

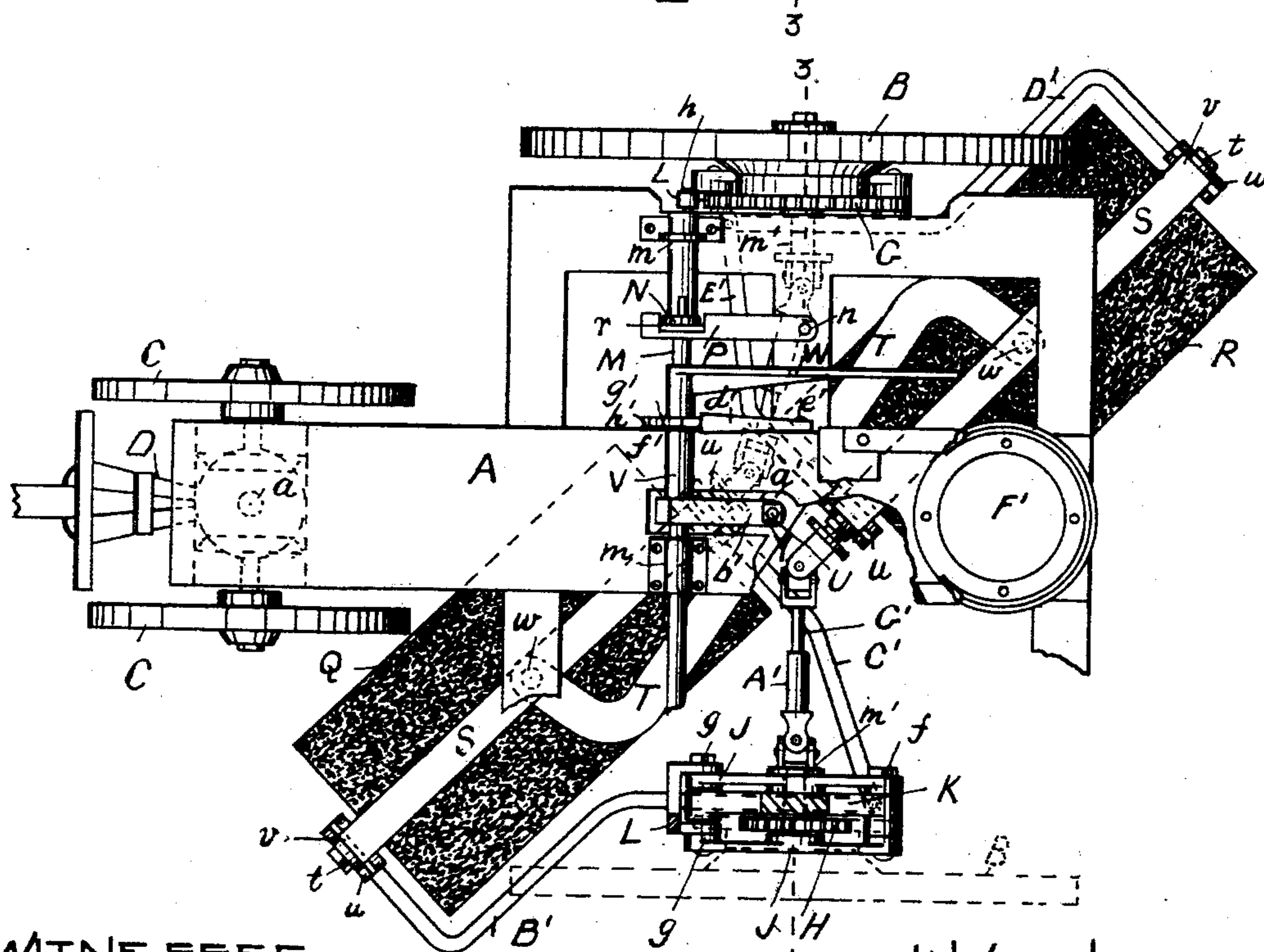
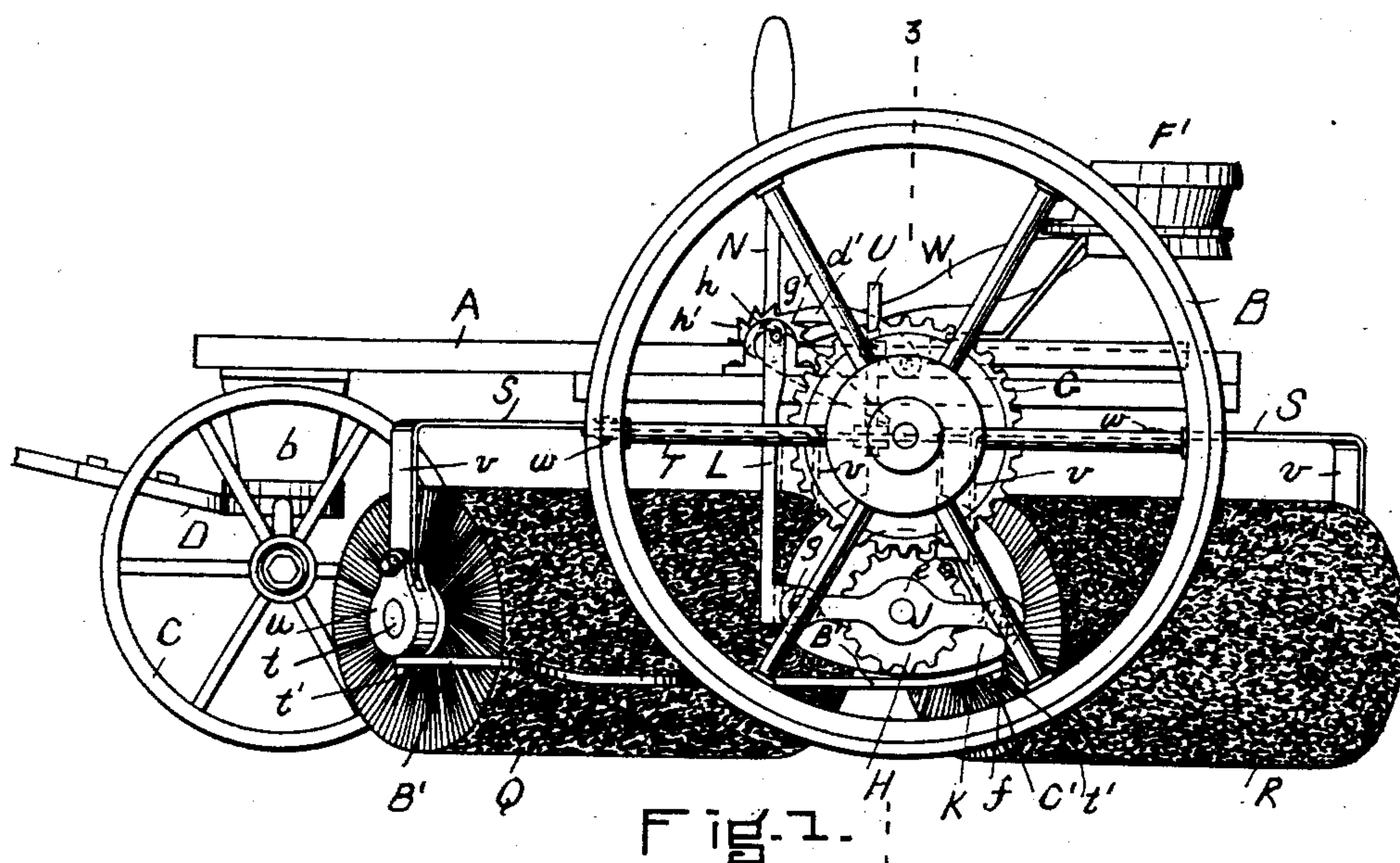
(No Model.)

2 Sheets—Sheet 1.

A. J. ROBERTS.  
STREET SWEEPER.

No. 520,080.

Patented May 22, 1894.



WITNESSES.

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Frederick B. Wentworth

INVENTOR.

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Andrew J. Roberts.  
Per Edwin W. Brown.  
Attorney.

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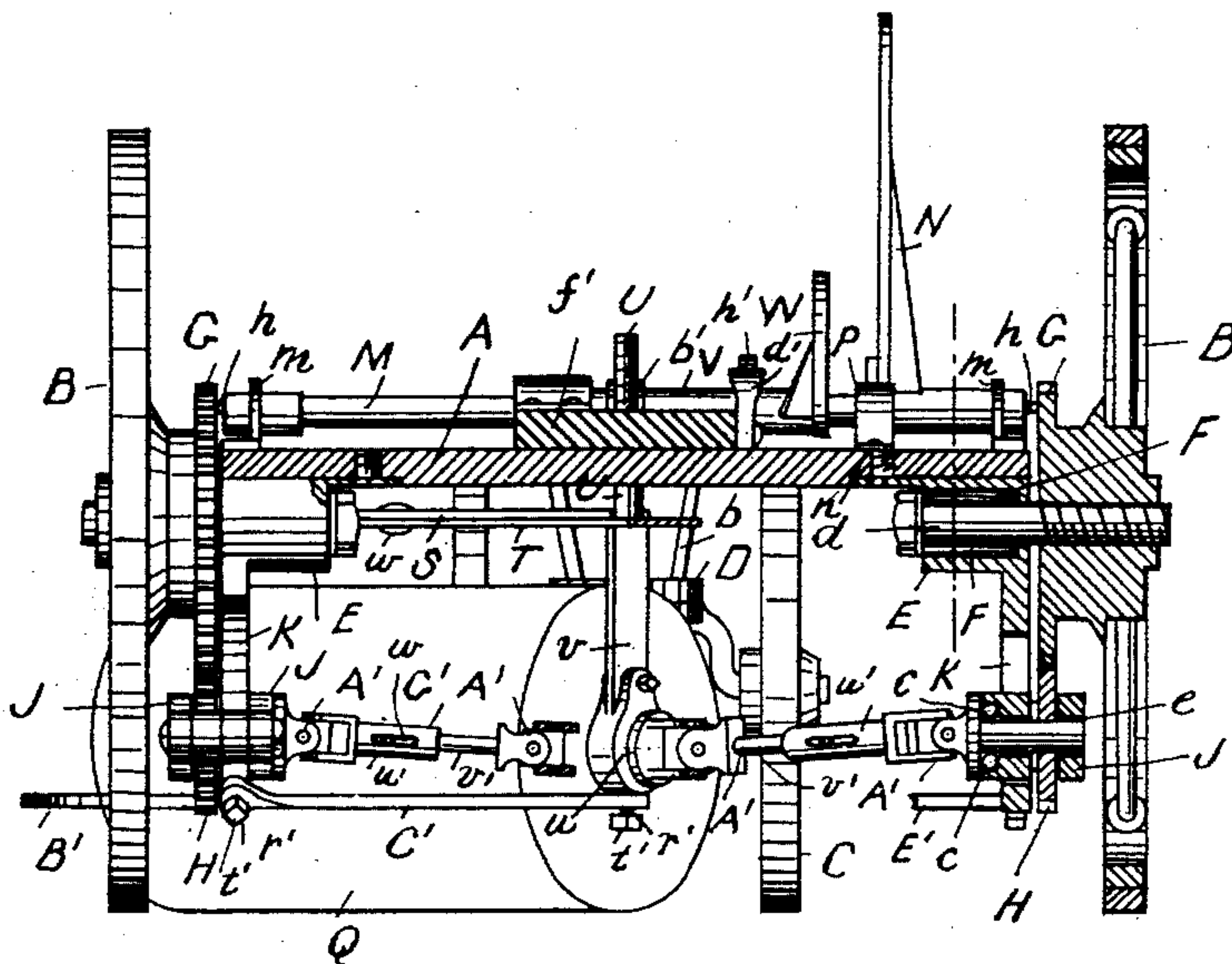


Fig. 3.

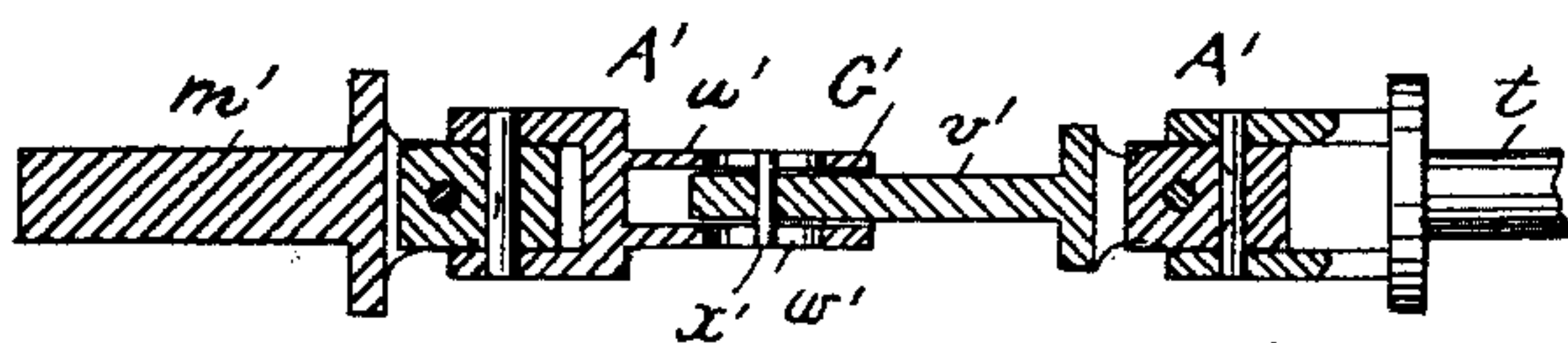


Fig. 4.

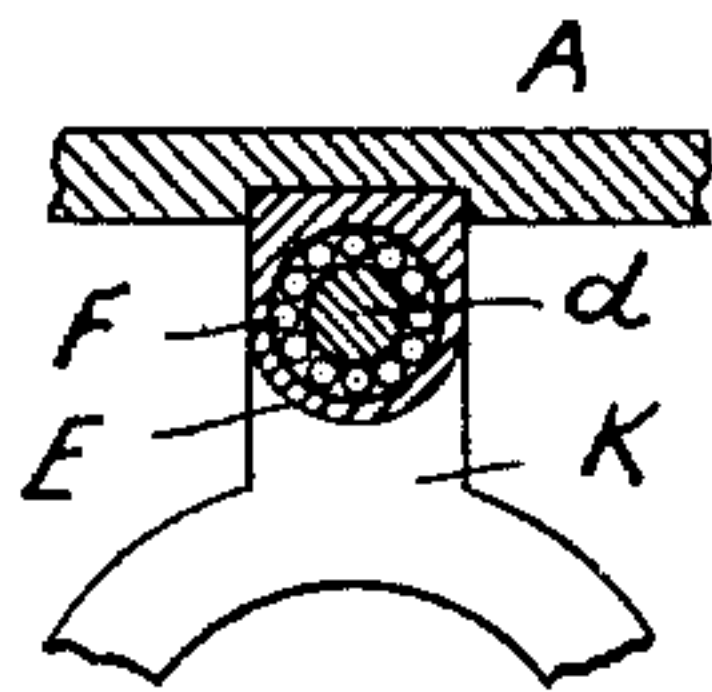


Fig. 5.

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# UNITED STATES PATENT OFFICE.

ANDREW J. ROBERTS, OF BOSTON, MASSACHUSETTS.

## STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 520,080, dated May 22, 1894.

Application filed September 12, 1891. Serial No. 405,513. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW J. ROBERTS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Street-Sweeping Machines, of which the following is a full, clear, and exact description.

This invention relates to improvements in sweepers for sweeping more particularly the streets of cities or towns, although applicable as well for use as a sweeper for general purposes, and the invention consists of a sweeper for sweeping the streets of cities, towns, &c., composed of two revolving brushes or brooms constructed and arranged for operation, all substantially as hereinafter fully described reference being had to the accompanying sheets of drawings, in which—

Figure 1, represents a view in side elevation. Fig. 2, is a plan view with some of the parts broken away. Fig. 3, is a vertical cross section on line 3—3, Figs. 1 and 2. Fig. 4 is a detail longitudinal section of some of the connecting parts, and Fig. 5, is a detail cross section on section line Fig. 3.

In the drawings A represents the frame or carriage of the sweeping machine, which can be of any suitable construction, having two rear wheels B, and two fore wheels C, the fore wheels turning in a frame D, pivoted at *a*, to the under side of downwardly projecting arms *b*, of the carriage frame and arranged to have shafts connected therewith in any of the usual ways for the propelling of the sweeper by horses. Each rear wheel has a separate and short axletree or shaft *d*, arranged to turn in a separate bearing E, connected to the under side of the carriage frame as shown more particularly in Fig. 3, and in which bearings are friction rolls F, to reduce friction. On the inner end of the hub of each hind wheel is a gear G each of which engages with a separate smaller gear H, adapted to turn in bearings *e*, of a separate frame J, pivoted by one end at *f* to an arm K, projecting downward from the bearing E, of carriage frame, so that swinging this gear frame J, upon its pivot will raise the gear H, for it to engage with its respective gear G, on the carriage wheel next to it, and lowering each gear frame will move its gear down and disengage it from its respective

carriage wheel gear. To connect and disconnect these lower gears with and from their respective carriage wheel gears, each gear frame J, at its end opposite to its pivot has a pitman rod L, pivoted at *g*, thereto which extends upward and above the carriage frame and is connected to a pin or arm *h*, at one side of the center, and projecting longitudinally from an enlarged portion of a horizontal shaft or rod M, arranged to turn in bearings *m*, on the upper side of the carriage frame and having an arm N, connected thereto for operation of the same. Swinging this arm backward and downward turns its shaft, and its pin *h*, downward, which by its connecting rods L, lowers the gear frames J, on their pivots *f*, disengaging the frame gears H, from their respective carriage wheel gears G, and swinging the arm upward it raises the frame gears to their engagement with the carriage wheel gears, and when in such position a horizontal arm P, pivoted at *n*, to the carriage frame having a notch *r*, in its side edge, is swung toward the arm N, its notch engaging therewith and locking the arm preventing its accidental escapement therefrom, and consequently locking the gears together, so that they will not be accidentally disengaged; swinging the locking arm P back releases the operating arm N, so it can then be moved to disengage the gears as before described.

Q, R, are two cylindrical brushes arranged horizontally under the carriage frame in a general diagonal line, the line of the rear brush R, being somewhat back of the line of the other brush but horizontally parallel therewith as shown in plan view in Fig. 2. Each brush is arranged by its journal *t*, to turn in bearings *u*, in the lower end of a downwardly projecting arm *v*, of a horizontal bar S, each of which bars at its central part is secured by a rivet *w*, to the angular end, (one to each end) of a horizontal bar T, on its upper side, as shown in plan view in Fig. 2, this bar having a vertical pin U at its central portion which extends freely upward through an opening in the end of an arm *b'* of a sleeve V, loosely fitting the horizontal shaft M, to freely turn, but prevented from longitudinal movement thereon, which sleeve has an arm W, arranged to project above the carriage frame



for operating it. The bearings for each journal of each brush is a ball bearing to prevent friction as shown in Fig. 3, at c.

On the upper end of the vertical pin U, is a screw nut Y, screwing thereon against the under side of which the arm *b'* bears when operated to raise the brush frame, the screw nut allowing for adjustment of the operation of the arm *b'* on the brushes. Swinging the arm W backward and downward lowers its arm *b'* down free of the pin U so that the frame carrying the brushes will drop and the brushes will rest on the ground for operation, and swinging the arm up raises it and the brush frames and consequently the brushes from the ground, so they will not operate, and to secure them in this position a vertically swinging pawl *d'* pivoted by one end at *e'* to the carriage frame bar *f'* is adapted to engage by its free end with one *g'* of the notches in a disk *h'* secured to the sleeve as shown in Figs. 1 and 2 more particularly. The inner journal of each brush extends through its bearing and its end outside of its bearing is connected by a universal joint A' with the shaft or journal *m'* of the lower gear opposite or nearly opposite thereto, as shown in Figs. 2 and 3.

The inner and outer bearings of the brush Q, are connected respectively by brace rods B', C', to the under side of the bearing frame J, to which it is connected by its universal joint, and the inner and outer bearings of the other brush R, are connected respectively by similar brace rods D', E' to the under side of the bearing frame J, to which it is connected by its universal joint, which rods serve to hold and keep the brushes journal bearings in place for the proper operations of the brushes and yet are loosely and freely connected thereto, to not interfere with such proper operation. These rods are connected by eyes in their ends fitting freely over pins *r'* of the bearings, being secured in place by screw nuts *t'*.

F' is a seat secured to the top of the carriage frame for the driver or operator, and in the operation of the machine the driver starts his horses which moves the machine turning the wheels, he then pulls the operating arm N and fastens it by its locking arm P, which as before described raises the frames with the lower gears and engages them with their respective carriage wheel gears, and the wheels as they turn, turn the gears H, in connection therewith and by their connection by the universal joints with the brushes they are caused to be rotated, the other operating arm W is then swung backward and downward which drops and allows the brushes to rest freely on the ground by their own weight, and as the carriage is moved along the dirt in the street is swept by the brushes, and from their angular line of suspension in relation to the carriage and its line of move-

ment, the dirt is moved or swept to one side of the street, outside of the line of travel of the sweeper.

When desirous of not using the brushes, as the carriage moves along, swing the operating arm W, up, which will raise the brushes from and clear of the ground, being held in such position by the engagement of the pawl *d'* with the notched disk *h'* and to stop the rotation of the brushes, unlock the operating arm N, and swing it backward and down, which disconnects the gears as before described and consequently stops the rotation of the brushes.

Having two brushes arranged substantially as described enables each brush to extend laterally beyond the outside of the carriage wheel nearest to it as shown, by which as the carriage moves along a wider place is swept and cleaned than in street sweepers having only one brush, which from the necessity of the construction of the carriage and parts, and of the wheel shaft extending way across the carriage has to lay in and between the two carriage wheels, and does not extend beyond; also having an independent and short axletree to each wheel, not extending across the carriage, the frame work of the brushes can be readily adjusted in place on the carriage for operation as described.

The rod G' of each universal joint is made in two parts *u'* and *v'*, one *u'* of which has a central longitudinal socket *w'*, in which the other part is adapted to slide freely back and forth it having a cross pin *x'*, which engages with and moves in longitudinal slots *y'* in the part *u'*, allowing of all longitudinal movement necessary but preventing one part from turning upon the other, making it practically a solid rod in order that the brush shall properly rotate for its work. The yielding of the rod allows for the play of the brushes so that they will run perfectly free and easy.

Having thus described my invention, what I claim is—

1. In a street sweeping machine, in combination, a carriage frame, two wheels secured to and adapted to turn in suitable bearings of the frame, a gear secured to each wheel, two cylindrical brushes arranged horizontally and diagonally under the carriage frame and adapted to turn in suitable bearings of the frame and a gear connected with each brush shaft adapted to engage with and be disengaged from a gear of a carriage wheel.

2. In a street sweeping machine, in combination, a carriage frame, two wheels secured to and adapted to turn in suitable bearings of the frame, a gear to each wheel, two cylindrical brushes arranged horizontally and diagonally under the carriage frame, a gear connected with each brush shaft and adapted to engage with and be disengaged from a gear of a carriage wheel by means of a swinging frame pivoted to the carriage frame and bear-



ings in frames supported by the carriage frame for the journals of the brushes.

3. In a street sweeping machine, in combination, a carriage frame, two wheels secured to and adapted to turn in suitable bearings of the frame, a gear to each wheel, two cylindrical brushes arranged horizontally and diagonally under the carriage frame adapted to turn in suitable bearings of the frame, a gear connected with each brush shaft adapted to engage and disengage with a wheel gear, and connected to the brush by a universal joint.

4. In a street sweeping machine, in combination, a carriage frame, two wheels secured to and adapted to turn in suitable bearings of the frame, a gear to each wheel, two cylindrical brushes arranged horizontally and diagonally under the carriage frame, a vertical swinging frame pivoted at one end to the carriage frame, a gear journaled in said pivoted frame adapted to engage and disengage with said wheel gear and a universal joint con-

nected to the gear journal and the journal of a brush.

5. In a street sweeping machine, in combination, a carriage frame, two wheels secured to and adapted to turn in suitable bearings of the frame, a gear to each wheel, two cylindrical brushes arranged horizontally and diagonally under the carriage frame, a vertical swinging frame pivoted at one end to the carriage frame, a gear journaled in said pivoted frame adapted to engage and disengage with said wheel gear and a universal joint having a sliding and yielding rod connection with the gear journal and the journal of the brush.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ANDREW J. ROBERTS.

Witnesses:

EDWIN W. BROWN,

FREDERICK B. WENTWORTH.