

TRACK-CLEARER.

No. 173,818.

Patented Feb. 22, 1876.



WITNESSES:

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IMPROVEMENT IN TRACK-CLEARERS.

Specification forming part of Letters Patent No. 173,818, dated February 22, 1876; application filed December 11, 1875.

To all whom it may concern:

Be it known that I, IRA H. SCHELL, of the town of Clay, in the county of Onondaga, in the State of New York, have invented a new and useful Improvement in Machines for Removing Snow from Railways, of which the following, taken in connection with the accompanying drawing, is a full, clear, and exact description.

My invention relates to improvements in that class of machines which gather the snow from the track in front of the machine and elevate it upon an inclined plane to an elevated platform or chute, where it is carried to the side of the track.

It consists, principally, in hinging or pivoting the frame of the elevator to a car in such a manner as to allow the said frame to be elevated at the front end and depressed at the rear end, for the purpose of rendering an elevator of extensive length capable of passing through covered bridges and tunnels, and also for the purpose of bringing the ordinary snow-plow in use when light snow is met with.

It furthermore consists in an improved construction of the transverse carrier at the top of the elevator, and its combination with same, whereby the snow is cast a greater distance from the track, and which admits of contracting its length to avoid collision in passing through bridges and tunnels; also, in the combination, with the elevator, of a series of breakers or picks on cross-bars attached at their ends to the endless elevator chain or belt, whereby ice and heavy snow can be broken up and elevated upon the inclined plane; also, in an improved mode of operating the machine by an engine located in the rear portion of the car which carries the machine, and independent of the power which propels the machine on the track, for the purpose of obtaining perfect control of the operation of the machine, all constructed substantially as hereinafter fully described.

In the accompanying drawing, Figure 1 is a perspective view of my invention, with the side of the car removed to show the position of the engine which operates the machine; Fig. 2, a rear view, showing the construction of my improved transverse carrier; and Fig.

3 a view of the machine in position for passing through bridges or tunnels.

Similar letters of reference indicate corresponding parts.

A is the elevator, having the usual carriers *m m* attached to endless chains *c*, which are driven by chain-wheels on a shaft at the summit of the plane. 1 is a gear-wheel on the end of a shaft extending across the elevator under the plane at a point opposite the shaft to which the elevator is hinged. The first-mentioned shaft drives the shaft of the chain-wheels aforesaid by gears, endless chains or belt, which is optional, and not shown in the drawing. 2 is a shaft rigidly secured to the top of the front end of the car, to which shaft the elevator is hinged. Upon one end is a loose pinion, 3, which serves as an auxiliary gear between the gear-wheel 1 and wheel 4, the latter of which is rigidly attached to the end of the counter-shaft *o*, which passes through the car C. To the outer ends of the shaft of the chain-wheels at the summit of the plane are rigidly attached the gear-wheels 5, which mesh into shifting-pinions 6 on gudgeons secured to the side of the elevator-frame. 7 is a bevel-gear, cast on the side of the pinion 6. 8 are beveled-gear wheels on the end of the shafts which operate the transverse carrier. Back of the pinion 6 are turn-buckles loosely secured in grooves in the hub of said pinion, and connected by a cross-bar, 9, extending across the top of the elevator. 10 is a lever, pivoted to a cross-plate on the elevator, and at the front end with the cross-bar 9. The other end extends across the top of the transverse carrier to a point most convenient for the operator. By means of this lever and its connection with the turn-buckles, as described, the gears 7 are thrown in and out of gear with the wheels 8, and the cross-bar 9 is of such length that the said wheels on one side will not become engaged until those at the opposite side are released. By changing the connections from one side to the other the movement of the transverse carrier is reversed and caused to cast the snow to the opposite side of the track. The chute or trough of the transverse carrier D is open on top and on its side where connected with the elevator. The

snow enters through the side opening and falls upon the bottom of the chute, from whence it is carried or scraped out to the ends of the chute by cross-bars attached to endless chains, which are moved by chain-wheels on the shafts of the bevel-wheels 8, before described. The bottom of the chute is slightly curved upward at the ends, and the gearing from the elevator to the transverse carrier is of such proportions as to considerably accelerate the speed of the latter. This forces the snow in the direction indicated by an arrow in Fig. 2, and casts it a greater distance from the track than those conveyers which carry the snow by the top scrapers over downward-curved ends. The chute is hinged at the top of its side to the top of the elevator, so that when the latter is depressed at the rear end the former can be carried out at the bottom, as shown in Fig. 3, and allow the elevator to be further depressed.

For the purpose of rendering the machine capable of casting the snow a greater distance from the track, and at the same time enable it to pass through bridges and tunnels, the chute of the lateral carrier is made of two sections, *s*, having their joint crosswise at or near the center of the chute, and provided with stiff plates *p* on the bottom and sides, fastened to one of the sections, and sliding in grooves on the other section. When the elevator is in an operative position the chute is extended, as shown in Figs. 1 and 2, and when depressed at the rear and dormant, the wheels 8 become disconnected from the wheels 7, and the chute is allowed to be contracted in length.

h is a cable or chain attached to the rear end of the elevator, and passing to the interior of the car *c*, where it may be connected with a drum or windlass, and, if necessary, extended through the front end of the car to the front end of the elevator-frame. By means of this cable or chain the elevator is raised and lowered at the ends, as before described. *E* represents an ordinary steam-engine, placed in the rear portion of the car to counterbalance the elevator hinged to its front end. This engine is suitably connected to revolve the counter-shaft *o*, which carries the gear 4 at its outer end, and thus furnishes the power for operating the machine. *B* is an ordinary snow-plow attached to the front of the car, which can be brought into operation when light snow is encountered by raising the elevator in front, as before described. *b b* are bars provided with teeth or picks, and secured to the endless chains *c c* of the elevator, back of and close to the carriers *m m*, so as to receive support from them in their passage around the end of the plane. By means of these breakers ice and heavy snow can be broken up.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a machine arranged to convey the snow from the track to the top of a car, by scraper or carrier moved up an inclined plane by endless chains, the elevator *A*, hinged or

pivoted to a car in such a manner as to allow its front end to be raised, and its rear or upper end to be depressed, substantially as described, for the purpose specified.

2. The combination, with the car *c*, of the shaft 2, attached to the top of the car at or near the front end thereof, and the elevator *A* hinged at the under side of its frame some distance from its upper end to the shaft 2 aforesaid, constructed substantially as described and shown, for the purpose set forth.

3. In combination with the elevator of a machine for removing snow from railways, a transverse carrier, attached at its side to the upper end of the elevator, and having its chute open on top and on its side, where connected with the elevator, and the bottom of said chute slightly curved upward at the ends, and provided with cross-bars or scrapers moved upon the bottom by endless chains driven at an accelerated speed by gearing connected with the gearing of the elevator, as and for the purpose specified.

4. In combination with the elevator *A*, the transverse carrier *D*, hinged at the top of its side to the upper end of the elevator-frame, and having its chute open on top and on its side where connected with the elevator, and constructed of the two sections *s s*, provided with plates *p* attached to one of the sections, and sliding in grooves on the other section, substantially as described and shown, for the purpose set forth.

5. The combination, with the elevator *A*, of the breakers *b*, attached to the endless chains *c* back of and near to the carriers *m*, constructed substantially as and for the purpose described and shown.

6. The combination of the engine *E*, situate in the rear portion of the car *c*, and independent of the propelling-power, and connected with the counter-shaft *o*, the gear-wheel 4, pinion 3, wheels 1 and 5 and their intermediate gearing, and the elevator *A*, all constructed and combined to operate substantially as described, for the purpose specified.

7. The herein-described improved machine for removing snow from railways, consisting of the car *c*, provided with the snow-plow *B*, and carrying the engine *E* in one end, suitably connected with the counter-shaft *o* at or near the upper corner of the opposite end, the wheel 4 on the outer end of the counter-shaft *o*, wheel 3 on shaft 2, attached on top of the car, elevator *A*, hinged to shaft 2, wheel 1 on a shaft passing through the elevator-frame, and suitably connected to drive the shaft of the upper chain-wheels, wheels 5 on the outer ends of the last-mentioned shaft; pinions 6 sliding on gudgeons attached to the elevator-frame, and having bevel-gears 7 cast on their fronts; bevel-gears 8 on the end of the shafts of the chain-wheels in the transverse carrier; the transverse carrier *D*, hinged at the top of its side to the upper end of the elevator-frame, and having its chute open on top, and on its

side where connected with the elevator, and constructed of two sections, *s s*, provided with plates *p* attached to one of the sections, and sliding in grooves on the other section, and having its bottom slightly curved upward at the ends, and scrapers moved over the bottom by endless chains passing around chain-wheels driven by gears 8; the cross-bar 9, having turn-buckles on its ends clasping the hubs of pinions 6; lever 10 and breakers *b*, attached to the endless chains *c* of the elevator back of and close to the carriers *m*, and

the cable or chain *h*, all constructed and combined to operate substantially as described and shown, for the purpose set forth.

In testimony whereof I have signed my name and affixed my seal in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga and State of New York, this 4th day of December, 1875.

IRA H. SCHELL. [L. S.]

Witnesses:

E. LAASE,

CHRISTIAN HOLMSTRUP, Jr.