

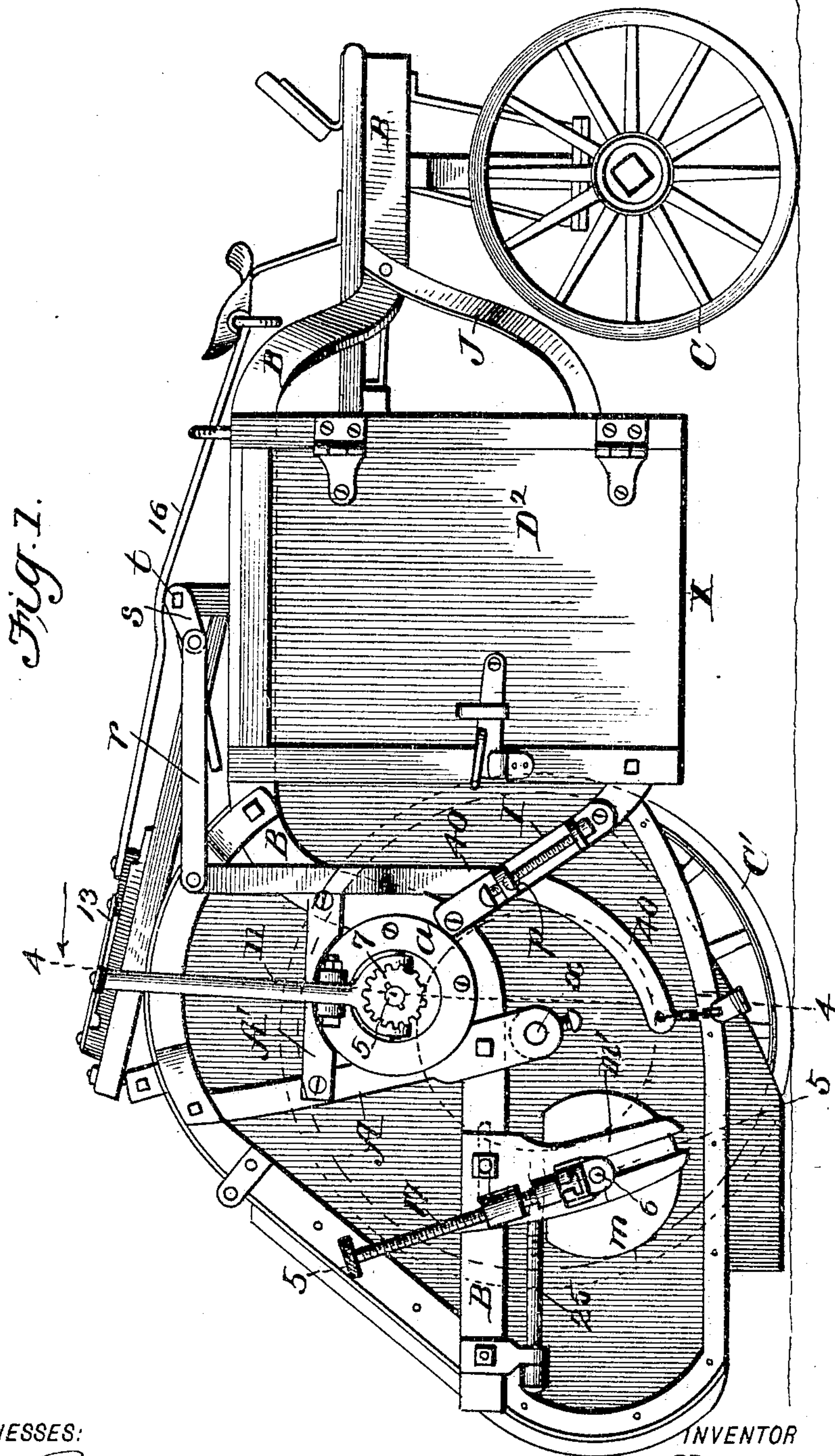
No. 775,163.

PATENTED NOV. 15, 1904.

A. BROWN.
STREET SWEEPER.
APPLICATION FILED SEPT. 11, 1903.

NO MODEL

4 SHEETS—SHEET 1.



WITNESSES:

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Edw. W. Ryan.

INVENTOR
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BY *Munn & Co.*
ATTORNEYS

No. 775,163.

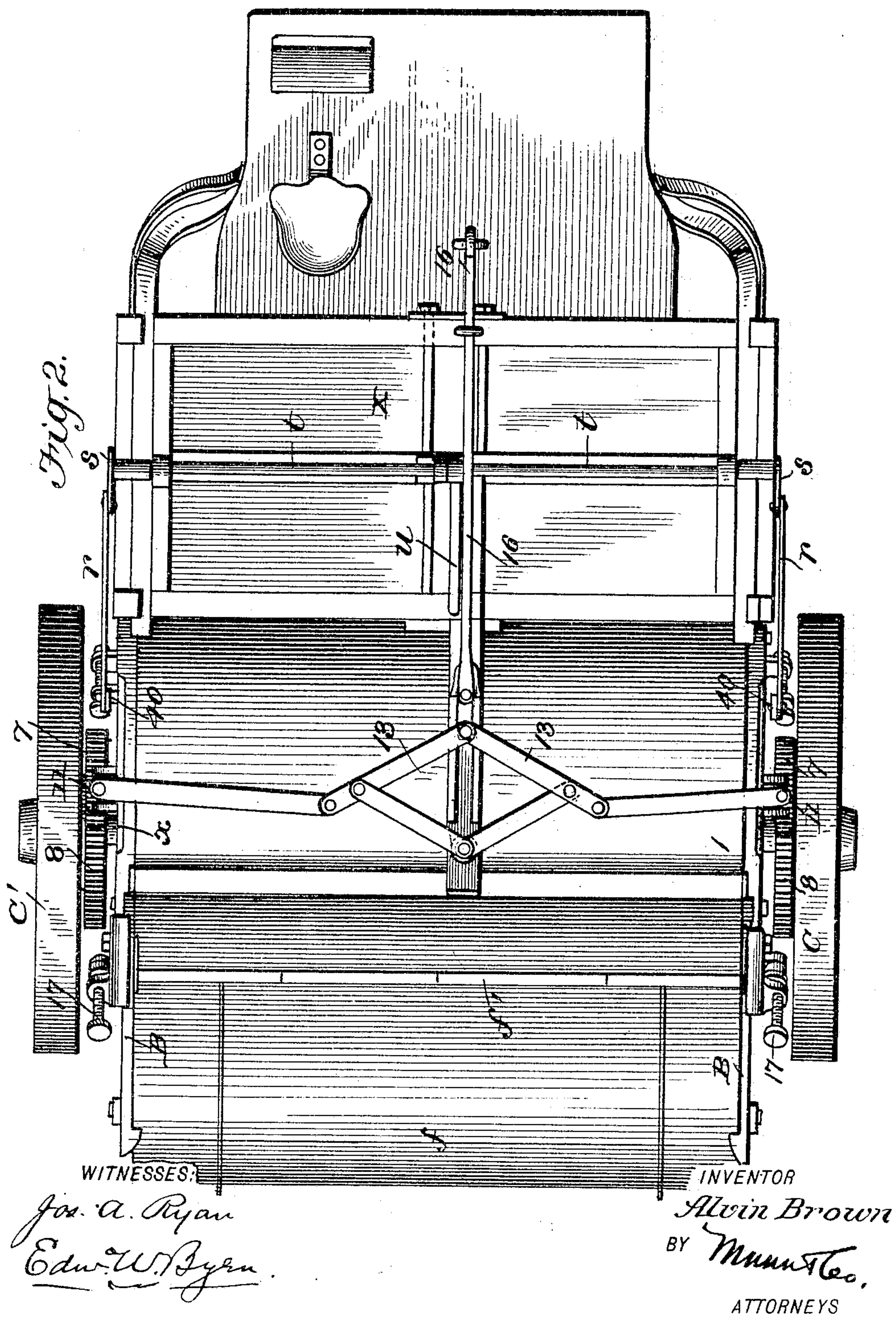
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4 SHEETS—SHEET 2.



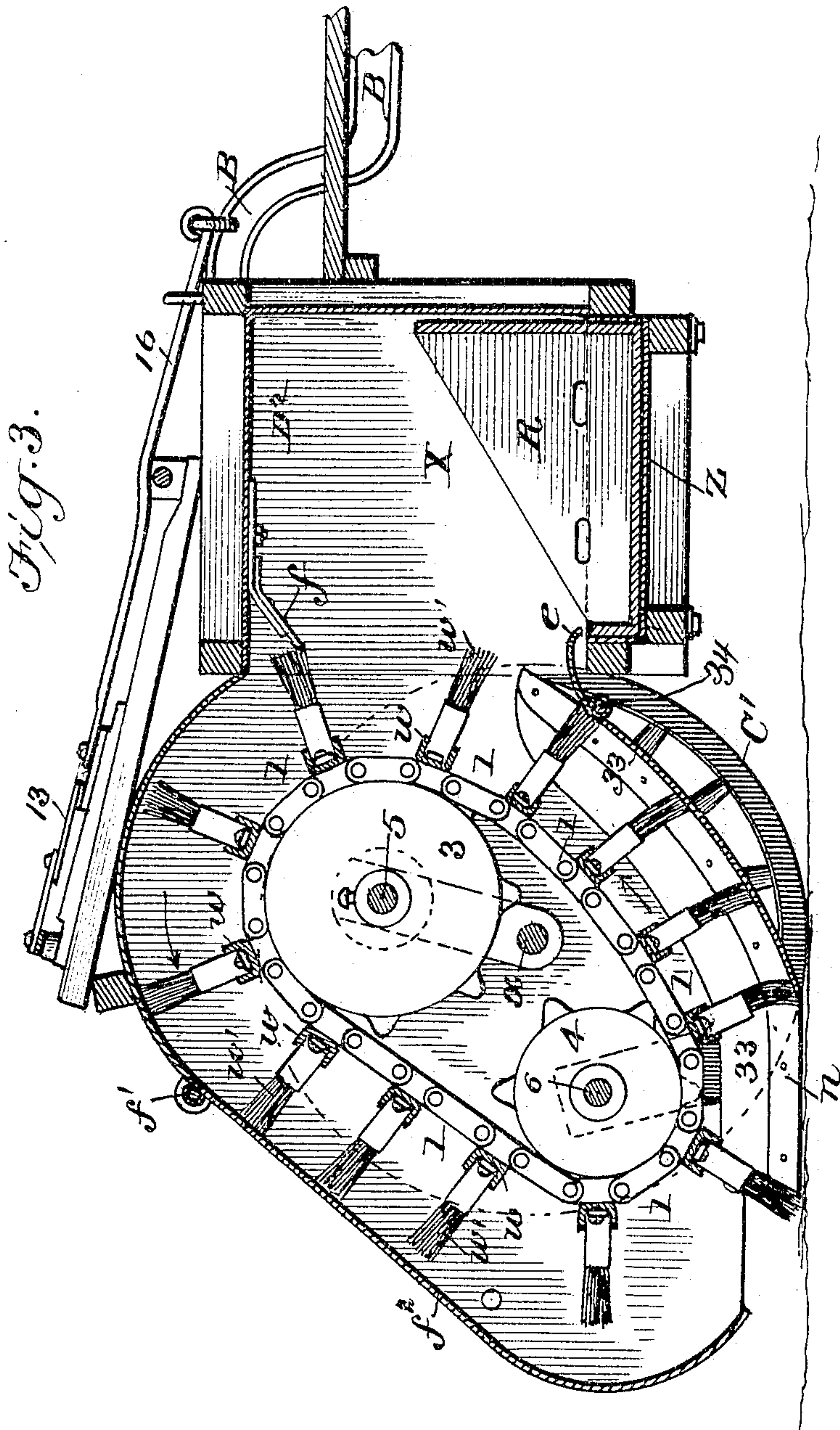
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4 SHEETS—SHEET 3.



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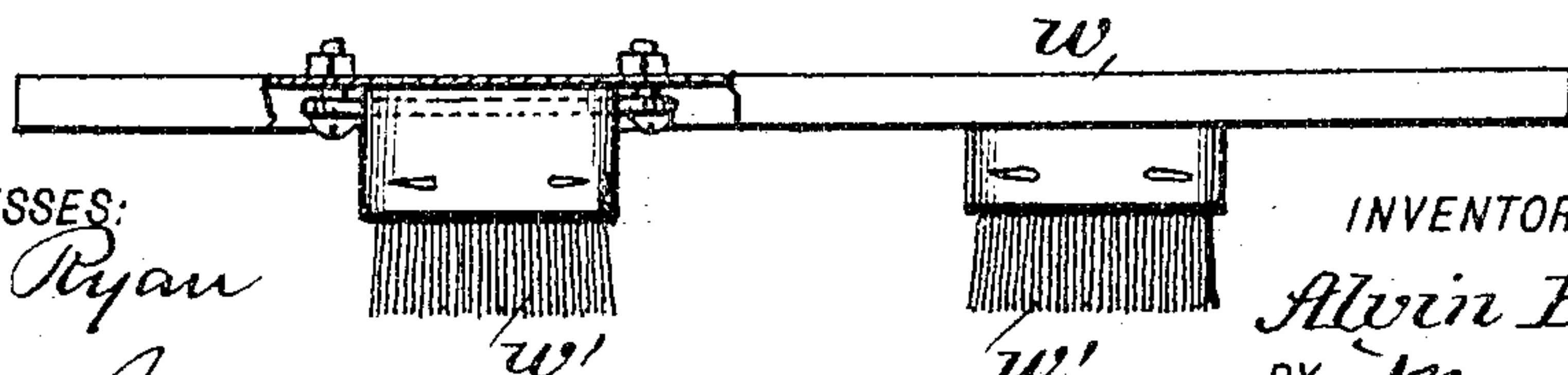
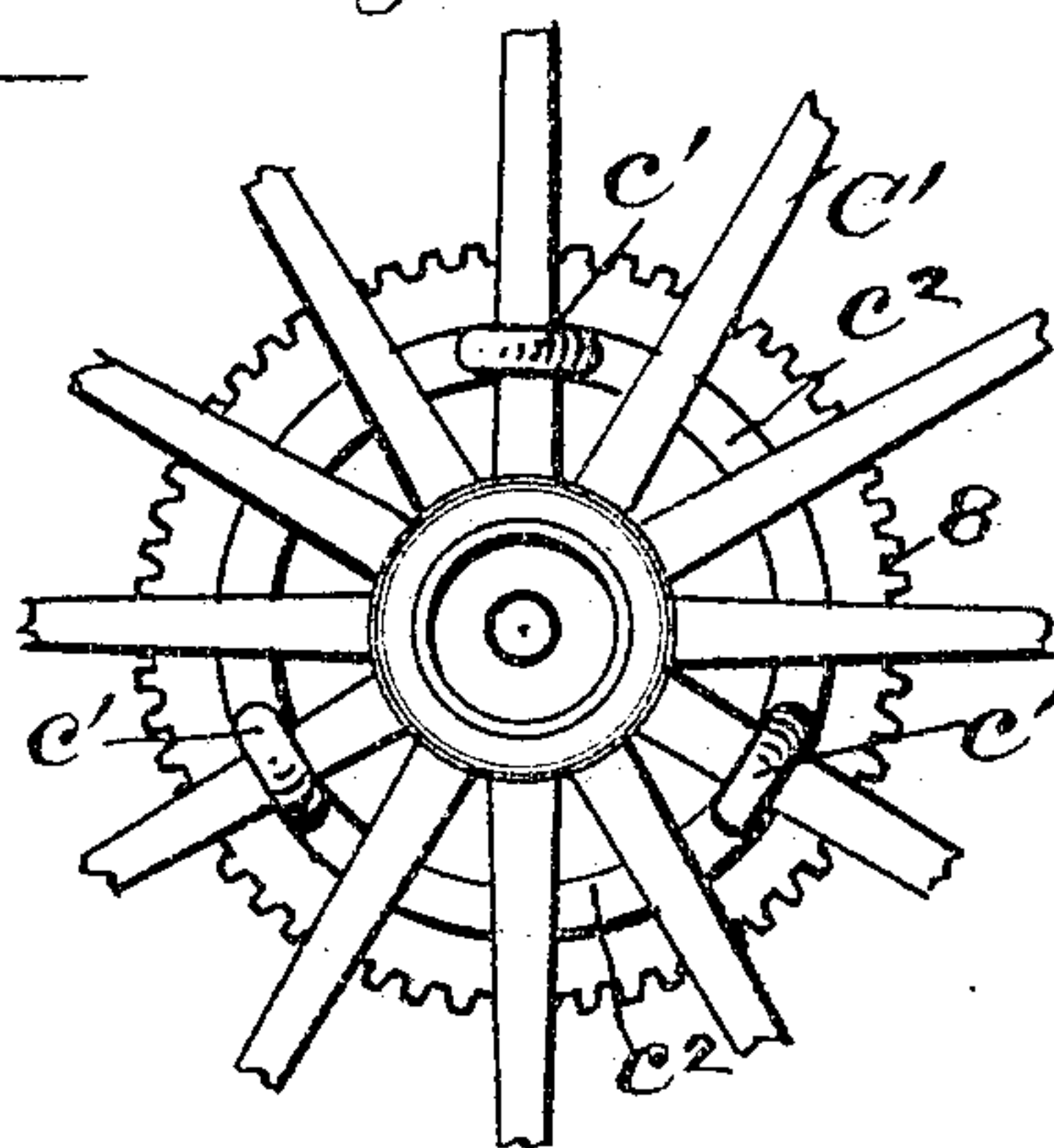
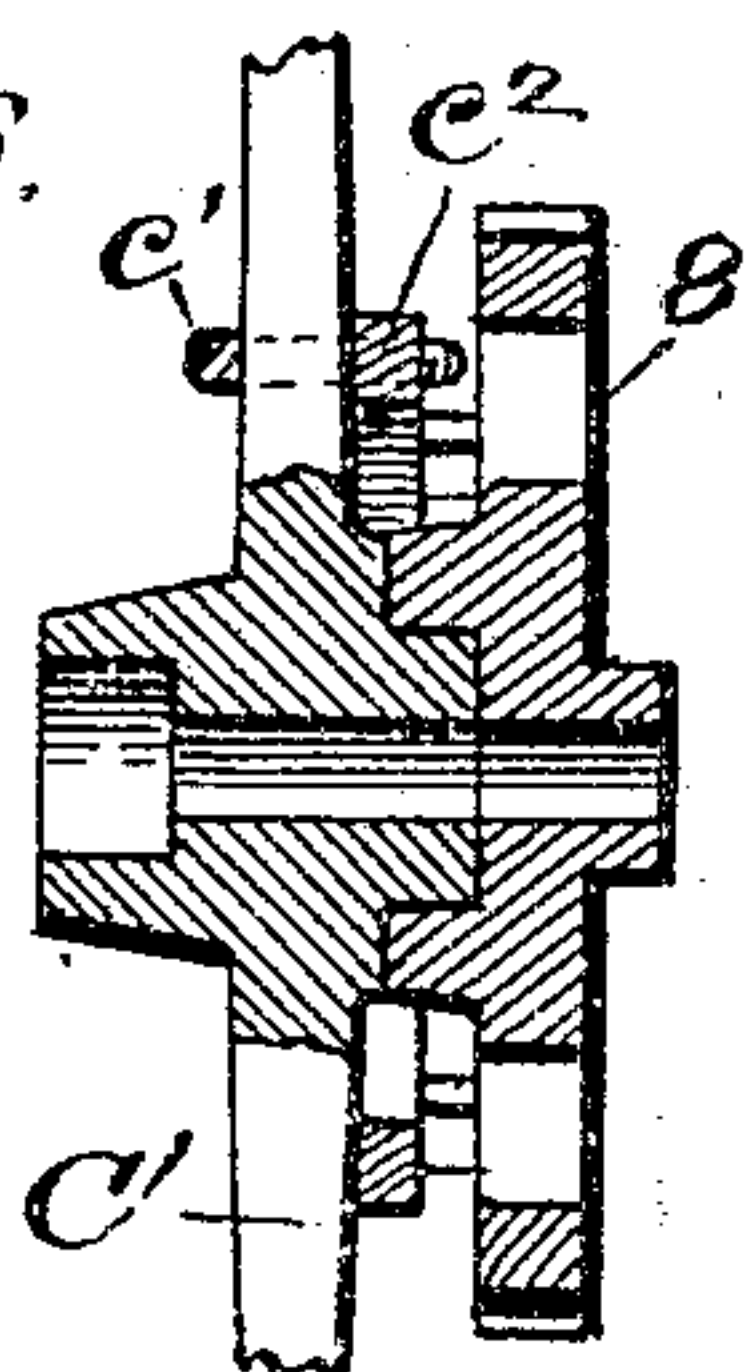
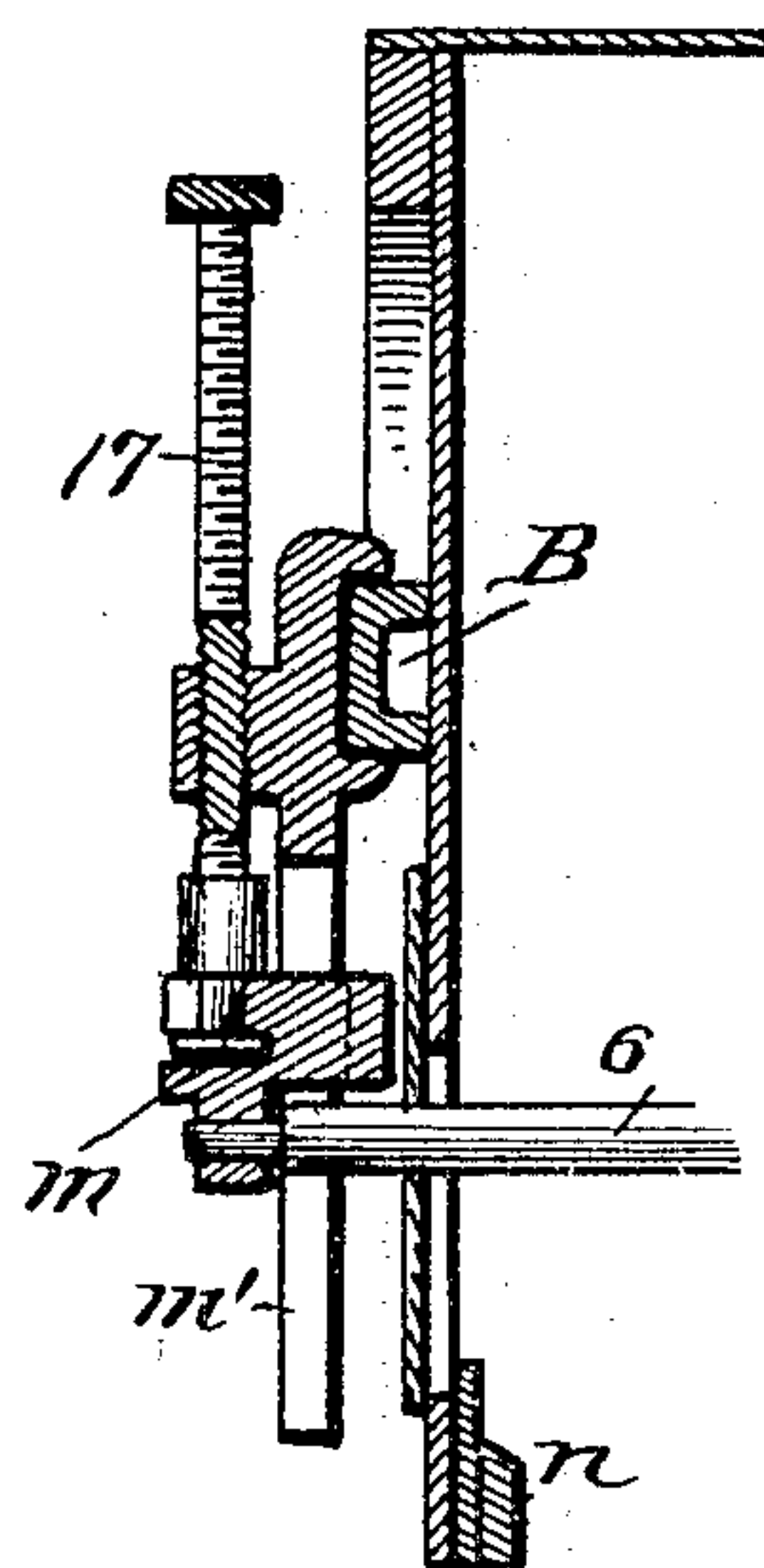
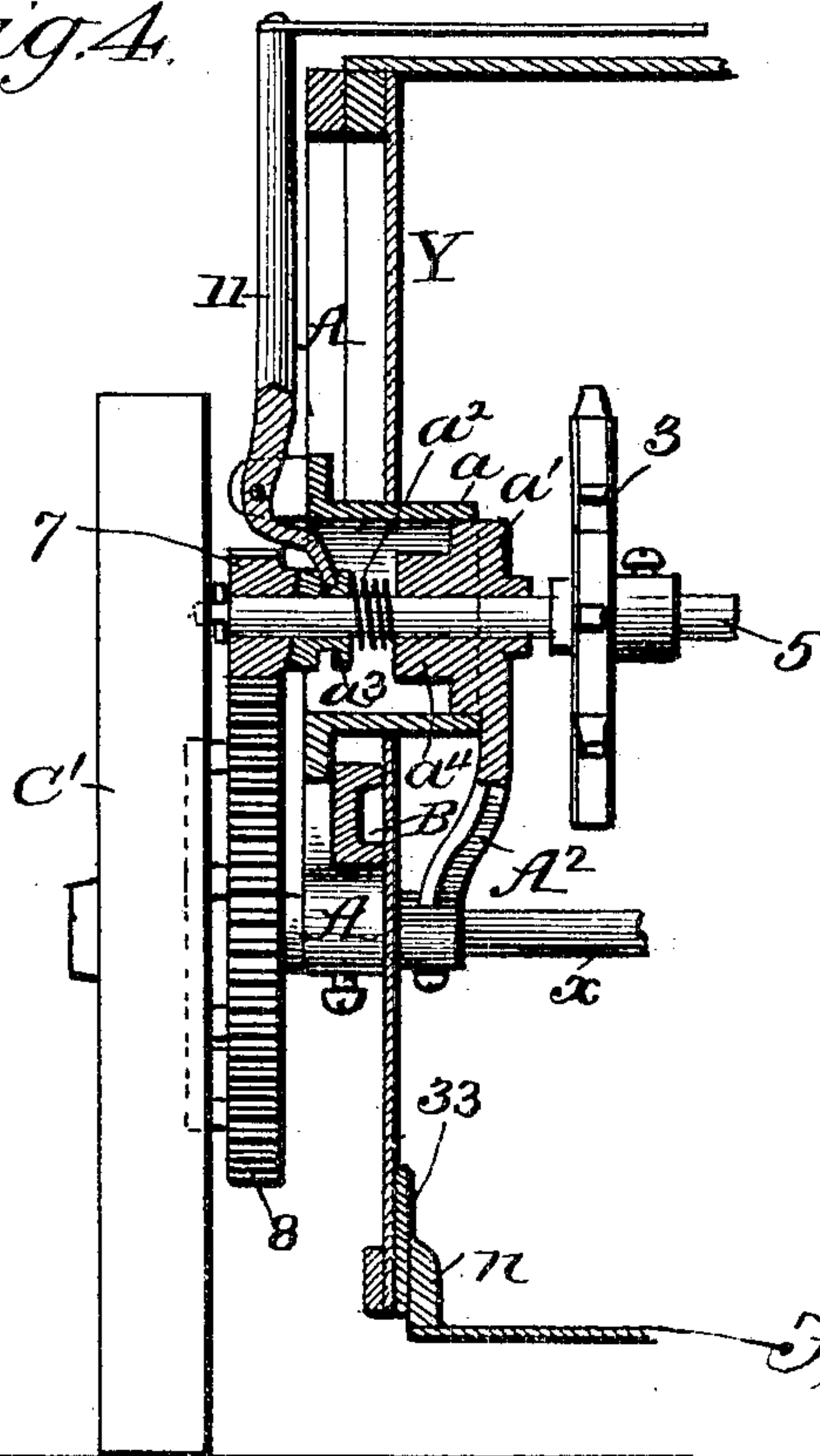
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4 SHEETS—SHEET 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ALVIN BROWN, OF PLAINFIELD, ILLINOIS.

STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 775,163, dated November 15, 1904.

Application filed September 11, 1903. Serial No. 172,751. (No model.)

To all whom it may concern:

Be it known that I, ALVIN BROWN, a citizen of the United States, residing at Plainfield, in the county of Will and State of Illinois, have
5 invented a new and useful Improvement in Street-Sweepers, of which the following is a specification.

My invention relates to street-sweepers of that class which take up and collect the dirt
10 gathered from the street and retain it in dirt-receptacles which are removable from the sweeper and designed to be loaded onto a separate vehicle to be carried away to the dump, so that the sweeper itself may be kept con-
15 tinuously at work upon the street. My patent of November 21, 1899, No. 637,704, is a street-sweeper of this type, and my present invention comprehends certain novel features of construction and arrangement of parts by
20 which the usefulness of that machine is extended, the streets swept cleaner, the machine enabled to operate closer to the curb, and the machine rendered more compact and stronger, as will be hereinafter described with refer-
25 ence to the drawings, in which—

Figure 1 is a side elevation of the sweeper with the near wheel removed to better show the parts behind it. Fig. 2 is a plan view. Fig. 3 is a vertical longitudinal section of the
30 main portion of the sweeper. Fig. 4 is a vertical transverse section through one side of the sweeper, the view being taken on the line 4 4 of Fig. 1 looking to the rear of the machine. Fig. 5 is a vertical transverse section
35 through one side of the sweeper, the view being taken on line 5 5 of Fig. 1. Figs. 6 and 7 are respectively a central section and side view of the hub portion of one of the main drive-wheels, and Fig. 8 is a sectional detail
40 of one of the brush-bars of the sweeping-belt.

In the drawings, Figs. 1 and 2, C represents the front wheels, and C' the rear wheels, which operate the sweeping mechanism.
45 These wheels support a main frame whose side bars B are bent up in the middle to receive a dirt-chamber X, having a hinged door D² on each side, the chamber being held in suspended position and stayed by inclined

braces I and J. Within the dust-chamber X
5 are placed the removable dirt-receptacles R, which may be one large receptacle or several small ones placed side by side for easier handling. This dirt-chamber opens at the rear
into a casing in which is arranged an endless
55 brush-belt 1, traveling around sprocket-wheels 3 and 4 and sweeping the dirt upon a dirt-pan 33, hinged at 34 at its forward end, the dirt passing from the forward end of the pan over
a hinged flap *e* into the dirt-receptacles. A
60 flange or strip *f* in the upper rear corner of the dirt-chamber makes a close fit with the brush-belt, so that dust is not driven back into the casing. Means are provided for the
up-and-down adjustment of the dirt-pan and
65 the lower end of the belt and for coupling the drive-wheels to the upper sprocket-wheels 3 to drive the brush-belt. All of these general features as so far described are found in my
former patent, hereinbefore referred to. 70

I will now proceed to describe my improvements, the first of which relates to the mechanism for driving the brush-belt.

Referring now to Figs. 4, 6, and 7, each main drive-wheel C' has a gear-wheel 8 rigidly
75 fastened to it by means of clips or yokes *c'*, which embrace the spokes of the wheel and are fastened to a ring *c''*, which in turn is secured to the side of the gear-wheel 8. This gear-wheel engages a pinion 7 on the upper
80 shaft 5, which carries the sprocket-wheels 3, that rotate the brush-belt. The pinion 7 has formed on its inner side clutch-teeth that engage a movable clutch-collar *a''*, which is adjustable longitudinally on the shaft 5 by ver-
85 tical lever 11. A coil-spring *a'* is disposed between the clutch-collar and a stationary collar *a'*, embracing shaft 5. By means of lever 11 clutch-collar *a''* may be made to engage or
90 disengage the pinion 7 and cause it to turn shaft 5 or run free thereon, according as it is desired to have the sweeper-belt operate or not. The arrangement so far described is
somewhat similar to the corresponding parts of my former machine referred to. In my
95 present invention a cylinder *a* is fixed in the side of the casing and projects inside the same. The outer end of this cylinder is flanged and

screwed or bolted to the side bar B, upright A, and cross-bar A', as seen in Fig. 1. In the inner end of this cylinder a (see Fig. 4) is snugly fitted a boss a' made in one piece with
 5 collar a^4 and formed on the upper end of a standard A², rigidly fixed to the main axle x . Within this cylinder is housed the clutch mechanism of the pinion 7, so that said clutch mechanism is brought closer in toward the
 10 vertical plane of the casing instead of being a considerable distance away from the same, as in my former patent. The advantage of this is that the main wheels C' may be set that much closer in to the dirt-pan 33 and the
 15 sweeper is enabled to run that much closer to the curb in the street and a wider sweeping-belt may be had for a given width of machine. At the same time the cylinder a and standard A² form a strong supporting-bearing for the
 20 upper sprocket-axle and the boss a' and the cylinder a completely house the clutch and shaft-bearing, so that dust from the interior of the casing cannot get into the same.

For raising and lowering the dirt-pan 33 it
 25 is loosely fastened on each side (see Fig. 1) to the rearwardly-curved lower end of upright lever 40. This lever is fulcrumed at p to the inclined brace I and extends up to a connecting-rod r . There is one of these levers and
 30 connecting-rods on each side of the machine, (see Fig. 2,) and they are attached to cranks s on the ends of a rock-shaft t , controlled by a lever u in the rear of the driver's seat. The levers 40 are in front of the axle and curve
 35 rearwardly at their lower ends to a position beneath the axle. By the mechanism described the driver is enabled to simultaneously adjust both sides of the dirt-pan with one hand.

For operating the clutch-levers 11 11 (see
 40 Fig. 2) I employ the horizontal toggle-levers 13 on top of the casing and a pull-rod 16 for operating them with suitable locking mechanism, as embodied in previous patents.

In forming the side rails B they are made
 45 of channel-iron as heretofore; but in bending them the flat side of the iron is upon the outside, as the accessory parts of the frame may be more conveniently attached to it with said flat side out.

50 The axle 6 of the rear sprockets 4 is supported in bearings m , which by means of screw 17 are adjusted up and down in the slots of hanger-bars m' . These hanger-bars are adjusted horizontally on side rails B to regulate tension of the sweeper-belt by horizontal
 55 screws 25. The general arrangement is the same as in my former patent except that the lower ends of the hanger-bars m' trend forward and the up-and-down adjustment is at
 60 an incline to the vertical instead of in a vertical line as heretofore. This not only tends to shorten up the whole machine, but it also prevents the adjustment of the brush-belt by screw 17 from varying the tension of the belt

by causing the lower end of the belt to move 65 forward and downward at the same time from the action of screw 17.

At the rear end of the casing its entire wall is hinged at f' , Fig. 3, near the top about a horizontal axis, whereby the rear end f^2 may 70 be raised to expose the brush-belt and also to facilitate putting in and taking out the parts of the same. If the bottom edge of this end wall of the casing strikes against the roadway on uneven streets, the hinged flap f^2 rises 75 and adjusts itself to such strains without racking the other portions of the casing.

The dirt-chamber X is formed with a removable bottom Z. (See Fig. 3.) This removable bottom consists simply of a floor having 80 side walls a few inches high between which the dust-receptacles snugly fit. The removability of this bottom permits it to be taken out and quickly cleaned, and if for any reason the dirt-receptacles R are at the dump and not 85 available the dirt may be delivered by the brush into the dirt-chamber upon the removable bottom and afterward shoveled into a wagon, the removability of the bottom permitting it to be conveniently taken out and 90 cleaned.

On the inner sides of the curved dirt-pan there are along its bottom edges (see Figs. 3 and 5) curved wooden strips n . These strips are parallel and of uniform transverse dimensions and extend from the rear end of the dirt-pan to the dirt-chamber X, and they sit close 95 to the brushes through their entire length and are very essential for keeping the dirt from escaping, thus preventing a streak of dust 100 from being left on the pavement.

In adjusting the framing-posts A (see Fig. 1) they are set at an angle, with the top parts inclining to the rear. The object of this is to give room for the cylinder a between the rail 105 B and the post. It also brings the main axle x at its lower end more directly under the pinion-shaft to shorten up and better support the machine. The dirt-pan and brush-belt are also thereby made shorter, and the brushes are 110 made to work on the pavement nearer the tangential points of the wheels, and this enables the sweeper to do better work on uneven pavements, as the lowest point of the brush is more nearly in the transverse line of the contact-points of the wheel with the pavement, 115 and consequently partakes of the same up-and-down movement.

The brush-belt is composed of chains having cross-pieces w , as seen in Fig. 8, and brushes 120 w' . The cross-pieces have flanged sides, and the heads of the brushes sit between the flanges and are bolted to the cross-piece, so as to be easily removed and replaced when worn.

It will be seen that the placing of the lever 125 40 in front of the axle and curving its lower end to the rear, the forward trend of the hangers m' , and the inclined position of the post A all

contribute to the shortening up of the whole machine and to the bringing of the brush-belt to operate as nearly as possible in the transverse line of the wheels C', which is a great desideratum.

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

1. A street-sweeper comprising an axle, running-wheels with gear-wheels rigidly attached to the same, an endless sweeper-belt, a casing, a shaft with sprocket-wheels for the belt, housings arranged in the side walls of the casing and projecting inside the latter, clutch mechanisms arranged inside said housings, and standards mounted on the main axle and bearing at their upper end bosses closing the ends of the housings and forming bearings for the sprocket-shaft substantially as described.

2. In a street-sweeper, the combination of an endless sweeper-belt, a curved dirt-pan arranged beneath the same and hinged at its front end, a main axle, a sprocket-shaft arranged above the main axle, two vertical levers arranged one on each side of the machine in front of the main axle, the lower ends of said levers being curved rearwardly to a point beneath the axle and connected to the hinged dirt-pan, means for operating said levers, a shaft with sprocket-wheels for the lower end of the sweeper-belt, guides for said shaft extending downwardly and forwardly and means

for adjusting the shaft thereon, substantially as and for the purpose described.

3. In a street-sweeper, the combination with the endless brush-belt; of a subjacent dirt-pan curved and hinged at its forward end and having inwardly-projecting curved strips of uniform transverse dimensions attached to the inner sides of the lower edges of the dirt-pan in parallel position to each other and extending the full length of the pan from its rear end to its forward end to fit up closely to the brushes and prevent the escape of dirt at the edges of the pan until delivered into the dirt-chamber substantially as described.

4. In a street-sweeper, the combination of the running-wheels, their axle, the endless brush-belt and its sprockets and driving-shafts, the side rails B bent upwardly in front of the axle, the posts A inclined rearwardly at their upper ends and forwardly at their lower ends and bearing at said lower ends the main axle, cross-bars A' connecting the upper parts of the side posts and the upper portions of the side rail, clutch mechanism for the sprocket-shaft and housings for the same arranged between the posts A, cross-bars A', and side rails B substantially as shown and described.

ALVIN BROWN.

Witnesses:

JOHN McCLELLAN,
JOHN LAYDON.