

(No Model.)

J. M. MANSFIELD.

SNOW PLOW.

No. 387,524.

Patented Aug. 7, 1888.

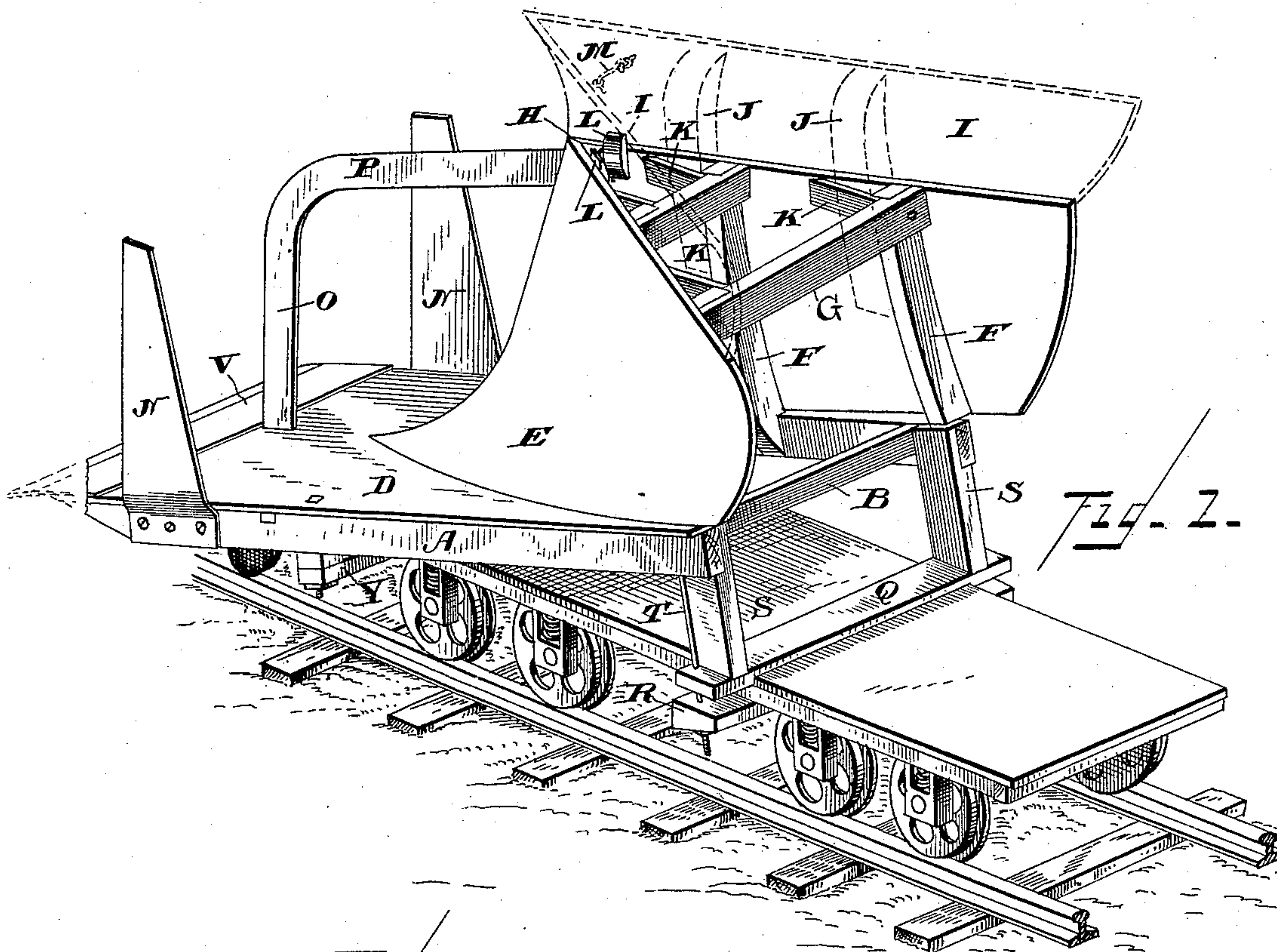
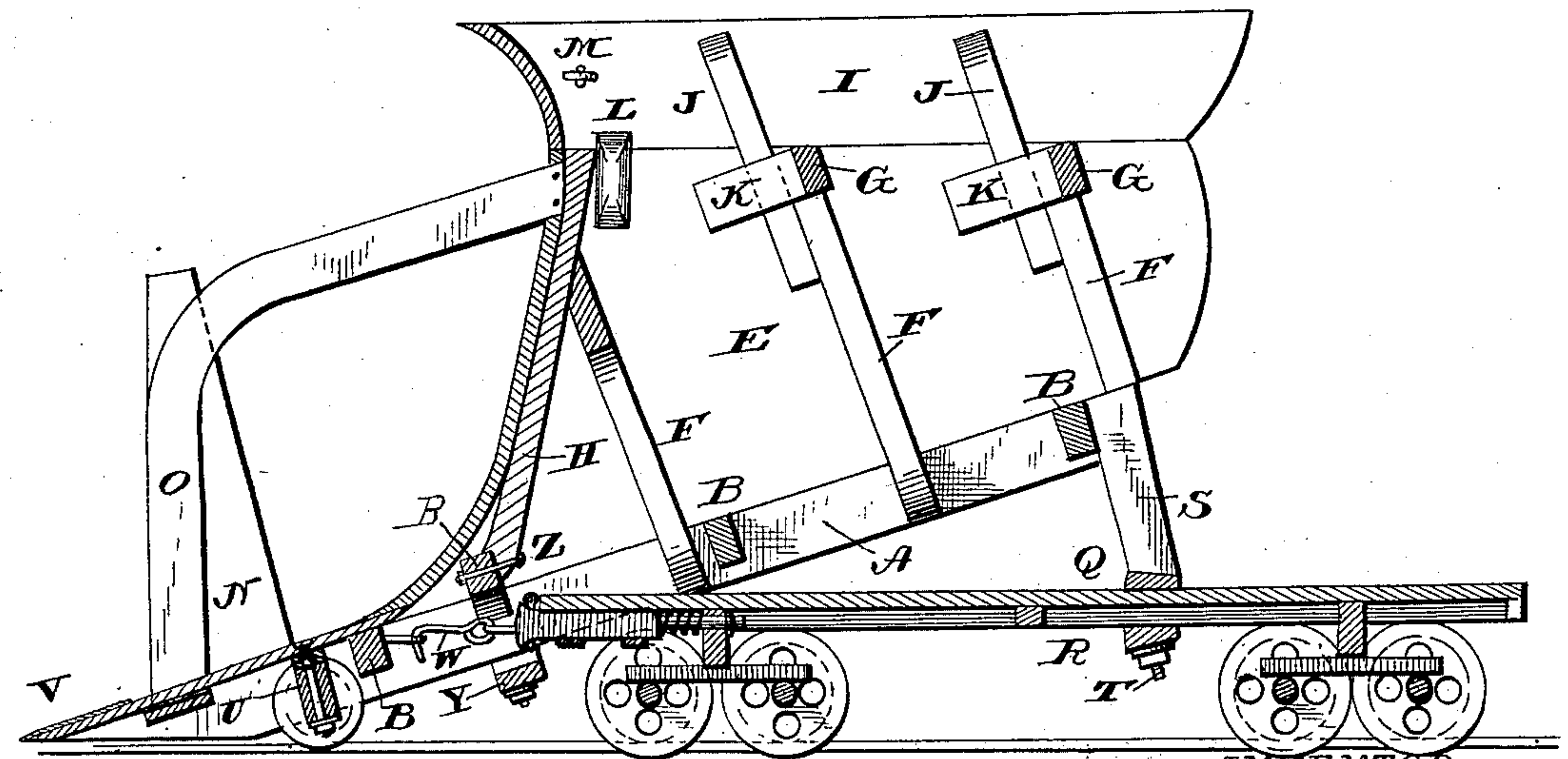


Fig. 1.



WITNESSES  
Frank L. Ourand  
Marcus L. Byng.

INVENTOR  
Joseph M. Mansfield.  
By W. S. Boyd, his Attorney.



# UNITED STATES PATENT OFFICE.

JOSEPH M. MANSFIELD, OF MANCHESTER, IOWA.

## SNOW-PLOW.

SPECIFICATION forming part of Letters Patent No. 387,524, dated August 7, 1888.

Application filed May 2, 1888. Serial No. 272,563. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH M. MANSFIELD, a citizen of the United States, residing at Manchester, in the county of Delaware and State of Iowa, have invented certain new and useful Improvements in Snow-Plows; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification, and in which—

Figure 1 is a perspective view of my improved plow, and Fig. 2 is a vertical sectional view of the same.

My invention relates to snow plows, and has for its object to produce such a plow as can be readily attached to or detached from an ordinary flat car, and thus avoid the necessity of constructing a car especially for the plow; and it consists in the improved construction and combinations of parts of the same, as will be hereinafter more particularly described, and pointed out in the claims.

Referring to the accompanying drawings, in which the same letters of reference indicate corresponding parts in each of the figures, A indicates the side pieces of the plow, which are secured together at a little greater distance apart than the width of a car by the cross-pieces B B. Upon these side pieces the apron or bottom of the plow D is secured, and upon the apron rests the lower edges of the furrow-boards E E. These boards, which meet at a point about midway of the apron and have such a curve as will throw the snow off to the sides of the track, are secured to each other at their front edges and diverge from each other toward the rear of the plow, and are kept from being crushed in toward each other by the snow by means of the vertical ribs or braces F F, which are secured to the side pieces, A A, at their lower ends and are braced at their tops by the cross-pieces G G. A central rib, H, is secured at its lower end to one of the cross-pieces B of the side pieces, and extends up directly at the rear of the meeting edges of the furrow-boards. The outer sides of each of these ribs F and H are

curved to correspond with the curvature of the furrow-boards, so that the boards have a good solid backing to resist all strain brought to bear against them, the central rib affording great strength at a point where it is greatly needed. To add a greater height to the furrow-boards in case of extra deep drifts, side boards, I I, can be put on the tops of the boards by means of standards J J, which project below the lower edge of the side boards, and which will fit in triangular spaces formed by the inner faces of the furrow-boards, the ribs, and a short block or brace, K, which is secured at its one end to the furrow-board and at the other end to the inner side of the rib. To fit within these receptacles the ends of the standards are made triangular, and are slightly curved to correspond with the curvature of the furrow-boards. Additional braces are provided for the side-boards by means of two short standards, L L, which are secured to the furrow-boards near their front or meeting edges and project but slightly above their upper edges, so that when the side-boards are not in use the tops of these short standards will not be in the way, and still be plenty high enough to give a good support for the side-boards, especially as the front ends of the side-boards meet and bear against each other, and are also held by means of a hook, M, in one, which engages with a staple or eye in the other one. By this construction the tops of the side-boards can be made to incline outwardly, which will assist in throwing the snow as far from the track as possible after it has been elevated high enough to be operated upon by them. By making the rear ends of the furrow-boards narrower than the front ends, as shown, the tops of them, as well as of the side-boards, will be parallel with the track or top of the flat car upon which they are secured.

To assist in cutting the snow, I use three vertical wings or cutters, N N and O, the two outside ones, N N, being partly triangular in shape, so as to give a good broad support at their bases, and gradually tapering to their tops, where there is less strength required. These two cut through the snow sufficiently far apart to permit of the passage of the entire plow without its coming in contact with the



sides of the cut, and thus add to the obstruction to be overcome. The middle wing or cutter, O, is provided with an extension, P, which is secured at its rear end to the front or meeting edges of the furrow-boards at about their tops, which will thus cut the bulk of snow to be removed in two, so that it can be more easily separated by the front of the furrow-boards and made to pass up their sides.

The plow is secured upon an ordinary flat car by means of a clamp composed of the two transverse bars Q and R, two vertical posts or supports, S S, and the two nutted bolts or rods T T. The upper one of the clamping-bars, Q, is secured to the lower ends of the uprights or posts S S and rests upon the top of the car, a shoulder at each end preventing lateral displacement, and the other bar is placed below the car and is drawn up tightly against it by means of the nuts upon the ends of the bolts or rods, the lower ends of the rods passing through the outer ends of the clamping-bars, their upper ends being secured to the side pieces, A A, of the plow, the rear ends of which rest upon and are secured to the upper ends of the uprights S S. By tightening the nuts upon the ends of the rods after the lower clamping-bar, R, has been placed in position, the bar is drawn very tightly against the car and the rear ends of the side pieces of the plow are held the more securely upon the tops of the supports, thus making a very secure fastening, and one which can be easily unfastened by simply removing the nuts from the ends of the rods, when the lower clamping-piece will fall off from its own weight and the car be withdrawn from under the plow.

The front of the plow is supported upon a small truck, U, which is swiveled to the bottom of the plow, so as to permit of its turning curves, and which travels upon the track just in front of the front end of the flat car to which the plow is attached. To permit the extreme front end of the plow to come close enough to the track, the front ends of the side pieces, A A, are cut off upon their under sides, as shown, coming to a point at the point of the plow, which will thus rest just above the track. If the apron of the plow is made of wood, either with or without a covering of metal, the point of the plow is preferably provided with a shear or plate, V, which will cut the snow above the track and add greater length of life to the point of the plow.

The front end of the car is attached to the plow by means of a hook, W, which connects with the draw-head and with a staple upon one of the cross-pieces B of the plow. The plow is further prevented from being thrown from the front end of the car by means of a keeper, Y, which is secured at its ends to the side pieces, A A, at a point just a trifle in advance of the front end of the car when the plow is in position upon the car. This will prevent the point of the plow from being raised to any great height, as the keeper will

be raised with the plow until it comes into engagement with the end of the car, and thus the entire weight of the car, and with it the plow and its load, would have to be thrown from the track before the point of the plow could be thrown out of position, especially as it is kept from lateral displacement by the side pieces, A A, being farther apart than the width of the car, and extending below the end of the car. Directly in front of the front end of the car is a cross-piece, Z, which is secured to the side pieces, A A, and also forms a support for the lower end of the central rib, H, and has its upper edges slightly curved, upon which are secured the lower portions of the points of the furrow-boards. The middle of this cross-piece is cut away or curved to prevent its interfering with the draw-head of the car, while its ends form abutments, against which the front end of the car bears when at work in a drift and assists the clamping device at the middle of the car to force the plow through the snow. This construction gives a free movement within certain limits to the front end of the car and to the plow, and still prevents their becoming disconnected or out of place.

In operation the plow is secured upon a car and as much power or force is applied to the rear of the car as will be sufficient to force the plow through the drift and throw the snow to the outside of the track, out of the way. As the apron of the plow is inclined, the snow is gradually elevated and pushed to one side as the plow advances until it is finally removed from the drift and an opening made, through which the plow and its motor pass to another drift.

Having thus described my invention, I claim—

1. The combination, in a snow-plow, of the side pieces, the cross-pieces, vertical ribs secured to the side pieces, cross-pieces at the tops of the ribs, an apron on the side pieces, and cross-pieces at the bottom, rearwardly-diverging furrow-boards secured to the ribs, braces secured to the tops of the ribs and to the inner surface of the furrow-boards, standards at the front ends of the furrow-boards projecting above their upper edges, and side-boards having downwardly-projecting curved standards, substantially as and for the purpose set forth.

2. The combination, in a snow-plow, of the side pieces, the cross-pieces, one of which is cut away upon its under side, a support at the rear end, and a keeper at the front end just below and to the rear of the cut-away cross-piece, and means for securing the front end of a flat car to the plow, substantially as and for the purpose set forth.

3. The combination, in a snow-plow, of the side pieces, supports at the rear end of the plow, a transverse bar secured to the lower end of the supports, two bolts secured to the side pieces and passing down through the



transverse piece, and a second transverse  
piece having holes at its ends and adapted to  
be secured upon the ends of the bolts below a  
flat car, substantially as and for the purpose  
5 set forth.

4. The combination, with a snow-plow, of a  
pair of trucks at the front end, a clamp at the  
rear end, and a keeper between the trucks and  
the clamp, whereby the plow may be secured

upon a flat car, substantially as and for the  
purpose set forth.

In testimony whereof I affix my signature in  
presence of two witnesses.

JOSEPH M. MANSFIELD.

Witnesses:

H. F. ARNOLD,  
HENRY HEYER.