

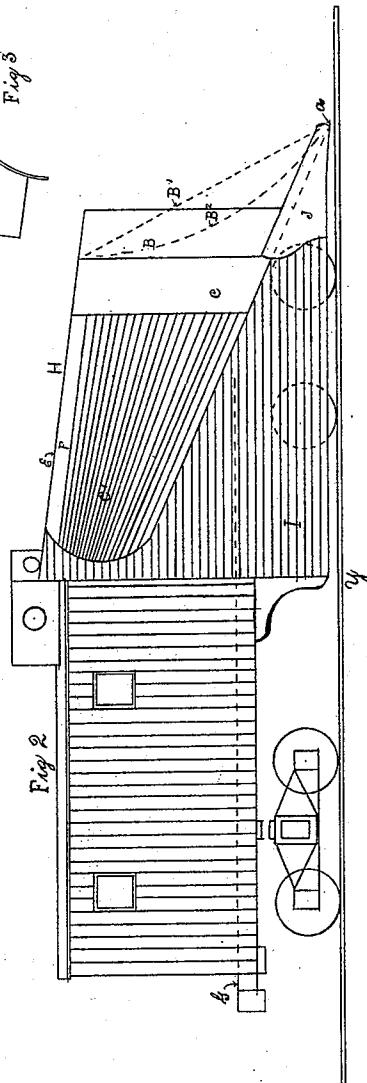
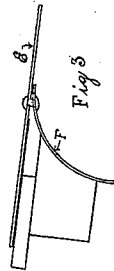
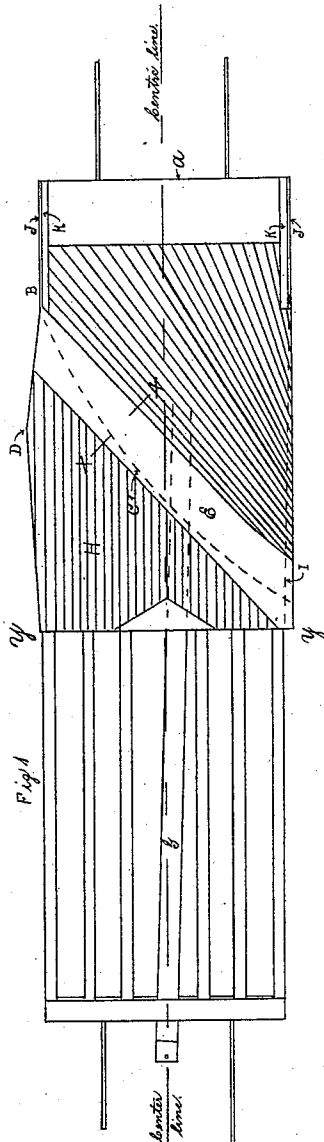
(No Model.)

2 Sheets—Sheet 1.

J. W. RUSSELL.
SNOW PLOW.

No. 470,951.

Patented Mar. 15, 1892.



Witnesses:
A. A. Jewell
J. P. Prince

Inventor
James William Russell.

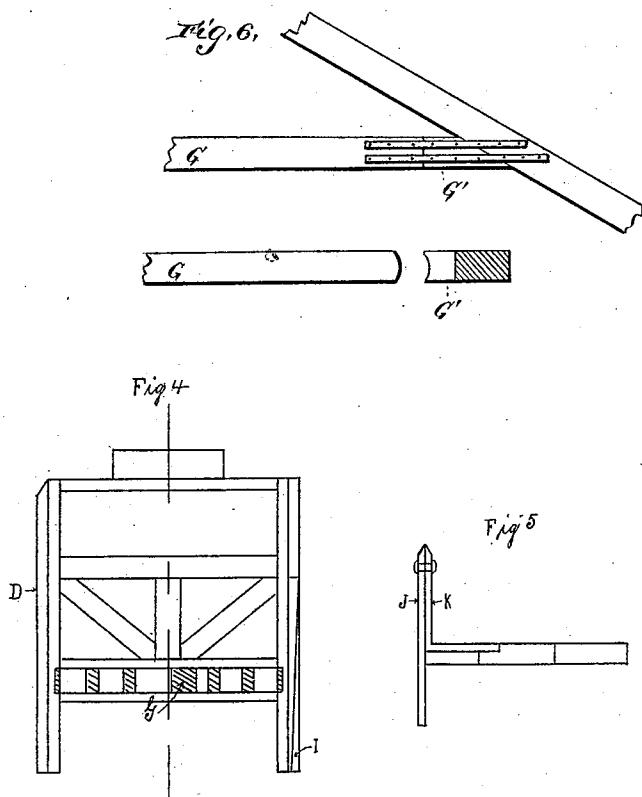
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UNITED STATES PATENT OFFICE.

JAMES WILLIAM RUSSELL, OF BOSTON, MASSACHUSETTS.

SNOW-PLOW.

SPECIFICATION forming part of Letters Patent No. 470,951, dated March 15, 1892.

Application filed November 26, 1890. Serial No. 372,745. (No model.)

To all whom it may concern:

Be it known that I, JAMES WILLIAM RUSSELL, of Boston, in the county of Suffolk, State of Massachusetts, have invented new and useful Improvements in Railroad Snow-Plows; and I do hereby declare that the following is a full and exact description of the same.

The object of this invention is to provide a snow-plow for use upon roads with more than one track, or double-tracked roads. Plows for such roads should throw all the snow in one direction—that opposite to the second track. This style of plow may also be used on a road with but one track, and it is especially desirable upon such a portion of a single-track road as where there are hills or other features that make it desirable to throw all the snow one way, this style of plow being sometimes called a "side-hill plow."

The efficiency and safety of plows to throw snow in but one direction has been very little.

This invention will minimize the resistance offered by the snow, and especially that against the share or mold-board, and also the effect from such side pressure, enabling the plow to handle a greater body of snow, to throw it far away and with much less liability to leave the rail, and make generally a more efficient plow. These results are produced by such form of construction as is shown in the following specifications and drawings, herewith filed as part thereof, in which the same letters of reference denote the same parts in all the views.

Figure 1 in rear half is a top view on line top of sills to show position of coupling-bar G. The front half shows top view of fender or hooding E, shows also side of plow opposite to the discharge of the snow, built out or widening D, and shows also top of divide H. Dotted line shows also the concave horizontally in share c' . Dotted line also shows side I, that slopes under and inward, shows also side cutters of metal plates J and K, and shows also horizontal cutting-edge a . Fig. 2 is a side elevation showing sloping side I, also side cutter J, also inclined top of divide H, fender E and F, cutting-edge or divide B B' B^2 , and also share or mold-board c , with concave c' in same. Fig. 3 shows section of fender E and F on line $x x$, enlarged. Fig. 4 is a cross-section of plow at $y y$, showing sloping side

I, widening side D, and coupling-bar G. Fig. 5 is an enlarged view of side cutter J and K. Fig. 6 shows long coupling-bar G, united to the incline-timber by chock G' and iron straps.

This plow consists of a thoroughly-built car upon trucks, the front end having an inclined plane, with a stationary or permanent share or mold-board diagonally across the incline from the outside of one rail to the outside of the other rail to throw all the snow in one direction.

The plow at the horizontal cutting-edge a is covered with steel plate on both its upper and under sides. The front end of the share c is at a point up the incline or back from the horizontal cutting-edge a some five feet, more or less. The front end of share c is covered with steel plate of about one-eighth of an inch thick and about three feet wide, with its front edge securely riveted to the steel plate forming the divide or cutting-edge B. This plate forming cutting-edge B should be of about one-fourth of an inch thick and extend along the side of the plow some five or six feet and from bottom to top. The front end of divide or cutting-edge B is preferably at a point up the incline or back from the horizontal cutting-edge a some three feet, more or less. The cutting-edge or divide B may run slanting, like dotted line B' , or be curved, like dotted line B^2 . The cutting-edge or divide B may commence on a line with cutting-edge a or in advance of said edge a . The share c commences back of the cutting-edge B or B' or B^2 some two feet, more or less. The advantage of this new form of construction is that the plow gets under the snow and weighted upon the track before the side pressure from snow begins, and the snow being lifted and loosened from the mass and lifted above that at the side of the plow the snow can then be thrown far away with but small power compared to plows now built, and the side pressure and danger of derailment therefrom is reduced more than one-half.

The plow at the side opposite to the discharge of the snow from or near the cutting-edge B is built out or widened gradually to some seven inches, more or less, the widest part D being five feet, more or less, back of the cutting-edge B to give some pressure each side of the divide at the front, where a small

amount of pressure has much effect. Thereby all side pressure upon the share is overcome until the snow gets up the incline and over the trucks, which can withstand the pressure.

5 From the widest part D the plow gradually narrows to the parallel side rear.

The share *c* runs diagonally across the incline in a curved line rearward *c'*, Fig. 1, the share midway from end to end being some
10 eighteen inches, more or less, back from a straight horizontal line from end to end of share, the share thereby being curved or concave both horizontally and vertically, making an easier run for the snow.

15 The fender or hooding is made, preferably, of two pieces of steel, as shown in detail drawing, Fig. 3, the under sheet F being about one-eighth of an inch thick and preferably concave. The upper sheet E is about one-
20 fourth of an inch thick and straight or flat and projecting forward of the under sheet, being riveted together and secured to the plow, the front or cutting edge offering but little resistance when the plow is run into
25 snow deeper than its height. The upper sheet E may be used separately, giving a better fender than common forms. In the front section of the plow the side I from front to rear on a horizontal line inclines inward; also from
30 the cutting-edge of inclined plane to the bottom of the same side the side slopes inward or under, making the plow at cutting-edge of inclined plane wider than the parts that follow to prevent any side bind or resistance from
35 snow.

The sides of the plow-front at the edge of the inclined plane are provided with side cutters, preferably of two pieces of steel-plate about one-fourth of an inch thick, piece J and
40 flanged piece K, secured to the plow in position shown and their upper edges riveted together. These cutters should extend up the inclined plane some few feet and be some six inches (more or less) high above the incline.

45 The plow receives its propelling power by means of a long coupling-bar G, the front end being united to the plow preferably near the center of the front truck. The rear end should be free to oscillate when the plow is upon a
50 curve. This coupling-bar G may only extend part way to the front of the plow. In either case it should connect to a correspondingly heavy timber secured in the frame of the plow and the connection have a quarter-circle (more
55 or less) joint connecting the bar to the plow. The joint should have straps of iron each side of timbers to make the connection secure. (See Fig. 6.) This coupling-bar G lies between the sills, but is independent of the sills.
60 This bar G may be put in the plow straight, but preferably will be put on an angle, as shown in Fig. 1, the front end being some ten inches, more or less, off the center toward the discharge of the snow to push the plow nearer
65 in a line opposite to the line of pressure from snow upon the share, and thereby overcome somewhat of the side pressure. The face of

the buffer on the rear end of this bar G to unite with the engine should be square with the sides of the plow.

The top of the divide H slants upward from front to rear or is inclined, whereby the plow will be wedged upon the rail when it is run into snow deeper than the height of the plow.

These specifications show a plow to run on the right-hand track. It is obvious that in a plow to be run on the left-hand track it is necessary to run the share across the incline in the opposite direction, and also to change the angle of the coupling-bar G to correspond, and built-out side D also, the principles in the plow remaining unchanged.

Having thus described my invention, what I claim as new, and wish to secure by Letters Patent, is—

1. In a snow-plow, a share extending from the outside of one rail to the outside of the other rail, the front end of the share *c* commencing back or in the rear of the horizontal cutting-edge *a* and the divide or cutting-edge B, substantially as described.

2. In a snow-plow with a share extending from the outside of one rail to the outside of the other rail, the plow at the side opposite to the discharge of the snow commencing at or near the cutting-edge or divide B, built out gradually or widening some seven inches, more or less, at the widest part D, front of the center of the plow, substantially as described.

3. In a snow-plow, the share extending from the outside of one rail to the outside of the other rail, the front end of the share commencing back or in the rear of the horizontal cutting-edge *a*, in combination with a long coupling-bar G, united to the plow some feet front from the rear, substantially as described.

4. In a snow-plow, the coupling-bar G, extending from the rear forward, with the front end united to the plow off the center from side to side to apply the propelling-power on an angle, substantially as described.

5. In a snow-plow, the long coupling-bar G, with its front end convex, in combination with the chock G', concave, constituting a quarter-circle (more or less) joint, substantially as described.

6. In a snow-plow, a share extending from the outside of one rail to the outside of the other rail, the front end of the share commencing back or in the rear of the horizontal cutting-edge *a*, in combination with the incline or slanting upward of the top of the divide H from front to rear, substantially as described.

7. In a snow-plow, a stationary share extending from the outside of one rail to the outside of the other rail, the front end of the share commencing back or in the rear of the horizontal cutting-edge *a*, in combination with the side cutter J, of one piece of metal plate, secured at the front edge of the inclined plane, substantially as described.

8. In a snow-plow, a share extending from

the outside of one rail to the outside of the other rail, the front end of the share commencing back or in the rear of the horizontal cutting-edge *a*, in combination with the side cutter at the edge of the inclined plane, combined of two pieces of metal plate, straight piece J and flanged piece K, secured together and at the side of the plow, substantially as described.

9. In a snow-plow, in combination with the top of the divide of the plow, the straight or flat metal plate E, secured to the plow and projecting front in advance of the mold-board or share, substantially as described.

10. In a snow-plow, in combination with the top of the divide of the plow, the straight or

flat metal plate E, secured to the top of the plow and projecting front in advance of the share, combined with the metal plate F, secured to the top front of the share and the metal plate E, substantially as described.

11. In a snow-plow, the side I of the front section sloping from the cutting-edge of the incline, the side inward toward the rail, both rearward and downward or horizontally and vertically, substantially as described.

In testimony whereof I sign my name in the presence of two witnesses.

JAMES WILLIAM RUSSELL.

Witnesses:

A. H. SPENCER,

JAS. P. PRINCE.