

(No Model.)

5 Sheets—Sheet 1.

J. A. GOWANS.
STREET RAIL CLEANING BRUSH.

No. 498,785.

Patented June 6, 1893.

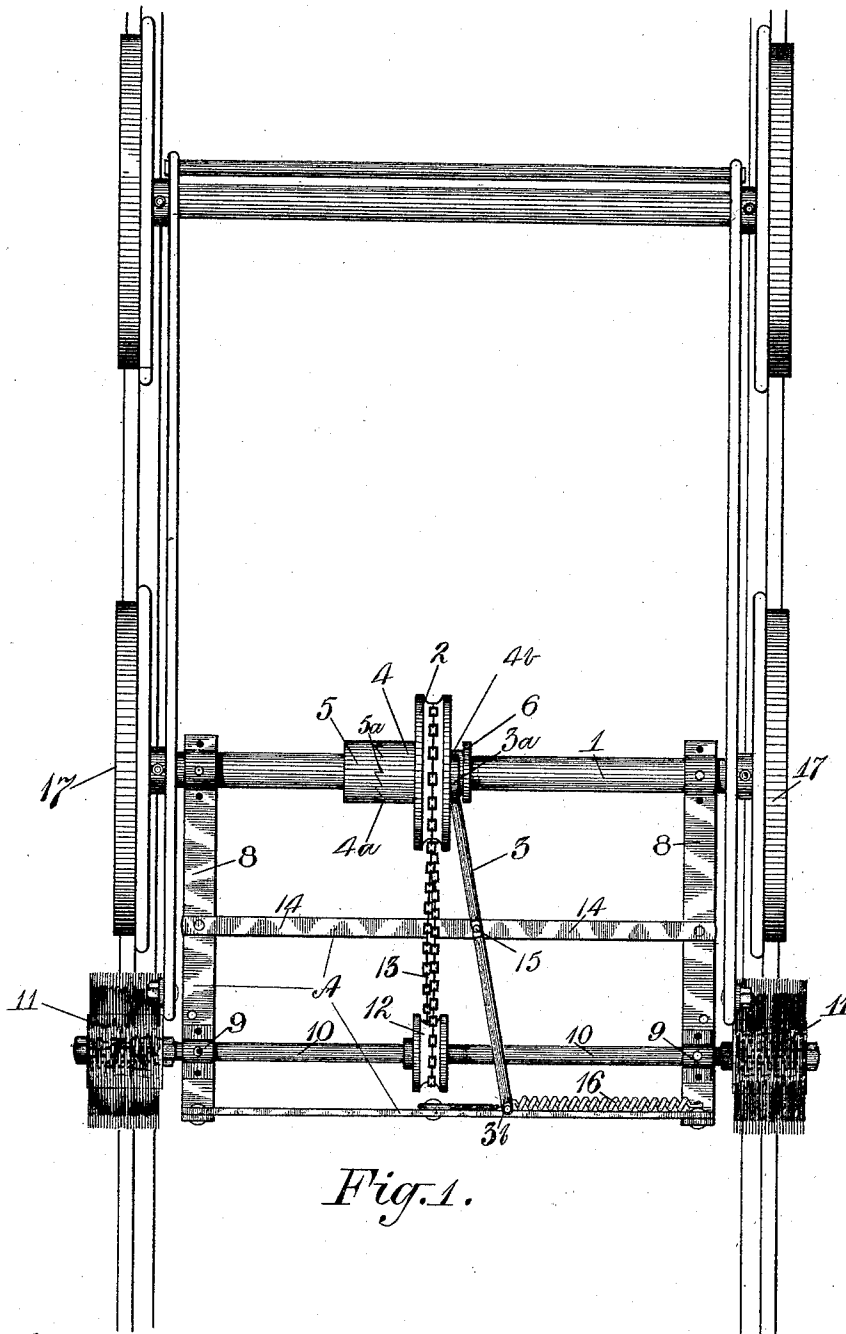


Fig. 1.

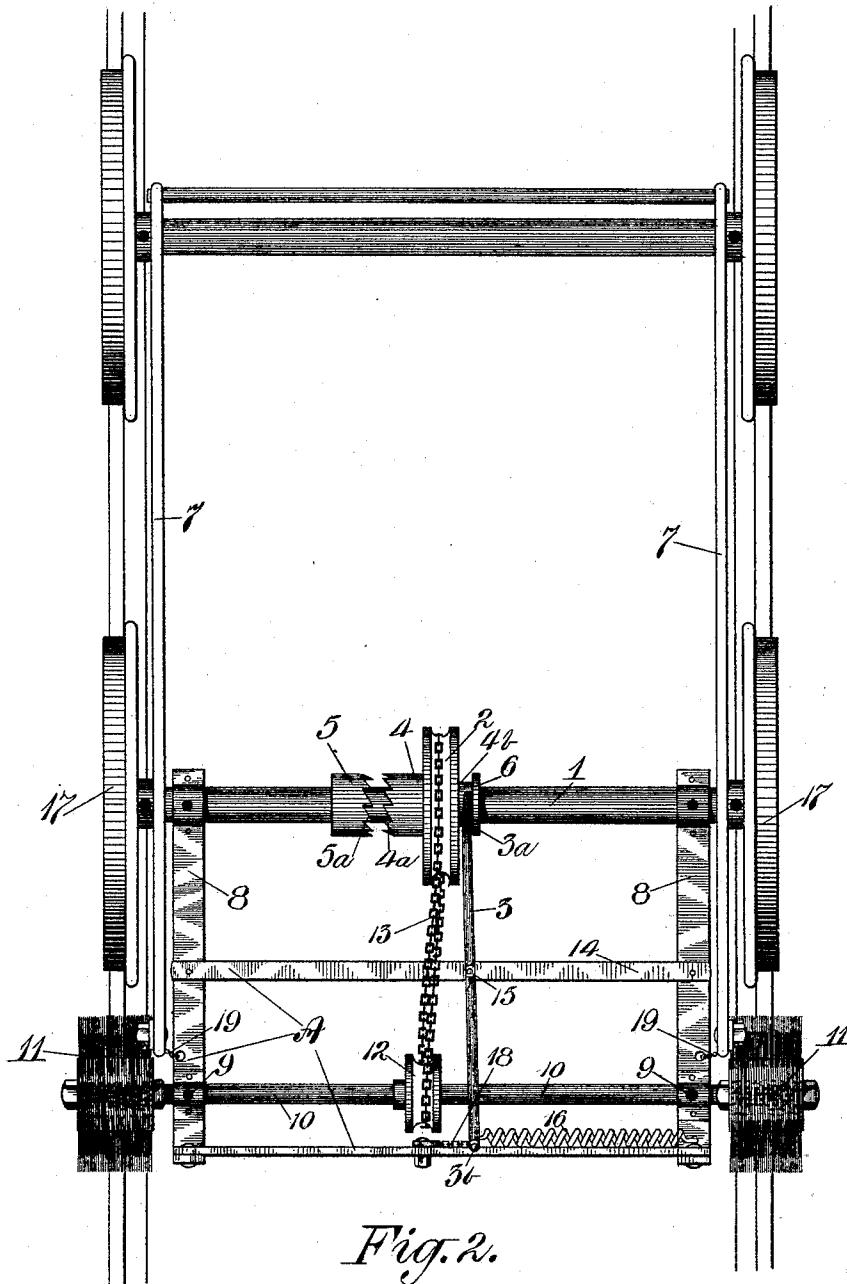
Witnesses,
C. R. Lawrie.
L. Foulke.

Inventor,
James A. Gowans
by Chas. H. Riches
his atty

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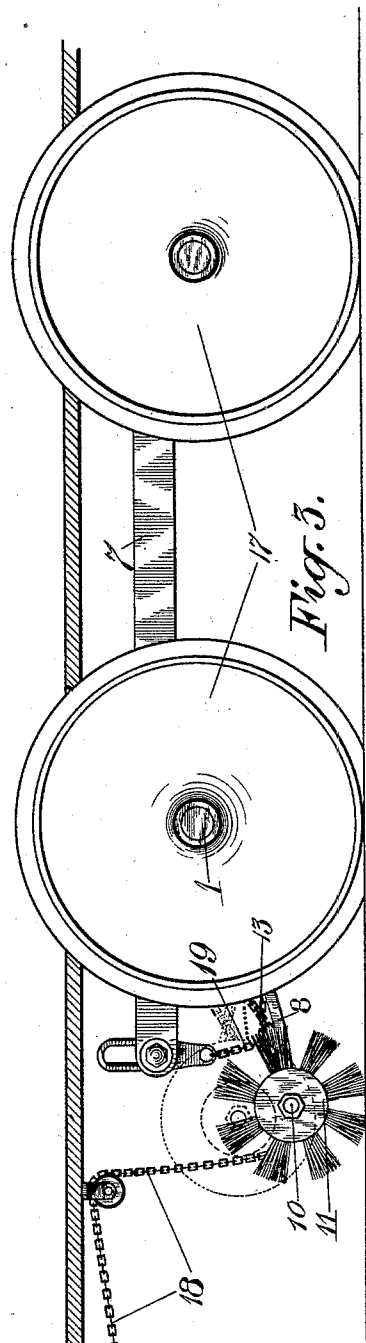
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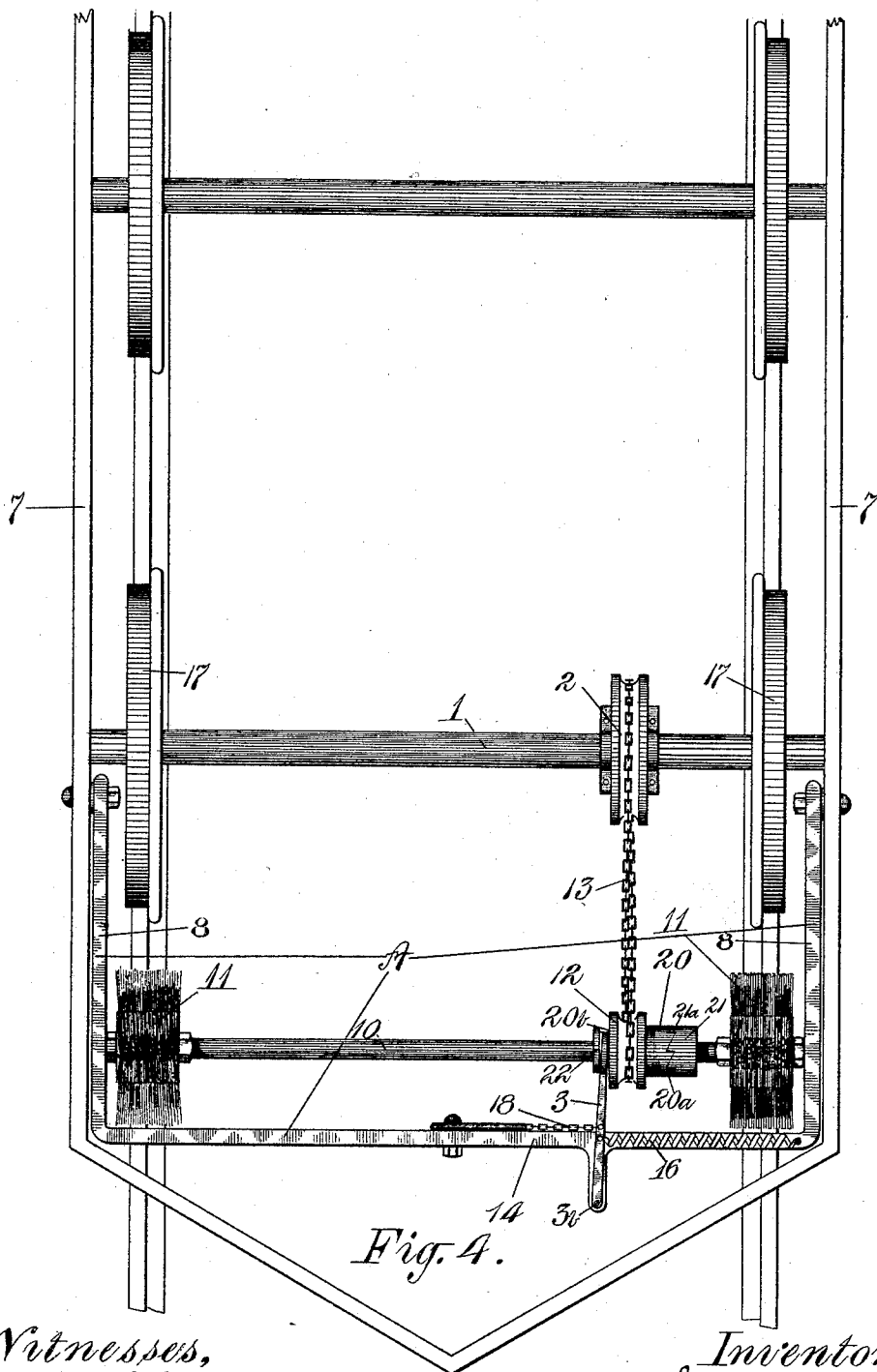
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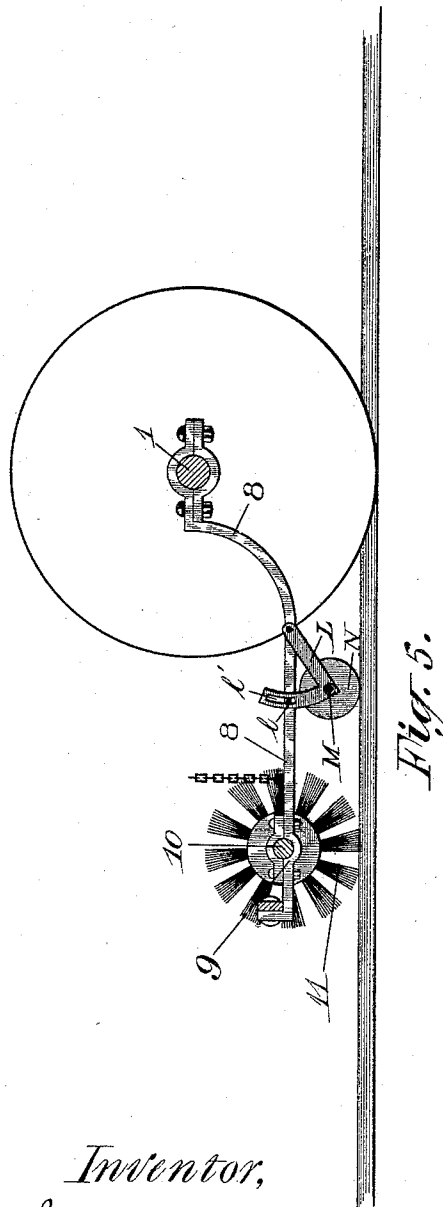
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Patented June 6, 1893.



Witnesses,
C. L. Lawrie
L. Foulds.

Inventor,
James A. Gowans
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UNITED STATES PATENT OFFICE.

JAMES ADAM GOWANS, OF TORONTO, CANADA.

STREET-RAIL-CLEANING BRUSH.

SPECIFICATION forming part of Letters Patent No. 498,785, dated June 6, 1893.

Application filed October 15, 1892. Serial No. 449,156. (No model.)

To all whom it may concern:

Be it known that I, JAMES ADAM GOWANS, millwright, of the city of Toronto, in the county of York and Province of Ontario, Canada, have invented certain new and useful improvements in Street-Rail-Cleaning Brushes; and I hereby declare the following to be a full, clear, and exact description of the same.

The object of this invention is to so construct a street-rail cleaning brush that it will travel along the rail in advance of the car and remove any and all obstructions which may find a resting place thereupon and which can be raised clear of the street rail and the various driving parts thrown out of gear to prevent unnecessary wear when the said rail is free from obstruction.

In the drawings:—Figure 1 is a plan view of a portion of the under frame of a street car looking at it from the upper side and showing the street rails, the car wheels, the car axles, a chain wheel mounted upon one of the car axles, a clutch to drive the chain wheel, the rail cleaning brushes, a spindle upon which the rail cleaning brushes are mounted, a supplemental frame supporting said spindles, a chain wheel mounted upon said spindles, a chain wheel transmitting motion from the chain wheel on the car axle to the chain wheel on the spindle, and means for throwing the clutch of the chain wheel on the car axle into and out of engagement. Fig. 2 is a view of the same parts but showing the driving gear thrown out of action. Fig. 3 is a side elevation of the same parts shown in Figs. 1 and 2 showing the rail cleaning brushes traveling along the rail and also showing in dotted lines the rail cleaning brush raised clear of contact with the rail or with the ground. Fig. 4 is a view of an alternative form of construction showing the same parts but a slight change in the method of throwing the driving gear out of action. Fig. 5 is a side elevation of a rail brush journaled in a supplemental frame connected to the car axle and supported by a wheel adapted to travel along the street rail in advance of the car.

Like numerals and letters of reference refer to like parts throughout the specification and drawings.

As the general construction of the under

frame of the car, car axles, and car wheels is old it is not necessary to enter into a description of the same.

Mounted upon the car axle 1 is a chain wheel 2. As shown in Figs. 1 and 2 of the drawings this chain wheel 2 is loosely mounted upon and slides along the car axle 1 when operated by the forked lever 3. The end 4^a of the hub 4 of the chain wheel 2 forms one portion of a toothed clutch while the adjacent end 5^a of the collar 5 bolted to or rigidly mounted upon the car axle 1 forms the other section of the said clutch. The other end 4^b of the hub 4 is provided with a collar or flange 6 and encircling the said end 4^a of the hub 4 between the collar 6 and adjacent side face of the chain wheel 2 is the forked end 3^a of the lever 3.

Pivotaly connected to the side bars 7 of the under frame of the car are the side bars 8 of the spindle supporting frame A. These side bars 8 however may be mounted upon the axle 1 if found desirable and this construction I have shown in Figs. 1 and 2 of the drawings. Formed on the side bars 8 of the spindle supporting frame are bearings 9 in which is journaled the spindle 10.

Rigidly mounted upon the spindle 10 are two rail cleaning brushes 11 located one above either rail and arranged to travel on its respective rail in advance of the car. Rigidly mounted upon the spindle 10 intermediate the rail cleaning brushes 11 is a chain wheel 12 and transmitting motion from the chain wheel 2 to the chain wheel 12 is a crossed chain 15. Connecting the side bars 8 of the spindle supporting frame A is a cross bar 14 and passing through the lever 3 and the cross bar 14 is a pin or bolt 15 pivotaly connecting the lever 3 to the said cross bar. Connected to the outer end 3^b of the lever 3 as shown in Figs. 1 and 2 is one end of a spring 16 while the opposite end of said spring is connected to the side bar 8. The tension of the spring upon the end 3^b of the lever 3 draws the said end 3^b toward the side bar 8 and consequently throws the opposite or forked end 3^a in the opposite direction. This throw on the part of the lever 3 forces the chain wheel 2 along the axle 1 toward the collar 5 and throws the clutched end 4^a of the hub 4 into engagement with the clutched end 5^a of the collar 5. As the

collar 5 is rigidly mounted upon or bolted to the axle 1 it must of a necessity rotate with the said axle and the rotation of the collar 5 when the clutched end 5^a is in engagement with the clutched end 4^a causes the said hub to rotate with it and in the same direction. As the chain wheel 2 and hub 4 are integral the chain wheel must of necessity revolve with its hub and with the axle. The revolution of the chain wheel 2 transmits motion to the chain 13 which in turn transmits motion to the chain wheel 12 and causes the spindle 10 and brushes 11 to revolve. The chain 13 being crossed causes the chain wheel 12, spindle 10 and brushes 11 to rotate in the reverse direction to the rotation of the car axle 1 so that the said brushes 11 will throw in advance of the car and clean the rail from any and all obstructions before the car wheels 17 travel over it. Connected to the end 3^b of the lever 3 is one end of a lifting chain 18 while the other end of said lifting chain is connected to the dash board of the car and within easy reach of the car driver. By raising the lifting chain 18 the end 3^b is drawn from the side bars 8 and the forked end 3^a is moved in the opposite direction or toward the side bar 8 and moves with it the chain wheel 2 and hub 4 throwing the clutched end 4^a of the said hub out of engagement with the clutched end of the collar 5. Connected to the front end of each of the side bars 8 is a supporting chain 19 to prevent the said side bars falling too low when the apparatus is in its lowered position. The raising of the lifting chain 18 besides throwing the toothed clutch out of engagement also raises the frame work in which is journaled the spindle 10 and lifts the brushes 11 clear from the rails thus preventing any unnecessary wear upon the brushes and upon the driving parts.

In Figs. 4 and 5 I have shown an alternative construction of driving gear. Rigidly mounted upon the axle 1 is the chain wheel 2 which is caused to rotate with the said axle 1. Loosely mounted upon the spindle 10 is the chain wheel 12 having its hub 20 provided at the end 20^a with one portion of a toothed clutch which engages with the clutched end 21^a of the collar 21 rigidly mounted upon or bolted to the spindle 10. The other end 20^b of the hub 20 of the chain wheel 12 is provided with a collar 22 and encircling the end 20^b is the forked end of the lever 3. Connected to the lever 3 is one end of a spring 16 while the opposite end of said spring is connected to the side bar 8. This lever instead of being pivoted at its middle is pivoted at its free end 3^b to an extension of the cross bar 14. It might here be stated that the spring 16 is connected to the lever 3 near or at its middle so that the tension of the spring 16 will draw the forked end 3^a of the lever toward the chain wheel 12 and the tension of the spring 16 will throw the clutched end 20^a of the hub 20 into engagement with the clutched end

21^a of the collar 20. Connected to the middle portion of the lever 3 is the lifting chain 18 by means of which the lever is drawn from the chain wheel 12 and coming in contact with the collar 22 draws the chain wheel 12, hub 20 and clutched end 20^a free from engagement with the clutched end 21^a of the collar 21 throwing the driving parts out of gear. The lifting chain 18 is constructed as hereinbefore stated and raises the frame supporting spindle 10 simultaneously with the movement of the lever 3 thus throwing the several parts out of gear and raising the brushes 11 clear from the rails.

In Fig. 5 I have shown a device which consists of a supplemental frame A comprising two side bars 8 mounted upon the car axle 1. Formed on the side bars 8 at their free ends are bearings 9 in which is journaled the spindle 10. Mounted upon the spindle 10 are rail cleaning brushes 11 located one above either rail and arranged to travel on its respective rail in advance of the car. Pivoted to each of the side bars 8 is an angle iron L. The pivot connecting the iron L to the side bar 8 preferably passes through the end of one of the arms of said angle iron while the end of the other arm is fitted with a curved slot 17 into which enters a pin 1 fixed to the said side bar. Formed in the angle of each of the angle irons L is a bearing for the spindle M on which are mounted two wheels N arranged to travel one along either rail. By means of the pivot and slot of the angle iron the side bars 8 can move vertically and independently of the movement of the angle iron and said wheels. The slot, 17 is of sufficient length to permit the pin 1 to rest upon the metal at the bottom of the slot and lends a support to the side bars 8. The side bars 8 are also provided with a chain by means of which they and the rail cleaning brushes can be raised clear of the tracks when it is desired to do so.

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

1. In a street rail cleaning brush the combination of the supplemental frame pivotally connected to the car, a spindle journaled in said supplemental frame in advance of the car axle, a rotatable brush mounted on said spindle at each end thereof, a sprocket wheel mounted on said spindle intermediate said brushes and adapted to rotate therewith, a sleeve encircling the car axle and sliding therealong, a sprocket wheel mounted on said sleeve, a clutch rigidly secured to said axle and rotating therewith said clutch adapted to engage with the clutched end of the said sleeve, a bar connected to the supplemental frame, a forked lever pivotally connected to said bar, the forked end of said lever engaging with the hub of the sprocket wheel mounted on the sleeve, a spring connected to the said lever, said spring and lever when in their normal positions adapted to throw the clutched

end of the sleeve into engagement with the said clutch, a sprocket chain passing over the said sprocket wheel and adapted to transmit motion from the sprocket wheel on the car axle to the sprocket wheel on the brush spindle, substantially as described.

2. In a street rail cleaning brush the combination of the supplemental frame pivotally connected to the car, a spindle journaled in said supplemental frame in advance of the car axle, a rotatable brush mounted on said spindle at each end thereof, a sprocket wheel mounted on said spindle intermediate said brushes and adapted to rotate therewith, a sleeve encircling the car axle and sliding therealong, a sprocket wheel mounted on said sleeve, a clutch rigidly secured to said axle and rotating therewith said clutch adapted to engage with the clutched end of the said sleeve, a bar connected to the supplemental frame, a forked lever pivotally connected to said bar, the forked end of said lever engaging with the hub of the sprocket wheel mounted on the sleeve, a spring connected to the said lever, said spring and lever when in their normal positions adapted to throw the clutched end of the sleeve into engagement with the said clutch, a sprocket chain passing over the said sprocket wheel and adapted to transmit motion from the sprocket wheel on the car axle to the sprocket wheel on the brush spindle, a bracket pivotally secured to each of the said side bars between the car axle and the brush spindle, a spindle mounted in said brackets and wheels mounted on said spindle and adapted to travel along the rail in advance of the car wheel, a slot formed in each of said brackets and a pin secured to the side bars of the supplemental frame projecting through said slot allowing the said brackets a vertical movement, substantially as described.

3. In a street rail cleaning brush the com-

bination of the supplemental frame pivotally connected to the car a spindle journaled in said supplemental frame in advance of the car axle, a rotatable brush mounted on said spindle at each end thereof, a sprocket wheel mounted on said spindle intermediate said brushes and adapted to rotate therewith, a sleeve encircling the car axle and sliding therealong, a sprocket wheel mounted on said sleeve, a clutch rigidly secured to said axle and rotating therewith said clutch adapted to engage with the clutched end of the said sleeve, a bar connected to the supplemental frame, a forked lever pivotally connected to said bar, the forked end of said lever engaging with the hub of the sprocket wheel mounted on the sleeve, a spring connected to the said lever, said spring and lever when in their normal positions adapted to throw the clutched end of the sleeve into engagement with the said clutch, a sprocket chain passing over the said sprocket wheel and adapted to transmit motion from the sprocket wheel on the car axle to the sprocket wheel on the brush spindle, a bracket pivotally secured to several of the said side bars between the car axle and the brush spindle, a spindle mounted in said brackets wheels mounted on said spindle and adapted to travel along the rail in advance of the car, a slot formed in each of said brackets and a pin secured to the side bars of the supplemental frame projecting through said slot allowing the said brackets a vertical movement, and a chain connected to the said supplemental frame and passing up the side of the dash board, substantially as described.

Toronto, June 21, 1892.

JAMES ADAM GOWANS.

In presence of—

M. E. ANGELL,

CHAS. H. RICHES.