(No Model.)

3 Sheets—Sheet 1.

W. Y. GAMBEE.

STREET SWEEPER.

No. 509,597. Patented Nov. 28, 1893.

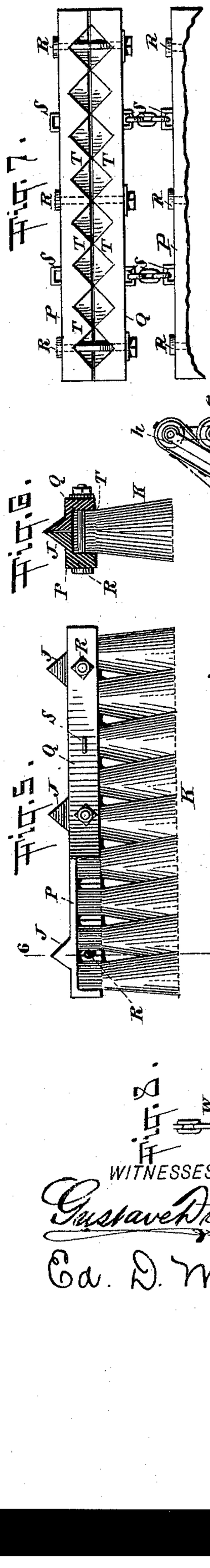

Fig. 7.

Fig. 10.

Fig. 5.

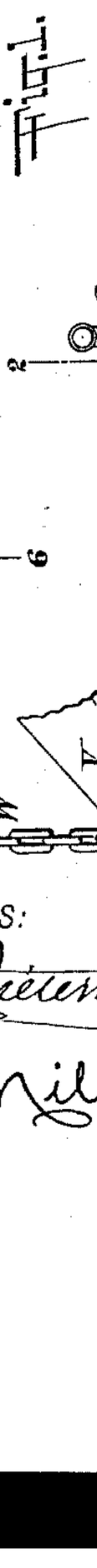

Fig. 6.

Fig. 8.

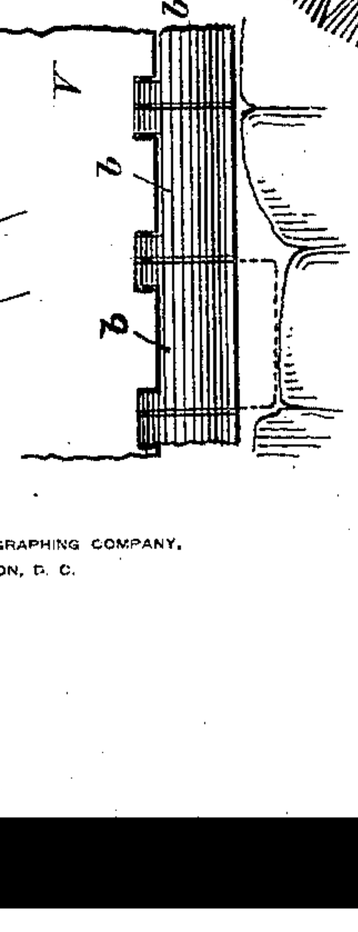

Fig. 9.

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(No Model.) 3 Sheets—Sheet 2.

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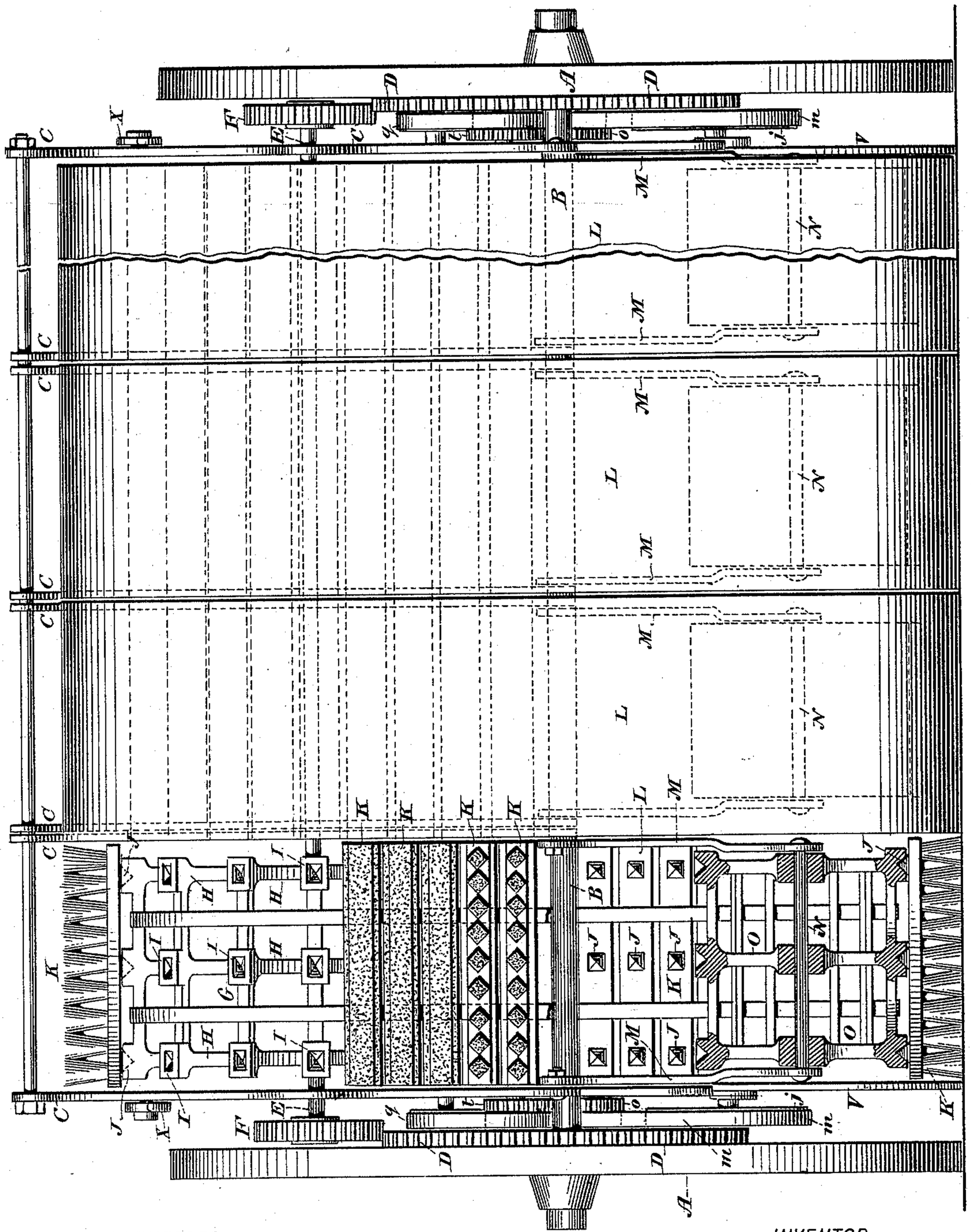

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STREET SWEEPER.

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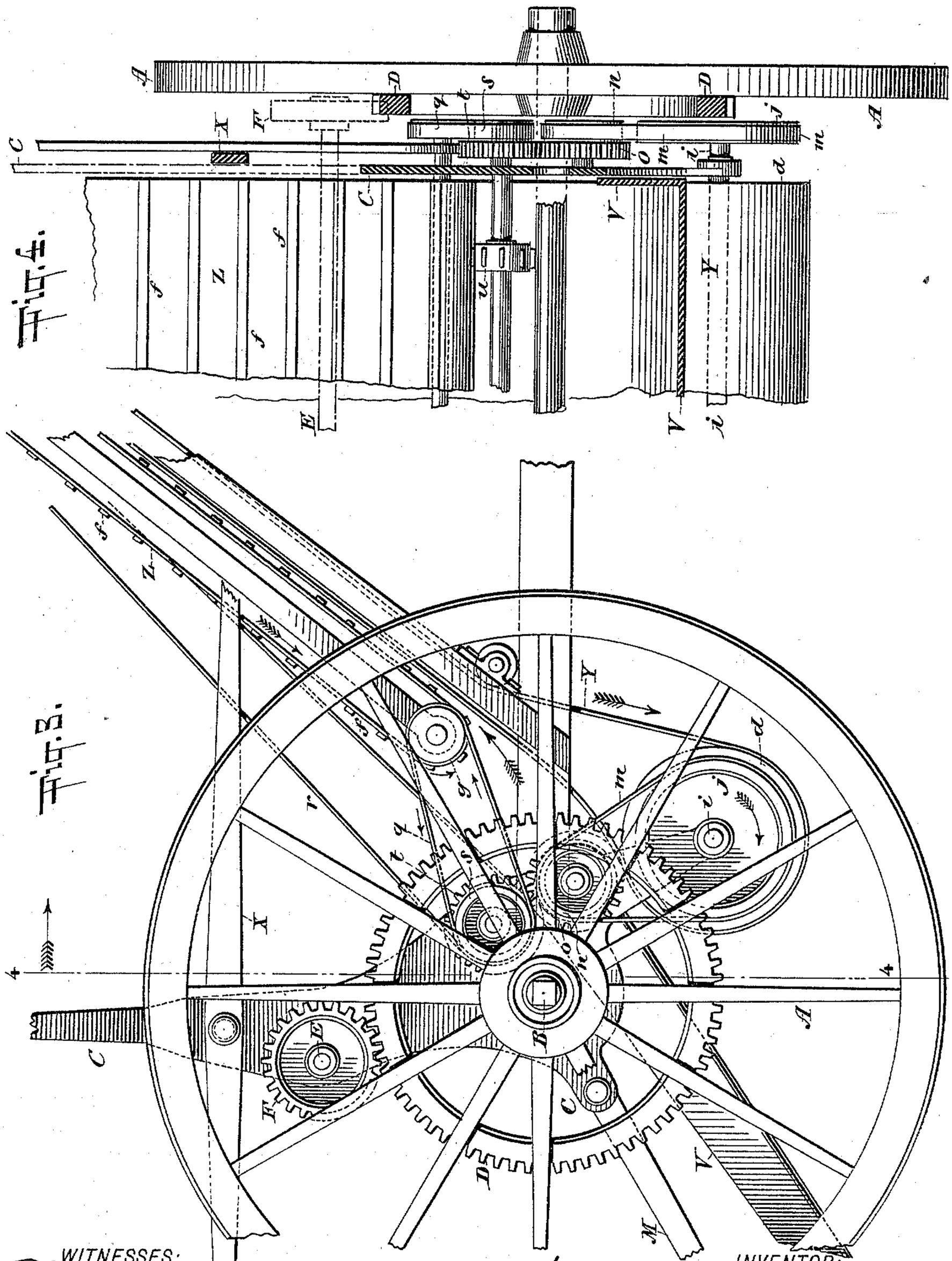

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UNITED STATES PATENT OFFICE.

WILLIAM Y. GAMBEE, OF NEW YORK, N. Y., ASSIGNOR OF TWO-THIRDS TO ANTHONY McOWEN AND JAMES McCARTNEY, OF SAME PLACE.

STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 509,597, dated November 28, 1893.

Application filed November 14, 1892. Serial No. 451,864. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM Y. GAMBEE, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Street-Sweeping Machines, of which the following is a specification.

The invention relates to improvements in street sweeping machines and consists in the novel features of construction hereinafter fully described and particularly pointed out in the claims.

Referring to the accompanying drawings forming a part of this application Figure 1 is a side elevation of a street sweeping machine constructed in accordance with and embodying the invention. Fig. 2 is an end view, partly in section, of same. Fig. 3 is a side elevation on an enlarged scale, partly broken away, of same. Fig. 4 is a vertical section of a portion of same on the dotted line 4—4 of Fig. 3. Fig. 5 is a detached side elevation, partly broken away, of one of the brushes. Fig. 6 is a vertical section of same, on the dotted line 6—6 of Fig. 5. Fig. 7 is a top view of same. Fig. 8 is an enlarged detached side elevation of the lower end of the pan which receives the dirt. Fig. 9 is an elevation of a portion of the lower end of the pan and showing by dotted lines how the sections hinged thereto may enter a depression in the street.

In the drawings A indicates the usual supporting wheels carrying the gear wheels D and mounted on the axle B, which supports the frames C. In the frames C at a suitable elevation above the axle B is journaled the shaft E extending across the machine and carrying at its ends the pinion wheels F, which mesh with and receive motion from the gear wheels D. Upon the shafts E are secured the sprocket wheels G, each having the series of radial arms H provided in their ends with the angular sockets I adapted to receive the correspondingly shaped lugs J on the backs of the brushes K. In the present instance, the machine shows four of the sprocket wheels G adapted to receive four endless sweeper belts L, but the number of wheels G employed will vary with the size of the machine and the number of endless sweeper belts it may be desired to use.

From the lower rear portion of the frames C are pivotally hung the pairs of arms M, which extend downwardly and rearwardly and receive in their lower ends the axles N upon which are mounted the sprocket wheels O corresponding with, though less in diameter than, the sprocket wheels G above referred to and receiving the lower portions of the endless sweeper belts L.

The construction of the series of independent parallel endless belts, supported upon independently movable sprocket wheels at their lower portions, allows the lower end of each of the belts to move independently of the others so as to be capable of sweeping in a different plane from the other members of the series of belts. This adapts the sweeper for use upon surfaces which are not perfectly horizontal.

Any desired number of the endless sweeper belts L will be employed, and each will consist of a series of the brushes K connected together at their side edges by any suitable links to form the complete belt, as shown in Fig. 1. Each brush K is complete in itself, and hence the belts L are composed of a series of complete individual brushes loosely jointed together at their edges so as to be capable of traveling under the action of the sprocket wheels G. O. The brushes K are oblong in outline and their length constitutes the entire width of the belt which they form. The back of each brush K is composed of two longitudinal cast sections P, Q (see Figs. 5, 6 and 7) connected together by bolts R and having eyes S on their opposite edges, the purpose of the eyes being to afford convenient means for linking the brushes together to form the belt. The upper surfaces of the sections P, Q, have the lugs J and the lower surfaces the recesses T, in which the heads of the bristles are clamped by the bolts R closing the sections R, Q, together. The construction of the brushes is a matter of great importance, since thereby the bristles may be conveniently replaced whenever sufficiently worn, the one back serving to receive the sets of bristles from time to time as desired. The

bunches of bristles will have their upper ends dipped into or otherwise provided with a binding agent and then firmly clamped in the recesses T, and hence it will be understood that without material expense the bristles may be readily renewed whenever necessary.

Below the series of endless sweeper belts L is pivotally hung the inclined pan V, which is suspended at opposite sides of its lower portion by the chains W, whose upper ends are fastened to the hand levers X, by which the pan, endless belts and wheels O may be raised or lowered at will, being raised out of the way when it is not desired to sweep and lowered to the position shown when the sweeping is to be performed.

The upper surface of the pan V furnishes an incline up which the dirt is moved by the brushes K until it reaches the belts Y, Z, which then carry it upward and discharge it into the receptacle or wagon body *a*. The lower edge of the pan V is provided with the series of hinged sections *b* (see Figs. 8 and 9) which, as the sweeper moves along, may independently follow the elevations and depressions in the street or road-way and thus be prepared to conduct the dirt upward under the action of the brushes notwithstanding any unevenness in the surface over which the sweeping is to be performed.

The flexible endless belt Y travels on the rollers or drums *d*, *e;* and the belt Z is provided with transverse slats *f* and travels on the rollers *g*, *h*. The belt Y receives its motion from the drum *d*, and this drum is mounted on a shaft *i* which receives its motion from the wheel *j*, belt *m*, wheel *n* and pinion *o*, as shown more clearly in Figs. 3 and 4; and the belt Z receives its motion on the rollers *g*, *h* from the belt *q* connected with the roller *g* or the belt *r* if preferred connected with the roller *h*. Either the belt *q* or belt *r* may be used as may be preferred and will receive motion from the wheel *s* and pinion wheel *t*. The wheel *t* not only operates the wheel *s*, belt *q* and apron or belt Z, but also sets in motion the pinion wheel *o*, wheel *n*, belt *m*, wheel *j*, drum *d* and endless conveyer belt Y, and the wheel *t* is itself actuated by a sprocket wheel *u* which is upon its shaft and is engaged by the endless sweeper belts or by any other preferred means. The gearing for setting in motion the belts Y, Z, and sweeper belts L is duplicated at each side of the machine, and it is to be understood that I do not confine the invention to the special gearing shown since this may be changed or varied according to individual judgment, the only essential consideration being that the belts have a simultaneous motion imparted to them during the travel of the machine in the operation of sweeping. When the pan V, rollers O, and belts L are elevated free of the ground by means of the chains W and levers X, and it is desired that the machine proper shall be moved without sweeping, the pinions F may be moved inward on the shaft E and thus clear the actuating gear wheels D, or any other suitable means of disengaging the gearing may be employed.

The receptacle or body *a* is mounted on the frame A′ and supporting wheels B′, said receptacle being adapted to turn on the frame at the point C′ when the draft horses are turned to one side preparatory to the load being dumped.

In the use of the machine the pan V, wheels O and brush-belts L are lowered to the position indicated in Fig. 1, and thereupon the brushes K will effectually sweep the dust and dirt from the street up the inclined pan V, up which it will be moved by the brushes until it passes from the pan and falls upon the belt or apron Y, which then with the aid of the belt or apron Z will carry the dirt or dust upward and discharge it into the receptacle *a*. The operation of sweeping may be continued until the receptacle *a* has become full, when the sweeping will be suspended and the receptacle tilted and dumped in the manner hereinbefore set forth.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a street sweeping machine, the series of independent parallel endless sweeper belts each composed of transverse brushes linked together, combined with the sprocket wheels receiving the upper portions of the belts, the pivotally secured pairs of arms M carrying the axles N and independent sprocket wheels O for the lower portions of the belts whereby the lower ends of the belts are allowed to move independently of each other to permit the brushes to operate in different planes, the pivotally secured pan V below the belts, and means substantially as described for elevating and lowering said pan and belts; substantially as and for the purposes set forth.

2. In a street sweeping machine, the series of independent parallel endless sweeper belts each composed of transverse brushes linked together, combined with the sprocket wheels receiving the upper portions of the belts the series of independent sprocket wheels mounted on separate shafts journaled in the independently movable bearings and receiving the lower portions of said belts, whereby the lower ends of the belts are allowed to move inpendently of each other to permit the brushes to operate in different planes, the pivotally secured dirt receiving pan below said belts, and the series of independent hinged sections secured to the lower edge of said pan, substantially as and for the purposes set forth.

3. In a street sweeping machine the series of independent parallel endless sweeper belts each composed of transverse brushes linked together, combined with the sprocket wheels receiving the upper portions of the belts, the series of independent sprocket wheels mounted on separate shafts journaled in the inde-

pendently movable bearings and receiving the lower portions of said belts, whereby the lower ends of the belts are allowed to move independently of each other to permit the brushes to operate in different planes, the pivotally secured dirt receiving pan below said belts, the series independent hinged sections secured to the lower edge of the pan, the endless aprons receiving the dirt from the upper end of the said pan, and a receptacle receiving the dirt from said aprons, substantially as and for the purposes set forth.

4. In a street sweeping machine, the endless sweeper belt composed of individual brushes K linked together and each consisting of the longitudinal sections P, Q, having recesses T, bolts R and lugs J, combined with the sprocket wheels G, O, having recesses I to receive said lugs; substantially as and for the purposes set forth.

Signed at New York, in the county of New York and State of New York, this 9th day of November, A. D. 1892.

WILLIAM Y. GAMBEE.

Witnesses:
CHAS. C. GILL,
ED. D. MILLER.