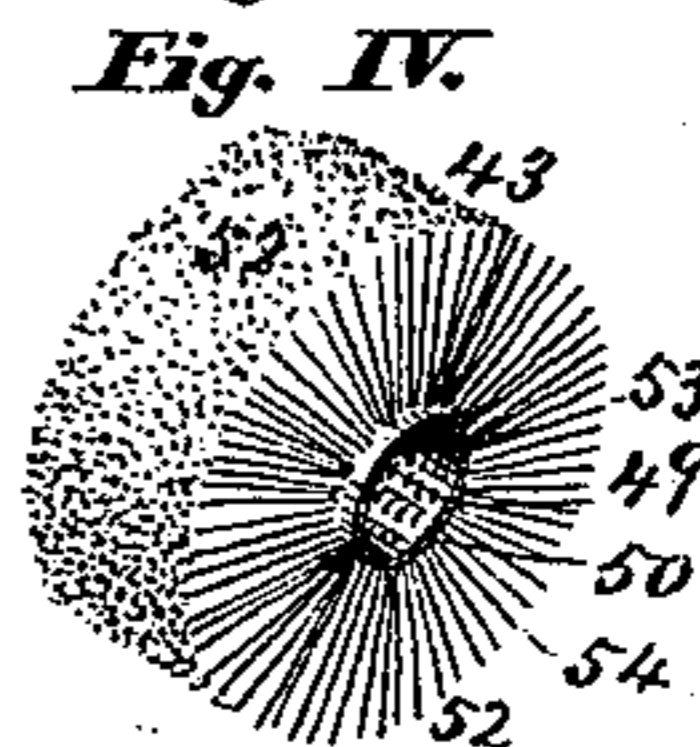
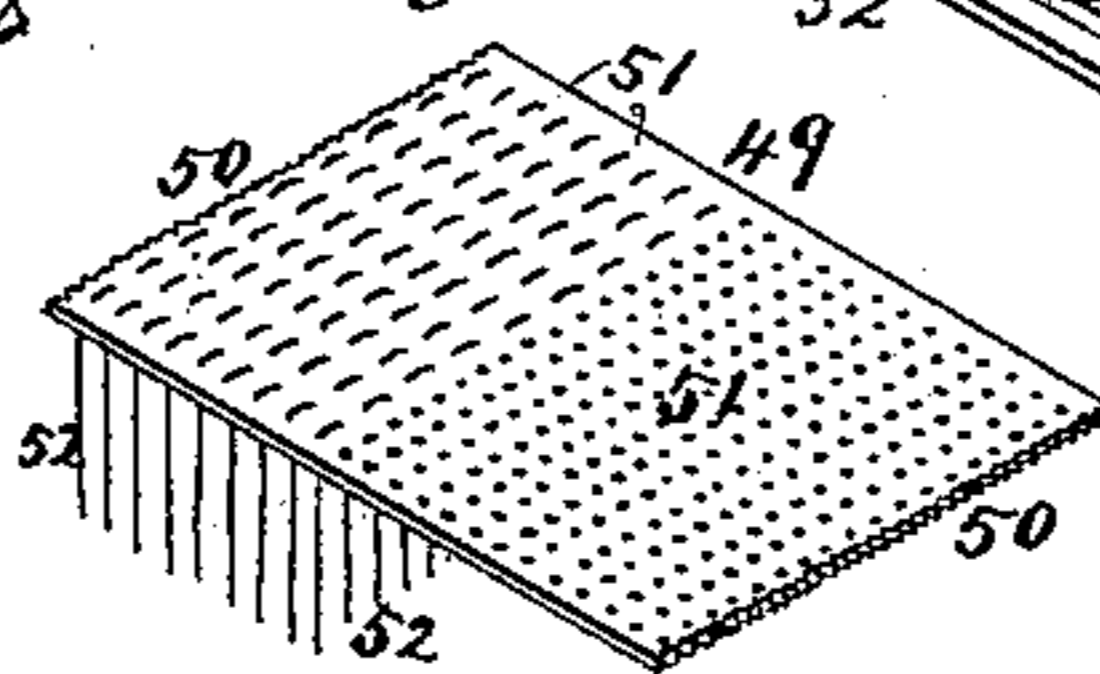
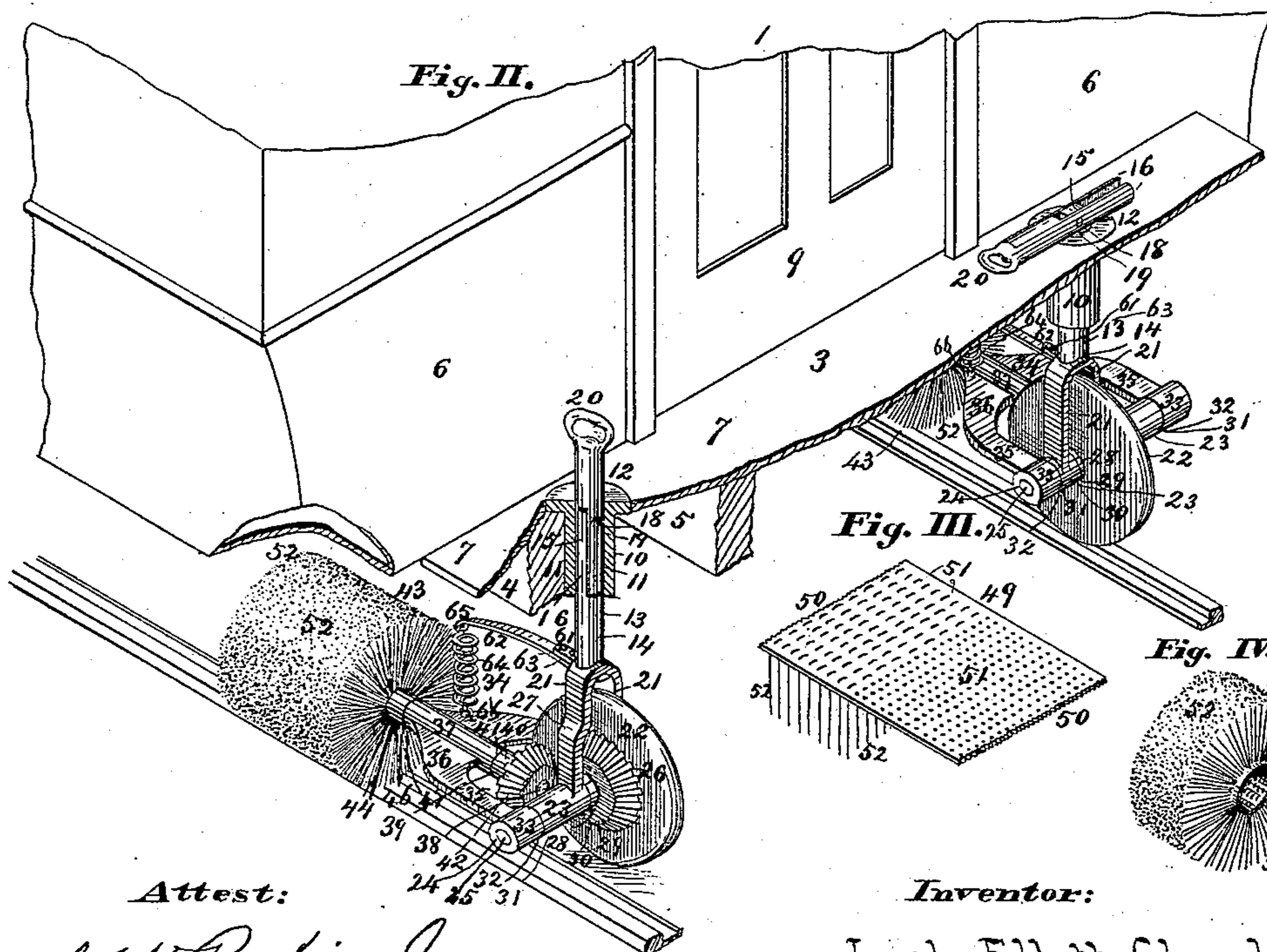
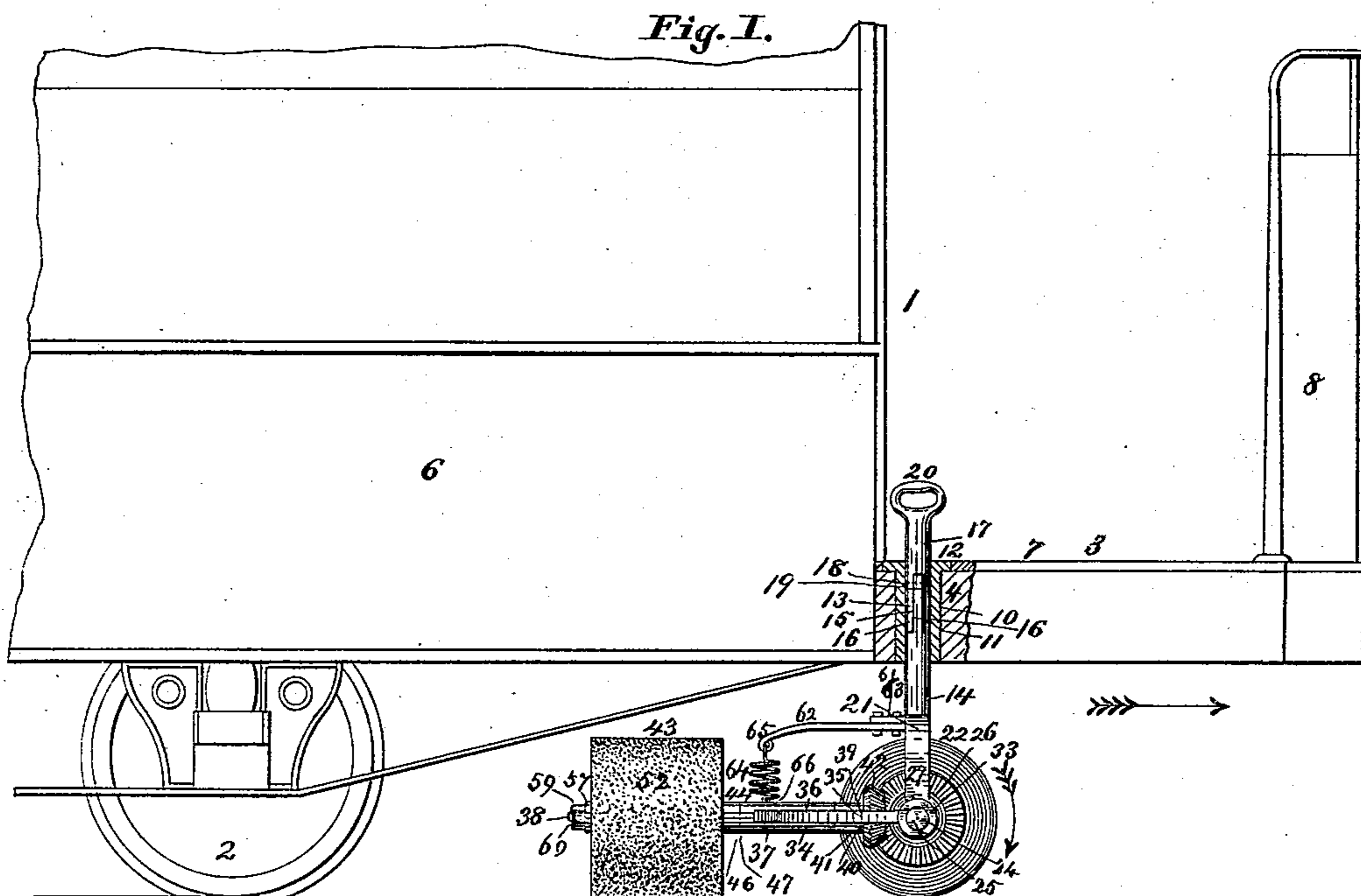


(No Model.)

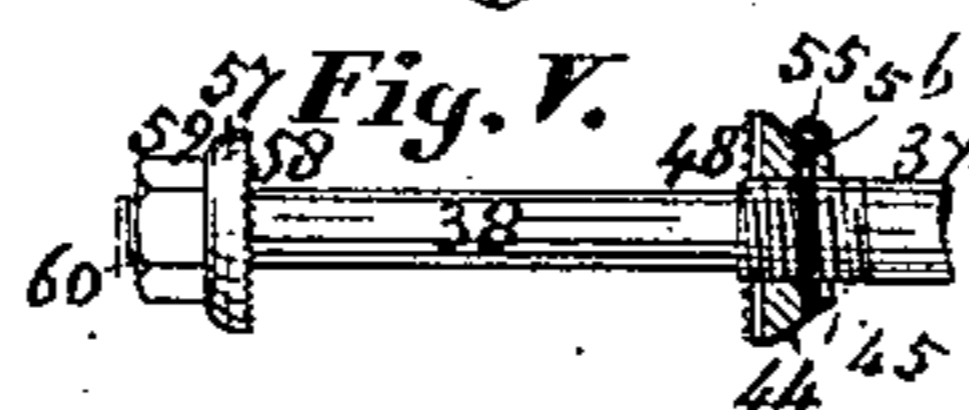
J. E. CHAMBERS.  
OSCILLATING CAR TRACK CLEANER.

No. 446,326.

Patented Feb. 10, 1891.



Attest:  
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*S. H. Knight.*



Inventor:  
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By *Knights Bros.*  
Atty's.

# UNITED STATES PATENT OFFICE.

JOSEPH ELLOTT CHAMBERS, OF ST. LOUIS, MISSOURI, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE ST. LOUIS CAR TRACK CLEANER COMPANY, OF EAST ST. LOUIS, ILLINOIS.

## OSCILLATING CAR-TRACK CLEANER.

SPECIFICATION forming part of Letters Patent No. 446,326, dated February 10, 1891.

Application filed September 29, 1890. Serial No. 366,474. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH ELLOTT CHAMBERS, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Oscillating Car-Track Cleaners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to an adjustable automatic rotary steel brush that, when lowered in contact with the rail and its actuating traveler-wheel to the ground, automatically sweeps the rail ahead of the car-wheels and removes the snow, sleet, and dirt therefrom; and the invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a side detail elevation of a car to which my automatic rotary sweeper is attached, with part of the front platform and sill broken away to show the means of adjustable attachment of the track-cleaning device. Fig. II is a detail perspective view with parts broken away to show the position when ready for use of the rotary brush. Fig. III is a perspective view of the perforated metal head-plate of the brush, in part of which has been woven its steel-bristle filling. Fig. IV is a perspective detail view of the brush after its metal head-plate has been turned around and fastened in its cylindric tubular operative form, the bristles projecting outward radially from said cylinder; and Fig. V is an enlarged detail view of the brush-shaft and its clamping devices.

Referring to the drawings, 1 represents a car to which my track-cleaner is attached, 2 are the wheels of said car, and 3 is the front platform of the car on which the operator stands as he adjusts the steel brush, respectively, to its operative and inoperative positions.

4 represents the main sills of the car, and 5 the intermediate sills; 6, the body of said car; 7, the floor of the same; 8, the front dash; and 9, the door.

10 represents tubular metal sockets which pass through perforations 11 in the floor and main sills of the car on its front platform

and are seated therein. Projecting collars 12 at top of said socket-tubes and integral therewith are inlaid through said floor, and their projecting rims rest on said main sills.

13 represents vertical journal-bearer hanger-shafts, which work vertically within said tube-sockets, when being adjusted, respectively, to bring the device into operative or inoperative position, as the case may be.

The lower section ends 14 of said vertical shafts are provided with long center tongues 15, embracing which are the bifurcated tongues 16 of the upper section ends 17 of said shafts, which tongues 16 embrace the center tongues 15 at each side, to which they are connected near the top of each by the pivot-pins 18, which are seated in their bearing-holes 19, and 20 are the operating loop-handles at the top of said shafts.

21 represents the bifurcated legs of said operating hanger-shafts, which on each side of the car, respectively over each traveler-wheel 22, span said wheels. The said bifurcated legs may be formed integral with the lower sections of said operating-shafts, or may be secured thereto by any suitable means. Integral with the feet of said bifurcated legs on each side of the traveler-wheels are the sectional bearing-tubes 23, which are thus held by said bifurcated legs and by the operating-shaft that carries them in registering position for the journal-bearing seats 24 of the journals 25, on which said traveler-wheels 22 are mounted. The said journals are fast seated in said traveler-wheels and in a bevel-pinion drive-wheel 26, which is clamped tightly against the outside face of said traveler-wheel, or cast integral therewith, the bifurcated leg 21 on that side being provided with a projecting offset 27, so as to house in said bevel-pinion drive-wheel, and allow it working room. The said traveler-wheels and bevel-pinion drive-wheels are tight keyed or seated on the boss collars or hubs 28, that may be integral with said journals; or said hubs may be cast integral with traveler-wheels and bevel-pinion drive-wheels, and shrunk or otherwise secured to said journals 25, so that in either case they have fast and not loose bearings on said journals. The said swell

collar or hub also provides friction-shoulders 29, that work against like shoulders 30 on the inside edges of the sectional bearing-tubes 23, by which the traveler-wheels, 5 as also the bevel-pinion drive-wheels, are maintained in their vertical positions. The outer edges 31 of said sectional bearing-tubes come in contact with the inner edges 32 of the collar-bearings 33 that are loose mounted 10 on the terminals of the journals 25, and integrally connected with said collar-bearings are the bifurcated drag trailing frames 34, the forks 35 of which frames connect with said collar-bearings, the crotch or body 36 of said 15 frame trailing behind.

37 represents tubular shaft-bearings in the crotch or body of said trailing frames and integral therewith, and within said bearing-tubes the brush-shafts 38 have their bearings. 20 The said brush-shafts are provided with swell integral collars 39 near their inner ends, whose edges 40 work against the edges 41 of the shaft-bearing tube, and outside of said integral collars 39, and mounted on said brush-shafts, to which they are either fast keyed or 25 are integral, are the bevel-pinion wheels 42, whose gear-teeth engage with the bevel-pinion drive-wheels 26, and are driven thereby to rotate the brush-shaft and the rotary brush 30 43 that is mounted on said shaft.

44 represents screw-collars that are secured on the brush-shaft by being turned on their screw-seats 45, leaving sufficient play between the corresponding edges 46 of said collar and 47 of the tubular shaft-bearing. The 35 inside of said screw-collar next the brush is formed with a corrugated or ratchet face 48, for locking the attachment to the brush, as will afterward be described, thereby preventing the turning of the rotary brush on 40 its shaft.

49 represents the head-plate of the brush, which is preferably made of malleable iron, but may be of any other suitable material. 45 The head-plate is provided with serrations 50 at each end, whose functions are hereinafter described. The said head-plate is provided with the same number of perforations 51 as there may be of steel bristles 52 in the rotary 50 brush 43; but I do not confine myself to a coincidence in the relative number of perforations with those of the steel bristles, as it is evident that when preferred two or more steel wires or bristles can be woven through the 55 same holes when it is desired to construct a stiffer brush. After the brushes have been woven and the ends of the bristles sheared the head-plates are turned over so as to form tube-backs 53, the bristles radiating around 60 from said tubes, so as to form circular or Turk's-head brushes. The overlapping edges of the head or tube plates when bent into position are secured together by the rivets 54, so as to maintain said tubular form of the 65 back and said radiating position of the steel bristles.

55 represents key-pins, which are seated in

the perforations 56 in the screw-collars 44, which keys prevent the friction of the brush at its work from turning said collar into locking contact with the bearer-shaft 37. 70

57 represents tight collar-washers that snugly fit on the shafts 38 outside the rotary brushes, the inside faces of which washers are formed with corrugated or ratchet faces 75 58, which ratchet-faces register into the serrations 50 of the tube-heads of the rotary brushes, so as in conjunction with the ratchet-faces 48 of the collars 44 at the other end of the brushes to prevent the turning of said 80 brushes on their shafts, the latter collars being keyed to said shafts.

59 represents screw-nuts that fit on the screw-tips 60 on the out terminals of the brush-shafts 38. 85

61 represents short straps that are integral with or rigidly secured to the summit of the bifurcated legs 21, that span the traveler-wheels, and which short straps project backward sufficiently to provide means for the 90 attachment of the spring bearer-straps 62, which are secured to said short straps by the screw-bolts 63.

64 represents spiral springs that are secured above to the loops 65, at the out terminals of the straps 62, and which spiral springs are secured at their feet, by screw eyelets or staples 66, to the trailing bifurcated drag-frame 34. The said spiral-spring attachments 95 from the spring bearer-straps 62 to the trailing drag-platforms, on which are mounted the rotary brush journal-bearings, provide an elastic equilibrium to the downward tension of said rotary brush when in its operative position, and forms an easy elastic support to 105 the same when elevated and being carried in its inoperative position. When it is desired to increase the tension of the rotary brush in effecting the cleaning of the track—such as in times of unusually deep snow or heavy sleet— 110 the same may be effected by changing the spiral springs 64 for others of an increased length. When, on the other hand, the track is but little obstructed, the spring-tension may be reduced by the substitution of shorter 115 springs. When the railway-track is clean, and therefore it is desired to elevate the rotary brushes and their operative traveler-wheels into their inoperative positions, the same is effected by the driver, brakeman, conductor, or other operator, who steps upon the 120 front platform and raises on the loop-handles 20 of the hanger-shafts that carry the rotary brushes, elevating the same sufficiently through their tube-sockets to entirely clear 125 the upper section of said shafts from their sockets, then turn the same on their pivot-pins 18 until the bifurcated tongues 16 assume a horizontal in place of their former vertical position. The center tongue of said hanger-shaft with its lower section is then again 130 slightly lowered until the bifurcated tongues on the one side of said socket-tubes and the handles on the other bridge cross over said tube-

sockets, and both the rotary brushes and traveler-wheels are held pendent at a sufficient distance above the ground and track to be carried safely without in the common way coming in contact with any object. However, should said inoperative pendent device then casually come slightly in contact with any object, the pendent springs that elastically suspend said device provide the means for a free oscillatory movement of the same to prevent any accident from the jar of contact. When it is desired to lower the device into its operative position, then first raise the hanger-shafts through the socket-tubes sufficiently to be enabled to straighten the bifurcated tongues on line with the center tongues in their uniform vertical positions, so as to be enabled to lower said shafts until the traveler-wheels 22 reach and run on the ground alongside the rail-tracks, on which tracks the brushes then rest. If the train is running or when it starts after said lowering of the devices into their operative positions, then by the rotation of said traveler-wheels on the ground, in conjunction with the operation of their bevel-pinion drive-gear, which is driven thereby, the brushes are made to freely rotate on the rail-tracks and clean the same. Now it will be seen that as the drag-friction of the rotary brushes is on both tracks outside the line of travel of the traveler-wheels, therefore the said rotary brushes swing around partially, so as to make an angling presentation of the sweep of the brushes sufficiently to provide a catering longitudinally progressive movement along, as well as rotating transversely of, the rails that are being cleaned, the position of the brushes in Figs. I and II being in their quiescent position before the starting of car. The drag movement (as stated) of the trailing brushes turns them slightly catering of the rails. When for a time on account of favorable weather it is not required to use the cleaning device on the tracks, it is evident that the apparatus can be removed from the cars by simply removing the pivot pins or screws 18 that couple the splice-hinge tongues 15 and 16 of the operating-shafts, when the upper section of said shaft is removable from the top of the front platform and the remainder of said apparatus from beneath the same. Again, it will be seen that my oscillatory track-cleaner, being suspended by a round vertical shaft in its vertical socket-bearing, is not only oscillatory but is also transversible, so that when the movement of the train is reversed the apparatus will switch around immediately, its round vertical shaft in its round bearings swinging round. The apparatus reverses itself on such occasions within the travel of one revolution of the wheel. When it is desired in times of heavy snow and sleet to increase the tension of the traveler-wheel on the ground, the same is readily effected by the mounting of spiral springs on the operating-shaft between the foot of the tubular socket 10 and the crotch of the bi-

furcated frame that spans the traveler-wheel. It will also be seen that when in the course of time the steel bristles of the rotary brush, as it travels the most of the time in one direction, may have a tendency to lean in the reverse direction, the whole brush-head with its tubular head can be reversed on the shaft 38, so as to straighten the bristles back to their normal position.

The device thus described is placed at both ends of the car in front of the wheels, excepting when used on cars which always run with the same end foremost, and in such cases it need be used on the foremost end only of the car in front of the wheels.

I claim as my invention—

1. In a track-cleaner for railways, a drag-frame secured to the foremost end of the car in front of the wheels, and the rotary brush mounted on said frame, substantially as and for the purpose set forth.

2. In a track-cleaner for railways, the combination of the traveler-wheel 22, the bevel-gear drive operated by said traveler-wheel, and the rotary brush driven thereby, substantially as and for the purpose set forth.

3. In a track-cleaner for railways, the combination of the pendent pivoted splice-shaft, the journal-bearing frame carried by said splice-shaft, the traveler-wheel whose journal runs in said bearing-frame, the bifurcated drag-frame having bearings on said journal, the brush-shaft having bearings in said drag-frame, the rotary brush on said shaft, and the bevel-gear drive-connection that carries the movement from the traveler-wheel to the rotary brush, substantially as and for the purpose set forth.

4. In a track-cleaner for railways, the combination of the traveler-wheel, the sectional pivoted splice-shaft, the journal-bearing frame carried by said splice-shaft, the journal of said traveler-wheel that said splice-shaft carries, the bifurcated drag-frame having bearings on the journal of said traveler-wheel, the brush-shaft 38, having bearings in said drag-frame, the rotary brush mounted on said shaft, and the ratchet-faced collars 44 and 57 that lock the attachment of the brush to its mount on the shaft 38, substantially as and for the purpose set forth.

5. In a track-cleaner, the combination of the tube-socket 10, embedded in the front platform of a car, the lower section 14 of the operating splice-shaft, having the center tongue 15, the upper section 17 of the said operating-shaft having the bifurcated tongues 16, the pins that pivotally connect said tongues together, the journal-bearing frame that said sectional shaft carries, the traveler-wheel and its journal carried by said journal-bearer frame, the bifurcated drag-frame having bearings on the journal of said traveler-wheel, the brush-shaft and rotary brush mounted thereon, carried by said drag-frame, and the bevel drive-gear that transfers movement from said traveler-wheel journal to said brush-shaft, the

said sectional splice-shaft being arranged to be elevated in said socket-tube and bend over at its splice-joint to lock the brush and traveler-wheel at their elevation out of operative position, and to be straightened at said joint and lowered through said socket-tube to bring said brush and wheel into their operative position, substantially as and for the purpose set forth.

10 6. In a track-cleaner, the combination of the tubular socket 10, the pivoted operating splice-shaft that works in said socket, the bearing-frame suspended from said shaft, the traveler-wheel whose journal works in said frame, the bifurcated drag-frame 34, the rotary brush 43, carried by said frame, the said combined elements being arranged to oscillate and turn around to reverse position of the brush immediately on the reverse movement

of the cars, substantially as and for the purpose set forth. 20

7. In a track-cleaner for railways, the combination of the tubular socket 10, the pivoted operating splice-shaft that works in said socket, the bearing-frame suspended from said shaft, the traveler-wheel whose journal works in said frame, the drag-frame 34, the rotary brush 43, carried by said frame, the spring-bearer straps 61 and 62, that project rearward from the crotch of the bearer-frame, and the spiral spring 64, that connects from said strap 62 to said drag-frame, substantially as and for the purpose set forth. 25 30

JOSEPH ELLOTT CHAMBERS.

In presence of—

BENJN. A. KNIGHT,  
SAML. KNIGHT.