

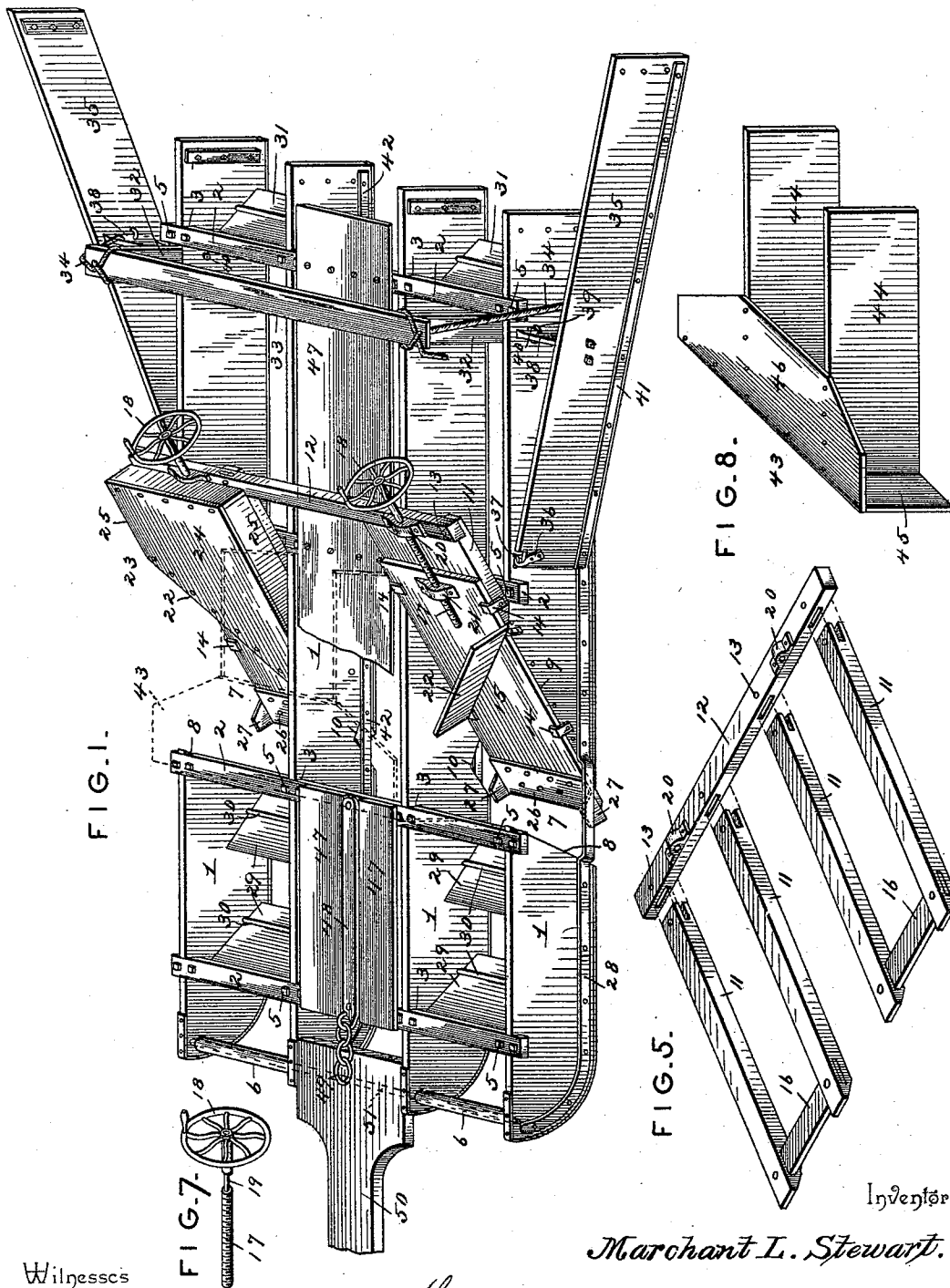
(No Model.)

2 Sheets—Sheet 1.

M. L. STEWART.
SNOW PLOW.

No. 525,165.

Patented Aug. 28, 1894.



Witnesses
Harry L. Amer.
23 Duane

By His Attorneys.

Marchant L. Stewart.
C. Snow & Co.

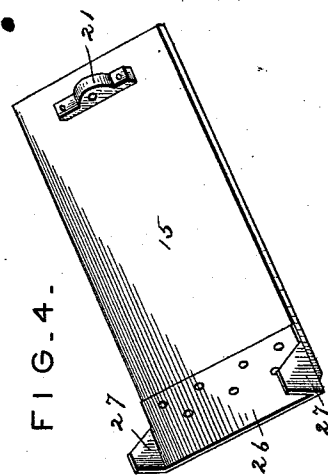
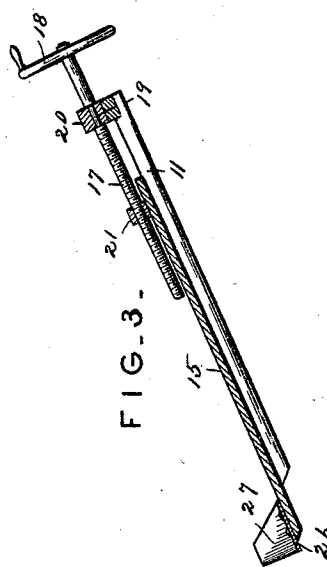
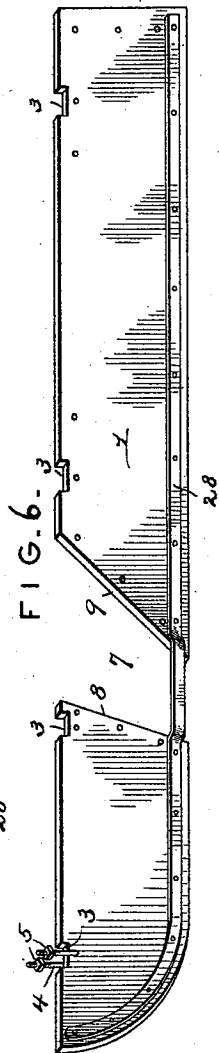
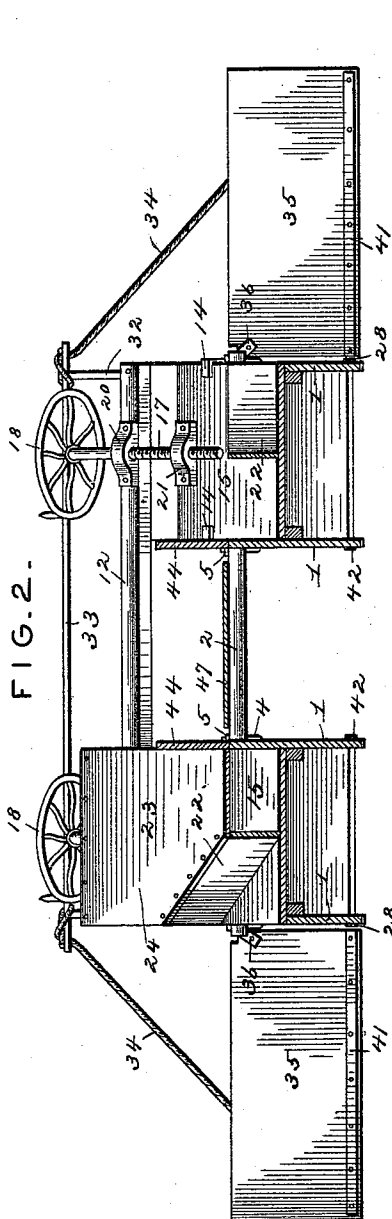
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UNITED STATES PATENT OFFICE.

MARCHANT L. STEWART, OF MAPLETON, MAINE.

SNOW-PLOW.

SPECIFICATION forming part of Letters Patent No. 525,165, dated August 28, 1894.

Application filed April 17, 1894. Serial No. 507,906. (No model.)

To all whom it may concern:

Be it known that I, MARCHANT L. STEWART, a citizen of the United States, residing at Mapleton, in the county of Aroostook and State of Maine, have invented a new and useful Snow-Plow, of which the following is a specification.

My invention relates to an improvement in snow plows for clearing country roads; and the primary object of the invention is to provide a machine, by which the road may be cleared so as to make two paths for the horses to travel in, and leave the remainder of the road reasonably full of snow for permitting the passage of the sleighs. This object I attain by the peculiar construction and combination and arrangement of parts which will be more fully described hereinafter and finally embodied in the claims. It is in these features that my invention lies.

Referring to the accompanying drawings: Figure 1 represents a perspective view of my complete machine, with the cover of one clearing blade removed to disclose the parts beneath. Fig. 2 is a cross section of the machine. Fig. 3 is a section of one of the clearing blades. Fig. 4 is a detail perspective of the same. Fig. 5 is a detail perspective of the skeleton frame upon which the blades are mounted. Fig. 6 is a detail perspective of one of the outer runners. Fig. 7 is a similar view of the screw bolt for actuating the clearing knives. Fig. 8 is a similar view of the combined snow guide and seat.

The machine is constructed with four parallel runners, designated by the reference numerals 1. These runners are connected by the cross braces 2, which extend from one to another and which are secured thereto by means of the recesses 3, formed in the runners and by the clips or yokes 4 which pass through the runners and braces and are secured in place by nuts 5. In addition to the braces 2, I provide the braces 6, which are arranged at the forward extremity of the runners and serve to connect the outside runners with those adjacent to them, though the middle runners are not connected to each other by these braces, 6. Formed in the outer runners and extending entirely through them are the openings 7 which are formed with the approximately vertical front edges 8 and the

inclined rear edges 9. The inner runners are provided at a point opposite the openings 7 with the notches 10, which are located at the lower edge of their respective runners and which are inclined rearwardly at an angle equal to that of the edges 9 of opening 7. Secured to the runners 1 directly adjacent to the openings 7 and 10 is the frame upon which the clearing blades or knives are mounted, and this frame consists of the four parallel bars 11, one for each runner, and arranged on the inner sides of the outer runners and on the outer sides of the inner runners and directly opposite each other. These bars, 11, are located with their lower ends on a line with the lower edges of the runners, and extend upwardly and rearwardly at an angle equal to that of the edges 9 of openings 7. The lower ends of each pair of bars are connected by bars 16. Fixed, by a tongue and groove connection, to the upper ends of the bars 11, is the cross beam 12, which extends from one of the bars 11 to another and entirely across the machine, whereby the bars are held rigid, while the bars are rigidly secured to their respective levers by means of the bolts 13.

Located on the bars 11 and on the outside runners as shown in Fig. 1 are the angular-guides 14, which project toward each other, and are adapted to embrace the clearing blade bodies 15. These devices, 15, consist of hard wooden boards, substantially rectangular in shape and of a width equal to the distance between each pair of runners, they being arranged between each outer runner and the one adjacent, and adapted to have a longitudinal movement in the guides 14. This movement is effected by means of the screw bolt 17, which is provided with an operating wheel 18 and an annular groove 19. By means of the wheel 18 the bolt is rotated, while the groove 19 is adapted for the reception of the bearing 20, whereby the bolt is held incapable of all movement excepting a rotary one.

The bolt 17 is screw threaded as before stated, and this portion of the bolt is adapted to operate in the threaded block 21 of the knife bodies 15. Thus, by revolving the bolts 17 the boards or body portions 15 may be moved longitudinally in either direction

The purpose of this will be seen hereinafter. Secured to the upper sides of the boards 15, and extending outwardly and upwardly from their inner edges are the snow deflectors 22, 5 which serve the double function of deflecting or guiding the snow outwardly and supporting the boxings 23. The boxings 23 are provided to protect the bolts 17, and consist of the top sections 24 secured to the side boards 10 25, the whole forming a casing or box in which the bolts 17 are respectively arranged and by which they are protected. It will be noticed that the upper edge of the beam 12 is raised above the bars 11, and this is done in order 15 that the said edge of beam 12 will lie in alignment with the corresponding edges of the boards 15, thus permitting the bolts 17 to be applied and to operate with perfect ease. Secured to the lower ends of the knife bodies 20 15 are the knives or blades proper, 26, which are arranged to engage the roadway, as will be more fully explained later on, and are provided with the ears or lugs 27. These lugs, 27, are two in number and are arranged one 25 on each side of the knives 26, and adapted to move in the notches 10 and openings 7 which are located directly adjacent to them. Those lugs, 27, which are adjacent to the notches 10, are of such a size that they will fit snugly 30 therein, and thus the boards 15 are guided, while those lugs which are adjacent to the openings 7 are arranged to lie against the respective bars 28 at points adjacent to said openings.

35 The purpose of the enlarged openings 7 is to permit the snow to pass off the boards 15 and the outer runners are provided with a metallic bar 28, which extend their entire length and which serve to connect them, since 40 they would otherwise be severed by the openings 7. By this means the snow may be taken out of that portion of the road which lies under the blades 26, and by means of the guides or deflectors 22, thrown off from the 45 machine as will be more fully described hereinafter. Located between each of the outer runners and those adjacent, are the snow crushers or packers 29, which are inclined forwardly from the lower edge of the runners 50 and which are secured in place by tie rods 30.

By means of the packers 29 the snow may be packed and reduced in bulk so that it can be more easily handled by the blades 26. Devices (numbered 31), similar to the pack- 55 ers 29, are arranged in the rear extremities of the runners and are in longitudinal alignment with their companions. Rigidly secured to and arising vertically from the rear ends of the outer runners are the standards 60 32, which project upwardly for a short distance and are provided at their upper ends with the cross beam 33, which operates to brace and render them rigid. These standards are each provided with the ropes 34, which 65 are adapted to operate with the wings 35.

The wings 35 are pivoted to the outer runners by means of the clips 36, which are se-

cured to the forward ends of the wings and adapted to pass through the eyes 37, which are in turn secured to the upper edge of the 70 outer runners, thus pivotally connecting the said runners and the wings. Rigidly secured to the inner sides of the wings and projecting inwardly and upwardly therefrom are the arms 38, which are one for each wing and 75 which are connected to the outer runners by means of the clips 39 and eye bolt 40. Attached to the wings 35 are the ropes 34, the function of which is to assist in holding the wings in rigid adjustment. Thus by tighten- 80 ing the ropes 34 the wings may be drawn, raised or lowered so as to regulate the depth which the wings enter the snow.

Rigidly secured to the outer edges of the wings 35, and extending their entire length, 85 are the strips of metal 41 which are provided to protect the wings from the blows of stones and other obstacles in the roadway, and to strengthen them as the strips or bars 28 strengthen the outer runners 1. Each of the 90 inner runners is provided with the bars 42, which are similar to the bars 28 in location and function, and therefore need no further description.

43 indicates a combined snow guide and 95 seat, which consists of the two parallel side boards 44, connected at their front ends by the board 45 and at their upper forward edges by the board 46. The boards 45 and 46 are joined to each other at their adjacent 100 edges, and the whole structure is located upon the middle and upper edges of the inner runners, so as to prevent the snow from being pushed inwardly from the boards 15, and therefore assist in the operation of throwing 105 the snow out laterally. In addition to this, the board 46 may serve as a seat for the driver of the plow. Boards 47 are provided and secured to the upper edges of the inner runners and operate to form a platform upon 110 which the aforesaid driver may stand, and by which the snow is prevented from rising between the inner runners. Connected to the forward one of the braces 2, and extending longitudinally with the runners, is the rod 48, 115 which projects a short distance forward of the front brace and is provided with the chain 49, which is attached at its front end to the tongue 50. The tongue 50 is also attached to the runners by means of suitable 120 bolts, and at the points 51, as may be seen in Fig. 1 of the drawings. The purpose of tongue 50 is, as is probably understood, to permit the attachment of the team, and it is by these means that the plow is drawn. 125

In operation, my machine is attached, by means of tongue 50, to a suitable team, and the boards 15 adjusted so that their knives will be in position to lift the snow off the surface of the road, and make that part over 130 which they pass as clear of snow as possible. The wings 35 are then adjusted according to the depth they are to cut, and so that they will throw the snow out to the sides thereof.

This adjustment may be effected by tightening the ropes 34 so as to raise or lower the wings, as may be desired. After the machine has been properly adjusted, it is moved
 5 along the road, and the snow will be scraped from that part of the road which is directly below the blades 26, pushed up the boards 15, and deflected outwardly by means of the deflectors 22. From this point the snow falls
 10 into the domain of the wings 35, and by their means it is pushed laterally and out of the roadway. It will be seen that by means of my invention roads may be cleared of snow at those points along which the horses travel,
 15 while the remainder of the road is left covered, so as to facilitate the easy passage of sleighs. The machine should be so adjusted that the wings 35 will sweep over the part of the road on which the sleigh runners pass,
 20 thus packing the snow that is left, and making it better for the passage of the sleighs.

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

25 1. A snow plow comprising the combination of four parallel runners, a snow clearing blade located between each outer runner and the one adjacent to it, and operating to remove the snow on that part of the road over which
 30 it passes, a threaded bolt by which the blade may be adjusted to different depths, and deflecting wings arranged on the sides of the machine and operating to throw laterally the snow primarily removed by the said blades,
 35 substantially as described.

2. A snow plow comprising the combination of four parallel runners, arranged in two pairs, a snow clearing blade located between each
 40 outer runner and the one adjacent to it and operating to remove the snow on that part of the road over which it passes, and deflecting wings arranged on the sides of the machine and operating to throw laterally the snow primarily removed by the said blades, substan-
 45 tially as described.

3. A snow plow comprising the combination of four parallel runners rigidly secured to each other, forwardly inclined packing boards lo-

cated between each outer runner and the one adjacent, and whereby the snow is reduced in
 50 bulk, a clearing blade located between each outer runner and the one adjacent to it, and directly in the rear of the packing boards whereby the snow on that part of the road
 55 over which the blades pass is removed, and deflector wings arranged on that side of the machine and operating to throw laterally the snow primarily removed by the said blades, substantially as described.

4. A snow plow comprising the combination
 60 of two parallel runners rigidly secured to each other, one of said runners having an opening in its side, a snow-clearing blade located between said runners and inclined downwardly and forwardly, means for raising and lower-
 55 ing the snow-clearing blade, and a deflecting wing connected to the outer side of the runner having the opening and just rearward thereof, substantially as described.

5. A snow plow comprising the combination
 70 of four parallel runners rigidly secured to each other and each of the outer runners having an opening formed therein and extending entirely therethrough, downwardly and forwardly inclined clearing blades arranged be-
 75 tween the outer runners and those adjacent, and contiguous to the openings in said outer runners, the blades having a longitudinal movement in their seats, rearwardly inclined deflector boards secured to the blades and
 80 operating to throw the snow off the blades and out the openings in the outer runners, a screw bolt for each blade and secured to the frame of the machine and operating to move the
 85 blades in their seatings whereby they may be adjusted to any depth, and wings secured to the outer runners and operating to throw laterally the snow primarily removed by the blades, substantially as described.

In testimony that I claim the foregoing as
 90 my own I have hereto affixed my signature in the presence of two witnesses.

MARCHANT L. STEWART.

Witnesses:

U. A. STEWART,
 GEO. H. SMITH.