(No Model.)

A. DAY.

RAILWAY TRACK CLEANER.

No. 420,640. Patented Feb. 4, 1890.

Fig 1

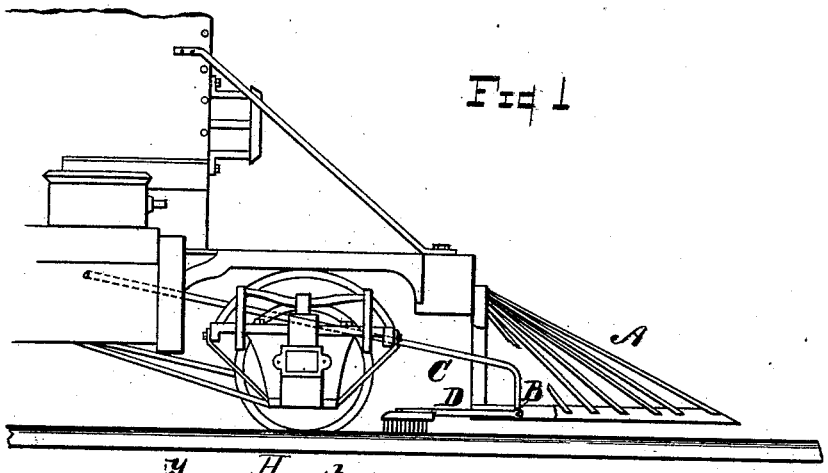


Fig. 2.

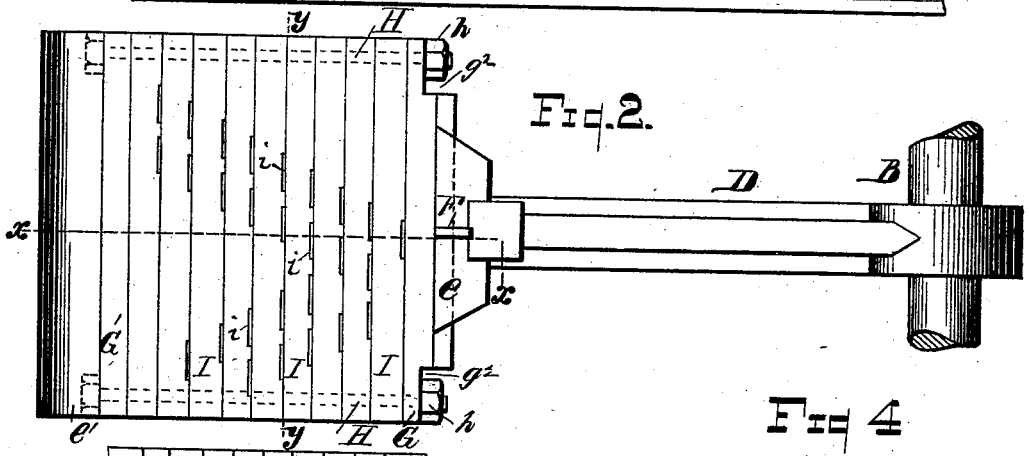


Fig 3

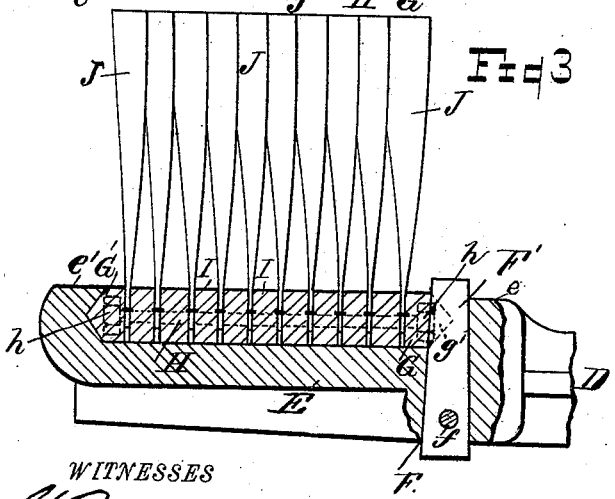
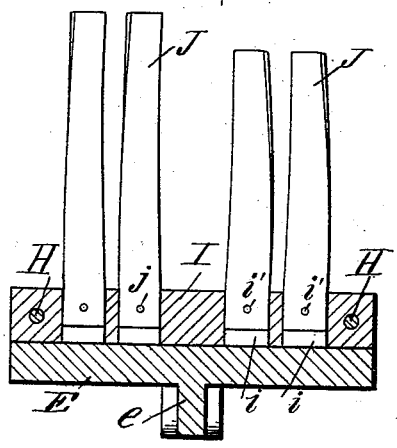


Fig 4



WITNESSES

A. Clay Hathaway

L. N. Fuller

INVENTOR

Augustus Day

Attorney.

UNITED STATES PATENT OFFICE.

AUGUSTUS DAY, OF DETROIT, MICHIGAN.

RAILWAY-TRACK CLEANER.

SPECIFICATION forming part of Letters Patent No. 420,640, dated February 4, 1890.

Application filed December 5, 1889. Serial No. 332,649. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS DAY, a citizen of the United States, and a resident of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Railway-Track Cleaners; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to that class of track-cleaners which are attached to the pilot of an engine and sweep or scrape the rail to free it of any slight obstructions, such as a light fall of snow or sleet or ice frozen on the rails, &c.

The retarding effect of a slight fall of snow or of sleet frozen on the rail has been often realized by railroad men and travelers. These slight obstructions, not removable by the ordinary snow-plow or cow-catcher, are the causes of serious losses both to the traveling public and to the railroad companies.

The object of my invention is to provide means for sweeping or scraping all light, low, and small obstructions from the rail and leave it in such a condition that the driving-wheels of the engine will come in direct contact with the metal of the rail; to provide means for lifting the operating parts of the track-cleaner from the rail when not required for use, and to so construct the cleaner that the operating parts can readily and easily be exchanged when broken or worn out; and it consists in the devices for attaching the cleaner to the pilot of the engine and in the means for operating it, in the means for attaching the broom or sweeper to the plate of the cleaner, so that it can readily be inserted or removed, and in the construction of the broom by which the working parts may be removed and replaced when broken or worn out, and in the peculiar construction, arrangement, and combination of parts, as hereinafter more specifically set forth.

Figure 1 is a side elevation of the front end of a locomotive-engine with a part of the pilot and frame broken out to show the track-cleaner and its connection with the engine. Fig. 2 is a plan view of the under side of the draw-bar and plate of the track-cleaner with the spring-blades removed. Fig. 3 is a vertical section of the track-cleaner through the line $x\ x$ in Fig. 2. Fig. 4 is a vertical section of the track-cleaner through the line $y\ y$ in Fig. 2.

In the drawings, A represents the pilot and the front part of the frame of a locomotive-engine, a part being broken away to show the connection of the track-cleaner with the pilot and its position on the rail.

B is a rock-shaft extending across the whole width of the pilot of the engine and pivoted at its end in suitable bearings in the frame of the pilot.

C is a rod keyed on the rock-shaft at any convenient point. This rod extends upward far enough to create a leverage to turn the rock-shaft. It is then bent backward and thence carried up into the car within easy reach of the hand of the engineer. This rod in the part next to the rock-shaft is made so that it will spring to allow the sweeper to rise over any unusual obstruction.

D is the draw-bar of the cleaner, which is keyed on the rock-shaft B and projects to the rear.

E is the plate of the cleaner attached to or forming the expanded or rear end of the draw-bar D.

e is a transverse rib cast on the under side of the plate E, with a groove or a V-shaped recess on its inner or rearward face for the reception of the broom-head.

e' is a similar and parallel rib on the rear end of the plate E, with the groove or V-recess on its inner or front face.

F is a slot cut through the plate E and continued through the inner face of the rib e.

g' is a slot cut in the center of the forward edge of the bar G to correspond with the slot F. The gib or key F′ is inserted in the slot F and in the slot g' in the bar G, and locks the broom-head to the plate of the cleaner. The key F is locked by the set-screw f in the draw-bar.

G G′ are the two end bars of the broom-head, being beveled on their outer faces outwardly to slide closely in the V-shaped recesses in the inward faces of the ribs $e\ e'$. These bars have recesses $g^2\ g^2$ in their outer faces near or at their ends to form seats for the nuts $h\ h$ on the rods H H.

I I are bars forming the interior of the broom-head. They extend across the broom-

head and are perforated near their ends to allow of the passage of the bolts or rods H H. The rods H H are screw-threaded at each end to engage with the nuts H H. By having these nuts at both ends of the rods H H the removal of any of the parts which may be broken can be effected by unscrewing the nuts on the end of the rod nearest the parts to be removed. The tightening of the bars between themselves is more perfect when there is a nut at each end of the connecting-rod instead of a bolt-head at one end and a nut at the other.

The bars I I have recesses *i i* cut in their front faces for the reception of the spring-blades J. The position of the broom-head over the rail brings the bars I I at right angles with the rail, and consequently the flat sides or faces of the spring-blades in the recesses *i i* are also at right angles with the rail. This position of the upper end of the spring-blades permits the lower and free end to move forward and backward in a direction parallel with the rail. As it is necessary that the lower edge of the spring-blades should stand diagonally to the rail in order to crowd or throw any obstacle from the rail, a twist of one-eighth of a turn in its length is given to the spring-blade. This twist gives the spring-blades a movement diagonal to the rail. Thus the motion of the free end of the spring-blades will be backward and sidewise in one direction and forward and sidewise in the other. As these recesses *i i* in the bars I I and the spring-blades are arranged after the first, each behind and at one side of the preceding and at a less distance apart than the width of the spring-blade, the blades overlap each other in turn. The front blade on meeting an obstacle springs back against the second, the second against the third, and so on through the series. The second re-enforces the first and the third the second, and their combined strength removes the obstacle which would overcome one alone. When the first has removed or crowded the obstruction out of its line, it springs back to its place, and the others follow in turn. In removing an obstacle from the track the lower ends of these spring-blades overlap and form a continuous blade, yet each acts separately and independently of the others. These spring-blades are perforated at *j* to admit the pin or bolt *i'*, by which they are supported and held in position. They are also firmly compressed in their recesses by the bars in front of them, which prevent any turning of the top of the blade. The blades on the inner side of the broom should be longer than those on the outer side which sweep the rail, in order to sweep the side of the rail and clear a way for the flange of the wheel. The width of that portion of the broom which sweeps the tread of the rail should correspond with the width of the tread of the rail. It should be broader than the part which sweeps the side of the rail. That part of the broom which sweeps the tread of the rail throws the obstructions outward from the rail, while the part which sweeps the side of the rail throws the obstructions inward from the rail. The vibration of these spring-blades as they sweep the rail will throw off any snow or ice which would rest in the interstices between the blades.

What I claim as my invention is—

1. The combination, in a track-cleaner, of the draw-bar D, the plate attached to the draw-bar and carrying the broom-head, the removable broom-head for holding the spring-blades, and the spring-blades, all substantially as described.

2. In a track-cleaner, the combination of the bars G G' to engage with the holding-plate, the bars I I, recessed to hold the spring-blades, the spring-blades, and the bolts H H, all substantially as described.

3. In a track-cleaner, the combination of the holding-plate provided with the ribs grooved to secure the broom-head, the bars G G', beveled to engage with the grooved ribs, the bars I I, recessed to receive the spring-blades, the spring-blades, and the rods to bind the head together, all substantially as described.

4. In a track-cleaner, the combination of the rod to turn the rock-shaft carrying the draw-bar, the draw-bar keyed on the rock-shaft and supporting the holding-plate, the holding-plate provided with the grooved ribs, the removable broom-head, and the spring-blades, all substantially as described.

AUGUSTUS DAY.

Witnesses:
H. CLAY HARTWELL,
J. N. FULLER.