endless elevators *G G* up into the dirt-receiver *H*, formed in the main box *H'* of the machine. The dust pan or apron *F* is narrower than the swinging sweep-frame *A'*, and passes down between the bars *a a* thereof, as shown, and it is formed with the side flanges, *h h*, and at its lower end with the cross-flange *h'* and lip *i*, and is hinged to the rear lower corner of the main box *H'*, as shown, and is of such length relative to the height of the bottom of the main box from the pavement and the length of the swinging sweep-frame *A'* that its rear end is adapted to reach back to and to drag upon the pavement partially under the brush *C*. In this manner the pan or apron is always held at an angle to the box *H'*, as shown in Fig. 1, and always kept in proper position to have the dirt from the pavement swept by the brush upon it over the lip *i*, where it will be held, as in a box, by the flange *h'* until carried by the elevators up the inclined apron and inclined plate *J* and dropped over the upper edge of the latter into the receiver *H*. The inclined plate *J* is secured in the box *H'*, so as to stand on about the same slant with the bottom of the dust-pan *F*, as shown in dotted lines in Fig. 1, and its upper edge stands somewhat below the upper edges of the box *H'*, as shown in Fig. 2.

Above the upper edge of the inclined plate *J*, and in the same plane therewith, is secured between the sides of the main box *H'* the cross-piece *K*, in which are screwed and locked, by means of the jam-nuts *j j*, (shown in Fig. 4,) the studs *L L*, upon which are placed the small sprocket-wheels *M M* and the beveled cog-wheels *N N*, which are attached to or made integral with the sprocket-wheels *M M*. These sprocket-wheels and beveled cog-wheels are adapted to receive motion when the machine is in gear from the shaft *O* through the beveled cog-wheels *O' O'*, secured thereon, which mesh with the beveled cog-wheels *N N*, as shown in Fig. 2, and they are adapted to communicate motion to the elevators *G G*, which pass over the said sprocket-wheels *M M* and over the pulleys *P P*, journaled on the pins *p p*, secured in the apron *F*, near its lower end, as shown. The shaft *O*, when the machine is in action, receives motion from the axle *B*

through the chain Q, which passes over the sprocket-wheel Q', secured to the said axle, and over the small sprocket-wheel R, placed upon the end of the said shaft. The sprocket-wheel R is formed with a clutch-face, and the shaft O is formed or provided with a corresponding clutch-face, and the sprocket-wheel is adapted to be moved upon the said shaft O by means of the lever R' for putting the machine in or out of gear.

k k are curved irons secured to the upper edge of the inclined plate J and to the cross-piece K, thus forming tracks for supporting the outer ends of the plates or buckets g g of the elevators from the time they leave the plate J until they reach it again, as will be clearly understood from Fig. 2; and l is a hinged bar, that extends the whole length of the apron F and inclined plate J in the center, and serves to hold the plates g g down upon the bottom of the apron and upon the inclined plate J, so that as they move upward the dirt will not fall back under them and escape, but will all be carried up over the edge of the plate J and dropped into the receiver H. The bottom of this receiver H is made hopper-shaped, and is so formed as to be adapted to discharge its contents at one side of the machine, as indicated in Figs. 2 and 3, the door L' being adapted to be let down, as shown in Fig. 3, for opening the receiver, and to be held at an incline to form a chute for conveying the material some distance to the side of the machine, so that the pile of sweepings dumped upon the pavement will not interfere with the movement of the machine forward after dumping. The door L' is adapted to close the opening b' in the side of the box H' when the machine is in action, as indicated in Fig. 2.

At the rear end of the main box H', in suitable bearings, is journaled the rock-shaft S, to which is secured the central rearwardly-extending arm, m, and the side rearwardly-extending arms, n n. The central arm, m, is connected by means of the rod o to the center of the tie-rod e, while the arms n n are connected by means of the chains q q to the sides of the dust pan or apron F. To one end of the shaft is attached a crank, T, which is connected to the lower end of the lever T' by means of the connecting-rod U, so that upon forcing the upper end of the lever T' forward the arms m and n n will be thrown upward, raising the sweep-frame A' and the dust pan or apron F, so that the brush C and the lower end of the apron may be raised off from the pavement.

U' is a spring arm or catch, adapted to engage the upper end of the lever T' when thrown forward, for holding it in that position for carrying the frame A' and the dust pan or apron F in elevated position clear of the pavement. The chains q q are somewhat longer than the

connecting-rod o, so that the frame A' will be raised a short distance independent of the dust pan or apron.

When the machine is to be taken from street to street or to and from work the machine will be thrown out of gear by operating the lever R', and the frame A' and apron F will be raised by operating the lever T'. With the parts in this position, to put the machine in condition for action it is only necessary to put the machine in gear by moving the forward end of the lever R' outward and to lower the frame A' and apron by disengaging the lever T' from the catch U'. The machine is now simply to be drawn over the pavement until the accumulation of sweepings in the receiver requires dumping. The door L' is then to be opened, whereupon the sweepings will flow out of the receiver and be deposited in a pile at the side of the machine. The door is now to be closed and the sweeping continued until finished.

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

1. In a street-sweeper, the combination, with the box H', the hinged frame A', the brush C, journaled in said frame, and means for rotating said brush, of the dust pan or apron F, hinged to the rear of the box H', the inclined plate J, extending nearly to the top of the said box and forming a continuation of the dust pan or apron, and the elevators G, substantially as herein shown and described.

2. In a street-sweeper, the flanged and hinged dust pan or apron F, provided with the lip i and cross-piece h', and the inclined plate J, forming a continuation of the said dust pan or apron, in combination with the brush C and the elevators G, substantially as herein shown and described.

3. In a street-sweeper, the combination, with the axle B, provided with sprocket-wheel Q', the shaft O, provided with the sprocket-wheel R, the chain Q, gear-wheels O' O' N N, sprocket-wheels M M, pulleys P P, and the elevators G, of the frame A', the brush C, sprocket-wheels b f, chain E, and the cog-wheel c, substantially as herein shown and described.

4. The axle B, provided with the sprocket-wheel Q', and the shaft O, provided with the sprocket-wheel R, in combination with the chain Q, gear-wheels O' O' and N N, sprocket-wheels M M, pulleys P P, and elevators G, substantially as described.

5. The combination, with the apron F, hinged to the rear of the box H', of the guard-bar l, the inclined plate J, and elevators G, substantially as and for the purposes set forth.

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Witnesses:

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