No. 854,668. PATENTED MAY 21, 1907.

H. QUERTIER.

RAIL CLEANER.

APPLICATION FILED FEB. 13, 1906.

2 SHEETS—SHEET 1.

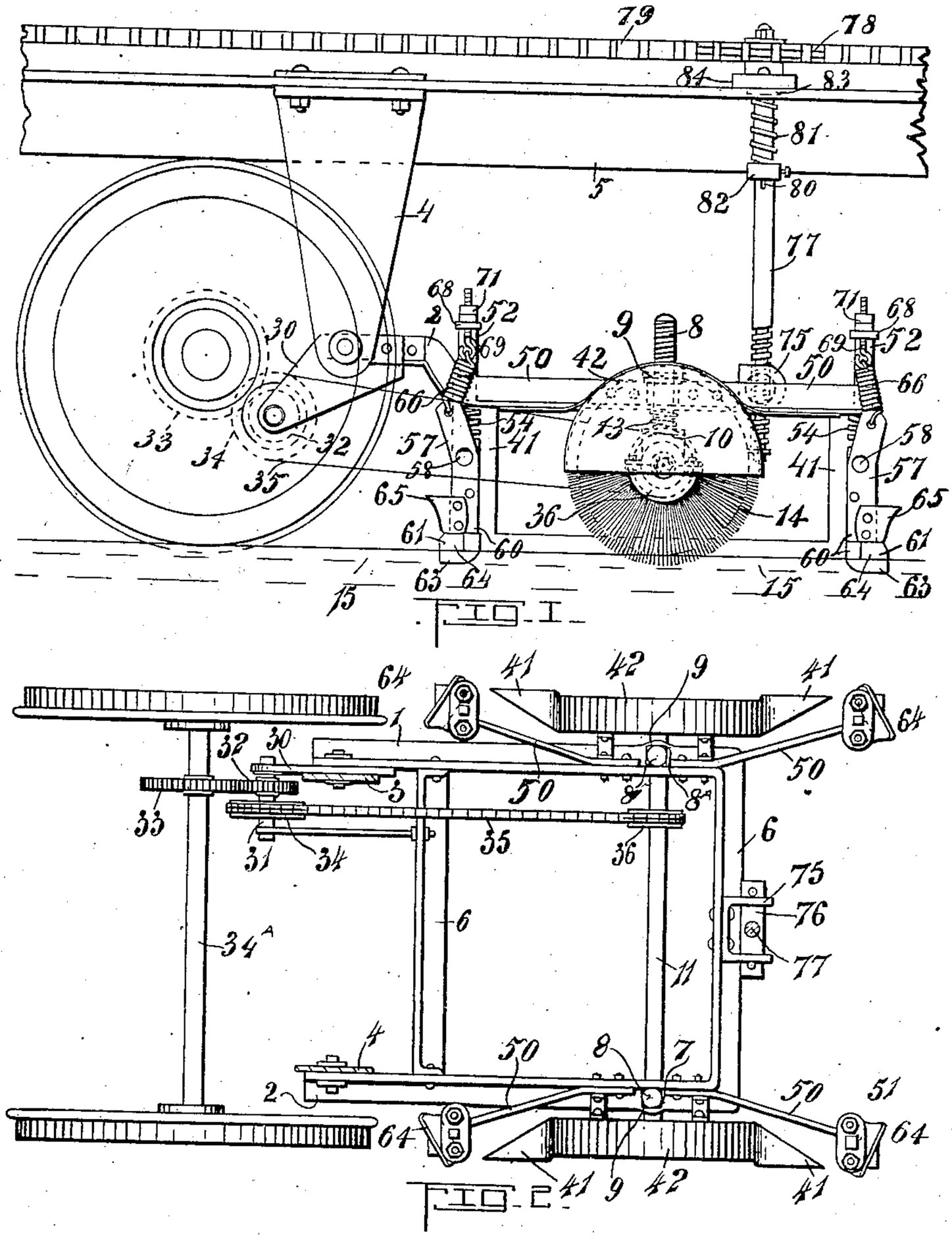

FIG. 1.

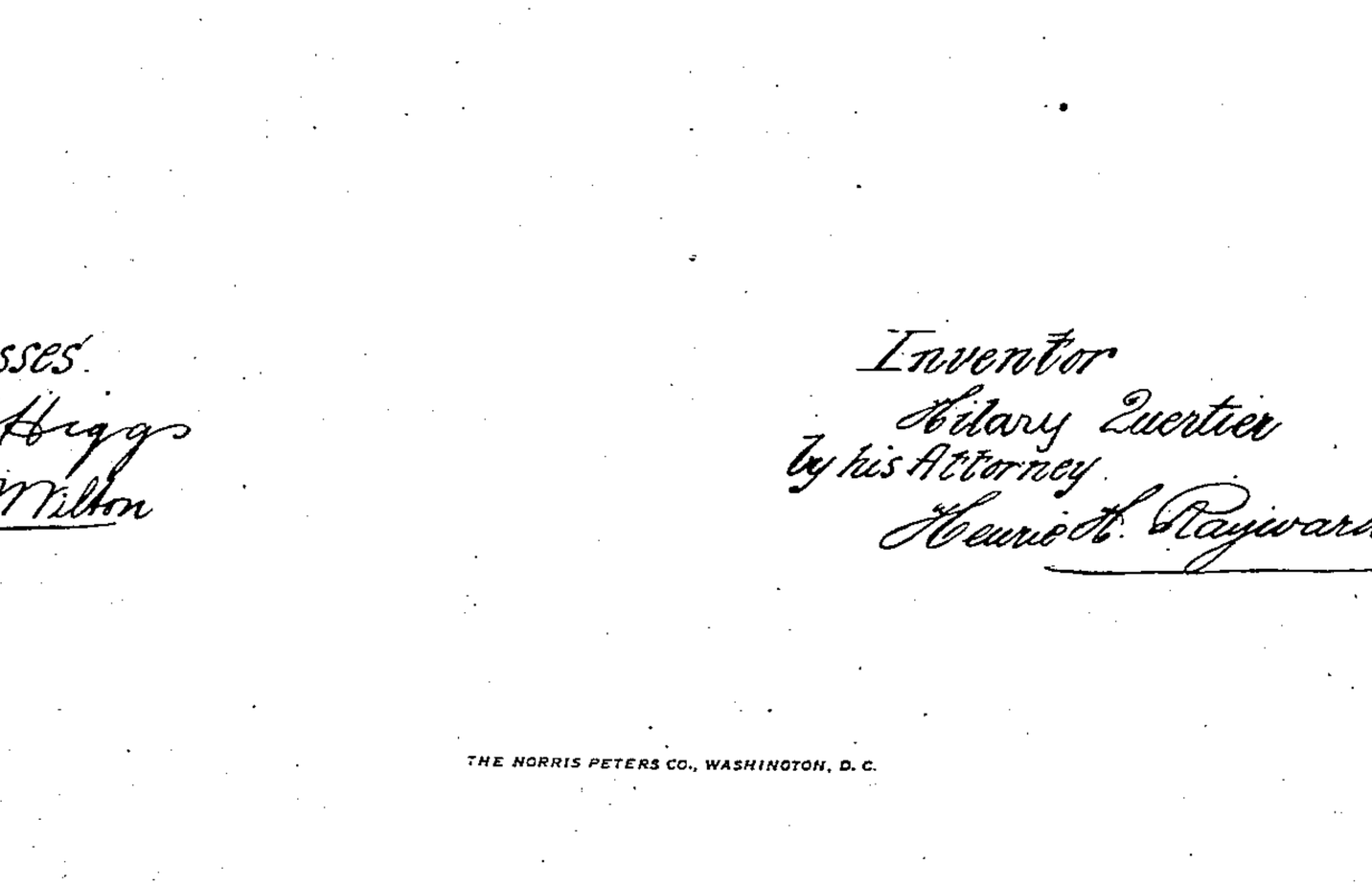

FIG. 2.

Witnesses.
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2 SHEETS—SHEET 2.

FIG. 3.

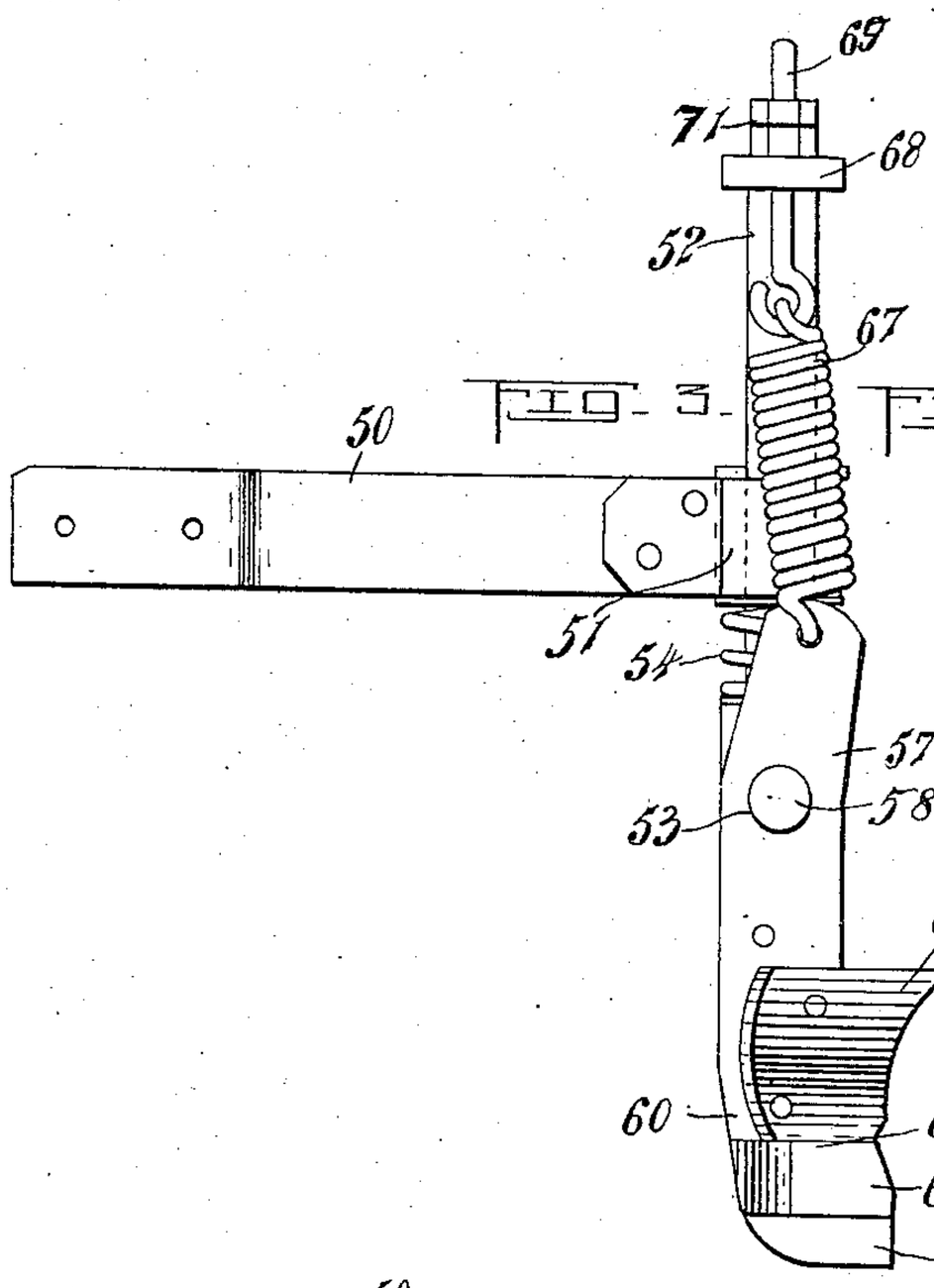

FIG. 4.

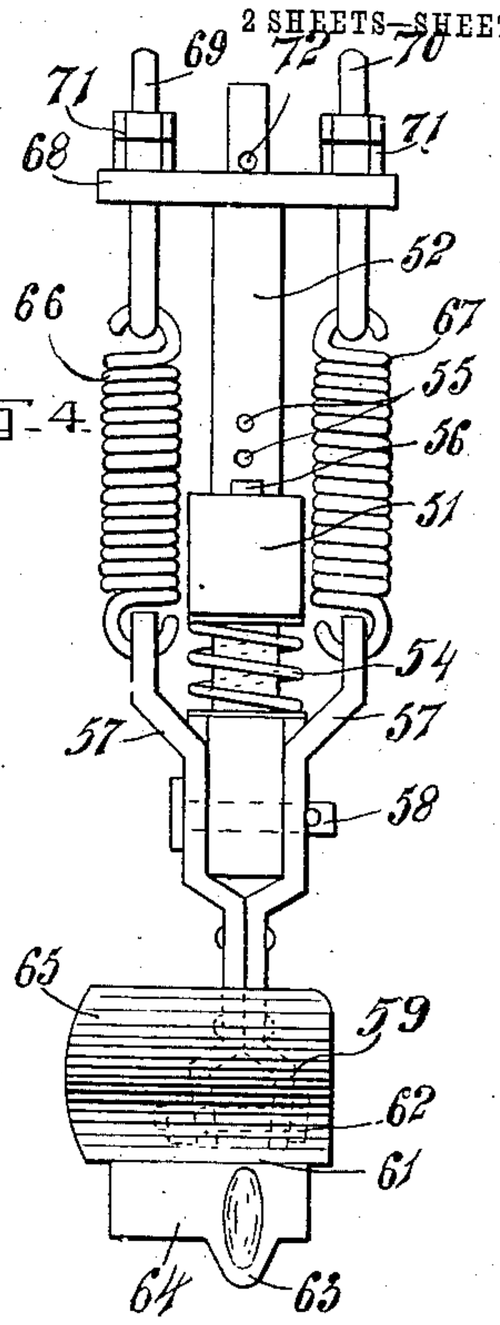

FIG. 5.

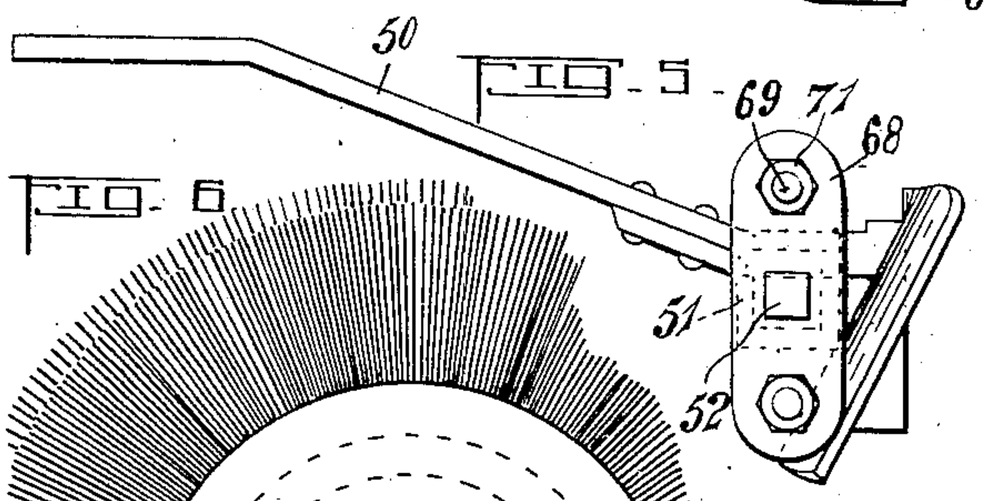

FIG. 6.

FIG. 7.

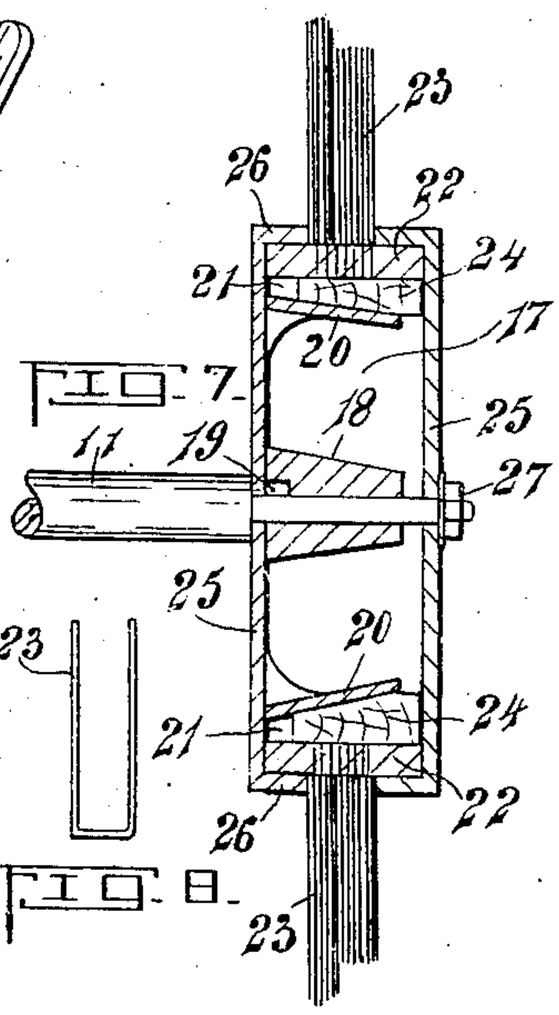

FIG. 8.

Witnesses.

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UNITED STATES PATENT OFFICE.

HILARY QUERTIER, OF DUNEDIN, NEW ZEALAND.

RAIL-CLEANER.

No. 854,668. Specification of Letters Patent. Patented May 21, 1907.

Application filed February 13, 1906. Serial No. 300,927.

To all whom it may concern:

Be it known that I, HILARY QUERTIER, a subject of His Majesty the King of Great Britain and Ireland, residing at Wood's Hotel, Dunedin, in the Provincial District of Otago, in the Colony of New Zealand, have invented certain new and useful Improvements in Rail-Cleaners, of which the following is a specification.

The invention relates to the class of apparatus for which I lodged application for patent, Serial No. 282,060 on the 9th day of October, 1905.

My present invention comprises improvements in the construction of the plows for clearing rail grooves and means for securing them to a pivoted carrying frame. Dirt deflecting screens for the revolving cleaning brushes and a method of constructing the brushes which renders them renewable at a low cost when worn out.

Referring to the accompanying drawings:—Figure 1 is a side elevation of the carrying frame which is pivoted at one end upon the vehicle and carries the plows and revolving brushes. Fig. 2 is a corresponding plan. Fig. 3 is an enlarged end elevation of a plow and its carrying means. Fig. 4 is a corresponding front elevation, and Fig. 5 a plan. Fig. 6 is a front elevation, and Fig. 7 an end sectional elevation showing a method of constructing the revolving brushes. Fig. 8 is a side elevation of a pair of brush bristles.

The frame shown in Figs. 1 and 2 is of rectangular shape having the sides 1 and 2. The sides are pivoted at their rear ends respectively upon brackets 3 and 4 fixed to the frame 5 of the vehicle. The sides are connected by the transverse bar 6, and each side carries a bracket, numbered 7 and 8[A] respectively, said brackets each having a hole which receives a vertical spindle 8, said spindles being screw threaded at their upper ends and each furnished with a nut 9. The bottom of each spindle has a bearing boss 10 and in the opposing bosses is journaled a spindle 11, upon the ends of which are fixed the rail cleaning brushes.

The springs 12 and 13 are threaded one upon each of the spindles between the boss and the frame, and the nuts 9 may be turned to raise or to depress the brushes so that the bristles 14 pass down to the bottom of the grooves of the rails 15.

The brushes are preferably constructed in the manner illustrated in Figs. 6, 7, and 8. The cylindrical drum 17 has a boss 18 fitting upon the end of the brush spindle which has a feather 19 fitting a corresponding recess in said boss. A conical flange 20 projecting from the drum forms an annular recess 21 which receives a bristle ring 22 of wood or the like, which is perforated to receive the bristles or wires 23 of the brush. These bristles, as clearly shown in Fig. 8, are bent to U shape so that one piece of wire or the like forms two bristles. They are passed through spaced holes in the ring 22 and are held in position by a cone ring 24 which is in segments, and is forced into the recess 21 between the conical flange and the bristle ring. A cover 25 having a flange 26 fitting over the ring 22 has a hole which receives the end of the brush spindle upon the screwed end of which it is secured by a nut 27.

The brushes may be constructed in any ordinary manner but by my invention the bristles are readily renewable when they wear out.

The side 1 of the frame has fixed upon it the bracket 30, and upon said bracket is fixed the spindle 31 carrying a spur wheel 32 which is arranged to mesh with a spur wheel 33 fixed upon the revolving axle 34[A] which carries the wheels of the vehicle. As described in the specification of my previous application for patent referred to, the wheels 32 and 33 come out of engagement when the frame is turned upon its pivot in an upward direction. To the spur wheel 32 is fixed the sprocket wheel 34 which is connected by a sprocket chain 35 with the sprocket pinion 36 fixed upon the spindle 11.

To cause the brushes to throw the dirt from the rails toward the outside of the track, a concave deflector 41 of sheet metal is fixed to each of the sides 1 and 2, each deflector receiving its brush in such manner that the dirt thrown up thereby is deflected outside the rails. The deflector has a semi-circular hood 42, which receives the upper part of the brush. Each of the sides 1 and 2 carries two rail groove clearing plows, one only upon each side having in action according to the

direction of travel of the vehicle, two plows automatically passing out of work when the others come into operation.

As the plows and their carrying arrangement resemble each other precisely, it is only necessary to describe one set, the same parts in the other sets being indicated by the same reference letters. The arm 50 is of spring steel and is secured at one end to the side member of the frame. The opposite end has a square socket 51. A similarly sided spindle 52 has an eye 53 at its lower end and slides vertically in the socket. A spring 54 is threaded upon the spindle and bears between a shoulder above the eye and the bottom of the socket 51. The spindle 52 has a number of superposed holes 55 in one or other of which is placed a cotter pin 56. A bifurcated bracket 57 receives the lower end of the spindle 52 and a pin 58 passes through both members of the bracket and through the eye in the spindle. The lower end of the bracket has a jaw 59 which is dove-tailed to receive a similarly shaped portion 60 of the rail groove cleaning share 61. A bolt 62 passes through the jaw and through the share to secure it in position. The share has a point 63 which runs in the groove of the rail and a wing 64 which runs upon the top of the rail. A deflector 65 integrally formed with the share directs to the side of the track the debris, which is cleared out of the rail groove by the plow share, the deflectors upon the several shares being so shaped that debris from each of them is delivered upon the outside of the track. The upper ends of the members of bracket are bent away from the vertical inclining toward the front of the share, and springs 66 and 67 connect said upper ends with a crosshead plate 68 by means of the screws 69 and 70 respectively having nuts 71 by means of which the upward pull of the springs may be adjusted. The upper end of spindle 52 passes through the crosshead plate which bears upon a shoulder thereon, a pin 72 passing through the spindle above the plate. By this arrangement the pressure of the share upon the surface of the rail and the bottom of the rail groove can be readily adjusted while great freedom of movement is permitted when the share strikes an obstacle.

For the purpose of raising and depressing the frame to bring the apparatus in and out of action, a bracket 75 is secured upon the front of the frame near the middle and has journaled in it the spindle 76 which has a threaded hole receiving the vertical screw threaded spindle 77 which is journaled upon the under frame of the vehicle so as to be free to slide vertically and, as shown in the drawings, has a sprocket wheel 78 upon its upper end revolved by a chain 79 to which motion may be imparted, by any usual means, from either end of the vehicle.

A spring 81 threaded upon the spindle bears against a collar 82 adjustable thereon, and against a collar 83 which is fixed upon an extension 84 projecting from the sprocket wheel, The spindle 77 has a feather way 80 which receives a fixed feather projecting into the hole in the wheel and the collar so that they turn with the spindle, while the spindle can slide vertically.

What I do claim and desire to secure by Letters Patent of the United States is:—

1. For the purpose indicated in combination, a frame pivoted at one end upon a vehicle, spring arms connected to the sides of the frame, adjustable rail clearing shares carried by said arms, brackets one upon each side of the frame, screw threaded spindles slidable in each of said brackets and adjusting nuts thereon, springs threaded one upon each spindle, bearing bosses at the ends of said spindles, a brush spindle revolubly mounted therein, rail clearing brushes one at each end of said brush spindle, means for revolving said brush spindle and means for raising and depressing said frame, substantially as specified.

2. For the purpose indicated in combination, a frame pivoted at one end upon a vehicle, brackets fixed upon each side thereof, screw threaded spindles slidable in each of said brackets and adjusting nuts thereon, springs threaded one upon each spindle, bearing bosses at the ends of said spindles, a shaft revolubly mounted therein, rail clearing brushes, one at each end of said shaft and means for raising and depressing said frame, substantially as specified.

3. For the purpose indicated in combination, a frame pivoted at one end upon a vehicle, spring arms fixed two upon each side of said frame, two arms projecting in one direction and two in the opposite direction and adjustable rail clearing shares, one carried by each of said arms, substantially as specified.

4. For the purpose indicated in combination, a cylindrical drum, a conical flange therein, a bristle ring fitting the annular space between said flange and the inner periphery of the drum, U shaped bristles passing through perforations in the bristle ring a cone ring in segments, and a flanged cover with means for securing it and said drum upon a brush spindle, substantially as specified.

5. For the purpose indicated in combination a spring arm, a square socket at the end thereof, a spindle slidable in said socket, a spring threaded upon and an eye at the end of said spindle, a bifurcated bracket having a jaw at its lower end, pivoted means for securing said bracket to the spindle, the up-

per ends of the members of the bracket inclining from the vertical forwardly springs connected to said upper ends, adjusting bolts therefor, a cross head plate upon said spindle through which pass said adjusting bolts, and a rail clearing share carried in said jaw, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two witnesses.

HILARY QUERTIER.

Witnesses:

E. P. O'Donnell,

Otho W. Wilton.