

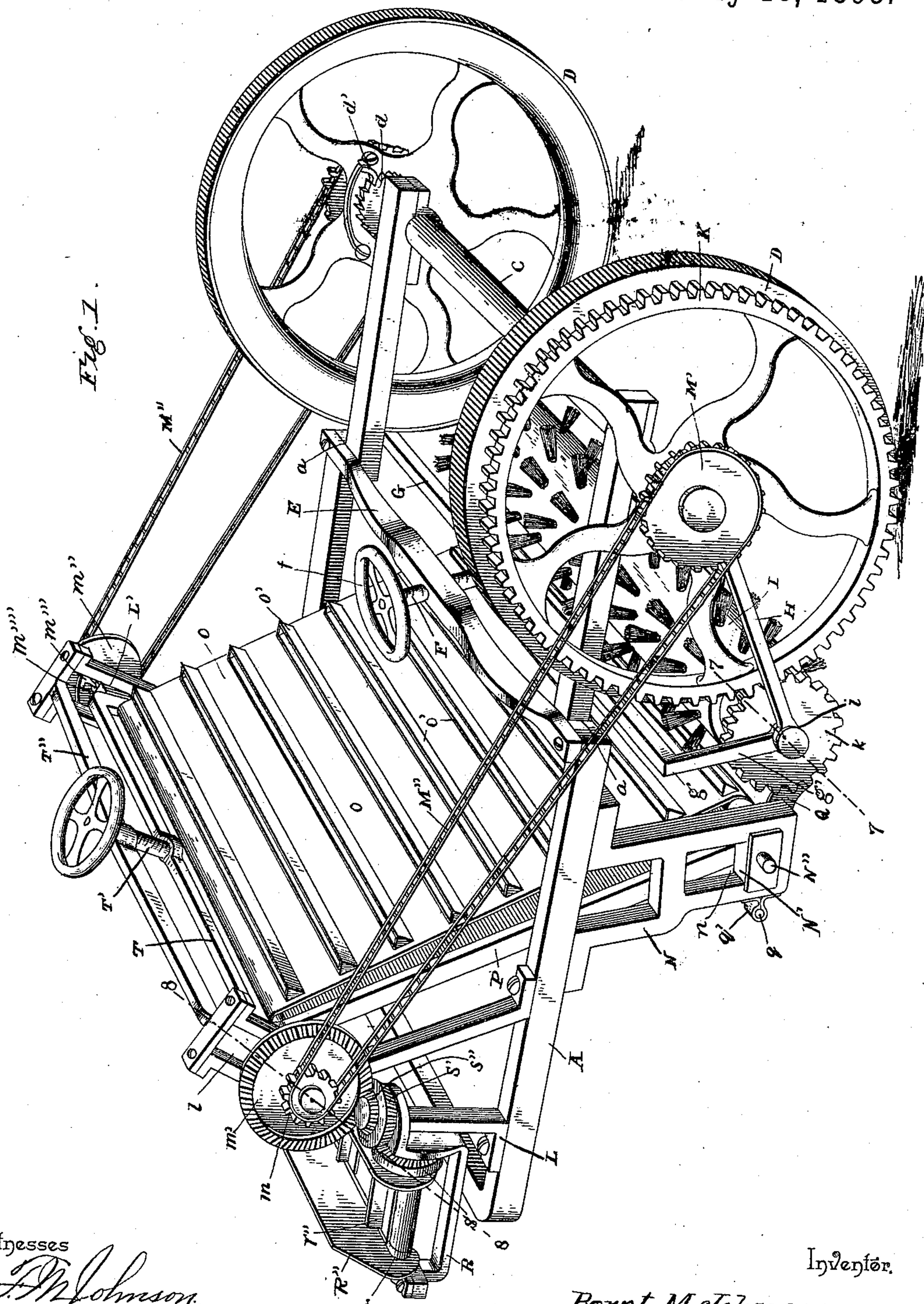
(No Model.)

B. M. JOHNSON.
STREET SWEEPER.

3 Sheets—Sheet 1.

No. 501,515.

Patented July 18, 1893.



Witnesses

B. M. Johnson
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Inventor.

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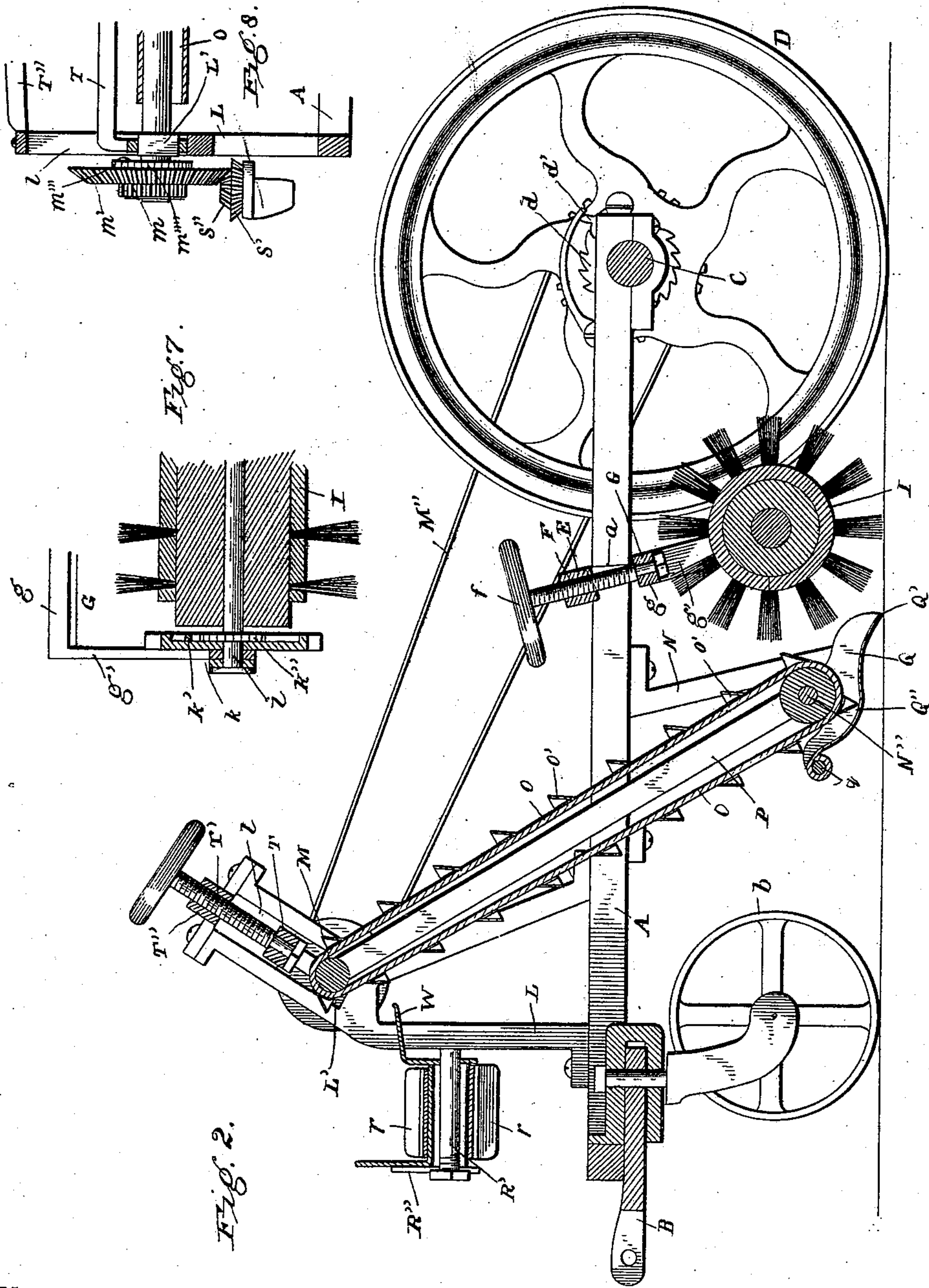
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(No Model.)

3 Sheets—Sheet 3.

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Fig. 3.

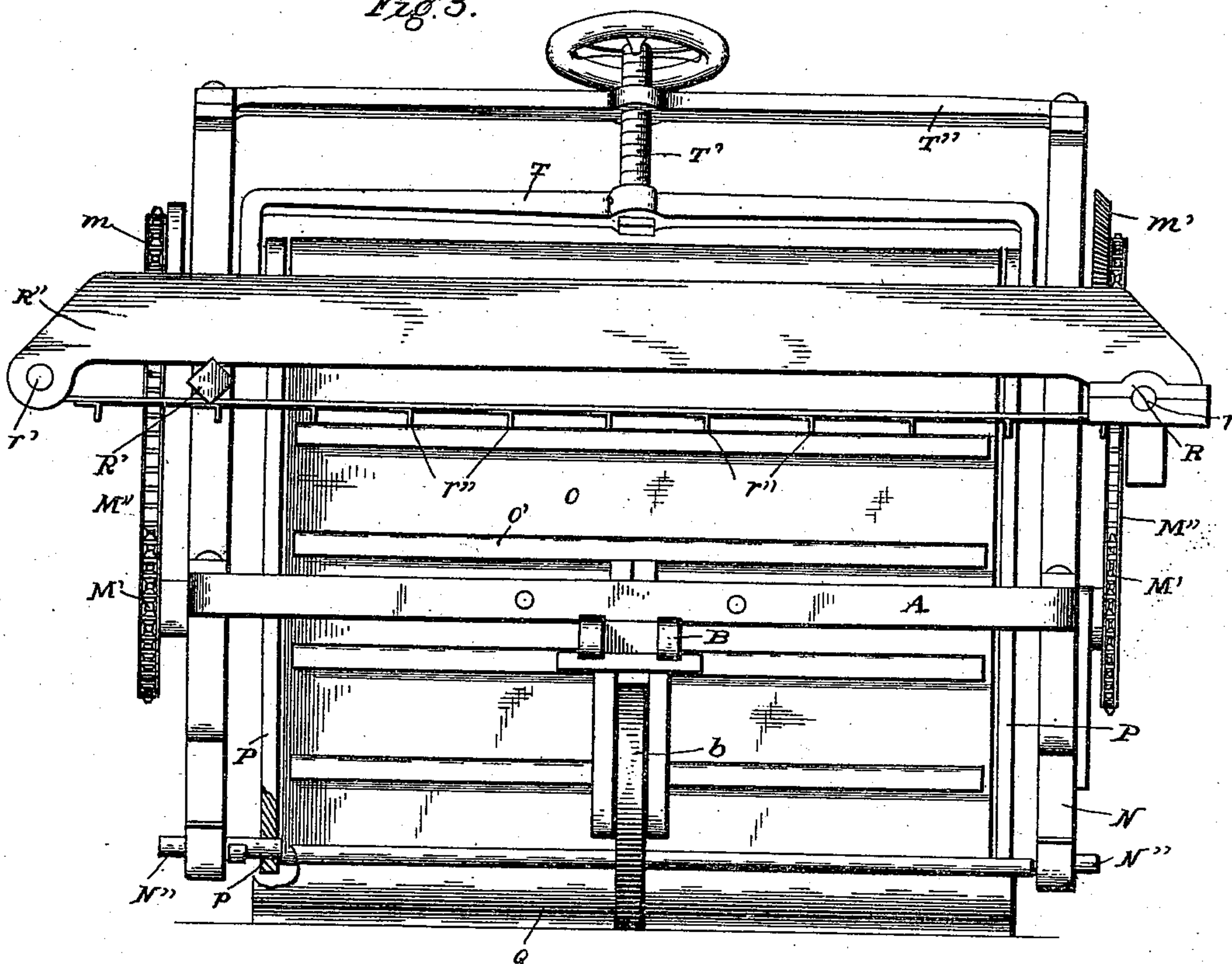


Fig. 4.

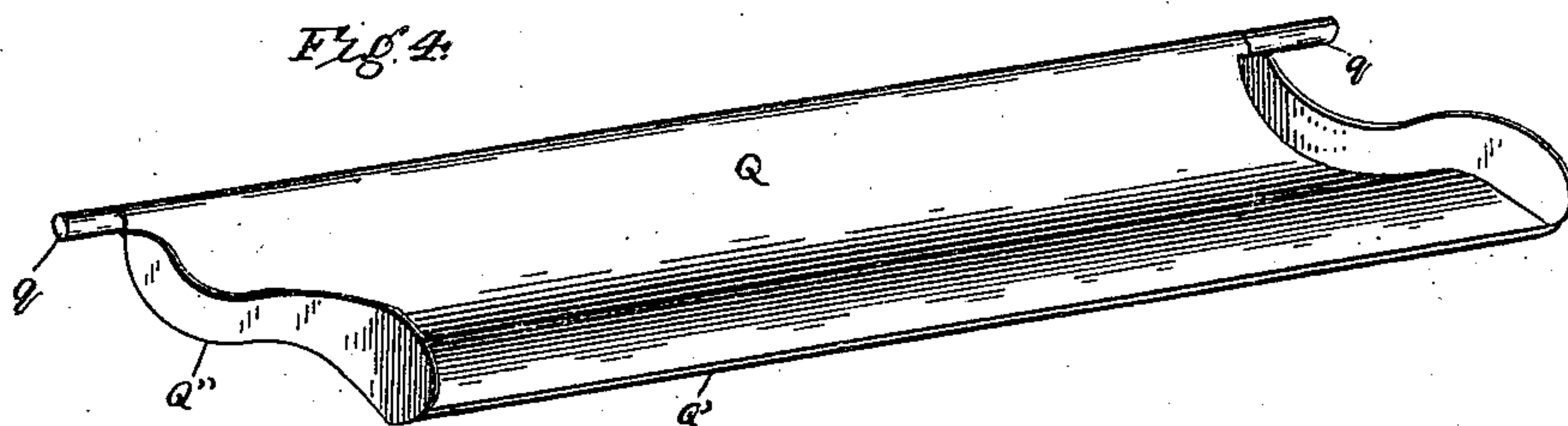


Fig. 5.

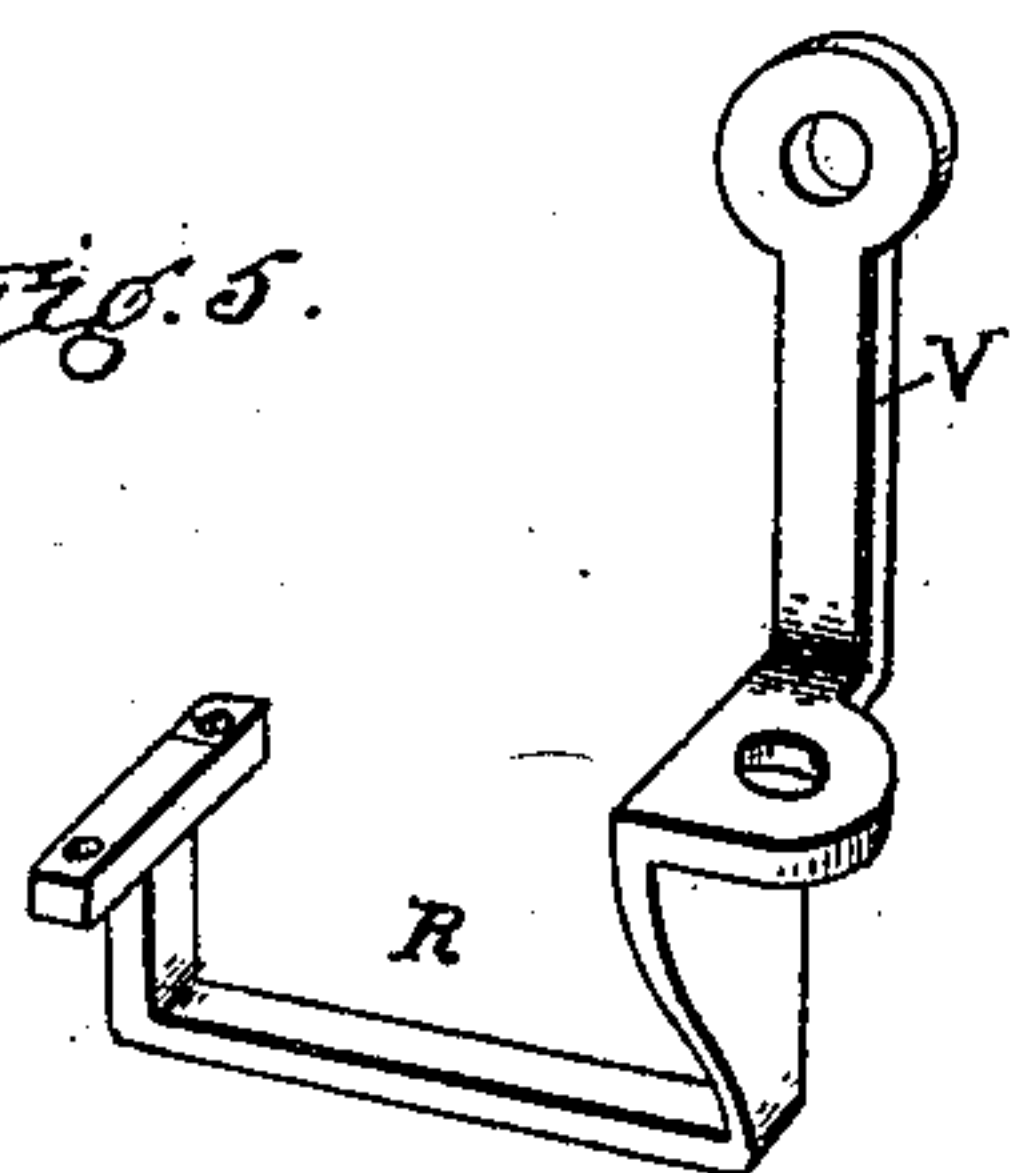
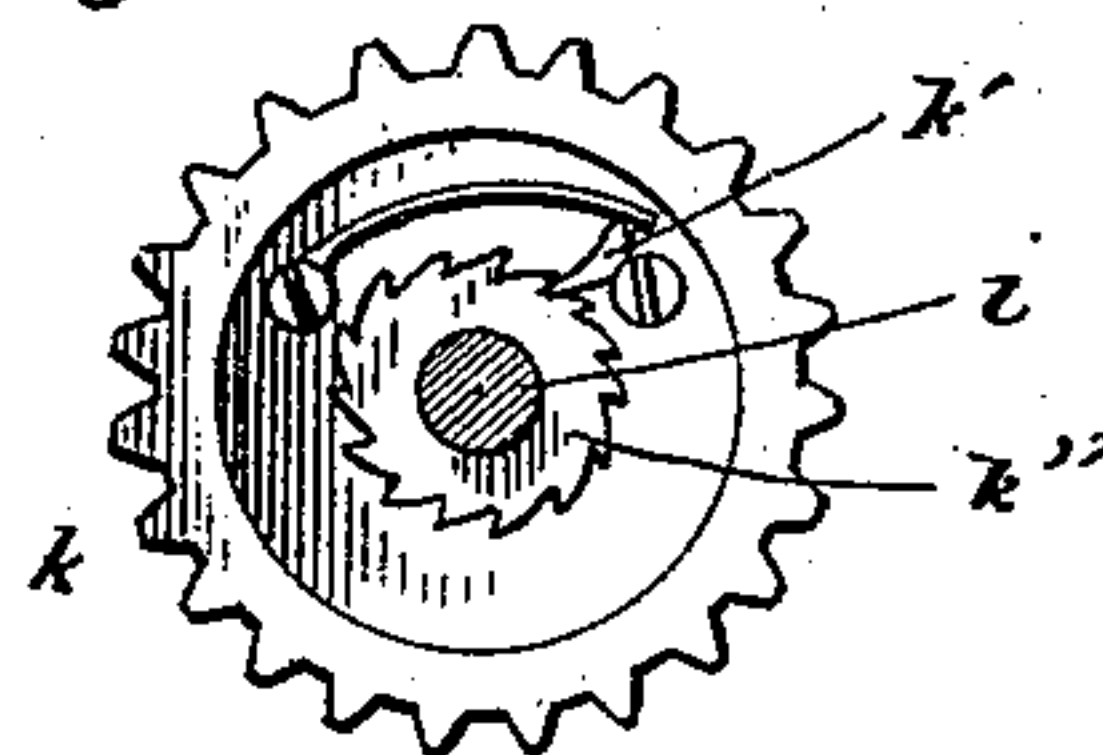


Fig. 6.



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UNITED STATES PATENT OFFICE.

BERNT M. JOHNSON, OF RACINE, WISCONSIN.

STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 501,515, dated July 18, 1893.

Application filed October 24, 1892. Serial No. 449,866. (No model.)

To all whom it may concern:

Be it known that I, BERNT M. JOHNSON, a citizen of the United States, residing at Racine, in the county of Racine and State of Wisconsin, have invented a new and useful Street-Sweeping Machine, of which the following is a specification.

My invention relates to improvements in street sweeping machines, and it has for its objects to provide improved means for operating the rotary brush; to provide improved means for elevating the dust; to provide an improved dust-pan from which the elevating devices remove the dust; to provide improved means for adjusting the brush; and to provide a cross-carrier to convey the dust into an adjacent wagon.

Further objects and advantages of my invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

In the drawings: Figure 1 is a perspective view of a street sweeping machine embodying my invention. Fig. 2 is a central longitudinal section of the same. Fig. 3 is a front view. Fig. 4 is a detail view in perspective of the dust-pan. Fig. 5 is a similar view of the bracket by which one end of the transverse conveyer is supported. Fig. 6 is a detail sectional view showing the inner side of one of the gears carried by the brush cylinder. Fig. 7 is a detail sectional view, on line 7—7 of Fig. 1. Fig. 8 is a similar sectional view, on line 8—8 of Fig. 1, through the shaft M, sliding block and gears carried by said shaft.

A represents a horizontal U-shaped frame, with its closed end to the front, to the center of which is connected the draft frame, B, having a caster-wheel, *b*, and mounted in bearings in the rear ends of the arms of the frame is the axle, C, carrying loose traction wheels, D D. The rearward extending arms of the U-shaped frame are provided, at intermediate points, near the peripheries of the traction-wheels, with off-sets, *a a*, by which the wheels may be set in, as shown in the drawings, Fig. 1. The axle carries ratchets, *d*, and the wheels carry pawls, *d'*, to engage said ratchets when the wheels move forward; and to slip duly thereon when the wheels turn backward this enables the wheels to turn in

opposite directions, as in turning a corner, without interfering with the operation of the sweeper. That is, in turning a corner, the wheel at the outer side of the curve, or that wheel which travels the greater distance, and therefore turns the more rapidly, will rotate the axle and actuate the machinery, while the inside wheel which necessarily turns more slowly may act as a pivot, and cease turning, or may turn backward, without interfering with the operation of the machinery by the outside wheel. The shaft or axle slips loosely in the inside wheel. A transverse bar, E, is arranged to connect the side-arms of the main frame, at the off-sets, above mentioned, and threaded in a central socket in said bar is an adjusting screw, F, having a hand-wheel, *f*, at its upper end, and whose lower end is swiveled in a central socket in the yoke, G. This yoke consists of the transverse bar, *g*, and the depending arms, *g'*, at the ends of the transverse bar, these depending arms being connected by means of the swinging-arms, H, to the axle of the traction-wheels. The rotary brush, I, is mounted in bearings in the lower ends of the depending arms of the yoke and its trunnions, *i*, carry pinions, *k*, which mesh with the peripheral gear, K, carried by the traction wheels. One of the pinions *k* is shown in Fig. 1, and the corresponding pinion upon the opposite end of the brush is hidden by the traction wheels. The pinions *k* are loosely mounted upon the trunnions *i* and carry spring-actuated pawls *k'* which engage ratchets *k''* fixed to said trunnions, all as clearly shown in Fig. 6. This construction enables the brush to be turned backward independently of the gears and traction wheels.

It will be seen that by turning the adjusting screw F the brush may be raised or lowered at will, and as the yoke is held at a prescribed distance from the peripheral gear by the swinging arms H, the pinions will intermesh with the said gears in all positions.

Rising from the main frame in front of the off-sets are standards, L L, provided at their upper ends with rearwardly and upwardly inclined slots, *ll*, in which fit, to slide, the journal blocks, L' L'. In suitable bearings in these journal-blocks, is mounted the elevator shaft, M, carrying at its opposite ends loose sprocket-wheels, *m m*, to one of which is fixed

a gear, m' . The axle C carries fixed sprocket-wheels, M' , which are connected by means of chains, M'' , to the sprockets, m . A disk m'' is fixed to the opposite sprocket-wheel m to correspond with the gear m' , and said disk and gear carry spring pawls m''' to engage fixed ratchets m'''' upon the elevator shaft M. The sprockets m are connected to the shaft M by pawl and ratchet clutches of the ordinary construction.

To the under sides of the side-arms of the main frame are secured the depending brackets, N N , provided with the rearwardly and downwardly inclined slots, n n , in which are fitted, to slide, the journal-blocks, N' N' . In suitable bearings in said journal-blocks, is mounted the idler-shaft, N'' .

Around the shafts M and N'' travels the forwardly and upwardly inclined elevator apron, O, provided with transverse buckets, O' . The clutches, whereby the sprockets m are connected to the shaft M enable the apron to be moved to clean or empty the buckets without operating the other parts of the mechanism. The shafts M and N'' are held at the proper interval to keep the elevator apron taut by the struts, P P, provided at their opposite ends with eyes, p p , to receive the said shafts.

Q represents a dust-pan which is provided at its front edge with lateral trunnions, q q , to fit in bearings, q' q' , carried by the depending brackets, and the dust pan, which is adapted to drag at its rear edge, is provided with a downturned lip, Q' , to bear upon the street close under the rotary brush, and a trough, Q'' , which is concentric with the idler-shaft of the elevator, whereby the buckets upon the endless apron pass, successively, close to the surface of the trough to remove the dirt therefrom.

The standards which are arranged upon the main frame are provided with forward extending brackets, R R' which support a casing, R'' , provided at one end with a carrier shaft, r , and at the opposite end with an idler-shaft, r' . An endless carrier travels upon these shafts, and is provided with transverse slats, r'' . The carrier shaft carries a bevel gear S, which is connected, by means of an intermediate gear, S' and small gear S'' , to the gear, m' , whereby the motion of the latter is conveyed to the horizontal carrier.

A yoke, T, is provided at its ends with eyes to receive the elevator shaft, M, and an adjusting screw, T' , is mounted in a transverse bar, T'' , connecting the upper ends of the standards, said screw being provided at its upper end with a hand-wheel and is fitted at its lower end in a central socket in the yoke. By means of this elevator adjusting-screw, just described, the elevator may be raised or lowered, to cause the same to coact properly with the dust pan.

Of the brackets, R R', which are above-described as extending forward from the standards, the bracket, R' , consists of a pin, which

is secured directly to the standard, and the bracket, R, is in the form of a stirrup, and is suspended, by means of a hanger, V, from the elevator shaft, whereby as the latter is adjusted vertically, by means of the elevator adjusting screw, that end of the horizontal carrier which is supported by the said stirrup-bracket is similarly adjusted, to hold the gearing in position to coact.

The casing of the horizontal carrier is provided with a rearward extending deflector, W, which terminates close to the surface of the endless apron of the elevator, to receive the dust from the buckets thereof, and by means of the rear inclined slots in the standards the apron may be adjusted toward or from this deflector.

A wagon or cart is driven, side by side with the sweeping machine, to receive the dirt from the carrier.

Changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a street sweeping machine, the combination with the frame-work, the traction-wheels, and a rotary brush geared to the traction-wheels, of the elevator shaft and idler shaft mounted in journal-blocks arranged to slide in inclined slots in the frame-work, adjusting mechanism connected to the elevator shaft, and means for conveying motion from the traction-wheels to the elevator-shaft, substantially as specified.

2. In a street sweeping machine, the combination with the frame-work, the traction-wheels, and a rotary brush, geared to the traction-wheels, of the slidably mounted elevator and idler shafts carrying an endless apron, struts connecting said shafts, adjusting means for elevating and depressing the elevator shaft, and means for conveying motion from the traction wheels to the elevator shaft, substantially as specified.

3. In a street sweeping machine, the combination with the frame-work, traction-wheels, and a rotary brush geared to the traction-wheels, of an elevator-shaft mounted in journal-blocks which are slidably fitted in upward and rearward inclined slots, a yoke connected to said shaft, an adjusting screw connected to the yoke, an idler-shaft mounted in bearings in journal-blocks which are slidably fitted in downward and rearward inclined slots, an endless elevator apron carried by said shafts, and means for communicating motion from the traction wheels to the elevator-shaft, substantially as specified.

4. In a street-sweeping machine, the combination with the framework, traction-wheels, rotary brush geared to the traction-wheels, an endless elevator, and means for communicat-

ing motion from the traction-wheels to the elevator, of a transverse carrier, having a frame, pivotally connected at one end to the framework, a vertically adjustable bracket supporting the other end of the said casing, blocks slidably mounted upon the framework, and having said bracket fixed thereto and provided with bearings for one of the elevator-shafts and gearing between the transverse carrier and the adjacent end of the elevator, substantially as specified.

5. In a street sweeping machine, the combination with the framework, traction-wheels, and brush geared to the traction-wheels, of a vertically adjustable elevator having its shafts mounted in slidable blocks, means to adjust said blocks, a hanger fixed to one of said blocks, a transverse carrier having its casing attached to and supported at one end by said hanger, means to support the other end of the carrier gearing between the elevator and the carrier, and means to convey motion from the traction-wheels to the elevator, substantially as specified.

6. In a street sweeping machine, the combination with the frame-work, traction-wheels, rotary brush geared to the traction-wheels, an elevator connected by gearing to the traction-wheels and means for vertically adjusting the elevator, of a transverse carrier arranged in juxtaposition to the upper end of the elevator and geared thereto, and means for connecting one end of said carrier to the

upper end of the elevator, substantially as specified.

7. In a street sweeping machine, the combination of a U-shaped frame, uprising slotted standards and depending slotted brackets fixed to the side-bars of said frame, slidable journal-blocks fitted in the slots of said standards and brackets, horizontal shafts mounted in bearings in said journal-blocks and connected by struts, an endless apron carried by said shafts, adjusting devices connected to one of said shafts, a dust-pan loosely pivoted to the depending brackets, extending under and having a trough concentric with the lower shaft, and provided with a down-turned free edge, an axle mounted in bearings in the rear ends of the side-arms of the frame, traction-wheels loosely mounted upon said axle, pawl and ratchet connections between the traction-wheels and the axle, a rotary brush rotatably supported in rear of the dust-pan and geared to the traction-wheels, and means for communicating motion from the traction-wheels to one of the shafts of the elevator, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

BERNT M. JOHNSON.

Witnesses:

FRED KRAKOFSKY,
JULIUS LUECK.