

F. C. HARRIS.  
RAILWAY SNOW CLEARING MACHINE.  
APPLICATION FILED OCT. 28, 1908.

924,902.

Patented June 15, 1909.

2 SHEETS—SHEET 1.

FIG. 1.

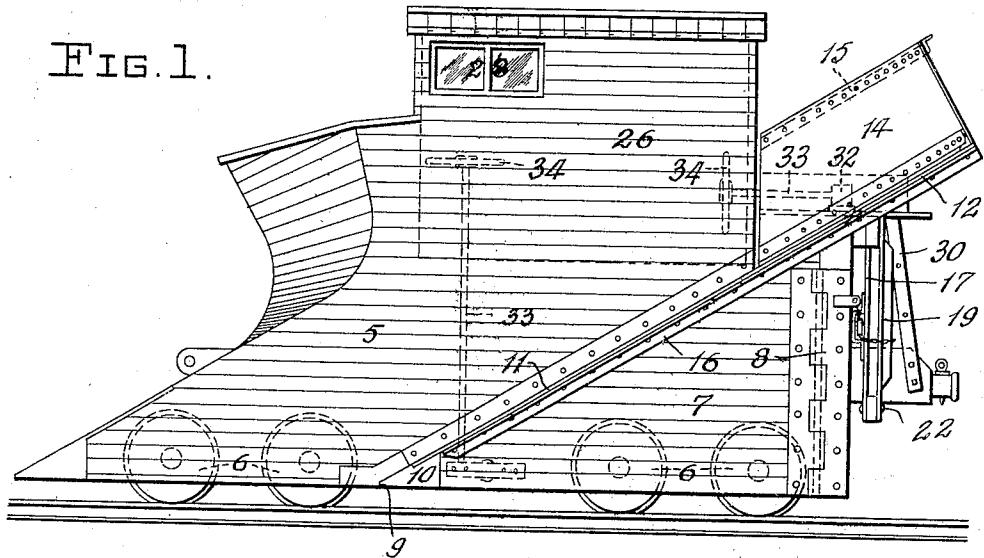
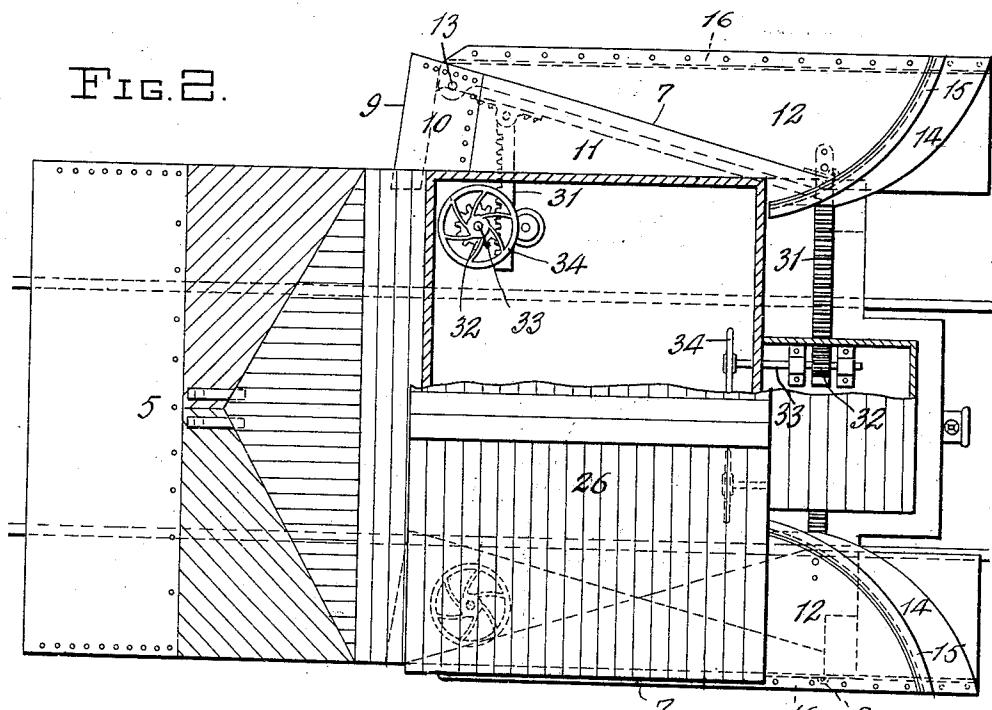


Fig. 2.



WITNESSES

Stuart W. Miller  
C. P. M<sup>o</sup> McKenzie

## INVENTOR

FREDERICK C. HARRIS

— TELLERIE L. HARRIS  
by *Frank F. Folsom, Jr.*

F. C. HARRIS.  
RAILWAY SNOW CLEARING MACHINE,  
APPLICATION FILED OCT. 28, 1908.

924,902.

Patented June 15, 1909.

2 SHEETS—SHEET 2.

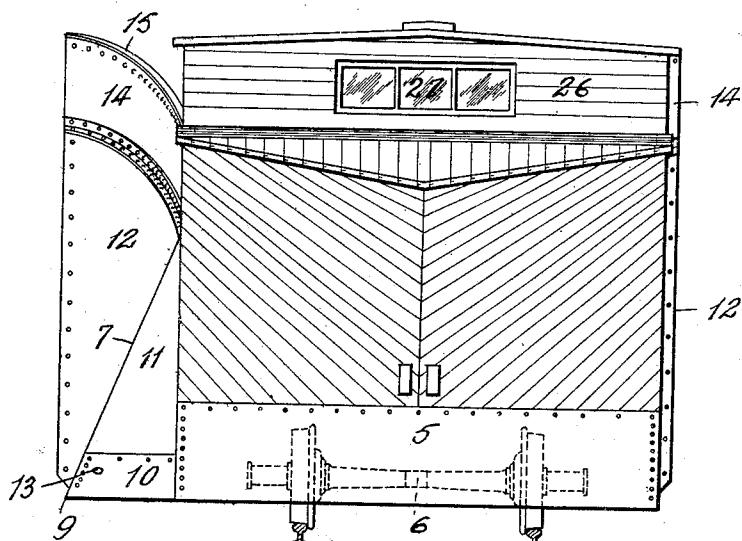


FIG. 3.

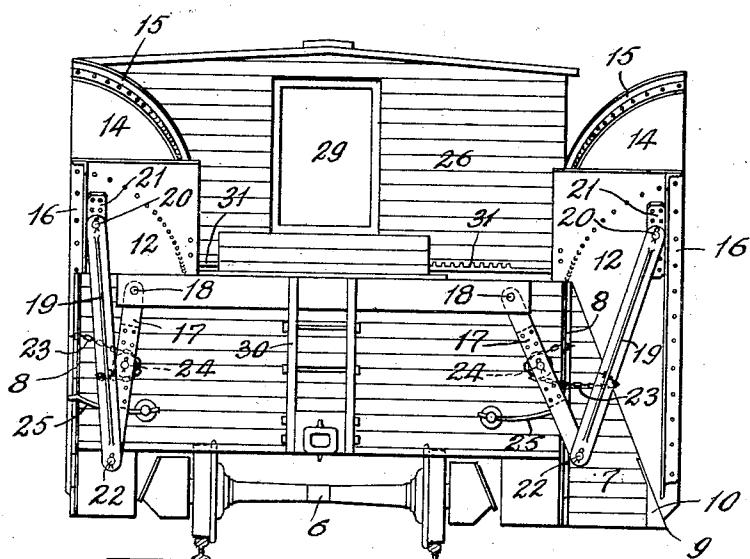


FIG. 4.

WITNESSES

Frank J. Muller  
B. R. McKenzie

INVENTOR

FREDERICK C. HARRIS.

Frank J. Muller atty.

# UNITED STATES PATENT OFFICE.

FREDERICK CLINTON HARRIS, OF SACKVILLE, NEW BRUNSWICK, CANADA.

## RAILWAY SNOW-CLEARING MACHINE.

No. 924,902.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed October 28, 1908. Serial No. 459,844.

*To all whom it may concern:*

Be it known that I, FREDERICK CLINTON HARRIS, of the town of Sackville, in the Province of New Brunswick and Dominion of Canada, have invented certain new and useful Improvements in Railway Snow-Clearing Machines, of which the following is a full, clear, and exact description.

My invention relates to improvements in railway snow clearing machines and the object is to provide a device that can be used in the ordinary manner for breaking out the track after a snow storm, and then immediately adjusted for widening the cut thus formed and throwing the snow removed to both sides of the track.

A further object is to provide a widening means which can be readily adjusted and drawn in when passing trains or objects close to the track.

To accomplish these objects, I provide a plow of ordinary form for breaking out the track in the usual manner. On either side of the plow and to the rear thereof, are secondary plows having the same inclination as the first. These secondary plows are hinged at the rear of the machine so that the points thereof may be swung out or in by a suitable mechanism. Inclined planes or chutes are provided at their lower or front ends near the point of the secondary plows. Mold boards are fixed to the upper or rear extremities of the chutes to throw the snow outwardly toward the fences on either side of the track.

Suitable mechanism is provided for moving the chutes in or out independently of the secondary plows. A suitable lookout compartment is provided at the top of the machine from where the adjustment of the various parts of the apparatus can be readily and easily effected.

In the drawings which illustrate my invention:—Figure 1 is a side elevation of the device. Fig. 2 is a plan view showing one of the secondary plows and chutes moved out in operative position. Fig. 3 is a front elevation similar to Fig. 2. Fig. 4 is a rear elevation corresponding to Figs. 2 and 3.

In the above defined figures, 5 designates a push plow of the ordinary railway type mounted on trucks 6. Triangular wings or secondary plows 7 are hinged on each side of the apparatus at 8 near the rear thereof, so that the points 9, which are each provided

with a strong metal nose 10, may swing outwardly, as seen in Figs. 2, 3 and 4. Each wing is provided with a triangular top plate 11 extending inwardly therefrom, and forming part of an inclined chute parallel with the front of the plow. The other portion of each chute is formed by a plate 12 which is pivoted at 13 to the nose of the wing and extends rearwardly and upwardly in the same plane as the top plate 11. A curved mold board 14 is fixed to the upper extremity of the plate 12, as seen in the drawings. The upper edges of the mold boards and the outer edges of the plates 12 are stiffened by angles 15 and 16, respectively, riveted thereto.

To prevent the outer top corners of the plates 12 from sagging, I provide bars 17 pivoted at their upper extremities 18 to the rear of the machine. Further bars 19 are pivoted at their upper extremities 20 to the brackets 21 fixed to the under sides of the plates 12. The lower extremities of these bars are united by pivots 22. Chains 23 are fixed to the machine body and the chains passed around pulleys 24 carried by the bars 17 and fixed to the bars 19, as seen in Fig. 4. These chains prevent sagging of the bars, and further keep the pivots 22 perpendicularly under the centers of the arcs formed between the bars, thereby forcing the upper extremity 20 of the bar 19, when moving outwardly, to move in a horizontal line. Scrub irons 25 are provided to keep the bars 17 and 19 clear of the body of the machine. A suitable lookout compartment 26 is provided at the top of the apparatus having front and side windows 27 and 28, respectively, and a door 29 at the rear reached by a ladder 30, or other suitable means. The mechanism for adjusting the wings and chutes is shown to consist of toothed racks 31 pivoted to the moving members and engaged by pinions 32 rotated by means of shafts 33 and hand wheels 34 located in the lookout compartment. This rack and pinion mechanism may be replaced by any other suitable mechanism which will quickly and easily move the parts in or out.

The operation of the device is very simple and can be readily understood from the drawings which show the wing and chutes extended in operative position on one side of the machine and folded or drawn in on the other side.

When breaking out a track after a heavy

storm, the wings and chutes are drawn in and the plow operated as an ordinary push plow. When the track is thus opened and the greater weight of snow removed, the 5 machine is transformed into a widener by moving the wings and chutes out so that as the apparatus is shoved or hauled along the track, the secondary plows or wings 7 cut away the snow on either side of the cut previously made. The snow thus loosened passes up the chute plates 12 and is thrown to each side by the mold boards 14, thus preventing it from falling back into the cutting.

15 The crew in the outlook 26 can, by means of the hand wheels 34 located therein, adjust the apparatus to suit varying conditions. For example, when passing water tanks, the upper or rear end of the plate 12 is drawn in. 20 As this plate is pivoted at its lower end 13, it will be seen that the upper end may be moved independently of the lower end, or of the wing 7. When passing a station platform, the wing may be drawn in until its point 9 25 clears the platform, while the upper end of the plate 12 remains out full width. When passing a train, the wing 7 and chute 12 may both be drawn in on the passing side without in any way affecting the corresponding parts 30 on the other side. Thus it will be seen that each of these movable parts is entirely independent of all the others and performs its own function regardless of whether the other parts are in operation or not. The outer top 35 corners of the chute plates 12 are prevented from sagging by the bars 17 and 19 which are connected, as shown in the drawings, by the chains 23. The arrangement of this chain causes each of the levers to move through 40 an equal arc and maintain the pivots 22 perpendicularly under the centers of the arcs formed between the levers, whereby the upper extremity of levers 19 move in a horizontal line, the drop due to the radial motion being compensated for by the rise of the pivots 22 at the lower extremity of the levers 17.

The advantages of the device will be obvious from the foregoing description and drawings.

50 Having thus described my invention, what I claim is:—

1. A snow clearing machine comprising a plow, secondary plows on each side thereof, chutes pivoted to said secondary plows, and 55 mold boards fixed to said chutes.

2. A snow clearing machine comprising a plow, adjustable secondary plows on each side thereof, chutes coöperating with said secondary plows, and mold boards at the discharge ends of said chutes.

3. A snow clearing machine comprising a plow, secondary plows on each side and to the rear thereof, means for adjusting said secondary plows, chutes pivoted to said second-

ary plows, means for adjusting said secondary plows, and mold boards at the discharge ends of said chutes. 65

4. A snow clearing machine comprising a plow, an adjustable secondary plow on each side of and to the rear thereof, means for moving said secondary plows inwardly and outwardly, chutes pivoted adjacent the front of the secondary plows, means for moving said chutes inwardly and outwardly independently of the secondary plows, and curved 75 mold boards at the discharge ends of said chutes.

5. A snow clearing machine comprising a plow, a secondary plow on each side of and to the rear thereof, hinged wings carrying said 80 secondary plows, inwardly extending top plates fixed to the upper edges of said wings, chutes pivoted to the secondary plows and lying in the same plane as said top plates, means for adjusting each of said secondary 85 plates separately and independently of the secondary plows, a curved mold board at the discharge end of each of said chutes, and means for maintaining said chutes transversely horizontal. 90

6. A snow clearing machine comprising a plow, a secondary plow on each side of and to the rear thereof, hinged wings carrying said 95 secondary plows, inwardly extending top plates fixed to the upper edges of said wings, chutes pivoted to the secondary plows and lying in the same plane as the top plates, means for adjusting each of said secondary plates, separately and independently of the secondary plows, a curved mold board at the 100 discharge end of each of said chutes, pivoted bars and chains coöperating to maintain said chutes transversely horizontal, and a lookout compartment located at the top of the machine and containing said adjusting means. 105

7. A snow clearing machine comprising a body having a plow at the front thereof, a secondary plow at each side thereof, to the rear of said plow, wings hinged to the rear of said body and carrying said secondary plows, inwardly extending top plates fixed to the upper edges of said wings, chutes pivoted to the secondary plows and lying in the same plane as said top plates, gearing for adjusting each of said secondary plows and wings separately and independently of the chutes, gearing for adjusting each of said chutes separately and independently of said secondary plows and wings, a lookout compartment located above the body of the machine, operating mechanism for said gearing located within said lookout compartment, a curved mold board at the discharge end of each of said chutes, body bars pivotally depending from the rear of said body, chute bars pivotally depending from the upper ends of the chutes, pivots connecting the lower extremities of said bars, pulleys carried by said body bars, 115 120 125

and chains fixed to the body passing around said pulleys and fixed to the chute bars whereby the radial motion of said bars is maintained equal.

5 8. In a snow clearing machine, the combination with a plow, a secondary plow on each side thereof, chutes adjacent said secondary plows, means for adjusting each of said secondary plows separately and independently

of said chutes, and means for adjusting said 10 chutes separately and independently of the secondary plows.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

FREDERICK CLINTON HARRIS.

Witnesses:

F. W. EMMERSON,  
H. H. COLEMAN.