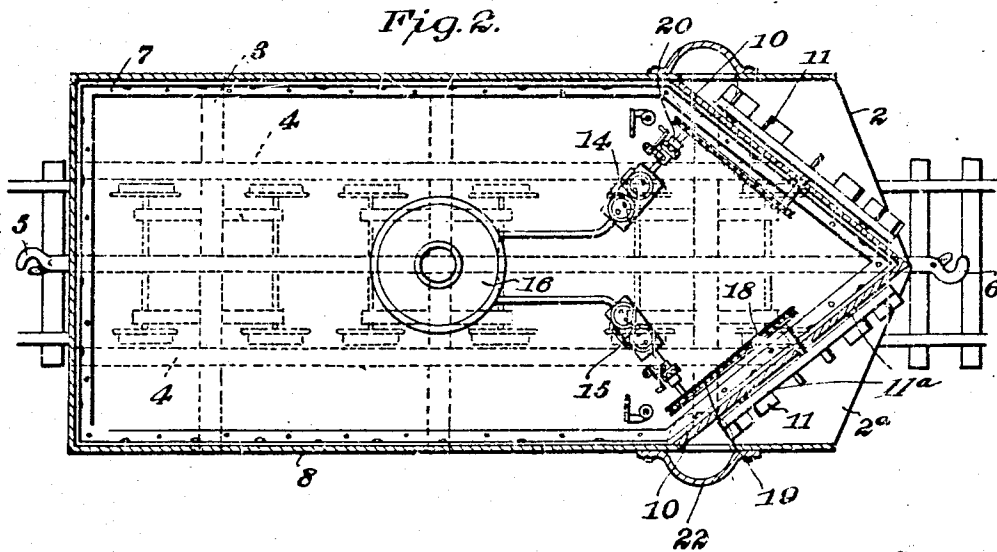
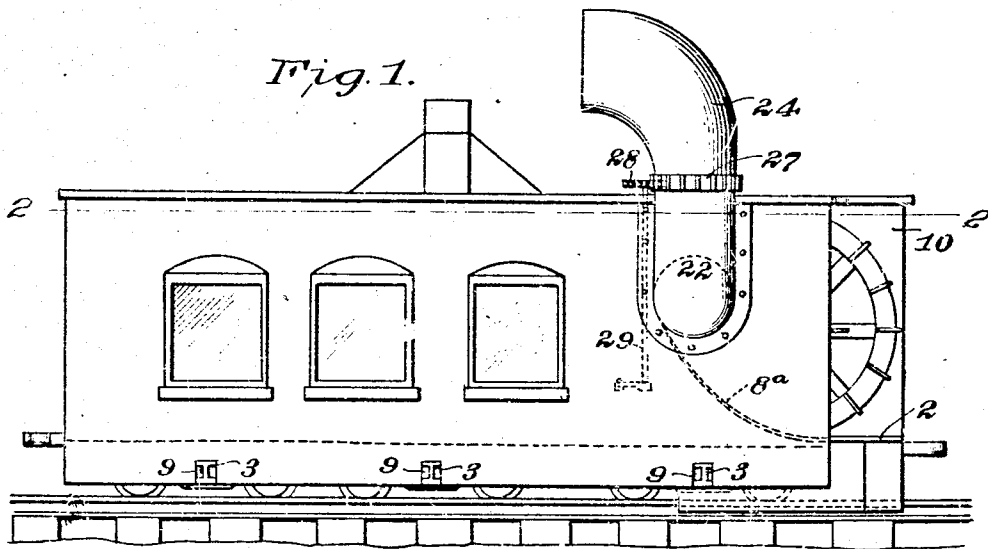


W. H. FERGUSON.
 ROTARY SNOW PLOW.
 APPLICATION FILED JULY 21, 1909.

957,503.

Patented May 10, 1910.

2 SHEETS—SHEET 1.



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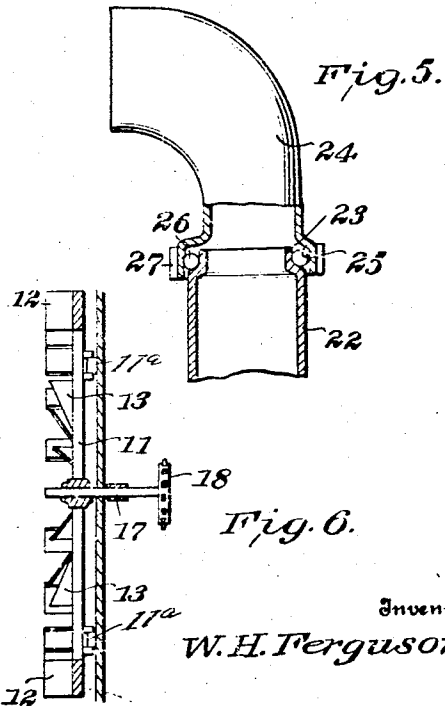
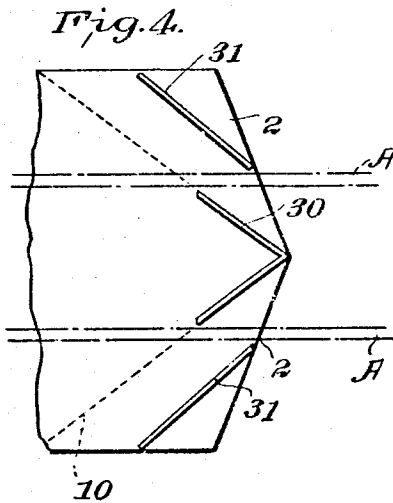
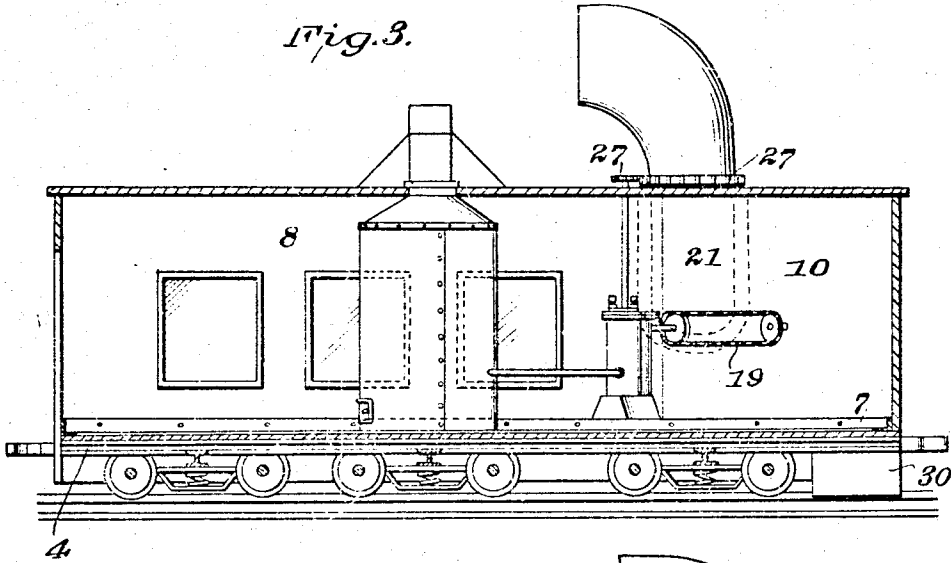
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W. H. Ferguson, Attorneys.

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UNITED STATES PATENT OFFICE.

WILLIAM H. FERGUSON, OF LA GRANDE, OREGON.

ROTARY SNOW-PLOW.

957,503.

Specification of Letters Patent.

Patented May 10, 1910.

Application filed July 21, 1909. Serial No. 508,755.

To all whom it may concern:

Be it known that I, WILLIAM H. FERGUSON, citizen of the United States, residing at La Grande, in the county of Union and State of Oregon, have invented certain new and useful Improvements in Rotary Snow-Plows, of which the following is a specification.

My invention relates to steam snow plows of the kind used on railroads, and in general terms it includes a car-like structure having its forward end pointed and provided on the two sides of the pointed end with rotary snow-removing wheels provided with blades which are adapted to cut into the snow to disintegrate it and carry it upward and fan it out through opposed blower pipes or chutes arranged on each side of the car. These chutes are provided with hoods which may be turned in any direction which it is desired to throw the snow. It will be understood that the wheels which cut and raise the snow also form fans whereby the disintegrated snow is blown upward through the chutes. These opposed cutting and fanning wheels are driven by any suitable mechanism mounted in the interior of the car, whereby either one or both of the cutting wheels may be used, depending upon circumstances.

The invention also consists in the details of construction and arrangement of parts as set forth in the following description and particularly stated in the claims appended.

The object of the invention is to provide a snow plow wherein the plow faces are formed with disintegrating wheels which shall cut up the snow and carry it away from the snow bank and force it out through blower chutes, and also to provide means whereby at the same time that the wall of snow at the front of the car is being cleared away, the snow between and on each side of the track rails may be thrown off to the side.

For a full understanding of the invention and the merits thereof, and to acquire a knowledge of the details of construction, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a side elevation of a snow plow constructed in accordance with my invention; Fig. 2 is a longitudinal horizontal section of the plow shown in Fig. 1 on the line 2-2; Fig. 3 is a longitudinal vertical section of said car; Fig. 4 is a fragmentary bottom plan view of the front end of the car; Fig. 5 is an enlarged detail, showing the mounting of the hood upon the upper end of

the blower chute; and, Fig. 6 is a diametrical section of one of the disintegrating wheels.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

My snow plow is mounted upon the ordinary trucks of a car, and includes a body formed practically like the body of the ordinary box car which is mounted upon these trucks. The body of the car is to be made of steel, and the sides are adapted to extend down on each side of the trucks, as shown in Fig. 1. The car may be provided with windows and a rear entrance, if desired. The bottom of the car has its forward edge slightly angled, as shown in Fig. 2. This bottom is supported in rigid relation to the sides by the transverse beams 3 and the longitudinal steel sills 4. As shown, there are three of these sills, one, 5, extending through the longitudinal middle of the car and provided at opposite ends with the draw bars 6. The lateral sills extend to the front inclined walls of the car body and brace the same. The floor of the car is connected to the side walls thereof by the angle irons 7. The object of this combination of longitudinal sills, transverse beams and the angle irons 7 is to brace the car body against shock, and particularly to hold the inclined front wall of the car against strain and to brace the same. The side walls 8 of the car body are cut away as at 9 to fit over the transverse beams 3 so that a smooth outer surface is provided. The front walls of the car body are convergently inclined as at 10. The rear ends of the front wall start somewhat back of the forward extremity of the side wall 8 so that an angular pocket is formed between the forward ends of the side walls 8 and the rear ends of the front walls 10, the floor 2 extending outward beneath this pocket, as at 2^a. Mounted on each of the inclined faces 10 is a rotary wheel 11 which is shown in detail in Fig. 6. This wheel 11 is of any suitable construction and is provided on its rear face with antifriction rollers or ball bearings 11^a which bear against the inclined faces 10 of the plow and act to support the body of the wheel against the pressure of snow as the plow is forced into the snow bank. If it were not for these bearings, the rotary wheel would be deflected and bent inward so that in time it would be jammed against the face of the plow. The wheel is

provided with two series of blades. The outer blades 12 are preferably rectangular in plan and project outward at right angles to the plane of the wheel 11. These blades are located on the circumference of the wheel 11 and act as fans. Inward of the blades 12 are the triangular blades 13 which act as knives to disintegrate and cut up the bank of snow into which the plow is being forced. Of course the blades 12 also act in this manner, but in addition thereto have the peculiar function above stated of fanning the snow back into the pocket before referred to.

The wheels 11 may be driven in any suitable manner, preferably, however independent of each other by means of two independent engines 14 and 15 located within the car, these engines being supplied with any suitable motive power. As shown, the engines are connected to a boiler 16. Any desired gearing may be used for driving the wheels 11 from the engines. I have shown for this purpose each of the wheels 11 provided with an inwardly projecting shaft 17 which extends through the wall 10 and carries on its inner end a sprocket wheel 18 which is driven by a sprocket chain 19 from a sprocket wheel on the engine shaft 20. The sides 8 at their forward ends, just forward of the junction of the sides with the inclined walls 10, are cut away as at 21, or otherwise formed to accommodate an upwardly extending chute 22 which is attached to the body of the car on the exterior thereof. This chute 22 at its upper end is formed with a raceway 23 (see Fig. 5) and carries upon it a rotatable hood 24, the lower end of this hood being angularly flanged as at 25 to project over the raceway formed in the upper end of the chute 22. Antifriction balls 26 are carried in the raceway, and by this means the hood 24 is made rotatable on the upper end of the chute 22 so that the hood may be directed into any desired direction. For the purpose of turning the hood, I provide a toothed wheel 27 which surrounds it and is made rigid with the hood 24, this wheel intermeshing with a pinion 28 mounted on a shaft 29 which projects down through the car roof and is provided with a handle or other means whereby the hood 24 may be rotated by hand.

The forward end of the car platform or floor beneath the inclined wall 10 is provided with the angular plow blades 30 which are adapted to extend downward between the rails A of the track and exteriorly of the angular blades 30 the body is also provided with the blades 31. These are parallel to the blades 30, but are spaced from them so as to cut the rails A between their forward ends and the rear ends of the blades 30. Thus the space between the track is cleared of snow and the space immediately exterior of the track or rail is

cleared of snow, the snow being thrown upward where it will be out of the way.

The operation of my invention will be evident. The snow plow is attached to the front of an ordinary train, or may be self-propelled, as desired. As it plunges into the snow bank, the wheels 11 are rotated downward and rearward in the direction of the hands of a clock. This rotation of the wheels cuts up and disintegrates the face of the snow bank against which the plow is forced, and the rotation of the wheels acts to throw the snow rearward and upward and to force a current of air upward and outward through the chute 22 and the hood 24, thus blowing the disintegrated snow out through the chutes and hoods and off beyond the side of the track.

While I have shown what I believe to be the best embodiment of my invention, it is to be understood that I do not wish to be limited to the details shown, as the invention might be embodied in a number of different forms, without departing from the spirit thereof.

Having thus described the invention, what I claim is:—

1. A snow plow comprising a car body having a wedge-shaped vertical end, disintegrating wheels carried upon the faces of said wedge-shaped end, and chutes arranged adjacent to said wheel, through which the snow is forced by the rotation of the wheel.

2. A snow plow having wedge-shaped front ends, disintegrating wheels rotatably mounted on the sides of the wedge-shaped ends, and chutes arranged in alignment with the circumference of the wheels but rearward of the shafts of said wheels, said chutes extending out at a tangent to the wheels.

3. A snow plow comprising a car body having a wedge-shaped vertical end, rotatable disintegrating wheels carried on the opposed faces of the wedge-shaped end, each wheel having thereon a series of fan blades, and chutes mounted on the car body rearward of but adjacent to the disintegrating wheels, through which the snow is forced by the rotation of said wheels.

4. A snow plow having a wedge-shaped front end, disintegrating wheels rotatably mounted on the sides of the wedge-shaped end, and chutes arranged in alignment with the wheels but to the rear of the shafts thereof, said chutes extending upward at a tangent to the wheels, curved hoods mounted upon the chutes for rotation around the axes of the chutes, and mechanism for rotating said hoods.

5. A snow plow having a wedge-shaped front end, disintegrating wheels rotatably mounted on the sides of the wedge-shaped end, chutes arranged in alignment with the

wheels but to the rear thereof, said chutes extending upward at a tangent to the wheels, outwardly curved hoods rotatably mounted upon the upper ends of the chutes, each provided with an annular gear wheel, a pinion engaging each of said gear wheels, and mechanism for operating said pinion to rotate the hoods.

6. A snow plow having a wedge-shaped front end, disintegrating wheels rotatably mounted on the sides of the wedge-shaped end, pockets carried upon the sides of the plow, into which the rearward portion of each wheel projects, and chutes extending upward from said pockets.

7. A snow plow having a wedge-shaped front end, disintegrating wheels rotatably mounted on the sides of the wedge-shaped end, fan blades carried by said wheels, and chutes mounted adjacent to the wheels and extending upward at a tangent thereto.

8. A snow plow including a car body having converging walls at its forward end, disintegrating wheels mounted on the opposed faces of the plow walls, means carried in the car for rotating said wheels, an inner series of outwardly projecting cutting blades mounted on the face of the disintegrating wheels, an outer series of fan blades on the face of said walls, and ball bearings interposed between the rear faces of said wheels and the face of the adjacent plow wall.

9. A snow plow including a car body having converging walls at the front end, the sides of the car body extending beyond the rear portions of said walls to form pockets, and upwardly projecting chutes opening from said pockets and in alignment with the disintegrating wheels.

10. A snow plow including a car body having converging plow walls at its forward end, the sides of the car body extending beyond the rear portions of said walls to form pockets, disintegrating wheels mounted on the opposed faces of the wall, mechanism carried on the car body for independently rotating said wheels, a bottom to each of

said pockets extending rearward and upward around a portion of the circumference of the adjacent disintegrating wheel, and opposed chutes opening into the sides of the car body just rearward of the disintegrating wheels, said chutes being provided with rotatable hoods.

11. In a snow plow, the combination with a car body having a floor, converging plow walls at the forward end of the body and carried upon said floor, disintegrating wheels rotatably mounted on said plow walls, pockets overlapping the rearmost portions of said wheels, and chutes connected to said pockets and upwardly extending, of a converging plow carried beneath said floor and adapted to extend between the rails of a track, and opposed inclined blades also projecting downward from the car floor and adapted to extend outward and rearward from said rails.

12. In a snow plow, a car body having a series of transversely extending beams and longitudinally extending braces, of a floor, side walls extending down over said floor and supported by the transversely extending beams, converging plow walls carried upon said floor at the forward end thereof, the forward ends of the sides of the car body extending beyond the rear ends of said plow walls to form pockets, independently rotatable disintegrating wheels mounted upon said plow walls and having fan blades, upwardly extending chutes carried by the sides of the car body and communicating at their lower ends with said pockets, independent engines carried within the car and connected to the disintegrating wheels, and plows carried beneath the floor of the car and adapted to clear the rails of the track.

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

WILLIAM H. FERGUSON. [L. s.]

Witnesses:

ANDREW DOHERTY,
JNO. S. HODGIN.