

(No Model.)

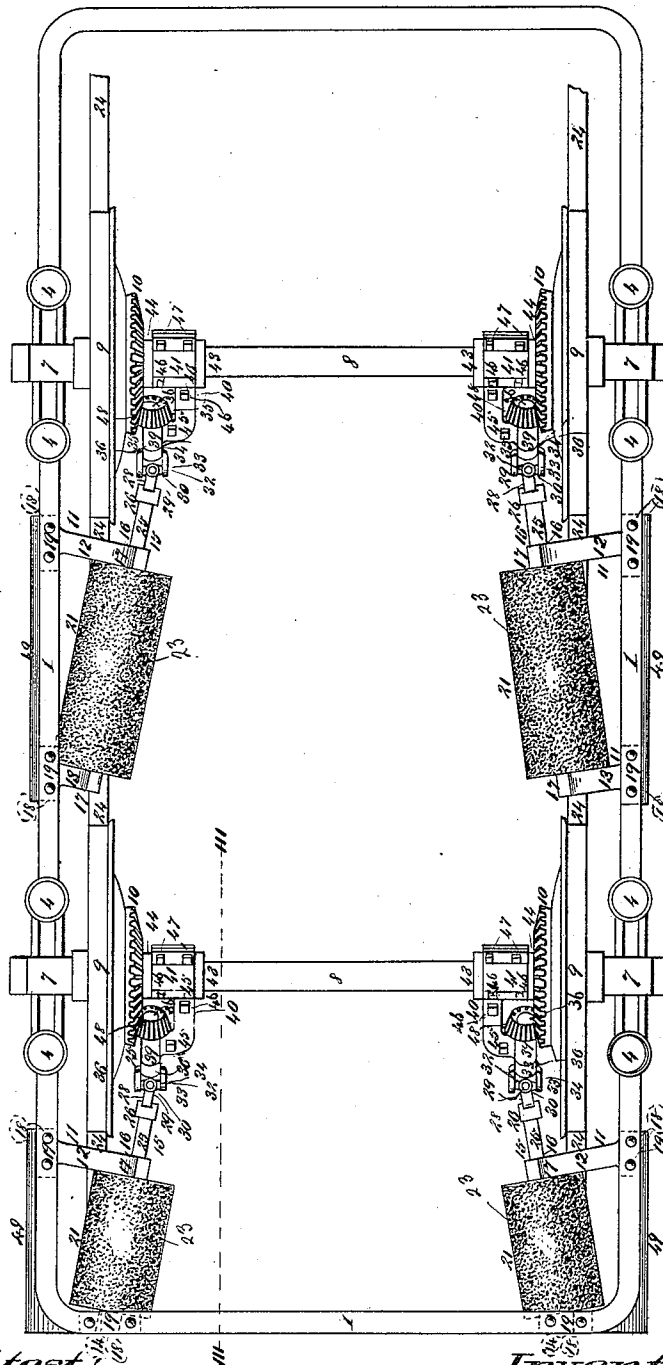
3 Sheets—Sheet 1.

J. E. CHAMBERS.
CAR TRACK CLEANER.

No. 461,735.

Patented Oct. 20, 1891.

Fig. 1.



Attest,

Harry S. Rohrer.
S. C. Cotton

Inventor,

Joseph Elliott Chambers.

By Knight Bros.
Attys.

(No Model.)

3 Sheets—Sheet 2.

J. E. CHAMBERS.
CAR TRACK CLEANER.

No. 461,735.

Patented Oct. 20, 1891.

Fig. II.

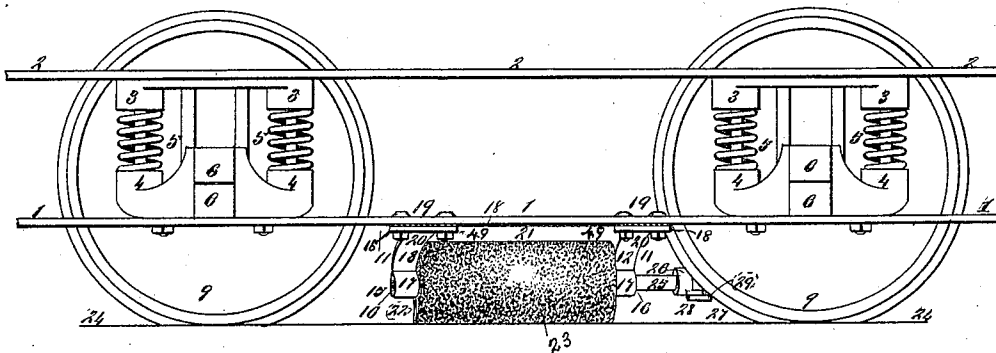
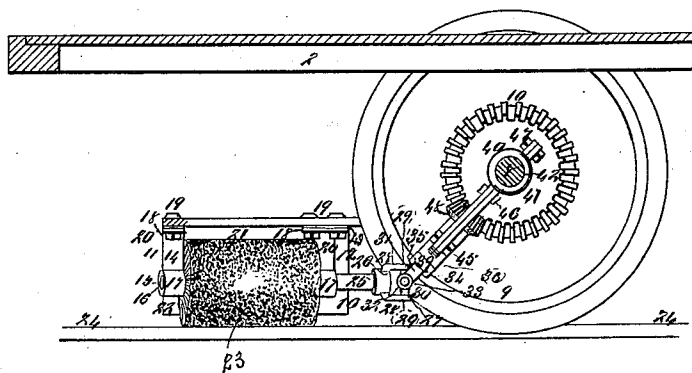


Fig. III.

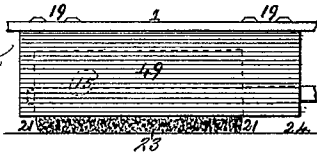


Attest;

Fig. IV

Inventor;

Harry Cohen
S. Cotton



Joseph Elliott Chambers,

By

Knight Bros.
attys.

(No Model.)

3 Sheets—Sheet 3.

J. E. CHAMBERS.
CAR TRACK CLEANER.

No. 461,735.

Patented Oct. 20, 1891.

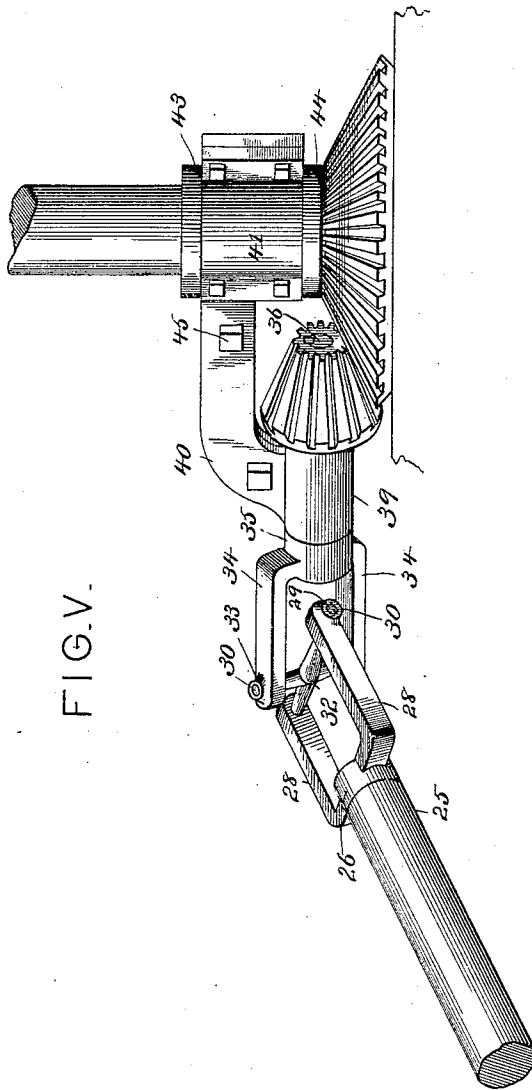


FIG. V.

Witnesses:

Harry D. Rohrer.
F. A. Hopkins

Inventor:

Joseph E. Chambers.

By Knight & Sons
Attorneys.

UNITED STATES PATENT OFFICE.

JOSEPH ELLOTT CHAMBERS, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE ST. LOUIS CAR TRACK CLEANER COMPANY, OF EAST ST. LOUIS, ILLINOIS.

CAR-TRACK CLEANER.

SPECIFICATION forming part of Letters Patent No. 461,735, dated October 20, 1891.

Application filed December 20, 1890. Serial No. 375,357. (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 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 a rotary brush car-track cleaner, the brush of which is rotated by a bevel-pinion drive-gear actuated by the running track-wheels of the car; and the invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a top view of the journal-pedestal bearer-frame of the running-gears of a car to which my invention is attached and shows a duplex system of my rotary track-cleaners and the bevel-gear drive of said brushes actuated by the track-wheels. Fig. II is a detail outside side view of said running-gears and shows one of the intermediate brushes mounted on its hanger-journal frame, which is secured pendent from said running-gears. Fig. III is a detail inside side view of one of the front track-wheels, with its bevel-drive attachment and the front rotary brush it drives; and Fig. IV is an outside side view of the brush and its shield, with a detail of the pedestal bearer-frame from which said device hangs pendent. Fig. V is an enlarged detail view.

Referring to the drawings, 1 represents the journal-pedestal bearer-frame of the car, and 2 is the truck-frame, which truck-frame rests on the covers 3 of the pedestals 4, which pedestal-covers are elastically carried by the springs 5. Between said pedestals the pillow-blocks 6 house the brasses or journal-boxes in which the journals 7 of the axles 8 have their bearings.

9 represent the track-wheels that are mounted on said axles, and 10 are bevel gear-wheels, which are securely attached to the inside of said track-wheels or alike with said wheels fast mounted on the axles that carry them, so that said bevel gear-wheels of necessity rotate with the track-wheels, and thus effect the purpose for which they are there placed.

11 represent the brush-hanger frames, which are constituted of the major journal-bearing inclined hangers 12, the minor journal-bearing inclined hangers 13, the vertical forward journal-bearing hangers 14, and the laterally-inclined horizontal brush-axles 15, which axles work in the journal-bearings 16 in the respective journal-bearer swells 17 at the feet of said hangers, and the perforate attachment-flanges 18 of the hangers are respectively secured to the pedestal bearer-frame 1, from which they hang pendent by the screw-bolts 19, that are seated in the perforations in said frame and in said flanges and are there securely held by the screw-nuts 20.

21 represents the rotary brushes, which are fast mounted on said axles 15. The said brushes are preferably made with metal tubular perforate heads 22, in which perforations steel or other suitable bristles 23 are inserted and from which they project in a radial form, and in these particulars the said rotary brushes may be of like construction to those of my oscillating car-track cleaner, for which I filed application for a patent September 29, 1890, Serial No. 366,474. The said tubular heads of the brushes are secured to said axles 15 by any suitable means, so as to be fast mounted thereon and to always rotate when the axles turn and the steel or other bristles project radially therefrom. The rotary brushes are preferably located ahead of the wheels that work them, which wheels run on the track-rails 24. The extension drive-shaft 25, that is a continuation of the axle 15, has fast mounted on its driver end the bifurcated tumbler-head 26 of a universal joint. The journal-bearer arms 28 of said tumbler-head are provided with perforate bearings 29, in which two of the journals 30 of the four cross-arms of the tumbler cross-head 32 have their bearings, the other two counter-journals 30 of said tumbler cross-head having bearings 33 in the journal-bearer arms 34 of the corresponding bifurcated tumbler-head 35, which latter tumbler-head is fast mounted on the short drive-shaft 36, whose journal works within the forward or minor journal-tube 39 at the front end of the crook-neck clip 40, which clip has also a major journal-tube 41, which embraces the axle outside the

peripheral collar 43, that projects from and is integral with said axle and inside of the flange-collar 44 of the bevel gear-wheel 10. The said clip is preferably made from steel plate, which is cut into the requisite crook-neck blank and which is bent at the middle of said blank or forward end of said crook neck into the aforesaid minor journal-tube 39, the two layers of the plate being closed together after forming said tube and there clamped and fastened together by the screw-nutted bolts 45, which pass through and are seated in perforations in said double-layer plate, where they are secured by their screw-nuts, the two layers of said plate being in close parallel connection until they reach the head of said clip, where they are again unitedly secured by the screw-nutted bolts 46, which pass through and are seated in perforations in said double-layer plate, where they are secured by their screw-nuts. The two layers of plate then diverge and are formed into the aforesaid major journal-tube 41. The extension ends of said plate beyond said major journal-tube are brought into parallel contact and are secured together by the screw-nutted bolts 47, which pass through and are seated in perforations in said double-layer plate and are there secured by their screw-nuts. The aforesaid short drive-shaft 36 has a sufficient extension beyond the minor journal-tube 39, in which it has its bearings, for the mounting thereon of the bevel-pinion 48, whose bevel-cogs mesh into the bevel-cogs of the aforesaid bevel drive gear-wheel 10, which is fast mounted on the car-axle and fits against the inside of the track-wheel 9. It will thus be seen that as the track-wheel 9 moves the bevel-pinion drive-wheel 10 that rotates therewith drives the bevel-pinion gear-wheel 48, which, through its shaft 36 and its universal tubular joint connection with the brush-axle shaft 15 via the extension 25 of said shaft, turns the inclined rotary brush 21 to clean the track-rails preferably ahead of the wheel that drives said brush.

My rotary brush-cleaners may be attached to and driven by each and all of the wheels of the car, as shown in Fig. I, or to the rear wheels alone, locating the brush in an intermediate position between the wheels, as shown in Fig. II, or it may be attached to the front of the front wheels only, as shown in Fig. III. On cars that run on tracks that have frequent curves, switches, or other divergencies from the straight line it is preferred to use the intermediate brush, either with or without the front or pioneer brush, as the former always centers over the middle of the track. For the following reasons it is preferable to make the attachment to the front of the wheel that drives it: First, it cleans the track for the wheel that drives it; second, a drive-gear attachment works a tighter gear with closer joints, and consequently a more effective drive, than does a draw-gear attachment as a rear attachment

would necessarily be, the gear and joints having a continuous adverse drag movement, having a tendency toward detachment instead of attachment and to a loose gear instead of a tight gear, as in my preferred forward attachment; third, my front drive connection, having a constant working tendency to mesh closer together, is much more enduring, not as with a rear draw-gear, the tendency of which is to draw apart and after a partial wear to slip cogs; fourth, my forward drive having a tendency to mesh together instead of draw apart in said forward drive there is a snugger, truer movement and avoidance of the rattle and consequent rapid friction-wear of a draw-gear, and, fifth, the drive action of my rotary brush makes a cleaner sweep of the track-rails than can be effected by a draw action, which latter is too apt to surmount and ride over obstructions instead of removing them.

Now while, as stated above, a front drive attachment is preferable, I do not confine myself to said attachment, for it is evident that the attachment can be reversed to the rear of said wheels by the reversing of the device, as my universal joint acts in any position.

49 represents sheet-metal shields, which are secured to the frame 1 by the aforesaid screw-nutted bolts 19, that secure to said frame the brush-attachment hangers and prevent the throw by the rotary brushes of the dirt, snow, or stones that obstruct the track against teams and vehicles that may be traveling along the street or road.

Where the device is used on steam railway-cars, which usually monopolize the road on which they travel, the said shields may be dispensed with, as there are in such cases no other vehicles that travel the same road.

It will be seen that I locate my rotary brushes on a horizontal line over the track-rails, but in an angling position laterally in regard to said rails. This disposition of said brushes has the following advantages: First, the bristles of the brushes as they rotate come in contact with the track-surface of the rails at an angle, and thus more readily mount said rails and with a more steady and effective movement than they could if they swept in a transverse direction square across the rails, against which they would come with an abutting strike that would in the first place hold back the bristles from their operative work, and when by the further rotation of the brush the bristles were dragged to the ascent of the rail with the rebound of their release they would be flirited upward and avoid the cleaning of a large portion of the rail-track; second, by my inclined presentation I avoid the abutting strike of the bristles square against the side of the rail, their extreme backward bend before surmounting the rail, and their rebounding flirt when released, which all tends to the much more rapid wear of the brushes than their inclined

ascent by my device; third, the adverse friction and consequent increased expenditure of power from the abutting strike of the bristles square against the side of the rails is avoided by my inclined ascent of the tread-flange of the rail, and, fourth, the said angle-sweep is in its passage operated along a longer stretch of the rail before the lifting of the bristle from contact therewith, and consequently it effects a cleaner sweep, which effect is still further aided by the passage of the bristles semi-longitudinally of the rail-track, so as to sweep both the curvilinear edges of the track as well as its summit.

15 When the brush wears sufficiently to require lowering, the same is readily effected by detaching the attachment-bolts 19 of the hangers, the insertion of perforate washers of any required thickness above the flanges 18 of the hangers, the replacing of said bolts, and retightening of the screw-nuts.

I claim as my invention—

1. In a car-track cleaner for railways, the combination of a horizontal pendent hanger-frame, said frame being laterally inclined to the track it surmounts, the pedestal bearer-frame from which said hanger-frame is pendent, and the rotary brush that is mounted in said hanger-frame in front of the wheel that drives it, substantially as and for the purpose set forth.

2. In a car-track cleaner for railways, the combination of the pedestal bearer-frame of the car, the track-wheels 9, the bevel-pinion gear-drive operated by said track-wheels, the laterally-inclined pendent rotary brush driven thereby, and the hanger-brush frame suspended from and adjusted to said pedestal bearer-frame, substantially as and for the purpose set forth.

3. In a car-track cleaner for railways, the combination of the pedestal bearer-frame of the car, the major inclined hanger 12, the minor inclined hanger 13, the forward vertical hanger 14, the inclined brush-axle mounted on said hangers, and the rotary brush mounted on said axle arranged to effect an inclined sweep of the track-rails, substantially as and for the purpose set forth.

4. In a car-track cleaner for railways, the combination of the pedestal bearer-frame of the car, the main axles that are mounted on said frame, the track-wheels that are fast mounted on said axles, the bevel-gear drive-wheels 10, also fast mounted on said axles or secured to said wheels, the bevel-pinions that gear into said bevel drive-wheels, the drive-shaft 36, on which said bevel-pinion is mounted, the inclined rotary brush that is secured

pendent from said pedestal-frame, the axle and extension-shaft of said brush, and the universal tumbling joint that connects said extension-shaft to said drive-shaft 36, substantially as and for the purpose set forth.

5. In a car-track cleaner for railways, the combination of the pedestal bearer-frame, the inclined rotary brush that hangs pendent from said frame, the axle of said brush and its extension-shaft, the bifurcated tumbler-head 26, mounted on said extension-shaft, the tumbler cross-head 32 of the universal joint that has journal-bearings in said tumbler-head, the track-wheels 9, the bevel drive-wheels 10, operated by said track-wheels, the bevel-pinion 48, that gears with said bevel drive-wheel, the shaft 36, on which said bevel-pinion is mounted, and the bifurcated tumbler-head 35, in whose arms the journals of the universal-joint cross-head 32 have corresponding bearing with those of the tumbler-head 26, substantially as and for the purpose set forth.

6. In a car-track cleaner for railways, the combination of the pedestal bearer-frame of the car, the inclined rotary brush 21, the inclined hanger-frame by which said brush is suspended from said pedestal-frame, and the shield 49, secured to said pedestal bearer-frame outside the rotary brush, which frame arrests the too extended discharge of the snow, dust, and stones that are swept from the rail track, substantially as and for the purpose set forth.

7. In a car-track cleaner, the combination, with the axle and track-wheels, of a horizontal pendent hanger-frame laterally inclined to the track, the pedestal bearer-frame from which said hanger-frame is suspended, the rotary brush mounted in said hanger-frame, a bearing-tube journaled on the axle, and a shaft journaled in said tube driven by the track-wheel and having universal-joint connection with said brush, substantially as set forth.

8. In a car-track cleaner, the combination, with the pedestal bearer-frame of the car, the track-wheels 9, and the axle, of the bevel-pinion operated by said track-wheel, a bearing-tube journaled to said axle, a shaft journaled in said tube and having a pinion engaging said gear-wheel, the rotary brush having universal-joint connection with said shaft, and the hanger brush-frame suspended from the pedestal bearer-frame, substantially as set forth.

JOSEPH ELLOTT CHAMBERS.

In presence of—

BENJN. A. KNIGHT,
SAML. KNIGHT.